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CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

REF: OCCL: KS

CDUA: OA-3952

To: Mary Alice Evans, Acting Director
Office of Planning and Sustainable Development
Environmental Review Program

From: Dawn N.S. Chang, Chairperson
Board of Land and Natural Resources

MC

SUBJECT: Draft Environmental Assessment (DEA) for Conservation District Use Application (CDUA) OA-3952 for the Laie Water Company (LWC) Production Well project
Located at Por. Kahuku Forest Reserve
Laie, Koolauloa, Oahu
Tax Map Key (TMK): (1) 5-5-007:001 (por.)

The Department of Land and Natural Resources has reviewed the subject Draft EA for Conservation District Use Application (CDUA) OA-3952 and anticipates a Finding of No Significant Impact (FONSI) determination. Please publish notice of availability for this project in the May 23, 2024, issue of The Environmental Notice.

If you have any questions, please contact Kariann Stark of our Office of Conservation and Coastal Lands staff at (808) 587-0380 or kariann.stark@hawaii.gov.

From: webmaster@hawaii.gov
To: DBEDT OPSD Environmental Review Program
Subject: New online submission for The Environmental Notice
Date: Wednesday, May 15, 2024 10:33:38 AM

Action Name

Lāʻie Water Company Production Well Project

Type of Document/Determination

Draft environmental assessment and anticipated finding of no significant impact (DEA-AFNSI)

HRS §343-5(a) Trigger(s)

- (2) Propose any use within any land classified as a conservation district

Judicial district

Koʻolauloa, Oʻahu

Tax Map Key(s) (TMK(s))

(1) 5-5-007:001 (portion)

Action type

Applicant

Other required permits and approvals

HRS § 6-E Historic Preservation Review, Water Use Permit (transfer), Well Construction Permit, Pump Installation Permit, and Grading Permit

Discretionary consent required

Conservation District Use Permit

Approving agency

DLNR-OCCL

Agency contact name

Kariann Stark

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Map It

Applicant

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Applicant contact name

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Map It

Is there a consultant for this action?

Yes

Consultant

Planning Solutions, Inc.

Consultant contact name

Makena White

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makena@psi-hi.com

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Map It

Action summary

The Laie Water Company (LWC) is proposing to construct two new production wells near its existing 2.0 MG storage tank located on a roughly 1.1-acre portion of TMK No. 5-5-007:001 in Lāʻie, Oʻahu, Hawaiʻi. The new wells would be built to meet current standards and have a depth similar to others in the region. The wells would be in the Koʻolauloa Aquifer System, which has a sustainable yield of 35 million gallons a day (MGD). LWC's Water Use Permit allocation would remain unchanged, at 1.375 MGD; the project would not result in more groundwater being withdrawn from the aquifer. The project would ensure LWC's ability to reliably provide safe, high-quality potable water to its customers.

Reasons supporting determination

The Anticipated Finding of No Significant Impact is based on the analysis of significance criteria provided in Chapter 5 of the DEA/AFONSI.

Attached documents (signed agency letter & EA/EIS)

- DEA_LaieWaterCoWells1.pdf
- Acceptance_CDUA_OA-3952_Laie-Water-Company_Production-Wells-part-1-signed1.pdf

Action location map

- Laie-Water-Company-Proposed-Well.zip

Authorized individual

Kariann Stark

Authorization

- The above named authorized individual hereby certifies that he/she has the authority to make this submission.

DRAFT ENVIRONMENTAL ASSESSMENT & ANTICIPATED FINDING OF NO SIGNIFICANT IMPACT, LĀʻIE WATER COMPANY PRODUCTION WELL PROJECT

PREPARED FOR:
Lāʻie Water Company

PREPARED BY:
PLANNING SOLUTIONS

APRIL 2024

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LIST OF ACRONYMS

12-MAV	12-month Moving Average
AFONSI	Anticipated Finding of No Significant Impact
AMP	Archaeological Monitoring Plan
AWUDP	Agricultural Water Use and Development Plan
BLNR	Board of Land and Natural Resources
BMP	Best Management Practice
BWS	Board of Water Supply
BYUH	Brigham Young University-Hawaiʻi
CCH	City and County of Honolulu
CDP	Census Designated Place
CDUA	Conservation District Use Application
CDUP	Conservation District Use Permit
CJC	Church of Jesus Christ of Latter-Day Saints
CSH	Cultural Surveys Hawaiʻi
CWRM	Commission of Water Resource Management
CZM	Coastal Zone Management

DBEDT	Department of Business, Economic Development and Tourism
DEA	Draft Environmental Assessment
DLNR	Department of Land and Natural Resources
DPP	Department of Planning and Permitting
EA	Environmental Assessment
EIS	Environmental Impact Statement
ER	Engineering Report
ERP	Environmental Review Program
ESA	Endangered Species Act
FEA	Final Environmental Assessment
FEMA	Federal Emergency Management Agency
FONSI	Finding of No Significant Impact
GPM	Gallons Per Minute
HAR	Hawaiʻi Administrative Rules
HCC	Honolulu City Council
HDOH	State of Hawaiʻi, Department of Health
HRS	Hawaiʻi Revised Statutes
HSLR	Hawaiʻi Sea Level Rise Vulnerability and Adaptation Report
HWP	Hawaiʻi Water Plan
IBC	International Building Code
IPCC	Intergovernmental Panel on Climate Change
IWS	Independent Wastewater System
KLSCP	Koʻolau Loa Sustainable Communities Plan
LCA	Land Commission Awards
LUO	Land Use Ordinance
LWC	Lāʻie Water Company
MAV	Moving Average
MBTA	Migratory Bird Treaty Act
MG	Million Gallons
MGD	Million Gallons per Day
MSL	Mean Sea Level
NFPA	National Fire Prevention Association
NHO	Native Hawaiian Organizations
NOAA	National Oceanographic and Atmospheric Agency
NPDES	National Pollutant Discharge Elimination System
OCCL	Office of Conservation and Coastal Lands
PCC	Polynesian Cultural Center
PGA	Peak Ground Acceleration

PSI	Planning Solutions, Inc.
PUC	Public Utilities Commission
ROH	Revised Ordinances of Honolulu
ROW	Right-of-Way
SCADA	Supervisory Control and Data Acquisition
SDG	Sustainable Development Goals
SDWB	Safe Drinking Water Branch
SHPD	State Historic Preservation Division
SLR	Sea Level Rise
SLR-XA	Seal Level Rise Exposure Area
SWPP	State Water Projects Plan
TCP	Traditional Cultural Property
TEN	The Environmental Notice
TMK	Tax Map Key
TNWRE	Tom Nance Water Resource Engineering
UBC	Uniform Building Code
UFC	Uniform Fire Code
USFWS	U.S. Fish & Wildlife Service
USGS	U.S. Geological Survey
WMA	Water Management Area
WMP	Watershed Management Plan
WQP	Water Quality Plan
WRPP	Water Resources Protect Plan
WUP	Water Use Permit

1 INTRODUCTION

1.1 BACKGROUND

The Lā‘ie Water Company (LWC) is a private water utility company that has been providing potable water to the Lā‘ie community since 1898. LWC and the proposed project are located in Lā‘ie, O‘ahu, Hawai‘i (Figure 1-1 and Figure 1-2). LWC currently: (*i*) serves over 720 customers, (*ii*) has over 80,000 linear feet of pipeline, (*iii*) has 100 fire hydrants, and (*iv*) distributes approximately 1 million gallons per day (MGD) of potable water. LWC is regulated by the State of Hawai‘i’s Public Utility Commission (PUC) and by the State of Hawai‘i, Department of Health (HDOH), Safe Drinking Water Branch (SDWB).

LWC currently obtains potable water from two well batteries. The first battery of wells is the Quarry Wells; the three Quarry Wells are owned by LWC and are located on TMK 5-5-006:001, which is zoned for agriculture and owned by Property Reserve, Inc. The second battery of wells are on the Brigham Young University-Hawai‘i (BYUH) campus, TMK 5-5-006:005. The BYUH Wells are owned by BYUH and used by LWC per an agreement with BYUH. These well batteries are discussed in the following sections.

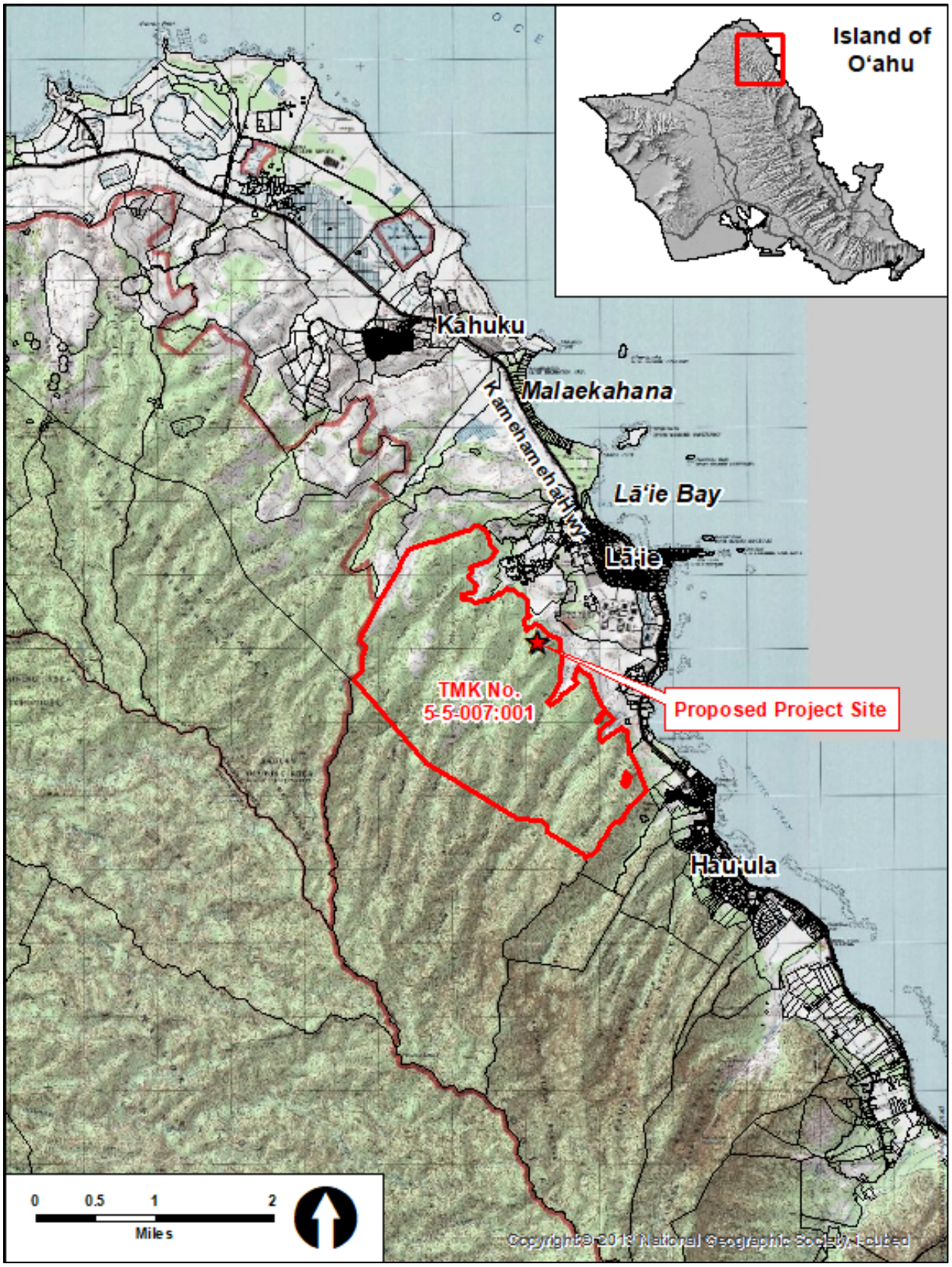
1.1.1 BYUH WELLS

The three BYUH Wells (Campus, Library, and Ceramics wells on Figure 1-3) are notable in that they were constructed in 1890, making those 133 years old, and all of them have relatively small casing diameters of 6 to 8 inches. The ground elevation at their location is roughly 10 feet and artesian groundwater flows from them into a common concrete-lined sump (Figure 1-3 and Table 1-1). The water is chlorinated in the sump and then booster pumped directly into LWC’s distribution system, instead of being pumped into a reservoir or tank before entering the distribution system. Rates of use of the well battery since January 2006 are depicted in Figure 1-4. Other than the loss of water in 2019 due to a main break which took some time to locate and required continuous use of the BYUH booster station, the 12-month moving average (12-MAV) of use of the well battery has typically been about 0.2 MGD or less over the last 10 years.

Issues with the continued use of the BYUH well battery are described below:

- Having wells located in a developed area, such as BYUH Campus is undesirable as the ground above the wells are susceptible to more contaminate sources.
- At an age of 133 years, collapse of one or more of the well casings is certainly possible.
- The maximum possible pumping rate from the sump before cavitation occurs is in the range of 400 to 450 gallons per minute (GPM). As such, its capacity is not sufficient to provide all LWC’s required supply in the event the Quarry Wells are offline.
- BYUH has been renovating older buildings and its campus has been and likely will continue to become more densely developed. The wells, sump, and booster pump station may be affected such that the wells are not continuously available to LWC.
- Construction practice when the wells were built did not include fully grouting the annular space around the solid casing, this makes them susceptible to contamination.

Figure 1-1: Location Map



Source: Planning Solutions, Inc. (2023)

Figure 1-2: LWC Service Area

Source: LWC (2023)

Figure 1-3: Location of Existing LWC Wells and Tanks

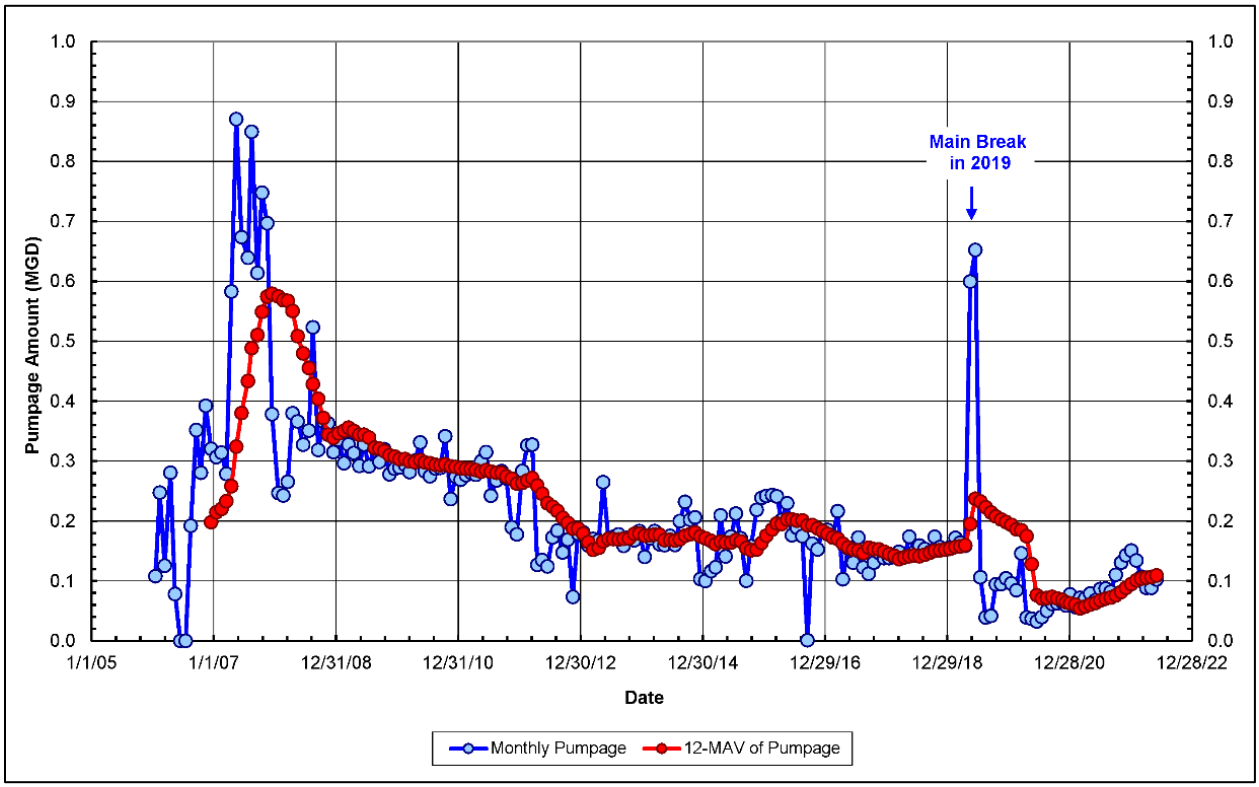
Source: TNWRE (2022)

Table 1-1: Summary of Wells in LWC System

Parameter	*BYUH Campus Well*	*BYUH Ceramic Well*	*BYUH Library Well*	*Quarry Well D*	*Quarry Well E*	*Quarry Well F*
State Well No.	3855-006	3855-007	3855-008	3856-004	3856-005	3856-006
Year Drilled	1890	1890	1890	1931	1931	1931
Ground Elevation (ft. +MSL)	9	11	13	32	36	35
Casing Diameter (in.)	6	6	8	12	12	12
Well Depth (ft.)	288	251	384	360	370	300
Elevation at Bottom (ft. +MSL)	-279	0240	-371	-328	-334	-265
Solid Casing Length (ft.)	168	138	168	131	125	121
Perforated Casing Length (ft.)	0	0	0	0	0	0
Length of Open Hole (ft.)	122	113	216	229	245	179
Static Water Level (ft. +MSL)	16.1	16	16	--	14.5	14.5
Installed Pump Capacity (GPM)	--	--	--	210	1075	1075
Hydraulic Performance (ft. @ GPM)	--	--	--	--	7.39 @ 1197	25.80 @ 1190

Notes: 1. Based on available data from the Commission on Water Resource Management's Groundwater Index; blanks in the table indicate that the information is not available.
2. The three BYUH wells are artesian; there are no pumps installed in the wells. All pumpage is from the common sump.
Source: TNWRE (2022)

Figure 1-4: Pumpage by BYUH Wells from January 2006 to May 2022



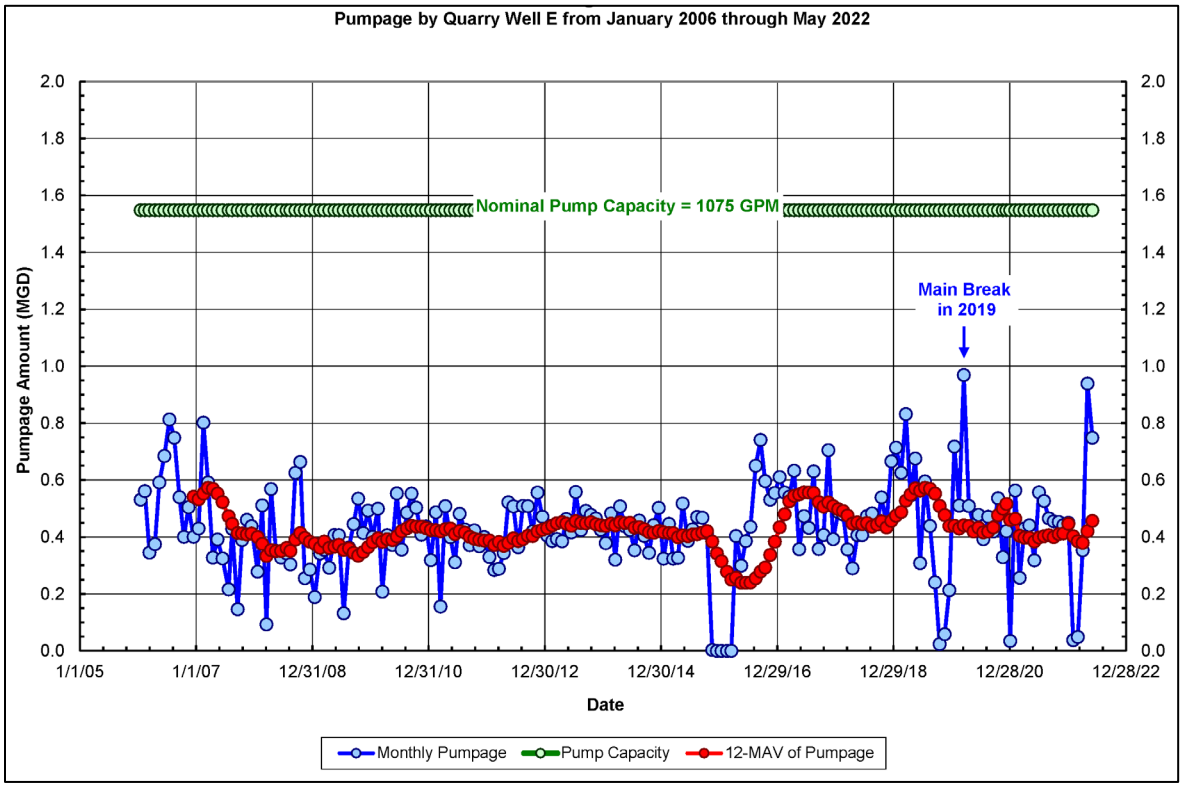
Source: TNWRE (2022)

1.1.2 QUARRY WELLS

Quarry Wells E and F are approximately 100 feet apart (Figure 1-3) and are each outfitted with identical 1,075 GPM line shaft pumps and they pump via a 12-inch dedicated transmission main to the system's two storage tanks with 2.0- and 0.2-million-gallon (MG) storage volumes. Quarry Well D, which is midway between Wells E and F, is not currently in use by LWC and apparently has not been pumped for more than a decade.

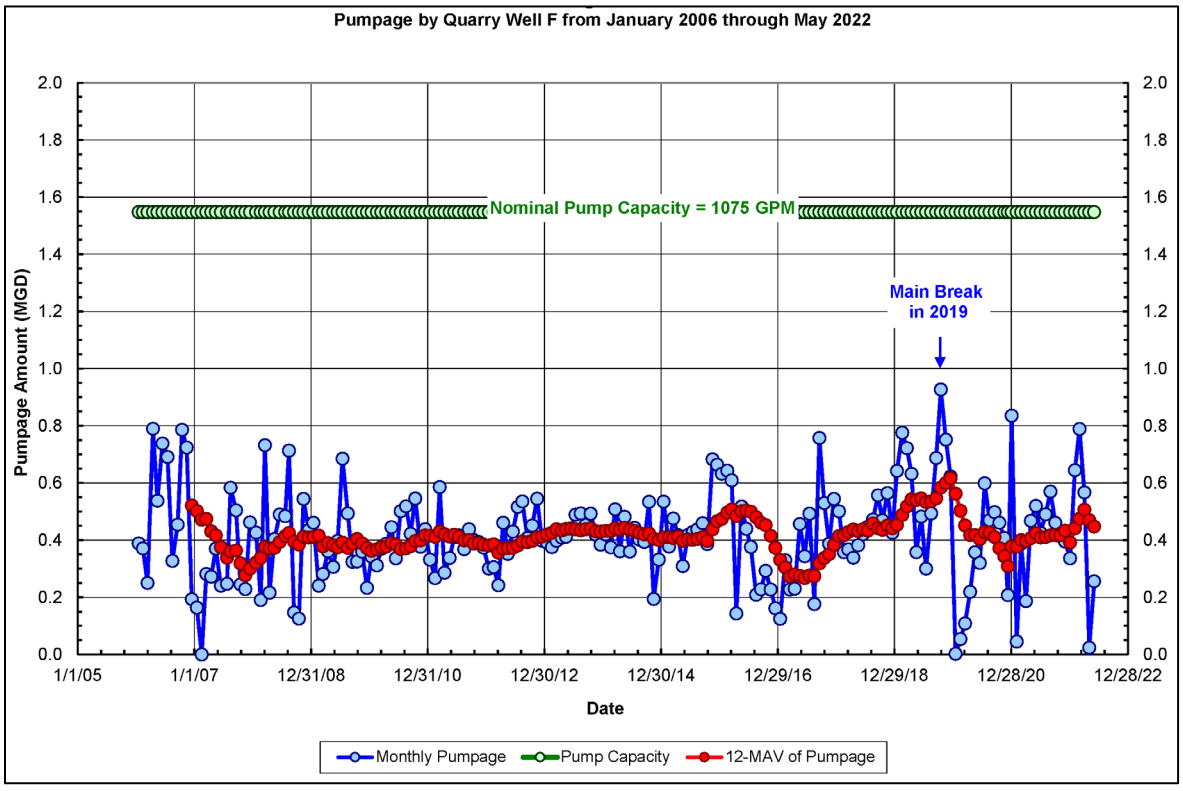
Use of Wells E and F is alternated weekly, and as such, their respective uses are approximately the same, each averaging about 0.4 MGD (compare Figure 1-5 and Figure 1-6). It should be noted that because these two wells are so close to each other (Figure 1-3), their drawdowns are substantial—particularly Well F (Figure 1-7). As such, pumping water from both wells at the same time would adversely affect pumpage rates.

Figure 1-5: Pumpage by Quarry Well E from January 2006 to May 2022



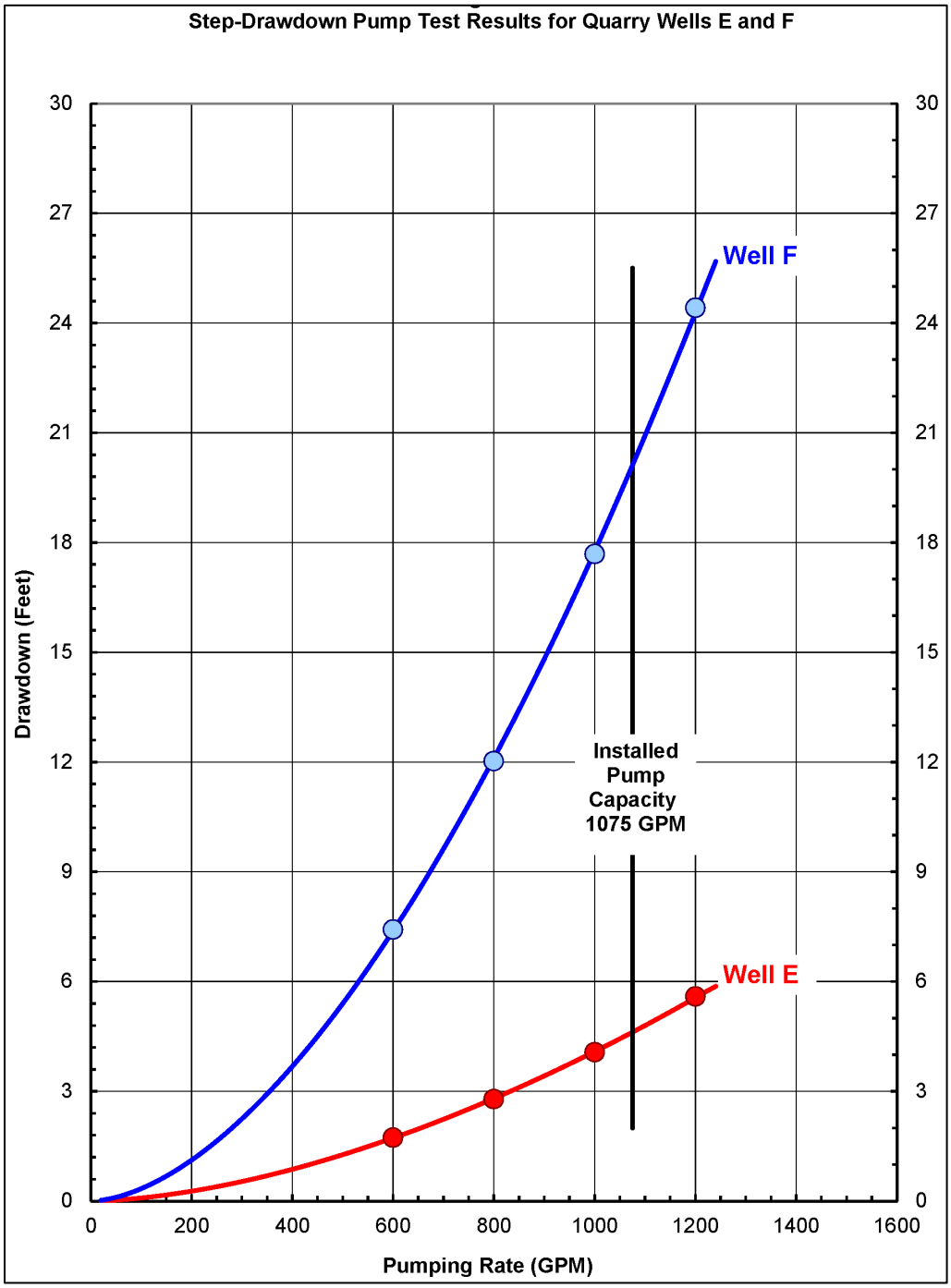
Source: TNWRE (2022)

Figure 1-6: Pumpage by Quarry Well F from January 2006 to May 2022



Source: TNWRE (2022)

Figure 1-7: Step-Drawdown Pump Test Results for Quarry Wells E and F



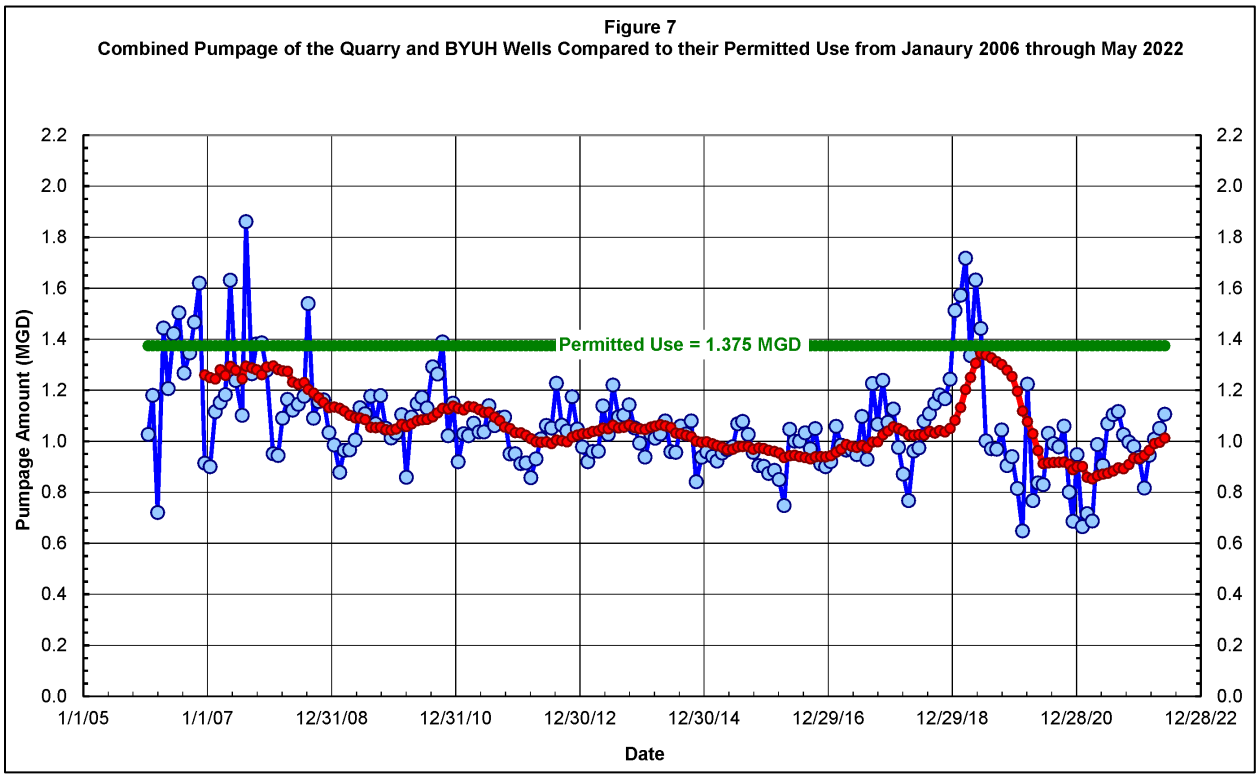
Source: TNWRE (2022)

1.1.3 PERMITTED GROUNDWATER USE VERSUS ACTUAL GROUNDWATER USE

All LWC Wells are in the Ko‘olauloa Aquifer System, a designated Groundwater Management Area which requires wells in use to have a Water Use Permit (WUP). LWC’s use of the BYUH Wells and Quarry Wells are grouped together under a single permit, WUP No. 739 for 1.375 MGD.

The 12-MAV of total well pumpage has stayed within their permitted use (Figure 1-8), even when a main break occurred in 2019 and required additional pumping.

Figure 1-8: Combined Pumpage of the BYUH and Quarry Wells Compared to Permitted Use from January 2006 to May 2022



Source: TNWRE (2022)

1.1.4 STORAGE TANKS

In 1986, LWC obtained an after-the-fact Conservation District Use Permit OA-1878 for private water storage with access road and accessory uses on portion of TMK No. 5-5-007:001. The groundwater pumped from the Quarry Wells is conveyed to LWC's storage tanks, roughly a quarter mile southwest of the wells. The storage tanks, also referred to as reservoirs, are important components of the potable water system. Two storage tanks are located at a roughly one acre fenced site (Figure 1-3) that is a small portion of TMK No. 5-5-007:001, which has a total area of 2,206.84 acres. LWC's 2.0 MG tank has a base elevation of 224 feet +MSL and is 40 feet tall. LWC's 0.3 MG tank has a base elevation of 250 feet +MSL and is 20 feet tall.

1.2 PURPOSE AND NEED

Providing safe, high-quality potable water involves constant planning to ensure continuous, reliable, and affordable water to residences, businesses, and other customers in LWC's service area. The purpose of the Proposed Action is to expand LWC's sources of potable water. Adding a new source of water would add redundancy and ensure LWC's ability to reliably provide safe, high-quality potable water should the BYUH Wells become unavailable.

This purpose is consistent with other long-term goals identified in the latest update of LWC's *Water Resource Plan* (2023).

1.3 PROPOSED ACTION OVERVIEW

LWC is proposing to drill, test, construct, and operate two new production wells on a portion of TMK No. 5-5-007:001 (Figure 1-9), where it has water storage tanks (Section 1.1.4). Also, to bring the needed electrical power to the site, a power line extension would be necessary. The proposed 1.1 acre well site is entirely in the State's Conservation Land Use District (Figure 1-9) near Wailele Gulch at an elevation of approximately 224 feet above sea level (+MSL). The proposed wells would connect to an existing 12-inch pipeline associated with the existing tanks and a roughly 3,000-linear-foot-long three-phase electrical service (of which 900 linear feet is in the Conservation District) would be extended to the site.

1.4 ENVIRONMENTAL ASSESSMENT TRIGGER

Hawaiʻi Revised Statutes (HRS), Chapter 343-5 states that¨

> *§343-5 Applicability and requirements. (a) Except as otherwise provided, an environmental assessment shall be required for actions that:*
>
> *(2) Propose any use within any land classified as a conservation district by the state land use commission under Chapter 205;*

The Proposed Action would result in the use of lands classified as being in the State's Conservation District, General Subzone (Figure 1-9). This Draft Environmental Assessment (DEA) is prepared pursuant to the requirements of HRS, Chapter 343, *Environmental Impact Statement Law* and its implementing regulations contained in Title 11-200.1, Hawaiʻi Administrative Rules (HAR § 11-200.1), *Environmental Impact Statement Rules*.

The publication of this DEA/AFONSI in the Office of Planning and Sustainable Development, Environmental Review Program's (ERP) bi-monthly bulletin, *The Environmental Notice*, initiates a 30-day public review and comment period. After the 30-day public review period is complete, all substantive comments will be considered and addressed in a Final Environmental Assessment (FEA).

Figure 1-9: Proposed Action Overview Map

Source: Planning Solutions, Inc. (2023)

2 PROPOSED ACTION AND ALTERNATIVES

HAR § 11-200.1 contains the State's environmental impact rules and content requirements. HAR § 11-200.1-9 defines the assessment process for "applicant actions" such as the Lāʻie Water Company Production Well Project. Among other things, it requires the applicant to address alternatives to the Proposed Action in an EA.

In accordance with those requirements, LWC has considered various alternatives before choosing the proposed project as the appropriate course of action. This process consisted of: (*i*) defining the project's purpose and need, as described in Section 1.2; (*ii*) identifying possible alternative means of meeting that purpose; and (*iii*) evaluating each potential alternative with respect to the project's purpose and need. This chapter describes the process that was followed and the alternatives that were determined to be appropriate for evaluation in this EA.

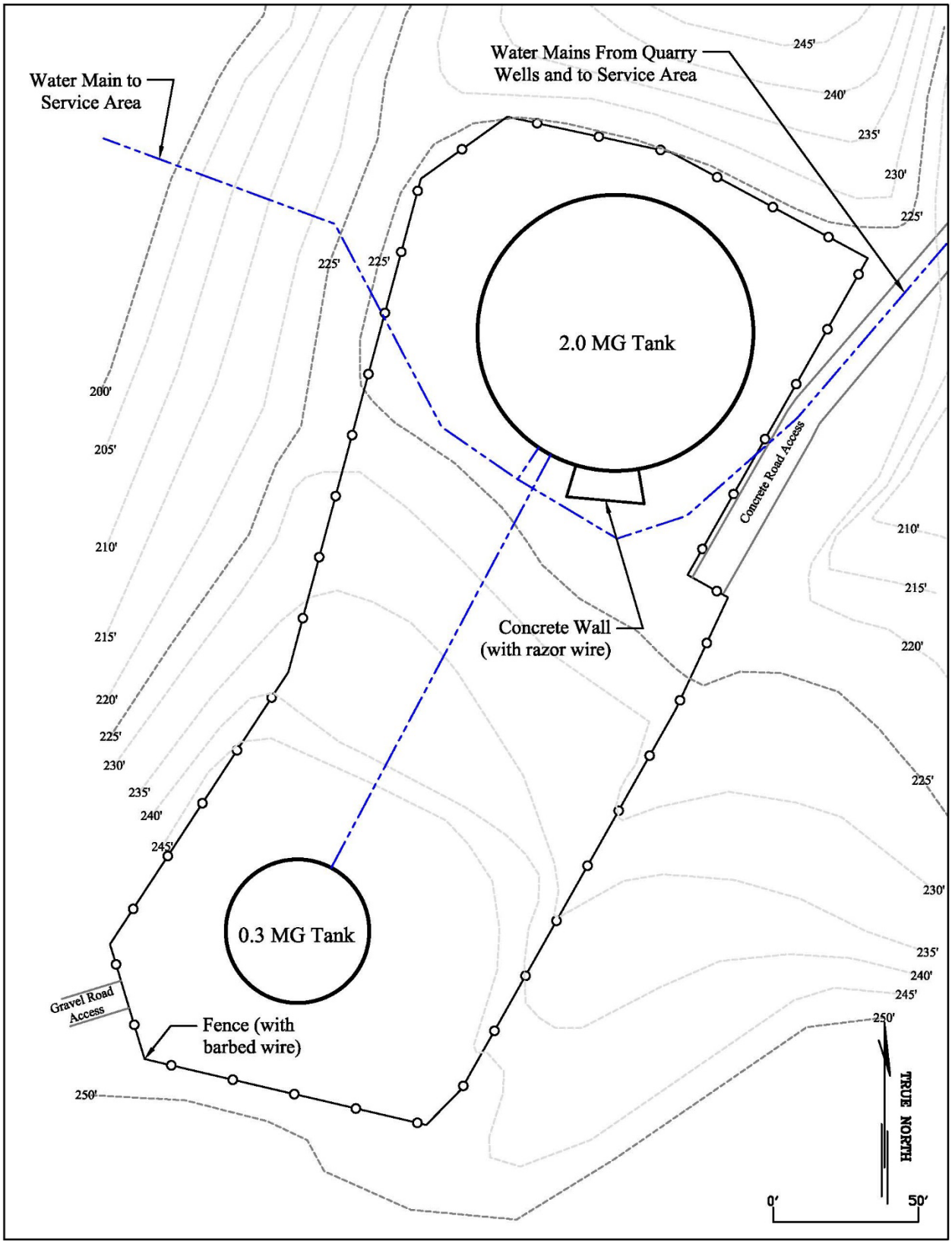
2.1 DESCRIPTION OF THE PROPOSED ACTION

The LWC is proposing to construct two new production wells at its existing 2.0 MG storage tank site located on a portion of TMK No. 5-5-007:001 in Lāʻie, Oʻahu, Hawaiʻi (Figure 1-9). If LWC obtains all the necessary permits and approvals, project activities would include drilling and pump testing two new exploratory wells to determine if the yield is adequate and if the quality of the water is suitable for drinking. If, as anticipated, the two exploratory wells are found to be viable sources of potable water, LWC would pursue the approvals necessary to convert the exploratory wells into a production facility, including preparation of an Engineering Report (ER) as described in Section 6.1.4. It would also extend a 3-phase, 12.47 kV power line to the well site. Then the wells would be completed, pumps installed, and other infrastructure built.

Once the new production wells and new pumping station become operational, LWC would transfer its WUP allocation from the BYUH wells and discontinue its use of the BYUH wells. The WUP allocation would remain unchanged, at 1.375 MGD, but be transferred from the existing BYUH and Quarry Wells to the Quarry Wells and the proposed new wells. The future of the BYUH wells would be determined by the well's owner. After the termination of LWC's use, another entity could not remove groundwater from the BYUH wells until they had obtained a WUP.

Figure 1-9 depicts a project overview. Figure 2-1 is a closeup of the well site as it exists. Figure 2-2 contains photographs depicting existing conditions in the vicinity of the proposed project. The "well site" consists of the existing and future fenced area shown in Figure 2-3, which is a roughly 1.1-acre area. The "project site" consists of the well site plus a roughly 3,000-linear-foot-long, 3-phase electric service corridor from the well site to a location near the existing Laie Wastewater Treatment Plant. Further details concerning site preparation, well drilling, testing, and pump installation are provided in the sections below.

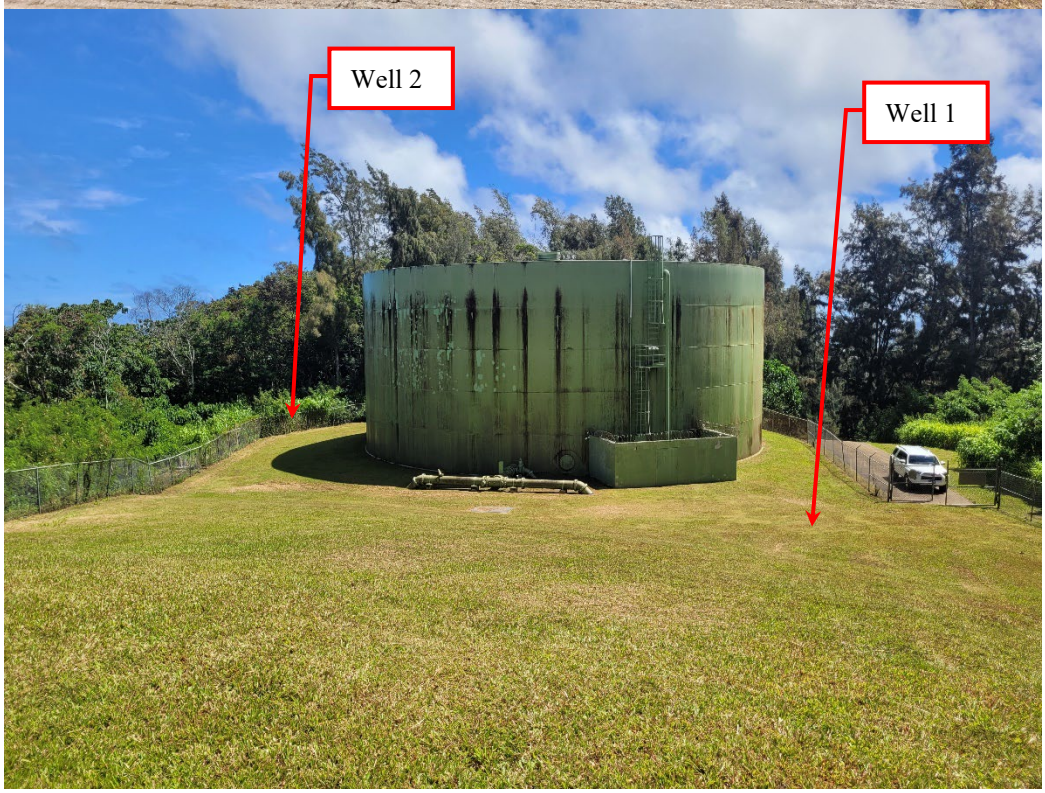
Figure 2-1: Existing Well Site Plan



Source: Planning Solutions, Inc.

Figure 2-2: Photographs of Existing Conditions on the Project Site

a. Gated entrance to existing well site and proposed wells site. Existing 0.3 MG water storage tank in background.



b. Existing 2.0 MG water storage tank. Approximate location of proposed wells indicated.

c. Existing 2.0 MG water storate tank on left and 0.3 MG backup water storage tank in background. Approximate location of proposed Well 1 indicated (Well 2 would be behind camera).

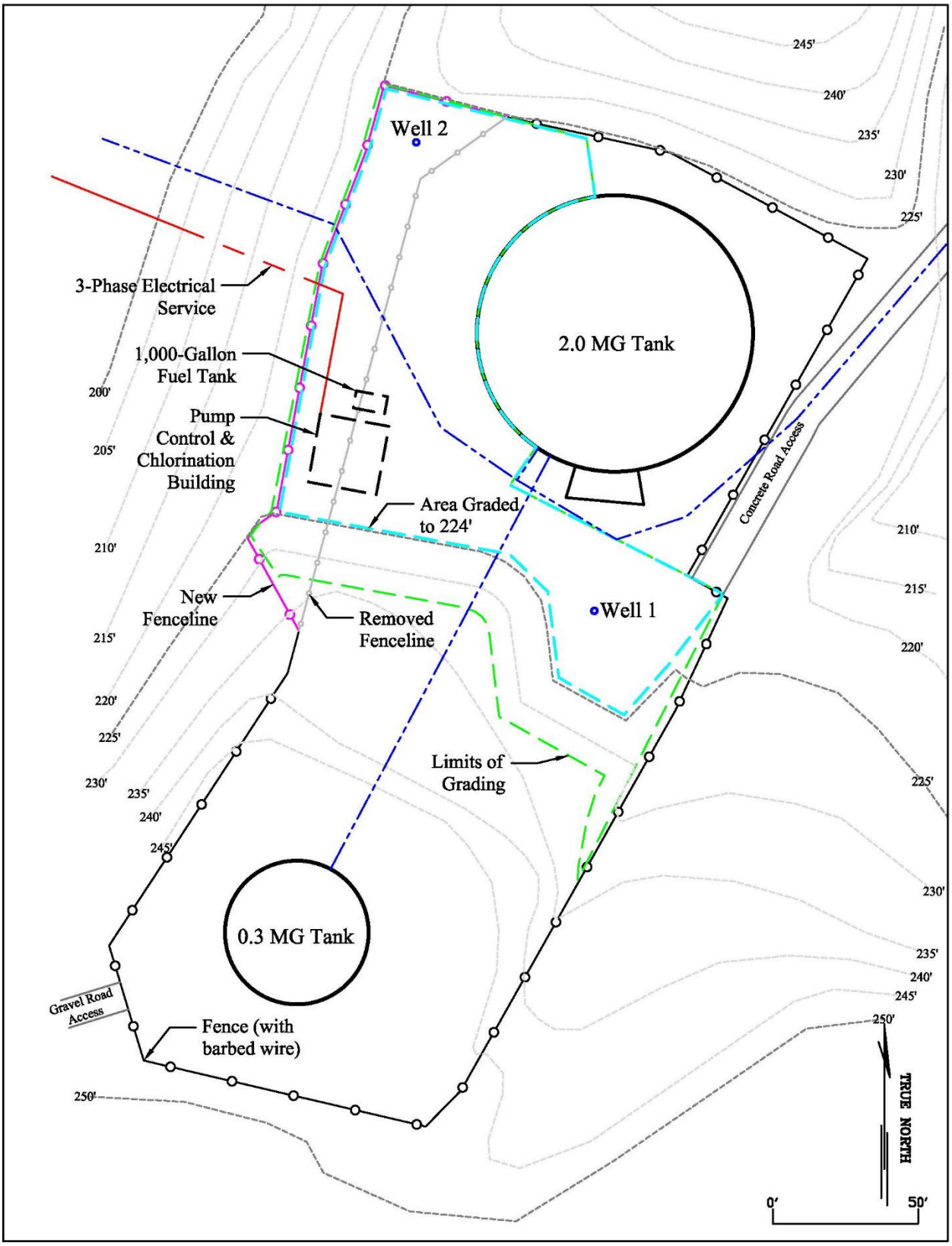
d. Existing 2.0 MG water storate tank on right. Approximate location of proposed Well 2 indicated.

e. Alignment of proposed power line along cane haul road.

f. View of existing Hawaiian Electric power lines and poles in vicinity of proposed tap.

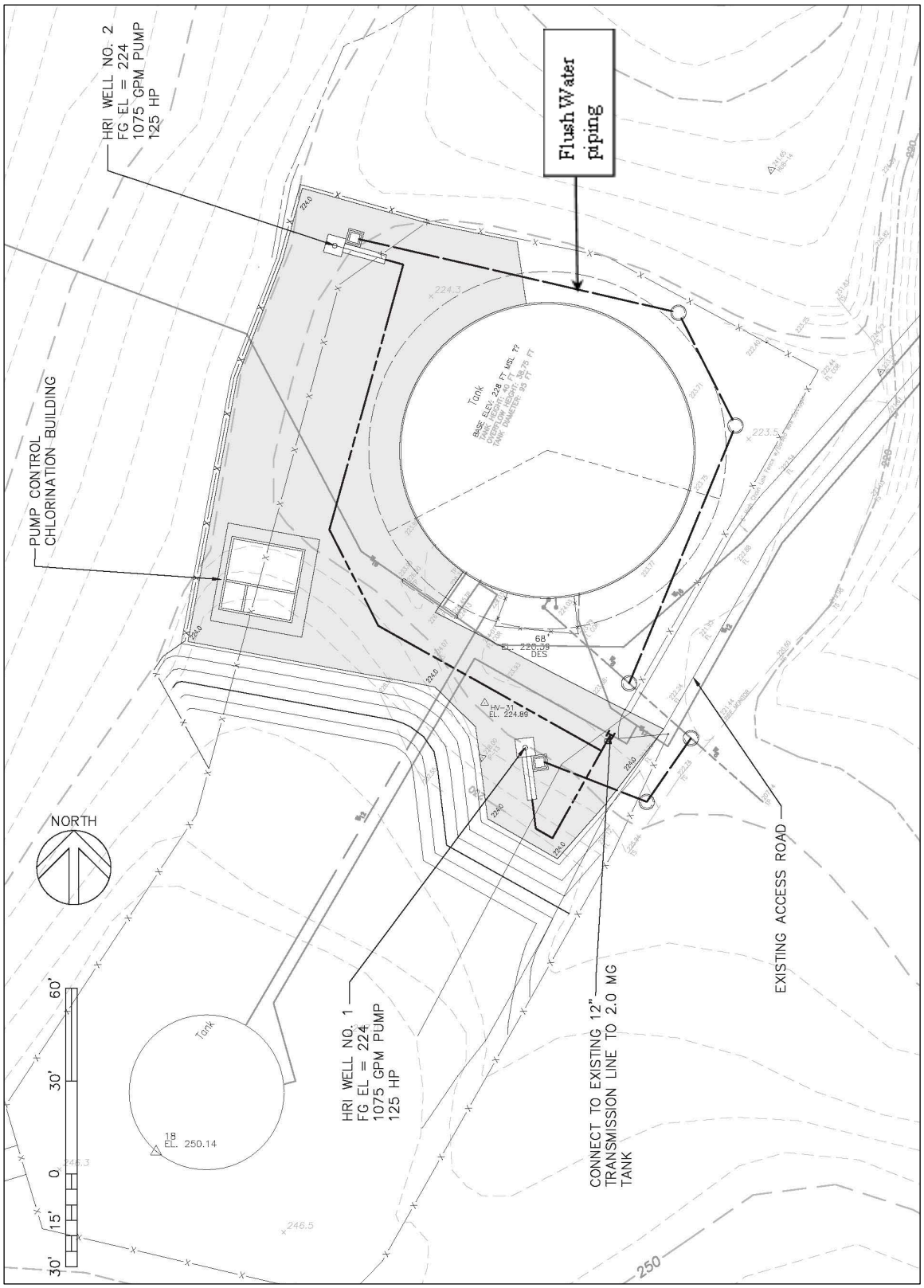
Source: All Photos by Planning Solutions, Inc. on June 9, 2023.

Figure 2-3: Conceptual Well Site Development Plan



Source: Planning Solutions, Inc.

Figure 2-4: Conceptual Engineer Well Site Plan



Source: TNWRE (2022)

2.1.1 SITE PREPARATION

Because the well site is an existing LWC facility used for water storage, relatively limited site preparation is required. The parcel (TMK No. 5-5-007:001), of which the site is a small portion of, is owned by Property Reserve, Inc., and managed by Hawai‘i Reserves, Inc., the parent company of LWC. Consequently, no additional right-of-entry will need to be obtained prior to implementation of the Proposed Action. The site that would be prepared for drilling would wrap around the existing 2.0 MG tank as shown in Figure 2-3 and Figure 2-4; it is roughly 150 feet long in both the north-south and east-west directions and, due to its odd shape, is roughly 16,900 square feet or 0.4 acre. The fence on the north side of the tank would be pushed out roughly 25 feet so that the fenced area would increase from roughly 1 acre to roughly 1.1 acres. The new section of fence, which would be roughly 245 linear feet long, would be consistent with the existing fence; it would be a six-foot-tall chain-link fence with three strands of barbed wire (Figure 2-2). The additional 4,170 square feet of fenced area would need to be cleared of the low vegetation visible in Figure 2-2, photographs b., c., and d. In total, site preparation will require excavation of roughly 1,190 cubic yards of material and result in a a roughly 0.3 acre area graded to an elevation of 224 feet for well drilling and outfitting.

Some vegetation management will occur along the alignment of the required 3-phase power line extension (Figure 1-9). However, this will not occur until the exploratory wells have been tested and shown to be productive.

2.1.2 EXPLORATORY WELL DRILLING AND TESTING

The two exploratory wells will be drilled and tested in sequence; first Well No. 1 will be drilled and tested and, if the test is affirmative, Well No. 2 will be drilled and tested. The two wells would be roughly 175 feet apart. The purpose of the tests is to confirm that the wells can provide the needed quantity and quality of potable water. The process will go through the following general sequence for each well:

- A pilot borehole will be drilled. It is anticipated that the boreholes will be drilled to a depth of roughly 385 feet below ground surface; however, the depth will depend on field observations by a professional hydrogeologist during drilling.
- A video log will monitor the borehole and a conductivity profile through the water column would be prepared.
- An open hole pump test will be run.

All tests would be powered using portable generators; no on-site electrical feed is required during this exploratory phase of the project.

In the unlikely event that observations and/or tests indicate it would be inappropriate to complete the boreholes as production wells, the boreholes would be abandoned. Abandonment involves filling the boreholes with grout to protect groundwater; abandonment would be performed in compliance with applicable state guidelines and permit conditions.

2.1.3 PRODUCTION WELL AND INFRASTRUCTURE

Assuming exploratory well testing confirms the adequacy of the water source in terms of quality and quantity, additional improvements to the site will be required to develop the wells into production wells linked to LWC's existing Lā‘ie water system. The additional improvements would consist of:

- Production Well Development. The borehole will be reamed to a larger diameter and solid and perforated casing will be installed. It is anticipated that the wells will be constructed like other wells in the region; however, the casing characteristics will depend on observations by a professional hydrogeologist during drilling and testing. The wells will be constructed per permit conditions (e.g., a Well Construction Permit issued by CWRM) and applicable standards. Anticipated well construction involves a 21-inch diameter borehole, 215 feet of 14-inch-diameter solid steel casing (ASTM A606), 170 feet of louvered steel casing (ASTM A606), and placing roughly 210 vertical feet of grout to seal the annular space adjacent to the solid steel casing.

- Pumps and Piping. A 125 horsepower, 1,075 GPM submersible pump will be installed in each well along with ancillary aboveground and underground infrastructure related to the pumps (e.g., piping and three-phase electrical power). The water piping will include pipes to connect the wells to the on-site storage tanks and well flush pipes that connect to the on-site water storage tank overflow discharge piping. Figure 2-4 illustrates the location of the well pad, concrete pedestals, and piping. Figure 2-5 provides a cross section view of the conceptual pump installation. Once outfitted, the wells would appear similar to one of LWC's Quarry Wells, which is shown in Figure 2-6.

- Testing. Final, permit-required, constant-rate pump tests will be run to establish the wells' hydraulic capacity and long-term yield. The pump tests will be conducted over five consecutive days.

- Pump Control and Chlorination Building. The building will (*i*) be a single-story, concrete block building with a flat concrete roof; (*ii*) be roughly 570 square feet and have a maximum height of roughly 11 feet; (*iii*) be naturally ventilated, except for the electrical room which will be air conditioned to protect the equipment; and (*iv*) have exterior security lighting. The building will house the motor control center, electrical control panel, a Supervisory Control and Data Acquisition (SCADA) remote system, alarm system, disinfection, and backup generator. Each room of the control building is designed to have a minimum 1-hour fire rating. Figure 2-7 provides plan and section views of the building, and Figure 2-8 shows an example of a similar building, except that the example has a pitched roof.

- Fuel Tank. A roughly 1,000-gallon aboveground storage tank will also be installed near the building to provide fuel for the generator. An example of such an installation is provided in Figure 2-8. This volume of fuel allows for continuous operation should an event cut power to the remote Lā‘ie area for an extended period.

- Antenna. The sole exterior component of the SCADA system will be a small communications antenna mounted on one of the existing storage tanks. An example of

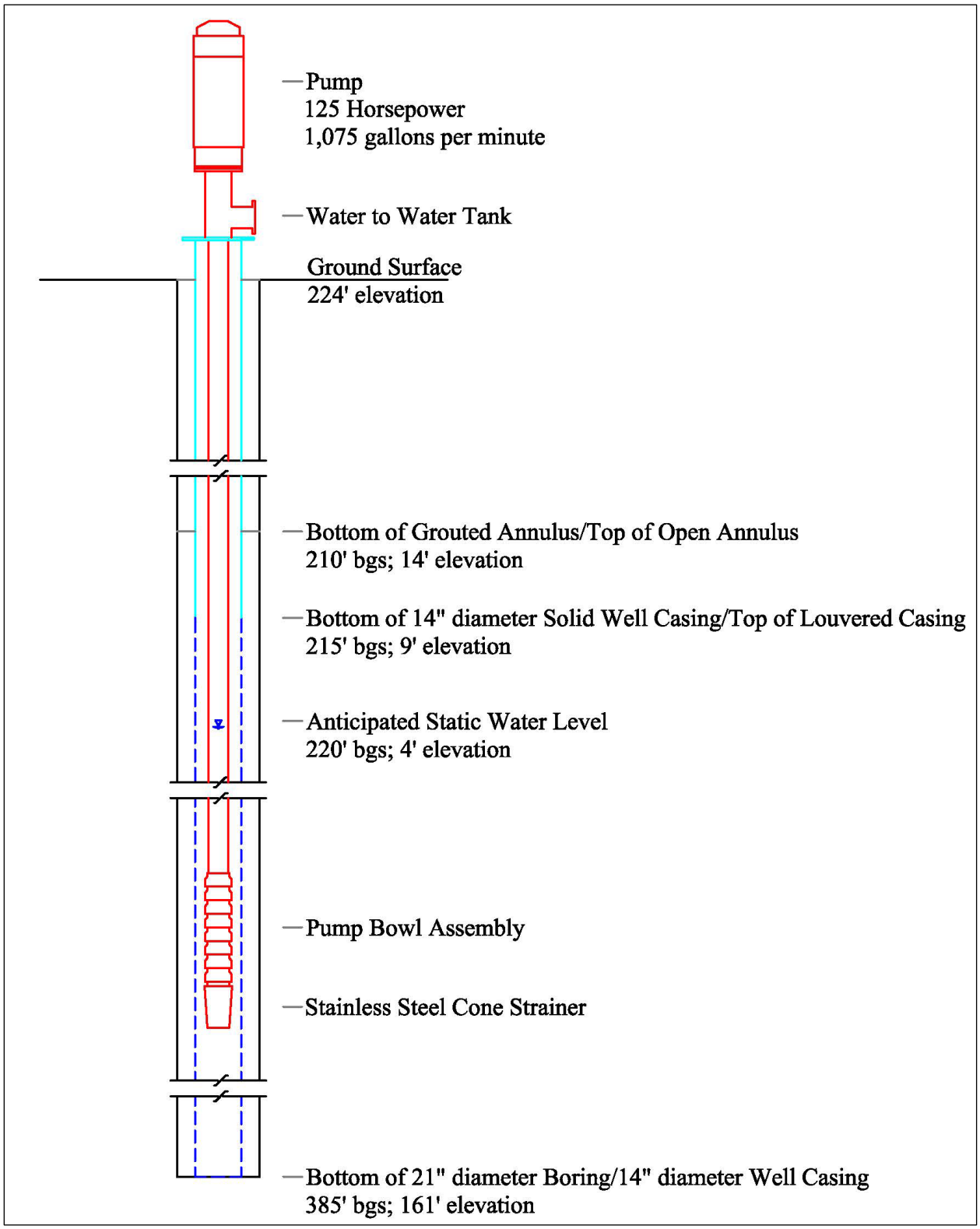
such an installation is provided in Figure 2-8, except that in the figure the antenna is mounted to a building. This SCADA system will allow LWC to continuously monitor and control operation of the proposed facilities remotely.

- Disinfection System. This system, within the Pump Control and Chlorination Building, will utilize liquid sodium hypochlorite to provide a positive chlorine residual as required by regulation. It would mix with pressurized water and then inject the mixture into the source water as it is pumped from the wells to the existing storage tanks. Water for the chlorination system will come directly from the production wells. The chlorination process, equipment, and materials will all be stored within a dedicated chlorination room. The chlorination system is designed to comply with requirements established by: (*i*) the CCH, (*ii*) the IBC, and (*iii*) the Uniform Fire Code (UFC) of the National Fire Prevention Association (NFPA). The chlorination room will have permanent ventilation to meet the minimum 1-hour fire rating.

- 3-Phase Electric Power. Three-phase electrical power is needed to power the pump motors and other infrastructure. All the work to design and construct the power line extension will be conducted by Hawaiian Electric. Although final design work is not complete, the power lines will be three-phase (i.e., three lines) mounted on poles approximately 30 to 50 feet in height, with a vegetation clearance corridor on either side. The work will start at an existing Hawaiian Electric pole near the Laie Wastewater Treatment Plant, extend along an existing cane haul road, and then up a hill for roughly 500 linear feet to the existing wells site (Figure 1-9).[2] The total length of the line is anticipated to be roughly 3,000 linear feet, of which roughly 900 linear feet is in the Conservation District. Typically, a utility corridor of this type involves poles spaces 100 to 200 feet apart and a 20-foot-wide easement in which vegetation is controlled. Most of the line would be along a road where vegetation is already controlled; the roughly 500-linear-foot portion of the line from the road to the well site would require vegetation clearing and management; however, the line would parallel an existing water main and that alignment was previously cleared and disturbed when the water line was installed. Utility metering will conform to Hawaiian Electric standards and design requirements. An example of the 3-phase poles and wiring is shown in the background of Figure 2-8. The allocation of these expenses between Hawaiian Electric and LWC have not yet been established.

[2] This power line alignment is proposed rather than extending a line from the Quarry Wells because LWC experiences power outages at the Quarry Wells and experiencing power outages to both groups of wells at the same time would be problematic.

Figure 2-5: Conceptual Section View of Proposed Well Construction and Pump Installation

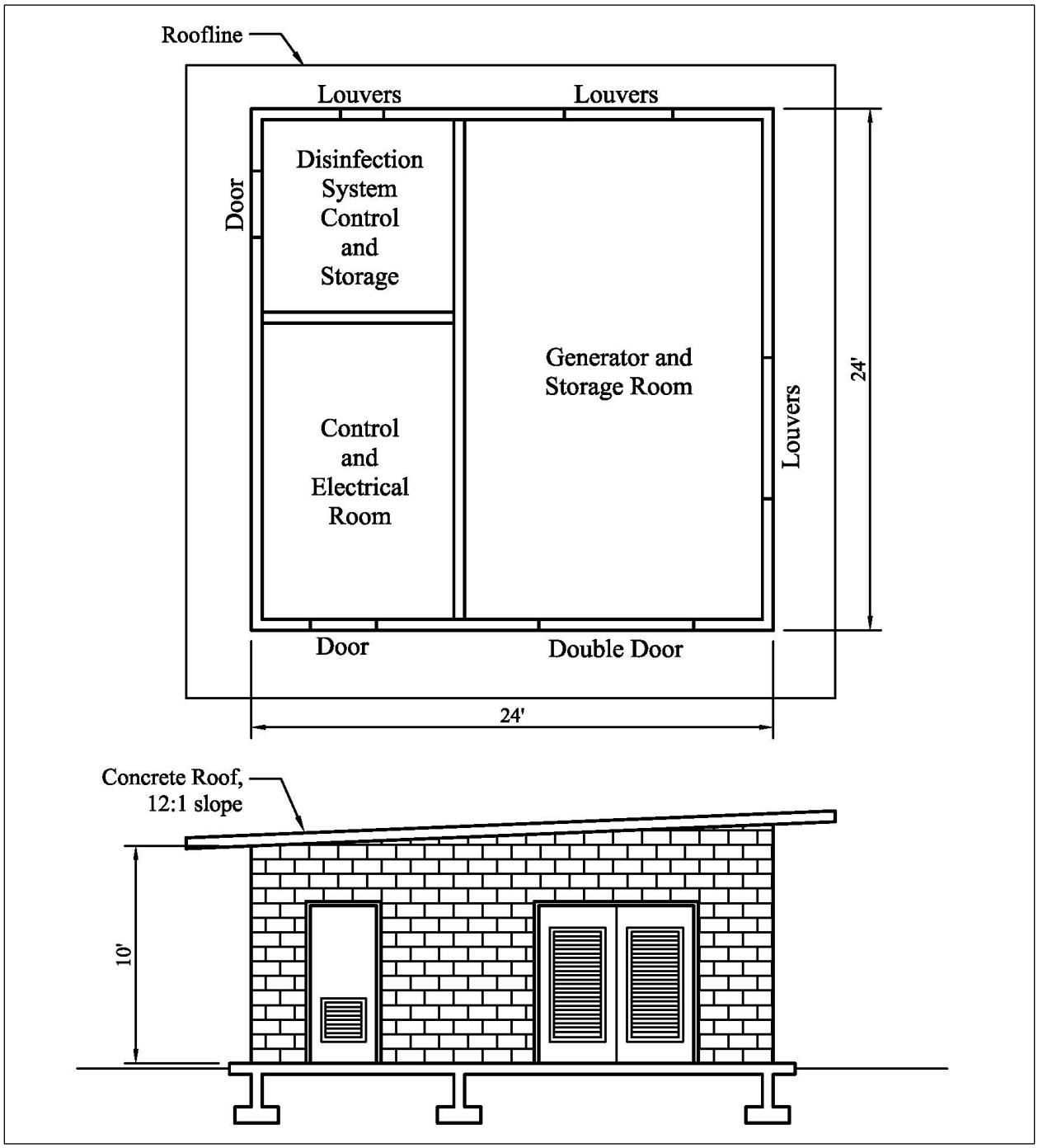


Source: Planning Solutions, Inc.

Figure 2-6: Example of Production Well

Note: This is a photograph of LWC's Quarry Well. Proposed Wells 1 and 2 would appear substantially similar to the Quarry Wells.
Source: PSI, June 9, 2023.

Figure 2-7: Conceptual Plan View of Pump Control and Chlorination Building



Source: PSI

Figure 2-8: Example of Pump Control and Chlorination Building

Note: This is a photograph of LWC's Quarry Wells control building. The proposed Pump Control and Chlorination Building would appear similar but would have a flat roof instead of a shed roof.
Source: PSI, June 9, 2023.

2.1.4 LANDSCAPING

Site preparation will remove the existing landscape over a roughly 0.4-acre portion of the well site. Project construction requires a stabilized ground surface across much of the graded area so that drill rigs and other equipment can easily move and not track soil. Following construction, access to the new wells and associated infrastructure will need to be maintained for monitoring, service, and repair needs. For these reasons, landscaping will consist of a stabilized gravel, concrete, and/or asphalt area within the well site from the end of the concrete driveway to the wells and the control

building as shown in Figure 2-9; this area is roughly 5,700 square feet. The remainder of the disturbed well site will be planted with grass to match the undisturbed portions of the well site.

The disturbed areas outside of the fenced well site will be allowed to naturally regrow. No planting will be performed outside of the fenced well site.

2.1.5 OPERATIONS

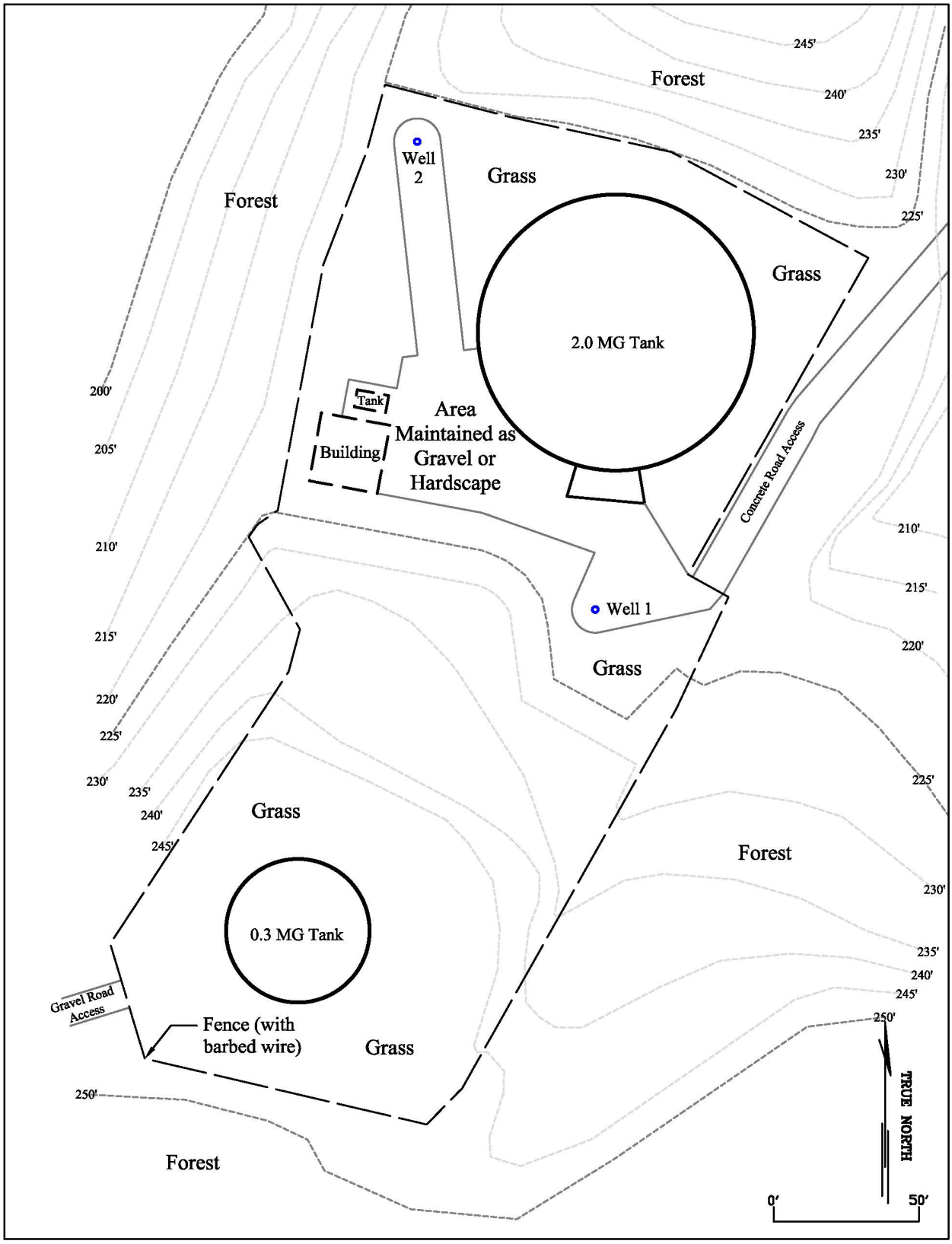
Once the project has been built and is operational, LWC would transfer its WUP allocation from the BYUH wells and discontinue its use of the BYUH wells. The WUP allocation would remain unchanged, at 1.375 MGD, but the BYUH wells would be removed from LWC's battery of wells and the proposed new wells would be added to LWC's battery of wells. The future of the BYUH wells would be determined by the well's owner BYU-Hawai‘i. After the termination of LWC's use, another entity could not use groundwater from the BYUH wells until they had obtained a WUP.

Once in operation, LWC would operate the new wells in concert with the Quarry Wells to meet the water demand of its customers. Total water pumpage and use would be unchanged and comply with the WUP. LWC would alternate pumping between the new wells and the Quarry Wells and alternate between the wells at those locations so that each well is pumped weekly and all systems are used regularly. The pumping will always comply with applicable permit conditions. Each time the wells are pumped, the flush water, which can be turbid, will be directed to the overflow discharge, then the flow will be directed through the chlorination system and into the storage tanks. The infrastructure will be maintained per manufacturer's recommendations and periodically replaced and/or upgraded to ensure efficient and reliable system operation.

The vegetation within the well site would be maintained by regularly cutting the grass. The vegetation just outside of the well site would periodically be maintained; this would consist of tree trimming and weed clearing so that the perimeter fence is not compromised, and trees do not have the potential to damage infrastructure within the well site should they fall.

Hawaiian Electric will maintain the 3-phase electric line.

Figure 2-9: Landscaping Plan



Source: PSI

2.1.6 PROJECT SCHEDULE

LWC currently anticipates that the proposed wells will be in service in 2026. Table 2-1 summarizes the schedule, including this HRS Chapter 343 process and required permits.

Table 2-1: Estimated Project Schedule

Task	*Estimated Duration*	*Estimated Completion*
HRS Chapter 343 EA	11 months	June 2024
Permitting	12 months	April 2025
Construction	12 months	April 2026

2.1.7 PERMITS AND APPROVALS REQUIRED

As noted in Section 1.4, the Proposed Action would result in the use of lands classified as being in the State's Conservation District, General Subzone and will, consequently, require a Conservation District Use Permit (CDUP) pending completion of the HRS, Chapter 343 Environmental Assessment process. In addition to the CDUP, the Proposed Action will also require: (*i*) HRS § 6-E Historic Preservation Review, (*ii*) a Water Use Permit (transfer), (*iii*) a Well Construction and Pump Installation Permit, and (*iv*) a grading permit. In addition, the proposed new wells will need to be approved by the HDOH Director prior to its use. Such approval is based primarily upon the submission of a satisfactory Engineering Report (ER) which addresses the requirements set forth in HAR § 11-20-29.

2.1.8 PROJECT BUDGET

The order-of-magnitude cost for construction of the proposed wells, control building, and other associated facilities, including interconnecting the project to LWC water system and Hawaiian Electric's island-wide electrical grid is $4.9M.

2.2 PROJECT ALTERNATIVES

HAR § 11-200.1 contains the environmental review rules; HAR § 11-200.1-8 deals with agency actions. It requires that, for actions not exempt, the agency must consider the environmental factors and available alternatives and disclose those in an EA or Environmental Impact Statement (EIS). HAR § 11-200.1-18 establishes the process for the preparation and content of an EA. Among the requirements listed, HAR § 11-200.1-18(d)(7) requires the identification and analysis of impacts and alternatives considered.

In accordance with those requirements, LWC has and continues to consider several alternatives. The process consisted of formally defining the purpose and need for the project (Section 1.2) and then identifying other ways in which those objectives might be achieved (i.e., alternatives, including those specifically recommended by HRS 343 and HAR 11-200.1). Possible alternatives considered include the no action alternative (Section 2.3.2), alternative locations, alternative configurations, alternative scales, and alternative timing (i.e., delayed action).

Certain types of alternatives were eliminated from consideration early in the process by LWC because, although their consideration is part of the HRS 343 process, they are not suitable to the Proposed Action. Those alternatives eliminated from consideration early fell into the alternative scale and alternative timing categories. They were eliminated because: (*i*) the scale is dictated by

LWC service area and number of customers; and (*ii*) delaying the action is not in the interest of LWC or its customers. The remainder of this chapter describes the alternatives considered during preparation of this EA, including those alternatives that were initially considered but ultimately rejected because they would not meet the project's purpose and need as described in Section 1.2. It also identifies the criteria that were used to decide whether to include them in the impact analysis presented in Chapter 3.

2.3 ALTERNATIVES ADDRESSED IN DETAIL

2.3.1 PROPOSED ACTION: LĀʻIE WATER COMPANY PRODUCTION WELL PROJECT

This alternative consists of the Proposed Action as described in Section 2.1. LWC has concluded that constructing and operating these facilities at the proposed site on its present timeline would best address the project's purpose and need outlined in Section 1.2 because:

- The two new wells and pumps will provide adequate capacity to meet all design criteria and provide the needed reliability and redundancy for the water system.
- The water extracted from the new wells and placed in the existing storage tank would meet safe drinking water disinfection contact time requirements.
- The new wells would provide needed operational safety to the water system. With the long lead time for replacement pumps and specialty components, the proposed wells and the existing Quarry Wells will provide adequate backup for each other.

LWC believes that this course of action is the most efficient available means to continue to provide adequate, reliable, and affordable drinking water to customers in LWC service area (Figure 1-2). Thus, the Proposed Action represents the preferred course of action.

2.3.2 NO ACTION ALTERNATIVE

The No Action Alternative consists of not implementing the Proposed Action described in Section 2.1 or any other action to address the purpose and need. The No Action Alternative would not develop a new potable water source for LWC. Thus, LWC would not create the redundancy needed as the aging BYUH wells may become unavailable. Further, the No Action Alternative would not support LWC's *Water System Master Plan* (2023) and regulatory policies related to integrated planning, public health and safety, and water quality. For these reasons, LWC has concluded that the No Action Alternative is not a viable alternative. It is included in this EA to fulfill the content recommendations of HRS, Chapter 343 and HAR § 11-200.1. It also provides a baseline against which to measure the potential environmental and social impacts of the Proposed Action.

2.4 ALTERNATIVES ELIMINATED FROM DETAILED ANALYSIS

2.4.1 ALTERNATIVE DESIGN CRITERIA

As a private water system, LWC is not required to meet the design standards of the CCH's BWS. Nevertheless, it is instructive to review these standards as they pertain to the pumping capacity of

a system of the size of LWC. There are three criteria, as stated in the *Water System Standards* (2002) adopted by BWS and are as follows:

1. *Provide the maximum day demand with an operating time of 16 hours simultaneously with maximum fire flow required independent of the reservoir. The standby unit may be used to determine the total flow required.*

   This criterion assumes the storage reservoir is out of service. For LWC's system, its maximum day supply would be defined as 1.5 times its average or about 1.5 MGD. In 16 hours, that would translate to 1,562 GPM. The fire flowrate would be 2,000 GPM for a total required well pumping rate of 3,562 GPM. The system's total with the 1,075 GPM pumps in Quarry Wells E and F plus 450 GPM for the BYUH booster pump, is 2,600 GPM, which does not meet this criterion.

2. *Provide the maximum day demand during the duration of fire plus fire demand less ¾ of reservoir storage with the largest well pump out of service.*

   The maximum day demand (1,562 GPM) plus the 2,000 GPM fire flow, both for two hours, amounts to 427,440 gallons. This can be provided by LWC's reservoir storage alone with no assistance from the well pumps.

3. *Provide the maximum day demand with an operating time of 16 hours with the largest well out of service.*

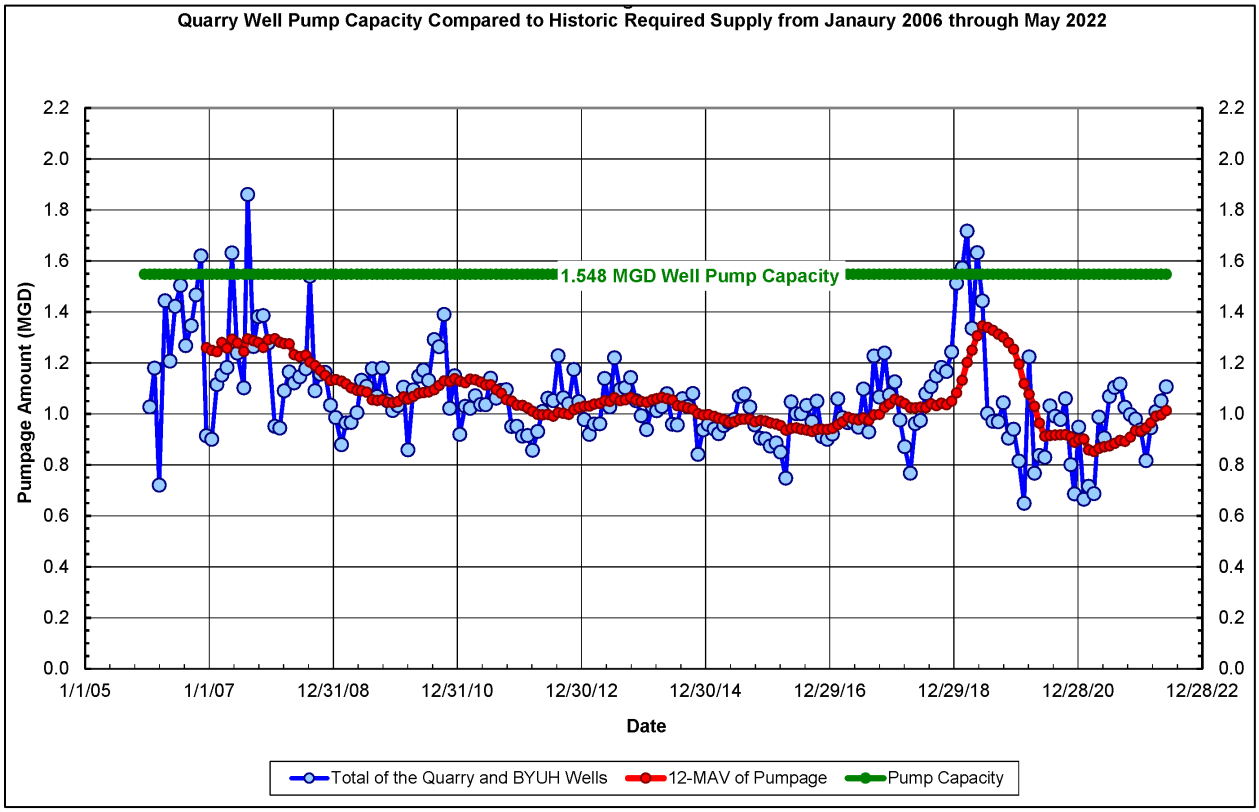
   Providing the maximum day demand in 16 hours translates to a pumping rate of 1,562 GPM. With one of the Quarry Wells out of service, the remaining well pumping capacity is 1,525 GPM (one of the Quarry Wells plus the BYUH booster), slightly less than the design criterion. Without the BYUH wells, LWC would not meet this requirement.

With these three design criteria in mind, four possibilities have been evaluated to address the purpose and need. Each of these is discussed in the following sections.

2.4.2 RELY ON QUARRY WELLS E AND F

With their 1,075 GPM pumps running 24 hours, each well could deliver 1.548 MGD. As shown on Figure 2-10, there were extended periods during which two wells would have to be run concurrently with reduced capacity due to their close proximity to each other. Further, if service requirements increase over the current water use (which is not foreseeable at this time), this issue would occur more frequently. Finally, there would be complete reliance on this one well pumping when the BYUH wells are no longer available to LWC. Also, although there is a diesel generator that can provide power during an outage, as a 25-year-old facility, there are many systems that could take the facility out of service. Further, this would not meet the first and third design criteria discussed above. For these reasons, this alternative is not recommended.

Figure 2-10: Quarry Well Pump Capacity Compared to Historic Required Supply from January 2006 to May 2022

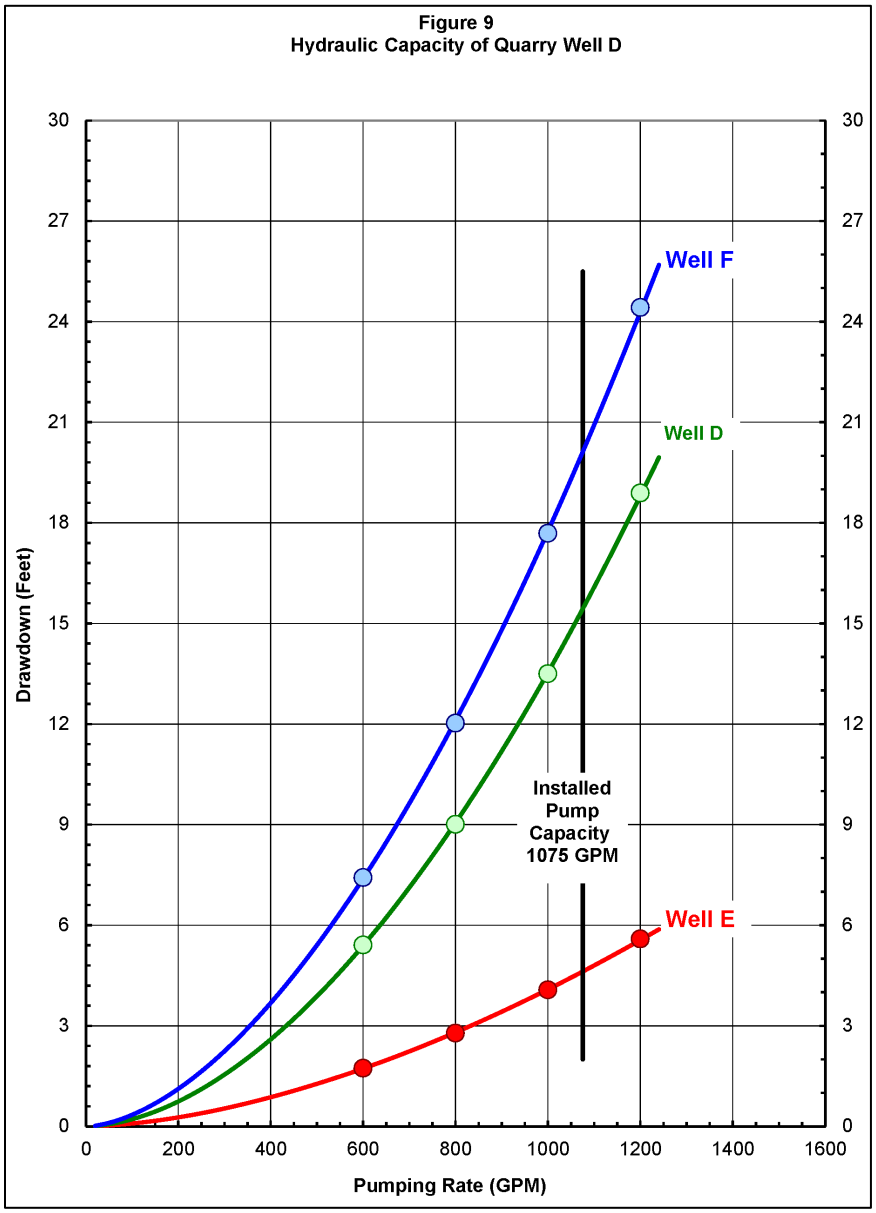


Source: TNWRE (2022)

2.4.3 ADD QUARRY WELL D TO THE SYSTEM

In this scenario, Well D, which is only 50 feet from both Wells E and F, would be outfitted with a pump and utilized as a production well. Its drawdown is substantial (Figure 2-11) so interference with Wells E and F would be affect the pumping rate. It would put complete reliance on the Quarry Wells, which is not a desirable condition. This alternative, although technically feasible at a relatively small cost in comparison to other alternatives, does not provide the needed source water reliability and redundancy that is required for a public water system.

Figure 2-11: Hydraulic Capacity of Quarry Well D



Source: TNWRE (2022)

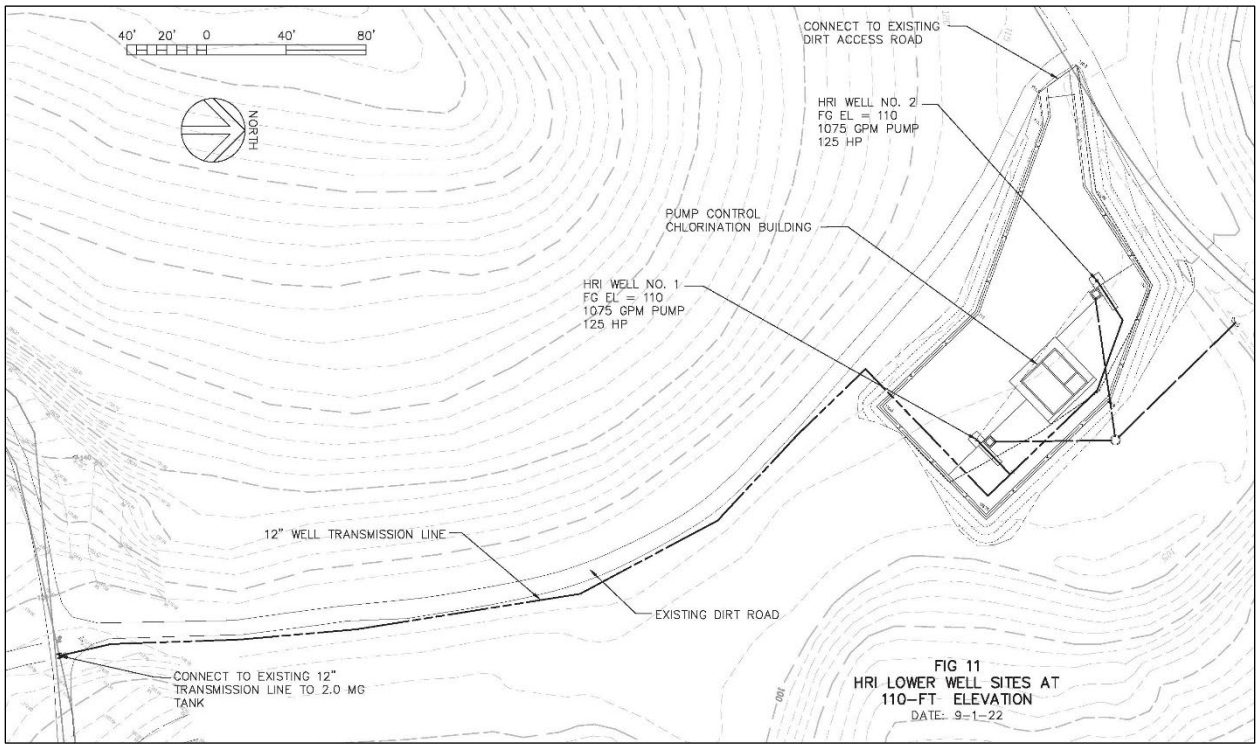
2.4.4 ALTERNATIVE WELL SITES

There are two other locations where new wells could be installed that LWC considered: (*i*) an alternative site at 110-feet in elevation is a previously cleared area, and (*ii*) in an alternative portion of the existing water storage tank site, on the makai side of the existing 2.0 MG storage tank at an elevation of 224 feet. These two sites are identified with blue stars on Figure 2-12, identifiable by their respective elevations. Figure 2-13 provides a closeup of the 110-foot elevation site; Figure 2-14 shows a closeup of the alternative 224-foot site. Like the Proposed Action, two wells could be installed at these two sites. They would be expected to have similar water production characteristics as the Proposed Action.

Figure 2-12: Locations of Existing and Possible Future Wells

Source: TNWRE (2022)

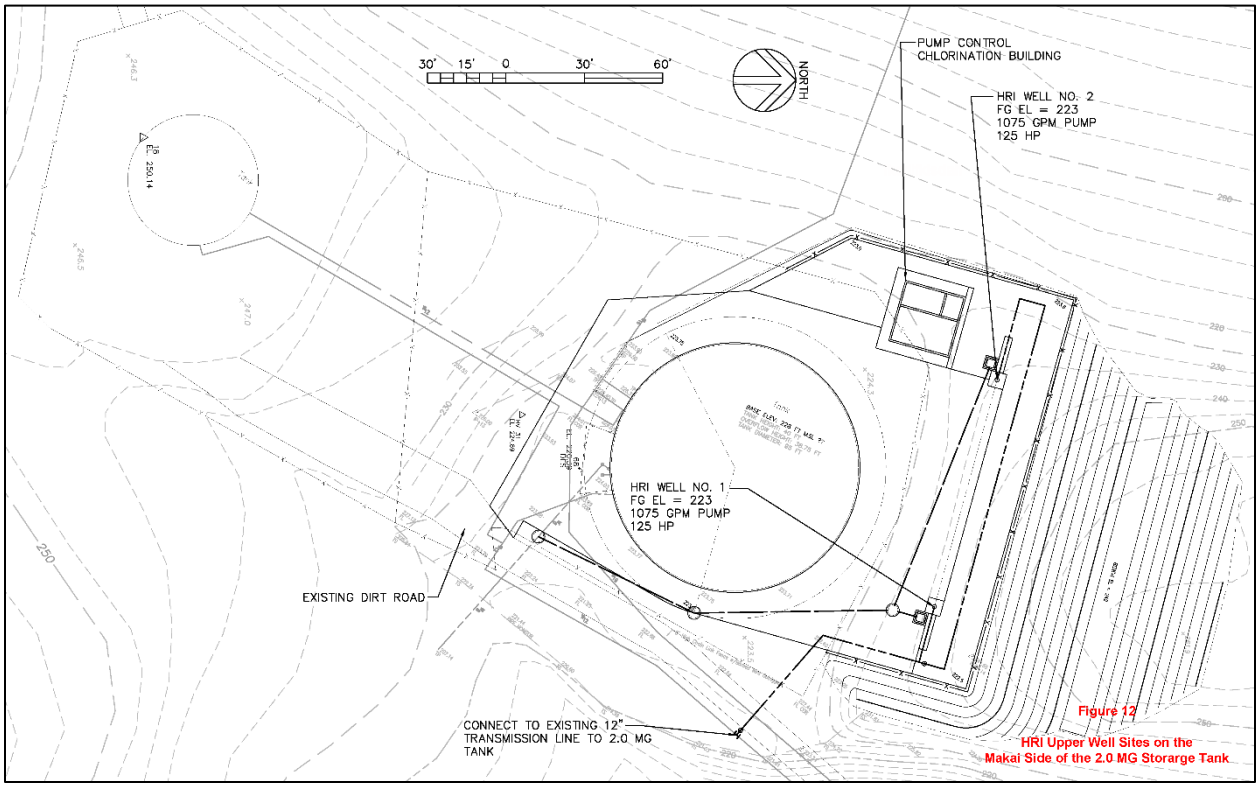
Figure 2-13: Alternative Well Site at 110-foot Elevation



Source: TNWRE (2022)

Both sites were considered and ultimately rejected for not possessing any clear advantages over the Proposed Action. For the 110-foot elevation site, LWC determined that the Proposed Action was preferable because it avoids the need to develop and maintain a separate facility. For the alternative 224-foot elevation site, LWC concluded that massive grading would be required, which would add substantial cost and potentially increase environmental impacts. Consequently, because both alternative locations posed higher construction and/or operations costs without any countervailing environmental advantages vis-à-vis the Proposed Action, LWC determined that they were not viable alternatives and eliminated them from further consideration.

Figure 2-14: Alternative Well Site at 224-foot Elevation on the Makai Side of the 2.0 MG Storage Tank



Source: TNWRE (2022)

3 EXISTING ENVIRONMENT, POTENTIAL IMPACTS, AND MITIGATION

This chapter describes the potential environmental effects of the Proposed Action and the No Action Alternative, as described in Chapter 2. This chapter is organized by resource category (e.g., coastal hazards, archaeological and cultural resources, etc.). The discussion under each topic includes: (*i*) an overview of existing conditions at the site or its vicinity; (*ii*) the potential environmental impacts that may occur as a result of implementation of the alternatives considered in this EA; and, where appropriate, (*iii*) any measures that LWC proposes to avoid, minimize, or mitigate potential adverse effects.

The scale of the discussion is commensurate with the potential for impacts and public interest as informed by scoping input received. Where appropriate, the larger environmental context (e.g., the Ko‘olauloa region) is discussed, and in other cases the focus is narrower (e.g., the service area or well site). The discussion of impacts also distinguishes between short-term (i.e., those occurring when construction equipment and personnel are actively implementing demolition and/or construction processes) and long-term (i.e., those that may occur during the operational phase of the project) for the action alternatives.

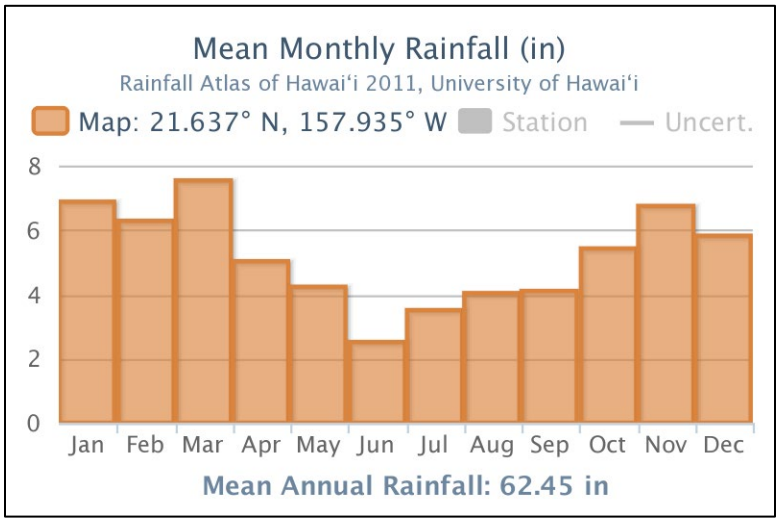
3.1 CLIMATE & PRECIPITATION

3.1.1 EXISTING ENVIRONMENT

Tradewinds have a significant effect on Windward O‘ahu’s climate patterns. Tradewinds blow from the northeast most of the year and bring warm moist air from the ocean onto the land. As the air is forced upwards over the Ko‘olau Mountains, a phenomenon known as orographic lift, the air cools, forms clouds and creates precipitation. As a result, the mountainous regions of Windward O‘ahu experience frequent rainfall and are often cloudy. Fog drip at higher elevations also contributes to precipitation. This high mountain precipitation is what percolates into the ground and eventually is pumped out to be used as irrigation or drinking water.

Locations with the highest annual rainfall on O‘ahu are found along the Windward side of the island, including Kahana Valley, with approximately 240 inches of rain annually, and Waiāhole Valley, with approximately 180 inches annually. However, rainfall in Lā‘ie and in the vicinity of the project site tends to be more modest. According to *The Rainfall Atlas of Hawai‘i* (University of Hawai‘i, 2011) annual rainfall on the project site is 62.45 inches annually. Average monthly rainfall at the project site, by month, is shown in Figure 3-1 and further broken down in Table 3-1.

Figure 3-1: Mean Monthly Rainfall at the Project Site



Source: University of Hawai‘i, *The Rainfall Atlas of Hawai‘i* (2011)

Table 3-1: Mean Monthly Rainfall at the Project Site

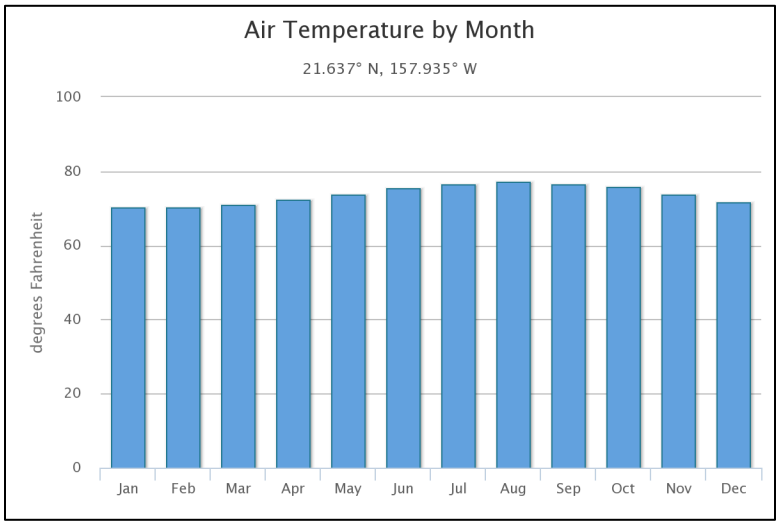
Month	***Rainfall (inches)***
January	6.93
February	6.31
March	7.56
April	5.05
May	4.27
June	2.55
July	3.53
August	4.08
September	4.11
October	5.42
November	6.78
December	5.85
Annual	**62.45**

Source: University of Hawai‘i, *The Rainfall Atlas of Hawai‘i* (2011)

Data collected by the University of Hawai‘i at Mānoa, Geography Department’s *Climate of Hawai‘i* online mapping tool indicate that average temperatures in the vicinity of the Proposed Action vary minimally throughout the year with the warmest month of August having an average temperature of 77.04 °F and the coolest month of February having an average temperature of 70.26 °F. Average monthly temperature at the project site is shown in Figure 3-2 and further broken down in Table 3-2.

The average wind speed in 2017 was 9 miles per hour. The average annual wind speed recorded at the Marine Corps Base in Kāne‘ohe between 1996 and 2006 was 8.4 miles per hour.

Figure 3-2: Mean Monthly Air Temperature at the Project Site



Source: University of Hawai'i at Mānoa, *Climate of Hawai'i* (2023)

Table 3-2: Mean Monthly Rainfall at the Project Site

Month	***Temperature (°F)***
January	70.27
February	70.26
March	70.97
April	72.23
May	73.85
June	75.42
July	76.49
August	77.04
September	76.58
October	75.90
November	73.69
December	71.55
Annual	**73.68**

Source: University of Hawai'i at Mānoa, *Climate of Hawai'i* (2023)

Climate variability and climate change can exacerbate and facilitate impacts from other hazards such as hurricanes, tropical storms, flooding, sea level change, and drought. These hazards are discussed in Section 3.5.6.

3.1.2 POTENTIAL IMPACTS

The Proposed Action does not include short-term or long-term uses or activities on a scale that have the potential to adversely affect local climate conditions.

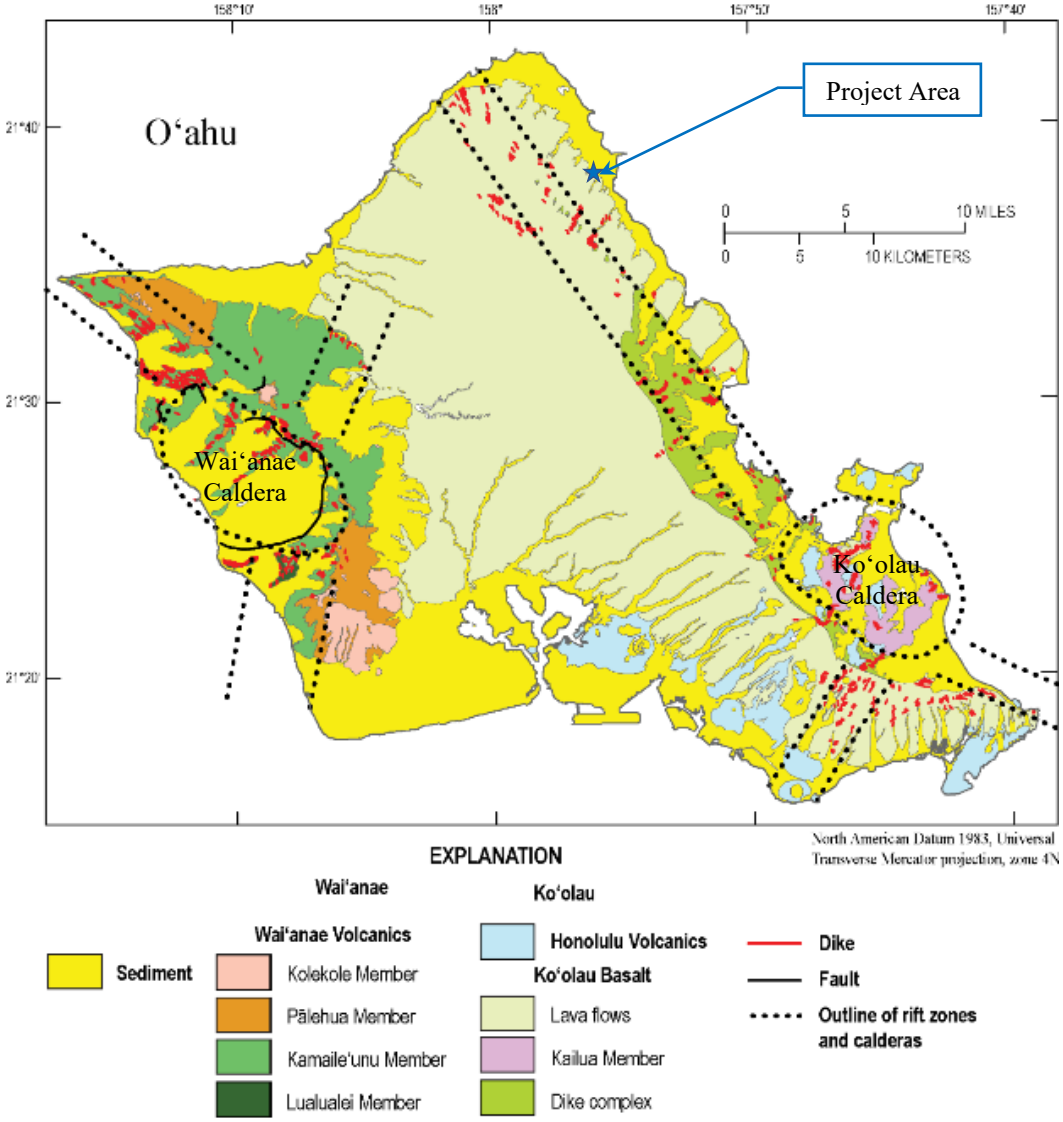
Similarly, the No Action Alternative would not affect local climate conditions.

3.2 GEOLOGY AND SOIL

3.2.1 EXISTING ENVIRONMENT

O‘ahu consists of the eroded remnants of two elongated shield volcanoes: the older, western Wai‘anae Volcano (main shield-building stage approximately 3.8-2.95 million years ago) and the younger, eastern Ko‘olau Volcano (shield-building stage approximately 2.5-1.7 million years ago). The rift zone and caldera locations are interpreted based on the location of dikes and other evidence. Dikes are fractures through which magma rose to the surface when the volcano was active. When magma cools in the fractures, it forms dense, near vertical sheet-like bodies of intrusive rock which are referred to as dikes. The approximate area of the Ko‘olau Caldera would have encompassed the areas where the towns of Kāne‘ohe and Kailua are now located (Figure 3-3).

Figure 3-3: Simplified Geologic Map of O‘ahu



Source: USGS, 2018, Figure 31.

Upper Lā‘ie is in the rift zone trending northwest from the Ko‘olau Caldera; there are known to be several dikes in the area. The eruptive period of the volcano was followed by a long period of erosion, leading to the amphitheater-shaped valleys of Windward O‘ahu. The mauka portions of these valleys have narrow ridges and have very steep to precipitous slopes, which become gradually less steep in the center and makai portions of the valley. The lower portions of the valleys are filled with sediment that derive from and overlay the volcanic bedrock. The thickness of these sediments varies from thin in the back and on the margins of the valley to roughly 500 feet thick at the coastline. The surface and near surface portion of the sediment consists of the soils described below.

Figure 3-4 is a Natural Resource Conservation Service soil survey map of the project area in upper Lā‘ie near ‘Ihi‘ihi Gulch; it is based on surveys done by the Hawai‘i Department of Agriculture in the 1970s. As can be seen from that soil survey report, all the area where the proposed wells, pumps, control building, and other ancillary infrastructure will be in the Paumalu-Badland Complex (Map Unit Symbol: PZ). In this complex Paumalu soils make up 40 to 80 percent of the acreage; the slope ranges from 10 to 70 percent. The Paumalu-Badland Complex soil type has only modest agricultural value, and has not been designated as a Land of Importance to the State of Hawai‘i (“ALISH”) nor is it identified on Hawai‘i Department of Agriculture’s maps of Important Agricultural Lands.

Figure 3-4: NRCS Soil Survey Map

Source: Natural Resource Conservation Service (2023)

The Paumalu soils are similar to Paumalu silty clay, 15 to 25 percent slopes, except for the slope. Runoff is medium to rapid, and the erosion hazard is moderate to severe. Badland consists of nearly barren land that has remained after the Paumalu soils were removed by wind and water erosion. Runoff is rapid, and the erosion hazard is very severe. About 80 percent of the Badland part occurs in the direction of the trade winds. Rock outcrop, Stony land, Stony steep land, and

Rock land were included in mapping, and they make up as much as 25 percent of the area. Finally, the corridor along which the new Hawaiian Electric power line(s) will run will pass through areas of Kaʻena stony clay, Paumalu silty clay, and coral outcrop.

3.2.2 POTENTIAL IMPACTS

Because the well site is already cleared and developed as a water tank storage site, construction of the Proposed Action will require minimal grading and preparation; the area to be graded is roughly 0.4 acres (Figure 2-1). The grading would require excavation of approximately 1,190 cubic yards of material and result in a roughly 0.3 acre area graded to an elevation of 224 feet for well drilling and outfitting. The grading will create a flat area for the wells, drill rigs, and control building sites. Any excess material will be used on the subject property for other purposes designated by the landowner and subject to applicable regulations. The grading will minimally change site topography, and not in a way that would change storm water runoff patterns or the look of the area from a distance. The only other aspect of the Proposed Action that has the potential to affect geology and soil beyond the well site is the installation of power poles along the roughly 3,000 linear foot long 3-phase power line corridor. It is estimated that roughly 20 new power poles will be installed along the corridor; the poles will be placed in holes augured to a depth of roughly 6 feet.

Ground disturbance associated with project construction would temporarily increase the potential for erosion and sediment discharge when compared to the existing condition. Those short-term activities do not have the capacity to adversely affect geology or soil in a significant way; the impacts would have a limited extent, be temporary, and not affect soils that are important for agriculture.

Within 2 months, soil cover (i.e., vegetation) would be established and the project would not result in permanent changes to soil or geological characteristics beyond the limited extent of improvements within the project site. Maintenance of the water system would periodically require ground disturbance to access pipes and other subterranean equipment, but those disturbances would be of limited duration and occur in previously disturbed areas where infrastructure already exists and, thus, geological and soil resources would not be adversely impacted.

The No Action Alternative would not involve construction or ground-disturbing activities that have the capacity to affect soil or geologic conditions beyond ongoing maintenance of the existing system.

3.2.3 AVOIDANCE, MINIMIZATION, AND MITIGATION MEASURES

LWC will obtain all required permits and approvals prior to performing the work and all staff/contractors will be required to comply with permit conditions. The project shall comply with HAR, Title 11, Chapter 54 *Water Quality Standards*.

Temporary BMPs would be implemented during ground-disturbing activities to avoid and minimize soil erosion. Those BMPs are likely to include perimeter controls like silt fences and silt socks, check dams and/or erosion blankets in steep areas, stabilized construction access areas, designated fueling and storage areas, soil stockpile protections, dust control measures, and site stabilization measures.

Additionally, the following avoidance and minimization measures would be employed:

- Stopping work and stabilizing the site during periods of heavy rainfall. Stabilization methods could include straw mulch cover, erosion blankets with anchors, 6-milimeter plastic sheets, and other measures.
- Phasing the project to reduce the disturbed/exposed areas at any one time.
- Existing vegetation would be preserved to the maximum practicable extent.
- Clearing and grubbing along steep slopes and prior to rain events would be avoided.
- Stabilizing disturbed areas as soon as possible.
- Maintaining temporary BMPs (perimeter controls like silt fences and silt socks, check dams and/or erosion blankets in steep areas, stabilized construction access areas, designated fueling and storage areas, soil stockpile protections, dust control measures, and site stabilization measures) until permanent stabilization has been achieved.
- The project shall comply with the City and County of Honolulu's "Storm Drainage Standards" and the "Rules Relating to Water Quality."

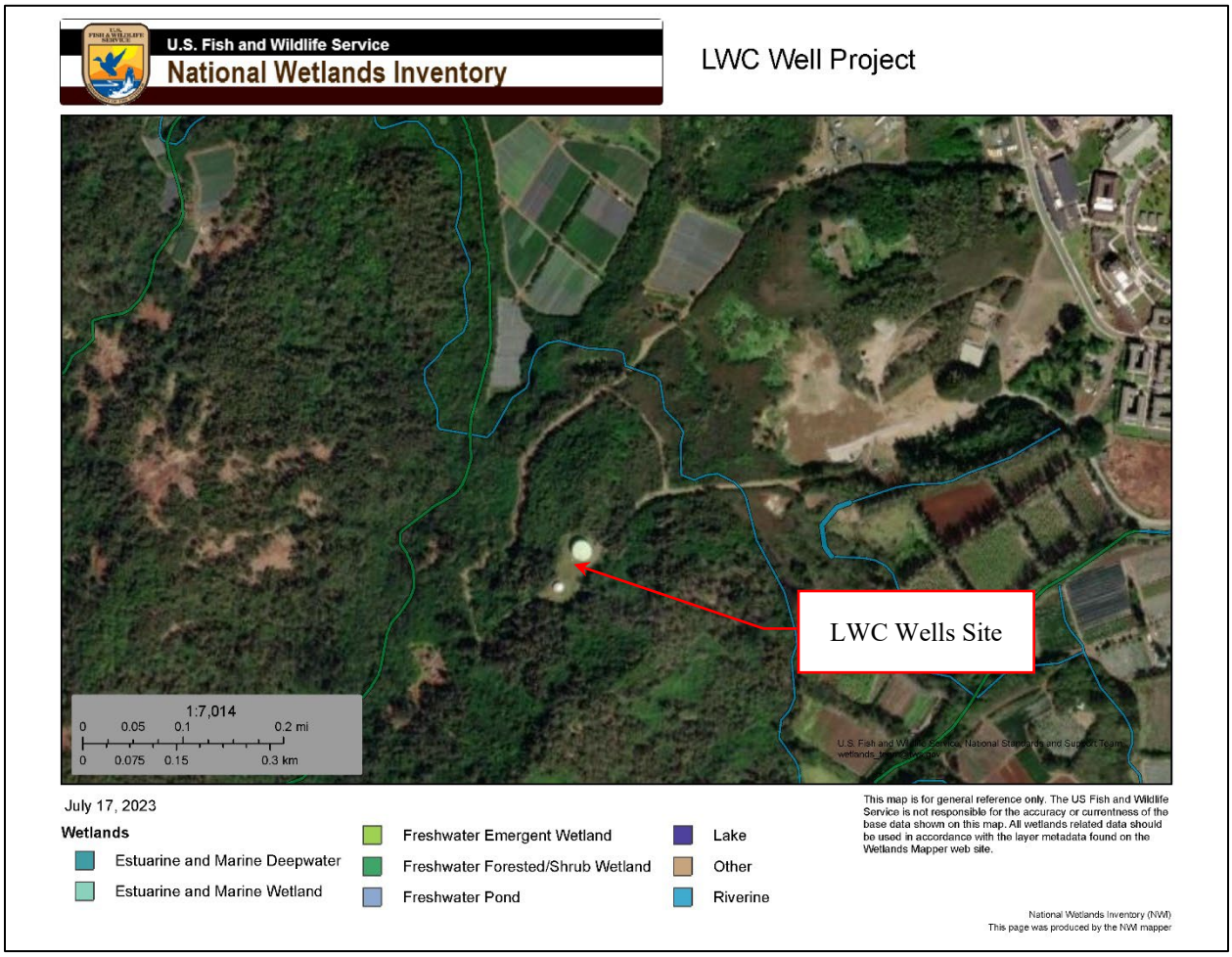
3.3 WATER RESOURCES

3.3.1 EXISTING CONDITIONS

3.3.1.1 Surface Waters

Wetlands include surface waters like streams and the ocean. They also include wetlands like taro lo‘i and other features. Figure 3-5 illustrates the surface waters and wetlands in the project area as mapped in the National Wetlands Inventory by the U.S. Fish and Wildlife Service (USFWS).

Figure 3-5: Surface Waters and Wetlands



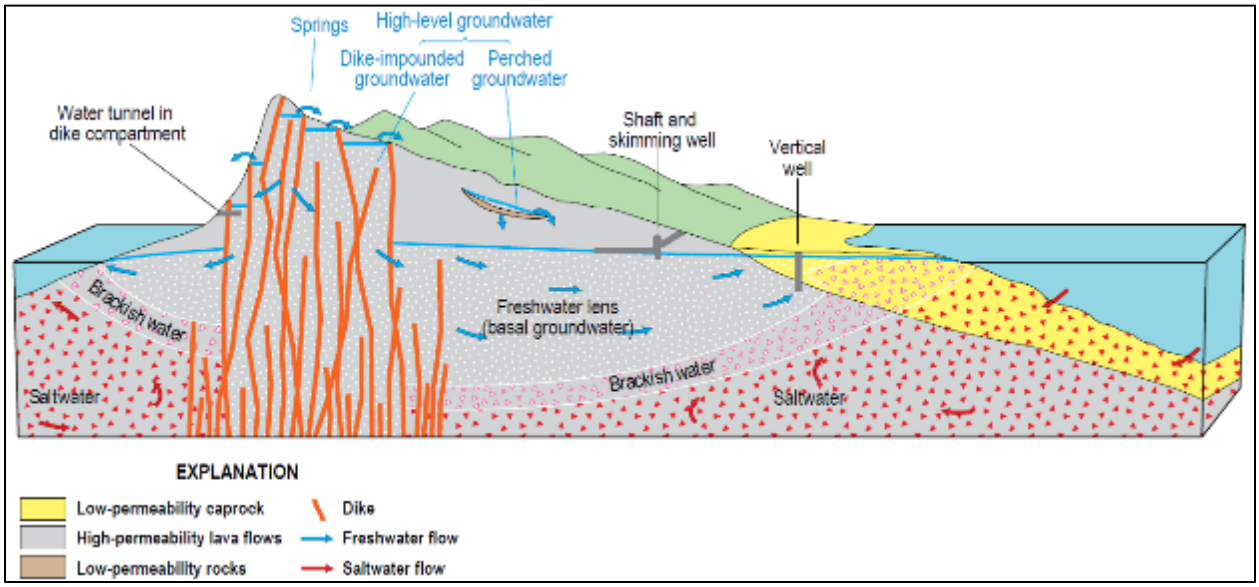
Source: https://www.fws.gov/wetlands/data/mapper.html, accessed July 17, 2023.

The well site is on a ridge, there are no wetlands nearby. The only classified wetlands in the vicinity of the Proposed Action are: (*i*) ‘Ihi‘ihi Gulch, a tributary to Kahawainui Stream, approximately 280 feet to the west; (*ii*) Laniloa Stream, approximately 1,400 feet to the east; and (*iii*) Wailele Stream, approximately 2,080 feet to the east (Figure 3-5). No hydrographic data for these streams was available from the United States Geological Survey (USGS). All these streams eventually outlet into the estuarine and marine deepwater wetlands of the Pacific Ocean.

3.3.1.2 Groundwater

In Hawai‘i, fresh groundwater occurs primarily either as dike-impounded groundwater or as a freshwater lens (basal groundwater) floating on saltwater. Figure 3-6 shows a conceptual model for these occurrences of fresh groundwater. This simplified model, developed in about the middle of the 20th century, remains useful. The left side of the figure represents the windward side and the right side of the figure the leeward (town) side of O‘ahu. The “water tunnel in dike compartment” on the windward side is a representation of the production tunnels associated with old sugarcane-era irrigation ditch systems.

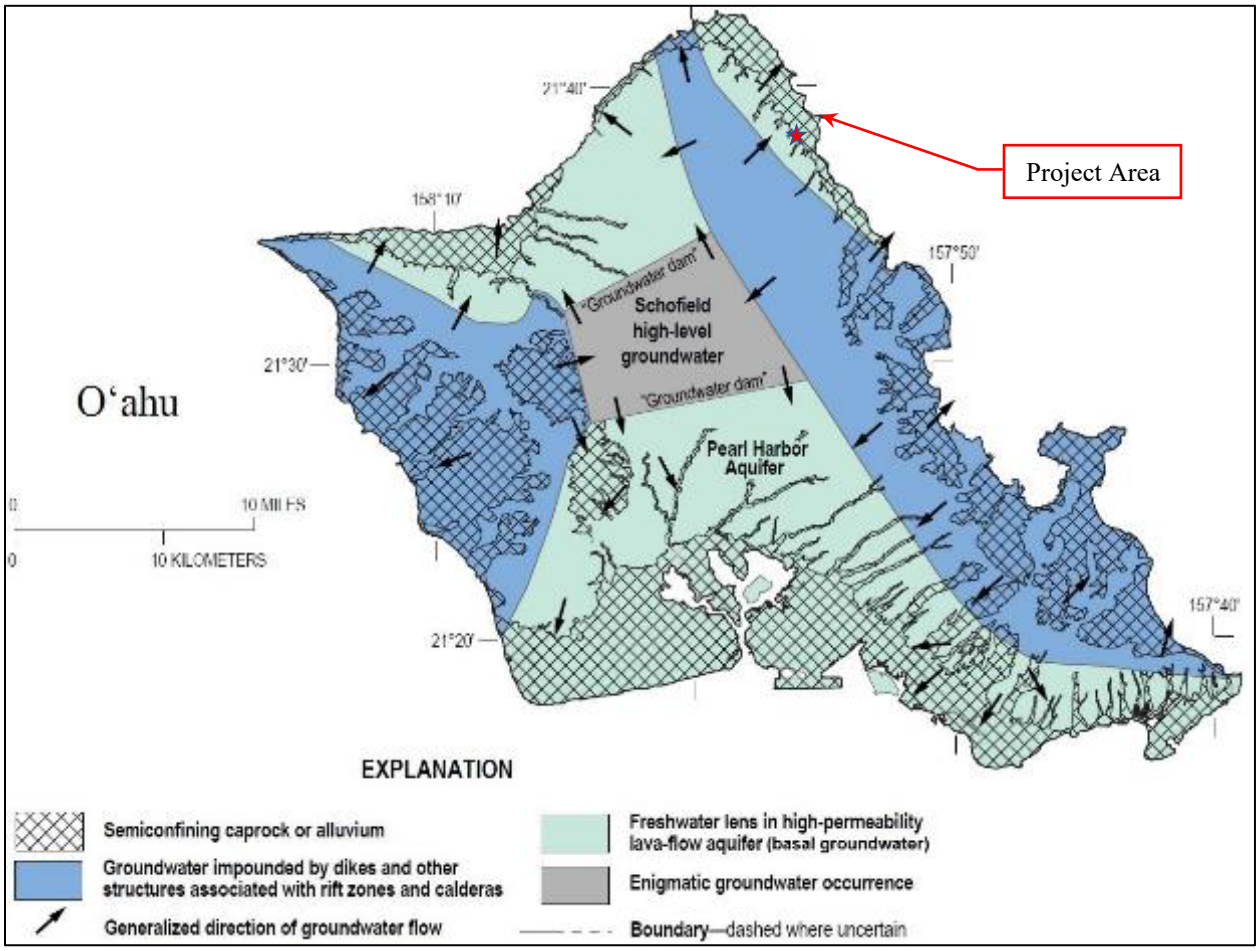
Figure 3-6: Conceptual Model of Groundwater Occurrence and Flow in Hawai‘i Developed in the Middle of the 20th Century



Source: USGS, 2018, Figure 21.

Based on continued study and observations of the groundwater in Hawai‘i, this conceptual model continues to be refined. Figure 3-7 illustrates some of the refinements associated with groundwater occurrence and flow on O‘ahu. This shows that throughout the Ko‘olauloa Aquifer System groundwater is impounded by dikes and other structures associated with rift zones and calderas in the uplands, but in the lower elevations in the vicinity of the Proposed Action, basal groundwater forms a freshwater lens in this highly permeable lava flow aquifer.

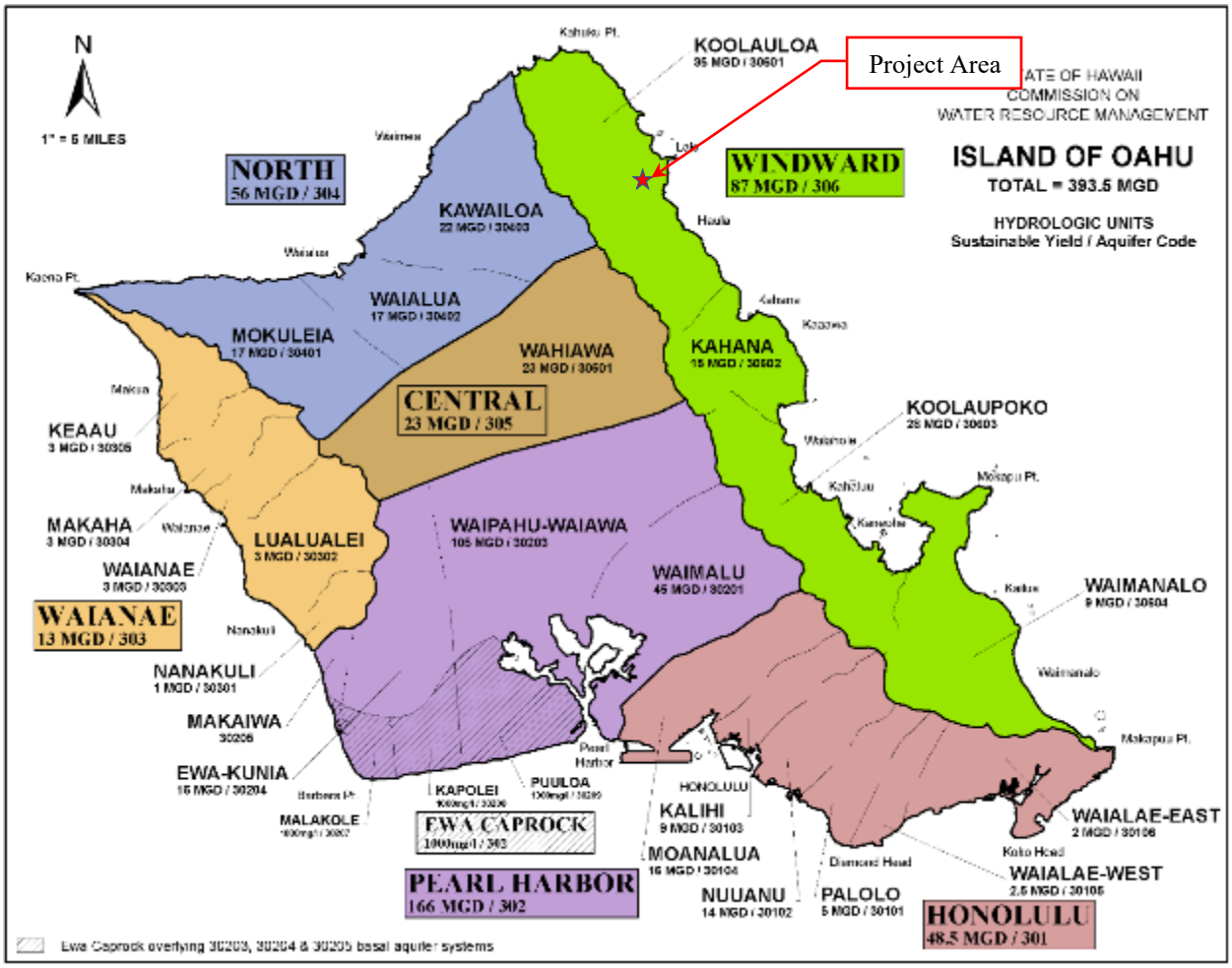
Figure 3-7: Map of Modes of Groundwater Occurrence and Flow on O‘ahu



Source: USGS, 2018, Figure 61.

Lā‘ie is in the Ko‘olauloa Aquifer System, which is in the Windward Sector according to DLNR maps (Figure 3-8). The entire Windward Sector is a designated Water Management Area (WMA), which means there are additional regulations that owners of water sources, such as wells, must comply with. Being within the WMA also means all production wells are required to have a WUP. LWC's use of water from the three BYUH Wells and two Quarry Wells are grouped together under a single permit, WUP No. 739 for 1.375 MGD. The 12-MAV of total well pumpage has remained within their permitted use (Figure 1-8) and has typically fluctuated between 0.8 and 1.2 MGD. The Ko‘olauloa Aquifer System stretches from Waikāne in the south to Kahuku in the north and from the ridge of the Ko‘olau mountains in the west to the Pacific Ocean in the east. The 2019 *Water Resources Protect Plan* (WRPP) indicates the Ko‘olauloa Aquifer's sustainable yield is 35 MGD. Therefore, LWC's WUP accounts for roughly 4 percent of the aquifer's sustainable yield.

Figure 3-8: Groundwater Hydrologic Units on O‘ahu



Source: https://files.hawaii.gov/dlnr/cwrm/maps/gwhu_oahu.pdf accessed April 2023.

3.3.2 POTENTIAL IMPACTS

Over the long-term, the Proposed Action would not result in more groundwater being extracted from the Ko‘olauloa Aquifer System than what LWC currently extracts. Under the Proposed Action, the same quantities of water would be withdrawn from the same aquifer. It is anticipated that by transitioning to the proposed new wells built to modern standards, the volume of water extracted from the aquifer would be no different than the No Action Alternative and remain below the allocation of 1.375 MGD.

LWC’s WUP would transfer its WUP allocation from a combination of the BYUH Wells and the Quarry Wells to a combination of the proposed wells and the Quarry Wells. There is no need to increase the allocation because LWC has maintained compliance with it and there is no foreseeable increase in water demand within LWC’s service area. Land uses, and their intensity, are not expected to change dramatically within the service area. Based on this analysis, the action alternatives would have no significant impact on groundwater resources.

The No Action Alternative does not have the potential to impact wetlands, streams, or groundwater in a manner substantially different than the existing LWC has been affecting them since withdrawals from the existing wells began in the late-1800s.

3.3.3 AVOIDANCE, MINIMIZATION, OR MITIGATION MEASURES

To reduce the potential for adverse impacts to wetlands during construction, BMPs related to storm water would be implemented, including measures related to ground disturbance, perimeter control, dust control, construction site ingress and egress, storm drain inlet protection, waste management, fueling and maintenance practices, material staging, and soil stockpiles. The BMPs are discussed further in Section 3.2.3. In addition, the following measures would be employed:

- The project shall comply with the City and County of Honolulu's "Storm Drainage Standards" and the "Rules Relating to Water Quality."
- LWC will operate the water system and manage compliance with the WUP, meeting all permit conditions and reporting actual water use to Commission of Water Resource Management (CWRM).

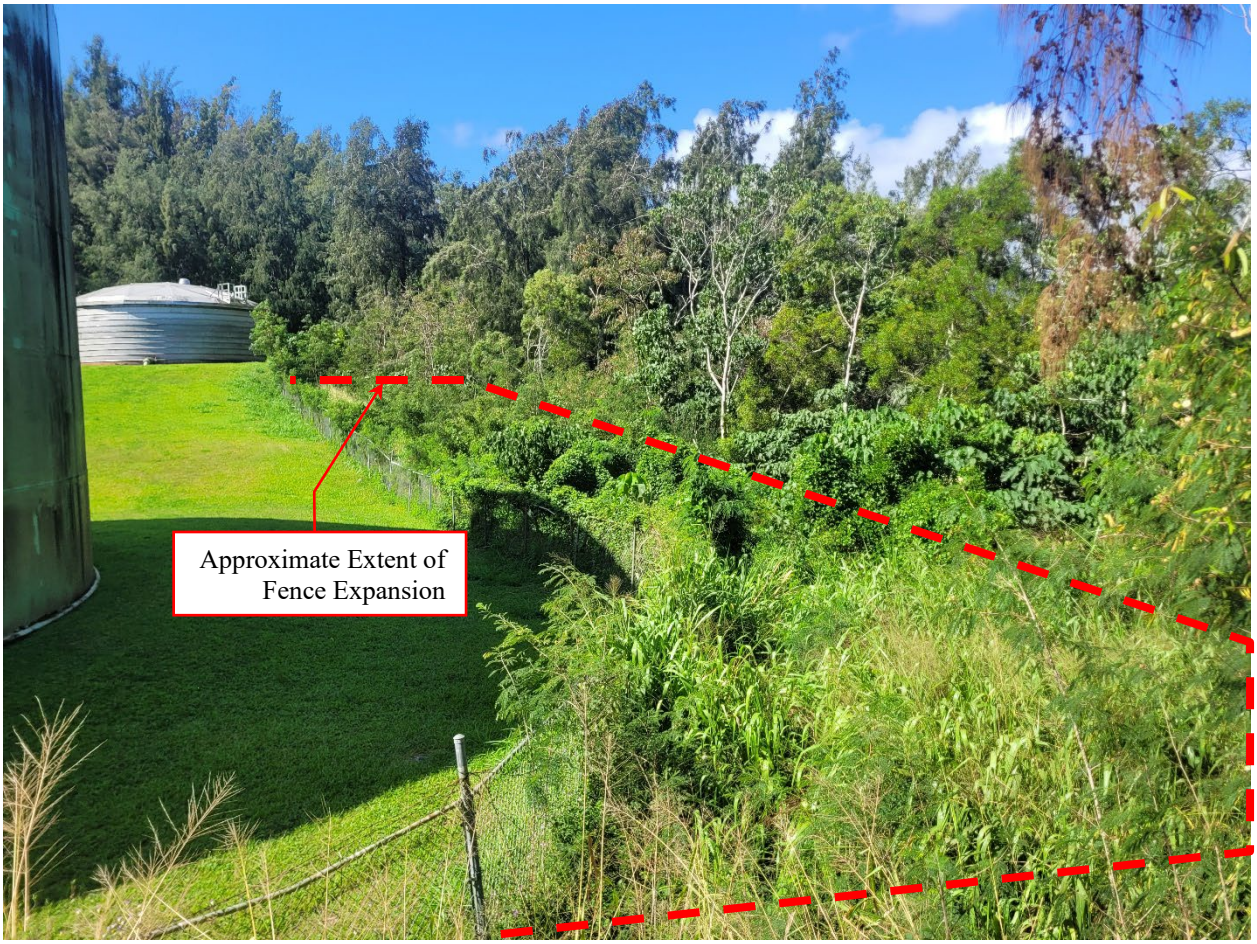
3.4 BIOLOGICAL RESOURCES AND PROTECTED SPECIES

The project planning team conducted a site visit on June 9, 2023. This section of the report is drawn from that visit and other observations made by project personnel.

3.4.1 EXISTING CONDITIONS

The area where the proposed wells, control building, and ancillary infrastructure would be located consists primarily of mowed grass within the fenced area and short trees and shrubs (primarily haole koa and parasol leaf tree) and grass in the roughly 4,170 square foot area that will be added to the fenced area (Figure 3-9). The trees in the fence expansion area have been periodically trimmed since the water storage tanks were installed to prevent falling trees from damaging the tanks.

Figure 3-9: Photograph of Fence Expansion Area



Source: Planning Solutions, Inc., March 28, 2024

The project site beyond the well site, where the 3-phase electric power line would be installed, is predominantly along an established road where the vegetation (primarily grass) is regularly maintained (Figure 2-2, photograph e). The roughly 500-linear-foot portion of the line from the road to the well site is forested with a canopy of ironwood trees and Formosa koa with an understory of parasol leaf tree, java plum, strawberry guava, fiddlewood, ferns, grasses, and shrubs (Figure 3-10). The forested area was previously cleared for the installation of the 16-inch-diameter water main along the same alignment (Figure 2-1).

Figure 3-10: Photographs of 3-Phase Electrical Power Alignment between Well Site and Road

a. Canopy.

b. Understory.

Source: Planning Solutions, Inc., March 28, 2024

The only fauna observed at the project site has been common introduced avian species, such as mynah birds, and Indian mongoose. Although rodents were not observed, it is likely that the roof rat, brown rat, Polynesian rat, and European house mouse are present in the area. Feral pigs, dogs, and cats are also likely to visit the project site. The non-native wildlife is detrimental to most native species, both flora and fauna. They feed on most types of native wildlife, and they disturb the habitat in a manner that benefits invasive plant species so that native plants are consumed or outcompeted.

None of the flora or fauna observed are considered rare; all are common over a broad area and some are considered invasive. No plant or avian species listed under the federal Endangered Species Act (ESA), listed under HRS Chapter 195D, or protected by the Migratory Bird Treaty Act (MBTA) were observed during site visits. No listed waterbirds, seabirds, migratory shorebirds, Hawaiian hoary bat, or damselflies were observed. Although not observed, it is likely that native forest birds and/or Hawaiian hoary bats are periodically present in the project area, and it is possible that seabirds overfly the project area during certain times of the year. There is no USFWS-designated critical habitat in the project vicinity.

To better understand and assess the potential for biological impacts as a result of implementation of the Proposed Action, project planners also consulted the USFWS' IPaC assessment tool. The primary information provided by an IPaC report is the known or expected range of each species. Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. The complete IPaC report for the Lā‘ie Water Company Production Well Project is included in this report as Appendix B.

According to the USFWS IPaC report, the following birds may be present in the region and potentially affected by activities in this location: (*i*) Band-rumped Storm-petrel; (*ii*) Hawaiian Common Gallinule; (*iii*) Hawaiian Coot; (*iv*) Hawaiian Duck; (*v*) Hawaiian Petrel; (*vi*) Hawaiian Stilt; and (*vii*) Newell's Shearwater. The only mammal mentioned in the IPaC report was the Hawaiian hoary bat. Finally, the following native plants may be present in the region and potentially affected by activities in this location: (*i*) ‘aiea; (*ii*) ‘akoko; (*iii*) *‘ena‘ena*; (*iv*) kamanomano; (*v*) *Spermolepis hawaiiensis*; (*vi*) *Vigna o-wahuensis*; and (*vii*) *Microlepia strigosa* var. *mauiensis*. As noted above, none of these species were noted during physical inspection of the site. Damselflies and shorebirds are not known to occur in the project area. Historically, none of these species have been seen at the well site.

3.4.2 POTENTIAL IMPACTS

The short-term, construction-phase impacts of the proposed project would consist of:

- Clearing and grubbing the existing flora within the roughly 0.4-acre graded area of the well site (Figure 2-3).
- Clearing the roughly 20-foot-wide, 500-linear-foot-long (roughly 0.25 acre) power line corridor from the road to the well site (Figure 1-9).

The well site and disturbed portion of the power line corridor along the road, if any, would be landscaped by establishing grass in all unpaved areas at completion of construction activities. Simple grass landscaping is standard practice for well sites in the Conservation District that are not visible to the public; maintaining low grass at the well site allows for inspection of and access

to the infrastructure. The power line corridor from the road to the well site would be allowed to naturally revegetate, which would be expected to occur rapidly because the existing vegetation would only be cut, not grubbed. The planting of indigenous and endemic species is not planned because, (*i*) within the well site they would detract from the ability to inspect and access the infrastructure, and (*ii*) outside of the well site they would not be able to complete with fast-growing invasive species that dominate the surrounding forest.

The long-term, operation-phase impacts of the proposed project would consist of:

- Converting a roughly 4,170 square foot area outside the existing fence from a scrub forest to a grassed area inside the facility fence.
- Periodically reducing the forest canopy height outside the well site fence to reduce the potential for trees to fall and injure LWC employees or damage the infrastructure within the well site.
- Periodically reducing the forest canopy height along the power line alignment, including along the road and the roughly 500-linear-foot long (0.25 acre) electric line alignment between the well site and road to reduce the potential for power interruptions. Hawaiian Electric will be responsible for vegetation management along the power line alignment.

As no rare or listed plant or animal species are present in the area, only common and invasive species would be affected. Because those species and habitat are present over a large area in the region, the small area affected would have a negligible effect on biological resources.

The Proposed Action would not result in material changes to the non-native predator or habitat degradation threats that protected species face. Unless managed using the avoidance and minimization measures outlined in Section 3.4.3, the Proposed Action has a very limited potential to impact certain biological resources protected by the ESA, HRS 195D, and/or MBTA in ways not directly associated with habitat loss/degradation or predation. Those potential impacts could occur in the short-term or long-term and are as follows:

- Seabirds, that may occasionally overfly the project area, could become disoriented by lights associated with construction or operation of the water system. Once disoriented the birds may become exhausted and “fallout,” which means they land or collide with an object and fall to the ground as they become exhausted. They can die from collisions or during interactions with mammals on the ground. The possibility of impact would be greatest during the seabird fledging season from September 15 through December 15 because the juvenile fledglings are more susceptible to light attraction than adult birds.
- During construction or maintenance activities of the new power lines, Hawaiian hoary bats could be adversely affected by the trimming and/or removal of trees they use for sleep, rest, and pup rearing. The possibility of impact would be greatest during the bat pupping season between June 1 and September 15 because pups are unable to fly to other trees.

Under the Proposed Action, with the implementation of the avoidance and minimization measures outlined below, the potential for impacts to these species would be substantially decreased so that no "take" of these species would occur. The impact would be less than significant.

The No Action Alternative would not involve any new construction and would not affect any listed species or the habitat upon which they rely.

3.4.3 AVOIDANCE, MINIMIZATION, OR MITIGATION MEASURES

The following measures would be implemented to avoid and minimize potential impacts to biological resources, except for emergency response situations:[3]

- Hawaiian hoary bat: Woody plants greater than 15 feet tall would not be disturbed, removed, or trimmed during the bat birth and pup rearing season from June 1 through September 15.
- Seabirds:
  - Construction activities would not occur at night. If for unforeseen reasons night work is required, it would not occur during seabird fledging season (September 15 through December 15) and fully shielded lights would be used outside of that period.
  - Outside lights installed as part of the project (e.g., security lights at the well site) would be dark sky compliant and seabird friendly by being fully shielded and considered "acceptable" per the DLNR guidance (https://dlnr.hawaii.gov/wildlife/files/2016/03/DOC439.pdf). They would utilize automatic motion sensor switches and controls when possible.

3.5 ARCHAEOLOGICAL AND CULTURAL RESOURCES

3.5.1 HISTORICAL CONTEXT

The ahupua‘a of Lā‘ie (meaning, in ‘ōlelo Hawai‘i, "the ie‘ie leaf") is a complex land area, with a broken landscape of coastal dunes and level lands, with stretches of elevated coral to shoreward and inland, intersected by many small branching streams between rough ridges that extend far down to the sea (Handy and Handy, 1972). A number of these streams join to form Lā‘ie Stream, which flows into Lā‘ie Bay, the largest bay north of Kahana but a more tumultuous one, framed to the south by Laniloa, also known as Ka Lae Lā‘ie or Lā‘ie Point, the long jutting strip of elevated coral which acts as a resounding board for the great breakers that pile into the curve of the bay. Lā‘ie is traditionally divided into two sub-ahupua‘a, the southern portion being Lā‘ie Malo'o ("dry Lā‘ie"), and the northern side closer to the ponds and streams being known as Lā‘ie Wai ("Wet Lā‘ie").

In pre-contact times, the relatively flat land between the hills and the bay, which was long famous as a fishing and turtle-catching area, was divided into numerous named sub-districts and was thoroughly cultivated. In 1935, Kekuku, a 75-year-old kama‘āina of the place, was able to identify

[3] In emergency situation, BMPs will be implemented to the degree possible, but not all measures would be followed, particularly if an emergency occurs during the seasons listed in these items.

a 60-acre area that was formerly the single largest wetland taro area in the entire Lāʻie Ahupuaʻa, on land that had been in his family for generations. This area is in the uplands behind the present location of the Church of Jesus Christ of Latter-day Saints' Lāʻie Hawaiʻi Temple. This large, cultivated area was watered by artesian springs, and was accordingly known as Kapuna ("the spring") (Handy and Handy, 1972).

Up Kōloa ("Hawaiian duck") Stream, south of Lāʻie Stream in the direction of Hauʻula, there were many groups of stone-clad terraces, formerly taro loʻi, now overrun with mango, breadfruit, and other introduced species. These introduced species mark the locations of old homesites along this twisting, rocky, and very beautiful watercourse. Other stream valleys show more scattered remains. The names of several of these large, once famous kalo terraces have survived: (*i*) Naueloli ("move and change"); (*ii*) Kuamoʻo ("backbone"); (*iii*) Mahanu ("rest and breathe"); (*iv*) Makaliʻi ("Pleiades"); and (*v*) Poʻohaili ("head recalls").

Makai of Kamehameha Highway, upon entering the area where Lāʻie Town is now located, there once was a small but very deep pool. This pool, according to legend, was in ancient times the home of a giant moʻo—a shapeshifting dragon spirit—who threatened all travelers who stopped to refresh themselves by this pool. This moʻo once challenged two warrior brothers from Maui, Niheu and Kana, who slew the creature and threw its dismembered body out to sea. The story goes that the long point known as Laniloa, and the twin islets of Kukuihoʻolua and Mokuālai, are formed from these remains. In modern times, these two islets are seabird sanctuaries operated by the State of Hawaiʻi, DLNR, Division of Forestry and Wildlife.

Another moʻōlelo associated with Lāʻie is the tale of Hauwahine. There was a large, horseshoe-shaped pond mauka of the present location of the bridge over Kahawainui Stream, between Lāʻie and Kahuku. This pond was governed by a protectress moʻo, Hauwahine, who sometimes dwelt at Kawainui fishpond in Kailua. It was believed that Hauwahine ensured there was enough food available for the people, but removed the fish from the pond if the people living in the area were oppressed by the aliʻi. She was additionally believed to prevent sickness. Pollution and overgrowth were thought to be insults to Hauwahine, which was one motivation for the native populace to keep the fishpond clean. The Hawaiian goddess Hiʻiaka was believed to have fought all the moʻo except for Hauwahine, for whom she chanted a mele. The area was also the site of several heiau, of which Nioi Heiau still exists at the western outskirts of the BYUH campus (SCS, 2012). Traditionally, Lāʻie was also known as a place of refuge or puʻuhonua, for kapu breakers (CSH, 2017).

The earliest foreign settlers in the area were Chinese families engaged in commercial sugar production in 1789. These early commercial efforts with sugar production were unsuccessful at the time (SCS, 2012). In 1865, The Church of Jesus Christ of Latter-day Saints (CJC) purchased 6,000 acres of land in Lāʻie to establish a mission. The Lāʻie Plantation was subsequently established for commercial sugar production to support the Lāʻie mission and community. The 1900s saw the establishment of a railroad connecting the sugar industry facilities between Kahuku, to the north, and Kahana, to the south. The first Lāʻie Chapel was built in 1883. The Lāʻie Hawaiʻi Temple was dedicated in 1919.

The CJC church managed the Lāʻie Plantation, which grew sugarcane and kalo until the 1930s. The construction of the Kamehameha Highway in the 1930s and the continued presence of the Church greatly influenced the character and direction of Lāʻie to the present day (SCS, 2012). In

1955, the CJC church opened the Church College of Hawai‘i, which is now known as BYU-Hawai‘i, on land that was historically used by the Lā‘ie Plantation for sugar cane cultivation (Figure 3-11). In 1958, the first permanent campus facilities were built by missionaries. In 1976, the University received a ten-year accreditation from the Accrediting Commission for Senior Colleges and Universities of the Western Association of Schools and Colleges. During the 1970s and 1980s, major building projects were carried out to provide adequate campus facilities to accommodate increased student enrollment.

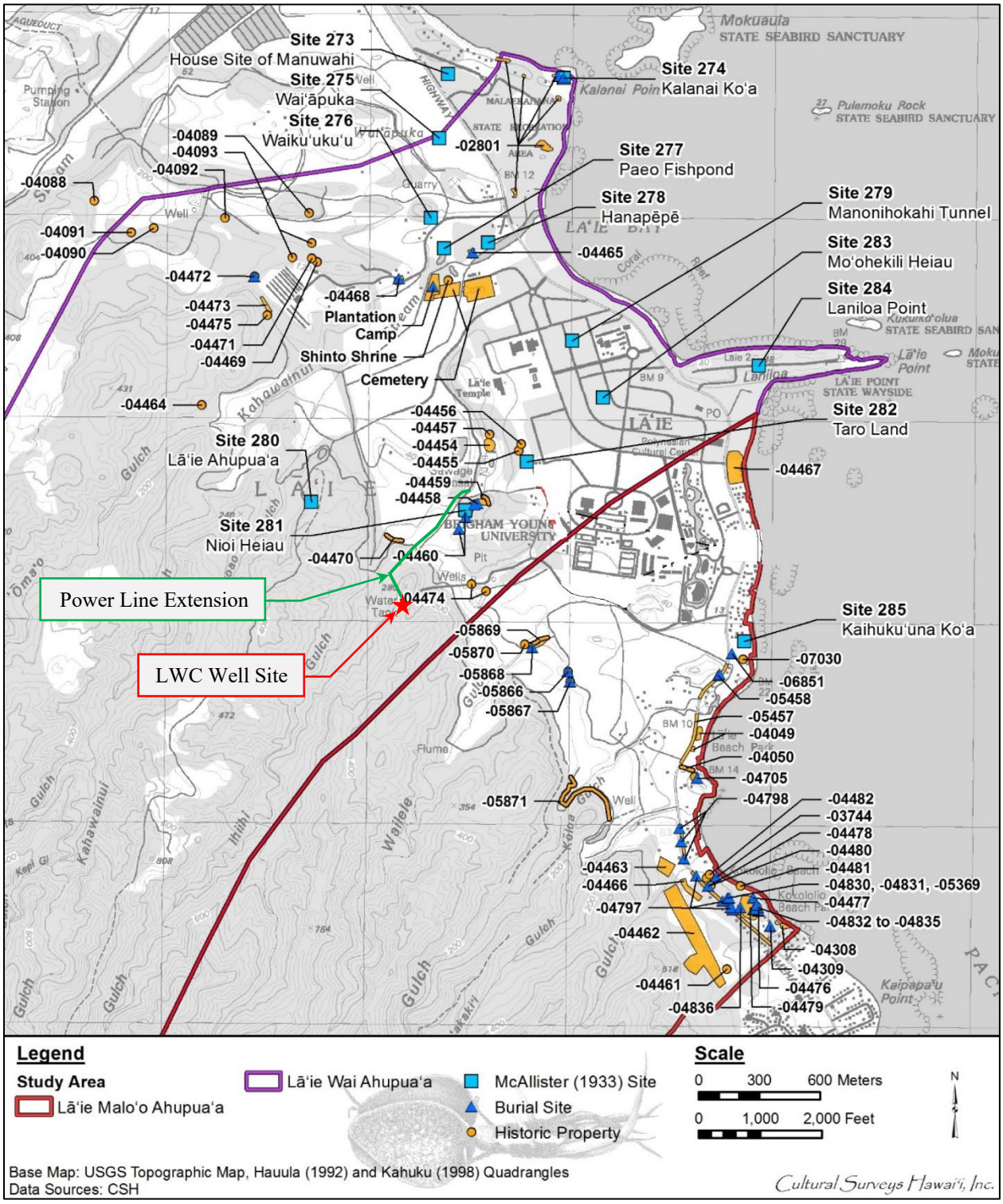
Figure 3-11: 1959 Aerial Photograph of Lā‘ie

Source: BYUH (2018)

3.5.2 PREVIOUS ARCHAEOLOGICAL RESEARCH

The Lā‘ie region has been the subject of numerous archaeological studies from reconnaissance to inventory surveys, plus work associated with inadvertent finds. Some of the archaeological studies have included portions of the proposed power line alignment; none of the archaeological studies have specifically involved the well site. The archaeological studies have identified many historic resources. Much of the information in this section is drawn from the *Archaeological Literature Review and Field Inspection for the BYUH Land Use Reclassification Project, Lā‘ie (Lā‘ie Wai and Lā‘ie Malo‘o) Ahupua‘a, Ko‘olauloa District, O‘ahu TMKs: [1] 5-5-006:005, 032, and 035*, prepared by Cultural Surveys Hawai‘i (CSH) (2017). The CSH report summarized studies conducted and sites identified in Lā‘ie but none of the sites were near the proposed project area. No new archaeological studies have been prepared for this project. Previously identified historic properties in Lā‘ie are depicted on Figure 3-12.

Figure 3-12: Locations of Previously Identified Historic Properties in Lāʻie from CSH 2017 Report



Source: Cultural Surveys Hawaiʻi (2017)

The extensive archaeological work in the area provides a sense of the broad patterns of settlement and use in the area. The closest historic properties identified during prior archaeological research are the following:

- Site 281, Nioi Heiau. In 1933, McAllister indicated that the walls of this heiau had been removed and all that remained was a coral platform of unknown size. In 1995, State Historic Preservation Division (SHPD) looked for the limestone paving reported by McAllister but found the area disturbed with no evidence of the heiau. The former location of the heiau is roughly 200 to 500 feet east of the power line alignment where it is near the wastewater treatment plant.
- SIHP # -04458 and 04459, Ag/habitation Complex, Irrigation Ditch, Burial. These sites include 20 features in the coral area near where Site 281 is believed to have been. The features are roughly 200 to 500 feet east of the power line alignment where it is near the wastewater treatment plant.
- SIHP # -04460, Habitation Complex and Burials. A slope and ridge top with terraces and three human burials near where Site 281 is believed to have been. The features are roughly 200 to 500 feet east of the power line alignment where it is near the wastewater treatment plant.
- SIHP # -04470, Irrigation Infrastructure. This site is likely 2,000 feet to the northwest of the proposed utility line and consists of post-contact irrigation ditch segments and tunnels.
- SIHP # -04474, Retaining Walls. This site is roughly 1,300 feet northeast from the proposed well site and consists of a series of historic era retaining walls constructed of quarried limestone and basalt cobbles. These walls are near the existing Quarry Wells discussed in Section 1.1.2.

3.5.3 SITE CONDITIONS AND PREVIOUS SITE DISTURBANCE

Project planners walked the entire project site on two separate days, once in June 2023 and once in March 2024. Those visits included walking the roughly 500-foot-long alignment of the existing 16-inch-diameter water main and the alignment of the proposed 3-phase electric line between the road and the well site.

The well site is on a ridge, in a saddle between two hills. It would not have been useful for agricultural or most other pre-contact and historic era activities. No LCAs were awarded within the project area, including the utility line corridor, although several were awarded just east of the project in lower, more arable portions of Lā‘ie; these are comprised of kula lands and house lots. Based on examination of available aerial photography, it does not appear that during the sugar cultivation era, from the mid-1800s to the mid-1900s, that the well site was under cultivation. The road along which the proposed power line would be built was on the edge of the sugar cultivation area and was likely used as a cane haul road.

The well site was graded when the existing tanks and associated infrastructure was developed in the 1980s. Although grading plans are not available, it is evident that substantial earth work was needed to generate the level area along the ridge where the tanks now sit. There is evidence that the entire well site, including the roughly 4,170 square foot area outside the existing fence, was

graded in the 1980s. There are no above ground features at the well site that are not related to the existing LWC infrastructure (Figure 2-2, photographs a through d, and Figure 3-9).

The remainder of the project site, the power line corridor, is similar to the well site in that (*i*) there are no above ground features not associated with modern uses, such as roads and gates (Figure 2-2, photographs e and f); and (*ii*) it was previously disturbed for the road construction and/or installation of the existing 16-inch-diameter underground water main.

3.5.4 POTENTIAL IMPACTS

No historic properties are evident in any of the project areas. This condition indicates that no known historic properties will be directly affected by the proposed project.

There are some known historic properties in the region, but they are all at least 200 feet from any of the proposed infrastructure and, due to topography and vegetation, the proposed project would not be visible from the historic sites. Those sites, including the former Nioi Heiau is part of an area that is overseen by the BYUH's Hawaiian Studies Program. In 2010, BYUH, with the guidance of the Lā‘ie Kūpuna Council, developed and submitted to DLNR a *Long-Term Preservation Plan for Nioi Heiau*. The plan addresses access and maintenance, among other things, and was approved by SHPD. The proposed project would not adversely affect the continued implementation of that preservation plan.

In the short-term, during construction of the proposed Lā‘ie Water Company Production Well Project, there is potential for adverse effects to unidentified, subsurface historic properties, either within the well site or along the proposed power line corridor that would provide three-phase power to the site. However, it is unlikely that historic properties would be adversely affected because of: (*i*) the very limited extent of ground disturbance, (*ii*) the heavily altered state of the well site; and (*iii*) the fact that the power line corridor would follow the shoulder of an existing cane haul road and/or the alignment of an existing underground water main. Once the project has been constructed, operation of the two wells would not involve any ground-disturbing activities or incremental development and, therefore, would not have the potential to impact known historic properties.

The No Action Alternative would not include new construction; maintenance of the existing system would continue. It would not involve any activities that would have the potential to adverse effect archaeological or cultural resources.

3.5.5 AVOIDANCE, MINIMIZATION, OR MITIGATION MEASURES

Based on LWC's review of available archaeological evidence and long experience with the project site, the following measures would be implemented to avoid and minimize potential impacts to historic and cultural resources:

- Continue consultation with SHPD to complete the HRS 6E review process.
- Brief project construction workers on the history of the area and inform them of the possibility of inadvertently encountering unknown historic/cultural resources, including human remains.

- Cease all activities if historic/cultural resources are inadvertently encountered during construction activities and notify SHPD pursuant to HAR § 13-280-3. If iwi kūpuna (i.e., ancestral remains) are identified, all earth moving activities in the area would stop, the area would be cordoned off, and SHPD, the medical examiner, and the Honolulu Police Department would be notified pursuant to HAR § 13-300-40.

3.5.6 KA PAʻA KAI ANALYSIS

Articles IX and XII of the Constitution of the State of Hawaiʻi impose on government agencies a duty to promote and protect the cultural beliefs, practices, and resources of native Hawaiians and other ethnic groups when discharging their respective mandates, including issuing permits and approvals such as a CDUP. To clarify the State's obligation to protect native Hawaiian customary and traditional practices while reasonably accommodating competing private interests, the Hawaiʻi Supreme Court provided the following analytical framework as an outcome of *Ka Paʻakai O Ka ʻĀina v. Land Use Commission* (94 Hawaiʻi 31, 7 P.3d 1068, September 11, 2000). This framework is referred to as "Ka Paʻakai Analysis" and consists of a three-part assessment of:

1. "Valued cultural, historical, or natural resources" in the project area, including the extent to which traditional and customary native Hawaiian rights are exercised in the project area;
2. The extent to which those resources—including traditional and customary native Hawaiian rights—will be affected or impaired by the proposed action; and
3. The feasible action(s), if any, to be taken to reasonably protect native Hawaiian rights if they are found to exist.

The Proposed Action is in the Conservation District and is subject to the requirements of HRS, Chapter 343, and its implementing regulations contained in HAR, Title 11, Chapter 200.1. The purpose of this EA is to satisfy these statutory requirements and to provide the necessary information and analyses to support the issuance of a CDUP from BLNR. As such, the project is also subject to the requirement for a Ka Paʻa Kai analysis of the: (*i*) possible existence of, (*ii*) impacts to, and (*iii*) potential mitigation for, adverse effects on traditional and customary native Hawaiian rights and practices which may result from the proposed course of action.

3.5.6.1 Identification of Traditional and Customary Practices in Project Area

To assess the traditional and customary practice of native Hawaiian rights exercised in the area, LWC and its planning team conducted a cultural-historical interview with two kūpuna, Kela Kaio Miller and Cy Bridges, who grew up in Lāʻie area and have substantial knowledge of Lāʻie and the surrounding Lāʻie region. The project team also considered the information summarized in Sections 3.5.1 and 3.5.2. The interview was conducted by PSI staff via MS Teams teleconferencing software on August 30, 2023. Also in attendance at the meeting were Mr. Eric Beaver of Hawaiʻi Reserves, Inc. and Mr. Jeffrey Tyau of LWC. The information in the following subsections was provided by the two kūpuna, who provided their ʻike (knowledge) and manaʻo (thoughts) on the Proposed Action and traditional and customary practices in the Lāʻie region.

3.5.6.1.1 Ms. Kela Kaʻio Miller

Ms. Kela Kaʻio Miller was born and raised in Lāʻie. She is a member of the Kaʻio ʻOhana which has lived in Lāʻie for many generations. The Kaʻio ʻOhana is part owner, along with BYUH, of a kuleana lot that is located within the BYUH campus lands. The kuleana lot was granted to her great-great grandfather Amaka Kaʻio in the 1850s and has been passed down through the generations. Ms. Miller is recognized in Lāʻie and throughout the state as a trusted authority on traditional and contemporary Hawaiian cultural practices, as a community leader with service on the Koʻolauloa Neighborhood Board and numerous planning advisory groups and community organizations, as a peace maker and as a repository of historical knowledge and cultural protocols in the Lāʻie community; she is a member of the Koʻolauloa Hawaiian Civic Club. Ms. Miller is also renowned for her knowledge and performance of hula.

3.5.6.1.2 Mr. Cy Bridges

Mr. Cy Bridges was born on March 3, 1951, and grew up in Lāʻie. His family has lived in the Lāʻie and Hauʻula area for many generations. He is a respected kumu hula, chanter, and cultural practitioner and is recognized throughout the state. His halau, Hui Hoʻoulu Aloha, has participated in numerous cultural and hula events and has been recognized at the King Kamehameha Hula and Chant competition and at the Merrie Monarch Festival. Mr. Bridges was employed for over 46 years at the Polynesian Cultural Center (PCC) and retired as Director of Protocol overseeing the cultural training and presentations of all cultural areas represented at the PCC. He is fluent in the Hawaiian language and has lectured and given presentations on Hawaiian culture, cultural protocol, traditions, oral histories and especially moʻokūʻauhau (genealogy), throughout Hawaiʻi and abroad. He has served as a judge for several cultural events and competitions in Hawaiʻi and overseas, including at the Merrie Monarch Festival. Mr. Bridges is a respected community leader having served on the Oʻahu Island Burial Council for three Administrations, on the Koʻolauloa Neighborhood Board, and on the Koʻolauloa Planning Advisory Committee with the City and County of Honolulu. He is a member of the Koʻolauloa Hawaiian Civic Club.

3.5.6.1.3 General Comments

Ms. Miller and Mr. Bridges both noted that in their youth, the project area was generally remote and visited only rarely. Mr. Bridges shared that in his youth, his grandfather would venture up into these kula areas although he could not say whether he had visited the well site, and that the only explicit cultural practice he was aware of in the area in times past was the gathering medicinal plants for traditional Hawaiian medicine or lāʻau lapaʻau. He indicated that, depending on the malady being treated, people were familiar with efficacious plants and their locations, but that he was not aware of people ever venturing as far as the well site. Most plants were cultivated or collected lower down in Lāʻie. Mr. Bridges reflected that his grandfather, who had konohiki rights over a huge swathe of land from Kahana to Waimea, did at times venture into the uplands to gather plants for the purposes of healing his family and members of the community.

When asked if they were aware of any ongoing collection of medicinal plants in the vicinity of the Proposed Action, neither was aware of anyone using the area for that purpose. The consensus was that while they had been aware of two practitioners who had been active in times past, neither of the two were currently practicing, and that they were not aware of any others who were currently active in the area. In addition, the interviewees were not aware of any other traditional cultural

properties or practices such as depositing piko, making hoʻokupu, or hunting on the well site or in its immediate vicinity, including the proposed power line alignment. Neither were they aware of any moʻōlelo or wahi pana associated with the site.

Both kūpuna agreed that a theme running through their knowledge of the area was Lāʻie as a place for healing and its role as a puʻuhonua or place of refuge in pre-Contact times (Section 3.5.1). However, Mr. Bridges pointed out that the significance of puʻuhonua was more than simply a place to escape justice.

> *"You know, people don't understand the puʻuhonua concept. They just know that when you get into the boundary, you're safe, right? And then after this amount of time, you leave. But that's really not the process. You don't just go in there for a little while and leave. There is a whole process that you go through cleansing, spiritual, body and all of that, that there's a learning process. And in essence this is the same thing that's happening today. You come here and your life is changed when you leave. And so you have pockets of areas within this whole land mass that is special to families because this is what they did here, but for the most part the whole area was just a special, sacred place you know."*

3.5.6.1.4 Summary

Based on the information gathered via the interviews and other research, the project team has identified that the only traditional and customary practice potentially occurring in the project area is the gathering of medicinal plants for traditional Hawaiian medicine or lāʻau lapaʻau. It appears highly unlikely that this is occurring at the project site because (*i*) the interviewees indicated that it was more common in easily accessible areas closer to town, (*ii*) the vast majority of the project area is maintained as a roadway or fenced water tank site, and (*iii*) the project team, including LWC staff that have worked in the area for decades, has not observed people engaged in this activity in the project areas.

3.5.6.2 Impact Determination

The potential for impact to historic properties is discussed in Section 3.5.4.

In the view of the kūpuna, the proposed Lāʻie Water Company Production Well Project, with its goal of providing fresh water to the community, was consistent with this healing tradition, with Mr. Bridges stating, "To give health and wellness to self, to people, to family, the community…and basically that's the number one cultural thing; and the water…the water is incorporated into every aspect of wellness."

Based on consultation with Lāʻie kūpuna with knowledge regarding native Hawaiians' exercise of customary and traditional practices in the project area and vicinity, consultation with the SHPD, and the findings of the studies cited in this report, the proposed Lāʻie Water Company Production Well Project is not anticipated to affect the rights customarily and traditionally exercised for subsistence, nor affect cultural and religious purposes possessed by ahupuaʻa tenants who are descendants of native Hawaiians. In addition, the proposed project does not affect or impair any Hawaiʻi State Constitution, Article XII, Section 7 uses, or the feasibility of protection of those uses.

3.5.6.3 Feasible Action to Reasonably Protect Native Hawaiian Rights

The Lāʻie kūpuna consulted and the project team have not identified any particular actions to protect native Hawaiian rights. This is largely because the project is limited in scope and is not anticipated to have any adverse effect on native Hawaiian rights.

3.6 NATURAL HAZARDS

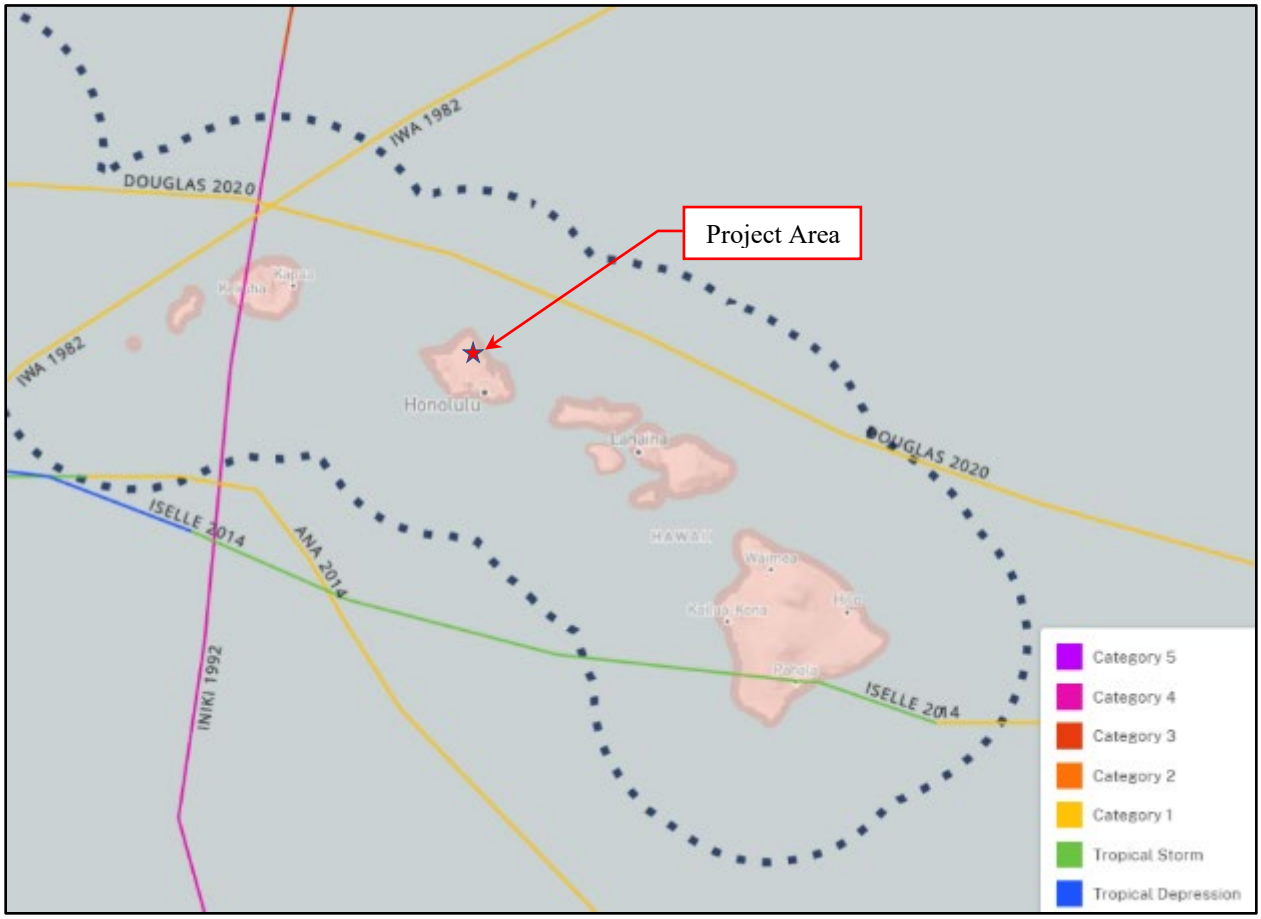
3.6.1 HURRICANES AND TROPICAL STORMS

Tropical cyclones originate over tropical or subtropical waters with organized deep convection and closed surface wind circulation around a well-defined center. Tropical cyclones extract heat energy from the ocean at high temperatures and heat export at low temperatures of the upper troposphere. Both hurricanes and tropical storms are tropical cyclones, with hurricanes having sustained wind speed of 74 miles per hour (mph) or more and tropical storms having wind speeds that range from 39 to 73 mph (National Oceanic Atmospheric Administration [NOAA]).

Generally, the National Weather Service's Central Pacific Hurricane Warning Center can expect four to five tropical cyclones in a normal season, with August and September being historically active months for storms in the region. Hurricanes are rare, as the combination of dry air, cooler water, large volcanic mountains, and wind shear results in downgrading to tropical storm as cyclones approach Hawaiʻi.

The first officially recognized hurricane to materialize in Hawaiian waters was Hurricane Hiki in 1950 and since there have been five hurricanes that have caused significant damage: Nina 1957, Dot 1959, ʻIwa 1982, Estelle 1986, and ʻIniki 1992 (School of Ocean and Earth Science and Technology [SOEST], University of Hawaiʻi). Figure 3-13 shows the hurricanes have passed within 60 miles of the main Hawaiian Islands in the past 40 years.

Figure 3-13: Hurricanes Within 60 Miles of the Main Hawaiian Islands (1982-2022)

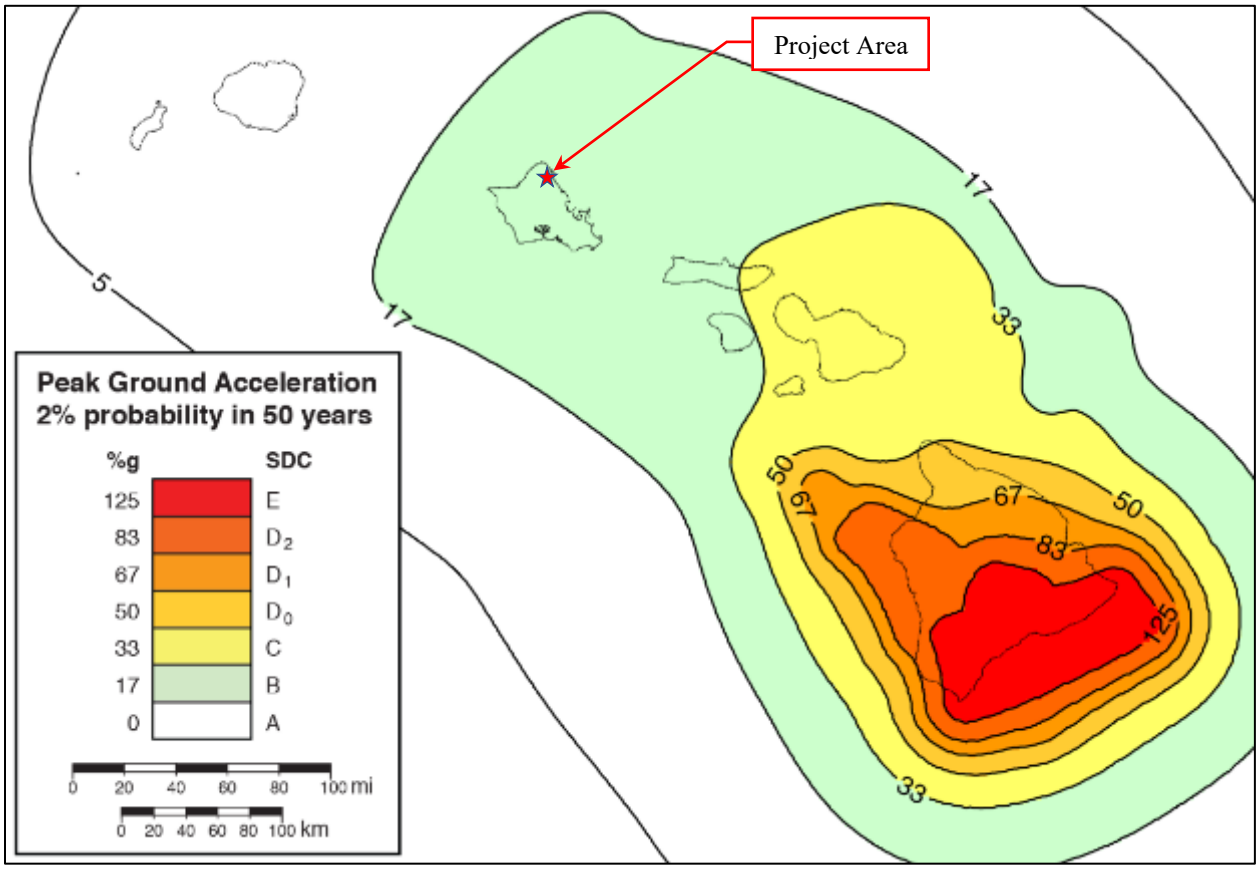


Source: https://coast.noaa.gov/hurricanes/#map=4/32/-80.

3.6.2 EARTHQUAKES

The USGS developed seismic hazard maps to represent the results of risk analysis and help estimate likely locations of future damaging earthquakes and the hazard they might pose in terms of ground shaking. Based on the USGS Seismic Hazard Map (Figure 3-14), O‘ahu has a general seismic Peak Ground Acceleration (PGA) risk that has a 2 percent chance of exceeding 0.17 percent of Earth’s gravitational acceleration (%g) PGA in the next 50 years. This corresponds to Seismic Design Category (SDC) B, and potential effects of shaking that include moderate shaking felt by all, some heavy furniture is moved, fallen plaster, and slight damage.

Figure 3-14: USGS Seismic Hazard Map Based on Past Earthquakes



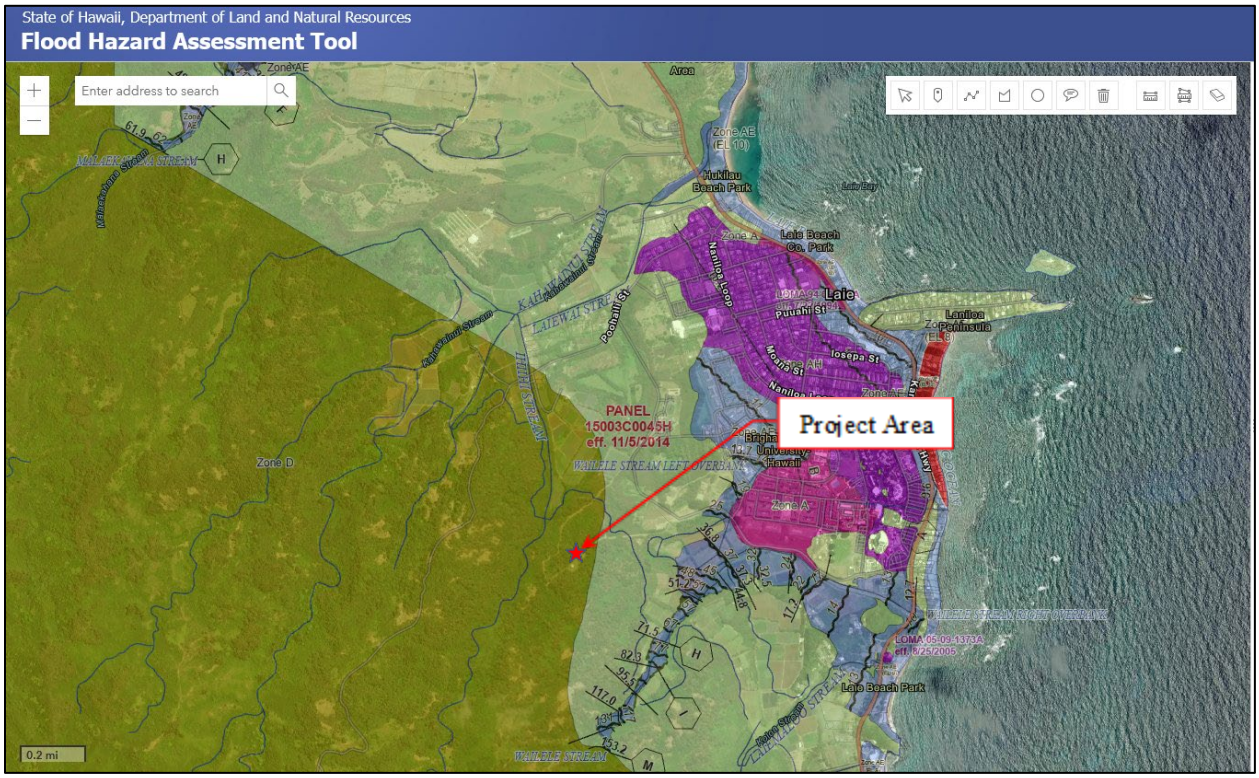
Source: https://www.usgs.gov/media/images/seismic-hazard-state-hawaii-based-past-earthquakes (Klein et al. 2001)

Like all of O‘ahu, the project site is designated by the Uniform Building Code (UBC) as Seismic Zone 2a. Current building codes, including the International Building Code (IBC), include minimum design criteria for structures to address the potential for damage due to seismic disturbances specific to each seismic zone. There is no threat of volcanic eruptions directly affecting the project area.

3.6.3 FLOODING

Figure 3-15 illustrates the flood zones in Lā‘ie based on FEMA’s flood assessment tool. The entire well site is in Flood Zone D. Flood Zone D corresponds to unstudied areas where flood hazards are undetermined but possible; it is likely that some flooding will occur, particularly near the streams in lower elevations. The project is not in a floodway or special flood hazard area.

Figure 3-15: Flood Hazard Assessment Tool

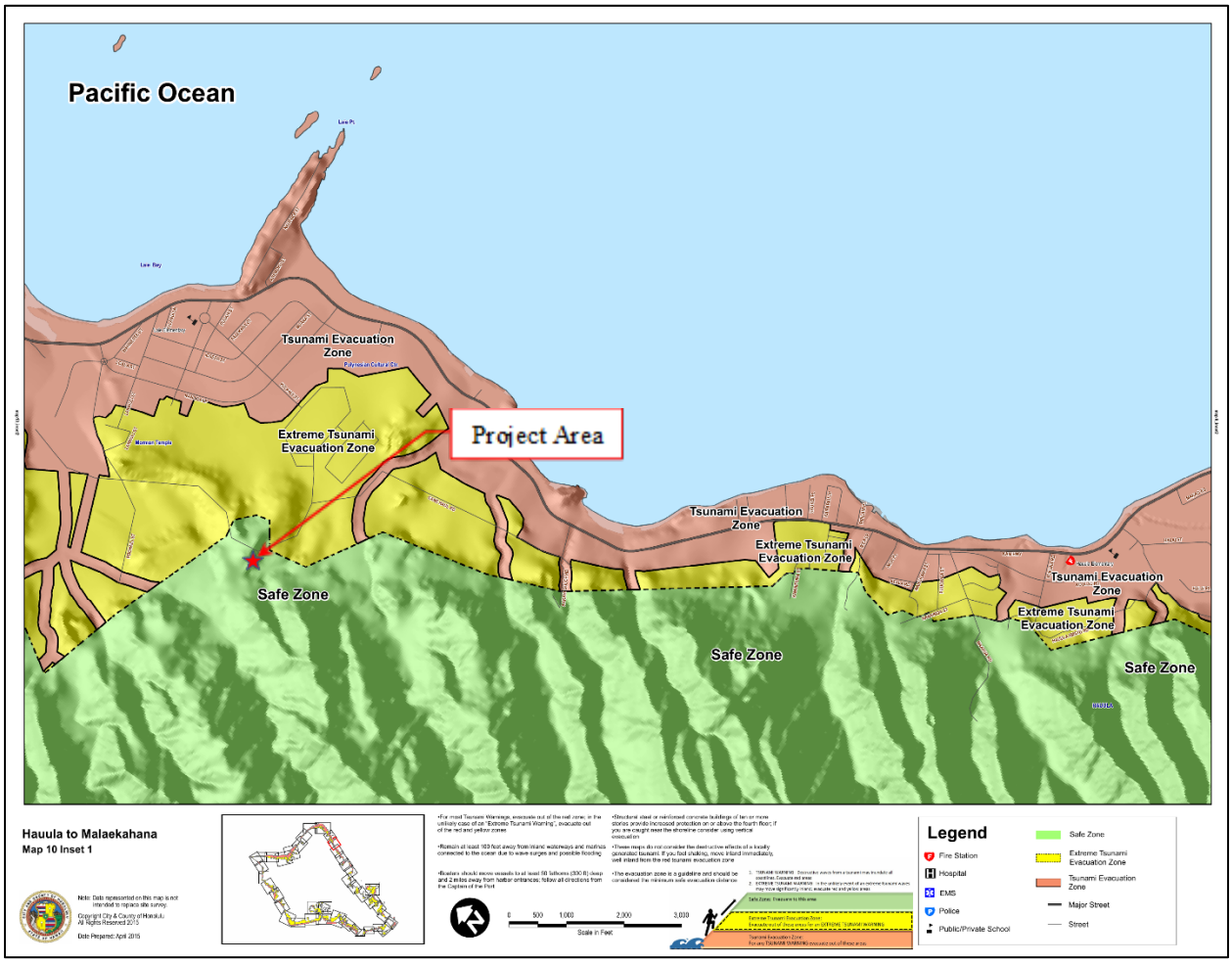


Source: FEMA Special Flood Hazard Aras for the State of Hawai‘i. GIS shapefiles.

3.6.4 TSUNAMI INUNDATION

As illustrated in Figure 3-16, coastal areas of Lā‘ie are in the Tsunami Evacuation Zone with nearby areas in the Extreme Tsunami Evacuation Zone. All elements of the proposed project are outside the tsunami and/or extreme tsunami evacuation zone(s). However, much of LWC's underground distribution system is in these evacuation zone(s) and would remain subject to inundation in the event of a catastrophic tsunami.

Figure 3-16: Tsunami Evacuation Zones, Hau‘ula to Mālaekahana Bay



Source: https://static.pdc.org/tsunami/oahu/Hauula_to_Malaekahana_map10_inset1.png

3.6.5 SEA LEVEL RISE

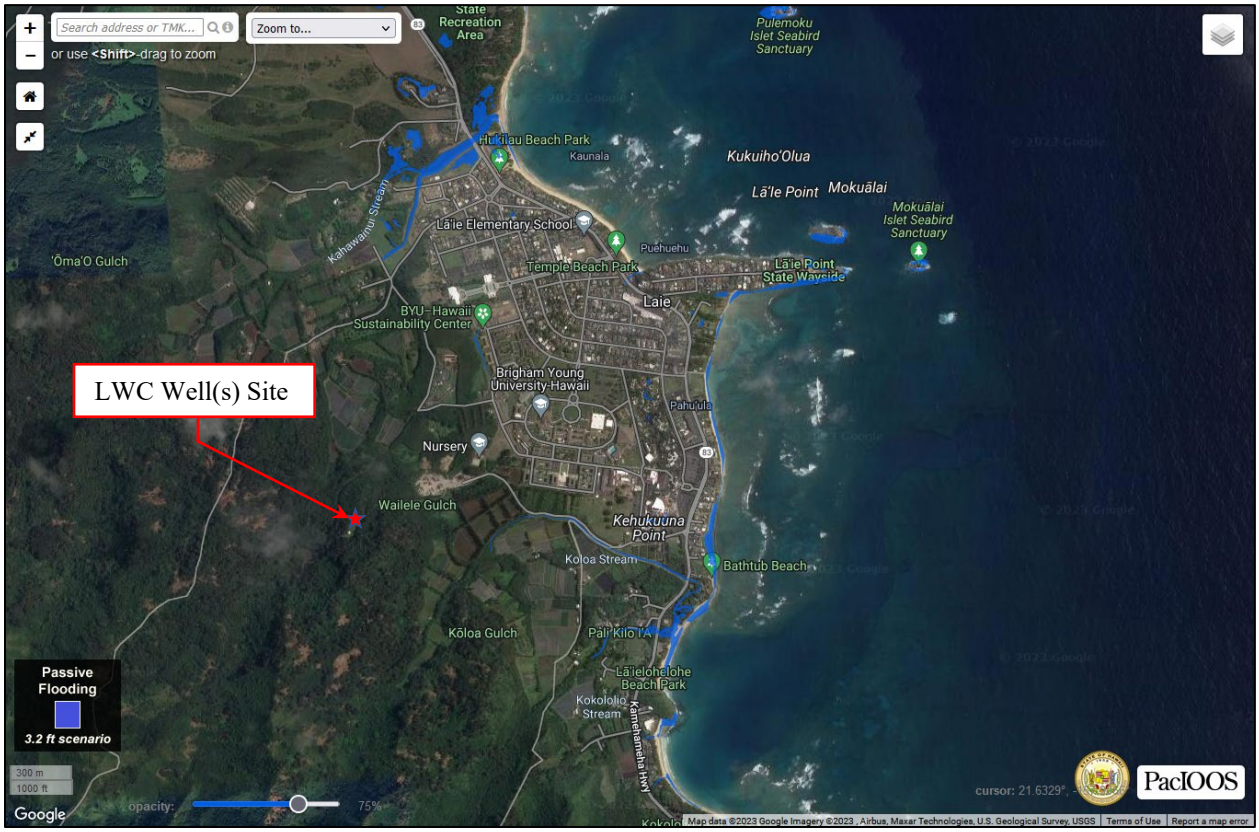
The *Hawai‘i Sea Level Rise Vulnerability and Adaptation Report* (HSLR), prepared by the Hawai‘i Climate Change Mitigation and Adaptation Commission (HCCMAC, 2017) combines best available science from the Intergovernmental Panel on Climate Change (IPCC), NOAA, and NASA to project sea level rise and vulnerability scenarios. These scenarios can be used to guide adaptation planning decisions and good practice recommendations.

The IPCC’s “business as usual” scenario predicts up to 3.2 feet of global sea level rise (SLR) by 2100. Other recent observations and projections estimate that 3.2 feet of SLR could be reached as early as 2060. Both the HSLR Report and the 2018 *State of Hawai‘i Hazard Mitigation Plan* recommend using the 3.2 feet SLR as an appropriate planning target when designing future projects.

The HCCMAC modeled the three chronic flood hazards associated with 3.2 feet of SLR: (*i*) passive flooding; (*ii*) annual high wave flooding; and (*iii*) coastal erosion. The combined footprint of these three hazards defines what the report terms the “Sea Level Rise Exposure Area” (SLR-XA) and indicates flooding in the area will be associated with “long-term, chronic hazards punctuated by

annual or more frequent flooding events." Figure 3-17 shows the SLR-XA in the vicinity of the project area with 3.2 feet of sea level rise. The SLR-XA is based entirely on passive flooding. To consider SLR passive flooding further, Figure 3-18 illustrates passive flooding under a 6-foot SLR scenario according to NOAA.

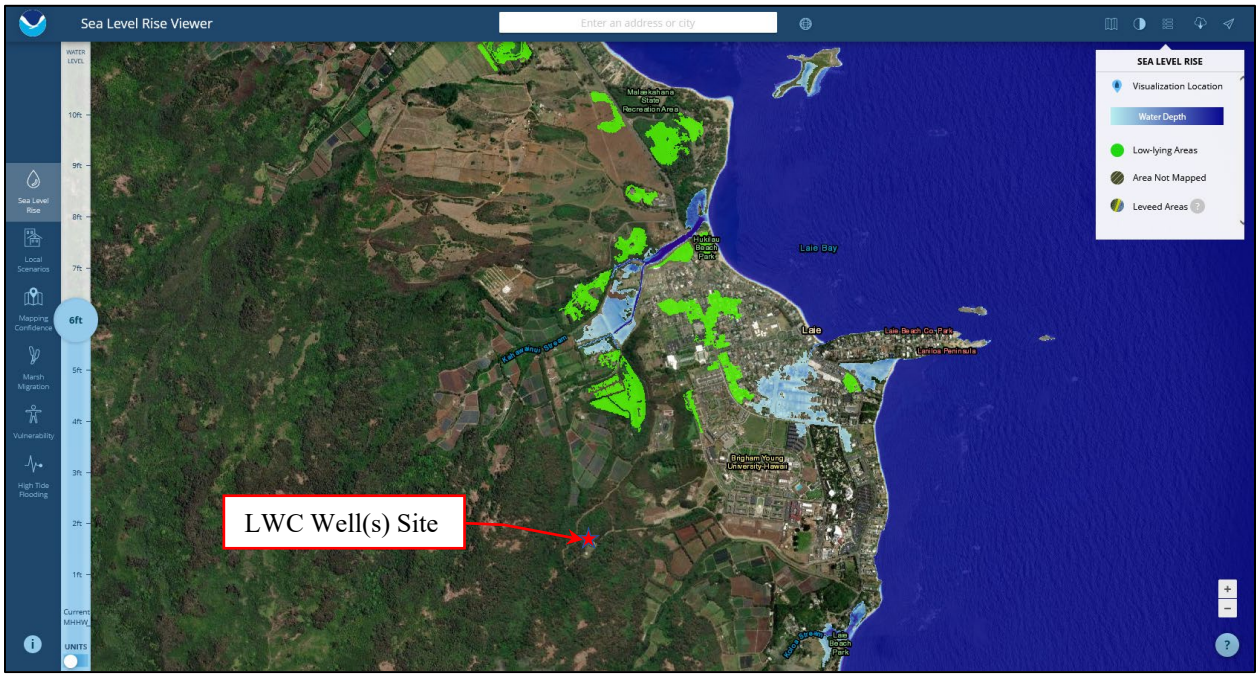
Figure 3-17: Sea Level Rise Exposure Area in Project Area under a 3.2-foot Sea Level Rise Scenario



Source: http://www.pacioos.hawaii.edu/shoreline/slr-hawaii/

As these figures show, low lying coastal areas, including some areas mauka of Kamehameha Highway and along waterways, will be prone to flooding due to SLR in the future.

Figure 3-18: Passive Flooding under a 6-foot Sea Level Rise Scenario



Source: http://www.pacioos.hawaii.edu/shoreline/slr-hawaii/ using data from the NOAA sea level rise viewer (https://coast.noaa.gov/digitalcoast/tools/slr.html)

3.6.6 POTENTIAL IMPACTS

Neither the Proposed Action nor the No Action Alternative would have any discernable impact on the susceptibility of the area to natural hazards such as storms, earthquakes, flooding, tsunami, or SLR. Hazards may episodically impact all or portions of Lā‘ie and any development within it, including the proposed project site. However, because the project is relatively far from the shoreline and at an elevated location, it is less likely to be impacted by these hazards. Floods, tsunamis, and SLR are not anticipated to have any direct impacts on the proposed project. As this project is intended to provide reliable safe drinking water to the community of Lā‘ie, resilience in providing safe drinking water during times of natural disasters is a key element.

3.6.7 AVOIDANCE, MINIMIZATION, AND MITIGATION MEASURES

Because one of the goals of the Proposed Action is to improve the reliability of LWC’s water system, this section details the measures it incorporates to ensure this reliability in the event of natural hazards:

- Constructing all new infrastructure in compliance with regulatory controls to meet current seismic, plumbing, building, and critical infrastructure code design requirements, reducing the risk of failure in the event of hazards.
- Extending the life of the existing LWC water distribution system new water sources to replace water sourced from the aging and deteriorated facilities.
- Locating all major project elements outside of flood zones (Figure 3-15), Tsunami Evacuation Zones (Figure 3-16), and the SLR-XA Figure 3-17).

3.7 VISUAL AND AESTHETIC RESOURCES

3.7.1 EXISTING CONDITIONS

The objective of CCH's *O‘ahu General Plan* (2021), regarding aesthetic and scenic resources (Chapter III. Natural Environment and Resource Stewardship, Objective B) is to:

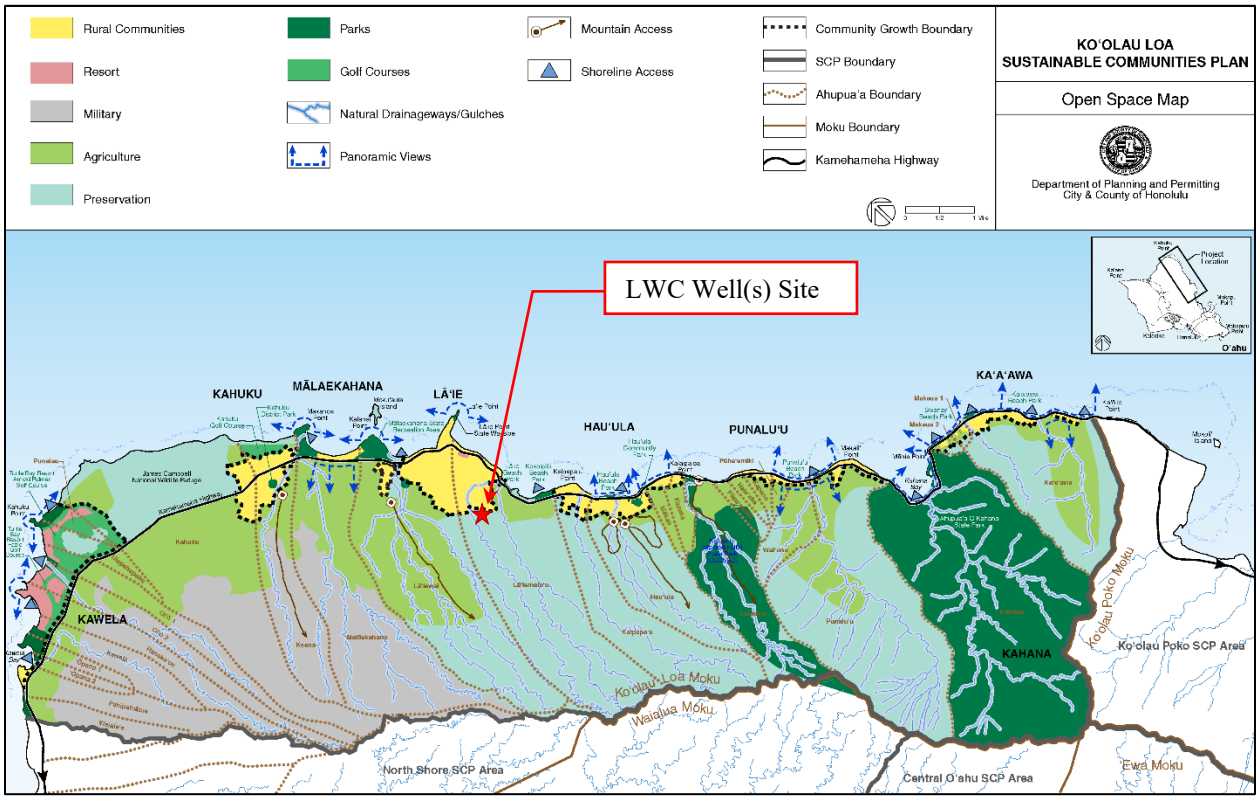
> *preserve and enhance natural landmarks and scenic views of O‘ahu for the benefit of both residents and visitors as well as future generations.*

CCH's *Ko‘olau Loa Sustainable Communities Plan* (KLSCP; DPP, 2020) reaffirms Ko‘olauloa's role in O‘ahu's development patterns as intended in the *O‘ahu General Plan,* by establishing policies and guidelines for future development. It makes a clear priority of preserving and enhancing scenic, recreational, and cultural features of the Ko‘olauloa landscape that help define the community's sense of place. It further establishes that:

> *The emphasis for the policies and guidelines…is placed on the region's rural character, the preservation of scenic views and natural resources, providing recreational resources and promoting accessibility to shoreline and mauka areas.*

The KLSCP goes on to describe and define protected recreational areas, land features, and scenic panoramas in its *Open Space Map* reproduced here as Figure 3-19. It identified intermittent panoramic views from Kamehameha Highway in both makai and mauka directions, including sweeping views of the Ko‘olau Mountains and the Pacific Ocean. However, in Lā‘ie, the only panoramic view identified on the *Open Space Map* are the panoramic views of the Pacific Ocean from Lā‘ie Point State Wayside and the surrounding area.

Figure 3-19: KLSCP Open Space Map



Source: DPP (2020)

3.7.2 POTENTIAL IMPACTS

The potential for the proposed Lā‘ie Water Company Production Well Project to impact visual and aesthetic resources is minimal. The well site is located well within a large, privately-owned parcel in the Conservation District, and is not visible from any public vantage point due to the effects of intervening topography and vegetation. The proposed new wells, control building, and other infrastructure are modest in nature and scope, with a lower profile than the existing 2.0 MG water storage tank. Finally, no panoramic views or other visual or aesthetic resources identified in CCH plans and guidance documents are present on the project site or its general vicinity, including the power line corridor. Consequently, no significant adverse impacts to views and scenic vistas are anticipated because the wells and other elements would not be visible from important viewpoints identified in state and regional plans.

The No Action Alternative would not involve the development of new aboveground elements that would be visible from important viewpoints identified in state and regional plans. Therefore, it does not have the potential to have an adverse effect on visual and aesthetic resources.

3.8 ROADWAYS AND TRAFFIC

3.8.1 EXISTING CONDITIONS

The well site is a small portion of a remote, large, and privately-owned parcel, much of which is in the State of Hawai‘i’s Conservation Land Use District. There are no public roadways present

on the subject parcel, which is accessible via a cane haul road branching off Kamehameha Highway south of the PCC and BYUH. The cane haul road is owned by Property Reserve, Inc. and managed by its agent, Hawai‘i Reserves, Inc. This road is lightly travelled because there is no outlet and there are no public uses in the areas it accesses.

Kamehameha Highway is State Highway 83 and is heavily used. It is a two-lane roadway with a posted speed limit of 35 miles per hour. It is not unusual for peak-hour traffic to have more than 1,000 vehicles with over 600 in the dominant direction; 24-hour traffic volumes exceed 13,000 vehicles. The intersection of Kamehameha Highway and the cane haul road to be used for access can be busy, due to the volume of vehicles on Kamehameha Highway and the popularity of the PCC, which is directly adjacent to this intersection.

3.8.2 POTENTIAL IMPACTS

Specific project activities with the potential to generate vehicle trips on Kamehameha Highway and contributing roadways include the following: (*i*) construction workers' commutes to and from the project site; (*ii*) delivery of construction material and equipment to the site; and (*iii*) removal of construction waste and debris. In total, the volume of construction-related vehicle trips on Kamehameha Highway would be small and spread throughout the day and would not be concentrated during the morning and afternoon peak-hour traffic. Adequate space exists so that vehicle parking associated with construction activities will not interfere with the active traffic lanes along any public roadway. Operation of the proposed project would not increase the number of trips to the site because the wells could be operated remotely and LWC personnel are frequently present in the area. Therefore, the project would have only a negligible impact on roadways and traffic.

The No Action Alternative would involve maintenance and repairs to the existing LWC water system, which would likely increase in frequency and magnitude as the existing system ages. Thus, over a longer period, the No Action Alternative could result in more frequent maintenance becoming necessary, and the same avoidance and minimization measures would be employed as per the Proposed Action.

3.8.3 AVOIDANCE, MINIMIZATION, AND MITIGATION MEASURES

Construction activity related traffic impacts would be avoided and minimized by delivering large equipment and materials during off-peak times, stabilizing the construction entrance/exit to prevent entrained materials from leaving the project site and impacting area roadways. The proposed project would require all construction workers to park vehicles and other equipment in appropriate areas at the project site.

3.9 SOCIO-ECONOMIC CONDITIONS

3.9.1 EXISTING CONDITIONS

Lā‘ie is a rural area with a mixture of urban, agricultural, and preservation uses. It is a census designated place (CDP); in 2010 the total population was estimated at 6,138, but by the 2020 census that number had fallen to 5,963. The population primarily consists of people of mixed race (25 percent), Pacific Islander (29 percent), and white (27 percent). Economic factors, including

income and poverty rates, are difficult to estimate. According to the U.S. Census Bureau, the median household income (in 2021 dollars), between 2017 and 2021 was $101,011 while the per capita income was estimated to be $21,011. Approximately 11.3 percent of persons in Laie CDP were experiencing poverty.

3.9.2 POTENTIAL IMPACTS

The proposed production wells, control building, and associated water infrastructure are allowable uses under the existing land use designations for the site. They will not interfere with any adjacent land use or economic activity and are intended to be supportive of these planned uses, all of which depend on water from LWC. The Proposed Action will not result in any changes to the demographics or economic activity in the immediate vicinity of the project or the broader region where it is situated. Aside from the temporary and relatively modest construction employment and expenditures, the project would not stimulate or otherwise promote population growth or economic activity.

Under the No Action Alternative, no wells, control building, or other new water infrastructure would be constructed to serve LWC's existing system. The use of the BYUH wells may cease in time and, as a result, disruptions in water service could take place if breakdowns occurred at the Quarry wells. Interruptions in water service would not be acceptable to water customers. As such, the No Action Alternative would have a substantial adverse effect on the socio-economic environment in Lā‘ie.

3.10 OTHER RESOURCES AND TOPICS

The Proposed Action consists of constructing two new production wells and associated infrastructure within the fenced area of an existing LWC facility. As such, there are certain categories of resources that the Proposed Action does not have the potential to substantially impact. Therefore, the following topics, which are sometimes discussed in detail in EAs, are only briefly mentioned in this section:

- *Air Quality*. Air quality in the region is good; all federal and state air quality standards have been attained. As discussed in Section 3.2.3, fugitive dust would be controlled during construction. The action alternative does not involve activities or uses that have the potential to meaningfully affect air quality on a local or regional scale.
- *Noise*. The predominant noise sources in the vicinity are wind, vehicular traffic from Kamehameha Highway and other roadways, passing aircraft, and the operation of farm equipment. Aside from some brief increase due to construction activities, the Proposed Action does not involve activities or uses that have the potential to meaningfully affect the sonic environment.
- *Other Public Utilities, Infrastructure, and Services*.
    - *Electricity and communications.* Overhead lines currently provide electrical and communication services to the region. A power line would need to be routed to provide three-phase power to the pumps and other equipment included as part of the Proposed Action (Section □). Project power use would be nominal, similar to other well pumps, which are common across O‘ahu. As no

additional water would be pumped, the level of power use would remain similar to current levels.

- *Wastewater*. The well site does not have any wastewater treatment system and that will continue to be the case after implementation of the Proposed Action. The Proposed Action itself will not produce any domestic wastewater during either the construction or operational phases of the project.
- *Storm Water Management.* No storm water management infrastructure is currently present within the well site; storm water is allowed to sheet flow across the area and percolate into the soil. LWC will require its contractor(s) to employ BMPs, as necessary, during construction to stabilize surface soils and prevent contaminants such as sediment, petroleum products, or debris from leaving the site via storm water runoff. Once complete and placed into operation, the Proposed Action will not alter storm water quantity, quality, or drainage patterns in any significant way.
- *Solid Waste.* The Proposed Action would generate small quantities of solid waste during construction. Once complete, the proposed wells, control building, and other infrastructure will not produce appreciable quantities of solid waste. The volume and type of waste generated would not be unusual and would be disposed of at on-island facilities in accordance with applicable rules.
- *Fire.* Lāʻie is primarily served by the Kahuku Fire Station, Engine No. 13 at 56-460 Kamehameha Highway. Because the Proposed Action is on conservation land, there are no fire hydrants within 500 feet of the project site. However, there is ample firefighting water in the on-site 2.0 MG tank present on the project site. The proposed wells would also act as water sources for firefighting for the 100 hydrants in LWC's service area.
- *Police.* The site is in Honolulu Police Department District 4, serving Kailua, Kāneʻohe, and Kahuku. The Proposed Action would not affect the operation of the police department.
- *Schools.* Lāʻie is in the Castle-Kahuku public school complex. Children residing in Lāʻie may attend Lāʻie Elementary School at 55-109 Kulanui Street. The largest educational institution in Lāʻie is BYUH, northwest of the project site. The Proposed Action would not affect the operations of area schools.
- *Parks.* The only CCH park in Lāʻie is Lāʻielohelohe Beach Park, which is on the makai side of Kamehameha Highway. The nearest State park is Lāʻie Point State Wayside. The Proposed Action would not affect access to or operations at the parks.
- *Other services.* Primary medical services for Lāʻie residents and workers are provided by Emergency Medical Services Division staff and ambulance services. The nearest hospital is Kahuku Medical Center. The Proposed Action would not affect the operation or availability of these services.

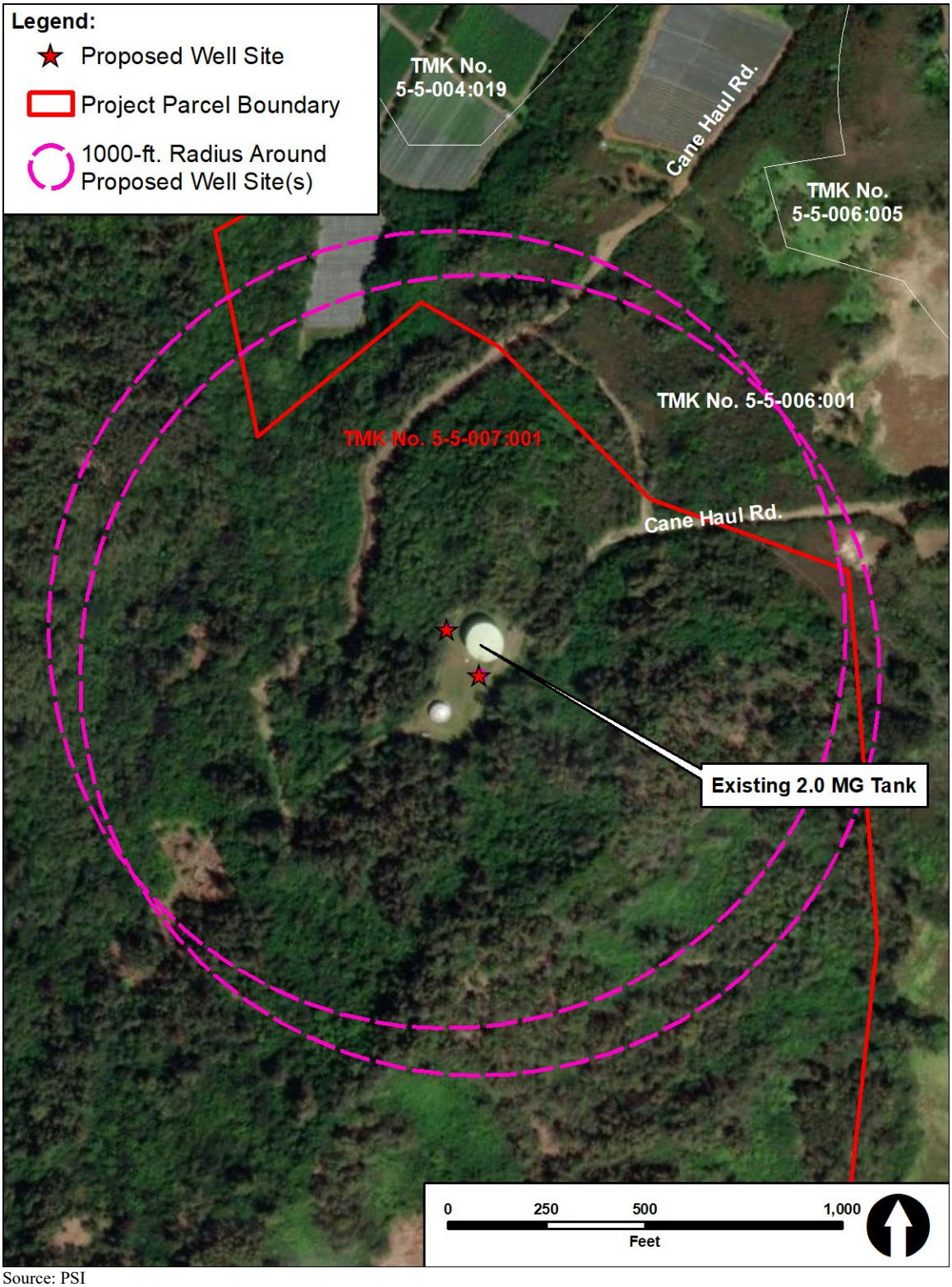
3.11 CUMULATIVE IMPACTS

Cumulative impacts are those that result from past, present, and reasonably foreseeable future actions, combined with the potential impacts of a specific (proposed) project. Cumulative impacts may result from a series of projects that individually do not generate significant adverse effects, but collectively add up to a significant negative impact on the environment.

Relevant past, present, and reasonably foreseeable actions in this situation include the continued operation of LWC infrastructure already present on the well site (i.e., the 2.0 MG and 0.3 MG water storage tanks and their interconnections), the proposed improvements described in Section 2.1 of this report, and the proposed operations and maintenance of these wells and other improvements as detailed om the previous sections of this report.

There are currently no foreseeable actions, as defined by HRS Chapter 343, related to the Proposed Action. The proposed project is not contingent on any other action, public or private, and would not individually cause future actions to be taken by any public or private entities. Therefore, the project would not generate cumulative impacts. However, if an IWS owner within 1,000 feet of the proposed wells needs to replace their IWS due to failure, then they would be required to: (*i*) apply for a variance and upgrade to an Advanced Treatment Unit class of IWS; or (*ii*) relocate their IWS so that it was more than 1,000 feet from the wells. As no IWS are known to be present within 1,000 feet of the proposed wells (Figure 3-20), such an IWS upgrade or move is not foreseeable.

Figure 3-20: 1,000-foot Radius from Proposed Wells



Source: PSI

The impacts of the Proposed Action, including the future maintenance of the proposed wells, control building, and associated infrastructure, are disclosed in Sections 3.1 through 3.10. As

identified, no significant impacts are anticipated. Chapter 5 further documents that no significant impact is anticipated. Anticipated benefits of the Proposed Action include providing safe, reliable, and affordable potable water to all LWC customers in sufficient quantities, in a manner that allows for safe and cost-effective operation and maintenance, and which is consistent with the long-term goals identified in the latest update of LWC's *Water Resource Plan* (2023).

The incremental effects of the Proposed Action combined with the effects of present, past, and foreseeable projects are not cumulatively significant.

3.12 SECONDARY IMPACTS

Secondary effects are associated with an activity but do not result directly from the activity. The Proposed Action does not appear to have the potential to involve significant secondary impacts to property valuation, population, housing, community services, public facility needs, employment, and compatibility with surrounding land uses. This is because the Proposed Action would not result in substantial changes in the cost or availability of water or other resources that land use changes and development depend on. For example, the Proposed Action:

- Would not change LWC service area.
- Would not change employment opportunities associated with LWC or other activities (PCC, BYUH, etc.) in the project area.
- Would not increase the volume of water pumped from the aquifer and made available for agricultural, residential, and commercial uses in the current service area or beyond.
- Would not change valley stream flows in a manner that adversely affects the availability of water for off-stream agricultural uses.
- Would not result in the subdivision of land for the purposes of residential, agricultural, or commercial development.
- Would not provide access to currently inaccessible areas.
- Does not require other actions to be taken or services to be provided in the project area by government agencies or private parties.

Therefore, the Proposed Action would not induce land use changes or demographic changes in the region and would not cause significant secondary impacts.

4 CONSISTENCY WITH LAND USE PLANS, POLICIES, AND CONTROLS

This chapter discusses the relationship of the Proposed Action with applicable land use plans, policies, and regulations at the local and state level. The Proposed Action is not located in the Special Management Area or the Shoreline Setback Area and these are not considered further in this chapter.

4.1 STATE OF HAWAI‘I

4.1.1 HAWAI‘I STATE PLAN, HRS § 226

Adopted in 1978 and last revised in 1991, the *Hawai‘i State Plan* is intended to guide the future long-range development of the State by:

- Identifying goals, objectives, policies, and priorities for the State;
- Providing a basis for determining priorities and allocating limited resources, such as public funds, services, human resources, land, energy, water, and other resources;
- Improving coordination of federal, state, and county plans, policies, programs, projects, and regulatory activities; and
- Establishing a system for plan formulation and program coordination to provide for an integration of all major state, and county activities.

The *Hawai‘i State Plan* is a policy document. It depends on implementing laws and regulations to achieve its goals. While not all sections of the *Hawai‘i State Plan* are directly applicable to the Proposed Action, it does directly address objectives and policies for water facility systems; the most relevant are below.

> *§226-16 Objective and policies for facility systems--water. (a) Planning for the State's facility systems 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:*
>
> *(1) Coordinate development of land use activities with existing and potential water supply.*
>
> *(2) Support research and development of alternative methods to meet future water requirements well in advance of anticipated needs.*
>
> *(4) Assist in improving the quality, efficiency, service, and storage capabilities of water systems for domestic and agricultural use.*
>
> *(6) Promote water conservation programs and practices in government, private industry, and the general public to help ensure*

> *adequate water to meet long-term needs. [L 1978, c 100, pt of §2; am L 1986, c 276, §15]*

Discussion: The Lā‘ie Water Company Production Well Project aims to ensure the continuous, reliable delivery of potable water to its service area in the Lā‘ie community. It is needed because the BYUH Wells, with 130+ years in service, may become unavailable to LWC. The planning process for the Proposed Action has been coordinated across State and County agencies and in consultation with the local community (Chapter 6). It is intended to improve the quality, efficiency, and level of service for the benefit of the Lā‘ie community. Consequently, LWC has concluded that the Lā‘ie Water Company Production Well Project is consistent with, and advances, these objectives and policies of the *Hawai‘i State Plan*.

The *Hawai‘i State Plan* also establishes specific objectives and policies for land-based, shoreline, and marine resources in the physical environment:

> *§226-11 Objectives and policies for the physical environment--land-based, shoreline, and marine resources. (a) Planning for the State's physical environment with regard to land-based, shoreline, and marine resources shall be directed towards achievement of the following objectives:*
>
> *(1) Prudent use of Hawaii's land-based, shoreline, and marine resources.*
>
> *(2) Effective protection of Hawaii's unique and fragile environmental resources.*
>
> *(b) To achieve the land-based, shoreline, and marine resources objectives, it shall be the policy of this State to:*
>
> *(1) Exercise an overall conservation ethic in the use of Hawaii’s natural resources.*
>
> *(3) Take into account the physical attributes of areas when planning and designing activities and facilities.*
>
> *(4) Manage natural resources and environs to encourage their beneficial and multiple use without generating costly or irreparable environmental damage.*
>
> *(5) Consider multiple uses in watershed areas, provided such uses do not detrimentally affect water quality and recharge functions.*
>
> *(8) Pursue compatible relationships among activities, facilities, and natural resources.*

Discussion: From its inception, the Proposed Action has been intended to support the prudent management, use, and improvement of water resources and infrastructure in Lā‘ie. The planning and design of the Proposed Action has been oriented to the effective protection and conservation of water resources while fulfilling LWC’s obligation to the community to provide reliable, continuous, and affordable potable water for domestic and commercial purposes. The Proposed Action has been developed with Lā‘ie’s unique environmental context in mind, considering the unique physical and hydrological characteristics of LWC service area, and seeking to balance the multiple uses of this watershed without imposing adverse impacts on water quality or groundwater recharge functions. Based on these considerations, LWC believes that the Proposed Action

advances these objectives and policies of the *Hawai‘i State Plan* related to prudent management and use of natural resources.

4.1.2 HAWAI‘I 2050 SUSTAINABILITY PLAN

The *Hawai‘i 2050 Sustainability Plan* is a blueprint for Hawai‘i’s preferred future. It is the most comprehensive planning process since the *Hawai‘i State Plan* was developed over four decades ago, and was most recently updated in 2021. The *Hawai‘i 2050 Sustainability Plan* has seventeen major Sustainable Development Goals (SDGs), designed to achieve the State’s preferred future by the year 2050, and relating to: (*i*) no poverty; (*ii*) zero hunger; (*iii*) good health and well-being; (*iv*) quality education; (*v*) gender equality; (*vi*) clean water and sanitation; (*vii*) affordable and clean energy; (*viii*) decent work and economic growth; (*ix*) industry, innovation, and infrastructure; (*x*) reduce inequalities; (*xi*) sustainable cities and communities; (*xii*) responsible consumption and production; (*xiii*) climate action; (*xiv*) life below water; (*xv*) life on land; (*xvi*) peace, justice, and strong institutions; and (*xvii*) partnerships.

Considered together, the *Hawai‘i 2050 Sustainability Plan*’s SDGs identify what it hopes to achieve, the strategic actions characterize the paths to achieving the Plan’s goals, and the indicators serve to measure progress along the way. While not all the Plan’s SDGs are directly applicable to the Proposed Action, the specific SDGs most applicable to the Proposed Action are:

> *Sustainable Development Goal 6 – Ensure availability and sustainable management of water and sanitation for all.*
>
> *The UN goal is to ensure the availability and sustainable management of water and sanitation for all and includes targets that address the following:*
>
> > *Achieving universal continuous access to safe drinking water and sanitation by promoting water-use efficiency and sustainable water withdrawals.*
> >
> > *Integrating smart water resource management at all levels.*
> >
> > *Increasing water use efficiency across sectors.*

Discussion: The Lā‘ie Water Company Production Well Project is wholly consistent with the *Hawai‘i 2050 Sustainability Plan*’s SDG related to clean water and sanitation. By removing aging and failing infrastructure and replacing it with new equipment meeting modern standards, the proposed project will contribute to continuous access to safe drinking and sanitary water, improving the efficiency of the system and ensuring that future withdrawals will be contained within sustainable limits. The Proposed Action will further this SDG and its targets by introducing modern water resource management tools, methods, and equipment at every level of planning and implementation, and of which this report is a critical component. Finally, the proposed Lā‘ie Water Company Production Well Project has the potential to improve water use efficiency at all levels within the service area, from pumping, to storage, transmission, and use. For these reasons, LWC has concluded that the Proposed Action, while not interfering with the ability to achieve the other goals in the *Hawai‘i 2050 Sustainability Plan*, is consistent with and advances the *Hawai‘i 2050 Sustainability Plan*’s SDG for ensuring the availability and sustainable management of clean water and sanitation for all.

4.1.3 HAWAI‘I LAND USE LAW; HRS § 205

HRS § 205 established the State Land Use Commission and gives this body the authority to designate all lands in the State as Urban, Rural, Agricultural, or Conservation District. The counties make all land use decisions within the Urban District in accordance with their respective county general plans, development plans, and zoning ordinances. The counties also regulate land use in the State Rural and Agricultural Districts, but within the limits specified by HRS § 205. The existing wells and infrastructure connecting them to the distribution systems are in the State's Conservation District. HAR § 13-5-10 establishes five distinct subzones within the Conservation District: (*i*) Protective; (*ii*) Limited; (*iii*) Resource; (*iv*) General; and (*v*) Special. The proposed wells and associated infrastructure are in the General Subzone.

Discussion: As confirmed in its May 11, 2023, response to LWC's scoping request, the OCCL states that the Proposed Action will effectively change the existing water storage site into a water production site (see Section 6.1.2):

> *"This appears to be an be an identified land use pursuant to the Hawai'i Administrative Rules §13-5-22, P-8 (D-1) Major alteration of existing structures, facilities, uses, and equipment, or topographical features which are different from the original use or different from what was allowed under the original permit. When county permit(s) are required for the associated plan(s), the department's approval shall also be required. This would require the filing of a Conservation District Use Permit and all required attachments for a Board permit. Therefore, to allow, modify or deny the project would be at the discretion of the Board of Land and Natural Resources."*

The requirement for a CDUP issued by the BLNR prior to implementation of the Proposed Action is noted in Section 1.4 and is the basis for the requirement for this EA.

4.1.4 CONSERVATION DISTRICT

In the process of seeking a CDUA, the DLNR of the Board of Land and Natural Resources will evaluate the merits of the proposed land use based upon the following eight criteria.

4.1.4.1 Consistency with Purpose of the Conservation District

The purpose of the Conservation District is to conserve, protect, and preserve the important natural and cultural resources in the State through appropriate management and use to promote their long-term sustainability and the public health, safety, and welfare.

Discussion: The proposed project would expand on an existing and identified use with the Conservation District, which is a Public Purpose Use consisting of an independent non-governmental regulated utility operating a potable water system. Such Public Purpose Uses are an identified use within the Conservation District, General Subzone. Operation of the proposed wells within the limits of the WUP allocation would ensure appropriate management and use in a manner that promotes long-term sustainability of the groundwater resource.

The project will protect and sustain groundwater, surface water, and the environment because, as detailed in Section 3.3.2, the new well site is in the same Ko‘olauloa Aquifer System as the existing

wells and the same (or less) water volume will be pumped from the aquifer. Importantly, the new wells will be built to modern standards that contribute to the protection of groundwater resources.

4.1.4.2 Consistency with Objectives of the Subzone

The proposed project is in the Conservation District, General Subzone. The objective of the General Subzone is to designate open space where specific conservation uses may not be defined, but urban uses would be premature. The proposed use is not an urban use; it is a Public Purpose Use, which is an identified use in all Conservation District subzones, from the most restrictive Protective Subzone to the least restrictive General Subzone. The proposed project is limited in extent. Ample open space in the Conservation District will remain for other appropriate uses.

4.1.4.3 Consistency with HRS Chapter 205A, CZM

The proposed project's consistency with the Coastal Zone Management Program, HRS Chapter 205A, is detailed in Section 4.1.5.

4.1.4.4 Not Cause Substantial Adverse Impact to Existing Natural Resources

As discussed in Section 3.4, the well site is primarily a well maintained and fenced area managed by LWC for potable water storage. The small area to be used outside of the existing fence and the power line alignment is dominated by introduced and invasive species. No rare, threatened, or endangered species are known to use the project site, and no activities are contemplated that would pose a threat to rare, threatened, or endangered species, or their designated critical habitat. In addition, the Proposed Action would not impact any resource or habitat needed for the protection of rare, threatened, or endangered species. Measures outlined in Section 3.4.3 will be implemented to avoid and minimize potential effects to rare, threatened, or endangered species. As such, the proposed project will not cause a substantial adverse impact to existing natural resources within the surrounding area, community, or region.

4.1.4.5 Compatibility with Surrounding Area

The proposed project consists exclusively of infrastructure that is common to portable water system installations. The well site is currently a potable water storage facility. Over the years, the use of the site for potable water infrastructure has proven itself to be compatible with the area, appropriate to the physical conditions and capabilities of the parcel. The minor expansion of the existing use to include groundwater wells is not anticipated to detract from the compatibility or appropriateness of the use.

4.1.4.6 Preserve or Improve upon Aspects of the Land

As described in Chapter 3, the proposed project is not anticipated to have significant adverse effects on the environment. The BMPs outlined in that chapter are designed to minimize the potential for impact and preserve the land.

4.1.4.7 Subdivision will not Increase Intensity of Land Use

The Proposed Action does not involve the subdivision of land.

4.1.4.8 Proposed Use will not be Detrimental to Public Health and Safety

The proposed project will be like the many similar potable well sites in the Conservation District throughout the State of Hawai‘i. It will be fenced for security, built to applicable codes, monitored and operated remotely, and maintained regularly. There is not a history of similar installations posing a health and safety risk to the public. As such, the proposed project will not be materially detrimental to the public health, safety, and welfare. In fact, the continued availability of clean potable water facilitated by the proposed project is considered a public health benefit.

4.1.5 COASTAL ZONE MANAGEMENT PROGRAM, HRS § 205A

The objectives of the Hawai‘i CZM Program are set forth in HRS § 205A. The State Office of Planning and Sustainable Development administers Hawai‘i's CZM Program. The program is intended to promote the protection and maintenance of valuable coastal resources. All lands in Hawai‘i are classified as valuable coastal resources. A general discussion of the proposed project's consistency with the objectives and policies of Hawai‘i's CZM Program follows.

4.1.5.1 Recreational Resources

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

Policies:

A) Improve coordination and funding of coastal recreational planning and management; and

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

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

ii) Requiring restoration of coastal resources that have significant recreational and ecosystem value, including but not limited to coral reefs, surfing sites, fishponds, sand beaches, and coastal dunes, when these resources will be unavoidably damaged by development; or requiring monetary compensation to the State for recreation when restoration is not feasible or desirable;

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 that dedication against the requirements of section 46-6.

Discussion: The proposed project is on a privately-owned parcel in upper Lā‘ie. There are no parks or public recreational resources within the project vicinity, the closest public park is Lā‘ielohelohe Beach Park, approximately one mile to the southwest. The proposed project will not result in any change to existing beach access, open spaces, or recreational opportunities over the existing condition. There is no shoreline access via the project area. Shoreline access will continue to be available via the many public access ways along Kamehameha Highway. No development is proposed in a shoreline setback area, including on any shoreline lot. Therefore, the proposed project is unlikely to have an adverse impact on publicly accessible recreational resources.

4.1.5.2 Historic Resources

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

Policies:

A) Identify and analyze significant 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.

Discussion: Section 3.5 of this report assesses the potential for impacts to historic and cultural resources. The collective finding of those reviews and assessments is that no historic properties will be affected by the proposed Lā‘ie Water Company Production Well Project. LWC will continue to coordinate with the SHPD and cultural stakeholders in compliance with all state and county laws. The proposed project will include measures to ensure appropriate handling and management of any historic resources that are encountered during project implementation (Section 3.5).

4.1.5.3 Scenic and Open Space Resources

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

Policies:

CZM policies related to scenic and open space are:

> *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 those developments to minimize the alteration of natural landforms and existing public views to and along the shoreline;*
>
> *C) Preserve, maintain, and, where desirable, improve and restore shoreline open space and scenic resources; and*
>
> *D) Encourage those developments that are not coastal dependent to locate in inland areas.*

Discussion: As discussed in Section 3.7, LWC infrastructure to be improved is low-profile and located in visually inaccessible areas, where views are precluded by intervening topography, vegetation, and structures. Consequently, the Lā‘ie Water Company Production Well Project is not anticipated to have any significant adverse impact on any valued scenic resources identified in any State or County planning document(s).

4.1.5.4 Coastal Ecosystems

Objective: *Protect valuable coastal ecosystems, including reefs, beaches, and coastal dunes from disruption, and minimize adverse impacts on all coastal ecosystems.*

Policies:

CZM policies related to coastal ecosystems are:

> *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 of significant biological or economic importance, including reefs, beaches, and dunes;*
>
> *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.*

Discussion: As discussed in detail in Section 3.4, LWC has determined, in consultation with USFWS, that there is no federally designated critical habitat within, or in the immediate vicinity, of the project area. Section 3.4 provides a detailed discussion of biota present within the project area, potential impacts resulting from implementation of the Proposed Action, and measures to avoid and minimize the potential for the project to adversely affect protected species. Further, the

BMPs described in Section 3.2.3 will avoid or minimize the short-term construction phase impacts to water and air quality.

4.1.5.5 Economic Uses

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

Policies:

CZM policies related to economic uses are:

> *A) Concentrate coastal dependent development in appropriate areas;*
>
> *B) Ensure that coastal dependent development and coastal related development are located, designed, and constructed to minimize exposure to coastal hazards and adverse social, visual, and environmental impacts in the coastal zone management area; and*
>
> *C) Direct the location and expansion of coastal development to areas designated and used for that development and permit reasonable long-term growth at those areas, and permit coastal development outside of designated areas when:*
>
> > *i) Use of designated locations is not feasible;*
> >
> > *ii) Adverse environmental effects and risks from coastal hazards are minimized; and*
> >
> > *iii) The development is important to the State's economy.*

Discussion: The Proposed Action will not encourage new coastal development in any way. The proposed infrastructure improvements are located well away from the coastline and do not directly interact with any properties on the makai side of Kamehameha Highway, although they are part of LWC service area. The improvements are not sized to support expanded development in the area and, as discussed in Section 3.3.2, LWC will not seek a modification to the WUP allotment. All proposed new infrastructure is located outside of special coastal hazard areas; they will be outside of the Tsunami Inundation Zone, outside the Extreme Tsunami Inundation Zone, and are designed in such a way as to minimize exposure to coastal hazards and adverse social, visual, and environmental impacts in the coastal zone management area. Finally, the improved availability and reliability of potable water is consistent with, and supportive of, the economic use objectives and policies identified by the State of Hawai‘i.

4.1.5.6 Coastal Hazards

Objective: *Reduce hazard to life and property from coastal hazards.*

Policies:

CZM policies related to coastal hazards are:

> *A) Develop and communicate adequate information about the risks of coastal hazards;*

B) Control development, including planning and zoning control, in areas subject to coastal hazards;

C) Ensure that developments comply with requirements of the National Flood Insurance Program; and

D) Prevent coastal flooding from inland projects.

Discussion: As discussed in detail in Section 3.6, The Proposed Action is well inland of most coastal hazards. All proposed new infrastructure is outside of designated hazard zones including any floodway or special flood hazard area. The proposed infrastructure will be in Flood Zone D, which corresponds to unstudied areas where flood hazards are undetermined but possible. The Proposed Action will not increase the vulnerability of the area to the effects of coastal floodings, nor is it anticipated to have any deleterious effects on coastal hazards or emergency response when such hazards occur. Consequently, LWC has concluded that the Proposed Action is consistent with the CZM policies related to coastal hazards.

4.1.5.7 Managing Development

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

Policies:

CZM policies related to managing development are:

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 requirements; and

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

Discussion: The Proposed Action complies with applicable laws and policies regarding coastal development. Chapter 6 of this EA details the outreach conducted to date. LWC will continue to work cooperatively with all government agencies with oversight responsibilities to facilitate efficient processing of permits and informed decision-making by the responsible parties.

4.1.5.8 Public Participation

Objective: *Stimulate public awareness, education, and participation in coastal management.*

Policies:

CZM policies related to public participation are:

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.

Discussion: As discussed in Section 1.2, the Lā‘ie Water Company Production Well Project is intended to provide the Lā‘ie community with more robust and reliable water service. This EA has been prepared to disclose potential short-term and long-term impacts of the proposed improvements to interested individuals, organizations, and agencies. A notice of availability for the Draft EA will be published in the Office of Planning and Sustainable Development, ERP's bi-monthly bulletin, *The Environmental Notice* with a request for review and comment. In addition, a presentation will be made to the Lā‘ie Community Association and the Ko‘olauloa Neighborhood Board during the Draft EA review period. Project proponents will provide information to the association and the neighborhood board during the Draft EA review period. In addition, the project will require a CDUP from DLNR, a Well Construction permit from CWRM, and a Pump Installation Permit from CWRM, which will all provide additional opportunities for public review and input.

4.1.5.9 Beach and Coastal Dune Protection

Objective: *(A) Protect beaches and coastal dunes for: (i) public use and recreation; (ii) the benefit of coastal ecosystems; and (iii) use as natural buffers against coastal hazards; and (B) Coordinate and fund beach management and protection.*

Policies:

CZM policies related to beaches and coastal dunes are:

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 shoreline hardening structures, including seawalls and revetments, at sites having sand beaches and at sites where shoreline hardening structures interfere with existing recreational and waterline activities;

C) Minimize the construction of public shoreline hardening structures, including seawalls and revetments, at sites having sand beaches and at sites where shoreline hardening structures interfere with existing recreational and waterline activities;

D) Minimize grading of and damage to coastal dunes;

E) Prohibit private property owners from creating a public nuisance by inducing or cultivating the private property owner's vegetation in a beach transit corridor; and

F) Prohibit private property owners from creating a public nuisance by allowing the private property owner's unmaintained vegetation to interfere or encroach upon a beach transit corridor.

Discussion: The proposed Laie Water Company Well Project will not have any impact on area beaches and coastal dunes. The project area is not near the shoreline or sand deposits; the site is largely composed of Paumalu-Badlands soils similar to Paumalu silty clay (Section 3.2). The Proposed Action will not locate any new structures within the shoreline area, nor will it harden any shoreline. Neither construction nor operation of the proposed water system improvements will interfere with existing recreational activities. No portion of the project will be located within a beach transit corridor, nor will it interfere with or encroach upon any beach transit corridor.

4.1.5.10 Marine and Coastal Resources

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

Policies:

CZM policies related to marine resources are:

> *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 and coastal processes, impacts of climate change and sea level rise, marine life, and other ocean resources 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.*

Discussion: The proposed project will be mauka of Kamehameha Highway and will not interact with any littoral or nearshore marine process or resources in any way. The Laie Water Company Well Project is not anticipated to have any adverse effect on marine or coastal resources and is consistent with these policies of the CZM program.

4.1.6 HAWAI‘I WATER PLAN

The State Water Code, HRS 174C, recognizes the need for a program of comprehensive water resources planning to address supply and conservation of water and establishes the *Hawai‘i Water Plan* (HWP) as the guide for implementing this policy.

The HWP consists of five constituent parts: (*i*) a *WRPP* prepared by CWRM; (*ii*) a *Water Quality Plan* (WQP, 2019) which is prepared by HDOH; (*iii*) a *State Water Projects Plan* (SWPP, 2019) which is prepared by the DLNR Engineering Division; (*iv*) an *Agricultural Water Use and*

Development Plan (AWUDP, 2019) prepared by the Department of Agriculture, and (*v*) *County Water Use and Development Plans* (WUDPs) prepared by each separate county.

The WRPP and the WQP provide the overall legal and policy framework that guide the development, conservation, and use of water resources. The SWPP and AWUDP provide information on State and agricultural water needs and development plans. All this information is then integrated into the WUDPs, which set forth the broad allocation of water for various land uses within each county. The following subsections summarize the objectives and status of each of the HWP's components.

4.1.6.1 Water Resource Protection Plan (WRPP)

Objective: *Protect and sustain statewide ground- and surface-water resources, watersheds, and natural stream environments. Such protection shall be established through a comprehensive study of occurrence, sustainability, conservation, augmentation, and other resource management measures.*

Discussion: The proposed project will take advantage of existing water storage and transmission infrastructure already present on the site. The project will protect and sustain groundwater, surface water, and the environment because, as detailed in Section 3.3.2, the new well site is in the same Ko‘olauloa Aquifer System as the existing wells and the same water volume will be pumped from the aquifer. Importantly, the new wells will be built to modern standards that contribute to the protection of natural groundwater resources.

The Laie Water Company Well Project will be overseen by CWRM and/or HDOH SDWB to ensure that objectives are met. This will include confirmation that the new wells can produce potable water that meets or exceeds drinking water quality standards.

4.1.6.2 State Water Projects Plan (SWPP)

Objective: *Provide a framework for planning and implementation of water development programs to meet projected water demands for state projects.*

Discussion: Based on the BWS' 2009 *Koolau Loa Watershed Management Plan* (WMP), LWC provided approximately 1.0 MGD of potable water to its customers, with a per capita demand of 141 gallons. Per CCH projections, LWC anticipated population growth in its service area, and the WMP acknowledges that additional source development may be sought to serve within the 20-year planning timeframe, although population growth has not occurred as expected when the WMP was developed in 2009. The current WUP is for 1.35 MGD but the actual amount of water pumped from the existing wells has averaged roughly 1.0 MGD since at least 2006. Therefore, LWC will not seek a modification to the WUP allotment. The Proposed Action is reflective of this situation, proposing system improvements intended to serve the existing uses of the area, based on projected stable demand for potable water.

4.1.6.3 Water Quality Plan (WQP)

Objective: *Protect the public health and sensitive ecological systems by preserving, protecting, restoring and enhancing the quality of ground and surface waters throughout the State.*

Discussion: The proposed project does not include any new point source discharges to surface waters or injection well facilities that discharge to groundwater. Construction of the proposed wells will include measures to preserve and protect groundwater quality and surface-water quality, as discussed in Sections 2.1.1 and 3.2.3.

4.1.6.4 Agricultural Water Use and Development Plan (AWUDP)

Objective: *Develop a long-range management plan that assesses state and private agricultural water use, supply, and irrigation water systems.*

Discussion: LWC does not provide water for agricultural uses in the area; there is an irrigation system for Lā‘ie's farms. LWC does provide water for irrigation and backyard farms. Given LWC's customer base , the AWUDP is not applicable to its operations.

4.1.6.5 County Water Use and Development Plans (WUDPs)

Objective: *Set forth the allocation of water to land use through the development of policies and strategies to guide the County in its planning, management, and development of water resources to meet projected demands.*

Discussion: LWC's current WUP is for 1.35 MGD but the actual amount of water pumped from the existing wells has averaged roughly 1.0 MGD since at least 2006. The proposed project is not intended to support land use changes or new development in the area and there is no long-term projected change in potable water demand in LWC's service area. Therefore, LWC will not seek a modification to the WUP allotment. The Proposed Action is reflective of this situation, proposing system improvements intended to serve the existing uses of the area, based on projected stable demand for potable water.

4.2 CITY AND COUNTY OF HONOLULU

4.2.1 O‘AHU GENERAL PLAN (2021)

The *O‘ahu General Plan* (2021), originally titled the *General Plan for the City and County of Honolulu*, was adopted in 1977, and has been subsequently amended. The most recent amendment to it was adopted by the Honolulu City Council (HCC) on December 1, 2021, via Resolution 21-023, CD1, and signed by the Mayor on January 14, 2022. The *O‘ahu General Plan* is a comprehensive statement of objectives and policies which sets forth the long-range aspirations of O‘ahu's residents and the strategies to achieve them. It is the first tier of and lays the foundation for a comprehensive planning process that addresses physical, social, cultural, economic, and environmental concerns affecting the CCH.

The *O‘ahu General Plan* poses several objectives related to utilities. Chapter V, Transportation and Utilities, Objective B, proposes: "Provide an adequate supply of water and environmentally sound systems of waste disposal for O‘ahu' s existing population and for future generations, and support a one water approach that uses and manages freshwater, wastewater, and storm water resources in an integrated manner." Further developing this theme, Chapter V, Objective B, Policies 1 through 3 state:

Policy 1

Develop and maintain an adequate, safe, and reliable supply of fresh water in a cost-effective way that supports the long-term sustainability of the resource and considers the impact of climate change.

Policy 2

Help to develop and maintain an adequate, safe, and reliable supply of water for agricultural and industrial needs in a resource-integrated and cost-effective way that supports the long-term health of the resource.

Policy 3

Use technologies that provide water, waste disposal, and recycling services at a reasonable cost and in a manner that addresses environmental and community impacts.

The *O‘ahu General Plan* further develops the theme of utility planning. Chapter V, Transportation and Utilities, Objective C states the CCH's policy, "To ensure reliable, cost-effective, and responsive service for all utilities with equitable access for residents." Specific policies follow from that, including:

Policy 1

Maintain and upgrade utility systems in order to avoid major breakdowns and service interruptions.

Policy 2

Provide improvements to utilities in existing neighborhoods to reduce substandard conditions, and increase resilience to use fluctuations, natural hazards, extreme weather, and other climate impacts.

Policy 3

Facilitate timely and orderly upgrades and expansions of utility systems.

Discussion: The Proposed Action is intended to modernize aging water utility infrastructure servicing the Lā‘ie community. By adding new wells built to modern standards, it will reduce substandard conditions and minimize major breakdowns and service interruptions. Project approval will facilitate a timely and orderly upgrade of the water system facilities that serve the community. Thus, the Lā‘ie Water Company Production Well Project actively promotes these policies of the *O‘ahu General Plan*.

4.2.2 KO‘OLAU LOA SUSTAINABLE COMMUNITY PLAN (2020)

The purpose of the *Ko‘olau Loa Sustainable Communities Plan* (KLSCP; 2020) is to maintain and enhance the natural and manmade elements of the Ko‘olau Loa region that make its rural character unique and special. Consistent with County General Plan policies, the KLSCP allows for limited growth to accommodate the existing and future housing and employment needs, while maintaining a population size consistent with the region's open space, country atmosphere, and rural lifestyle.

The KLSCP (2020) establishes that the role of the Ko‘olau Loa region in O‘ahu's development patter is to maintain its character as a rural area and specifies that its natural resources and

predominantly “country” character be maintained by establishing policies for future land use and development in the region that (KLSCP 2020):

> *Maintain and, where possible, expand critical open space areas and shoreline views between the existing pattern of community development so as to preserve a separation between the natural and built environment within each ahupua‘a.*
>
> *Preserve continuous coastal views and scenic views of ridges, valley slopes, and prominent land features.*

The KLSCP’s proposed land use policies are intended to provide guidance for future actions and agency decision-making. General policies are broad statements of intent that express the CCH’s overall philosophy toward particular land uses and their effective management. Planning principles and guidelines provide more specific guidance in terms of planning, design, and implementation of projects and programs. The overarching theme of the KLSCP is that the Ko‘olau Loa region should remain relatively stable, and oriented toward maintaining and enhancing the region’s ability to sustain its suburban and rural character and the relaxed lifestyle that flows from it.

The KLSCP (2020), Section 4.2, provides specific guidance related to the Lā‘ie area and LWC’s water system:

> *In Ko‘olau Loa, municipal water is supplied by the Board of Water Supply and the Lā‘ie Water Company (LWC). The Board of Water Supply supplies water to most of Ko‘olau Loa, while the LWC provides water to approximately 700 residences as well as commercial and agricultural uses in Lā‘ie, BYU-Hawai‘i, and the Polynesian Cultural Center. Total potable water consumption by the Board of Water Supply in 2000 included 1.5 mgd consumed in-district, 8.2 mgd exported to Ko‘olau Poko for urban uses in that district, and 0.3 mgd exported to the North Shore district. The LWC provided approximately 1 mgd to their customers in 2000. Agricultural water in Ko‘olau Loa is supplied by stream diversions and groundwater wells. Existing and future agricultural water needs are accounted for in the Ko‘olau Loa Watershed Management Plan (2009).*

In addition, Section 4.2.1 of the KLSCP provides the following policies which seek to maintain an adequate supply of good quality water, retain sufficient acreage in watersheds to ensure infiltration into groundwater aquifers, and strengthen the protection of watersheds:

- Protect and preserve streams, wetlands’ natural drainage systems, watershed areas and the shoreline and coastal areas.
- Retain existing acreage in the State Conservation or the City Preservation Districts to protect watersheds.
- Integrate management of all potable and nonpotable water sources, including groundwater, stream water, storm water and effluent, following State and City legislative mandates.
- Adopt and implement water conservation practices in the design of new development and the modification of existing uses, including landscaped areas.

- Where feasible and appropriate, encourage use of nonpotable water for irrigation of landscaping and agricultural lands to conserve the supply of potable water.

Discussion: As detailed in Section 3.7.2, the proposed project would not be visible from any public street or important viewpoint. Both topography and landscaping shield views of the existing and proposed infrastructure at that site.

Testing, to confirm that adequate potable water is available to serve system customers, will be a pre-requisite for the proposed new wells to move forward into production. While adopting and implementing water conservation measures are beyond the scope of the Proposed Action, no aspect of this project conflicts with these policies of the KLSCP, nor would it prohibit observance of them, where appropriate.

4.2.3 LAND USE ORDINANCE, ROH § 21

The purpose of the CCH's Land Use Ordinance (LUO), contained in ROH § 21, is to regulate land use in a manner that will encourage orderly development in accordance with adopted land use policies, including the *O'ahu General Plan* and the KLSCP. These standards govern the location, height, area, and siting of structures, yard areas, off-street parking facilities, and open spaces, and the use of structures and land for agriculture, industry, business, residences, and other purposes.

Discussion: The LUO does not apply to lands in the State Conservation District, including the portion of TMK No. 5-5-007:001 where the project site is located.

5 ANTICIPATED DETERMINATION

5.1 SIGNIFICANCE CRITERA

HAR § 11-200.1-14 establishes procedures for determining if an EIS should be prepared or if a Finding of No Significant Impacts (FONSI) is warranted. HAR § 11-200.1-14(d) provides that proposing agencies should issue an EIS preparation notice for actions that it determines may have a significant effect on the environment. HAR § 11-200.1-13(b) lists the following criteria to be used in making that determination.

In most instances, an action shall be determined to have a significant effect on the environment if it:

1. Involves an irrevocable commitment to loss or destruction of any natural or cultural resource;
2. Curtails the range of beneficial uses of the environment;
3. Conflicts with the State's long-term environmental policies or goals as expressed in Chapter 344, HRS, and any revisions thereof and amendments thereto, court decisions, or executive orders;
4. Substantially affects the economic or social welfare of the community or State;
5. Substantially affects public health;
6. Involves substantial secondary impacts, such as population changes or effects on public facilities;
7. Involves a substantial degradation of environmental quality;
8. Is individually limited but cumulatively has considerable effect on the environment or involves a commitment for larger actions;
9. Substantially affects a rare, threatened, or endangered species, or its habitat;
10. Detrimentally affects 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 as a flood plain, tsunami zone, beach, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal waters;
12. Substantially affects scenic vistas and viewplanes identified in county or state plans or studies; or,
13. Requires substantial energy consumption.

5.2 FINDINGS

The potential effects of the Proposed Action were evaluated relative to these 13 significance criteria. LWC's findings with respect to each criterion are summarized in the following subsections.

5.2.1 IRREVOCABLE LOSS OR DESTRUCTION OF VALUABLE RESOURCE

Most of the area that will be affected by the proposed project is within an existing, fenced LWC water storage facility. The proposal will expand the fenced area by roughly 4,170 square feet, which is a very small portion of the 2,207-acre parcel. The placement of this limited infrastructure on the subject parcel does not represent an irrevocable loss of the resource; the infrastructure may be decommissioned and removed in the future.

5.2.2 CURTAILS BENEFICIAL USES

Once construction is complete, the Laie Water Company Well Project's aboveground infrastructure will be limited to a small portion of TMK No. 5-5-007:001; that portion of the subject parcel is in the Conservation District. As discussed in Section 3.2, the project area consists of soil that is not typically used for agriculture. Because the project is consistent with land use plans, policies, and controls and the water produced will support land uses within LWC's service area, the Proposed Action may be deemed a beneficial use of the environment. Further, it is a continuation of a long-standing use of the area and will not curtail other beneficial uses of the area.

5.2.3 CONFLICTS WITH LONG-TERM ENVIRONMENTAL POLICIES OR GOALS

As discussed in Chapter 4, the Proposed Action is consistent with applicable plans, policies, and controls, including the *Hawai'i State Plan* and the *O'ahu General Plan*. Further, the Proposed Action is consistent with the State of Hawai'i's long-term environmental policies and goals, as expressed in HRS § 344 and elsewhere in state law.

5.2.4 SUBSTANTIALLY AFFECTS ECONOMIC OR SOCIAL WELFARE

The Proposed Action will make a modest contribution to the island of O'ahu's economic or social welfare. The proposed wells will allow the utility to continue to provide reliable and affordable potable water for its customers in Lāʻie. This is considered an economic and social welfare benefit.

5.2.5 PUBLIC HEALTH EFFECTS

The Proposed Action will not adversely affect air or water quality. Neither will it generate other emissions that will have a significant adverse effect on public health. The continued availability of clean potable water facilitated by the proposed project is considered a public health benefit.

5.2.6 PRODUCE SUBSTANTIAL SECONDARY IMPACTS

As discussed in Section 3.12, the Proposed Action will not produce substantial secondary impacts. It will not foster population growth, promote economic development, or stress public facilities or services. LWC will continue to operate under a single permit, WUP No. 739, and is not requesting any increase to its allotment of 1.375 MGD as part of this proposed project. It is not intended to foster or promote any secondary development or serve as an incremental contribution to a larger undertaking which could lead to unanticipated secondary impacts. The proposed project is solely intended to add new wells to LWC system that are built to modern standards in a location that takes advantage of existing facilities and equipment.

5.2.7 SUBSTANTIALLY DEGRADE THE ENVIRONMENT

As discussed throughout Chapter 3, the Proposed Action will not have substantial long-term environmental effects. The work will temporarily elevate noise levels and generate limited nuisance airborne dust during construction, but these impacts will be localized and of limited duration. Adequate measures will be taken to control the intensity of construction noise and dust, and the effects will be brief and minimal.

5.2.8 CUMULATIVE EFFECTS OF COMMITMENT TO A LARGER ACTION

As discussed in Section 3.11, the Proposed Action does not represent a commitment to a larger action and is not intended to facilitate substantial economic or population growth. It is solely intended to allow for continued potable water service that is reliable and resilient for LWC's customers in Lā‘ie.

5.2.9 EFFECTS ON RARE, THREATENED, OR ENDANGERED SPECIES

As discussed in Section 3.4, no rare, threatened, or endangered species are known to utilize the project site, and no activities are contemplated that would pose a threat to rare, threatened, or endangered species, or their designated critical habitat. In addition, the Proposed Action does not utilize any resource or habitat needed for the protection of rare, threatened, or endangered species. Measures outlined in Section 3.4.3 will be implemented to avoid and minimize potential effects to rare, threatened, or endangered species.

5.2.10 AFFECTS AIR OR WATER QUALITY OR AMBIENT NOISE LEVELS

Noise levels and airborne emissions will temporarily and nominally increase during construction activities. BMPs will be implemented, and any effects will be brief, relatively minor, and restricted to the immediate vicinity of the project site. Once construction is completed, the proposed project will not produce airborne emissions or waterborne pollution. The operation of the pumps will produce low levels of noise and will not result in a discernible increase in ambient noise levels for nearby uses.

5.2.11 ENVIRONMENTALLY SENSITIVE AREA

As discussed in Section 3.5.6, none of the infrastructure proposed as part of the Laie Water Company Well Project is located within a flood plain, special flood hazard area, or Tsunami/Extreme Tsunami Evacuation Zones. Some of the residences and businesses that LWC provides water to are in more sensitive areas, closer to the shoreline. However, the upgraded system will be less vulnerable to damage by natural hazards than the existing system and minimal impacts are anticipated.

5.2.12 AFFECTS SCENIC VISTAS AND VIEW PLANES

As discussed in Section 3.7, there are no identified scenic vistas or viewplanes on the project site. Due to topography and the extensive intervening vegetation in the area, the aboveground project elements will not be visible from the coastal highway or places identified in plans as having important views. The Proposed Action will not have an adverse effect on scenic vistas or viewplanes.

5.2.13 REQUIRES SUBSTANTIAL ENERGY CONSUMPTION

The Proposed Action will consume nominal amounts of energy to operate the pumps installed in the wells. The amount of energy needed will be similar to similar well pumps, which are common across O‘ahu. The future power consumption of the new pump station will be similar to the current power consumption.

5.3 ANTICIPATED DETERMINATION

In view of the foregoing significance criteria, LWC’s draft assessment is that the Proposed Action will not have a significant adverse impact on the environment. Consequently, it is anticipated that the BLNR will issue a FONSI.

6 CONSULTATION AND DISTRIBUTION

6.1 EARLY CONSULTATION

Pursuant to HAR 11-200.1-18(a), LWC has sought to:

> *"conduct early consultation seeking, at the earliest practicable time, the advice and input of the county agency responsible for implementing the county's general plan for each county in which the proposed action is to occur, and consult with other agencies having jurisdiction or expertise as well as those citizen groups and individuals that the proposing agency or approving agency reasonably believes may be affected."*

6.1.1 SCOPING LETTERS

On May 11, 2023, Planning Solutions, Inc. (PSI), acting on behalf of LWC, sent scoping letters to the agencies and organizations identified in Table 6-1. All responses received were carefully considered during preparation of the DEA. The early consultation letter and all responses are contained in Appendix A.

Table 6-1: Scoping Letter Recipients

Level	*Department*	*Division*	*Recipient*	*Response*
State of Hawai‘i	Department of Business, Economic Development and Tourism (DBEDT)	Office of Planning and Sustainable Development	Scott J. Glenn, Director	No
State of Hawai‘i	Department of Land and Natural Resources (DLNR)	Commission on Water Resource Management	M. Kaleo Manuel, Deputy Director	**Yes**
State of Hawai‘i	DLNR-	Land Division	Russell Y. Tsuji, Administrator	No
State of Hawai‘i	DLNR-	Office of Conservation and Coastal Lands (OCCL)	Michael Cain, Administrator	**Yes**
State of Hawai‘i	Office of Hawaiian Affairs	--	Sylvia Hussey, Ed.D, CEO	No
State of Hawai‘i	Department of Health (HDOH)	Safe Drinking Water Branch	Michael Miyahira, Engineering Section Supervisor	**Yes**
State of Hawai‘i	Aha Moku-Moku: Ko‘olauloa	--	Ululani Beirne	No
City and County of Honolulu	Dept. of Planning & Permitting	--	Dawn Takeuchi Apuna, Director	**Yes**
City and County of Honolulu	Board of Water Supply	--	Ernest Lau, P.E.	**Yes**
City and County of Honolulu	Ko‘olauloa Neighborhood Board No. 28	--	Pane Meatoga III, Chair	No
City and County of Honolulu	City Council, District 2	--	Matthew Weyer, Councilmember	No
Private	Fee Owner	--	Hearts for Animals, Inc.	No
Private	Ko‘olauloa Hawaiian Civic Club	--	--	No
Private	Lā‘ie Community Association	--	Verla Moore, President	No
Private	Brigham Young University Hawai‘i	--	--	No

Source: Compiled by Planning Solutions, Inc. (2023)

6.1.2 OFFICE OF CONSERVATION AND COASTAL LANDS

In response to the scoping letter, the Department of Land and Natural Resources (DLNR), Office of Conservation and Coastal Lands (OCCL) noted that the Proposed Action will effectively change the existing water storage site into a water production site:

> *“This appears to be an be an identified land use pursuant to the Hawai'i Administrative Rules §13-5-22, P-8 (D-1) Major alteration of existing structures, facilities, uses, and equipment, or topographical features which are different from the original use or different from what was allowed under the original permit. When county permit(s) are required for the associated plan(s), the department's approval shall also be required. This would require the filing of a Conservation District Use Permit and all required attachments for a Board permit. Therefore,*

to allow, modify or deny the project would be at the discretion of the Board of Land and Natural Resources."

The requirement for a CDUP issued by the BLNR prior to implementation of the Proposed Action is noted in Section 2.1.7 and is the basis for the requirement for this EA.

6.1.3 COMMISSION ON WATER RESOURCE MANAGEMENT

The response from CWRM came via a memorandum to OCCL, dated June 6, 2023. In addition to providing a series of standardized comments, CWRM's Planning and Groundwater Branches both provided project specific comments.

CWRM Planning Branch's comments stipulate that the DEA provide projected demands for the project, including both potable and nonpotable water, and the calculations used to estimate demand. CWRM Planning Branch further requested a discussion of the potential impacts on water resources and other public trust uses, including a Ka Pa‘akai analysis, and a description of proposed mitigation measures, if any. In addition, CWRM directed the DEA to include a discussion of the Aquifer System Area, its sustainable yield, and how proposed water demands will affect available sustainable yield.

CWRM Groundwater Branch asked that the DEA identify the pump station and well(s) that will be taken out of service and noted that the applicant must request and obtain a transfer of their WUP allocation from the existing wells that will be no longer used by LWC, or a new WUP allocation can be requested. Finally, they recommended consultation with the regional Aha Moku Council representative to consider the potential for impacts to any traditional and customary practices.

6.1.4 HDOH SAFE DRINKING WATER BRANCH

In the response received from the SDWB, it indicates that as a project proposing development of new source(s) of drinking water serving or proposed to serve a public water system must comply with the terms of HAR § 11-20-29, *Use of New Sources of Raw Water for Public Water Systems*. This section requires that all new public water system sources be approved by the HDOH Director prior to its use. Such approval is based primarily upon the submission of a satisfactory Engineering Report (ER) which addresses the requirements set forth in HAR § 11-20-29. Section 1.4 of this report acknowledges this requirement.

6.1.5 DEPARTMENT OF PLANNING AND PERMITTING

The CCH's Department of Planning Permitting (DPP) comments request that, as part of this EA, LWC evaluate the Proposed Action for consistency with: (*i*) Board of Water Supply's (BWS) *Ko‘olauloa Watershed Management Plan*; (*ii*) *O‘ahu Water Management Plan*; (*iii*) *O‘ahu General Plan*; and (*iv*) the *Ko‘olauloa Sustainable Communities Plan*. Chapter 4 in this report devotes sections to a review of the Proposed Action's consistency with all applicable provisions of these and other plans, policies, and controls.

6.1.6 BOARD OF WATER SUPPLY

The CCH's BWS responded to the scoping letter but had no comments.

6.2 DISTRIBUTION OF THE DEA

LWC has provided this EA to the parties listed in Table 6-2 with a request for review and comment.

Table 6-2: DEA Distribution List

Federal Agencies	**City and County of Honolulu**
U.S. Army Corps of Engineers, Honolulu District	Board of Water Supply
U.S. Fish and Wildlife Service, Pacific Islands Field Office	Department of Community Services
State Agencies	Department of Design and Construction
Department of Agriculture	Department of Environmental Services
Department of Agriculture, Agribusiness Development Corporation	Department of Facility Maintenance
Department of Accounting and General Services	Department of Parks and Recreation
Department of Business, Economic Development, and Tourism (DBEDT)	Department of Planning and Permitting
DBEDT, Hawaiʻi State Energy Office	Department of Transportation Services
DBEDT, Office of Planning and Sustainable Development	Honolulu Fire Department
Department of Defense	Honolulu Police Department
Department of Education	Office of Climate Change, Sustainability & Resiliency
Department of Hawaiian Home Lands	**Elected Officials**
Department of Health (DOH), Clean Air Branch	Governor Josh Green
DOH, Clean Water Branch	Mayor Rick Blangiardi
DOH, Environmental Health Services Division	State Senator Brenton Awa, District 23
DOH, Safe Drinking Water Branch	State Representative Sean Quinlan, District 47
DOH, Wastewater Branch	Councilmember Matt Weyer, District 2
Department of Human Services	Koʻolauloa Neighborhood Board No. 28
Department of Labor and Industrial Relations	
DLNR, Commission on Water Resource Management	**Media**
DLNR, Land Division	Honolulu Star Advertiser
Department of Transportation	Honolulu Civil Beat
Office of Hawaiian Affairs	
Utilities	**Neighbors**
Hawaiʻi Gas	Hearts for Animals, Inc.
Hawaiian Electric Co., Inc.	
Hawaiian Telcom	
Libraries and Depositories	
Hawaiʻi State Library Documents Center	
Kahuku Public and School Library	
Other	
Aha Moku-Moku Koolauloa	Kela Kaʻio Miller
Lāʻie Community Association	Cy Bridges
Koʻolauloa Hawaiian Civic Club	
Brigham Young University-Hawaiʻi	

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Appendix A. Early Consultation Letters and Responses

PLANNING SOLUTIONS

May 11, 2023

Subject: **Pre-Assessment Consultation**
Proposed Lāʻie Water Company Production Well Project
Lāʻie, Oʻahu, Hawaiʻi
Tax Map Key (1) 5-5-007:001

Dear Madam or Sir,

The Lāʻie Water Company (LWC) has initiated the preparation of a Chapter 343, Hawaiʻi Revised Statutes (HRS), Environmental Assessment (EA) for their proposed Lāʻie Production Well Project. LWC is proposing to drill, test, and operate two production wells on TMK No. 5-5-007:001 in Lāʻie, Oʻahu, Hawai'i (Attachment 1). Planning Solutions, Inc. (PSI) is assisting LWC with project planning, including the preparation of the EA.

Providing safe, high-quality water involves constant planning to ensure continuous, reliable, and affordable water to residences and businesses in LWC's service area. The purpose of this project is to develop a new water source with pumps that would provide long-term stability, reliability, and support cost-effective operation. The wells and pumps would replace a 70-year-old pump station that is scheduled to be removed from service.

The LWC has been providing potable water to the Lāʻie community since 1898, with approximately 720 service connections, over 80,000 linear feet of pipeline, and 100 fire hydrants, distributing approximately 1 million gallons of water each day. LWC is regulated by the State Public Utilities Commission and State Department of Health. LWC currently utilizes the proposed well site for water storage tanks. This site is in the State's Conservation District, near Wailele Gulch at an elevation of approximately 224 feet above sea level (Attachment 2). The proposed wells would connect to an existing 12-inch pipeline associated with the existing tank (Attachment 3). Electrical service would also need to be extended to the site (Attachment 2). Because the project site is in the Conservation District and the project is considered a "Public Purpose Use" in the district, it is subject to the requirements of HRS, Chapter 343 and its implementing regulations contained in Hawaiʻi Administrative Rules, Title 11, Chapter 200.1.

The EA will document potential environmental impacts associated with alternative(s) selected for further consideration. The no action alternative will be included as a baseline comparison. We are seeking your input on the following topics:

- The range and content of the alternatives that should be considered.
- The nature and scope of the analyses to be included in the Draft EA.
- Information regarding resources, uses, or activities present in the region and information regarding other projects in the region.

Pacific Park Plaza, Suite 950 • 711 Kapiʻolani Boulevard • Honolulu, Hawaiʻi 96813-5213
Phone: 808-550-4483 • www.psi-hi.com

- Potential environmental impacts associated with the proposed project, and measures to avoid, minimize, or mitigate those potential impacts.

Please provide your written comments within 30 days from the date of this letter. Comments should be sent to:

Mākena White, Senior Planner
Planning Solutions, Inc.
711 Kapi‘olani Boulevard, Suite 950
Honolulu, HI 96813
makena@psi-hi.com

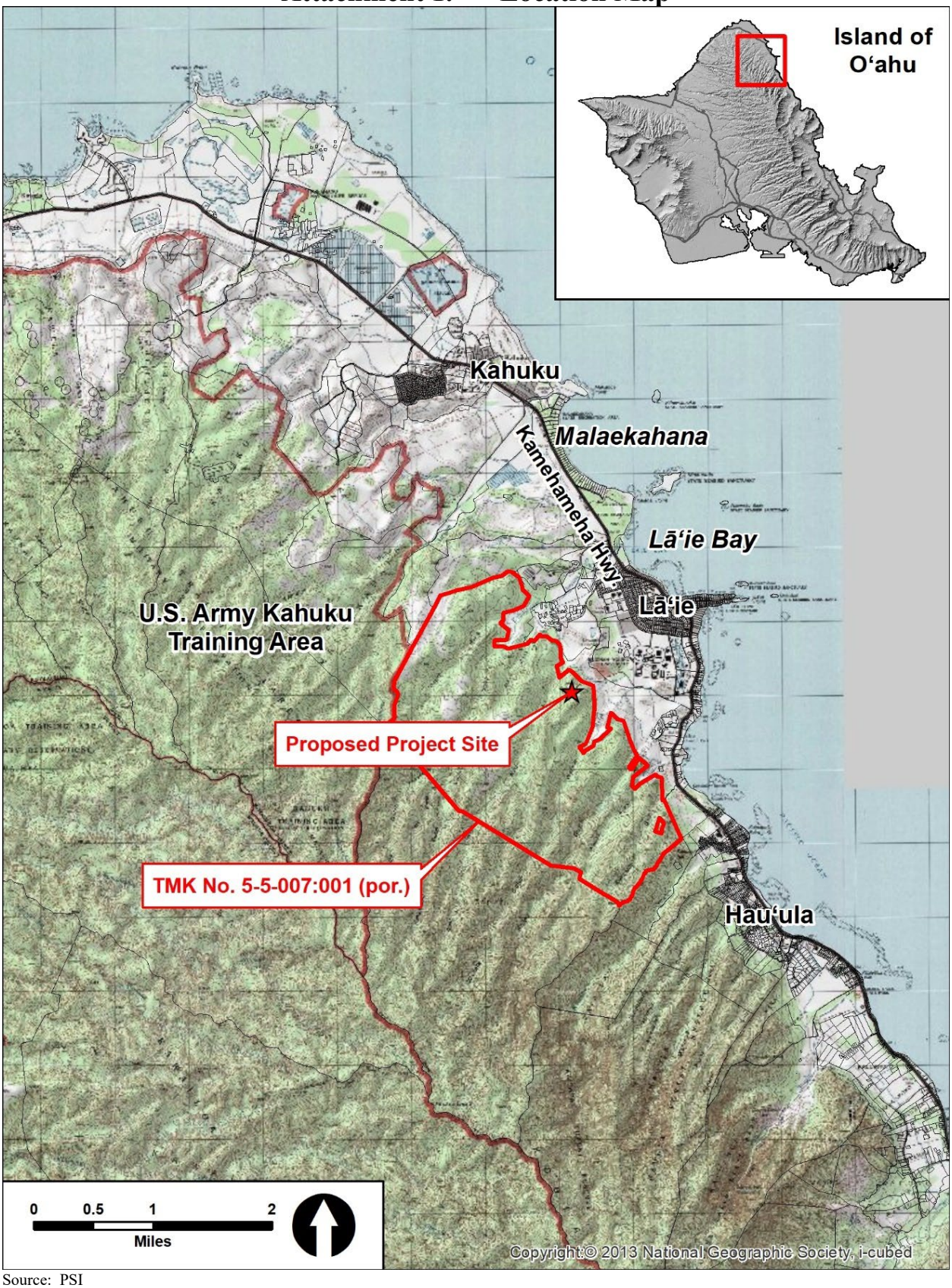
Thank you for participating in the planning process for this proposal. If you have any questions or need clarification regarding the proposal, please contact me at makena@psi-hi.com or (808) 550-4538.

Sincerely,

Mākena White, AICP
Senior Planner

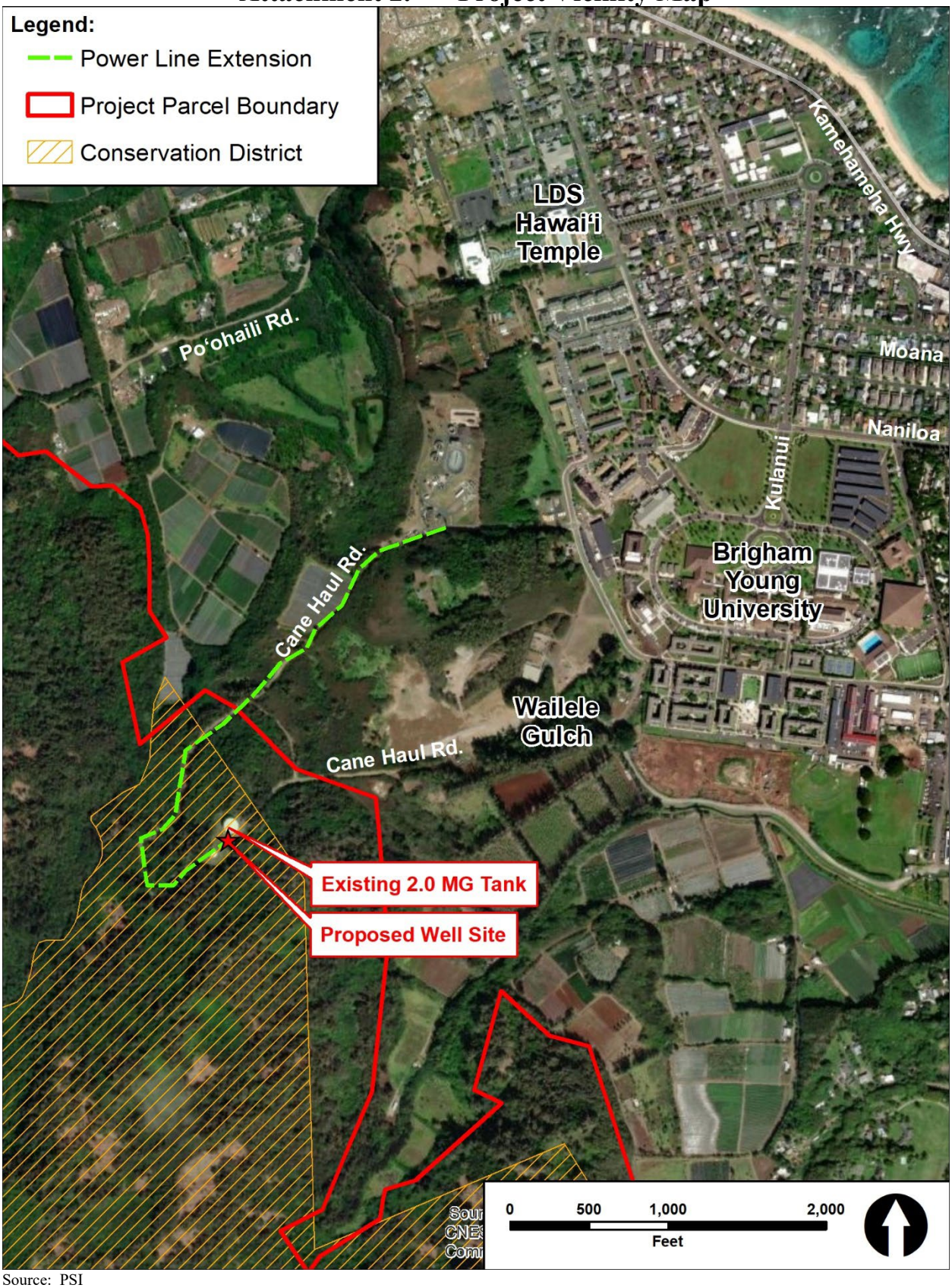
Attachments

Attachment 1. Location Map



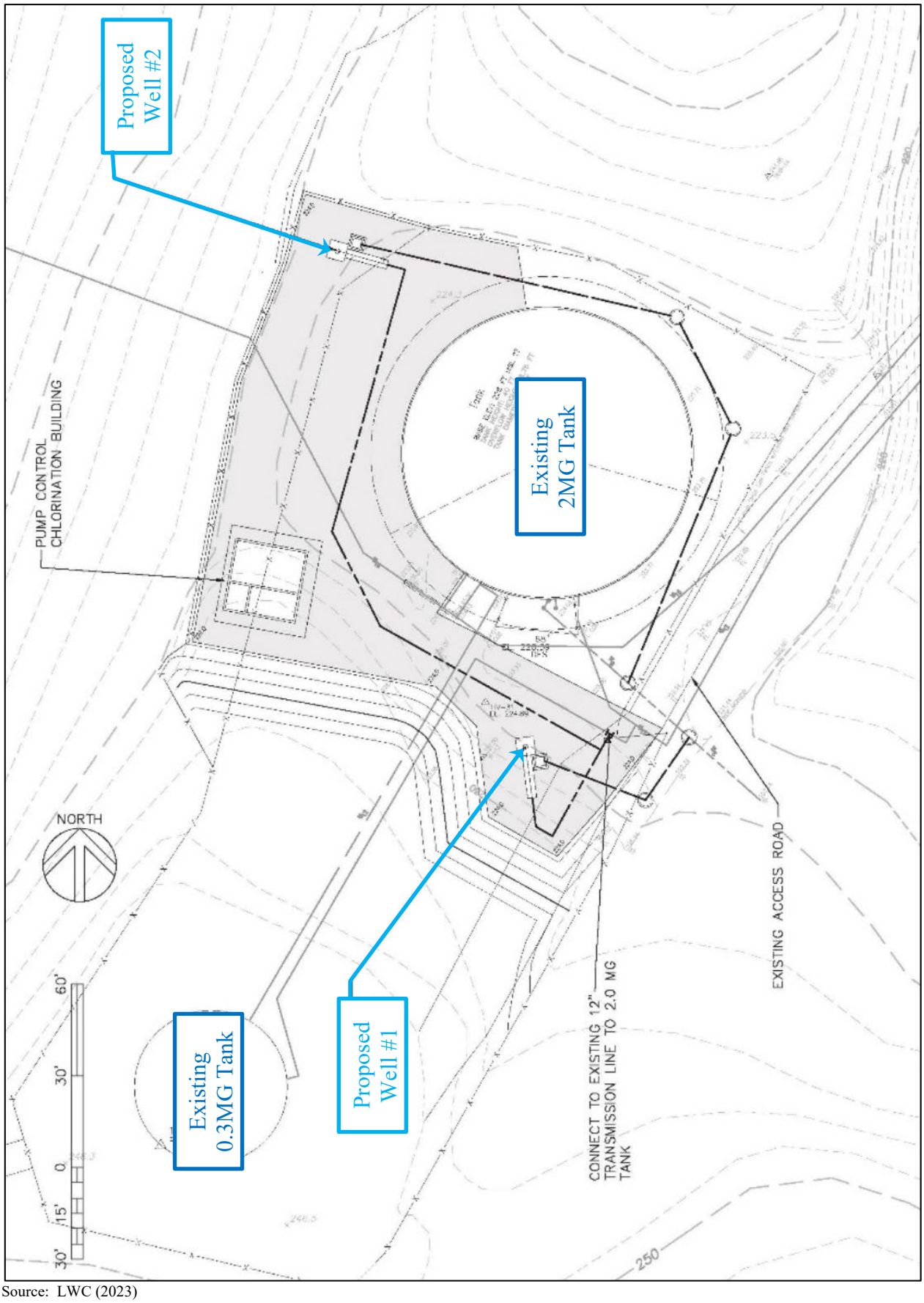
Source: PSI

Attachment 2. Project Vicinity Map



Source: PSI

Attachment 3. Site Plan



Source: LWC (2023)

JOSH GREEN, M.D.
GOVERNOR OF HAWAI'I
KE KIA'ĀINA O KA MOKU'ĀINA 'O HAWAI'I

KENNETH S. FINK, MD, MGA, MPH
DIRECTOR OF HEALTH
KA LUNA HO'OKELE

STATE OF HAWAI'I
DEPARTMENT OF HEALTH
KA 'OIHANA OLAKINO
P. O. BOX 3378
HONOLULU, HI 96801-3378

In reply, please refer to:
File:

May 25, 2023

Mr. Mākena White, AICP
Planner
Planning Solutions, Inc.
Pacific Park Plaza, Suite 950
711 Kapi'olani Boulevard
Honolulu, Hawai'i 96813-5213

Dear Mr. White:

SUBJECT: Pre-Assessment Consultation Request
Proposed Lā'ie Water Company Production Well Project
Lā'ie, O'ahu, Hawai'i
Tax Map Key (1) 5-5-007:001

The Safe Drinking Water Branch (SDWB) has received your May 11, 2023, Pre-Assessment Consultation letter request for the subject project and has the following comments:

1. The SDWB acknowledges and supports the Laie Water Company's (LWC) proactive efforts to replace existing drinking water sources located near or within tsunami inundation areas, and especially where sea level rise and resulting seawater intrusion impacts could further compromise drinking water quality. The proposed move inland and to a higher elevation is a prudent step that will facilitate a long-term, reliable, and safe supply of drinking water for the LWC's customer base.

2. The SDWB encourages LWC to engage with our Drinking Water State Revolving Loan Fund (DWSRF) program to take advantage of low, below-market rates, and potential additional subsidization and extended period loans to reduce the impact of this project's capital and long-term operational costs on its customer base.

3. Projects that propose development of new sources of drinking water serving or proposed to serve a public water system must comply with the terms of

HAR Section 11-20-29, "Use of new sources of raw water for public water systems." 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 set in HAR Section 11-20-29.

4. 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.

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

6. Projects proposing substantial modifications to existing public water systems must receive approval by the Director prior to construction of the proposed system or modification in accordance with HAR Section 11-20-30, "New and modified public water systems." These projects include sources, treatment, storage, and distribution systems of public water systems.

If there are any questions, please contact Engineering Section Supervisor, Michael Miyahira at michael.miyahira@doh.hawaii.gov or call (808) 586-4258.

Sincerely,

Gaudencio C. Lopez

GAUDENCIO C. LOPEZ, P.E., CHIEF
Safe Drinking Water Branch

MM:mc

c: SDWB Monitoring Section [via email only]
SDWB Compliance Section [via email only]
SDWB Engineering Section [via email only]

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 7TH FLOOR • HONOLULU, HAWAII 96813
PHONE: (808) 768-8000 • FAX: (808) 768-6041
DEPT. WEB SITE: www.honolulu.gov/dpp

RICK BLANGIARDI
MAYOR

DAWN TAKEUCHI APUNA
DIRECTOR

JIRO A. SUMADA
DEPUTY DIRECTOR

June 9, 2023

2023/ELOG-905(TB)
2370105

Mr. Mākena White, AICP
Senior Planner
Planning Solutions, Inc.
711 Kapiolani Boulevard, Suite 950
Honolulu, Hawaii 96813

Dear Mr. White:

SUBJECT: Pre-Assessment Consultation
Proposed Lā'ie Water Company Production Well Project
Tax Map Key 5-5-007: 001

This is in response to your May 11, 2023 letter, soliciting comments in preparation of a Draft Environmental Assessment (EA) on the subject project. Our comments are as follows:

1. The Draft EA should discuss how the proposed project is consistent with the Board of Water Supply's adopted Koolau Loa Watershed Management Plan and the Oahu Water Management Plan. Furthermore, the Draft EA should list the quantity of water to be drawn and the uses it will serve.

2. The Draft EA should describe the proposed project's consistency with the Oahu General Plan and the Koolau Loa Sustainable Communities Plan.

3. The Draft EA should describe the current water usage from the existing 70-year-old pump station, and a breakdown of what the current pumped water is used for, i.e. residential, fire, commercial, agricultural, etc. Also, identify changes to the maximum and average amount of water to be pumped by each alternative.

4. The Draft EA should include a discussion of how alternatives, such as water from the Laie Water Reclamation Facility and other non-potable water sources, could be used for the project's intended purposes.

5. The Draft EA should include a list of anticipated permits and approvals required prior to the production wells being operational. The Draft EA should indicate what building and/or grading permits are required. The proposed work must also comply with the prevailing Rules Relating to Water Quality, which can be accessed on our website at:

honolulu.gov/dpp/resources/administrative-rules

Should you have any questions, please contact Thomas Blair, of our staff, at (808) 768-8030 or via email at thomas.blair@honolulu.gov.

Very truly yours,

Dina L.T. Wong
Planning Division Chief

DLTW:ah

JOSH GREEN, M.D.
GOVERNOR | KE KIA'ĀINA

SYLVIA LUKE
LIEUTENANT GOVERNOR | KA HOPE KIA'ĀINA

KA MOKU'ĀINA 'O HAWAI'I
DEPARTMENT OF LAND AND NATURAL RESOURCES
KA 'OIHANA KUMUWAIWAI 'ĀINA
OFFICE OF CONSERVATION AND COASTAL LANDS
P.O. BOX 621
HONOLULU, HAWAII 96809

DAWN N.S. CHANG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

LAURA H.E. KAAKUA
FIRST DEPUTY

M. KALEO MANUEL
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

REF:OCCL:TM

Correspondence: OA 23-186

Mākena White, AICP
Planning Solutions
Pacific Park Plaza
711 Kapi'olani Blvd., Suite 950
Honolulu, HI 96813-5213

JUN - 6 2023

SUBJECT: Pre-Assessment Consultation for a Proposed Production Well Located at Lā'ie, Ko'olauloa, O'ahu, TMK: (1) 5-5-007:001

Dear Mākena White:

The Office of Conservation and Coastal Lands (OCCL) has reviewed your correspondence regarding the subject matter. According to your information, the Lā'ie Water Company (LWC) is proposing to drill, test, and operate two production wells on the subject parcel in the near vicinity of the existing water storage tanks. The purpose is to develop a new water source with pumps to replace the existing pump station that will be removed from service. Should the project proceed, the proposed wells would connect to an existing 12" pipeline associated with the existing 2MG tank. Electrical service is proposed to be extended to the site.

Within the Proposed Environmental Assessment, the OCCL suggest the following be discussed:

- Under the alternatives, one well versus two wells
- Removal, recycling or restoring existing facilities
- Potential effects of climate change on the water resource
- Potential effects on surrounding streams, agricultural uses
- Mitigation for native flora and fauna that may in the vicinity or visit the site
- Community outreach

The project area lies within the Conservation District General subzone. On May 9, 1986, the Board of Land and Natural Resources approved Conservation District Use Permit OA-1878 for the after-the-fact water storage tank, access road and accessory uses. Further Site Plan Approval was issued on February 10, 1998, for an underground 16" waterline from offsite wells. Approximately 200 linear feet of the 2,000 linear feet of waterline lie within the Conservation District. The waterline was proposed to be 3-feet under the existing unimproved access road.

What is currently being proposed changes the existing water storage site to a water production site. This appears to be an identified land use pursuant to the Hawai'i Administrative Rules §13-5-22, P-8 (D-1) Major alteration of existing structures, facilities, uses, and equipment, or topographical features which are different from the original use or different from what was allowed under the original permit. When county permit(s) are required for the associated plan(s), the department's approval shall also be required. This would require the filing of a Conservation District Use Permit and all required attachments for a Board permit. Therefore, to allow, modify or deny the project would be at the discretion of the Board of Land and Natural Resources.

Any application for land use shall include evidence of consultation with the Commission on Water Resource Management regarding well construction and pump installation standards, and the Department of Health regarding potable water systems. Community conversations should also be included. As project details develop, and consultation and plans are finalized, our determination may be modified.

The OCCL notes there is more than one landowner for the property. Pursuant to HAR §13-5-31(b) For private lands with multiple landowners of the subject parcel(s), the application shall be signed by landowners whose property interests constitute or exceed eighty-five per cent of the fee ownership of the subject parcel(s).

Should you have any questions regarding this correspondence, contact Tiger Mills of our Office at (808) 587-0382 or at kimberly.mills@hawaii.gov.

Sincerely,

K. Tiger Mills, Staff Planner
Office of Conservation and Coastal Lands

C: CWRM/ODLO/DoH
City-DPP
BWS

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843
www.boardofwatersupply.com

June 23, 2023

Mr. Makena White
Planning Solutions
711 Kapiolani Boulevard
Honolulu, Hawaii 96813-5213

Dear Mr. White:

Subject: Your Letter Dated May 15, 2023 Requesting Comments on the Pre-Assessment Consultation for the Proposed Laie Water Company Production Well Project in Laie – Tax Map Key: 5-5-007: 001

Thank you for your letter regarding the proposed well project.

The Board of Water Supply has no comment on the proposed well project.

If you have any questions, please contact Robert Chun, Project Review Branch of our Water Resources Division at (808) 748-5443.

Very truly yours,

ERNEST Y. W. LAU, P.E.
Manager and Chief Engineer

STATE OF HAWAI'I | KA MOKU'ĀINA 'O HAWAI'I
DEPARTMENT OF LAND AND NATURAL RESOURCES | KA 'OIHANA KUMUWAIWAI 'ĀINA
COMMISSION ON WATER RESOURCE MANAGEMENT | KE KAHUWAI PONO
P.O. BOX 621
HONOLULU, HAWAII 96809

Jun 06, 2023

REF: RFD.6036.3

TO: K. Tiger Mills, Staff Planner
Office of Conservation and Coastal Lands

FROM: M. Kaleo Manuel, Deputy Director
Commission on Water Resource Management

SUBJECT: Pre-Assessment Consultation Proposed Lā'ie Water Company Production Well Project

FILE NO.: RFD.6036.3
TMK NO.: (1) 5-5-007:001

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.

- [X] 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.
- [X] 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://planning.hawaii.gov/czm/initiatives/low-impact-development/
- [X] 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.

[X] 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.

[X] 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. The Hawaii Water Plan is directed toward the achievement of the utilization of reclaimed water for uses other than drinking and for potable water needs in one hundred per cent of State and County facilities by December 31, 2045 (§174C-31(g)(6), Hawaii Revised Statutes). We strongly recommend that this project consider using reclaimed water for its non-potable water needs, such as irrigation. Reclaimed water may include, but is not limited to, recycled wastewater, gray water, and captured rainwater/stormwater. Please contact the Hawai'i Department of Health, Wastewater Branch, for more information on their reuse guidelines and the availability of reclaimed water in the project area.

[X] 12. A Well Construction Permit(s) is (are) are required before the commencement of any well construction work.

[X] 13. A Pump Installation Permit(s) is (are) required before ground water is developed as a source of supply for the project.

[X] 14. 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.

[X] 15. Ground-water withdrawals from this project may affect streamflows, which may require an instream flow standard amendment.

[ ] 16. 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.

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

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

[ ] 19. 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.

[X] OTHER: Planning Branch -
The proposed water source(s) and projected water demands for the project, both potable and non-potable, should be identified and the calculations used to estimate demands should be provided. A discussion of the potential impacts on water resources and other public trust uses, including a Ka Pa'akai analysis of water should be included, and any proposed mitigation measures described. Water conservation and efficiency measures to be implemented should also be discussed.

The DEA should include a discussion of the Aquifer System Area, its sustainable yield, and how proposed water demands will affect available sustainable yield.

Since the project is located in the Conservation district, the applicant should consult with the Department's Office of Conservation and Coastal Lands (OCCL) to determine if a Conservation District Use Permit (CDUP) or Site Plan Approval (SPA) is needed.

Groundwater Branch -
The applicant should identify the pump station and well(s) that will be taken out of service. The applicant must request and obtain a transfer of their water use permit allocation from the existing wells that will be taken out of service, or a new allocation can be requested.

Impacts to ground water dependent ecosystems are becoming an emerging issue as impacts to these are related to impacts to traditional & customary practices of sustenance from these ecosystems. We recommend consultation with the region's (moku) Aha Moku Council on whether a land use conversion or project that uses water will impact any traditional & customary practices.

If you have any questions, please contact Katie Roth of the Planning Branch at (808) 587-0216 or Ryan Imata of the Regulation Branch (808) 587-0225.

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Appendix B. USFWS IPaC Report

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Honolulu County, Hawaii

Local office

Pacific Islands Fish And Wildlife Office

(808) 792-9400
(808) 792-9580

MAILING ADDRESS

300 Ala Moana Boulevard, Box 50088
Honolulu, HI 96850-5000

PHYSICAL ADDRESS

300 Ala Moana Boulevard, Room 3-122
Honolulu, HI 96850-0056

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

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1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an

office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Hawaiian Hoary Bat Lasiurus cinereus semotus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/770	Endangered

Birds

NAME	STATUS
Band-rumped Storm-petrel Oceanodroma castro No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/1226	Endangered
Hawaiian (=koloa) Duck Anas wyvilliana Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/7712	Endangered
Hawaiian Common Gallinule Gallinula galeata sandvicensis Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/6612	Endangered
Hawaiian Coot Fulica alai Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/7233	Endangered
Hawaiian Petrel Pterodroma sandwichensis Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/6746	Endangered

Hawaiian Stilt Himantopus mexicanus knudseni — Endangered
Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/2082

Newell's Townsend's Shearwater Puffinus auricularis newelli — Threatened
Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/2048

Flowering Plants

NAME	STATUS

`aiea Nothocestrum latifolium — Endangered
Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/1061

`akoko Euphorbia celastroides var. kaenana — Endangered
Wherever found
There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
https://ecos.fws.gov/ecp/species/3842

`ena`ena Pseudognaphalium sandwicensium var. molokaiense — Endangered
Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/5993

Kamanomano Cenchrus agrimonioides — Endangered
Wherever found
There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
https://ecos.fws.gov/ecp/species/2928

Spermolepis hawaiiensis — Endangered
Wherever found
There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
https://ecos.fws.gov/ecp/species/1670

Vigna o-wahuensis Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/8445	Endangered

Ferns and Allies

NAME	STATUS
Microlepia strigosa var. mauiensis Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4737	Endangered

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

Bald & Golden Eagles

There are no documented cases of eagles being present at this location. However, if you believe eagles may be using your site, please reach out to the local Fish and Wildlife Service office.

Additional information can be found using the following links:

- Eagle Managment https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf

What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply). To see a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs of bald and golden eagles in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur. Please contact your local Fish and Wildlife Service Field Office if you have questions.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern https://www.fws.gov/program/migratory-birds/species
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Black Noddy Anous minutus melanogenys This is a Bird of Conservation Concern (BCC) throughout its range in Hawaii and the Pacific Islands.	Breeds Apr 1 to Nov 30
Black-footed Albatross Phoebastria nigripes This is a Bird of Conservation Concern (BCC) throughout its range in Hawaii and the Pacific Islands. https://ecos.fws.gov/ecp/species/8033	Breeds Apr 1 to Aug 31
Bristle-thighed Curlew Numenius tahitiensis This is a Bird of Conservation Concern (BCC) throughout its range in Hawaii and the Pacific Islands. https://ecos.fws.gov/ecp/species/3913	Breeds elsewhere
Christmas Shearwater Puffinus nativitatis This is a Bird of Conservation Concern (BCC) throughout its range in Hawaii and the Pacific Islands.	Breeds Apr 1 to Oct 31

Laysan Albatross Phoebastria immutabilis — Breeds Nov 15 to Jun 15

This is a Bird of Conservation Concern (BCC) throughout its range in Hawaii and the Pacific Islands.

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply

a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

This location did not intersect any wetlands mapped by NWI.

NOTE: This initial screening does **not** replace an on-site delineation to determine whether

wetlands occur. Additional information on the NWI data is provided below.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.