CONSERVATION DISTRICT USE APPLICATION (CDUA)

All permit applications shall be prepared pursuant to HAR 13-5-31

File No.:	
Acceptance Date:	180-Day Expiration Date:
Assigned Planner:	

for DLNR Use

PROJECT NAME Lā‘ie Water Company Production Well Project

Conservation District Subzone: General

Identified Land Use: Sturctures and Land Uses, Existing, (D-1) Major Alteration
(Identified Land Uses are found in Hawai‘i Administrative Rules (HAR) §13-5-22 through §13-5-25)

Project Address: Lā‘ie, O‘ahu, Hawai‘i

Tax Map Key(s): (1) 5-5-007:001 (portion)

Ahupua‘a: Lā‘ie

County: Honolulu

Proposed Commencement Date: June, 2025

Estimated Project Cost: 4.9M

District: Ko‘olauloa

Island: O‘ahu

Proposed Completion Date: June, 2026

TYPE OF PERMIT SOUGHT ☒ **Board Permit** ☐ **Departmental Permit**

ATTACHMENTS

$ 2,500 Application Fee. 2.5% of project cost for Board Permits, but no less than $250, up to a maximum of $2500; $250 for Departmental Permits (*ref §13-5-32 through 34)*.

$ 250 Public Hearing Fee *($250 plus publication costs; ref §13-5-40)*

☒ 20 copies of CDUA (*5 hard + 15 hard or digital copies)*

☒ Draft / Final Environmental Assessment (EA) *or* Draft / Final Environmental Impact Statement (EIS) *or* Statement of Exemption

☒ State Historic Preservation Division HRS 6E Submittal Form (dlnr.hawaii.gov/shpd/review-compliance/forms)

☐ Management Plan *or* Comprehensive Management Plan (*ref §13-5-39)* if required

☐ Special Management Area Determination *(ref Hawai‘i Revised Statutes 205A)*

☐ Shoreline Certification (*ref §13-5-31(a)(8))* if land use is subject to coastal hazards.

☐ Kuleana documentation (*ref §13-5-31(f))* if applying for a non-conforming kuleana use.

☐ Boundary Determination *(ref §13-5-17)* if land use lies within 50 feet of a subzone boundary.

REQUIRED SIGNATURES

Applicant

Name: R. Eric Beaver
Title; Agency: President, Hawaii Reserves, Inc. / Laie Water Company Mailing Address:
55-510 Kamehameha Hwy, Suite 12
Laie, HI 96762
Contact Person & Title: Jeff Tyau, Vice President of Operations
Phone: 808-293-6432
Email: tyauJ@hawaiireserves.com
Interest in Property:

Signature: _____ **Date:** 4/1/2024

Signed by an authorized officer if for a Corporation, Partnership, Agency or Organization

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Landowner (if different than the applicant)

Name: Ashley Powell
Title; Agency: President, Property Reserves, Inc.
Mailing Address: 51 South Main Street, Suite 301
Salt Lake City, UT 84111
Phone: (801) 321-8777
Email: ashley.powell@propertyreserve.org

Signature: _____ **Date:** 04/04/2024

For State and public lands, the State of Hawai`i or government entity with management control over the parcel shall sign as landowner.

Agent or Consultant

Agency: Planning Solutions, Inc
Contact Person & Title: Jim Hayes, President
Mailing Address: 711 Kapi'olani Boulevard, Suite 950
Honolulu, HI 96813
Phone: 808-550-4559
Email: jim@psi-hi.com

Signature: _____ **Date:** 3/11/2024

For DLNR Managed Lands

State of Hawai`i
Chairperson, Board of Land and Natural Resources
State of Hawai'i

Department of Land and Natural Resources
P.O. Box 621
Honolulu, Hawai‘i 96809-0621

Signature: _____ **Date: _____**

PROPOSED USE

Total size/area of proposed use (indicate in acres or sq. ft.):

1.1 acre well site entirely in the Conservation District, plus a roughly 3,000-linear-foot-long, 3-phase electric service (of which roughly 900 linear feet is in the Conservation District).

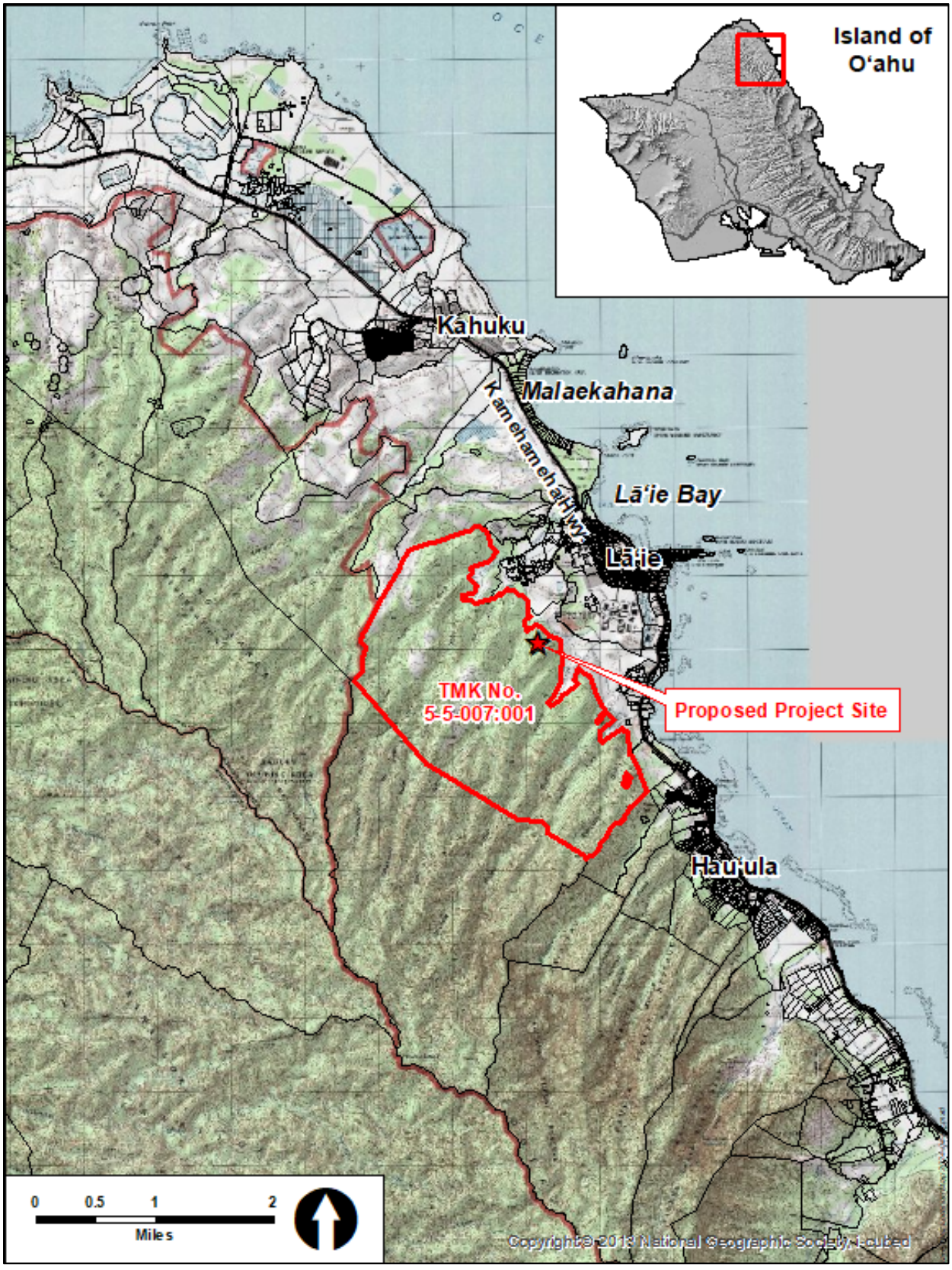
Please provide a detailed description of the proposed land use(s) in its entirety. Information should describe what the proposed use is; the need and purpose for the proposed use; the size of the proposed use (provide dimensions and quantities of materials); and how the work for the proposed use will be done (methodology). If there are multiple components to a project, please answer the above for each component. Also include information regarding secondary improvements including, but not limited to, grading and grubbing, placement of accessory equipment, installation of utilities, roads, driveways, fences, landscaping, etc.

Attach any and all associated plans such as a location map, site plan, floor plan, elevations, and landscaping plans drawn to scale (*ref §13-5-31)*.

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). 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). It would also extend a 3-phase, 12.47 kV power line to the tank site. Then the wells would be completed, pumps installed, and other infrastructure built.

Figure 2 provides a project overview. Figure 3 is a closeup of the well site as it exists. Figure 4 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 5, 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 Lāʻie Wastewater Treatment Plant. Details concerning the project are provided in the sections below.

Figure 1: Location Map

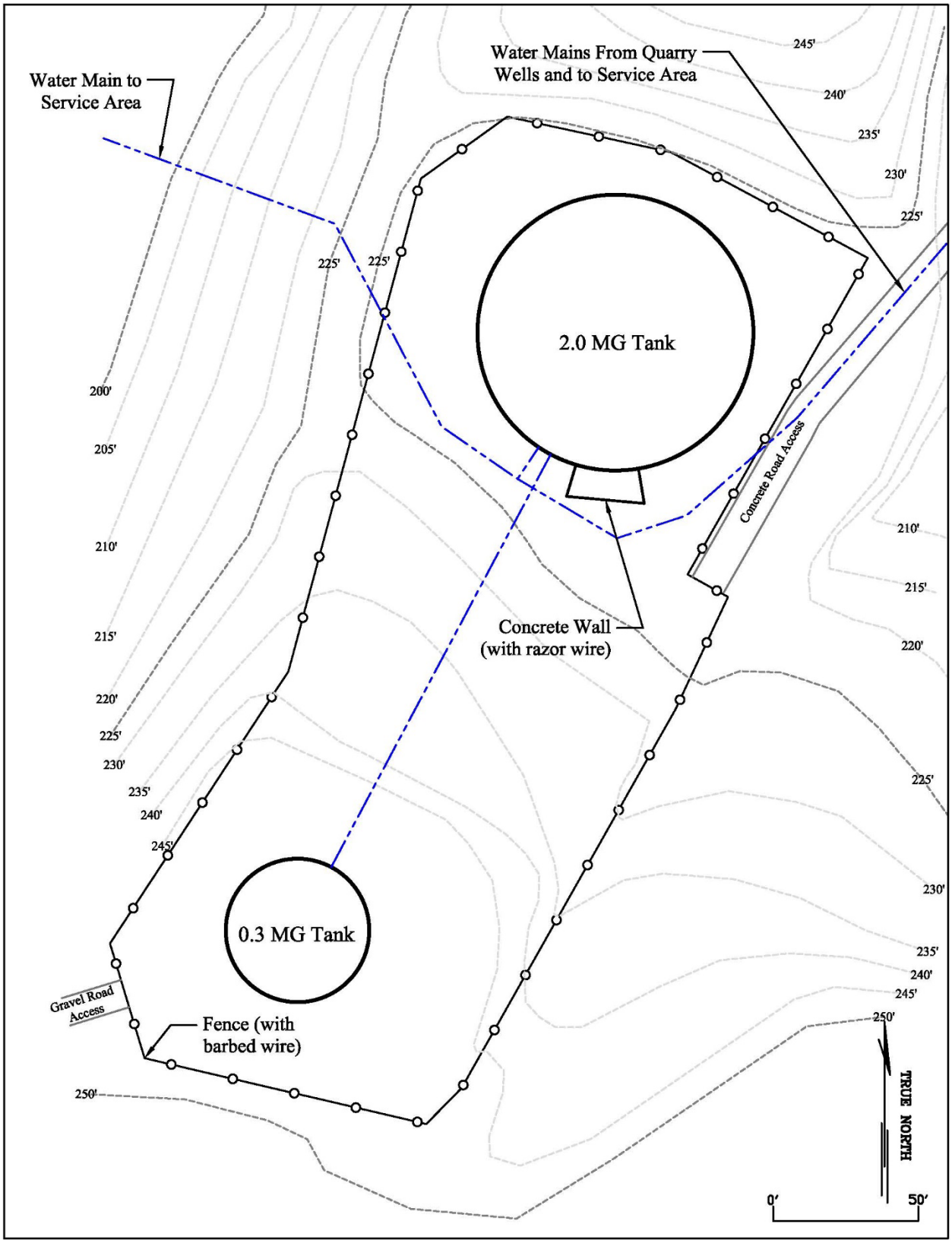


Source: Planning Solutions, Inc. (PSI)

Figure 2: Project Overview

Source: PSI

Figure 3: Existing Well Site Plan

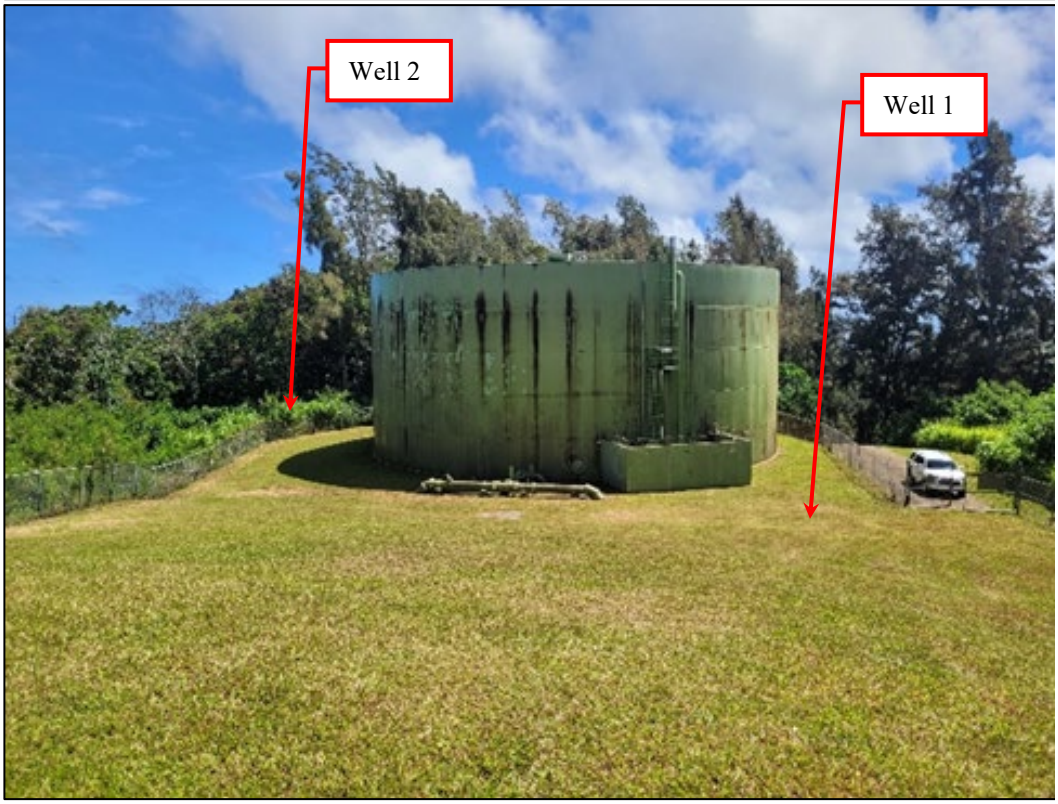


Source: PSI

Figure 4: Photographs of Existing Conditions on the Project Site

a. Gated entrance to existing tank 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).

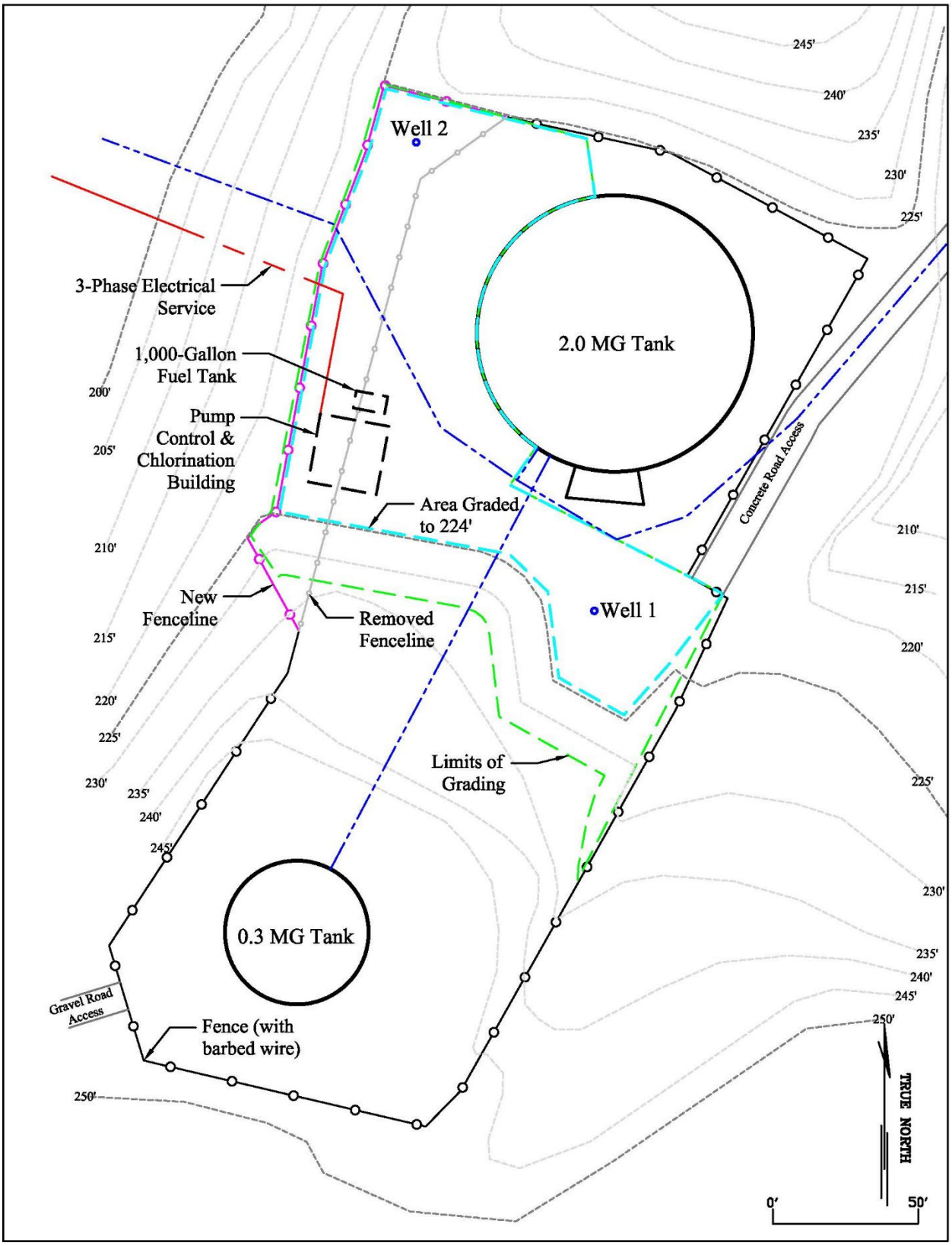
d. Existing 2.0 MG water storate tank on right. Approximate location of proposed Well 2 indicated.

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 PSI on June 9, 2023.

Figure 5: Conceptual Well Site Development Plan



Source: PSI

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 5 and Figure 6; 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 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 topped with three strands of barbed wire (Figure 4). The additional 4,170 square feet of fenced area would need to be cleared of the low vegetation visible in Figure 4, photographs b., c., and d. In total, site preparation will require excavation of 1,190 cubic yards of material and result in an 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 2). However, this will not occur until the exploratory wells have been tested and shown to be productive.

Exploratory Well Drilling and Testing

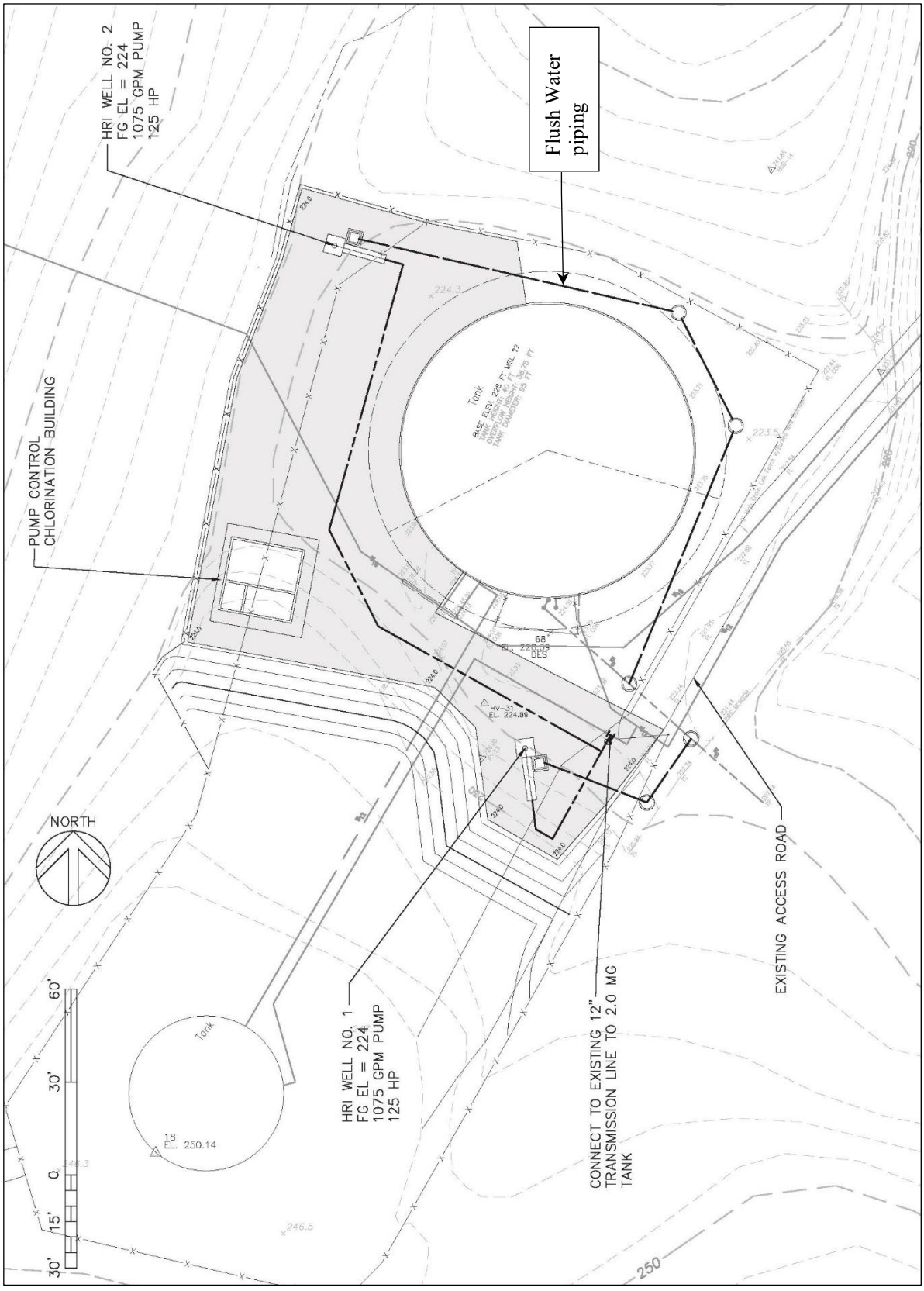
The two exploratory wells will be drilled and tested in sequence; first Well No. 1 will be drilled and tested and, if the test is affirmative, Well No. 2 will be drilled and tested. The two wells would be roughly 175 feet apart. The purpose of the tests is to confirm that the wells can provide the needed 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.

Figure 6: Conceptual Engineer Well Site Plan



Source: TNWRE (2022)

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. 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 6 illustrates the location of the well pad, concrete pedestals, and piping. Figure 7 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 8.
- 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 9 provides a plan view and an elevation view, and Figure 10 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 10. This volume of fuel allows for continuous operation should an event cut power to the remote Lā'ie area for an extended period. Figure 10 shows an example tank.
- 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

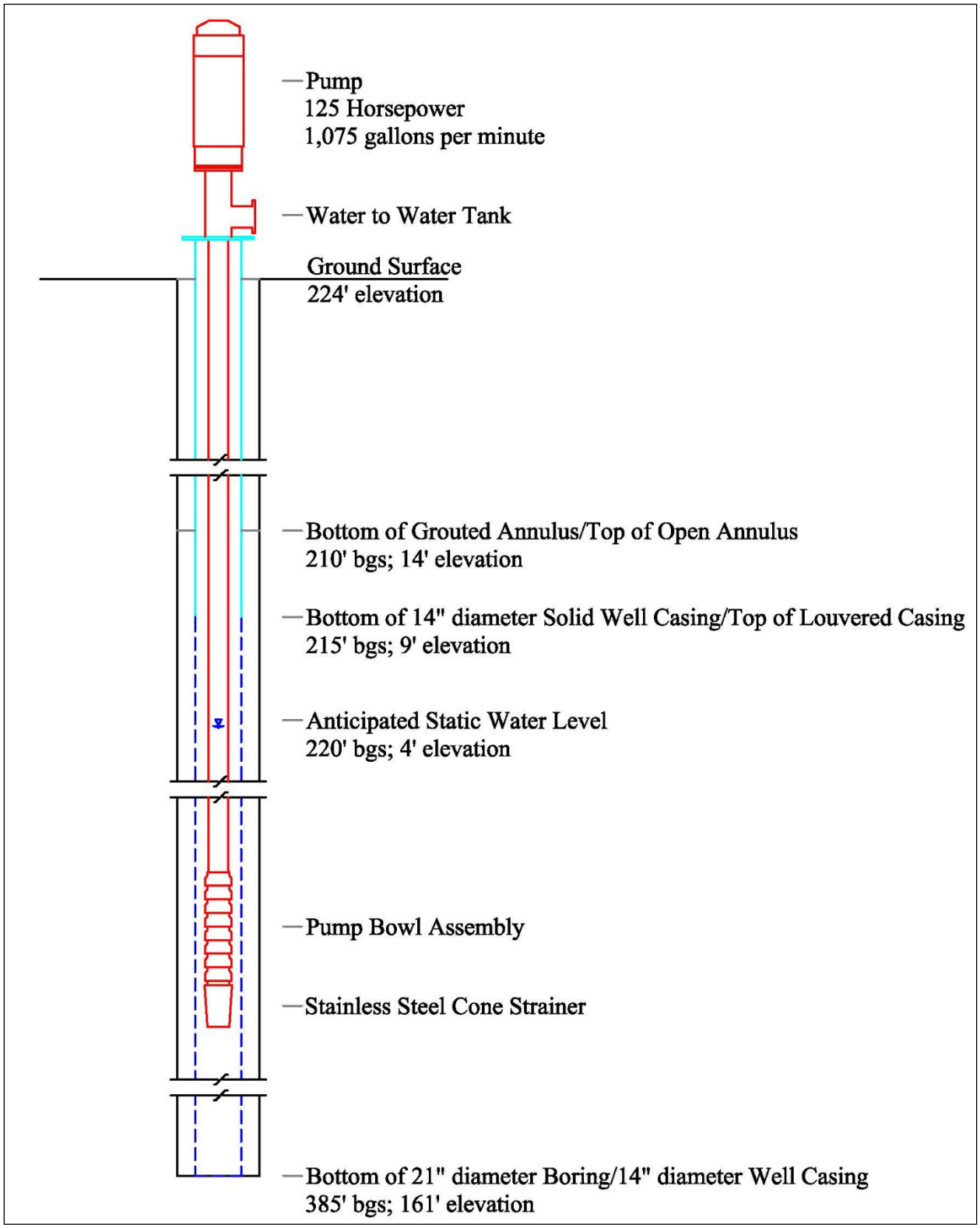
of such an installation is provided in Figure 10, except that in the figure the antenna is mounted to a building. This SCADA system will allow LWC to continuously monitor and control operation of the proposed facilities remotely.

- 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 wells site (Figure 2).[1] 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 10. The allocation of these expenses between Hawaiian Electric and LWC have not yet been established.

[1] 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 7: Conceptual Section View of Proposed Well Construction and Pump Installation

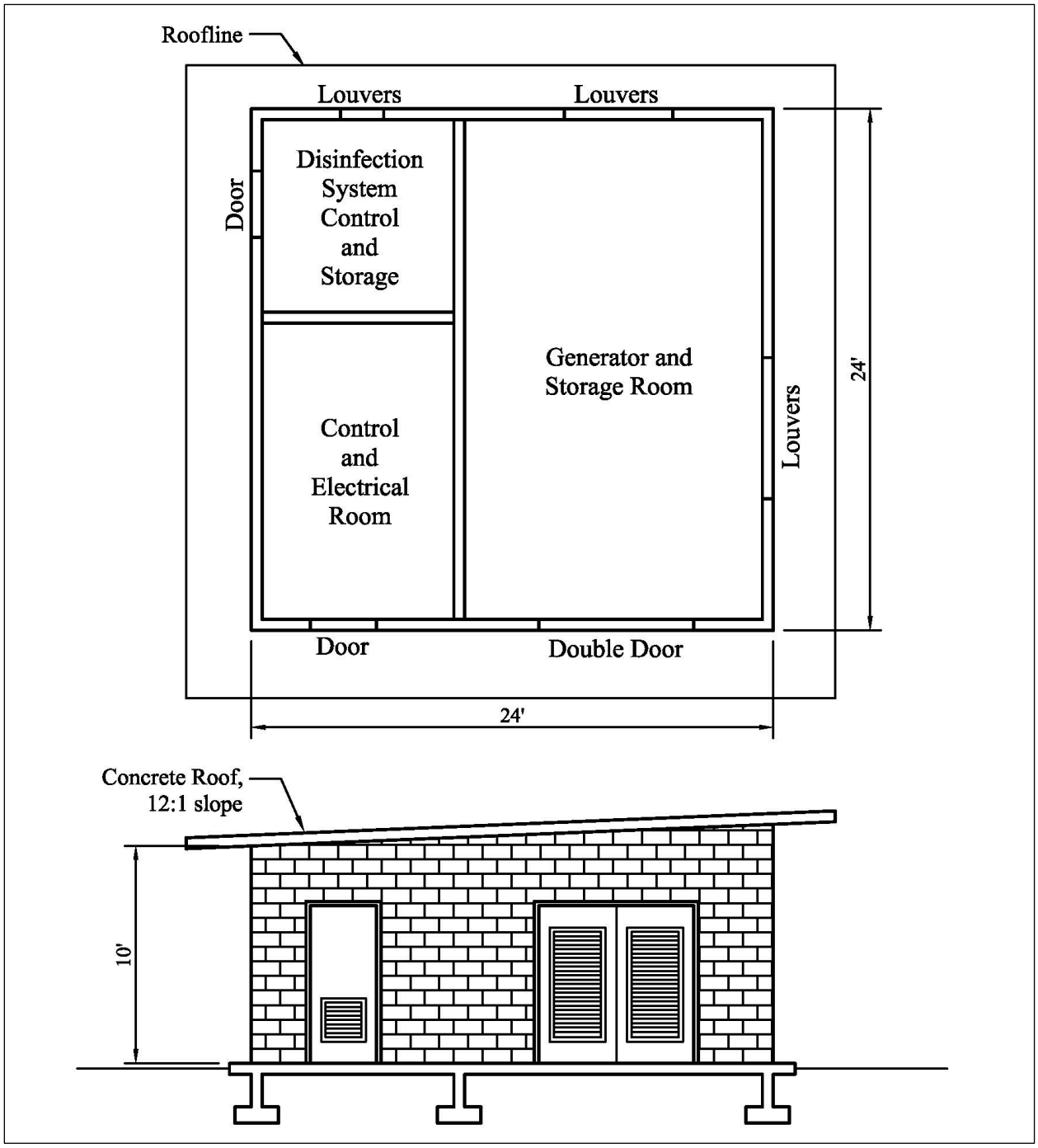


Source: PSI.

Figure 8: Example of a Similar 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 9: Conceptual Plan and Section View of Pump Control and Chlorination Building



Source: PSI.

Figure 10: Example of a Similar 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.

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 11; 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 revegetate, which is anticipated to occur rapidly since the vegetation outside of the fenced area will only be cut, not grubbed. No planting will be performed outside of the fenced well site.

Operations

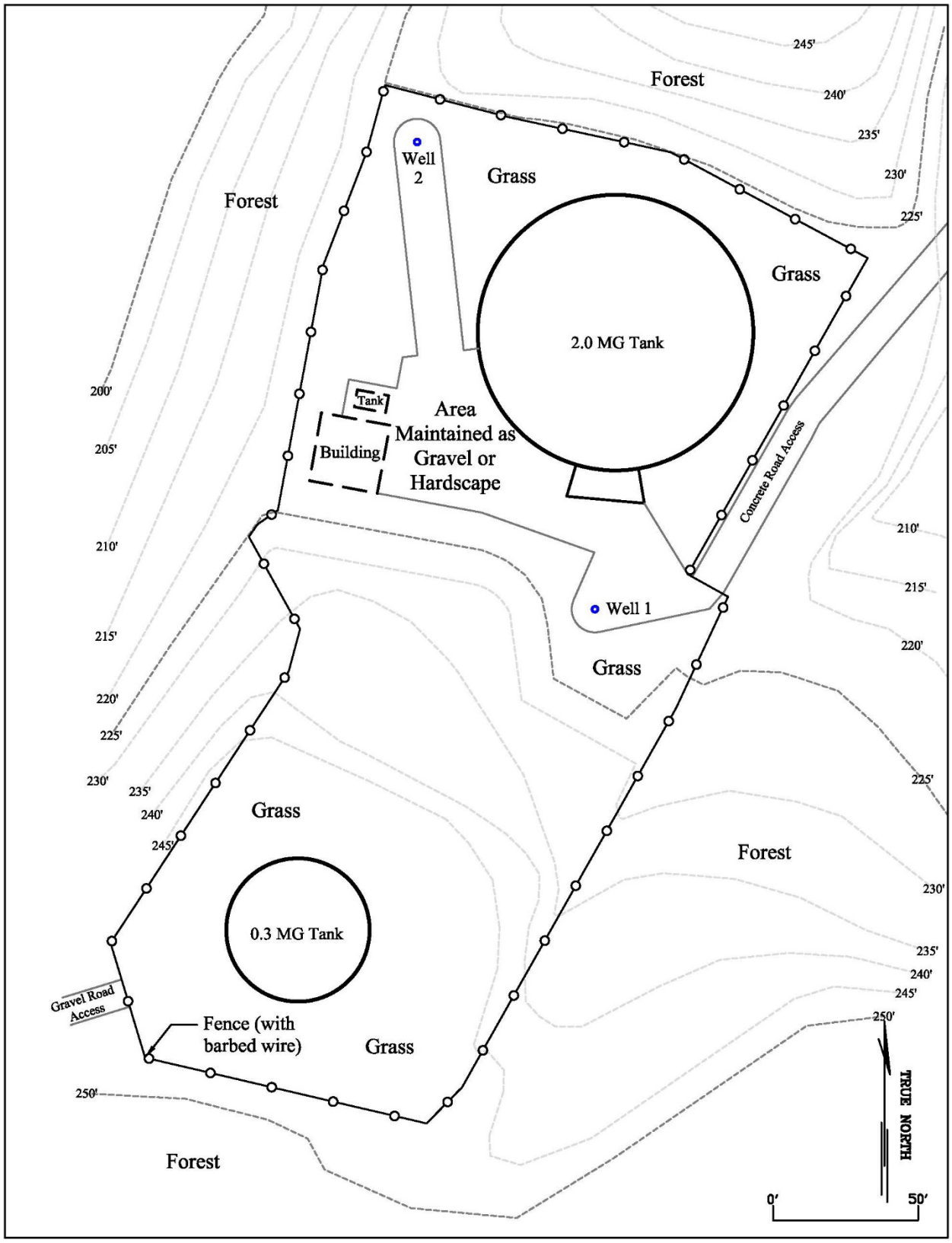
Once the project has been built and is operational, LWC would transfer its WUP allocation from the BYUH wells and discontinue its use of the BYUH wells. The WUP allocation would remain unchanged, at 1.375 MGD, but the BYUH wells would be removed from LWC's battery of wells and the proposed new wells 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 11: Landscaping Plan



Source: PSI.

EXISTING CONDITIONS

Please describe the following, and attach maps, site plans, topo maps, colored photos, and biological or archaeological surveys as appropriate:

Existing access to site:

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, there are multiple gates, and there are no public uses in the areas it accesses. Figure 12 shows the existing access to the site.

Existing buildings/structures:

The well site (Figure 6) is a small, approximately 1-acre fenced enclosure on a portion of TMK No. 5-5-007:001, which has a total area of 2,206.84 acres. There are no buildings on the well site; on-site structures are limited to the following:

- LWC’s 2.0 MG tank, which 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.
- Above and below ground piping that connects the tanks to off-site wells and the off-site LWC service area.

Existing utilities (electrical, communication, gas, drainage, water & wastewater):

The only utilities at the site are:

- LWC’s water system, consisting of potable water tanks and piping.
- Single-phase, low-voltage electrical power via underground conduit lines from the Quarry Wells site below.

Figure 12: Existing Access to the Well Site

Source: Planning Solutions, Inc.

Physiography (geology, topography, & soils):

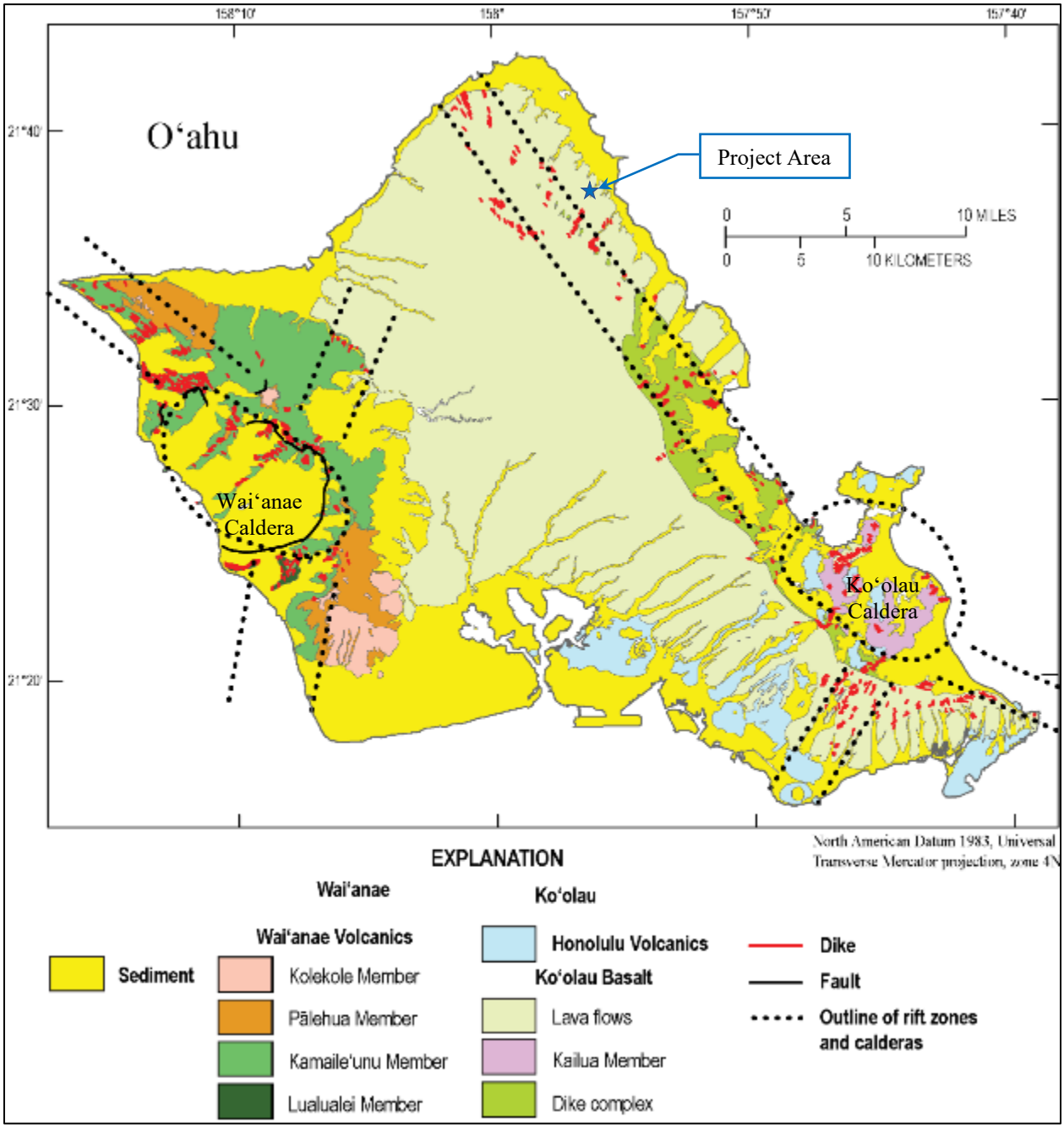
Oʻahu consists of the eroded remnants of two elongated shield volcanoes: the older, western Waiʻanae Volcano (main shield-building stage approximately 3.8-2.95 million years ago) and the younger, eastern Koʻolau Volcano (shield-building stage approximately 2.5-1.7 million years ago). The rift zone and 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 Koʻolau Caldera would have encompassed the areas where the towns of Kāneʻohe and Kailua are now located (Figure 13).

Upper Lāʻie is in the rift zone trending northwest from the Koʻolau 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 Oʻahu. 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 14 is a Natural Resource Conservation Service soil survey map of the project area in upper Lāʻie near ʻIhiʻihi Gulch; it is based on surveys done by the Hawaiʻi 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 Hawaiʻi ("ALISH") nor is it identified on Hawaiʻi Department of Agriculture's maps of Important Agricultural Lands.

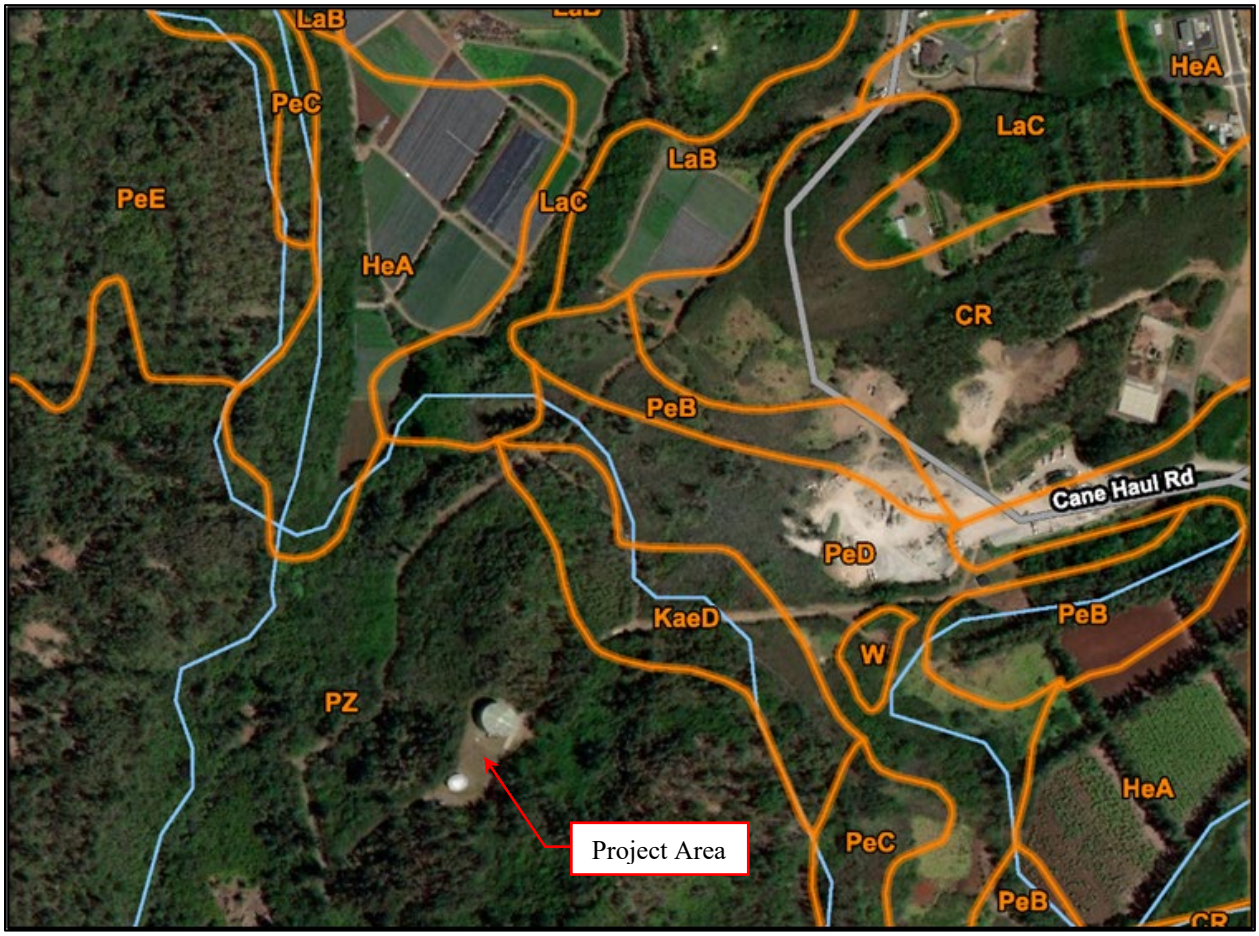
The Paumalu soils are similar to Paumalu silty clay, 15 to 25 percent slopes, except for the slope. Runoff is medium to rapid, and the erosion hazard is moderate to severe. Badland consists of nearly barren land that has remained after the Paumalu soils were removed by wind and water erosion. Runoff 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.

Figure 13: Simplified Geologic Map of O‘ahu



Source: USGS, 2018, Figure 31.

Figure 14: NRCS Soil Survey Map

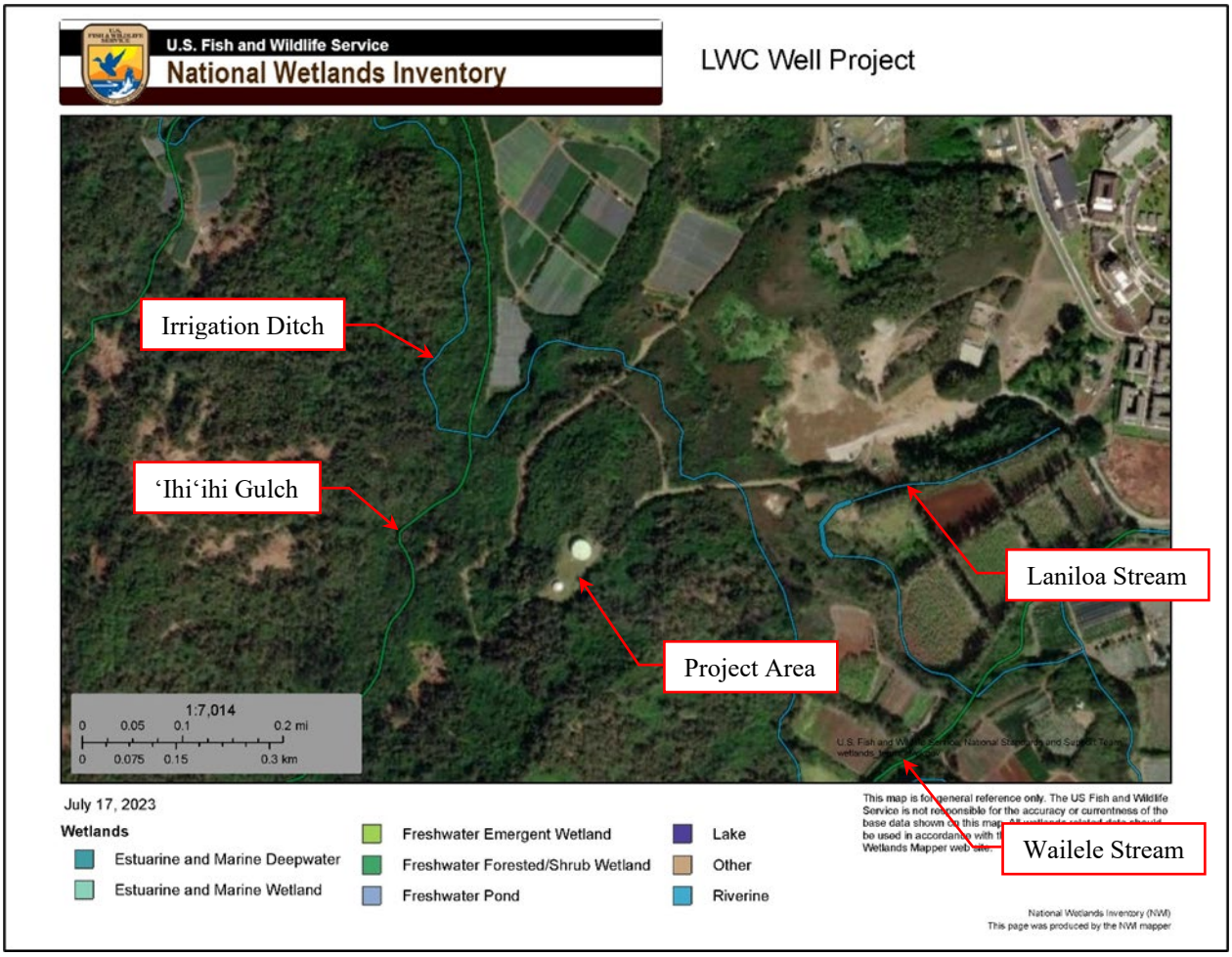


Source: Natural Resource Conservation Service (2023)

Hydrology (surface water, groundwater, coastal waters, & wetlands):

Wetlands include surface waters like streams and the ocean. They also include wetlands like taro lo‘i and other features. Figure 15 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 15: Surface Waters and Wetlands



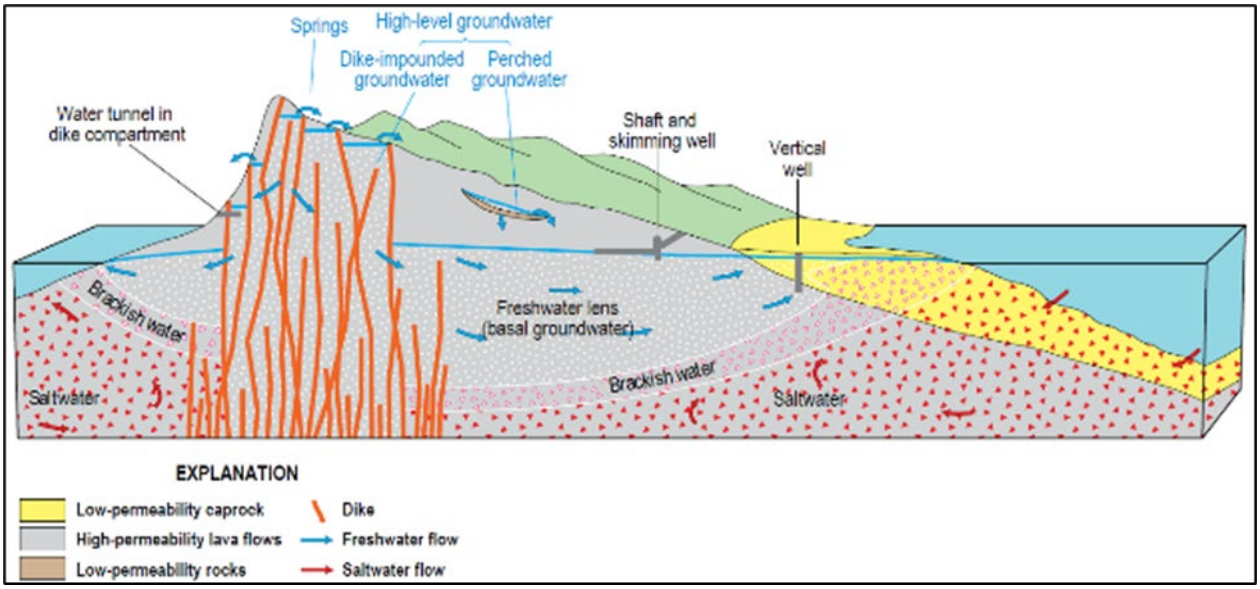
Source: https://www.fws.gov/wetlands/data/mapper.html, accessed July 17, 2023.

The tank 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 15). 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.

In Hawai‘i, fresh groundwater occurs primarily either as dike-impounded groundwater or as a freshwater lens (basal groundwater) floating on saltwater. Figure 16 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 16: Conceptual Model of Groundwater Occurrence and Flow in Hawai'i Developed in the Middle of the 20th Century

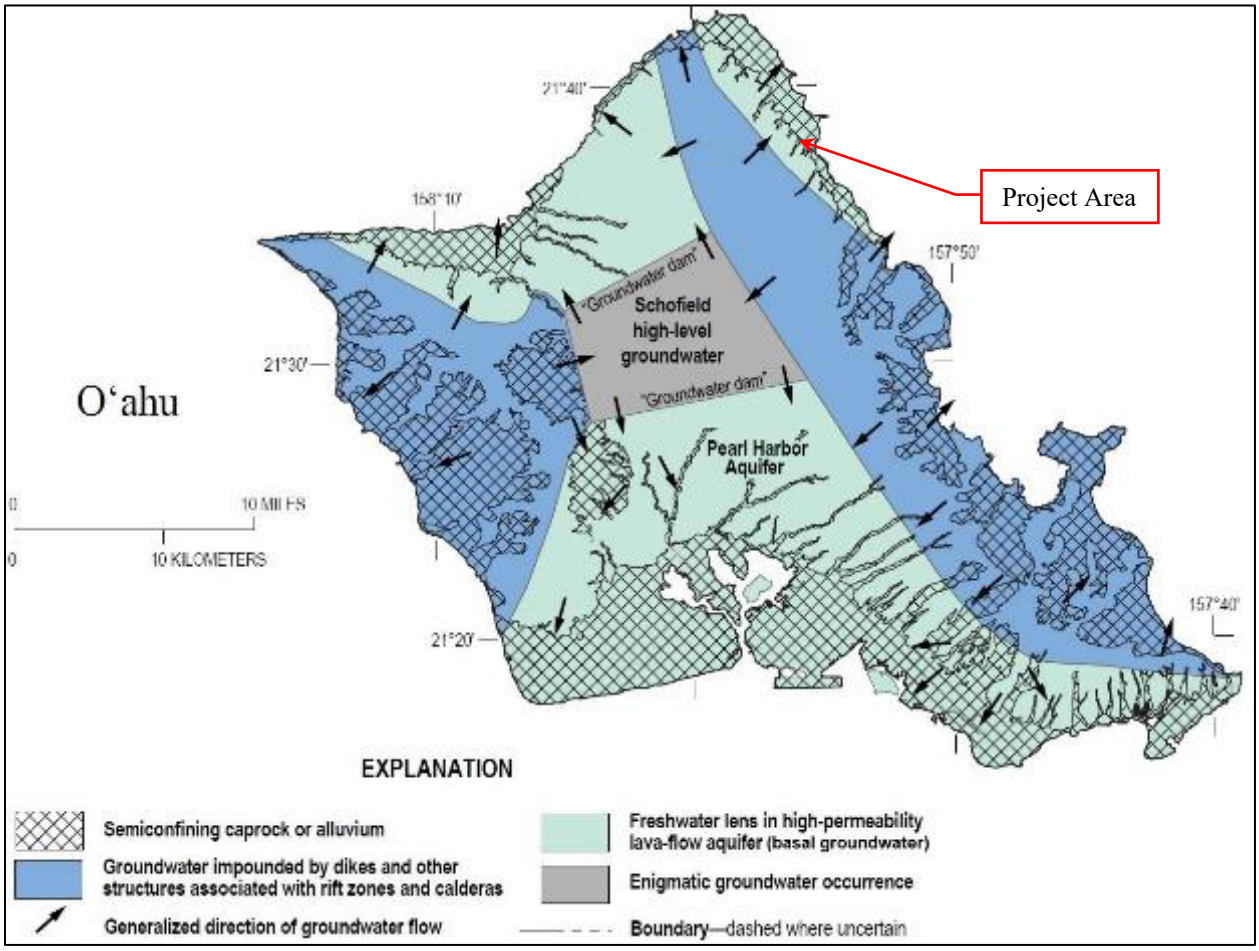


Source: USGS, 2018, Figure 21.

Based on continued study and observations of the groundwater in Hawai'i, this conceptual model continues to be refined. Figure 17 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.

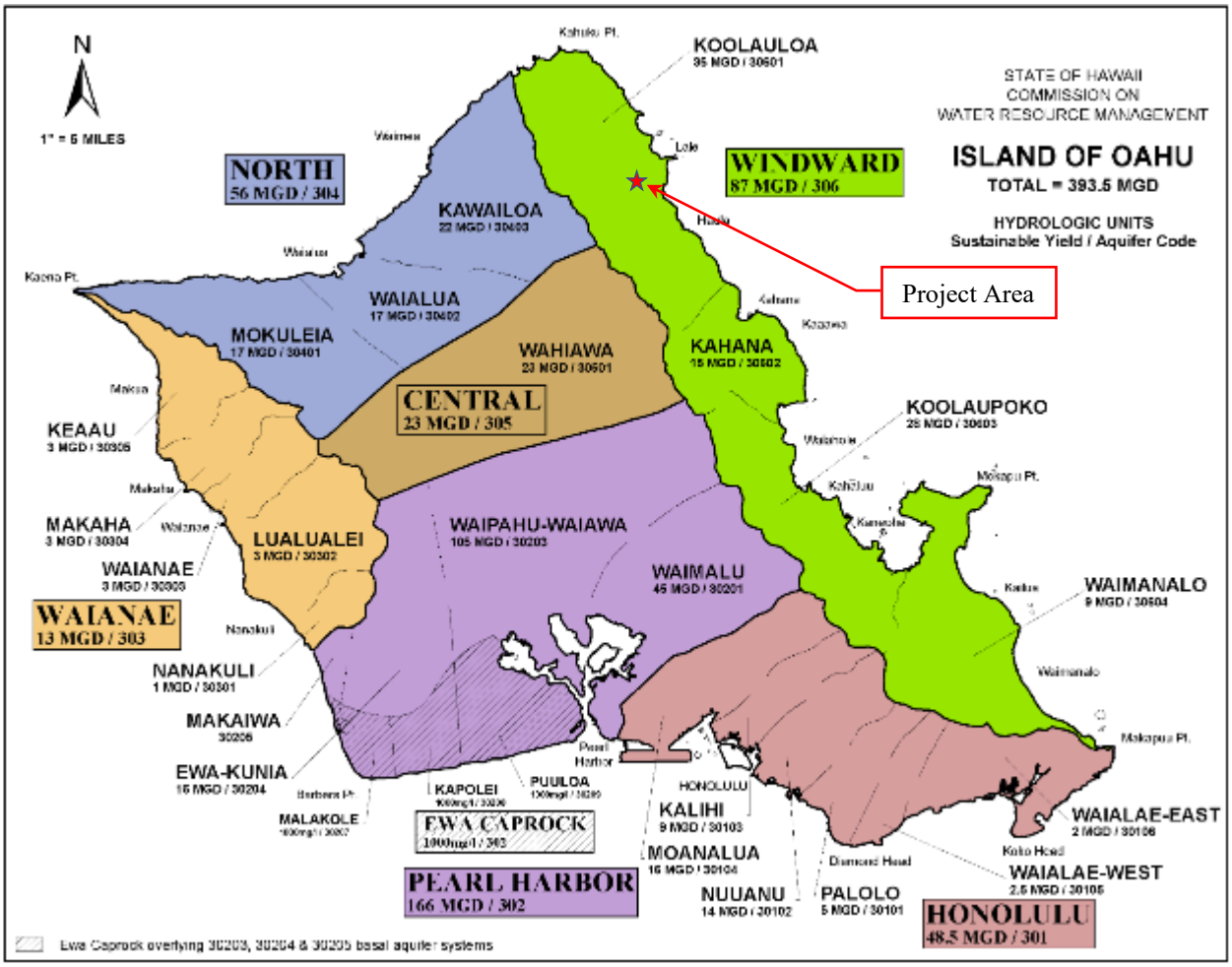
Lā'ie is in the Ko'olauloa Aquifer System, which is in the Windward Sector according to DLNR maps (Figure 18). The entire Windward Sector is a designated Water Management Area (WMA), which means there are additional regulations that owners of water sources, such as wells, must comply with. Being within 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 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 17: Map of Modes of Groundwater Occurrence and Flow on O‘ahu



Source: USGS, 2018, Figure 61.

Figure 18: Groundwater Hydrologic Units on O‘ahu

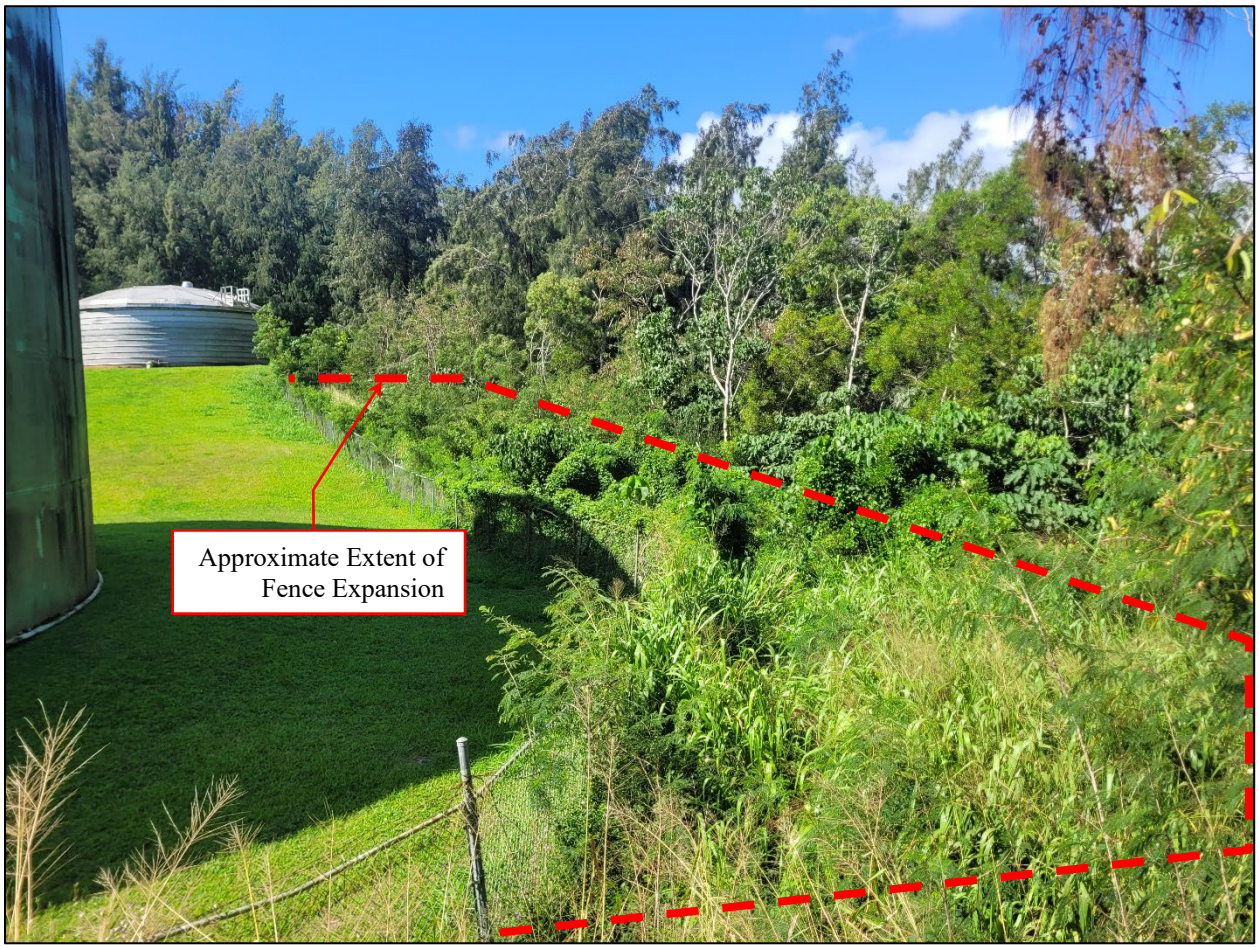


Source: https://files.hawaii.gov/dlnr/cwrm/maps/gwhu_oahu.pdf accessed April 2023.

Flora & fauna (indicate if rare or endangered plants and/or animals are present):

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 19). 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 19: Photograph of Fence Expansion Area



Source: PSI, 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 4, 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 20). The forested area was previously cleared for the installation of the 16-inch-diameter water main along the same alignment (Figure 3).

Figure 20: Photographs of 3-Phase Electrical Power Alignment between Well Site and Road

a. Canopy.

b. Understory.

Source: PSI, March 28, 2024

The only fauna observed at the 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 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 the list are not guaranteed to be found on or near the project area.

According to the USFWS IPaC report, the following listed 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*) ʻaiea; (*ii*) ʻakoko; (*iii*) ʻenaʻena; (*iv*) kamanomano; (*v*) *Spermolepis hawaiiensis*; (*vi*) *Vigna o-wahuensis*; and (*vii*) *Microlepia strigosa* var. *mauiensis*. As noted above, none of these species were observed 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 proposed well site.

Natural hazards (erosion, flooding, tsunami, seismic, etc.):

Hurricanes and Topical Storms.

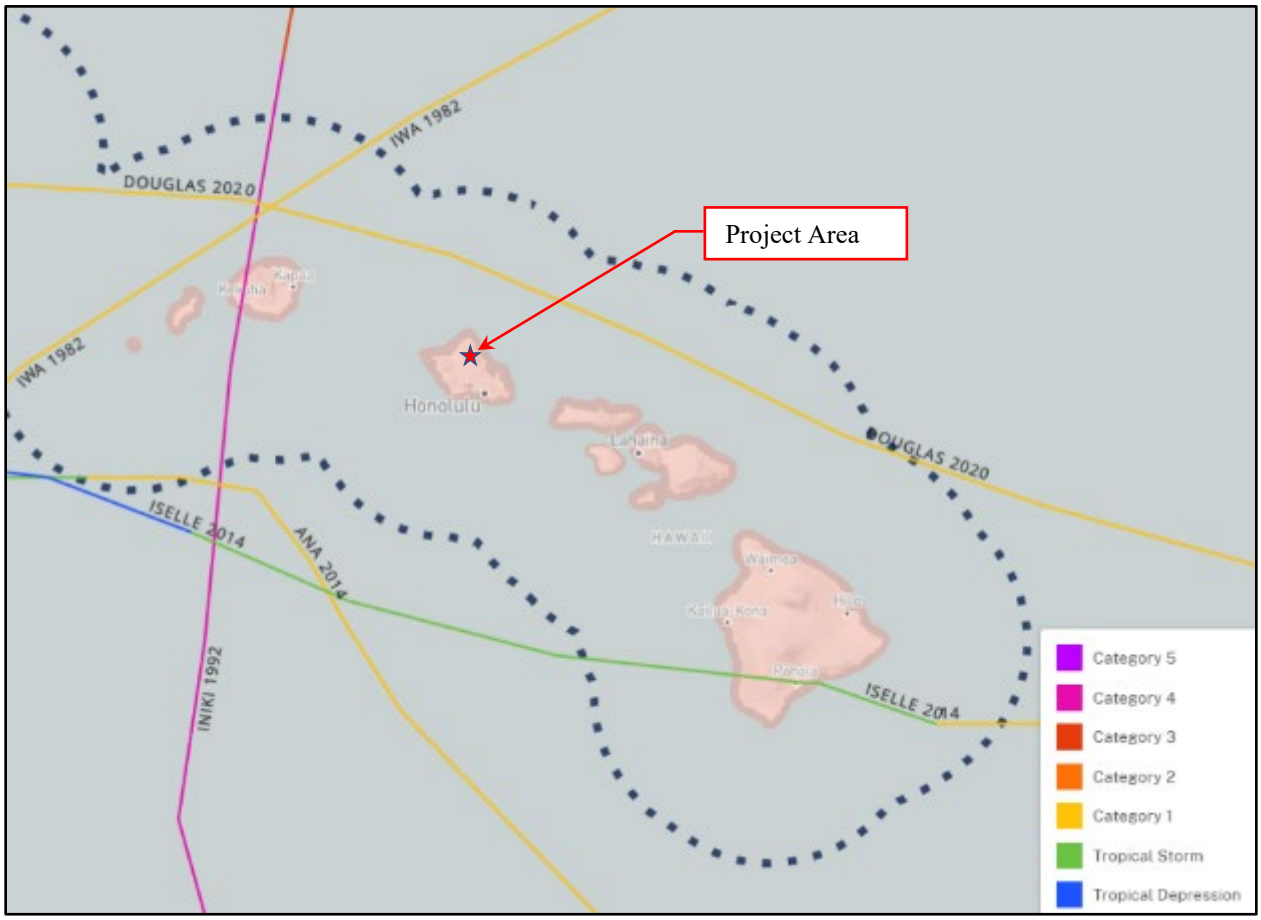
Tropical cyclones originate over tropical or subtropical waters with organized deep convection and closed surface wind circulation around a well-defined center. Tropical cyclones extract heat energy from the ocean at high temperatures and heat export at low temperatures of the upper troposphere. Both 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 Hawai‘i.

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, ‘Iwa 1982, Estelle 1986, and ‘Iniki 1992 (School of Ocean and Earth Science and Technology [SOEST], University of Hawai‘i). Figure 21 shows the hurricanes have passed within 60 miles of the main Hawaiian Islands in the past 40 years.

Figure 21: Hurricanes Within 60 Miles of the Main Hawaiian Islands (1982-2022)

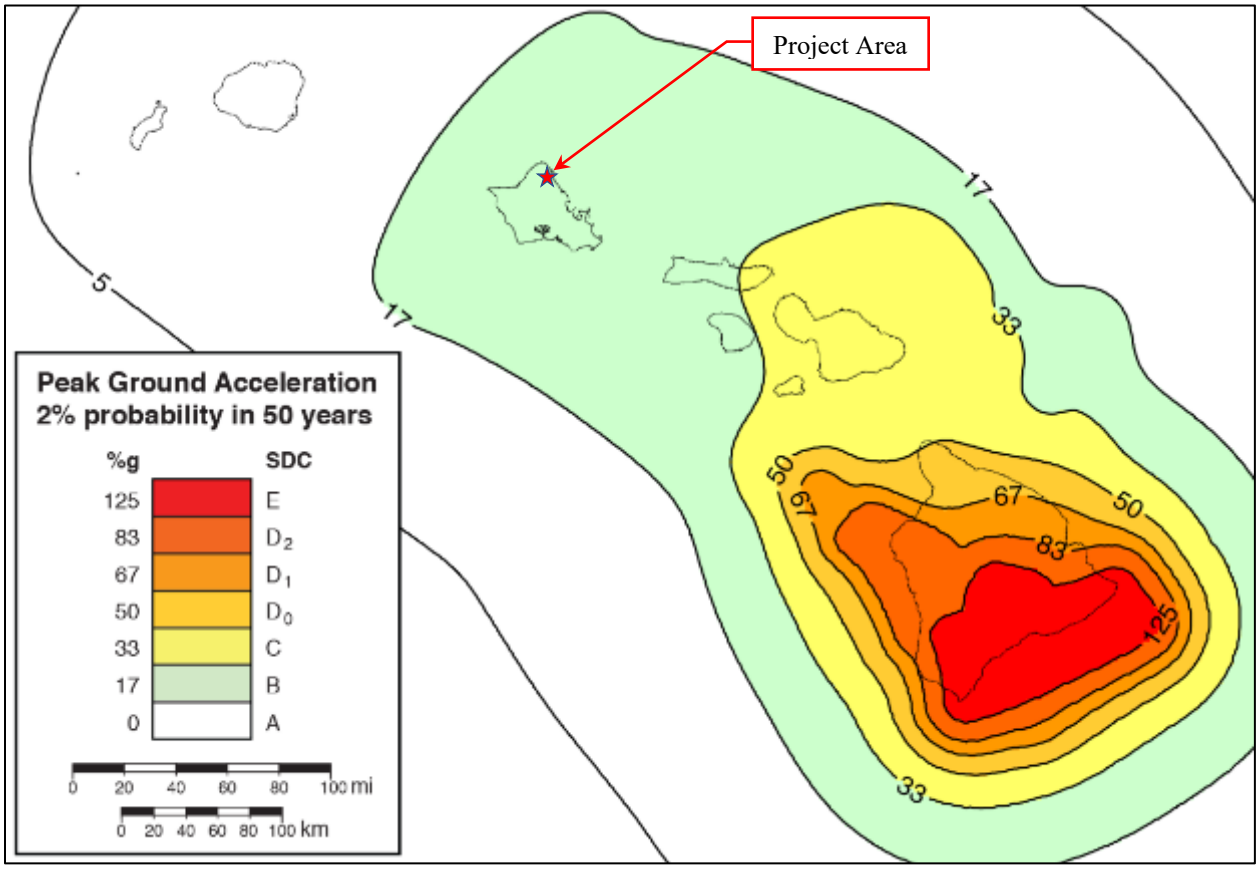


Source: https://coast.noaa.gov/hurricanes/#map=4/32/-80.

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 22), 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 22: USGS Seismic Hazard Map Based on Past Earthquakes



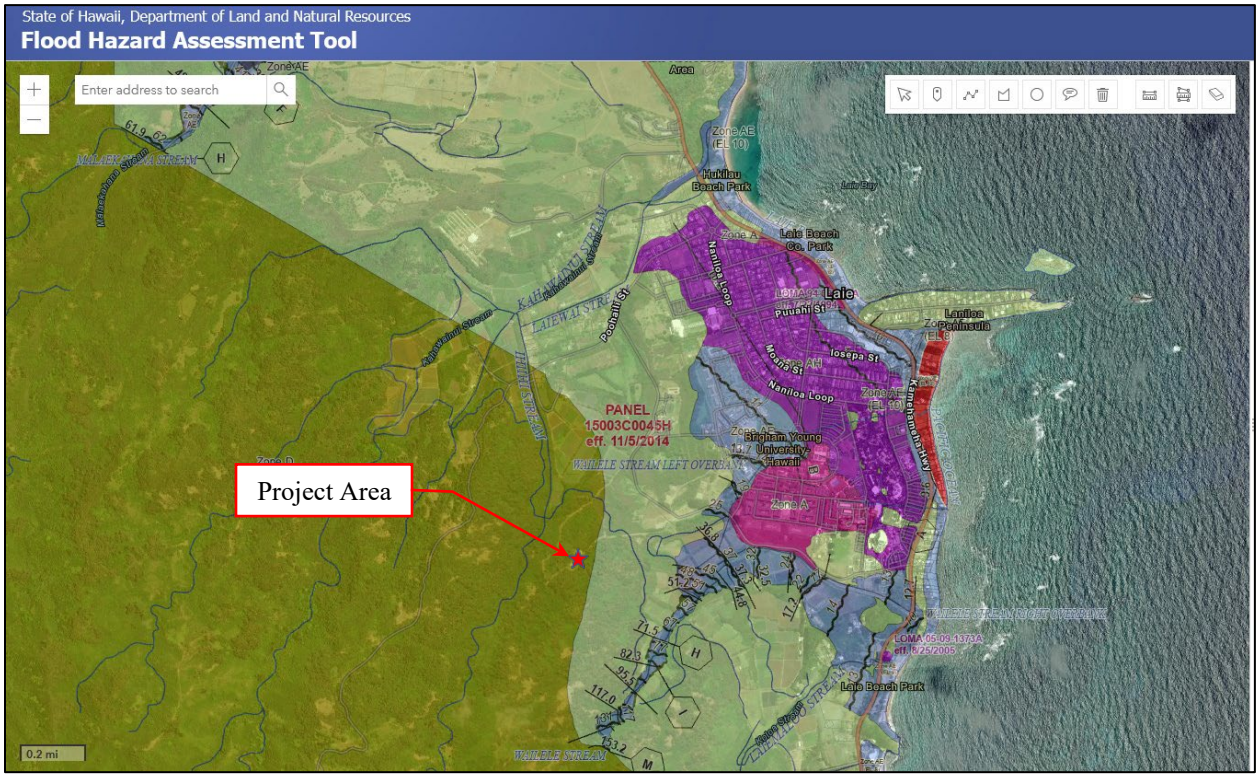
Source: https://www.usgs.gov/media/images/seismic-hazard-state-hawaii-based-past-earthquakes (Klein et al. 2001)

Like all 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.

Flooding

Figure 23 illustrates the flood zones in Lāʻie 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 23: Flood Hazard Assessment Tool

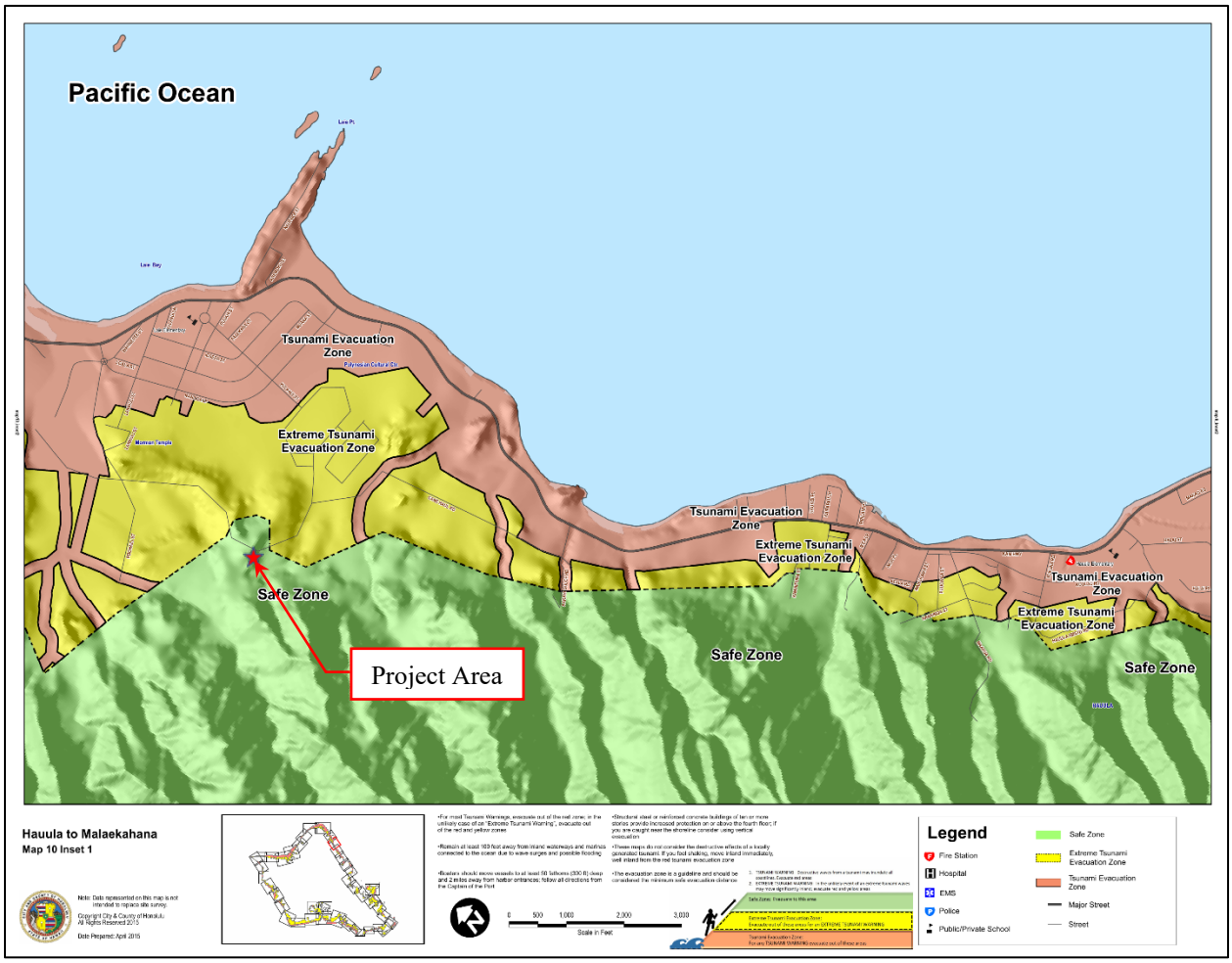


Source: FEMA Special Flood Hazard Areas for the State of Hawaiʻi. GIS shapefiles.

Tsunami Inundation

As illustrated in Figure 24, 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 24: Tsunami Evacuation Zones, Hau‘ula to Mālaekahana Bay



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

Sea Level Rise

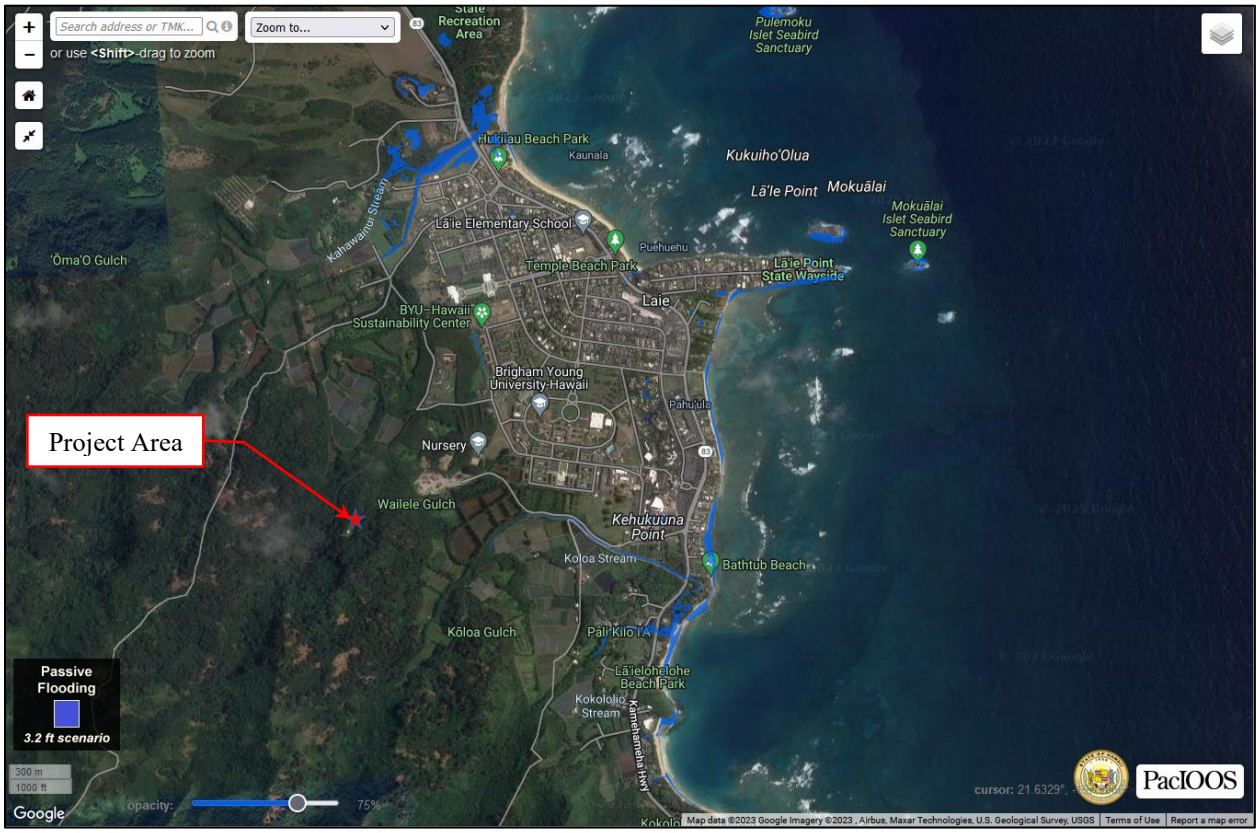
The *Hawai‘i Sea Level Rise Vulnerability and Adaptation Report* (HSLR), prepared by the Hawai‘i Climate Change Mitigation and Adaptation Commission (HCCMAC, 2017) combines best available science from the Intergovernmental Panel on Climate Change (IPCC), NOAA, and NASA to project sea level rise and vulnerability 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 25 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 26 illustrates passive flooding under a 6-foot SLR scenario according to NOAA.

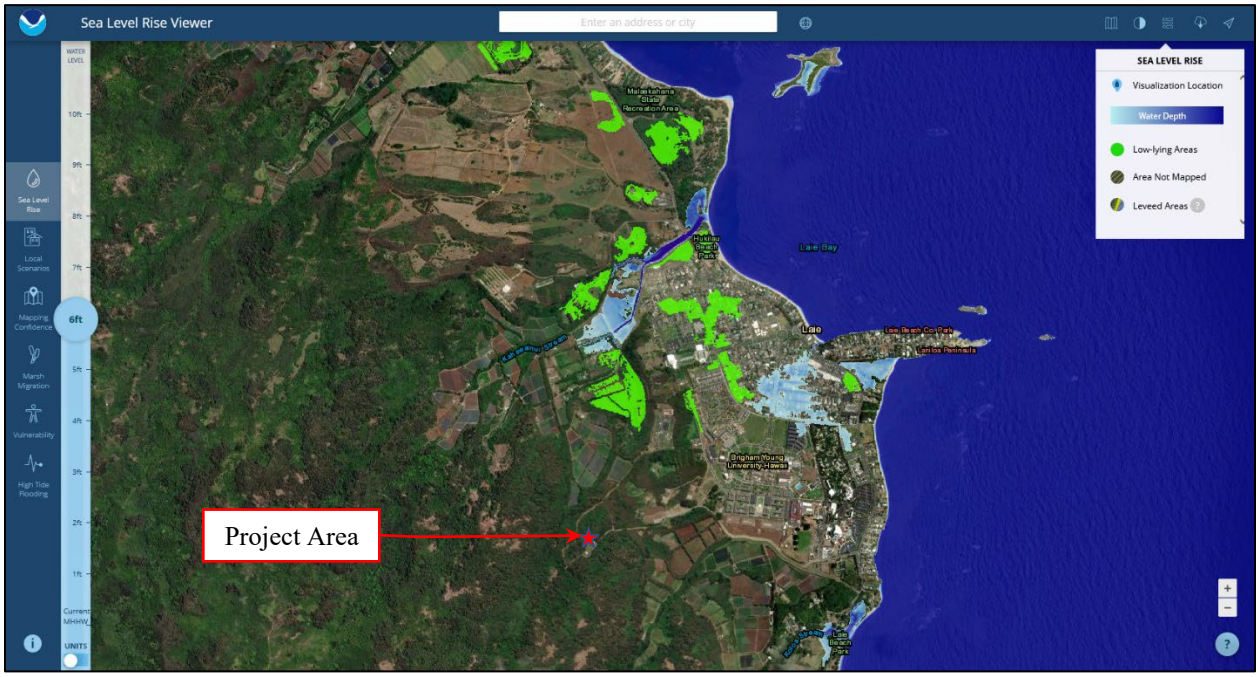
Figure 25: Sea Level Rise Exposure Area in Project Area under a 3.2-foot Sea Level Rise Scenario



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 26: 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)

Historic & cultural resources:

Historical Resources

The ahupuaʻa of Lāʻie (meaning, in ʻōlelo Hawaiʻi, "the ieʻie 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 Lāʻie Stream, which flows into Lāʻie Bay, the largest bay north of Kahana but a more tumultuous one, framed to the south by Laniloa, also known as Ka Lae Lāʻie or Lāʻie 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. Lāʻie is traditionally divided into two sub-ahupuaʻa, the southern portion being Lāʻie Malo'o ("dry Lāʻie"), and the northern side closer to the ponds and streams being known as Lāʻie Wai ("Wet Lāʻie").

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 kamaʻāina of the place, was able to identify 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.

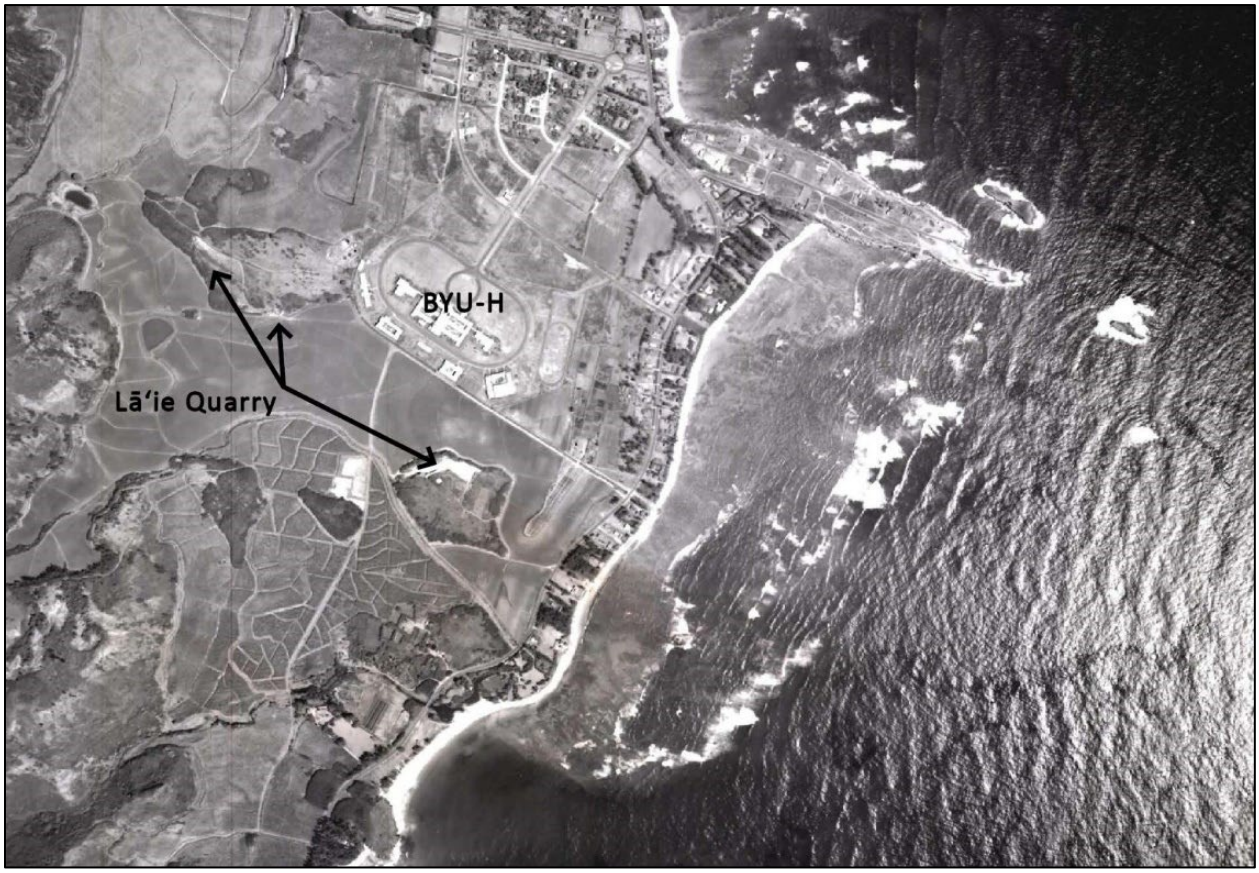
Another moʻōlelo associated with Lāʻie is the tale of Hauwahine. There was a large, horseshoe-shaped pond mauka of the present location of the bridge over Kahawainui Stream, between Lāʻie and Kahuku. This pond was governed by a protectress moʻo, Hauwahine, who sometimes dwelt at Kawainui fishpond in 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 Hawaiʻi, which is now known as BYU-Hawaiʻi, on land that was historically used by the Lāʻie Plantation for sugar cane cultivation (Figure 27). 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.

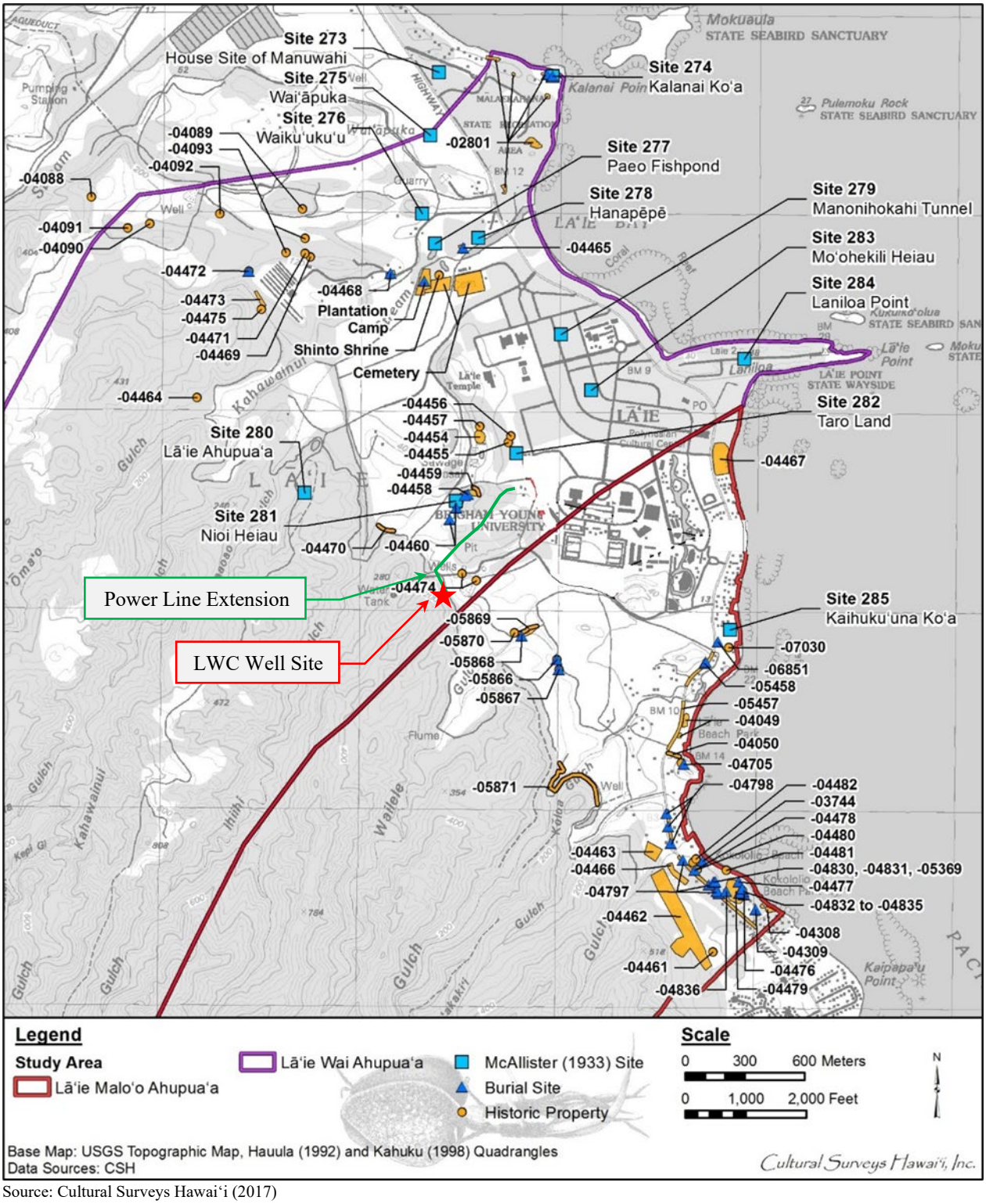
Figure 27: 1959 Aerial Photograph of Lāʻie



Source: BYUH (2018)

The Lāʻie 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 here is drawn from the *Archaeological Literature Review and Field Inspection for the BYUH Land Use Reclassification Project, Lāʻie (Lāʻie Wai and Lāʻie Maloʼo) Ahupuaʻa, Koʻolauloa District, Oʻahu TMKs: [1] 5-5-006:005, 032, and 035*, prepared by Cultural Surveys Hawaiʻi (CSH) (2017). The CSH report summarized studies conducted and sites identified in Lāʻie 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 Lāʻie are depicted in Figure 28.

Figure 28: Locations of Previously Identified Historic Properties in Lā‘ie from CSH 2017 Report



Source: Cultural Surveys Hawai‘i (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 of 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.

The well site is near the top of a rocky hill and would not have been useful for agricultural or most other 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 Lāʻie; 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.

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 Lāʻie; 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 4, photographs a through d, and Figure 19).

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 4, 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.

Cultural Resources

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 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.

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.

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 mo'okū'auhau

(genealogy), throughout Hawai‘i and abroad. He has served as a judge for several cultural events and competitions in Hawai‘i and overseas, including at the Merrie Monarch Festival. Mr. Bridges is a respected community leader having served on the O‘ahu Island Burial Council for three Administrations, on the Ko‘olauloa Neighborhood Board, and on the Ko‘olauloa Planning Advisory Committee with the City and County of Honolulu. He is a member of the Ko‘olauloa Hawaiian Civic Club.

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 lā‘au lapa‘au. 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 water tank site (i.e., the proposed well site). Most plants were cultivated or collected lower down in Lā‘ie. 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 ho‘okupu, or hunting on the well site or in its immediate vicinity, including the proposed power line alignment. Neither were they aware of any mo‘ōlelo or wahi pana associated with the site.

Both kūpuna agreed that a theme running through their knowledge of the area was Lā‘ie as a place for healing and its role as a pu‘uhonua or place of refuge in pre-Contact times. However, Mr. Bridges pointed out that the significance of pu‘uhonua was more than simply a place to escape justice.

“You know, people don't understand the pu‘uhonua 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.”

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 in the project area 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.

EVALUATION CRITERIA

The Department or Board will evaluate the merits of a proposed land use based upon the following eight criteria (*ref §13-5-30(c))*

1. The purpose of the Conservation District is to conserve, protect, and preserve the important natural and cultural resources of the State through appropriate management and use to promote their long-term sustainability and the public health, safety, and welfare. (ref §13-5- 1) How is the proposed land use consistent with the purpose of the conservation district?

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. 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 the new well site is in the same Koʻolauloa 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.

2. How is the proposed use consistent with the objectives of the subzone of the land on which the land use will occur? (ref §13-5-11 through §13-5-15)

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.

3. Describe how the proposed land use complies with the provisions and guidelines contained in chapter 205A, HRS, entitled "Coastal Zone Management" (see 205A objectives on p. 9).

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

Recreational Resources

The proposed project is on a privately-owned parcel in upper Lāʻie. There are no parks or public recreational resources within the project vicinity, the closest public park is Lāʻielohelohe 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.

Historic Resources

LWC has assessed 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 Lāʻie 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.

Scenic and Open Space Resources

The 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 Lāʻie 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).

Coastal Ecosystems

The LWC has considered the 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. The 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. Further, the BMPs for the project will avoid or minimize the short-term construction phase impacts to water and air quality.

Economic Uses

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 the 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.

Coastal Hazards

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.

Managing Development

The Proposed Action complies with applicable laws and policies regarding coastal development. LWC has conducted considerable outreach to date via scoping agencies to appropriate parties. 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.

Public Participation

The Lā‘ie Water Company Production Well Project is intended to provide the Lā‘ie community with a more robust and reliable water service. This CDUA, and the attendant draft Environmental Assessment (Draft EA), have 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 the Commission on Water Resource Management (CWRM), and a Pump Installation Permit from CWRM, which will all provide additional opportunities for public review and input.

Beach and Coastal Dune Protection

The proposed Lā‘ie 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. 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.

Marine and Coastal Resources

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 Lāʻie 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. Describe how the proposed land use will not cause substantial adverse impact to existing natural resources within the surrounding area, community or region.

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. Project specific BMPs 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.

5. Describe how the proposed land use, including buildings, structures and facilities, is compatible with the locality and surrounding areas, appropriate to the physical conditions and capabilities of the specific parcel or parcels.

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.

6. Describe how the existing physical and environmental aspects of the land, such as natural beauty and open space characteristics, will be preserved or improved upon.

The proposed project is not anticipated to have significant adverse effects on the environment. The BMPs prepared for the project are designed to minimize the potential for impact and preserve the land.

7. If applicable, describe how subdivision of land will not be utilized to increase the intensity of land uses in the Conservation District.

The Proposed Action does not involve the subdivision of land.

8. Describe how the proposed land use will not be materially detrimental to the public health, safety and welfare.

The proposed project will be like the many similar potable well and tank 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.

CULTURAL IMPACTS

Articles IX and XII of the State Constitution, other state laws, and the courts of the State, require government agencies to promote and preserve cultural beliefs, practices, and resources of Native Hawaiians and other ethnic groups.

Please provide the identity and scope of cultural, historical, and natural resources in which traditional and customary native Hawaiian rights are exercised in the area.

Cultural Resources

Based on the information gathered via the interviews and other research (see information in EXISTING CONDITIONS, Cultural Resources section above), 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 in the project area 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.

Historic Resources

Based on the information gathered (see information in EXISTING CONDITIONS, Historical Resources section above), the project team believes that no historic resources exist at the project site. In addition to the research summarized in that section, 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 Lāʻie; 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 4, photographs a through d, and Figure 19).

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 4, 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.

If evidence of traditional Hawaiian activity in the area once existed, it is likely to have been destroyed during historic plantation and ranching activities or more recent infrastructure development.

Identify the extent to which those resources, including traditional and customary Native Hawaiian rights, will be affected or impaired by the proposed action.

In the view of the kūpuna interviewed, 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.

Because no historic properties are evident in any of the project areas, no known historic properties will be directly affected by the proposed project.

What feasible action, if any, could be taken by the Board of Land and Natural Resources in regards to your application to reasonably protect Native Hawaiʻi 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.

OTHER IMPACTS

Does the proposed land use have an effect (positive/negative) on public access to and along the shoreline or along any public trail?

The well site is roughly 1 mile from the coastline. There are no public trails in the project area, which is within a large, privately-owned parcel. The well site is fenced, and the public does not have access to the site.

Does the proposed use have an effect (positive/negative) on beach processes?

The well site is roughly 1 mile from the coastline and would not influence beach processes.

Will the proposed use cause increased sedimentation?

No, the project is limited in scope and would implement Best Management Practices (BMPs) during construction to address erosion. Once construction is complete, vegetation will be re-established consistent with current conditions and maintained.

Will the proposed use/cause any visual impact on any individual or community?

The potential for the 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 because 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.

Please describe any sustainable design elements that will be incorporated into the proposed land use (e.g. the use of efficient ventilation and cooling systems; renewable energy generation; sustainable building materials; permeable paving materials; efficient energy and water systems; efficient waste management systems; etc.).

The primary sustainable design element is preferring to locate the proposed wells at a site that has previously been disturbed and is within the site where the water pumped from the wells will be stored. This choice reduces ground disturbance, minimizes materials required, and optimizes energy use. The footprint of the improvements is limited and are required to comply with certain water supply standards. Therefore, it is not amenable to the implementation of additional sustainable design elements.

If the project involves landscaping, please describe how the landscaping is appropriate to the Conservation District (e.g. use of indigenous and endemic species; xeriscaping in dry areas; minimizing ground disturbance; maintenance or restoration of the canopy; removal of invasive species; habitat preservation and restoration; etc.)

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 5).
- 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 2).

The well site and disturbed portion of the power line corridor along the road, if any, would be landscaped by establishing grass, except in areas where gravel, concrete, or asphalt are placed (Figure 11). Simple grass landscaping is standard practice for well sites in the Conservation District that are not visible to the public; maintaining stabilized 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 compete 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 impact would be less than significant.

Please describe Best Management Practices that will be used during construction and implementation of the proposed land use.

BMPs for the Proposed Action include:

- 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."
- LWC will operate the water system and manage compliance with the Water Use Permit (WUP), meeting all permit conditions and reporting actual water use to Commission of Water Resource Management (CWRM).
- Related to 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.
- Related to 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.
- Related to seabirds: Outside lights installed as part of the project (e.g., security lights at the well/tank 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.
- Construction workers would be briefed on the history of the area and inform them of the possibility of inadvertently encountering unknown historic/cultural resources, including human remains.
- All activities would cease 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.
- 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.

- 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 or near the project site.

Please describe the measures that will be taken to mitigate the proposed land use's environmental and cultural impacts.

The project would not result in any significant adverse environmental or cultural impacts. The BMPs, which are considered avoidance and minimization measures, outlined above would be implemented. No mitigation measures beyond those measures are proposed.

SINGLE FAMILY RESIDENTIAL STANDARDS

Single Family Residences must comply with the standards outlined in HAR Chapter 13-5, Exhibit 4. Please provide preliminary architectural renderings (e.g. building foot print, exterior plan view, elevation drawings; floor plan, etc.) drawn to scale.

Because the Proposed Action does not involve the development of a single-family residence, this section of the CDUA is not included.

CHAPTER 205A – COASTAL ZONE MANAGEMENT

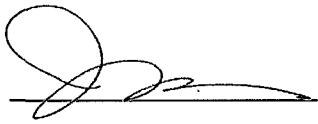
Land uses are required to comply with the provisions and guidelines contained in Chapter 205A, Hawai‘i Revised Statutes (HRS), entitled "Coastal Zone Management," as described below:

The project’s compliance with the Coast Zone Management policies and provisions are discussed in the third item under the Evaluation Criteria above.

CERTIFICATION

I hereby certify that I have read this completed application and that, to the best of my knowledge, the information in this application and all attachments and exhibits is complete and correct. I understand that the failure to provide any requested information or misstatements submitted in support of the application shall be grounds for either refusing to accept this application, for denying the permit, or for suspending or revoking a permit issued on the basis of such misrepresentations, or for seeking of such further relief as may seem proper to the Land Board.

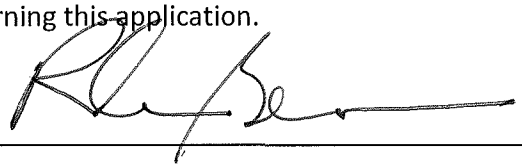
I hereby authorize representatives of the Department of Land and Natural Resources to conduct site inspections on my property. Unless arranged otherwise, these site inspections shall take place between the hours of 8:00 a.m. and 4:30 p.m.



Signature of authorized agent(s) or if no agent, signature of applicant

AUTHORIZATION OF AGENT

I hereby authorize_____James Hayes (Planning Solutions, Inc.)_____to act as my representative and to bind me in all matters concerning this application.



Signature of applicant(s)