BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

FILE COPY

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August 5, 2015

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OFC. OF ENVIRONMENTAL QUALITY CONTROL

Ms. Jessica Wooley, Director
State of Hawaii
Department of Health
Office of Environmental Quality Control
235 South Beretania Street, Room 702
Honolulu, Hawaii 96813

Dear Ms. Wooley:

Subject: Draft Environmental Assessment, Aina Haina 170' Potable Reservoir No. 2, Tax Map Key: (1) 3-6-016: 040 and (1) 3-6-019: 012

We transmit the Draft Environmental Assessment and Anticipated Finding of No Significant Impact (DEA-AFONSI) for the Aina Haina 170' Potable Reservoir No. 2 project situated at the above tax map key location in the East Honolulu District on the island of Oahu for publication in the next available edition of the Environmental Notice.

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

If you have any questions regarding this submittal, please contact Scot Muraoka, Long-Range Planning Branch of the Water Resources Division at 748-5942 or via email at smuraoka@hbws.org.

Very truly yours,

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

Enclosures

AGENCY ACTIONS
SECTION 343-5(B), HRS
PUBLICATION FORM (FEBRUARY 2013 REVISION)

Honolulu Board of Water Supply Aina Haina 170' Potable Reservoir No. 2
Island: Oahu
District: East Honolulu
TMK: (1)3-6-016:040 and (1)3-6-019:012
Permits: National Pollutant Discharge Elmination System Permit, Community Noise Permit, Community Noise Variance, Non-Covered and/or Covered Source Permit, Lane Use Permit for Construction Work, Oversized and Overweight Vehicles on State Highways Permit, Building Permit, Grading, Grubbing and Stockpiling Permit, Erosion Control Plan/Best Management Practices, Industrial Wastewater Discharge Permit, Street Usage Permit for Construction, Public Infrastructure Map Amendment

Proposing/Determination Agency:
Honolulu Board of Water Supply
630 S. Beretania Street
Honolulu, Hawaii 96843
Contact: Scot Muraoka, P.E.
Ph: (808) 748-5942
Email: smuraoka@hbws.org

Accepting Authority:
(for EIS submittals only)

Consultant:
The Limtiaco Consulting Group
1622 Kanakanui Street
Honolulu, Hawaii 96817
Contact: Jason Nakata
Ph: (808) 596-7790
Email: jason.n@tlcghawaii.com

Status (check one only):

_X_DEA-AFNSI	Submit the proposing agency notice of determination/transmittal on agency letterhead, a hard copy of DEA, a completed OEQC publication form, along with an electronic word processing summary and a PDF copy (you may send both summary and PDF to oeqchawaii@doh.hawaii.gov); a 30-day comment period ensues upon publication in the periodic bulletin.
__FEA-FONSI	Submit the proposing agency notice of determination/transmittal on agency letterhead, a hard copy of the FEA, an OEQC publication form, along with an electronic word processing summary and a PDF copy (send both summary and PDF to oeqchawaii@doh.hawaii.gov); no comment period ensues upon publication in the periodic bulletin.
__FEA-EISPN	Submit the proposing agency notice of determination/transmittal on agency letterhead, a hard copy of the FEA, an OEQC publication form, along with an electronic word processing summary and PDF copy (you may send both summary and PDF to oeqchawaii@doh.hawaii.gov); a 30-day consultation period ensues upon publication in the periodic bulletin.
__Act 172-12 EISPN	Submit the proposing agency notice of determination on agency letterhead, an OEQC publication form, and an electronic word processing summary (you may send the summary to oeqchawaii@doh.hawaii.gov). NO environmental assessment is required and a 30-day consultation period upon publication in the periodic bulletin.
__DEIS	The proposing agency simultaneously transmits to both the OEQC and the accepting authority, a hard copy of the DEIS, a completed OEQC publication form, a distribution list, along with an electronic word processing summary and PDF copy of the DEIS (you may send both the summary and PDF to oeqchawaii@doh.hawaii.gov); a 45-day comment period ensues upon publication in the periodic bulletin.

__FEIS	The proposing agency simultaneously transmits to both the OEQC and the accepting authority, a hard copy of the FEIS, a completed OEQC publication form, a distribution list, along with an electronic word processing summary and PDF copy of the FEIS (you may send both the summary and PDF to oeqchawaii@doh.hawaii.gov); no comment period ensues upon publication in the periodic bulletin.
__ Section 11-200-23 Determination	The accepting authority simultaneously transmits its determination of acceptance or nonacceptance (pursuant to Section 11-200-23, HAR) of the FEIS to both OEQC and the proposing agency. No comment period ensues upon publication in the periodic bulletin.
__Section 11-200-27 Determination	The accepting authority simultaneously transmits its notice to both the proposing agency and the OEQC that it has reviewed (pursuant to Section 11-200-27, HAR) the previously accepted FEIS and determines that a supplemental EIS is not required. No EA is required and no comment period ensues upon publication in the periodic bulletin.
__Withdrawal (explain)	

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

The Honolulu Board of Water Supply (BWS) installation of a second 0.5 million gallon potable water reservoir at its existing reservoir facility at 855 Alamuku Street in Aina Haina. The reservoir will be an enclosed concrete structure similar to the existing reservoir at the facility. The project will involve installation of the reservoir structure, connection of the new reservoir to water, drainage, and electrical utilities, and installation of reservoir control and monitoring equipment.

Due to spacial constraints, the BWS will also acquire a small portion of the adjacent Wailupe Community Park. It is estimated that approximately 0.03 acres of the park will be acquired to accommodate the proposed reservoir. The existing concrete retaining wall surrounding the facility will be reconstructed to follow the new property boundary. The area to be acquired is currently an open, grassy space; no structures within the park will be impacted.

The proposed project will improve the storage capacity and reliability of the potable water supply and distribution system for the East Honolulu communities of Wailupe Peninsula, Aina Haina, Niu Valley and Kuliouou, and will address an existing storage deficit in this system.

Draft Environmental Assessment

Honolulu Board of Water Supply
Aina Haina 170' Potable Reservoir No. 2

Honolulu, Oahu, Hawaii

August 2015



Prepared for:

City and County of Honolulu
Board of Water Supply

Prepared by:

THE LIMTIACO CONSULTING GROUP
CIVIL ENGINEERING AND ENVIRONMENTAL CONSULTANTS

Draft Environmental Assessment

for the

Aina Haina 170' Potable Reservoir No. 2

Honolulu, Island of Oahu, Hawaii

This environmental document has been prepared pursuant to
Chapter 343, Hawaii Revised Statutes

Prepared For:

City and County of Honolulu
Board of Water Supply
630 South Beretania Street
Honolulu, Hawaii 96843

Prepared By:

The Limtiaco Consulting Group
Civil Engineering and Environmental Consultants
1622 Kanakanui Street
Honolulu, Hawaii 96817

August 2015

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LIST OF ABBREVIATIONS

Abbreviation	Definition
AFONSI	Anticipated Finding of No Significant Impact
ASA	Aquifer Sector Area
ASYA	Aquifer System Area
BMPs	Best Management Practices
BWS	Board of Water Supply, City and County of Honolulu
CZM	Coastal Zone Management
DFW	State of Hawaii Department of Land and Natural Resources, Division of Forestry and Wildlife
DLNR	State of Hawaii Department of Land and Natural Resources
DOH	State of Hawaii Department of Health
DOT	State of Hawaii Department of Transportation
DPR	City and County of Honolulu, Department of Parks and Recreation
DTS	City and County of Honolulu, Department of Transportation Services
EA	Environmental Assessment
FONSI	Finding of No Significant Impact
FWS	(U.S.) Fish and Wildlife Service
HAR	Hawaii Administrative Rules
HECO	Hawaiian Electric Company, Inc.
HFD	City and County of Honolulu Fire Department
HPD	City and County of Honolulu Police Department
HRS	Hawaii Revised Statutes
LPE	Lualualei extremely stony clay, 3 to 35 percent slopes
LUO	(City and County of Honolulu) Land Use Ordinance
MG	million gallon(s)
MGD	million gallons per day
NAAQS	National Ambient Air Quality Standards
NFPA	National Fire Protection Association
NPDES	National Pollutant Discharge Elimination System

LIST OF ABBREVIATIONS (Continued)

Abbreviation	Definition
OEQC	State of Hawaii, Office of Environmental Quality Control
SAAQS	State (of Hawaii) Ambient Air Quality Standards
SHPD	State of Hawaii Department of Land and Natural Resources, Historic Preservation Division
SMA	Special Management Area
TLCG	The Limtiaco Consulting Group
TMDL	Total Maximum Daily Load
TMK	Tax Map Key
UIC	Underground Injection Control

PROJECT SUMMARY

Proposing/Determination Agency:	Board of Water Supply, City and County of Honolulu (BWS)
Contact:	Mr. Scot Muraoka, P.E.
Location:	Honolulu, Oahu, Hawaii
Tax Map Keys:	(1) 3-6-016: 040 and 3-6-019: 012
Land Area:	0.9319 acres and 0.03 acres
Recorded Fee Owner:	BWS
Existing Use:	BWS Facility (one storage reservoir and pump station)
Proposed Use:	BWS Facility (two storage reservoirs and pump station)
Community Plan Region:	East Honolulu
Land Use Designations:	
State Land Use	Urban
Development Plan	Residential
County Zoning	R-7.5 Residential District
Action Requested:	The BWS proposes to install a new 0.5 million gallon potable water reservoir and appurtenant facilities on its property in Aina Haina in East Honolulu. The BWS has determined that the proposed reservoir is needed to provide adequate potable water storage for existing uses and to improve the reliability of the existing water system. The proposed project may involve the acquisition of approximately 0.03 acres of unobstructed land from the adjacent Wailupe Community Park parcel. The project will increase the total potable water reservoir capacity for the affected water system from 1.5 to 2.0 million gallons.
Agency Determination:	Anticipated Finding of No Significant Impact (AFONSI)

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1. SETTING AND PROJECT DESCRIPTION

1.1. Introduction and Background

The Honolulu Board of Water Supply (BWS) is a semi-autonomous agency of the City and County of Honolulu that manages the development, operation, and maintenance of Oahu's municipal water system. The agency is responsible for maintaining the water resource and distribution system throughout Oahu in order to meet the current and future water supply needs of its customers.

The BWS proposes to improve the reliability and storage capacity of the potable water supply and distribution system for the East Honolulu communities of Wailupe Peninsula, Aina Haina, Niu Valley and Kuliouou by adding a second 0.5 million gallon (MG) enclosed reservoir with a 170-foot spillway elevation within its property at 855 Alamuku Street in Aina Haina (see Figure 1). The BWS-owned parcel identified as Tax Map Key (TMK) 3-6-016: 040 will hereafter be referred to as the project site. The addition of the new reservoir increases the total water storage capacity for the affected 170' system from Aina Haina to Kuliouou from 1.5 to 2.0 MG. No additional pumping capacity is proposed as part of the project. The new reservoir, which would be known as the Aina Haina 170' Potable Reservoir No. 2, will be designed to have similar capacity, spillway elevation and dimensions as the Aina Haina 170' Potable Reservoir No. 1.

Project actions to install the new reservoir will require new connections to on-site drainage infrastructure. The new reservoir would add about 4,070 square feet (sf) of building area to the project site, which currently contains an enclosed reservoir (4,070 sf) and pump station building (960 sf) that were constructed around 1950. The existing BWS site is about one acre in size.

Approximately 0.03 acres of unobstructed land from the adjacent Wailupe Community Park (formerly Wailupe Valley Elementary School) will be required from the City and County of Honolulu. The additional acreage may be required to accommodate the extension of an access road within the project site that will encircle the new reservoir and for compliance with setback requirements specified in the Land Use Ordinance (Chapter 21 of the Revised Ordinances of Honolulu) for the R-7.5 Residential District. The transfer of ownership may be accomplished through the consolidation and re-subdivision of TMKs 3-6-019: 012 and 3-6-016: 040. A portion of the retaining wall and concrete gutter between the two parcels would be realigned to reflect the new property line.

The proposed project would use County and BWS lands and BWS funds. Therefore, the proposed project requires preparation of an Environmental Assessment (EA) pursuant to Chapter 343, Hawaii Revised Statutes (HRS) and associated Title 11, Chapter 200, Hawaii Administrative Rules (HAR). The EA addresses the technical, environmental, social, and economic consequences of the project. Agencies,

individuals, and community groups with jurisdiction or interest in the proposed project have been consulted during the preparation of this EA.

1.2. Project Need and Objectives

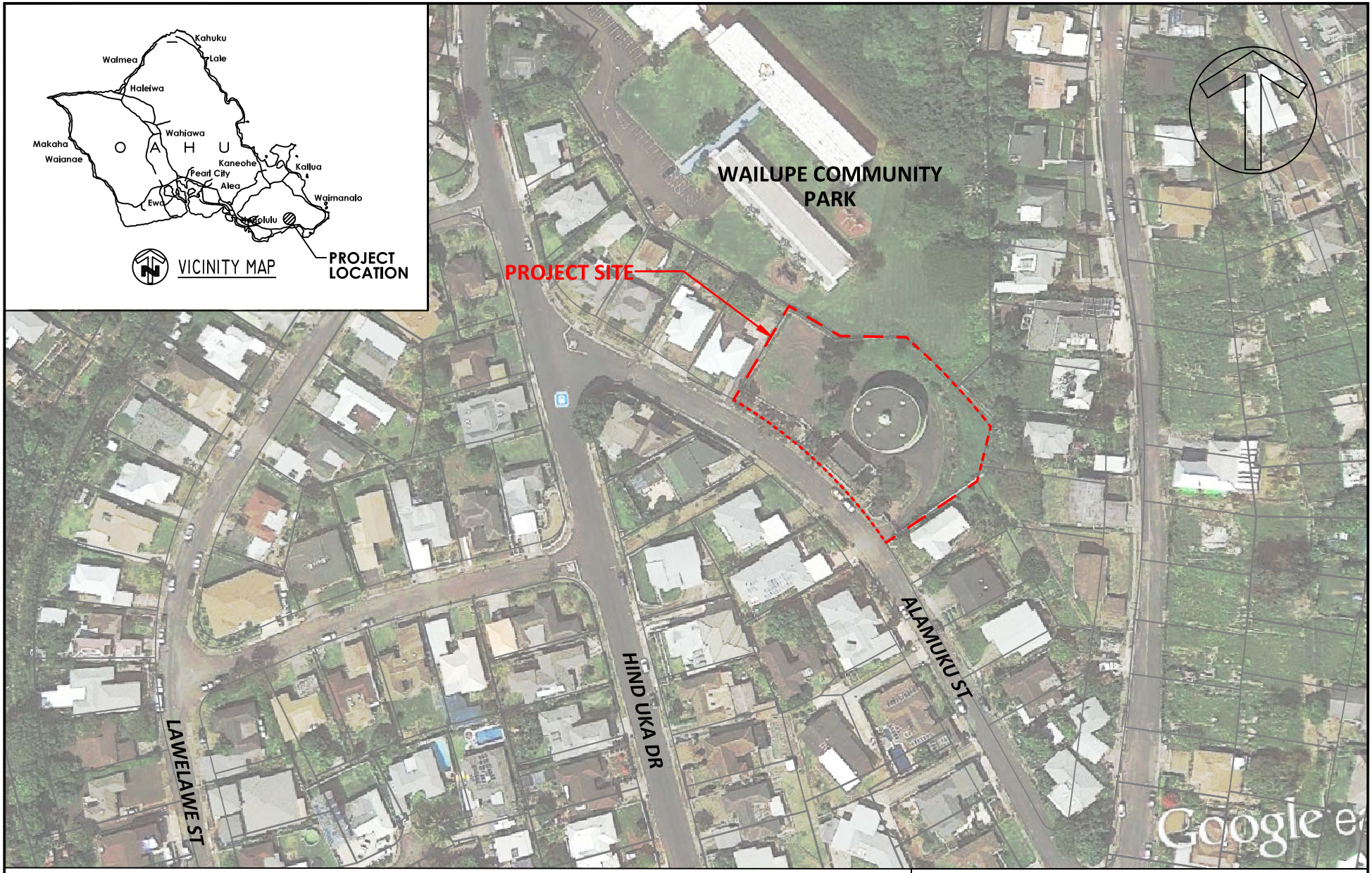
The project site contains the Aina Haina 170' Reservoir and pump station that are part of the BWS low service "170-foot" potable water supply and distribution system, serving the area from Wailupe Peninsula and Aina Haina to Kuliouou. This service area is herein referred to as the "affected system", and is shown in Figure 2. The affected system encompasses BWS Water Use Zones 11151 and 11152, and is part of the broader East Honolulu 170' water system.

Average water usage in the affected system from calendar years 2010 through 2014 was about 1.274 million gallons per day (MGD). The storage requirement, based on BWS standards, is approximately 1.91 MG (1.274 MGD x 1.5 [BWS standard max day factor]). The project will address the storage deficit in the affected system and provides a redundant 0.5 MG reservoir to better meet the needs of the community during an event that temporarily interrupts normal water system service (e.g., power outage). A new reservoir at the project site allows the BWS to perform maintenance on the existing reservoir without sacrificing service to the system. The increase in reservoir capacity also allows the water system to better accommodate short periods of unusually high water demand.

Adequate reservoir storage minimizes fluctuations in water pressure, provides water for emergencies, and helps to meet peak consumption demands. Reservoir facilities allow for stabilized rates of water pumping, rather than in response to consumption demand. Water stored during periods of low demand is utilized during peak demand hours. Pumps operate to refill the reservoirs when stored water decreases to a predetermined level. Water storage facilities help to maintain service continuity.

Fluctuations in water use coincide with climatic and seasonal changes (e.g., higher water usage occurs when the climate is hot and dry). Geographical and economic considerations also affect water use; however, people tend to perform the same activities inside and outside their homes (e.g., bathing, cooking, watering the yard, washing the car, etc.) wherever they live. Residential communities that have high water use may exhibit some or all of following characteristics:

- Larger lots with pools, gardens, manicured lawns, abundant landscaping, or sprinkling systems that require large amounts of water.
- A more affluent customer base that uses more automobiles, boats and convenience appliances.
- Numerous older homes with high-water-use fixtures and appliances.



LEGEND

PROJECT SITE

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CIVIL ENGINEERING AND ENVIRONMENTAL CONSULTANTS

FIGURE 1
PROJECT LOCATION

SCALE: NOT TO SCALE | DATE: AUGUST 2015

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AINA HAINA 170' RESERVOIR NO. 1
AND PROPOSED RESERVOIR NO. 2

KULIOUOU

Halemaumau Street

NIU VALLEY

KULIOUOU LINE BOOSTER

NIU VALLEY 170' RESERVOIR

AINA HAINA

West Hind Drive

East Hind Drive

Kalanianaole Highway

Aina Haina
Community Park

Kawaikui
Beach Park

PACIFIC OCEAN

WAILUPE LINE BOOSTER

LEGEND

APPROXIMATE SERVICE AREA

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FIGURE 2

AINA HAINA TO KULIOUOU 170' SYSTEM SERVICE AREA

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The census tract areas of Wailupe, Kuliouou and Aina Haina-Hawaii Loa Ridge have characteristically high (e.g., around and above $100,000) median household and family income. Residential neighborhoods in the service area are characterized by large lots that are landscaped and well-maintained.

1.3. Project Location

The BWS proposes to site the new reservoir at its existing facility in Aina Haina. The project site is located along Alamuku Street, which is a connecting roadway between Hind Iuka Drive and Ailuna Street. The BWS facility at 855 Alamuku Street is located within a residential neighborhood of single-family homes interspersed with some public facilities and institutional uses. Figure 3 depicts the project site in relation to surrounding uses.

Concrete retaining walls and chain link fencing delineate the boundaries of the BWS facility. Adjacent residential parcels along Alamuku Street and residential parcels across from the project site contain single-family homes. Several residential parcels containing single-family homes overlook the project site along its northwestern and southeastern perimeter. The Wailupe Community Park at 939 Hind Iuka Drive abuts the project site along its rear property line. The park is the former Wailupe Valley Elementary School, which operated from September 1958 to June 2009. The park parcel is owned by the City and County of Honolulu (hereafter the City) and is currently utilized by the Department of Parks and Recreation (DPR), District 1 East Honolulu. In addition to departmental office uses, various community classes are held at the park.

1.4. Site Description

The project site consists of 0.9 acres that originally sloped from northeast to southwest. The lowest portions of the project site lie along the Alamuku Street property line. Retaining walls were constructed around the property to accommodate grade differences between different sections of the project site. Large flat areas within the project site were graded for construction of the Aina Haina 170' Reservoir No. 1 and pump station building. The existing reservoir is located in the center of the project site as shown in Figure 4. The reservoir is 72 feet in diameter and is approximately 24 feet tall. A 12-foot-wide asphalt-concrete access road encircles the reservoir.

Two booster pumps are housed in an existing two-story building at the project. The first story of the pump station building is located below-grade. The building footprint is approximately 40 feet by 24 feet, and is located roughly 12 feet away from the existing reservoir. Control and monitoring cabinets for the Aina Haina 170' Reservoir No. 1 are also housed in the pump station building.

The northwest portion of the project site is a relatively flat, gravel covered area. Record drawings indicate that a base yard was originally planned for construction at this location; however, no base yard was established at the project site and the area has remained vacant. The Aina Haina 170' Reservoir No. 2 is proposed to be installed within this flat, unobstructed area.

The State land use designation for the project site is Urban (see Figure 5). The BWS facility is a public use and structure that is permitted in the R-7.5 Residential District (see Figures 6). Applicable zoning requirements as specified in the City's Land Use Ordinance (LUO), which is Chapter 21 of the Revised Ordinances of Honolulu, include a 30-foot front yard setback and 15-foot side/rear yard setback for uses other than dwellings. Vehicular access to and egress from the project site is via a 12-foot-wide asphalt-concrete driveway with a padlock-secured gate along Alamuku Street. The BWS facility has an intrusion detection system consisting of alarms and video cameras that are remotely monitored.

1.5. Technical Considerations

Water is supplied to the Aina Haina 170' Reservoir No. 1 through a 16-inch water main on Hind Iuka Drive. An altitude valve, which regulates flow into the reservoir, is located in a vault on a BWS-owned parcel (TMK 3-6-016: 056) one block away from the project site. From the valve, the 16-inch water main runs through the long, narrow BWS-owned parcel to Alamuku Street before entering the project site and connecting to the Aina Haina 170' Reservoir No. 1.

Two pump units located at the project site are rated for 1000 gallons per minute at 235 feet of head. The pumps tap the 16-inch water main and supply water to another BWS reservoir, which is located on a ridge overlooking Wailupe Valley, through a 12- inch water main along Alamuku Street.

The proposed Aina Haina 170' Reservoir No. 2 will be constructed of reinforced concrete and have similar spillway elevation, capacity, and dimensions as the existing Aina Haina 170' Reservoir No. 1 for ease of operation. The new reservoir will therefore be approximately 72 feet in diameter and 24 feet tall. A perimeter road will encircle the new reservoir in conformance with the Water System Standards (BWS, et al, 2002). The guidelines state that perimeter roads shall have a minimum width of 10 feet. The road will allow BWS personnel to access the Aina Haina Reservoir No. 2 for maintenance.

Figure 7 presents a conceptual representation of proposed improvements from the *Preliminary Engineering Study, Aina Haina 170' Potable Reservoir No. 2* (The Limtiaco Consulting Group, 2012) that was prepared for the BWS in 2012 to evaluate the overall feasibility of constructing the Aina Haina 170' Reservoir No. 2 at the project site. The proposed reservoir and perimeter road will conflict with the

existing retaining wall along the rear property line. In order to accommodate the new reservoir and perimeter road, the BWS may acquire approximately 0.03 acres of unobstructed land from the adjacent Wailupe Community Park parcel that is owned by the City. The acquired area will be integrated into the BWS property through the process of consolidation and re-subdivision of TMKs 3-6-019: 012 and 3-6-016: 040.

The exact acreage that is needed to accommodate the access road around the new reservoir and for conformance with rear yard setback requirements will be determined during the design phase of the project, which will occur after completion of the EA process. Consequently, the area depicted in Figure 7 is a reasonable assumption based on available information. The BWS will acquire land to the extent necessary for its purposes and will be mindful of existing structures (e.g., nearby playground equipment) and uses at Wailupe Community Park. The BWS will consult with the DPR, which operates Wailupe Community Park, throughout the EA process to avoid or minimize the impacts of the proposed project in regards to public park facilities and services.

The BWS proposes to demolish and replace two segments of the existing retaining wall and gutter along the rear boundary of its property. The two wall sections would align with the new property line. The retaining wall and gutter will likely be constructed using reinforced concrete. The BWS will ensure that construction activities are generally confined to the project site; however, there may be some minor activities such as the installation of a dust control fence and the erection of safety barriers that may occur within the adjacent Wailupe Community Park parcel. Areas inside the project site are expected to be prepared for construction of the Aina Haina 170' Reservoir No. 2 and perimeter road after the retaining wall has been fully constructed.

The new reservoir will be connected to water, electrical, and drainage infrastructure. Water will be supplied to the Aina Haina 170' Reservoir No. 2 via an existing 16-inch influent-effluent line that currently supplies the Aina Haina 170' Reservoir No. 1. The proposed project includes the installation of a water line that connects the Aina Haina 170' Reservoir No. 2 to the 16-inch line.

The *Water System Standards* of the BWS require washout and overflow drainage lines for reservoirs. The washout line allows the reservoir to be drained for maintenance purposes, and the overflow line prevents damage to the reservoir in emergency situations (e.g., over-filling due to sensor malfunctions). The drainage lines will be connected to the existing drainage system at the project site, which discharges into the City's municipal drainage system on Alamuku Street.

Electrical, control, and monitoring systems for the new reservoir will be installed within the pump station building at the project site. Control and monitoring systems for the Aina Haina 170' Reservoir No. 1 are already located in the pump station

building. Reportedly, the existing system has adequate capacity for additional controls such that no major construction is necessary to house the electrical, control, and monitoring systems for the Aina Haina 170' Reservoir No. 2.

1.6. Environmental Considerations

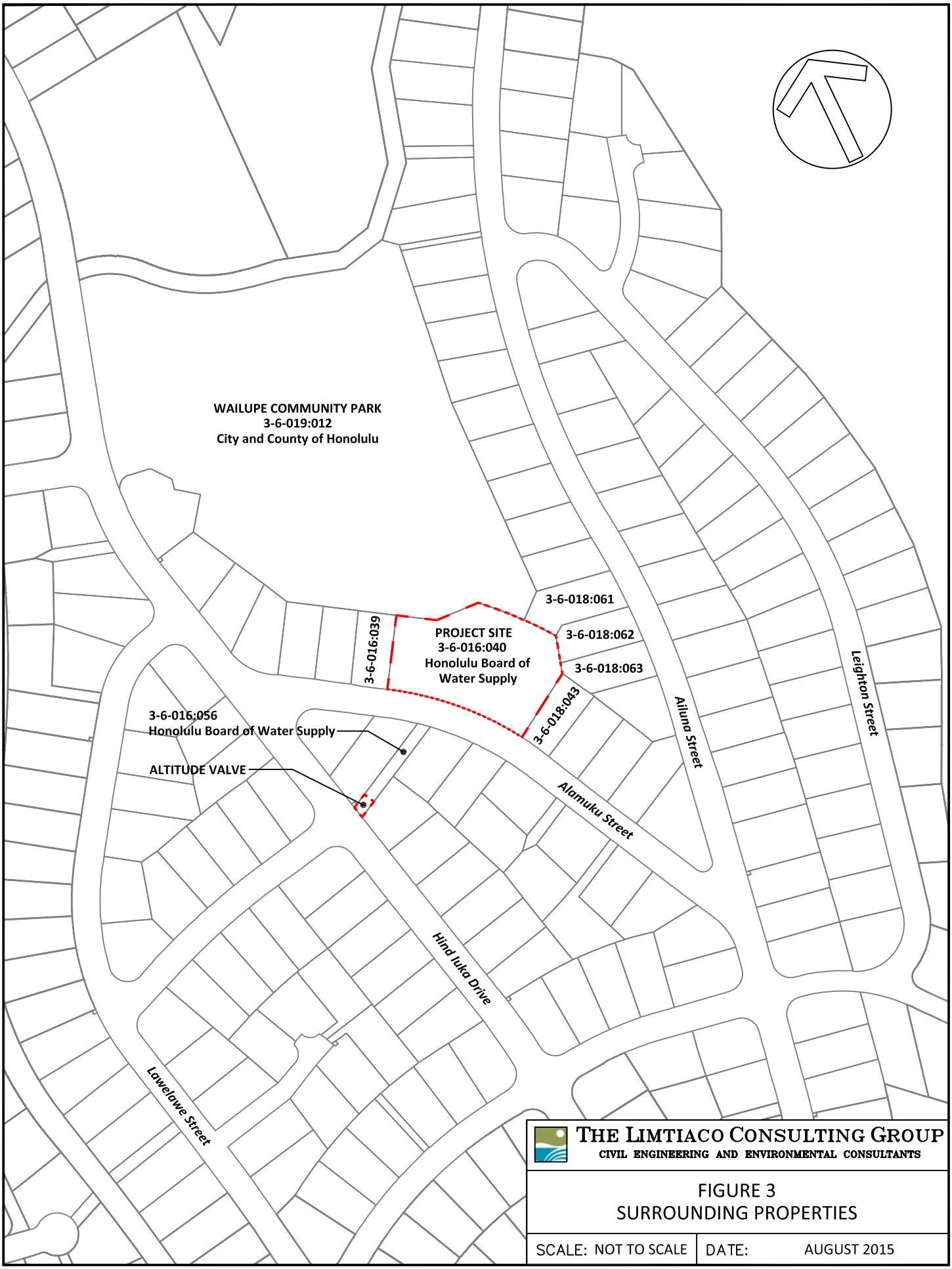
The proposed action involves siting a new 0.5 MG reservoir at an existing BWS facility in Aina Haina. The Aina Haina 170' Reservoir No. 2 will connect to water, electrical, and drainage infrastructure that is already in place for Aina Haina 170' Reservoir No. 1. The BWS proposes to install the new reservoir upon land that was previously graded and prepared for use. A geologic survey of the affected area confirmed shallow cut-and-fill conditions with relatively shallow depths to basalt. It is anticipated that a conventional foundation on the underlying basalt stratum can support the proposed concrete reservoir. There are no indications of settlement or poor soil conditions at the project site. The proposed action would also disturb approximately 0.03 acres of land that may be acquired from the adjacent Wailupe Community Park and a portion of the sloped area within the project site along the rear property line (see Figure 7).

The proposed project will not alter or disturb the existing reservoir and pump station building. Traditional and cultural practices are not known to have occurred on the property within recent times because access to the project site is restricted to authorized BWS personnel via padlocked gates. The new reservoir with similar capacity, spillway elevation and dimensions as the Aina Haina 170' Potable Reservoir No. 1 will be consistent with the visual character of the surrounding area. The proposed project is an infrastructure improvement that does not affect population levels or the supply of housing units.

Construction activities associated with the proposed project would generate short-term effects such as fugitive dust, noise, intermittent traffic, solid waste, and potential disruptions to utility services that would cease upon project completion. Anticipated short-term impacts will be mitigated to the extent practical with the use of appropriate construction techniques and Best Management Practices (BMPs). In the long term, the increased potable water storage capacity improves the reliability and storage capacity of the area to better accommodate the water service needs of the affected community.

1.7. Project Schedule and Cost

The environmental review process, which includes publication and public review of the EA, may be concluded by calendar year 2015. Subsequent construction may begin in fiscal year 2019. The estimated cost for construction of the Aina Haina 170' Reservoir No. 2 and associated improvements is approximately $2 million. Design fees and costs for anticipated permits and approvals are included in the estimate.



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CIVIL ENGINEERING AND ENVIRONMENTAL CONSULTANTS

FIGURE 3
SURROUNDING PROPERTIES

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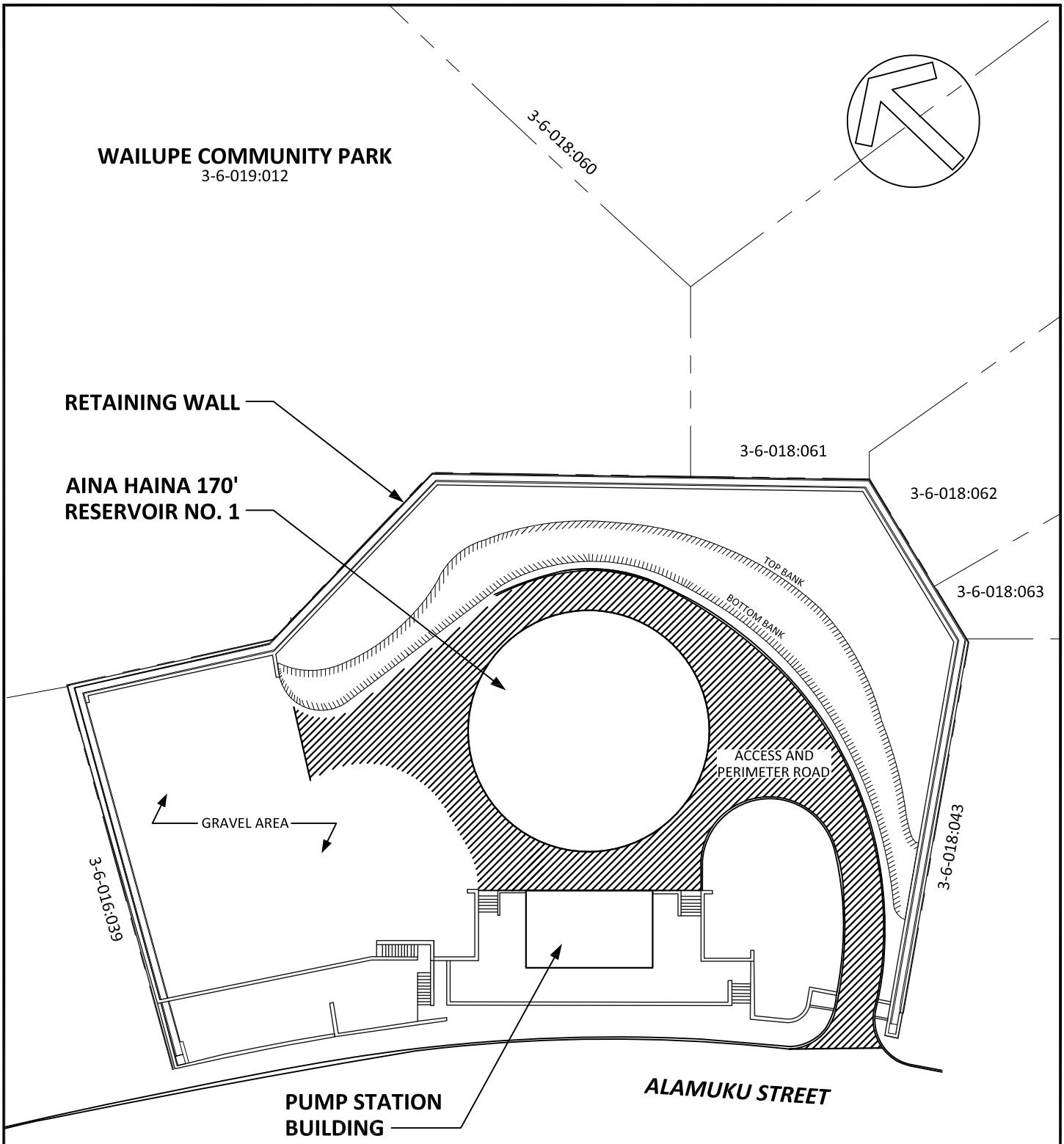

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FIGURE 4
EXISTING CONDITIONS

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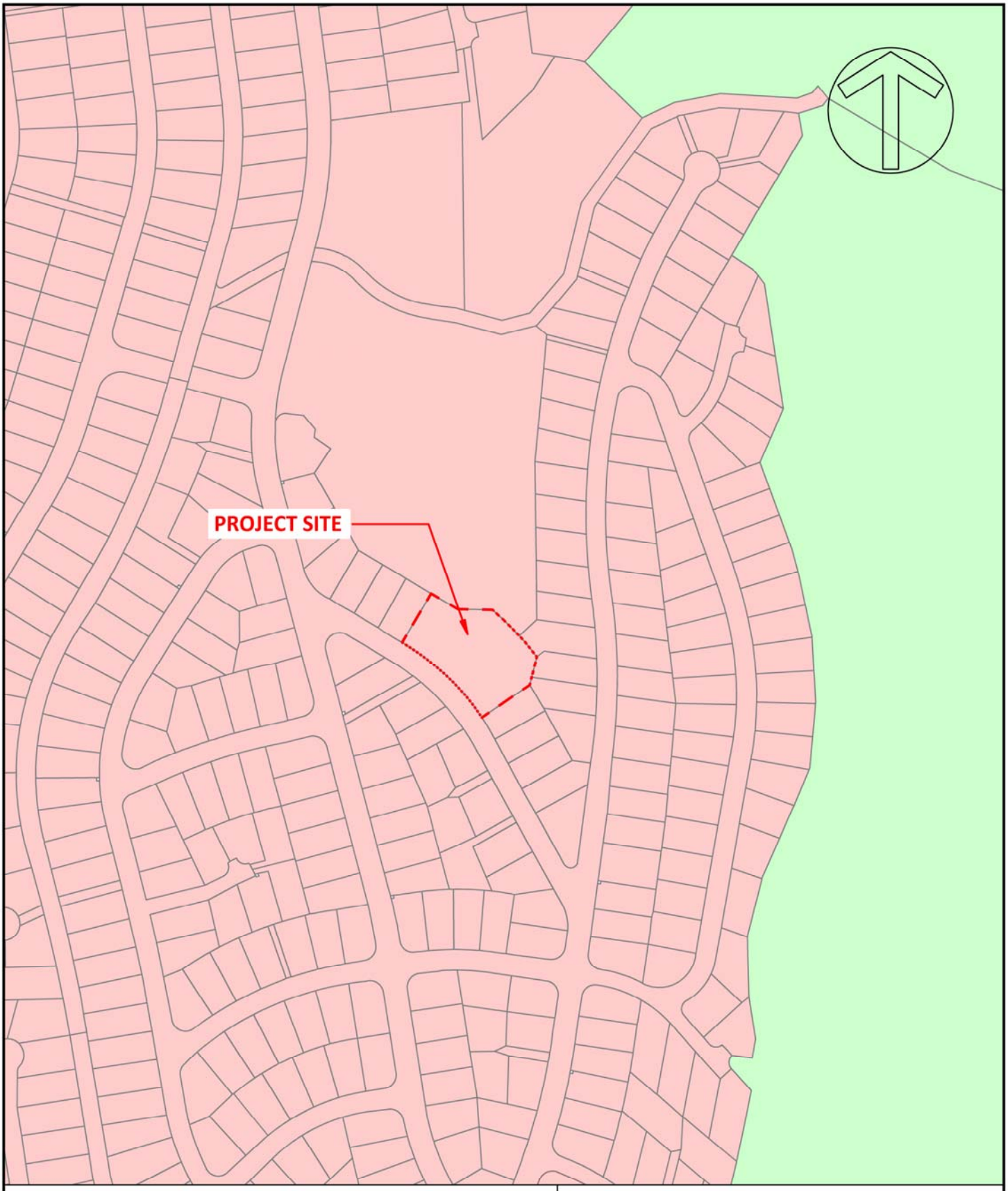

LEGEND

- PROJECT SITE
- URBAN LAND USE DISTRICT
- CONSERVATION LAND USE DISTRICT

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FIGURE 5
STATE LAND USE DISTRICTS

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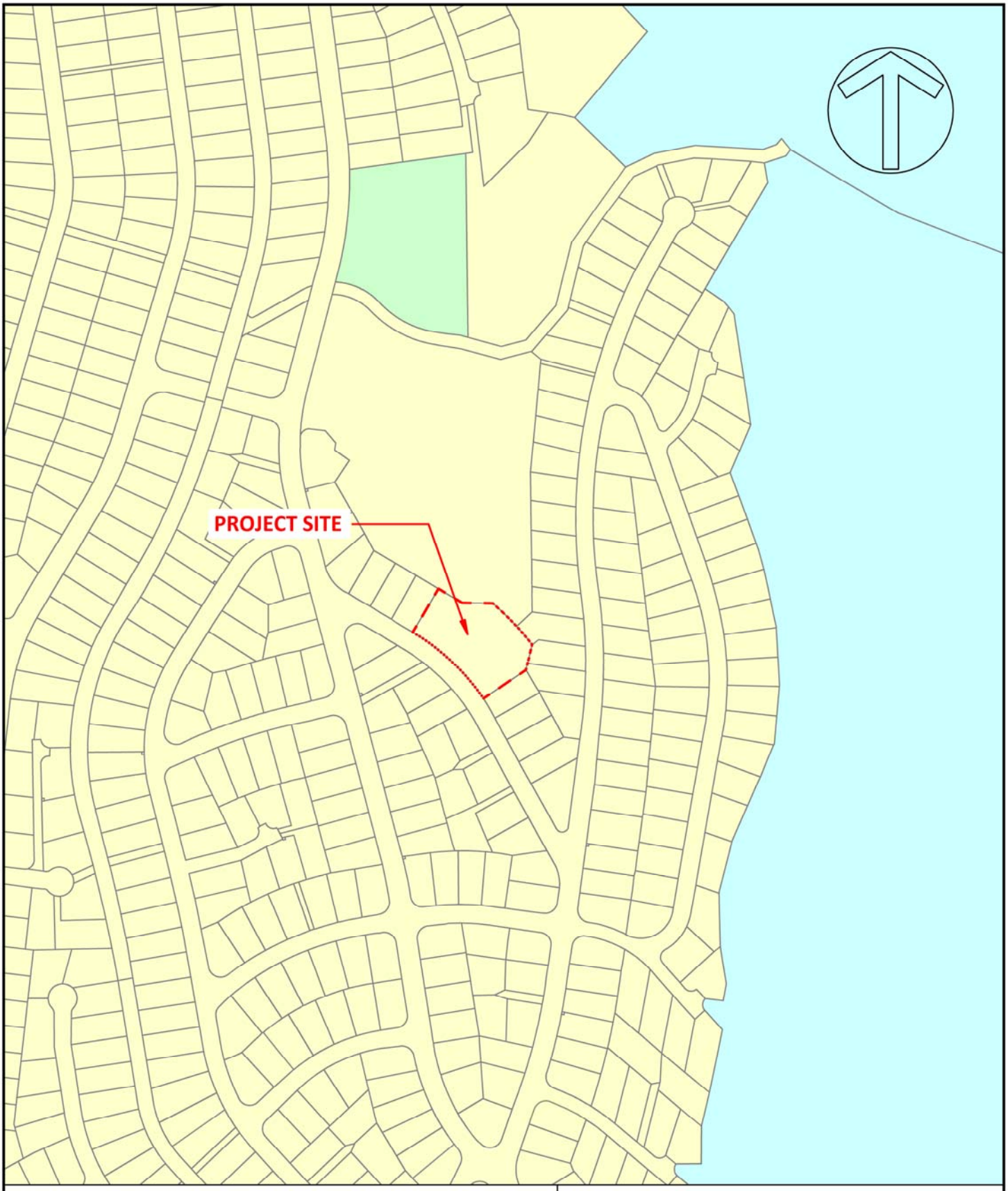

LEGEND

- PROJECT SITE
- R-7.5 ZONE
- P-2 ZONE
- P-1 ZONE

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FIGURE 6
COUNTY ZONING

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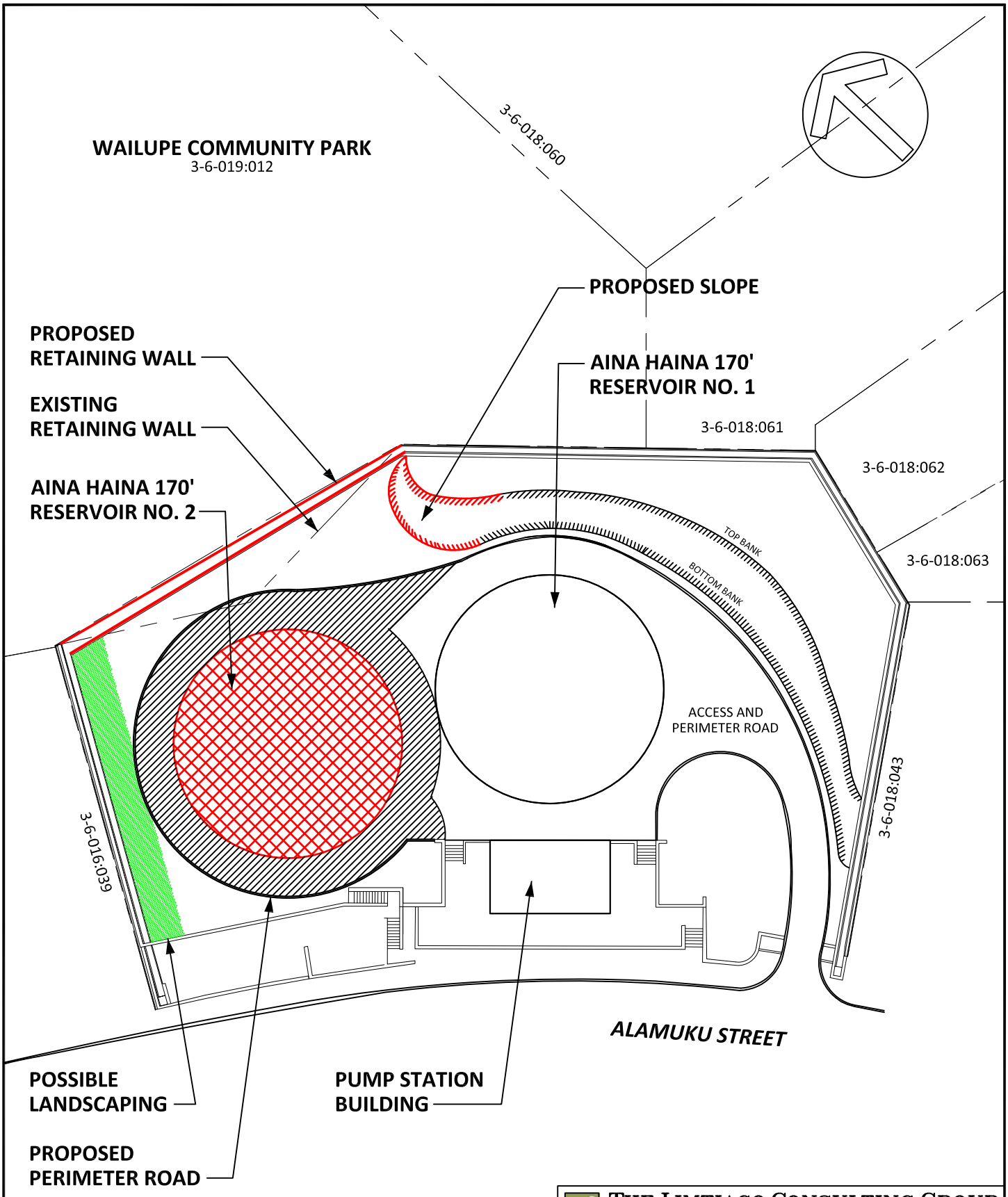

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FIGURE 7
PROPOSED SITE PLAN

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2. DESCRIPTION OF EXISTING ENVIRONMENT, PROJECT IMPACTS, AND MITIGATION

2.1. Climate and Air Quality

The climate throughout the State of Hawaii is generally characterized by mild temperatures with low daily and monthly variability, moderate humidity, persistent trade winds, and abundant sunshine. The Hawaiian climate is further characterized by a two-season year: the summer season from May through September is generally warmer and less wet than the cooler, winter season from October through April (Western Regional Climate Center, 2014). Rainfall distribution across the State of Hawaii varies greatly according to geographic conditions, elevation and long-term climatic cycles.

The project site in Wailupe Valley has a mild semi-tropical climate similar to rest of the State of Hawaii. Average temperatures at the project site range from 70 degrees Fahrenheit in February to 77 degrees Fahrenheit in August (Giambelluca, 2014). The average annual rainfall at the project site is estimated to be 42 inches and the wetter months of the year are from November through March (Ibid). Trade winds in the project vicinity are generally from the northeast. Strong winds are known to occur in connection with storm systems that disrupt climatic patterns.

Ambient air quality in the State of Hawaii consistently meets National Ambient Air Quality Standards (NAAQS) established by the U.S. Environmental Protection Agency per requirements of the Clean Air Act and State Ambient Air Quality Standards (SAAQS) established by the State of Hawaii, Department of Health (DOH). The State standards for select parameters are more stringent than their Federal counterparts. The NAAQS and SAAQS are periodically exceeded due to volcanic activity and exceptional events such as New Year's fireworks celebrations.

The project site is located within a single-family residential area such that ambient air quality at the project site may be influenced by nearby human activities and vehicular emissions from residential automobile traffic along Alamuku Street, Ailuna Street and Hind luka Drive. The prevailing northeast trade winds help to disperse vehicular emissions and other airborne pollutants.

Impacts and Mitigation Measures

Land acquisition, the installation of a new reservoir along with its connection to onsite draining infrastructure, the extension of an access road within the project site, and the realignment of a portion of the retaining wall will have no effect on climatic conditions such that no mitigation measures are necessary.

Ambient air quality at the project site will be temporarily affected by construction-related vehicles, equipment and activities that would generate

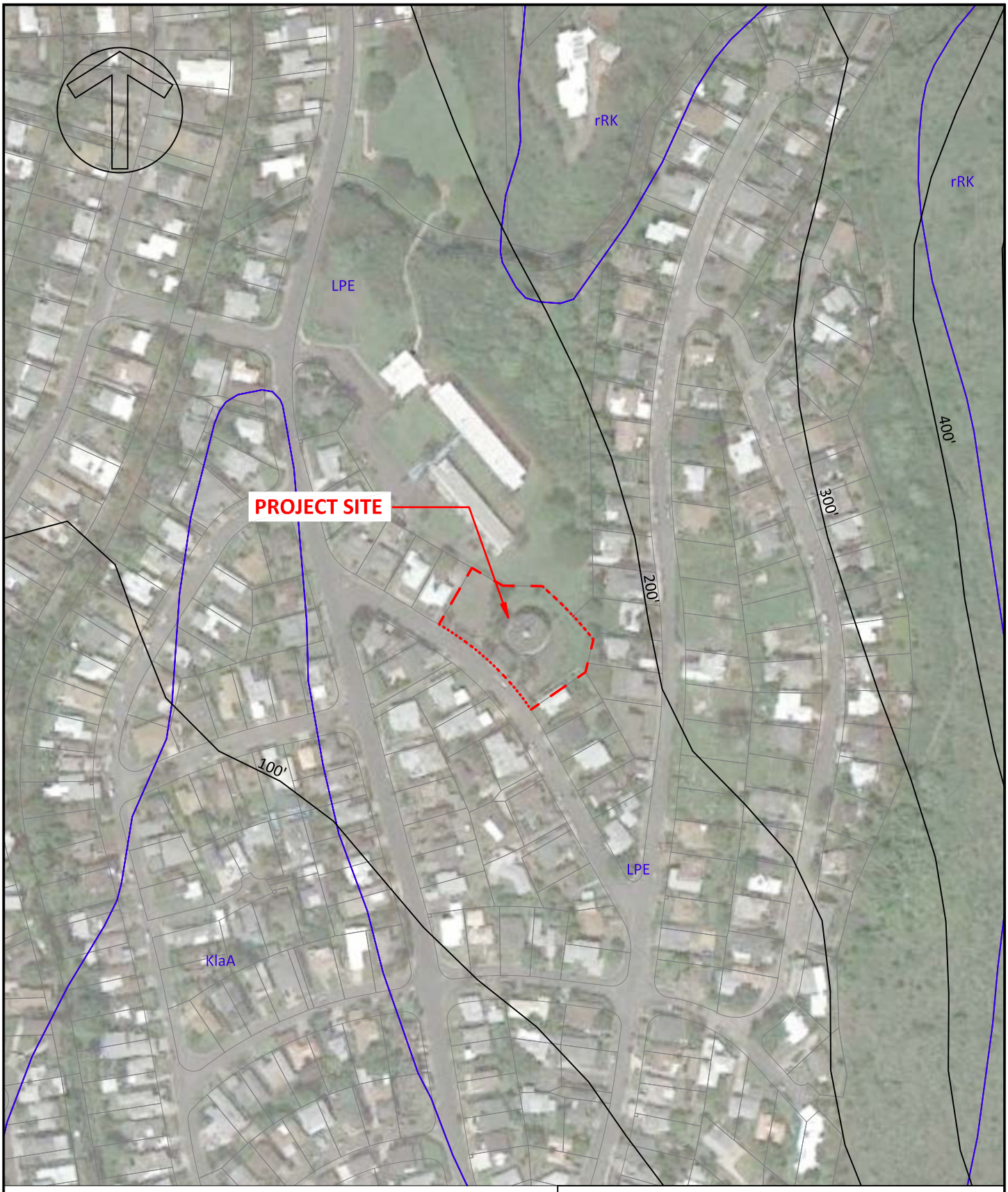
fugitive dust and emissions. The construction contractor will be responsible for complying with HAR Title 11, Chapter 60, "Air Pollution Control." The contractor will be responsible for the implementation of erosion and dust control measures as necessary for compliance with the above-mentioned rules. Construction equipment and vehicles shall be properly maintained in order to control vehicular emissions. Said exhaust emissions are anticipated to have negligible impacts on air quality in the project vicinity since the carbon monoxide and nitrogen oxide emissions would be intermittent and readily dissipated. No significant air quality impacts are anticipated from the new reservoir, which represents a continuation of the functions and activities that currently occur at the project site.

2.2. Geology and Soils

The Island of Oahu comprises the remnants of two basaltic volcanoes that eroded to form the Waianae and Koolau Ranges, which are connected by a central plateau. The mountain range formed by the older Waianae volcano spans a distance of about 20 miles across the western third of Oahu. The younger Koolau volcano contributed to the main mountain range on Oahu that extends for 37 miles in a northwest to southeast alignment across the eastern two thirds of the island. The Koolau Range consists of thin, narrow layers of basaltic lava flows. Dissected valleys were etched into the basalt range formations through weathering and natural erosion processes. Numerous dikes and small amounts of volcanic ash are present. The valley floors contain alluvium (e.g., clay, silt, sand, gravel, or similar material) and unconsolidated non-calcareous sediments transported from valley slopes by stream flows.

Soils underlying Wailupe Valley belong to the Lualualei-Fill land-Ewa association and are deep, nearly level to moderately sloping, well-drained, fine textured and moderately fine textured soils (U.S. Department of Agriculture, Soil Conservation Service, 1972). Lualualei soils have a high shrink-swell potential that may cause unstable soil conditions and these soils "account for about 75 percent of the acreage which has been involved in mass movements (landslides, creep) on the island of Oahu" (GK and Associates, 1991). Basaltic bedrock, weathered basalt, alluvium and colluvium (e.g., rock detritus and soil accumulated at the foot of a slope) are found in the project area.

According to the *Soil Survey of the Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii* (U.S. Department of Agriculture, Soil Conservation Service, 1972) and *Web Soil Survey* (U.S. Department of Agriculture, Natural Resources Conservation Service, n.d.), the predominant soil type in the vicinity of the project site is classified as Lualualei extremely stony clay, 3 to 35 percent slopes (LPE). The LPE soil type has limited topsoil mixed with a substantial amount of stones and is characterized by medium to rapid runoff with a moderate to severe erosion hazard. The soil classifications are shown in Figure 8.



LEGEND

- PROJECT SITE
- LPE LUALUALEI EXTREMELY STONY
- KlaA KAWAIHAPAI STONY CLAY LOAM
- rRK ROCK LAND
- 100' CONTOUR ELEVATION

THE LIMTIACO CONSULTING GROUP
CIVIL ENGINEERING AND ENVIRONMENTAL CONSULTANTS

FIGURE 8
SOILS AND TOPOGRAPHY

SCALE: NOT TO SCALE | DATE: AUGUST 2015

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The Aina Haina area is known to have unstable soils. "In the 1990s, the city paid $6.7 million to buy out a group of homes on Ailuna and Leighton streets when a leaky sewer pipe caused them to slip down the hill" (Fassler, 2008). There are no indications of settlement or poor soil conditions at the project site. In September 2011, exploratory test borings taken from the flat, vacant area of the project site confirmed shallow cut-and-fill conditions with relatively shallow depths to basalt. It is anticipated that a conventional foundation on the underlying basalt stratum can support the proposed concrete reservoir.

Impacts and Mitigation Measures

The new reservoir will be properly designed with respect to subsurface conditions within the footprint of new construction. The replaced portion of the retaining wall and concrete gutter will also be properly designed and constructed with respect to geotechnical concerns. Project actions would therefore have no adverse impacts on the underlying geology and soils at the project site such that no mitigation measures are necessary.

Earth disturbing activities may create exposed areas at the project site that are susceptible to erosion from wind and rain. The construction contractor is expected to implement dust barriers/fences and other dust control measures that effectively minimize or prevent nuisance concerns from fugitive dust and the effects of wind erosion. Mitigation that addresses sediment-laden runoff is discussed in Section 2.4, Water Resources. Areas affected by project actions will be stabilized and either paved or landscaped, which reduces the long-term potential for erosion by water and wind. No graded areas will remain uncovered.

2.3. Topography

Most of the project site is located between approximately 145 to 165 feet above mean sea level (refer to Figure 8). The general topography of the surrounding area suggests that the project site originally sloped from northeast to southwest. Undeveloped land along the northeastern to southeastern boundaries of the project site may reflect the original topography of the area, whereas developed portions of the project site are mostly level. Retaining walls define the site boundaries and were constructed when the project site was developed for use as a BWS facility.

Project actions may include the acquisition of approximately 0.03 acres of land from the adjacent Wailupe Community Park site at TMK 3-6-019: 012 in order to comply with the setback requirements associated with the extension of the access road around the new reservoir. The relatively flat, unobstructed area that abuts the retaining wall and concrete gutter is between approximately 150 to 160 feet above mean sea level.

Impacts and Mitigation Measures

Project actions would generally retain the overall topographic profile for most of the site. The new reservoir would be situated within a flat, vacant area on the western portion of the project site that was previously graded and originally planned for use as a baseyard. The previously graded area contains no topographical features that would obstruct site preparation activities and placement of the foundation for the new reservoir; therefore, no significant amount of site work or grading is anticipated. Minor grubbing and grading will be accomplished to the extent necessary within the limits of the affected construction area. Two sections of the retaining wall and concrete gutter along the rear property line would be removed and realigned according to the adjusted site boundaries resulting from the consolidation and re-subdivision of TMKs 3-6-019:012 and 3-6-016:040. Mitigation that addresses drainage and surface runoff is discussed in Section 2.4, Water Resources.

2.4. Water Resources

The project site is within the Waialae-East Aquifer System Area (ASYA) that is part of the Honolulu Aquifer Sector Area (ASA). The BWS has been issued Water Use Permits for ground water withdrawals totaling 0.79 MGD from the Waialae-East ASYA, which is below the 2 MGD *sustainable yield* for this aquifer system; however, the Honolulu ASA includes the Palolo, Nuuanu and Moanalua ASYAs, which are overdrawn (Wilson Okamoto Corporation, 2008). *Sustainable yield* refers to "the quantity of water that can be extracted from an aquifer indefinitely without diminishing the quantity or quality of the water withdrawn" (State of Hawaii, Department of Land and Natural Resources, Commission on Water Resource Management, 2008). DLNR's Commission on Water Resource Management is monitoring the condition of the aquifer and the BWS will develop a future Watershed Management Plan for East Honolulu.

The Underground Injection Control (UIC) line as determined by the DOH Safe Drinking Water Branch demarcates the boundary and associated restrictions that apply to areas with non-drinking water aquifers or underground sources of drinking water. Injection well activity is more restricted in areas above the UIC line to protect underground sources of drinking water from injected fluids that may contain chemical, physical, radioactive, and biological contamination. The project site is above or *mauka* of the UIC line, which indicates that the underlying groundwater is considered a potential source of drinking water.

There are no freshwater streams, rivers, ponds or other open water bodies located within or immediately adjacent to the project site. There are also no wetlands (or marshes, swamps, bogs, etc.) located within or immediately adjacent to the project site. The perennial Wailupe Stream, which is a Class 2 inland water body, originates

in the upper watershed elevations of Wailupe Valley. Wailupe Stream is approximately 8.1 miles in length; however, about 2 miles of its lower reach have been altered. The project site is approximately 0.17 miles (or approximately 900 linear feet) east of Wailupe Stream, which drains to Maunalua Bay. The project site is approximately one mile north of Maunalua Bay, which has a marine water quality classification of Class A. Nonpoint source pollution including sediment-laden runoff from urban activities is considered to be a threat to coastal ecosystems.

Impacts and Mitigation Measures

Project actions would not significantly impact the underlying aquifer and groundwater resource in the Waialae-East ASYA, especially since the BWS facility does not involve the development of a new potable water source and no additional pumping capacity is proposed as part of the project. The long-term use of the project site represents a continuation of the current site usage and would not affect groundwater recharge. No significant impacts to surface water quality are anticipated since the project site is devoid of such resources including wetlands, perennial streams, or other sensitive riparian habitats. Construction of the new reservoir and access road ultimately reduces nonpoint source pollution concerns and the long-term potential for erosion by water and wind.

A short-term and temporary impact of the project may occur from the generation of sediment-laden surface runoff during earth-disturbing activities, especially if heavy rains coincide with the activity. A National Pollutant Discharge Elimination System (NPDES) Permit for discharges of pollutants, including storm water runoff (e.g., construction dewatering effluent) is required for the disturbance of one acre or more of total land area pursuant to HAR Title 11, Chapter 55, "Water Pollution Control" effective December 6, 2013. The project site is an area of less than one acre that is not part of a larger common plan of development or sale. DOH will be consulted if it is determined that the NPDES Permit is necessary. DLNR's Division of Forestry and Wildlife (DFW) in its letter dated July 15, 2014 recommended maintaining vegetated areas and diverting water from paved areas to vegetated bioswales to help reduce sediment runoff. The construction contractor will be responsible for implementing a storm water management plan that incorporates runoff and erosion control measures intended to prevent a concentration of runoff from flowing down the paved road and into residential areas. No adverse impact from the project is anticipated after the completion of construction.

2.5. Hazardous Materials and Solid Waste

There are no known threats pertaining to hazardous materials at the project site; however, the development of the BWS facility and single-family homes in Wailupe Valley occurred in an era when asbestos-containing building materials were being manufactured for use and before lead-based paints were banned for use in residential properties and public buildings. The exposure risks to hazardous materials (e.g., asbestos-containing substances, lead-based paint, mercury-containing light fixtures, electrical equipment containing polychlorinated biphenyls, and radioactive smoke detectors) are greatest when materials are intentionally disturbed and handled.

The City's Department of Environmental Services, Refuse Division is responsible for solid waste collection, transport and disposal operations on Oahu along with private haulers. Normal operations at the BWS facility do not generate solid waste such that regular solid waste collection service is not provided.

Impacts and Mitigation Measures

Construction activities at the project site would temporarily increase the volume of solid waste including construction debris that must be transported offsite for disposal. The BWS is expected to ensure that appropriate waste management and disposal practices are implemented by the construction contractor.

2.6. Natural Hazards

Natural hazards that may threaten life and property on Oahu include tsunami inundation, tropical cyclones, earthquakes, volcanic activity, floods, drought, wildfires, sea level rise, high wind and landslides. In general, the exposure to natural hazards from unpredictable events is no greater at the project site than at other locations on Oahu. Earthquakes, hurricanes and storms have resulted in power outages for extended periods in localized areas of Oahu.

Tsunami evacuation zone maps for the State of Hawaii identify low lying areas where excavation is recommended since extensive damage to life and property may occur from seismic sea waves. The project site is outside the tsunami evacuation zone (Hawaii State Civil Defense, n.d.).

The project site is within Zone X according to the Flood Insurance Rate Map Panel No. 15003C0386G for Hawaii (effective date January 19, 2011) prepared by the Federal Emergency Management Agency. The Zone X designation refers to inundation areas of low-to-moderate risk that are outside the 0.2 percent annual chance (or 500-year) floods. The Flood Hazard Assessment Report for the project site is provided in Appendix A.

There are known and documented occurrences of flooding and falling boulders in the Aina Haina area (Fassler, 2008); however, the project site is not within a hazard prone area or on steep slopes. Threats from wildfires are unlikely but possible since there is ample vegetation within nearby areas. Drought conditions and high winds could exacerbate the fire hazard. Many wildfires are caused by human actions of an intentional nature or as a result of negligence.

Impacts and Mitigation Measures

The threats to humans and property from unpredictable natural events will always be present. Proposed activities at the project site would not affect the occurrence of naturally occurring hazards. Project actions would increase the potable water storage capacity of the affected system to better meet the needs of the community during an emergency that temporarily incapacitates the transmission of water from existing sources.

2.7. Floral and Faunal Resources

The project site was previously disturbed for the construction of the BWS facility and is within a developed urban area. The U.S. Fish and Wildlife Service (FWS) indicated in its letter dated July 28, 2014 that it reviewed pertinent information in its files and concluded that no federally listed species or designated critical habitat occurs in the immediate vicinity of the project site. DLNR's DFW indicated in its letter dated July 15, 2014 that it has no objections to the project.

Impacts and Mitigation Measures

No species listed by the FWS or in the Endangered Species Act are expected to be affected by the proposed action, especially since the new reservoir will be an enclosed concrete structure that would not result in potential nesting sites or habitat for listed waterbirds. The letter from DFW includes the recommendation to use flat-lens lighting to minimize the potential impacts of facility lighting on wildlife such as seabirds.

Project actions may involve the necessary removal of onsite vegetation consisting of introduced, non-native floral species. DFW recommends maintaining a vegetated condition at the project site to help reduce sediment runoff and using bioswales to reduce sediment transport. The proposed project may include landscaping with trees in areas around the new reservoir, which would help to reduce the heat-island effects from urban sites as noted by DFW.

2.8. Archaeological, Architectural and Cultural Resources

Lands in Wailupe Valley may have been utilized for the cultivation of sweet potato, coconut, orange, *hala*, *ipu*, and *piligrass* according to the limited information that exists about the land use and settlement patterns of the established Hawaiian population prior to the first encounters with European voyagers in 1778. The land division process that began with the Organic Acts of 1845 and 1846 ultimately resulted in Land Commission Awards to residents and individuals who could substantiate use of the lands they were claiming. In 1924, Robert Hind purchased 2,090 acres of land in Wailupe Valley for the Hind-Clarke Dairy. In the post-World War II era and after the dairy business was sold, the Wailupe Valley lands were developed into residential subdivisions. Single-family homes in the surrounding area were mostly built in the 1950s, 1960s and 1970s.

The project site is not listed on the State or National Register of Historic Places and is within a geographic area that has experienced a long history of land disturbance and changes in land usage. No properties on the State and National Register of Historic Places are immediately adjacent to the project site. The nearest listed property is approximately one mile southeast of the project site near the junction of East Hind Drive with Kalanianaole Highway.

State Site Number	Site Name
80-14-9804	Carl and Francis Bayer Residence

Site preparation such as grading, excavation and trenching for the BWS reservoir, pump station and subsurface utility systems occurred before archaeological surveys were conducted. Record drawings indicate that the concrete structures were constructed in 1950 and placed into service in 1951. Grading and related construction activities were accomplished for Wailupe Valley Elementary School, which opened in September 1958. The property became Wailupe Community Park after the school closed in June 2009.

Because the project site was developed before there were statutory requirements for archaeological study or monitoring, there are no known archaeological studies previously performed at the project site. Because of this lack of studies, and because the project proposes excavation of a portion of the Wailupe Community Park, the State Historic Preservation Division (SHPD) recommended preparation of an archaeological inventory survey in support of the proposed project. An Archaeological inventory survey has been prepared, and is being reviewed by the SHPD concurrent with publication of this Draft EA.

Preparation of the archaeological inventory survey involved research on the traditional and historic settings of the project site, research of previous archaeological surveys in the vicinity of the project site, a reconnaissance level

survey of the existing BWS facility, and limited subsurface testing within the Wailupe Community Park. The archaeological inventory survey noted no archaeological resources of significance. However, it noted two structures within the BWS property of historic significance.

Since the pump station building and Aina Haina 170' Reservoir No. 1 are greater than 50 years old, both structures were determined to be eligible for listing on the National Register of Historic Places under Criteria C for structures that "embody distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction". Architects, who analyzed the existing structures as part of the archaeological inventory survey, determined that the pump station structure was designed by notable American architect Hart Wood and that both the reservoir and pump station structures may be eligible as part of a multiple property nomination for Board of Water supply buildings built from the early 1930s through the late 1950s.

A copy of the draft archaeological inventory survey is included in Appendix C. A copy of the final archaeological inventory survey will be included in the publication of the Final EA for this project.

Traditional and cultural practices are not known to have occurred at the project site within recent times because access to the premises is restricted to authorized BWS personnel via padlocked gates and the BWS facility has an intrusion detection system that is remotely monitored. Consultation was sought from several agencies and organizations: SHPD, Oahu Burial Council, Office of Hawaiian Affairs, Department of Hawaiian Home Lands, Association of Hawaiian Civic Clubs, Royal Hawaiian Academy of Traditional Arts, Aina Haina Community Association, and Kuliouou-Kalani Iki Neighborhood Board.

Impacts and Mitigation Measures

The project does not propose alterations to the Aina Haina 170' Reservoir No.1 or the pump station building. An architectural analysis of the proposed improvements (included within the archaeological inventory survey) stated that the proposed improvements will not significantly affect Hart Wood's design of the original facility.

There are no known archaeological and cultural resources at the project site that would be endangered by project actions. No impacts to archaeological resources are anticipated because project actions would affect lands that have been previously disturbed and altered for urban development, including subsurface infrastructure.

Nonetheless, in the event that any unexpected historic remains or other potentially significant subsurface resources are encountered during the various phases of construction (e.g., excavation and trenching), the contractor will be required to halt construction activities and to immediately notify SHPD of the discovery. The BWS will prevent the disturbance or taking of any discovered archaeological, historic or cultural resources to the extent possible by instituting the described mitigation measures and enforcing their implementation by its contractors. Thus, project actions are expected to have no adverse impacts on the exercise of gathering rights, access or other customary activities by native Hawaiian or other ethnic group.

2.9. Visual Resources

The visual character of Wailupe Valley is dominated by single-family homes, churches, parks and public use facilities. Wailupe Valley encompasses the northeastern portion of the Aina Haina community. The Aina Haina area is characterized by suburban residential neighborhoods that were mostly developed in the 1950s, 1960s and 1970s; some municipal and institutional land uses (e.g., parks, libraries, schools, and churches); and commercial uses at the Aina Haina Valley Shopping Center, which is located along Kalanianaole Highway.

The BWS facility contributes to a line of adjacent building elements along Alamuku Street. There is onsite vegetation that buffers or softens the visual impact of the BWS facility (see Site Photographs in Appendix B).

Impacts and Mitigation Measures

The proposed project represents a continuation of existing urban development that would not significantly alter the visual character along Alamuku Street. Visual impacts of the new reservoir may be mitigated by various measures such as painting the reservoir a green color similar to the existing Aina Haina 170' Reservoir No. 1 and pump station building, and planting trees or other landscaping to shield the concrete structures. Comparative views of the BWS facility are included in Appendix B. No impacts to scenic vistas or view planes are anticipated to occur from the proposed project. If tree planting is proposed, the DFW suggests consultation the Kaulunani Urban and Community Forestry Program. The decision whether or not to install landscaping will be made during the design phase of the project.

At this time, no new lighting is anticipated as a part of this project. However, if it is later determined that exterior lighting is required, the BWS will consider the use of flat-lens lighting in order to mitigate any impacts due to lighting.

2.10. Noise

The project site is located in a developed urban area where the primary noise source is related to vehicular traffic along Alamuku Street, which is a two-lane residential connector roadway owned by the City. In general, there is low background noise in the vicinity of the project site.

Impacts and Mitigation Measures

Audible noise from demolition and construction activity is expected to be intermittent and unavoidable since construction vehicles, heavy equipment and impact tools generate noise as part of normal operations. The mitigation of noisy activities to inaudible levels will not be practical in all cases due to the intensity and exterior nature of the work. Ambient noise levels in the vicinity of the project site will therefore increase during construction periods. Quieter construction activities, such as building erection and equipment installation, may not be audible. Construction noise is temporary in nature and will cease upon completion of the project.

Project activities shall comply with the provisions of HAR Title 11, Chapter 46, "Community Noise Control." The noise regulations require a noise permit if the noise level from construction activity is expected to exceed allowable levels stated in the Chapter 11-46 rules. It shall be the contractor's responsibility to minimize noise by properly maintaining noise mufflers and other noise-attenuating equipment and to maintain noise levels within regulatory limits. If construction activities occur outside of the allowable timeframes designated for the noise permit (i.e., nighttime, Sunday, holiday) and exceed allowable noise levels, a noise variance must be obtained prior to commencement of construction activities, as required. The construction contractor will obtain the appropriate permit or approvals (e.g., Notice of Intent to Construct, Community Noise Permit, or Noise Variance). The BWS will ensure that the contractor complies with all permit conditions.

Potential noise impacts will also be mitigated by performing the majority of construction work during daytime hours (as opposed to night work), thereby avoiding the creation of construction noise impacts during nighttime hours. Daytime work will ensure minimal impacts to existing users adjacent to and in the vicinity of the project site.

The new reservoir and appurtenant facilities will operate in a similar manner to the existing Aina Haina 170' Reservoir No. 1 and pumping equipment at the project site. Normal operation of the reservoirs and pumps may not be audible such that no mitigation is warranted.

2.11. Site Access, Circulation and Traffic

Vehicular access to the project site is via a 12-foot wide asphalt-concrete driveway with a padlock-secured gate along Alamuku Street. Concrete retaining walls delineate the boundaries of the BWS facility. Perimeter chain link fencing topped with barbed wire provides an additional deterrent to unauthorized entry. The BWS facility has an intrusion detection system consisting of alarms and video cameras that are remotely monitored. BWS personnel infrequently access the project site utilizing BWS vehicles as part of normal operations.

Kalanianaole Highway (State Route 72) is roughly one mile south of the project site. It is the primary arterial route connecting Aina Haina to the primary urban center and to Hawaii Kai. Residential roadways provide access from Kalanianaole Highway to the project site. There are no known traffic concerns in the vicinity of the project site and residential traffic in the surrounding area is observed to be low.

Municipal bus and paratransit services on Oahu are under the purview of the City's Department of Transportation Services (DTS) and Oahu Transit Services, Inc. There is bus service to the Aina Haina area via Kalanianaole Highway to the following residential connector roadways: East Hind Drive, West Hind Drive, Hao Street, Hind Iuka Drive, and Ani Street. There are no bus stops along Alamuku Street; the nearest bus stops are located along Hind Iuka Drive.

Impacts and Mitigation Measures

No offsite road improvements are required as part of the proposed project and the existing driveway for the BWS facility will remain unchanged. The transportation of equipment and material to the site along with the removal of debris and construction waste from the site may cause intermittent and temporary inconveniences to residents who live in the immediate vicinity. The Honolulu Police Department (HPD) indicated in its letter dated July 23, 2014 that it "anticipates possible short-term impacts to neighborhood vehicular and pedestrian traffic on the roadway of Alamuku Street." Appropriate traffic control devices including warning signs, lights, barricades, cones, and other safety equipment will be installed and maintained by the contractor during the construction period as recommended by HPD. Traffic control will be directed by construction personnel or by law enforcement personnel, when necessary. HPD also recommends notifying the neighborhood board and affected homeowners of any traffic issues related to local ingress and egress within the area. No traffic lane closures or traffic detours are expected in conjunction with project activities; however, a traffic control plan shall be prepared prior to the commencement of the proposed project if lane closures or traffic detours are deemed necessary. The temporary closure of any portion of a City street or sidewalk for construction work requires a street usage permit from DTS.

The majority of construction work and the moving of heavy equipment or construction-related supplies will be scheduled during daytime hours (as opposed to night work). The DTS recommends that transport of any construction materials and equipment should occur during off-peak traffic hours (8:30 a.m. to 3:30 p.m) in order to minimize disruption to traffic. At night and when work is not occurring, all associated construction equipment will be secured and appropriately sited to prevent obstructions to traffic.

It will be determined during the design phase whether the operation or transportation of any oversized and/or overweight vehicles and loads will be required during construction. The transport of oversized and/or overweight materials and equipment on State highway facilities requires a permit from the State of Hawaii, Department of Transportation (DOT).

Bus routes, bus stops and paratransit operations are not expected to be impacted by project actions. The temporary increase in traffic due to vehicles and equipment accessing the project site will cease upon the completion of construction activities. The operation of the new reservoir at the project site will not increase vehicular traffic or affect site access and circulation patterns such that no mitigation is warranted. BWS personnel will continue to infrequently access the project site for monitoring and maintenance purposes as part of normal operations.

2.12. Utilities (Water, Wastewater, Drainage)

The project site is developed and contains the BWS facility that was placed into service in 1951. The BWS facility contains an existing 0.5 MG reservoir and two pump units. The site is connected to the BWS municipal water system and the City's municipal sewer system. Drainage system infrastructure at the project site includes aboveground drainage channels and underground drain lines. The *Water System Standards* of the BWS require washout and overflow drainage lines for reservoirs. Stormwater runoff and discharges associated with current operations are conveyed to the City's municipal stormwater drainage system.

Impacts and Mitigation Measures

The proposed Aina Haina 170' Reservoir No. 2 will be connected to water, sewer, and drainage system infrastructure. The proposed project includes the installation of a water line that connects the new reservoir to the existing 16-inch influent-effluent line that currently supplies the Aina Haina 170' Reservoir No. 1. New washout and overflow drainage lines will be installed for the Aina Haina 170' Reservoir No. 2.

Utility services to the project site may be disrupted during periods of work; however, this impact is considered short term and temporary. There are no long-term impacts associated with establishing new utility connections.

The project proposes construction of impermeable surfaces (concrete reservoir and paved perimeter) over existing permeable surfaces. Increasing the impermeable surface area at the project site will result in increased stormwater runoff flows. However, the proposed increase in impermeable surface area is small and is not expected to have an impact on existing drainage utilities. The DFW recommends exploring the use of vegetated bio-swales to reduce stormwater flows and improve stormwater quality. Bio-swales are vegetated areas designed to reduce stormwater velocity and promote percolation of stormwater (which reduces the quantity of stormwater that flows to drainage systems). The option of using bioswales will be explored during the design phase of the project.

A short-term and temporary impact of the project would occur from the generation of sediment-laden surface runoff during construction and demolition work. BMPs will be incorporated into a storm water management plan. Appropriate erosion control BMPs will be used to minimize the amount of soil transported in stormwater runoff during construction activities. All construction activities will comply with applicable Federal, State and County regulations and rules for erosion control as previously discussed in Section 2.4, Water Resources. The construction of the new reservoir and access road will increase impervious areas; however, the anticipated impact will be offset by incorporating design methods that reduce runoff from the site and promote groundwater recharge.

2.13. Power and Communications

Electrical power in the project area is provided by Hawaiian Electric Company, Inc. (HECO) via underground distribution lines. Telecommunications service in the project area is provided by Hawaiian Telcom and Oceanic Time Warner Cable via underground duct lines. The BWS facility receives power and communications service via underground duct lines to the pump station building. Control and monitoring systems for the Aina Haina 170' Reservoir No. 1 are already located in the pump station building.

Impacts and Mitigation Measures

Electrical, control, and monitoring systems for the new reservoir will be installed within the pump station building at the project site. Reportedly, the existing system has adequate capacity for additional controls such that no

major construction is necessary to house the electrical, control, and monitoring systems for the Aina Haina 170' Reservoir No. 2.

Proposed demolition and construction activity has the potential to disrupt power and communication systems to the site but these effects are expected to be short-term and temporary. The proposed project will be coordinated with HECO and other service providers. The new reservoir and appurtenant facilities do not represent a substantial increase in energy consumption since the existing BWS facility already receives power and communications service for current operations at the project site. There are no long-term impacts associated with establishing new service connections for power and communications service.

2.14. Socio-Economic Characteristics

The project site is located within the City's East Honolulu planning region, which is generally characterized as a stable population area that is nearly built out. The City anticipates that the East Honolulu planning region will remain relatively stable because there is limited potential for expansion of the housing stock and commercial centers in this region. The census tract areas of Wailupe, Kuliouou and Aina Haina-Hawaii Loa Ridge have characteristically high (e.g., around and above $100,000) median household and family income. In 2010, the same census tract areas had a resident population of 12,039 inhabitants and 4,035 households (State of Hawaii Department of Business, Economic Development and Tourism, 2013).

Single-family homes in Aina Haina were mostly built in the 1950s, 1960s and 1970s. Schools in the project area include Aina Haina Elementary School and Holy Nativity School. The former Wailupe Valley Elementary School opened in September 1958 and closed in June 2009.

The project site is not occupied by BWS staff on a daily basis. BWS personnel infrequently travel to the project site as part of normal operations.

Impacts and Mitigation Measures

The proposed project, which will improve the reliability and storage capacity of the affected system, will not affect population levels, housing or schools. The BWS envisions no staffing increase from the installation of the new 0.5 MG reservoir and appurtenant facilities. The various phases of construction will create short-term jobs for people in design and construction.

2.15. Emergency Service Facilities and Shelters

Law enforcement is provided by HPD. The nearest HPD substation relative to the project site is located in Waikiki.

Fire protection services are provided by the Honolulu Fire Department (HFD). HFD's Station 23 is located along Kalanianaole Highway approximately one mile southeast from the project site.

Emergency service providers include critical care providers such as hospitals and clinics. The Island Urgent Care Clinic located across from Kahala Mall is approximately three miles southeast from the project site.

Aina Haina Elementary School is a designated hurricane evacuation shelter. It is located about one mile southwest of the project site. This shelter can accommodate and provide limited support to persons with special health needs.

Impacts and Mitigation Measures

No significant adverse impacts to police, fire, medical or emergency shelter services will occur from the proposed project. As indicated in its letter dated July 22, 2014, the HFD "determined that there will be no significant impact to fire department services" from the project.

2.16. Recreational Resources

The City's DPR operates and maintains County park facilities including Wailupe Community Park, which is adjacent to the project site. Other recreational resources in the Aina Haina area include the Wailupe Valley Neighborhood Park, Aina Haina Nature Preserve, Aina Haina Community Park, Wailupe Beach Park, Nehu Park, and Kawaikui Beach Park.

Impacts and Mitigation Measures

The proposed project includes the acquisition of approximately 0.03 acres of land from the City's Wailupe Community Park parcel. The BWS will be mindful of existing structures (e.g., nearby playground equipment) and uses at Wailupe Community Park. The BWS will consult with the DPR, which operates Wailupe Community Park, throughout the EA process to avoid or minimize the impacts of the proposed project in regards to public park facilities and services.

The proposed project creates no additional demand for recreational facilities such that no mitigation is warranted.

3. RELATIONSHIP TO PLANS, POLICIES, AND CONTROLS

3.1. State Land Use District

The State Land Use Law (Chapter 205, HRS) is intended to preserve, protect, and encourage the development of lands in the State for uses which are best suited to the public health and welfare for Hawaii's people. All lands in the State are classified into four land use districts by the State of Hawaii, Land Use Commission: Urban, Agricultural, Conservation, and Rural. Urban areas are characterized by residential neighborhoods, commercial enterprises, industrial development, and community facilities including public buildings. The project site is entirely located within the Urban District. The BWS facility at 855 Alamuku Street in Wailupe Valley is a permitted use within the Urban District.

3.2. Hawaii State Plan

The Hawaii State Plan (Chapter 226, HRS) outlines broad goals, policies and objectives to serve as guidelines for the future growth and development of the State. The excerpts below are Hawaii State Plan objectives, policies, and priority guidelines that pertain to the proposed project in Honolulu, Oahu. The BWS is a semi-autonomous government agency that manages Oahu's municipal water resources and distribution system to meet the needs of customers now and in the future. The proposed project to construct a new 0.5 MG potable water storage reservoir responds to the objectives and policies of the Hawaii State Plan with regards to water systems. The proposed increase in potable water storage capacity will improve the overall reliability and storage capacity of the existing water system to ensure that it continues to serve the needs of the affected community. The new reservoir would be sited adjacent to the existing 0.5 MG reservoir at the BWS facility in Wailupe Valley. The BWS has considered its facility needs along with the impacts of the proposed project on the surrounding community and 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:*
>
> *(3) Take into account the physical attributes of areas when planning and designing activities and facilities.*

(8) Pursue compatible relationships among activities, facilities, and natural resources.

§226-13 Objectives and policies for the physical environment--land, air, and water quality.

(a) Planning for the State's physical environment with regard to land, air, and water quality shall be directed towards achievement of the following objectives:

(1) Maintenance and pursuit of improved quality in Hawaii's land, air, and water resources.

(b) To achieve the land, air, and water quality objectives, it shall be the policy of this State to:

(2) Promote the proper management of Hawaii's land and water resources.

(3) Promote effective measures to achieve desired quality in Hawaii's surface, ground, and coastal waters.

(4) Encourage actions to maintain or improve aural and air quality levels to enhance the health and well-being of Hawaii's people.

(5) Reduce the threat to life and property from erosion, flooding, tsunamis, hurricanes, earthquakes, volcanic eruptions, and other natural or man-induced hazards and disasters.

§226-14 Objective and policies for facility systems--in general.

(a) Planning for the State's facility systems in general shall be directed towards achievement of the objective of water, transportation, waste disposal, and energy and telecommunication systems that support statewide social, economic, and physical objectives.

(b) To achieve the general facility systems objective, it shall be the policy of this State to:

(1) Accommodate the needs of Hawaii's people through coordination of facility systems and capital improvement priorities in consonance with state and county plans.

(2) Encourage flexibility in the design and development of facility systems to promote prudent use of resources and accommodate changing public demands and priorities.

(3) Ensure that required facility systems can be supported within resource capacities and at reasonable cost to the user.

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

§226-26 Objectives and policies for socio cultural advancement – public safety.
(a) *Planning for the State's socio-cultural advancement with regard to public safety shall be directed towards the achievement of the following objectives:*
(1) *Assurance of public safety and adequate protection of life and property for all people.*
(2) Optimum organizational readiness and capability in all phases of emergency management to maintain the strength, resources, and social and economic wellbeing of the community in the event of civil disruptions, wars, natural disasters, and other major disturbances.

§226-27 Objectives and policies for socio cultural advancement – government.
(a) Planning the State's socio-cultural advancement with regard to government shall be directed towards the achievement of the following objectives:
(1) Efficient, effective, and responsive government services at all levels in the State.
(b) To achieve the government objectives, it shall be the policy of this State to:
(1) Provide for necessary public goods and services not assumed by the private sector.
(5) Assure that government attitudes, actions, and services are sensitive to community needs and concerns.

3.3. City and County of Honolulu General Plan

The City's General Plan sets forth broad statements of social, economic, environmental, and design objectives and policies which are desired over the long-term. The excerpts below are General Plan policies and objectives that pertain to the proposed project. The new 0.5 MG reservoir would help to ensure the continued delivery of water service to the affected community and is consistent with surrounding urban development. The BWS has considered the social, economic and environmental impacts of proposed water system improvements that respond to the needs of the community.

III. <u>Physical Development and Urban Design</u>
Objective A: To protect and preserve the natural environment.
Policy 1: Protect Oahu's natural environment, especially the shoreline, valleys, and ridges, from incompatible development.

Policy 7: Protect the natural environment from damaging levels of air, water, and noise pollution.

Objective B: To preserve and enhance the natural monuments and scenic views of Oahu for the benefit of both residents and visitors.

Policy 3: Locate roads, highways, and other public facilities and utilities in areas where they will least obstruct important views of the mountains and the sea.

V. Transportation and Utilities

Objective C: To maintain a high level of service for all utilities.

Policy 2: Provide improvements to utilities in existing neighborhoods to reduce substandard conditions.

Policy 3: Plan for the timely and orderly expansion of utility systems.

Objective D: To maintain transportation and utility systems which will help Oahu continue to be a desirable place to live and visit.

Policy 1: Give primary emphasis in the capital- improvement program to the maintenance and improvement of existing roads and utilities.

Policy 4: Evaluate the social, economic, and environmental impact of additions to the transportation and utility systems before they are constructed.

VII. Physical Development and Urban Design

Objective A: To coordinate changes in the physical environment of Oahu to ensure that all new developments are timely, well-designed, and appropriate for the areas in which they will be located.

Policy 5: Provide for more compact development and intensive use of urban lands where compatible with the physical and social character of existing communities.

Policy 6: Encourage the clustering of developments to reduce the cost of providing utilities and other public services.

Policy 8: Locate community facilities on sites that will be convenient to the people they are intended to serve.

Objective E: To create and maintain attractive, meaningful, and stimulating environments throughout Oahu.

Policy 5: Require new developments in stable, established communities and rural areas to be compatible with the existing communities and areas.

IX. Health and Education

Objective A: To protect the health of the people of Oahu.

Policy 3: Coordinate City and County health codes and other regulations with State and Federal health codes to facilitate the enforcement of air-, water-,and noise-pollution controls.

3.4. East Honolulu Sustainable Communities Plan

There are eight community-oriented plans for the City that are intended to help guide government action and decision-making. The vision of the East Honolulu Sustainable Communities Plan that was adopted in April 1999 is summarized below:

> *Contain the spread of urban development;*
> *Protect agricultural areas;*
> *Limit the potential for population and commercial growth;*
> *Protect and preserve significant scenic values and natural areas;*
> *Expand public access to mountain and shoreline areas; and*
> *Adapt the housing supply to accommodate changing demographics.*

The East Honolulu Sustainable Communities Plan recognizes that the region is nearly built out and its housing stock and infrastructure systems are aging. The project site is within the Urban Community Boundary, which represents the extent of urbanized areas within the East Honolulu district. The proposed project does not involve any new groundwater well development and is consistent with the vision for East Honolulu of minimal population growth and the long-term protection of community resources and adapting to changing community needs. The project supports the established community by providing adequate storage capacity for the existing potable water supply system in accordance with BWS standards and improving the overall reliability of the affected system.

3.5. City and County of Honolulu Land Use Ordinance

The City's Land Use Ordinance (LUO) regulates land use in accordance with adopted land use policies, including the City's General Plan and the Development/Sustainable Community Plans. The zoning for the project site is R-7.5 Residential District. The City's Department of Planning and Permitting (DPP) lists the following land use considerations in its letter dated August 4, 2014:

- A Public Infrastructure Map revision will be required for the proposed new reservoir.
- The LUO classifies the use as "Public Uses and Structures," which are allowed in all zoning districts.

The proposed reservoir is considered to be a public use or structure, in accordance with the following description from the LUO:

> *Uses conducted by or structures owned or managed by the federal government, the State of Hawaii or the city to fulfill a governmental function, activity or service for public benefit and in accordance with public policy.*

3.6. State Coastal Zone Management Program

Hawaii's Coastal Zone Management (CZM) program, established pursuant to Chapter 205A, HRS, as amended, is administered by the State of Hawaii, Office of Planning and provides for the beneficial use, protection, and development of the State's coastal zone. The CZM area consists of the entire state of Hawaii. The objective of the act is to protect, preserve, and restore recreational, historic, and scenic resources as well as implementing the state's ocean resources management plan and protecting coastal ecosystems. The act involves a system of permits to manage development within the coastal areas and encourages public participation.

Through the CZM program and pursuant to the Hawaii Coastal Zone Management Act (Chapter 205A, HRS, as amended), all counties have enacted ordinances establishing Special Management Areas (SMAs). Any significant development within the SMA requires a SMA permit from the appropriate County. On Oahu, the SMA permit is administered by the DPP and acted upon by the City Council pursuant to Chapter 25, Revised Ordinances of Honolulu. The project site is not located within the SMA.

The proposed project is limited to a BWS-owned property that is away from coastal recreation areas. The project does not affect the use of or access to coastal or other public recreational opportunities. The installation of the second 0.5 million gallon reservoir at the existing BWS facility will be consistent with the CZM objectives and policies pursuant to Section 205A-2, HRS.

(1) Recreational Resources;
(A) Provide coastal recreational opportunities accessible to the public.

(2) Historic resources;
(A) 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.

(4) Coastal ecosystems;
(A) Protect valuable coastal ecosystems, including reefs, from disruption and minimize adverse impacts on all coastal ecosystems.

(5) Economic uses;
(A) Provide public or private facilities and improvements important to the State's economy in suitable locations.

4. POSSIBLE ALTERNATIVES

4.1. No-Action

The Aina Haina 170' Reservoir No. 2 would not be constructed as a result of maintaining status quo. The total reservoir capacity of the affected system would therefore remain at 1.5 MG. There would be no new connections to on-site drainage infrastructure and the flat, vacant area would continue to remain vacant for the foreseeable future. The design and operation of the Aina Haina 170' Reservoir No. 1 and pump station at the project site would remain unchanged.

No action implies that there would be no commitment of funding or capital improvement costs and no effort to construct a new reservoir that would address a storage need for the affected system. It is important to note that the storage shortfall does not represent an actual restriction to existing BWS customers under typical conditions; BWS standards require additional storage capacity to accommodate actual usage in the system. This excess storage can be used during unusual circumstances (e.g., power outages) or to accommodate unusually high demand for a short period of time; the additional storage capacity increases reliability of the potable water system to conform to BWS water system standards.

As a result of the no-action alternative, customers in the service area will continue to be susceptible to interruptions in water service during unusual circumstances, such as power outages. The affected system would not comply with BWS standards for storage requirements as a result of no action.

4.2. Delayed Action

A delayed action implies that a project of similar scope and size to the proposed action would occur at an unspecified future date. The environmental impacts resulting from a delayed action are generally expected to be the same as the proposed action so long as environmental conditions remain similar to the evaluated conditions described in this EA.

Construction of a new reservoir at a later date may result in increased construction costs due to inflation, changes in economic conditions or the labor supply, and extend storage capacity levels below BWS standards for the area. Building materials and labor costs tend to increase with time. A delayed action may therefore necessitate a greater funding commitment for water system improvements. Hence, a delayed action is not favorable from the perspective of the BWS.

4.3. Alternate Location

A new 0.5 MG reservoir constructed at an alternate location somewhere within the affected 170' System would avoid impacts to Wailupe Community Park and

surrounding residential properties. The new reservoir could be constructed at an existing BWS facility or at a new facility.

The Niu Valley 170' Reservoir is the only other reservoir in the affected 170' system; therefore, the BWS facility that houses the Niu Valley 170' Reservoir would be a logical alternative location. The Niu Valley 170' Reservoir facility (herein referred to as the "alternate site") is located on two BWS-owned parcels (TMKs 3-7-011: 013 and 3-8-014: 029) on a ridge overlooking Niu Valley.

An additional 0.5 MG reservoir could possibly be accommodated at the alternate site; however, this would involve significant modifications of the alternate site. The BWS facility at the alternate site is cut into the hillside above Niu Valley, and there is currently no level area for placement of a second reservoir. As such, constructing a second reservoir at this facility would involve significant excavation of a large portion of the hillside and construction of retaining walls. This would incur a significant additional cost on the project. Additionally, this area has a history of rockfall issues. Further studies would be required to determine whether expansion of the facility would increase the risk of rockfall to the residential homes located below the alternate site.

Also, the proposed project involves construction of a 0.5 MG reservoir, whereas the alternate site houses a 1.0 MG reservoir. Two reservoirs of dissimilar size and capacity are difficult to operate as opposed to two identically-sized reservoirs. The BWS could construct a second 1.0 MG reservoir that has a similar capacity, spillway elevation and dimensions as the Niu Valley 170' Reservoir. This option would result in excess storage capacity and would involve a greater funding commitment for a larger, enclosed, reinforced-concrete reservoir structure as compared to the proposed action.

Because the Aina Haina 170' Reservoir facility has an existing level area suitable for placement of a second 0.5 MG reservoir, that location is preferred to the alternate site.

As another option, the BWS could acquire land and construct a completely new facility to house the needed 0.5 MG reservoir. Open land in this area of the size needed is difficult to find. This option is cost-prohibitive since it requires the acquisition of prime, expensive land of substantial size, the construction of new water main connections, new utility connections (e.g., electricity, telecommunications, and drainage), and perhaps an access road. Furthermore, any new site that has not already been developed for use is expected to involve grading and excavation, which may result in greater impacts on the environment as compared to the proposed action. The options to site a new reservoir at an alternate location are therefore possible but less desirable than the proposed action.

Consequently, the BWS has concluded that the proposed action is a more practical and cost-effective use of existing resources.

4.4. Construct New Reservoir on Existing Site (the Preferred Alternative)

The proposed action involves siting a new 0.5 MG reservoir at an existing BWS facility in Wailupe Valley and upon land that was already graded and prepared for use. A geologic survey of the affected area confirmed shallow cut-and-fill conditions with relatively shallow depths to basalt. It is anticipated that a conventional foundation on the underlying basalt stratum can support the proposed concrete reservoir. There are no indications of settlement or poor soil conditions at the project site. The proposed BWS project will not alter or affect the integrity of the existing reservoir and pump station building. Both structures were built in the 1950s, are well maintained, and will remain in service after construction of the proposed improvements. Traditional and cultural practices are not known to have occurred on the property within recent times because access to the project site is restricted to authorized BWS personnel via padlocked gates.

The proposed Aina Haina 170' Reservoir No. 2 will provide additional reservoir capacity that improves the reliability of the affected system in fulfillment of project objectives. Installing the new reservoir at an existing facility is a prudent use of public resources since the supporting infrastructure is already in place and can accommodate a second reservoir.

Demolition and replacement of the affected portion of the retaining wall and concrete gutter along the rear property line is expected to be necessary as part of the project. Project activities are expected to generate short-term environmental impacts such as fugitive dust, noise, intermittent traffic, solid waste, and potential disruptions to utility services that would cease upon project completion. BMPs will be used to mitigate these impacts to the extent practical. The new reservoir with similar capacity, spillway elevation and dimensions as the Aina Haina 170' Reservoir No. 1 will be consistent with the existing character and views of urban development along Alamuku Street. The proposed action is therefore the preferred alternative that addresses project objectives with minimal environmental impacts.

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5. PERMITS AND APPROVALS

Although exact permitting and approval requirements will be determined during the design phase, the following list contains permits and approvals that may be required for the proposed project:

State of Hawaii
- National Pollutant Discharge Elimination System Permit
- Community Noise Permit
- Community Noise Variance
- Non-Covered and/or Covered Source Permit (Air Quality)
- Lane Use Permit for Construction Work
- Oversized and Overweight Vehicles on State Highways Permit

City and County of Honolulu
- Building Permit
- Grubbing, Grading, and Stockpiling Permit
- Erosion Control Plan/Best Management Practices
- Industrial Wastewater Discharge Permit
- Street Usage Permit for Construction
- Public Infrastructure Map (PIM) Amendment

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6. DETERMINATION

A Finding of No Significant Impact (FONSI) determination is anticipated for the proposed project, which is not expected to have a significant impact on the physical or human environment. The supporting rationale for this finding as set forth in HAR Title 11, Chapter 200, Section 12 is discussed below.

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

Land acquisition, the installation of a new reservoir along with its connection to onsite draining infrastructure, the extension of an access road within the project site, and the realignment of a portion of the retaining wall will not endanger any natural or cultural resources. The construction contractor shall stop work and contact SHPD immediately in the event any unanticipated buried archaeological or cultural resources are encountered.

(2) *Curtails the range of beneficial uses of the environment;*

No beneficial uses of the environment will be curtailed as a result of the proposed project, which represents a facility improvement for the BWS potable water supply and distribution system for the East Honolulu communities of Wailupe Peninsula, Aina Haina, Niu Valley and Kuliouou. The installation of the new 0.5 MG reservoir at the existing BWS facility in Wailupe Valley is a continuation of the beneficial use of the project site for a public purpose.

(3) Conflicts with the state's long-term environmental policies or goals and guidelines as expressed in Chapter 344, HRS, and any revisions thereof and amendments thereto, court decisions, or executive orders;

The proposed project would be in conformance with State Environmental Policy, inclusive of its individual policies, goals, and guidelines for population growth; natural resources; biological resources; transportation; energy; and culture, as discussed in the individual resource categories throughout this EA.

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

The proposed project does not substantially or negatively affect the economic or social welfare and cultural practices of the community or State. The project creates short-term jobs for people in design and construction. The installation of the new 0.5 MG reservoir and appurtenant facilities is not expected to negatively affect the cultural practices of the community or State.

(5) Substantially affects public health;

Public health will not be adversely affected during the demolition and construction phases of the proposed project. Short-term and temporary effects such as surface runoff, fugitive dust, noise, intermittent traffic, solid waste, and potential disruptions to utility services are expected to cease upon project completion. The implementation of construction BMPs will minimize temporary impacts. Completion of the project would increase potable water storage capacity for the affected system and improve the overall reliability and redundancy of this water system to better meet the needs of the affected community.

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

No substantial secondary impacts such as population shifts are anticipated from the proposed project, which represents a continuation of normal water system service by the BWS. The increase in potable water storage capacity allows the water system to better accommodate short periods of unusually high water demand. The proposed improvements help to maintain service during power outages.

(7) Involves a substantial degradation of environmental quality;

The proposed project is not expected to degrade environmental quality. Environmental impacts that may occur during the various phases of construction will be mitigated through the implementation of construction BMPs, as appropriate. Appropriate mitigation measures have been identified throughout this EA.

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

The proposed project that improves the reliability and redundancy of the water system represents a long-term commitment by the BWS to provide municipal water and distribution services to the community. The proposed project is not part of or associated with a supplemental future action.

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

No species listed by the U.S. Fish and Wildlife Service or in the Endangered Species Act are expected to be affected by the proposed project. The project site does not contain habitat for proposed, candidate, or listed threatened or endangered species.

(10) Detrimentally affects air or water quality or ambient noise levels;

Short-term impacts to air quality, water quality or ambient noise levels may occur during construction and demolition. No State or Federal air quality or water quality standards should be violated during or after demolition and construction. Environmental impacts will be mitigated through proper construction techniques and compliance with applicable DOH rules and regulations. The new 0.5 MG potable water storage reservoir and appurtenant facilities are not expected to negatively impact ambient air quality and background noise levels since proposed improvements represent a continuation of current functions and activities at the project site.

(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;

The project site is not situated within an environmentally sensitive area and is not anticipated to affect such areas.

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

The new 0.5 MG reservoir will not obstruct or affect scenic vistas and view planes. Landscaping may further reduce the visual impact of the proposed reservoir.

(13) Requires substantial energy consumption.

The new reservoir is not anticipated to cause a substantial increase in energy consumption since it represents a continuation of current operations that already receive power and communications service.

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7. PUBLIC AGENCY REVIEW AND CONSULTATION

7.1. Pre-Assessment Consultation

The consulted agencies, organizations, and individuals are listed below. There were thirteen (13) formal responses to the pre-assessment consultation letter, as indicated by the ✓ below. Comments and responses are included in Appendix D.

Federal Agencies

✓ U.S. Fish and Wildlife Service

State of Hawaii

Department of Land and Natural Resources
- Commission on Water Resource Management
- ✓ State Historic Preservation Division
- Oahu Island Burial Council
- ✓ Division of Forestry and Wildlife
- ✓ Land Division
- ✓ Engineering Division

Department of Health
- Office of Environmental Quality Control
- Clean Air Branch
- ✓ Clean Water Branch
- ✓ Environmental Planning Office
- Environmental Management Division
- Indoor and Radiological Health Branch

Office of Hawaiian Affairs

Department of Hawaiian Home Lands

Department of Education
- Honolulu District Office

Hawaii State Public Library System
- Hawaii and Pacific Section, Documents Center
- Aina Haina Public Library

Senator Sam Slom (District 9)

Representative Mark Hashem (District 18)

City and County of Honolulu

Department of Budget and Fiscal Services

✓ Department of Design and Construction

Department of Environmental Services

✓ Department of Planning & Permitting

City and County of Honolulu (continued)

- ✓ Department of Parks and Recreation
- ✓ Department of Transportation Services
- ✓ Honolulu Fire Department
- ✓ Honolulu Police Department

Councilmember Stanley Chang (Honolulu City Council District 4)
Neighborhood Commission Office
Kuliouou-Kalani Iki Board No. 2

Utilities

Hawaiian Electric Company

Organizations and Associations

Aina Haina Community Assocation
Association of Hawaiian Civic Clubs
Royal Hawaiian Academy of Traditional Arts

Neighboring or Nearby Property Owners and Recorded Lessees

3-6-016: 024
3-6-016: 025
3-6-016: 026
3-6-016: 032
3-6-016: 034
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3-6-016: 058

Neighboring or Nearby Property Owners and Recorded Lessees (continued)

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3-6-016: 063
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7.2. Draft EA Consultation

The BWS and TLCG will continue to coordinate and consult with governmental agencies that will review the Draft EA. Agency review comments and responses will be published in the Final EA. Public comments received from organizations and interested parties during the 30-day statutorily-mandated comment period will also be responded to and published in the Final EA.

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8. REFERENCES

City and County of Honolulu, Board of Water Supply, et. al. 2002. *Water System Standards*.

City and County of Honolulu, Department of Planning and Permitting. 1999. *East Honolulu Sustainable Communities Plan*. April.

City and County of Honolulu, Department of Planning and Permitting. 2014. *Honolulu Land Information System*. Accessed July 24, 2014. Available at: http://gis.hicentral.com/maps.html.

Fassler, Kim. 2008, August 28. "Proposed home raising concern." *The Honolulu Advertiser*: Retrieved from http://the.honoluluadvertiser.com/article/2008/Aug/18/ln/hawaii808180317.html.

GK and Associates. 1991. *Final Environmental Assessment for the Wailupe Well II, Oahu, Hawaii*. Prepared for Shimabukuro, Endo and Yoshizaki, Inc. and submitted by the Board of Water Supply, City and County of Honolulu. September.

Giambelluca, T.W., X. Shuai, M.L. Barnes, R.J. Alliss, R.J. Longman, T. Miura, Q. Chen, A.G. Frazier, R.G. Mudd, L. Cuo, and A.D. Businger. 2014. *Evapotranspiration of Hawaii*. Final report submitted to the U.S. Army Corps of Engineers - Honolulu District, and the Commission on Water Resource Management, State of Hawaii. "Interactive Map." Accessed July 30, 2014. Available from http://evapotranspiration.geography.hawaii.edu/.

Hawaii - National Flood Insurance Program. n.d. "Flood Hazard Assessment Tool." Accessed July 30, 2014. Available from http://gis.hawaiinfip.org/fhat/.

Hawaii State Civil Defense. n.d. "Tsunami Evacuation Zone Mapping Tool". Accessed July 30, 2014. Available from http://www.scd.hawaii.gov/.

Juvik, Sonia P. and James O. Juvik (Eds.), and Thomas R. Paradise. 1998. *Atlas of Hawaii* (3rd Edition). Honolulu: University of Hawaii Press.

PBR Hawaii and Associates, Inc. 2013. *Stormwater Impact Assessments: Connecting primary, secondary and cumulative impacts to Hawaii's Environmental Review Process*. Prepared for the State of Hawaii Office of Planning, Coastal Zone Management Program. Downloadable files. Available

from http://planning.hawaii.gov/czm/initiatives/cumulative-secondary-impact-csi-stormwater-impact-assessment/.

R. M. Towill Corporation. 1982. *Revised Environmental Impact Statement for the Wailupe Well Water Development Project, Oahu, Hawaii*. Prepared for the Board of Water Supply, City and County of Honolulu. October.

State of Hawaii, Department of Business, Economic Development and Tourism. 2013. *2012 State of Hawai'i Databook.* Downloadable files. Available from http://dbedt.hawaii.gov/economic/databook/db2012/.

State of Hawaii, Department of Health, Safe Drinking Water Branch. 2013. "UIC Map for the Island of Maui." Accessed July 30, 2014. Available from http://health.hawaii.gov/sdwb/uicprogram/.

State of Hawaii, Department of Health, Clean Water Branch. 2014. *Water Quality Standards*. "Hawaii Department of Health Water Quality Standards Map of the Island of Oahu." Accessed July 30, 2014. Downloadable files. Available from http://health.hawaii.gov/cwb/site-map/clean-water-branch-home-page/water-quality-standards/ .

State of Hawaii, Department of Land and Natural Resources, Commission on Water Resource Management. 2008. *Ground Water Hydrologic Unit Map - Island of Oahu.* Accessed July 30, 2014. Available from http://www.state.hi.us/dlnr/cwrm/resources_mapsillustrations.htm.

The Limtiaco Consulting Group. 2012. *Preliminary Engineering Study for the Aina Haina 170' Potable Reservoir No. 2*. Prepared for the City and County of Honolulu Board of Water Supply. August.

U.S. Department of Agriculture, Natural Resources Conservation Service. n.d. "Web Soil Survey." Accessed July 30, 2014. Available from http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx.

U.S. Department of Agriculture, Soil Conservation Service, in cooperation with the University of Hawaii Agricultural Experiment Station. 1972. *Soil Survey of the Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii.* August.

Western Regional Climate Center. 2014. *Climate Narratives of the State*. "Climate of Hawaii." Accessed July 30, 2014. Available from http://www.wrcc.dri.edu/narratives/hawaii/.

Wilson Okamoto and Associates, Inc. 1986. *Final Environmental Impact Statement for Development of Wells, Reservoirs, Transmission Lines and Appurtenances at Honolulu, Hawaii*. Prepared for the City and County of Honolulu Board of Water Supply. September.

Wilson Okamoto Corporation, 2008. *Hawaii Water Plan, Water Resource Protection Plan*. Prepared for the State of Hawaii Commission on Water Resource Management. June.

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APPENDIX A

Flood Hazard Assessment Report

State of Hawaii

FLOOD HAZARD ASSESSMENT REPORT

NATIONAL FLOOD INSURANCE PROGRAM

FLOOD ZONE DEFINITIONS

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

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

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

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

OTHER FLOOD AREAS

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

PROPERTY INFORMATION

COUNTY:	HONOLULU
TMK NO:	(1) 3-6-016-040
PARCEL ADDRESS:	855 ALAMUKU ST HONOLULU, HI 96821
FIRM INDEX DATE:	JANUARY 19, 2011
LETTER OF MAP CHANGE(S):	NONE
FEMA FIRM PANEL(S):	15003C0386G
PANEL EFFECTIVE DATE:	JANUARY 19, 2011

PARCEL DATA FROM:	APRIL 2014
IMAGERY DATA FROM:	MAY 2006

IMPORTANT PHONE NUMBERS

County NFIP Coordinator	
City and County of Honolulu	
Mario Siu-Li, CFM	(808) 768-8098
State NFIP Coordinator	
Carol Tyau-Beam, P.E., CFM	(808) 587-0267

APPENDIX B

Site Photographs

Photo 1. View of the BWS facility from Alamuku Street

Photo 2. View of the location for the proposed reservoir from Alamuku Street

Photo 3. The location of the proposed reservoir is in the foreground and the Aina Haina 170' Potable Reservoir No. 1 is in the background.

Photo 4. The location of the proposed reservoir is in the foreground and the Wailupe Community Park is in the background.

EXISTING

PROPOSED - NO LANDSCAPING

PROPOSED - WITH LANDSCAPING

Photo 5. Comparitive views of the BWS facility from Alamuku Street.

APPENDIX C

An Archaeological Inventory Survey Report for the
Proposed Aina Haina 170' Potable Reservoir No. 2 Project in
Wailupe Ahupuaa, Kona District, Oahu Island, Hawaii

SCS Project Number 1646-1 AIS

AN ARCHAEOLOGICAL INVENTORY SURVEY REPORT FOR THE PROPOSED AINA HAINA 170' POTABLE RESERVOIR NO. 2 PROJECT IN WAILUPE AHUPUA`A, KONA DISTRICT O`AHU ISLAND, HAWAI`I [TMK: (1) 3-6-016:040 AND 3-6-019:012 POR.]

Prepared by:
Elizabeth Pestana, B.A.
and
Robert L. Spear, Ph.D.

April 2015
REVISED DRAFT

Prepared for:
The Limtiaco Consulting Group
1622 Kanakanui Street
Honolulu, Hawaii 96817

SCIENTIFIC CONSULTANT SERVICES Inc.

HAWAII

1347 Kapiolani Blvd., Suite 408 Honolulu, Hawai`i 96814

ABSTRACT

At the request of Limtiaco Consulting Group, Scientific Consultant Services Inc., conducted an Archaeological Inventory Survey (AIS) study in properties owned by City & County of Honolulu, for the Board of Water Supply Agency (BWS), at the Aina Haina 170' Potable Reservoir and booster pump station. This work was in advance of construction for the proposed Aina Haina 170' Potable Reservoir No. 2 Project, in Wailupe Valley, Wailupe Ahupua`a, Kona District, O`ahu, Hawai`i [TMK (1) 3-6-016:040 and 3-6-019:012 por.].

The Archaeological Inventory Survey (AIS) was carried out in support of project proponent BWS, for the proposed installation of a new 0.5 million gallon potable water reservoir and appurtenant facilities, on portions of County owned properties, included in the East Honolulu 170' System. The Area of Potential Effect (APE) in the project area includes a portion of the BWS parcel [TMK (1) 3-6-016:040], and 0.03-Acre portion of transferable land in an adjacent parcel [TMK (1) 3-6-019:012 por.] at Wailupe Community Park.

Archaeological Inventory Survey in the project area involved archival research of the project area historic/archaeological background, one hundred percent surface survey of the project area grounds, and limited subsurface testing in the form of eight manually excavated shovel probes and one control unit in the transferrable land portion of the project. In addition to the archaeological survey, SCS contracted Mason Architects to conduct reconnaissance level survey in evaluation of the historic-architectural significance of the BWS Aina Haina facility structures. The current archaeological survey, combined with architectural reconnaissance level survey (RLS), has documented one new historic property designated State Site 50-80-15-7764 including three mid-20th Century architectural/structural features: Feature 1, BWS pump station building and associated reservoir enclosure structure, identified in the BWS project parcel [TMK (1) 3-6-016:040]; and Feature 2, dressed basalt rock retaining wall, and Feature 3, concrete ditch, identified within the transferable land portion of the project area in the adjacent parcel [TMK (1) 3-6-019:012 Por.]. Limited subsurface testing in the project area did not yield additional significant cultural features or artifacts/cultural materials

The newly identified State inventory of Historic Places (SIHP) # 50-80-15-7764 has been evaluated for archaeological significance of according to the established criteria for the Hawai`i State Register of Historic Places §13-284-6. Feature 1, booster pump station building, is assessed as significant under both Criterion 'b' for its association with the lives of persons significant to Hawai`i's historic past; and Criterion 'c', as an excellent example of historic regional architecture for its "…distinctive characteristics of a type, period or method of construction". Prior to archaeological excavation, SIHP 50-80-15- 7764, Feature 2 rock retaining wall and Feature 3 concrete ditch, were assessed as being significant under Criterion 'd' for the potential to yield information important to the history of Hawai`i. The archaeological excavations at both Features 2 and 3 have yielded sufficient information and so are no longer significant under Criterion d. SIHP 50-80-15-7764 Feature 1, reservoir enclosure/booster pump station building, are eligible for preservation. Since proposed construction of the 170' Potable Reservoir No. 2 Project will have no adverse effects on historic property no further archeological work is recommended.

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LIST OF FIGURES

INTRODUCTION

At the request of Limtiaco Consulting Group, Scientific Consultant Services Inc., (SCS) conducted an Archaeological Inventory Survey in the Board of Water Supply (BWS) Aina Haina 170' Potable Reservoir Facility, and adjacent land, in advance of the proposed Aina Haina 170' Potable Reservoir No. 2 Project, in support of City & County of Honolulu- BWS agency. The current survey documented new historic property designated State Inventory of Historic Places (SIHP) #50-80-15-7764 comprising three features in the project area, located in Wailupe Valley, Wailupe Ahupua`a, Kona District, O`ahu, Hawai`i [TMK (1) 3-6-016:040 and 3-6-019:012 por.] (Figures 1 through 3).

The project area includes BWS owned 0.9319-Acre primary project parcel in TMK (1) 3-6-016:040, and location of the existing Aina Haina 170' Potable Water No. 1 facility, at 855 Alamuku Street; and portion of county owned TMK (1) 3-6-019:012, land in the adjacent Wailupe Community Park, located at 939 Hind Iuka Drive (see Figure 2). This archaeological study precedes the proposed construction of 170' Potable Reservoir No. 2, 0.5 million gallon enclosed reservoir, access road, appurtenances. The Area of Potential Effect (APE) for proposed project activity is within portions of the BWS owned parcel and a 0.03-Acre portion of transferable land in the adjacent Wailupe Community Park parcel (Figure 4).

The Archaeological Inventory Survey involved one hundred percent surface survey of the project area (0.9613-Acre total), and limited subsurface testing within the 0.03-Acre transferable land portion of the APE [TMK (1) 3-6-019:012 por.], subject to ground alterations associated with the proposed construction of the BWS Aina Haina 170' Potable Reservoir No. 2. In addition, SCS contracted Mason Architects to perform an architectural evaluation of the existing BWS facility's booster pump station building and reservoir structure. Collectively, survey newly documented SIHP #50-80-15-7764, comprising an historic property including the Booster Pumping Station Building and associated reservoir enclosure structure (Feature 1), a basalt rock and mortar constructed retaining wall (Feature 2), and concrete ditch (Feature 3) in the project area (see Figure 4).

Fieldwork was conducted on February 3 through February 4, 2015, by SCS archaeologists Elizabeth Pestana, B.A., and Erika Lee, B.A., under the direct supervision of Robert L. Spear, Ph.D., Principal Investigator. The purpose of the archaeological investigation was to identify and document all archaeological historic properties greater than 50 years old

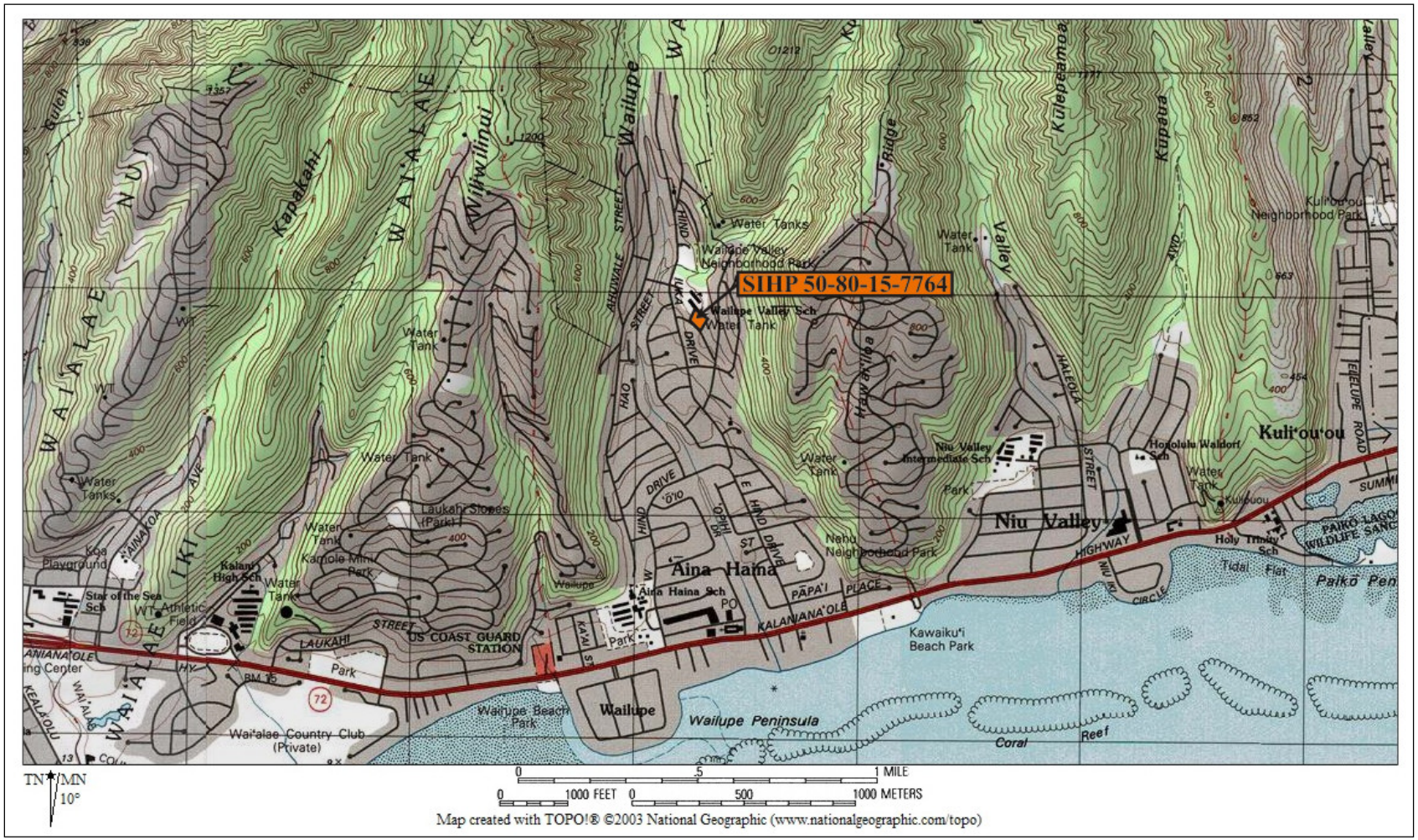


Figure 1: USGS Topo Map (Koko Head) Showing the Project Area Location.

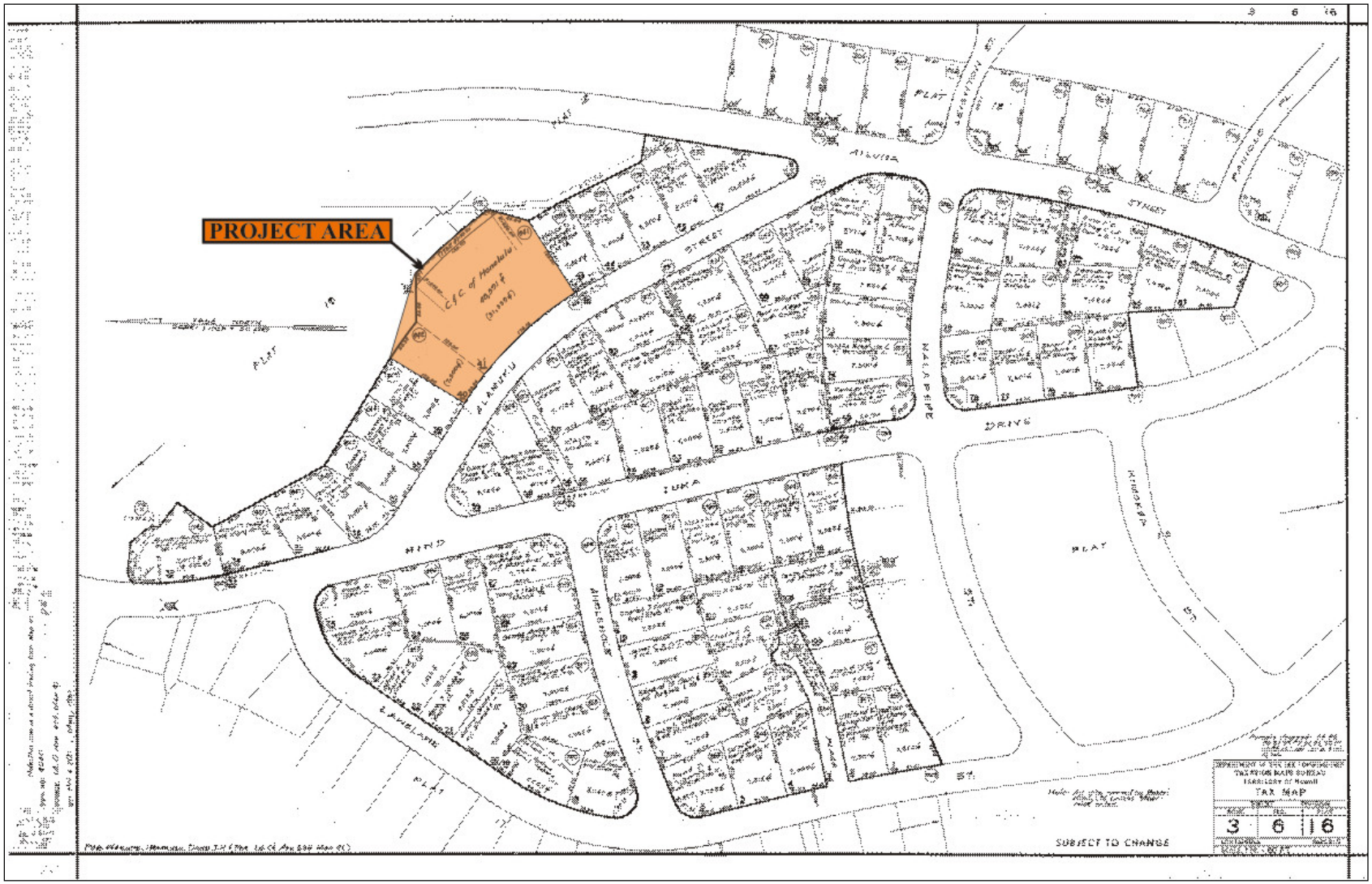


Figure 2: Tax Map Key [TMK (1) 3-6-006] Highlighting Project Area Including Parcel 040, and Portion of the Adjacent Tax Map Key [TMK (1) 3-6-019] Parcel 028.

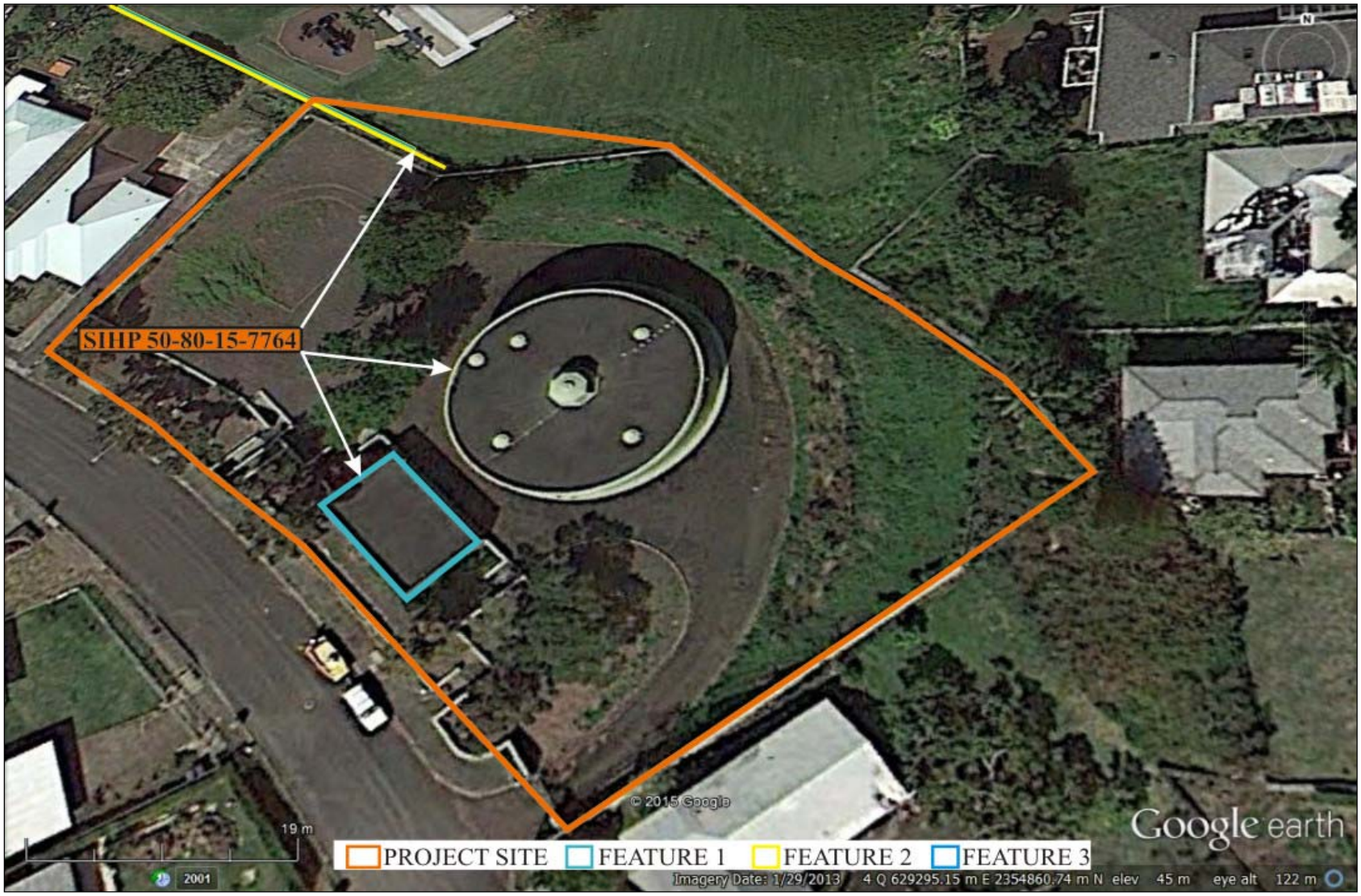


Figure 3: Google Earth Satellite Image (Imagery Date 1/29/2013) Highlighting the Project Area and SIHP # 50-80-15-7764 (Adapted from Google earth 7.1.2.2041, 2013; Accessed February 2015)

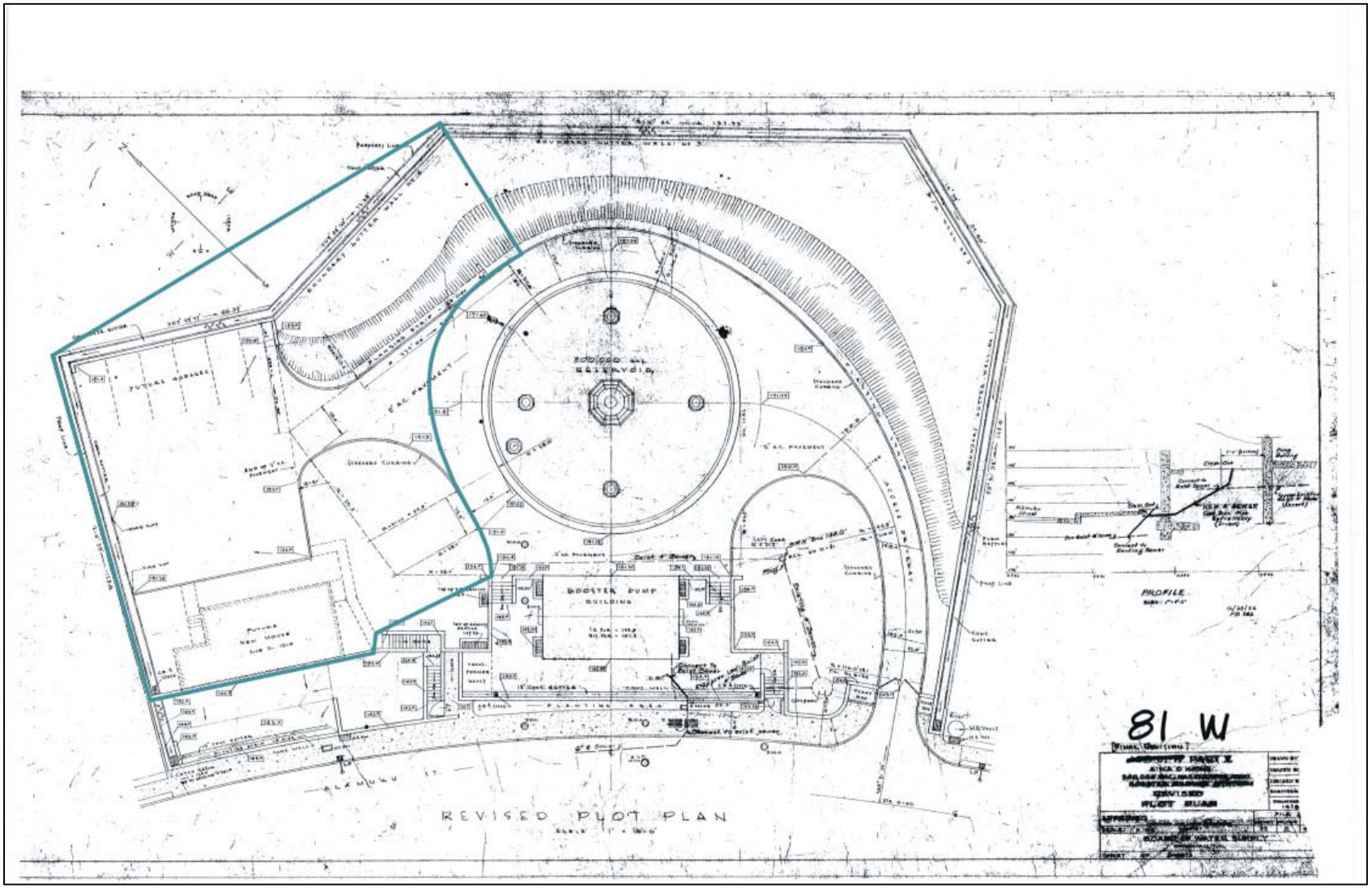


Figure 4: Engineering Site Plan Drawing Highliting the APE within the Project Area.

within the project area and to gather sufficient information to evaluate the significance of each historic property in accordance criteria established for the Hawai`i State Register of Historic Places (HAR§13-275-6). In addition to the survey results and site description of newly documented SIHP 50-80-15-7764, the following text presents information including, field work methods, the project region environmental setting and historical background summarized, project area stratigraphy as well, site significance assessment as well as recommendations concerning archaeologic in the project area.

ENVIRONMENTAL SETTING

The 0.9613-Acre project area is located between elevations of 140 to 165 feet above mean sea level and lies approximately 1,650 meters (1.02 miles) from the coastline at the east side of Wailupe Peninsula. The project locale is within the mouth of Wailupe Valley, against the toe of the valley's east range. The natural topography surrounding the project location is moderately sloped from northeast (*mauka*) to southwest (*makai*). The project area surroundings is of a single family-residential neighborhood, in the northeastern portion of the Aina Haina community.

PROJECT AREA

The project area is bounded on the south by Alamuku Street at TMK (1) 3-6-016:040; on the north by the open land of the Wailupe Community Park and former Wailupe Elementary school buildings of TMK (1) 3-6-019:012, on the east by a row of private residences, and on the west by private residences leading to Hind Iuka Drive intersect.

The primary TMK (1) 3-6-016:040 project parcel, contains the BWS existing 170' potable reservoir, and pump station, at the lowest elevation in the project area and is built with encompassing concrete retaining walls, and fencing, that accommodate grade variations in the north to south sections across the parcel (Figure 5). An asphalt driveway (12-foot wide egress), on an incline within the east limit of the parcel accessed from Alamuku Street, leads to the reservoir tank structure and encircling access road in the northeast quadrant of the project parcel. The reservoir pump station is at the central-south side of the project parcel, elevated from the driveway entrance from where a concrete stairway extends to the booster pump station building. The southern portion of the APE in the BWS project parcel is an open, level area bordered by a concrete curb at its east edge with sparse grass and gravel surface interior (Figures 6 and 7; Figure 3).

Figure 5: Photographic Overview Depicting the Aina Haina BWS Facility Layout and Project Parcel Landscape. View to Southeast

Figure 6: Photographic Overview Depicting the Level, Open Area of the Southern Portion of the APE in Aina Haina BWS Facility Project Parcel. View to Southeast.

Figure 7: Photographic Overview Depicting the Level, Open Area and Curbing in the South Portion of the APE, and Aina Haina BWS Facility Landscape. View to Southwest.

The TMK (1) 3-6-019:012 Por. is a 0.03-Acre portion of land in the northern most section of the project area contiguous to Wailupe Community Park. This portion of the project area consists of a triangular swath of open grassy field, and is delimited from the BWS parcel by a concrete retaining wall at the north limit of the BWS property line in TMK (1) 3-6-016:040. Landscape features in this portion of the project area include a low rock and mortar retaining wall with mounted chain-link fence, and a narrow concrete ditch that runs alongside the retaining wall within the southwest parcel limit (Figures 8 and 9; see Figure 3).

SOILS, CLIMATE, AND VEGETATION

According to Foote *et al*. (1972) the soils of the project area are of the Lualualei series, specifically, Lualualei extremely stony clay (LPE) (*Ibid*:85; Map Sheet 67). This soil class is characterized as 3 to 35 percent slopes with medium to rapid runoff and moderate to severe erosion hazard. This soil is composed of a limited topsoil and very rocky underlying subsoil (Figure 10).

Figure 8: Photographic Overview Depicting the Transferable Land Portion of the Project Area at Wailupe Community Park, and Adjacent BWS Facility Bounded by Fenced Concrete Retaining Wall (North Portion of the APE). View to West.

Figure 9: Photographic Overview Depicting the Adjacent Transferable Land Portion of the Project Area at Wailupe Community Park, and BWS Facility Project Parcel (Background). View to West.

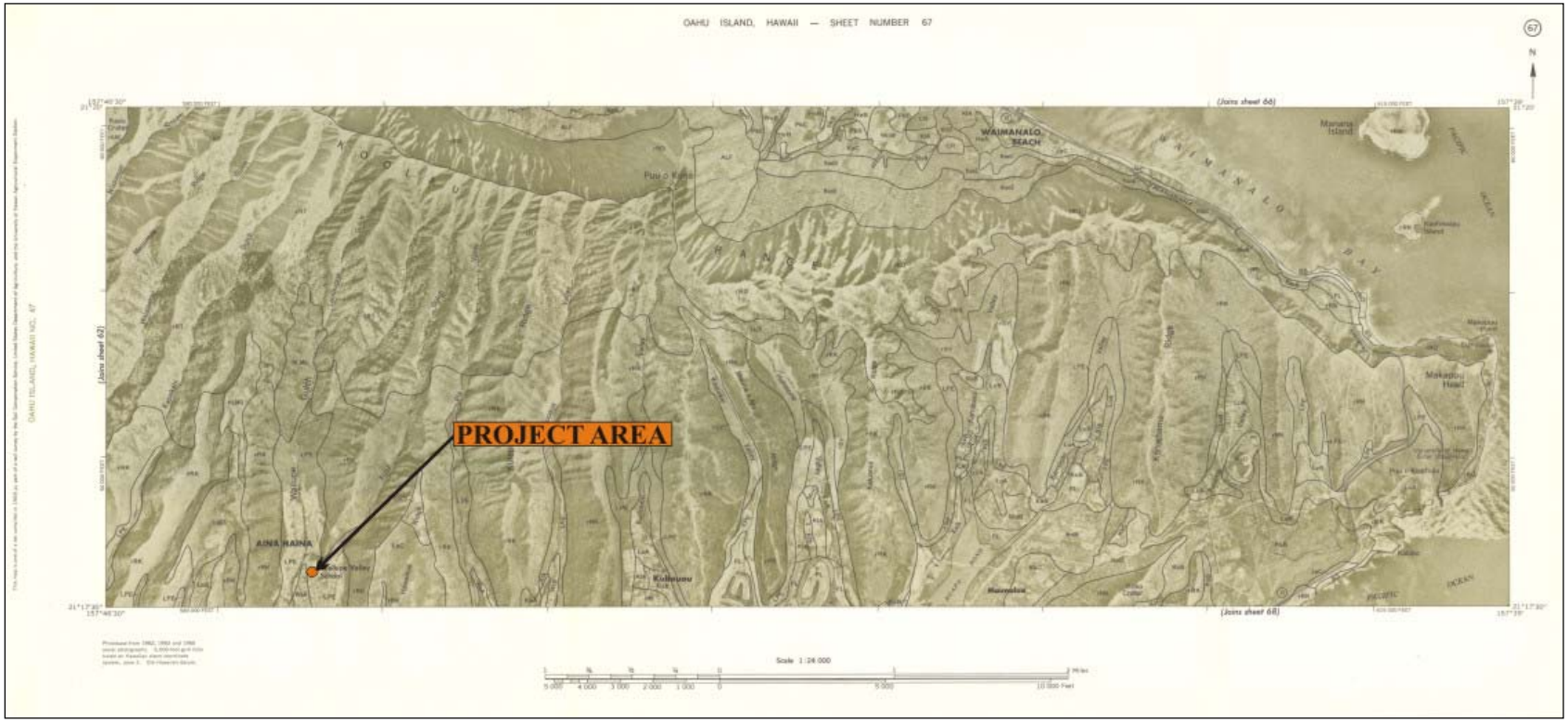


Figure 10: Soil Survey Map Showing the Project Area Location and USDA Agricultural Soils Category (Foote et al. 1972:Map Sheet 67).

The general climate at the project area is relative to the east coastal region. Temperatures in this locale range an average of approximately 70 to 80 degrees Fahrenheit from winter to summer months (Armstrong 1973).

Vegetation within the study area consists of a limited variety of decorative suburban type introduced flora that primarily includes common trees, shrubs, and short grass. Vegetation observed in the BWS project parcel included few Banyan (Ficus benghalensis) trees in the interior, and Haole koa (*Leucaena leucocephala*) and brush plants confined in a portion of the perimeter. Vegetation in the additional 0.03 acre portion of the project area in Wailupe Community Park consisted short grass and a single Plumeria (*Frangipani)* tree

CULTURAL AND HISTORIC BACKGROUND

TRADITIONAL SETTING

Recent re-evaluation of radiocarbon dates suggests O`ahu Island was first settled between A.D. 850 and 1100 by Polynesians sailing most likely from central East Polynesia (Kirch 2011:24). Archaeological settlement pattern data indicates that the initial colonization and occupation of the Hawaiian Islands first occurred on the windward shoreline areas of the main islands, with populations eventually settling into drier leeward areas at later periods (Kirch 1985). Coastal settlement was still dominant, but populations began exploiting and living in the upland (*kula*) zones. Greater population expansion to inland areas began about the A.D. Twelfth Century, but continued through the Sixteenth Century.

As the Hawaiian culture developed, land became the property of the king, or *ali`i `ai moku* (the *ali`i* who eats the island/district), which he held in trust for the gods. His title of *ali`i `ai moku* ensured rights and responsibilities to the land, but did not confer absolute ownership. The king kept the parcels he wanted, his higher chiefs received large parcels from him and, in turn they, distributed smaller parcels to lesser chiefs. The *maka`āinana* (commoners) worked the individual plots of land (Kirch and Sahlins 1992 vol.1:25).

In general, several terms, such as *moku*, *ahupua`a*, *`ili* or *`ili`āina* were devised to describe various land sections. A district (*moku*) contained smaller land divisions (*ahupua`a*), which customarily continued inland from the ocean and upland into the mountains. Extended household groups living within the *ahupua`a* were, therefore, able to harvest from both the land and the sea. As the Polynesian economy was based on agricultural production and marine exploitation, as well as animal husbandry and utilizing forest resources, this situation ideally

allowed each *ahupua`a* to be self-sufficient by supplying needed resources from different environmental zones (Lyons 1875:111). The *`ili `āina,* or *`ili,* were smaller land divisions next in importance to the *ahupua`a* and were administered by the chief who controlled the *ahupua`a* in which the *ili* were located (*ibid*:33; Lucas 1995:40). The *mo`o`āina* were narrow strips of land within an *`ili*. The land holding of a tenant, or *hoa `āina,* residing in an *ahupua`a* was called a *kuleana* (Lucas 1995:61). Oral history notes that the division of O`ahu's lands into districts (*moku*) and sub-districts was solidified by the *ali`i nui*, Mā`ili-kūkahi during the early part of the 16th century (Kamakau 1991:53-56; Cordy 2002:23). O`ahu contained six districts including Wai`anae, `Ewa, Waialua, Ko`olauloa, Ko`olaupoko, and Kona at the time of contact.

Large scale or intensive agricultural endeavors were implemented in association with habitation. Coastal lands were used for settlement and taro was cultivated in near-coastal reaches and in the uplands. On the southeast coast of O'ahu, taro cultivation was confined to valleys with streams or springs that would water the terraces. The staple crop in Wai'alae and Wailupe valleys was sweet potatoes, which were planted in the valleys, on hillsides, and in the coastal strip (Handy 1940:155-6).

HISTORIC SETTING

Early western visitors to O'ahu described the southeast coast as well-cultivated and well-populated. In 1789 Captain Nathaniel Portlock anchored in Maunalua Bay to take on fresh water, which was brought to the ship in calabashes.

Portlock described the coastal setting:

> …the bay all around has a beautiful appearance, the low land and vallies being in a high state of cultivation, and crowded with plantations of taro, sweet potatoes, sugar cane, &c., interspersed with a great number of cocoa-nut trees, which renders the prospect truly delightful. (Portlock 1789:73-4)

In 1828 Levi Chamberlain toured southeastern Oàhu, including Wai'alae:

> …a grove of palm trees and a number of branching kou trees, among which stand the grass huts of the natives, having a cool appearance, overshadowed by the waving tops of the cocoanuts, among which the trade winds sweep unobstructed. (Chamberlain 1956:28-9)

In 1865 Henry Willis Baxley described the region:

> Further along the shore, the few hamlets of Waialae are seen nestled in a grove. And a short distance beyond, the grass huts of Wailupe cluster near the high hill of Mauna Loa, from the southern

> foot of which a ridge extends still further southwardly to the bold and lofty cape named Coco Head, the eastern boundary of the beautiful bay of Waialae, of which Diamond Head, already described, forms the western. (Baxley 1865:124)

THE MĀHELE (1848-1851)

In the 1840s, a drastic change in the traditional land tenure resulted in a division of island lands and a system of private ownership based on Western law. Once Article IV of the Board of Commissioners to Quiet Land Titles was passed in December 1845, the legal process of private land ownership was begun. The land division, called the Māhele, began in 1848. The lands of the kingdom of Hawai`i were divided among the king (crown lands), the *ali`i* and *konohiki* (land manager), and the government. At this time, it is said that Wailupe *ahupua`a* was given to a *konohiki* by King Kamehameha the Great at the end of the 18th century (from Ho`okuleana 2013; www.totakerespponsibility.com). After this initial division and the establishment of private ownership, lands were made available for the *maka`āinana* (the persons who actually cultivated and lived on the lands), under the Kuleana Act of 1850 (so named because the land holding of a tenant residing in an *ahupua`a* was called a *kuleana* [Lucas 1995:61]). The ahupua`a of Wailupe was awarded to Kamaha (LCA 6175), son of the former *konohiki*. Kamaha returned half of the ahupua`a to the King who accepted for his half the big Wailupe Fishpond and a single acre of *kula* land in the *`Ili* (Barrère 1994 from O`Hare *et al*. 2009:35). Kamaha's half consisted of the remaining land within the mouth of the valley and *kula* near the coast.

Figure 11 depicts 57 LCAs in the *`Ili* of Wailupe on a 1925 land court application map. LCA documentation indicates 37 land claims were awarded, generally comprising 1.5 acres lots that included two kula plots (*Ibid*.). These LCAs were largely *kula* lands, and were planted in crops such as sweet potato, coconut, orange, *hala*, gourd, and pili grass (*Ibid*.).

In the 1881 edition of Thomas Thrum's *Hawaiian Alamanac and Annual*, a single sugar plantation was listed in the district of Wai`alae, the Niu Plantation. This plantation is not listed in subsequent annuals, suggesting that the plantation was short-lived. An attempt to grow pineapple in the 1920s was also short-lived. By the beginning of the 20th century the influx of westerner prospective residents had led to the subdivision of the majority of land adjacent to Kalaniana`ole Highway. In 1925, prominent ranching mogul of the time, Robert Hind, and associate, largely invested in ownership of Wailupe ahupua`a and established the, quite successful, Hind-Clark Dairy, out of Wai`alae Ranch.

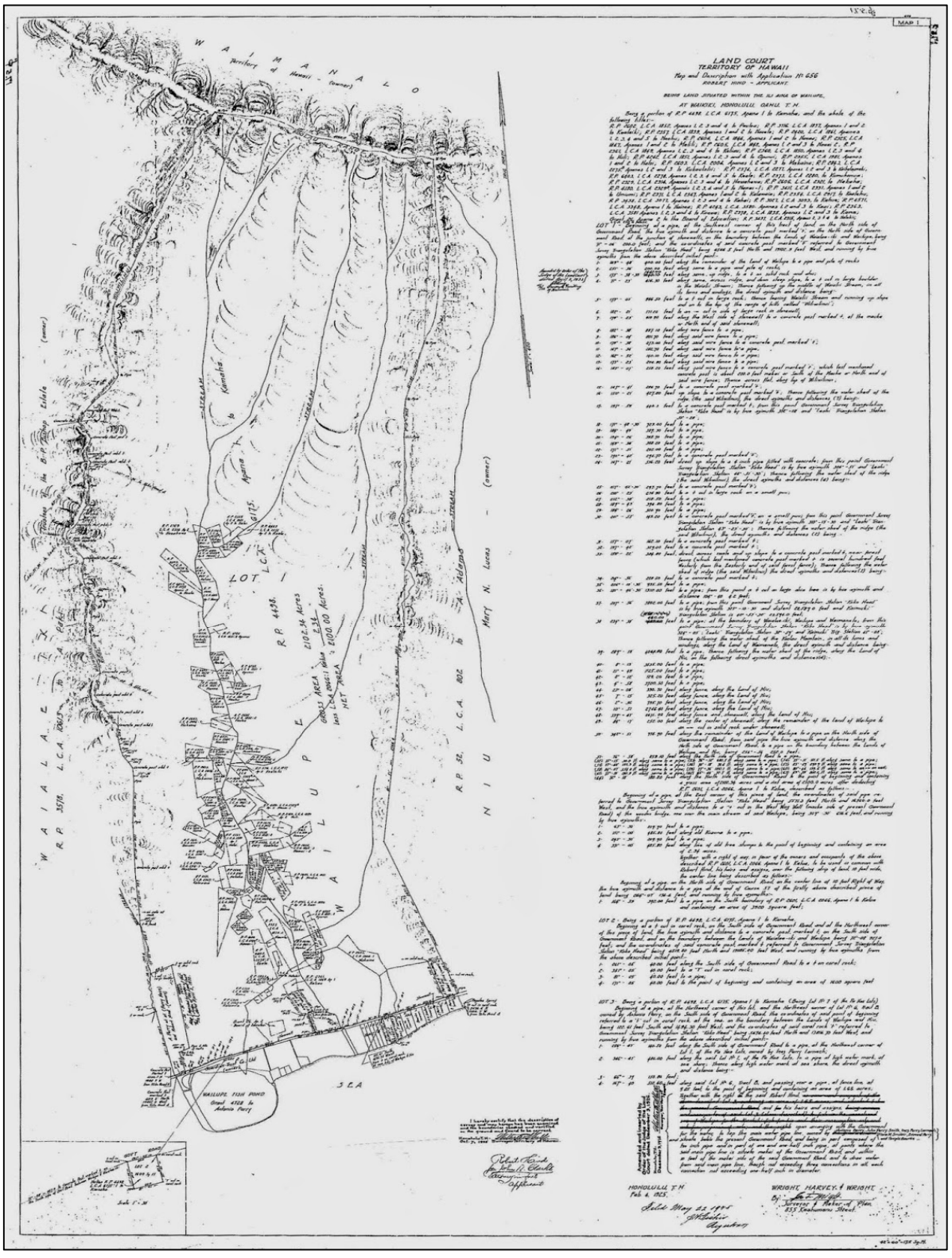


Figure 11: Land Court Application Map No. 656 (1925) of Wailupe Ahupua`a, for Robert Hind, Noting Location of LCAs.

PREVIOUS ARCHAEOLOGY IN THE VICINITY OF THE PROJECT AREA

In comparison to many parts of the Kona District, a modest number of archaeological studies have been conducted in Wailupe ahupua`a. No archaeological research has been conducted in the current project area. A majority of documented archaeological research in the Aina Haina/Wailupe region have focused on properties along the coastline, to the south, and on the ridges to the north of the project area. Four projects have been conducted within a mile of the project area, the nearest being within a quarter of a mile. Archaeological research in the general vicinity of the project area throughout Aina Haina/Wailupe are summarized below and shown on topographic map in Figure 12.

Among sites in nearest proximity to the current project is the 'Aina-haina Burial Cave', associated with McAllister's Site 54, Kawauoha Heiau. The site is first documented in a Native Register:

> Unu of Kawauoha
> Hear ye, ye Land Commissioners: I am writing concerning my coconut trees which were planted by my *kupunas*. There were eight of them. Most of them have been cut down. My Kupunas made the *unu of Kawauoha* and when it was completed they sacrificed a man and planted those coconuts. Here is this explanation at the time my *kupunas* were sent the pig by the *wahine* of Peleioholani, my *kupunas* received it and then sacrificed the pig and the man. This is the thing concerning the coconuts.
> (Sterling and Summers 1978:275).

Of the earliest substantive studies near the current project area, is Gilbert McAllister's (1933) comprehensive study of archaeological sites of O`ahu. Site 50-80-15-56, Wailupe Fishpond, and Site 50-80-15-55, Kaunua Kahekili heiau were recorded.

McAllister describes the fishpond:

> Site 56. The pond is 41 acres in area. The wall is approximately 2,500 feet long. The west side is a broad sandy area, at least 50 feet wide, through which four outlets (*makaha*) now pass. The remainder of the wall is 12 feet wide, with water worn basalt faced higher on the outside than within. The central part is of a dirt and sand fill [McAllister 1933: 71].

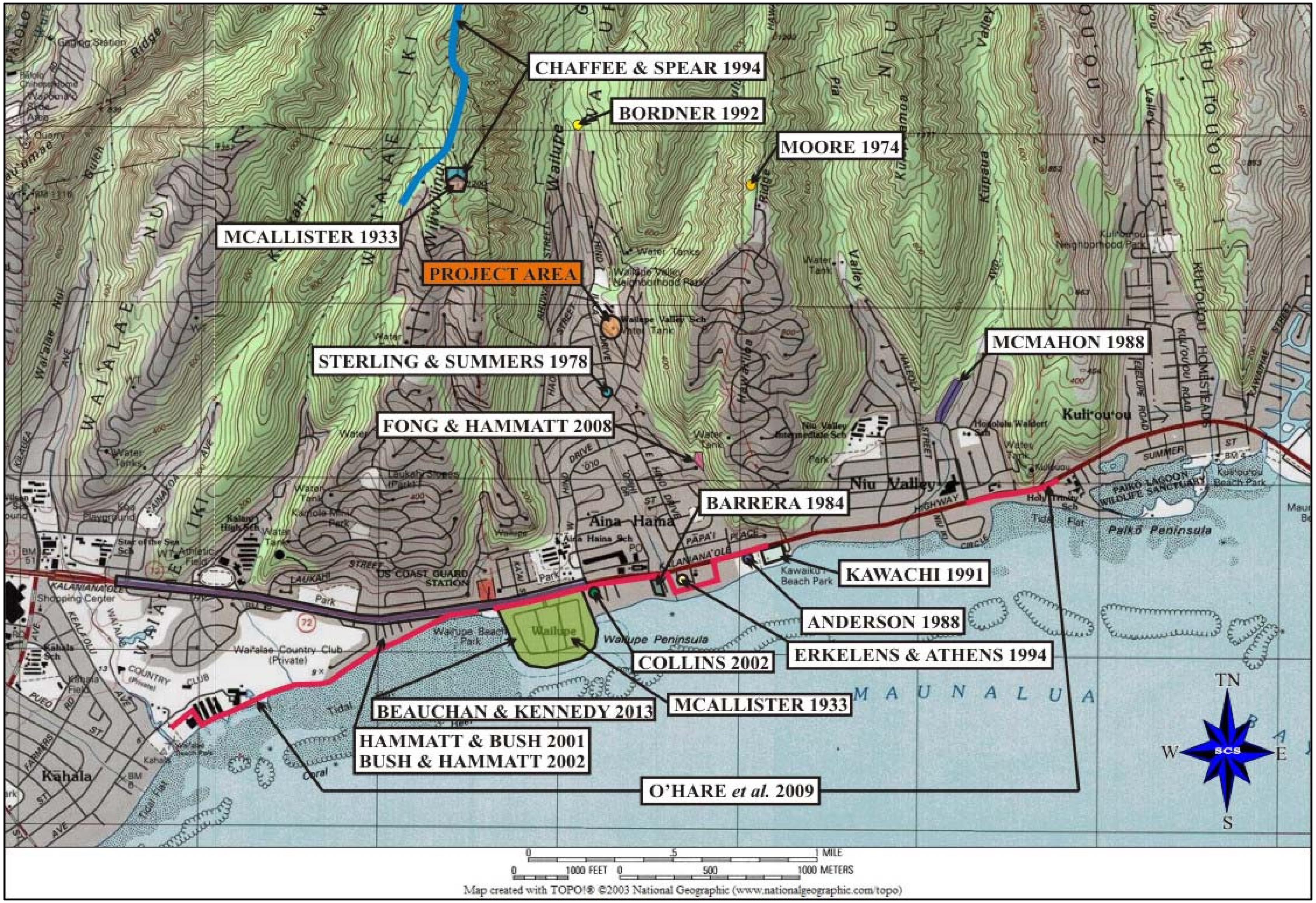


Figure 12: Koko Head Topo Map Indicating Locations of Previous Archaeological Studies in the Project Area Vicinity.

An informant had told McAllister of a *heiau* located in Wai`alae Iki. In his site description McAllister notes that the *heiau* was almost totally destroyed:

> Site 55. Kaunua Kahekili heiau, Waialaeiki. Punahoa of Keahia says that Kaunua Kahekili was a very large heiau. It was located on the top of the ridge which divides Wailupe and Waialae, on the highest and most pronounced knoll. The site was formerly planted in pineapples, but now the heiau is overgrown with high grass and weeds and the pineapples are on the sloping ground which surrounds it. Many large rocks embedded in the earth are all that remain of the structure [*Ibid*].

SCS conducted an assessment of 1,100 meters of trail corridor of the Wiliwilinui Trail Alignment, on Wai`alae Iki Ridge (Chaffee and Spear 1994). The assessment documented a World War II era concrete and metal bunker designated SIHP #50-80-14-4811. Chaffee and Spear (1994) note that the site abuts a seven to eight course high cobble wall on its left side extending 10 meters, buttressed by a large retaining boulder, interpreted as a soil retention wall. Incidentally, McAllister's map of early recorded sites of Kona District in *Archaeology of Oahu* shows an approximated location of Kaunua Kahekili heiau, Site -55 as plotted by McAllister, when overlaid with Chaffee and Spear's 1994 site map overlap locations of Kaunua Kahekili heiau, and the boulder/cobble stone wall as described at Site -4811(see Figure 12). This suggests it may be argued that the interpreted soil retention boulder and cobble stone built wall perhaps to be a Kaunua Kahekili heiau remnant O'Hare *et al*. (2009).

O'Hare *et al*. (2009) conducted an archaeological study involving literature review, field inspection, and cultural background research for the Kalaniana`ole Highway sewer system improvements project. The project corridor area was three segments, totaling 14,000 feet long along the highway and near shoreline from Wai`alae to Kuli`ou`ou. While no sites were documented as a result of the field inspection, a high potential for prehistoric to early-mid historic era cultural resources were anticipated to be found in subsurface deposits in the project area, based on the review of background research and previous archaeological documentation.

In 2001 and 2002, Cultural Surveys Hawai'i, Inc. (CSH) conducted Archaeological Monitoring for the installation of a gas main (Hammatt and Bush 2001), and a water main (Bush and Hammatt 2002) from 'Ainakoa Avenue to West Hind Drive, including a section of Wailupe Ahupua'a toward the east end of Wailupe Peninsula. No sites were documented in either project, however pockets of sand were encountered below fill layers in trench excavations during the gas main installation work; and artifacts including a horseshoe and *poi* pounder fragment were

yielded in excavations for the water main excavations. Additionally basalt boulders encountered in excavations in the Wailupe section were thought to be associated with the former Wailupe fishpond wall.

In 1974, Bishop Museum's Kenneth Moore conducted a walk through survey of the Makai plateau of the Hawaii Loa Ridge within the Niu Ahupua`a, in an adjacent area near the east boundary of Wailupe ahupua`a (see Figure 12). Recorded features included earthen terraces, one bi-faced core-filled wall, and an unmodified rockshelter. Moore interpreted the features as likely associated with cultural activities concurrent with the historic ranching era.

Archaeological Consultants of the Pacific, Inc., (Beauchan and Kennedy 2013) conducted Archaeological Inventory Survey at a residence in Wailupe Circle. Subsurface testing included three manually excavated trenches in the project parcel, on the west shoreline side of Wailupe Peninsula. A wall segment of previously documented Wailupe Fishpond, SIHP # 50-80-15-0056 was identified. The segment included a disturbed prehistoric built portion, and historically-rebuilt portion of the dry stacked boulder and cobble constructed *loko i'a* (fishpond) wall (*Ibid*).

In 2008, CSH conducted (Fong and Hammatt) conducted an Archaeological Inventory Survey for a proposed private residence, on a 0.14-Acre parcel. The project parcel was located on the west side of Hawai`i Loa Ridge off of East Hind Drive. Surface survey documented unmodified rock overhangs, and no artifacts or cultural materials were identified.

In 1984, William Barrera conducted Archaeological Reconnaissance of a 2-Acre residential parcel in Aina Haina, West of Wailupe Circle on the makai side of Kalani`anaole Highway. Surface survey and subsurface testing by way of twelve auger excavations at over one meter deep did not document any cultural features or archaeological sites.

In 1987, Bishop Museum (McMahon 1988) carried out archaeological survey of a 5-Acre parcel in Niu Valley. The study documented habitation features that consisted of two walls. Three backhoe trenches did not identify any subsurface cultural features or artifacts.

In 1992, Richard Bordner, conducted Archaeological Survey at the site of a proposed well and access road in Wailupe Gulch. Previous to Bordner's survey, the area had been subject to bulldozing, existing features sustained considerable impacts. Among the noted feature remnants short wall sections and terraces with associated retaining walls were identified. The considerable damage to the features from the previous disturbance hindered age and function determinations of the site.

In the last couple of decades the development of the Aina Haina area has led to archaeological investigations resulting in the documentation of numerous burial sites, in the Wai`alae Iki and Wailupe valleys as well as, the coastal zone, along Kalani`anaole Highway. Four archaeological investigations documented a combination of pre-Contact and historic era burial Sites in Wailupe Ahupua`a:

- SIHP #50-80-15-4848: 1991 (Kawachi), phase II of the Kalaniana`ole Highway widening project; excavation of a sewer trench line resulted in the inadvertent discovery of a human skull and clavicle identified in fill matrices. The remains were determined to have be deposited with imported fill-soils during landscaping of Kawaiku`i Beach Park.

- SIHP #50-80-15-4497: 1994 (Erkelens and Athens), the Aina Haina and Niu Valley segments of the Kalaniana`ole Highway widening project; remains of 14 individuals (MNI=14) encountered in excavations along the length of the project corridor included seven coffin burials consisting of eight individuals. Four of the burials, one at Nenue Street, and three at East Hind Drive, identified within Wailupe Ahupua`a.

- SIHP # 50-80-15-5584: 1998 (Anderson), excavations for a fence-line along a property boundary encountered a single flexed human burial. The burial was relocated elsewhere in the property.

- SIHP # 50-8015-6401: 2002 (Collins), SHPD responded to an inadvertent discovery human remains; two lumbar vertebrae and iliac fragment of disarticulated human burial, and various non-human skeletal elements, were identified in a sand deposit and encircled by boulders. The find was determined to represent native Hawaiian remains.

EXPECTED FINDINGS WITHIN THE SURVEY AREA

Based on previous archaeological investigations conducted in the vicinity of the current project area, and historic background of the general Aina Haina area, considering the nature of late historic development in the project area itself, there was a potential for historic deposits encountered in subsurface contexts. Cultural deposits relating to historic habitation during LCA land tenure could possibly be present in the northern portion of the project area APE. Imported fills introduced to the project area during historic era construction could also have deposited archaeological properties to be identified in subsurface contexts, as much of the natural ground in the project area has been cut, graded and/or filled.

FIELD METHODOLOGY

Archaeological Inventory Survey fieldwork was conducted between January 26, 2015 and February 4, 2015, by SCS archaeologist Elizabeth Pestana, B.A., and Erica Lee, B.A., under the direct supervision of, Principal Investigator, Robert L. Spear, Ph.D. Pedestrian survey in the project area was conducted on separate occasions in each of the separate TMK project parcels. Field work for the current study included a one hundred percent surface survey in a portion of the project area, followed by subsurface testing in the portion subject to subsurface alteration associated with the proposed construction of the 170' Potable No. 2 storage tank.

Surface survey in the BWS project parcel (TMK [1] 3-6-016:040) was conducted concurrently with the Reconnaissance Level Survey (RLS), performed by Mason Architect's Research Section Director, Polly Tice, on January 26, 2015. Surface, and subsurface, survey was conducted in the transferrable land portion of the project area in the Wailupe Community Park (TMK [1] 3-6-01-019:012 Por.), on February 3 and 4, 2015, upon obtaining a right-of-entry permit, required by the City & County of Honolulu.

Surface survey primarily involved observations of the project parcels landscape characteristics. Features were photographically documented of the existing 170' Potable Reservoir No. 1 facility grounds and landscape features in the property, and the location of the proposed potable reservoir No. 2 in relationship to the existing storage tank within the confines of BWS parcel in TMK (1) 3-6-016:040. Similarly, the general landform, landscape features and existing built infrastructure, within the transferable land portion of the project area in TMK (1) 3-6-01-019:012 Por., in Wailupe Community Park, are photographed. Feature dimensions and descriptions are recorded on standard archeological feature forms. Significant surface features are also mapped in scaled sketch maps to illustrate morphologies and attributes in further detail.

Limited subsurface testing for archaeological survey consisted of manual excavations, in the form of eight shovel probes (SP-1 through SP-8) averaging approximately 0.31 meter in diameter and 43 centimeters deep, in addition to one control test unit excavation (TU-1) measured 1.0 meter long by 0.5 meter in dimension. The location for subsurface testing in the project area was determined by the degree of impact from previous land alterations, nature of the soil deposit, and the location of future ground disturbance by construction of the proposed 170' Potable reservoir No. 2. Shovel probes were placed from four to six meters apart within a 40 meters by 8 meters maximum width triangular area in the project for the purpose of sampling the

most viable portion of the project area subject to future ground alterations. Subsurface testing was not conducted in the reservoir facility since the parcel consists mainly of fill-affected land, and the proposed project will not affect existing BWS Facilities.

Subsurface testing was accomplished in order to identify human alteration, archaeological features, and associated artifacts in subsurface contexts. A level datum was applied for the excavation of the control unit. All excavated materials were visually inspected for the presence of cultural materials. Equipment utilized to perform these excavations included shovel, trowel, whisk brush, line level and datum, metric tape measure and compass (magnetic north). Soil matrices were recorded using United States Department of Agriculture (USDA) Munsell (2000) soil color descriptions. Shovel probes were excavated to a depth averaging 43 centimeters below the surface (cmbs), according to soil conditions, to adequately exposed project stratigraphy and determine presence/absence of cultural materials and features. The test excavation locations were plotted on a satellite view aerial image map (google Earth, image date 2013; accessed February 2015) of the project area based on an archaeological site plan view map.

LABORATORY METHODOLOGY

All field notes and digital photographs are curated at the SCS laboratory, Honolulu. All profile illustrations were digitally drafted. All data regarding cultural materials collected from subsurface proveniences were subject to analysis for identification and interpretation of use and context. No amenable charcoal samples were observed during subsurface testing; therefore, no radiocarbon data is available for the study.

ARCHAEOLOGICAL INVENTORY SURVEY RESULTS

The current Archaeological Inventory Survey was conducted on 0.9619-Acres property for the proposed BWS Aina Haina 170' Potable Reservoir No.2 Project, located in Wailupe Ahupua`a, Kona District, O`ahu Island, Hawai`i [TMK: (1) 3-6-016:040 and 3-6-0198:012 Por.]. One historic property was newly documented as SIHP # 50-80-15-7664 which includes three surface features comprised of mid-20th century period surface architecture, and infrastructure.

SURFACE SURVEY

The project area consists of land including two separate, adjacent, TMK parcels. The overall project area is a built environment, as can be seen in current, as well as past land uses.

Surface survey observations were ruled by the extent of alterations to the general landscape. The BWS project parcel [TMK: (1) 3-6-016:040] contains the BWS Aina Haina potable reservoir No.1 facility, built on a foundation of imported fills that form the multi-level landscape on which a complex of reinforced concrete retaining walls, the reservoir (enclosed water storage tank), and pump station building of the East Honolulu 170' System are built (Figure 13; see Figure 5). This complex, specifically the reservoir enclosure structure and associated booster pump station building, was identified as Feature 1 SIHP # 50-80-15-7764.

The adjacent TMK parcel comprises the Wailupe Community Park grounds on a northeasterly/southwesterly moderate to gentle sloped topography up to a level playground and paved area, fronting buildings located in the west half, on an otherwise grass covered ground surface. The 0.03-Acre portion of park grounds included in the project area is a triangular shaped section of land that shares the sloped-to level-topography that consists entirely of grass covered ground in the open field of the park. The length of the southern boundary adjoins the BWS parcel and is flanked by a concrete water diversion ditch that runs the length of the BWS parcel boundary walls (see Figures 3, and 7)

The southwest section of the parcel boundary is marked by the only two structural features within this part of the project area. A rock and mortar wall identified as Feature 2, and a concrete ditch identified as Feature 3 of SIHP # 50-80-15-7764 were located in the northeast boundary of the project area within TMK [1] 3-6-0198:012 Por. (see Figure 3).

SIHP # 50-80-15-7764
Feature (#): 1
GPS Coordinates: E 0629273 / N 2354853
Feature Type: Historic Building/Structure
Condition: Excellent
Function: BWS Reservoir and Booster Pump Station
Age: Historic (ca. 1959)
Recommendation: Interim Preservation

Description: Feature 1 is the Board of Water Supply (BWS) Aina Haina pump station building located at the 'Aina Haina 170 Reservoir No. 1' (Features 14 and 15; see Figure 13). The pump station is an historic building comprising a two-story architecture, which is the design of early 20th century Hawai`i regional architect, Hart Wood. The building is a component of the water storage reservoir operation, functioning as the housing for the pumps operating the East Honolulu 170' System. Though access to the interior of the building was not gained for the survey, the BWS Environmental Impact Statement (EIS) includes the following description:

> "The pumps are housed in an existing two-story building at the project. The first story of the pump station building is located below-grade. The building

Figure 13: Photographic Overview of the BWS 170' Facility Complex Depicting the Booster Pump Station Building (Foreground) and associated Reservoir Enclosure Structure (Background), identified as SIHP # 50-80-15-7764- Feature 1.

Figure 14: Photographic View of SIHP # 50-80-15-7764, Feature 1, BWS 170' Booster Pump Station Building. View to Northwest (Note the Features of Construction Design and Fixture accents.)

Figure 15: Photographic View of SIHP # 50-80-15-7764, Feature 1, BWS 107' No. 1 Reservoir Storage Tank Enclosure Depicting Historic Regional Architectural Design Features. View to West.

> footprint is approximately 40 feet by 24 feet, and is located roughly 12 feet away from the existing reservoir. Control and monitoring cabinets for the Aina Haina 170' Reservoir No. 1 are also housed in the pump station building." (Limtiaco Consulting Group 2014:Section 1-7).

The reservoir enclosure and pump station building complex was built in 1951, and therefore is recognized as a historic property. The complex's Historic significance is further confirmed by the background of the Architect involved in the design of the subject site. A Supplemental architectural Reconnaissance Level Survey (RLS), conducted by Mason Architects, has determined that the storage tank enclosure structure/booster pump station building complex qualifies as an architectural work of historic significance, and as such is eligible for preservation. The RLS documentation is included in Appendix A, and provides additional information concerning this site's historical landmark status.

The system currently functions as the East Honolulu '170 System, and will continue in operations for the Reservoir No. 1, as well as the proposed Reservoir No. 2 storage tanks. The Feature 1 complex will not be modified or adversely effected by the proposed project. No further archaeological work is recommended for Feature 1.

SIHP # 50-80-15-7764
Feature (#): 2
GPS Coordinates: E 0629262 / N 2354901
Feature Type: Basalt and MortarRock Wall
Condition: Good
Function: Soil Retention/Boundary
Age: Historic (ca. 1959)
Recommendation: Interim Preservation

Description: Feature 2 (wall) is a low standing, dressed basalt rock and mortar constructed retaining wall, located at the boundary of the adjacent C&C owned property [TMK (1) 3-6-019:012 Por.] of the Wailupe Community Park within the project area APE (see Figures 3 and 4). The wall lies within the northwest limit of the project area APE, in the portion of land subject to acquisition by BWS for the proposed Reservoir No. 2 Installation Project. The wall is built on a slight grade toward the base of the sloped topography on a grassy landscaped field of Wailuku community park grounds, and oriented east/west (305º / 125º) runs along the south and west limits of the subject parcel, within the northwest project boundary (Figure 16 and 17). The wall. The feature is approximately 56 meters in length overall, 18.61 m of which occurs within the project area, and measures 38 to 42 cm high from the ground surface, and ranging in width from 40 cm at the top surface to 50 cm at the ground surface. A test unit excavated against the north face of the wall revealed subsurface architecture extending to approximately 38-45 centimeters below the datum (cmbd); or 26 to 32 cm below the sloping ground surface. The

Figure 16: Photographic Overview of SIHP # 50-80-15-7764 Feature 2, Dressed Basalt and Mortar Soil Retaining/Boundary Rock Wall. View to Southeast.

Figure 17: Photographic Overview of SIHP # 50-80-15-7764, Feature 2, Rock and Mortar Soil Retension Wall (East End). View to West.

feature is associated with the initial construction of the former Wailupe Valley elementary school campus, constructed concurrently (ca 1956) in the subject parcel.

SIHP # 50-80-15-7764
Feature (#): 3
GPS Coordinates: E 0629260 / N 2354903
Feature Type: Ditch
Condition: Good
Function: Water Diversion
Age: Historic (ca. 50+ years)
Recommendation: No further work

Description: Feature 3 is a linear, basin-shape, concrete ditch, set into the ground surface, that runs, along the north side of Feature 2, rock retaining located in the adjacent C&C owned property [TMK (1) 3-6-019:012 Por.] at the Wailupe Community Park, within the north boundary of the project area APE (Figure 18; see Figures 3 and 4). The ditch measures 49.54 meters in overall length, of which 12.15 meters is within the project area; beginning at 6.46 meters into the east end of the Feature 2 retaining wall (see Figure 3). Approximately 0.90 meter of the east end segment of the beginning of the ditch sits on the ground surface between approximately 10-20 centimeters from bottom to top edge on a slight incline. A shovel probe excavated adjacent to the east edge of the ditch observed no significant cultural materials, and fill soils containing bits of coral, and little basalt gravel. Feature 3 is associated with the initial construction of the former Wailupe Valley elementary school campus, and was constructed concurrently (ca 1956) in the subject parcel.

SUBSURFACE TESTING

Limited subsurface testing was conducted in the 0.03-Acre portion APE during the current Archaeological Inventory Survey in order to identify archaeological features and possible associated artifacts, as well as to further investigate the surface features morphologies in subsurface contexts which may subject to alteration by proposed construction. For the purpose of addressing these issues, eight shovel-probes (SP-1 through SP-8) and one control unit (TU-1) were manually excavated.

Shovel Probes (SP-1 through SP-8) were placed approximately four to six meters apart across the gently sloping (approximately 12 degrees) topography throughout the 0.03-Arcre portion of the APE in the project area (Figure 19). These test excavations served to reveal soil conditions and contents. Subsurface testing did not yield additional significant cultural features, or materials. All test excavations produced little cultural material and revealed strata generally composed of two fill soil layer underlain by a natural soil deposit. Shovel probe excavations were terminated at extremely rocky substratum, or culturally sterile natural deposit at 60+cmbs.

Figure 18: Photographic Overview of SIHP # 50-80-15-7764, Feature 3, Concrete Ditch. View to East.

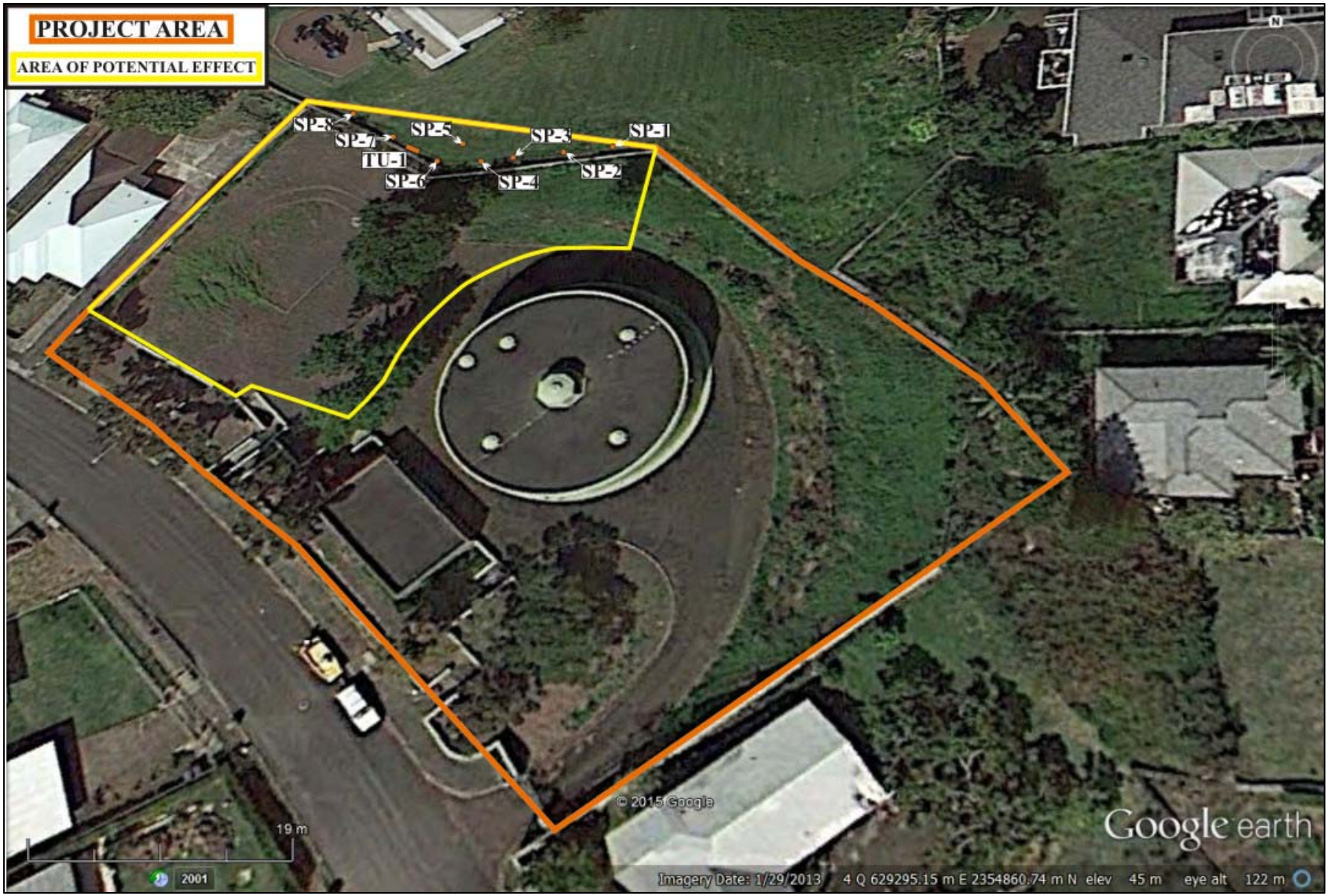


Figure 19: Google Earth Aerial Image Depicting the Project Area and Subsurface Testing in the APE.

of fill and the natural soil deposit. A description of the soil stratigraphies exposed, and subsurface contexts of cultural materials observed, in the project area are described in detail below.

SHOVEL PROBES

SP-1

SP-1 was placed up-slope, just within the northeast limit of the APE and measured approximately 48 cm in diameter, and excavated to 45 cmbs in depth (see Figure 19). Two soil layers (Layers I and II) were observed and recorded as follows (Figure 20 and 21).

> **Layer I:** (0-18 cmbs) dark brown (7.5 YR 3/2, moist) semi-compact, rocky, loamy clay, with micro roots, and approximately 40 percent basalt cobble (3-6 cm diameter) content; and indistinct boundary. This layer contained debris including roofing tar paper, a bottle glass (body) fragment identified in the backfill from between approximately 5-13 cmbs. No features or significant cultural deposits were identified. Layer I was interpreted as fill topsoil.
>
> **Layer II:** (18-45 cmbs) very dark gray (7.5 YR 3/1, moist) semi-compact, rocky, humic clay-loam with approximately 25 percent cobble (5-15 cm diameter) content. An isolated circular inclusion of carbon flecked soil was observed in the north wall at 20-23 cmbs, but was not found to be associated with any cultural materials or deposits. Debris that consisted of ferrous and non-ferrous metal was identified at approximately 25 cmbs. No significant cultural features or materials were identified. Layer II was interpreted as fill-soil.

The sparse deposits of artifactual debris observed in Layer I was identified in the backfill soil excavated from between 5-25 cmbs. These artifacts consisted of a piece of roofing paper (11 cm^2), and aqua colored bottle glass (6 cm cross-section body fragment) with white painted label detail. Artifacts identified in Layer II were observed in the associated backfill, with the exception of the wire carpentry nails, identified *in situ* at 25 cmbs as a discrete cache in the SP-1west side-wall. The glass and metal debris were collected for analysis, but the materials were in poor condition and thus non-diagnostic for dating/manufacture information. Based on context of the deposit, and qualities of materials, it may be fair to assume that the artifactual debris are contemporaneous with late historic/early modern landscaping activities associated with the development of the elementary school grounds.

SP-2

SP-2 was placed in the up-slope area in the northeast portion of the APE, adjacent to a discontinuous soil retaining boulder alignment and associated concrete drainage that abuts the

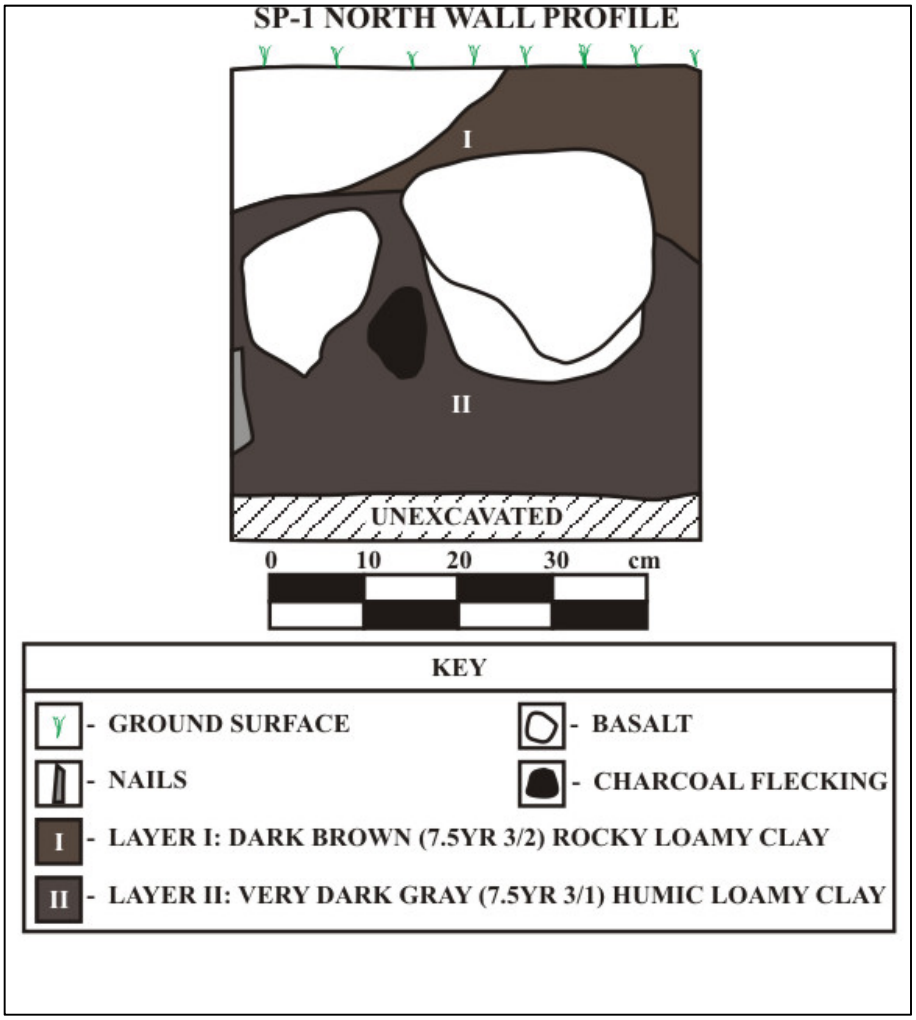


Figure 20: Profile Illustration Depicting SP-1 North Wall Stratigraphy.

Figure 21: Photographic View of SP-1 North Wall Stratigraphy.

south parcel boundary (see Figures 8 and 19). The excavation measured approximately 35 cm in diameter, and was excavated to a depth of 47 cmbs. Three soil layers (Layers I through III) were exposed and recorded as follows (Figure 22 and 23).

Layer I: (0-12 cmbs) mottled dark brown (7.5 YR 3/2-3, moist) semi-compact, rocky clay-loam with few micro roots, and approximately 25 percent basalt gravel/cobble (2-5 cm diameter) content. Layer I included two partially buried small boulders (25-30 cm diameter) and underlying boulder observed in the south sidewall. Layer II clay matrices contained little debris that consisted of fragmented roofing tar paper observed at 5 cmbs. The boulders observed within Layer I are associated with a segment of a discontinuous soil retention rock alignment, built along the edge of the concrete drainage inside the parcel boundary. No significant features or cultural materials were identified in this layer. Layer I was interpreted as mixed fill topsoil.

Layer II: (12-30 cmbs) dark brown (7.5 YR 3/2, moist) very rocky clay with approximately 80 percent basalt gravel (serge rock, 3-5 cm thick angular basalt). The layer was composed of matrices consisting of non-consolidated clay soil predominated by gravel fill, with a clear, uniform boundary. Fill materials revealed in Layer II composed the foundation for the rock alignment, and adjacent concrete drainage indicated a modern construction method related to the concrete drainage corridor (see Figure 8). One piece of coral gravel was observed, and no significant features or cultural materials were identified in this layer. Layer II was interpreted as fill-soil.

Layer III: (30-47 cmbs) very dark gray (7.5 YR 3/1, moist) semi-compact, humic, loamy clay, absent of roots and rock. No features or cultural materials were identified in this layer. Layer III was interpreted as representing the natural soil deposit.

SP-3

SP-3 was placed mid-slope at the south boundary, within the APE north limit, adjacent to the concrete drainage (see Figure 19). The excavation measured approximately 54 cm in diameter and terminated at 5 cmbs due to the extremely rocky soil conditions in this location (Figures 24 and 25). One soil layer (Layer I) was recorded as follows.

Layer I: (0-5 cmbs) mottled dark brown (7.5 YR 3/2-3, moist) semi-compact, extremely rocky clay-loam with micro roots, and approximately 90 percent basalt boulder/cobble (15-45 cm diameter) content. No cultural features or historic material were noted. Layer I was interpreted as mixed fill topsoil.

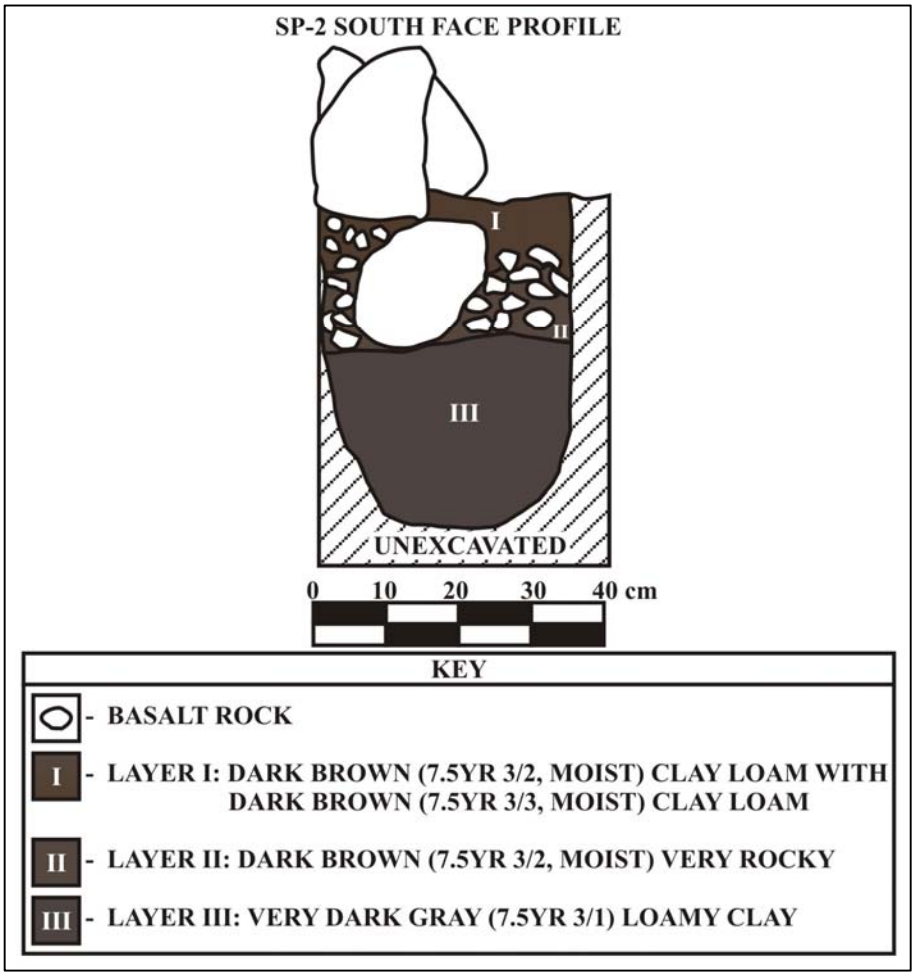


Figure 22: Profile Illustration Depicting SP-2 South Wall Stratigraphy.

Figure 23: Photographic View of SP-2 South Wall Stratigraphy. (Note the Boulder Alignment and Concrete Drainage in Background).

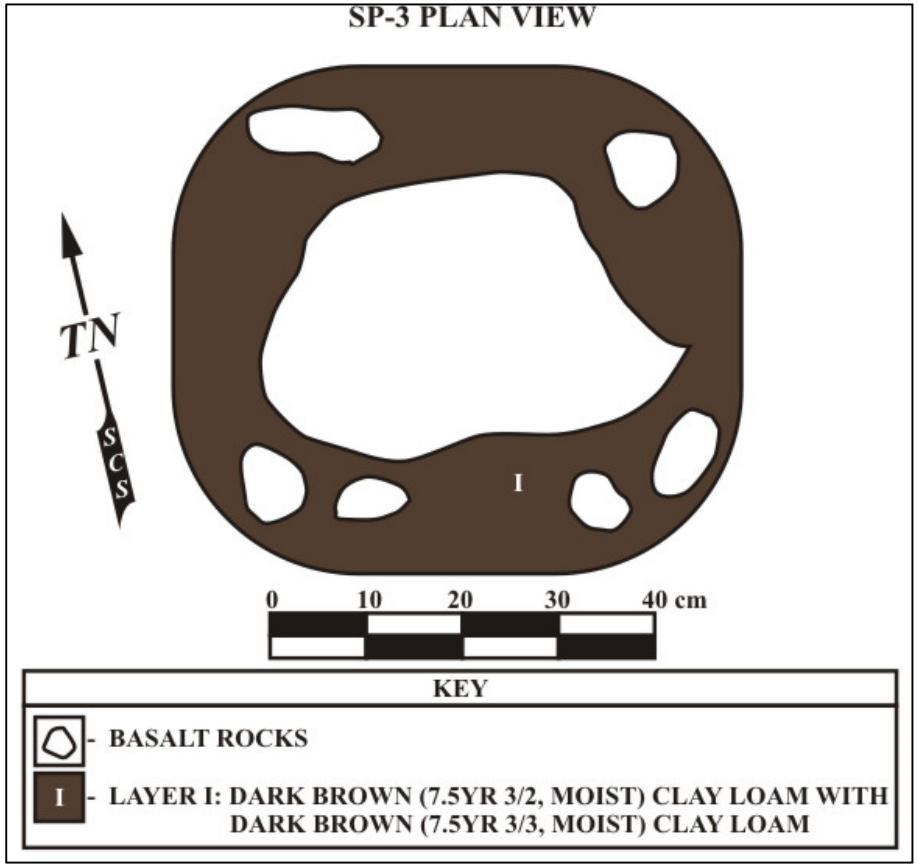


Figure 24: SP-3 Plan View Illustration Depicting Extremely Rocky Subsurface Deposit.

Figure 25: Photographic Plan View Depicting SP-3 Extremely Rocky Subsurface Soil Conditions.

SP-4

SP-4 was placed, near base of slope, adjacent to the concrete drainage at the south boundary, within the project APE northern limit (see Figure 19). The excavation measured approximately 40 cm in diameter, and 55 cmbs in depth. Three soil layers (Layers I through III) were recorded as follows (Figures 26 and 27).

Layer I: (0-10 cmbs) dark brown (7.5 YR 3/2, moist) semi-compact, rocky, loamy clay, with micro roots, and approximately 40 percent basalt cobble (3-6 cm diameter) content including some coral gravel; and distinct wavy boundary. No features or significant cultural deposits were identified. Layer I was interpreted as fill topsoil.

Layer II: (10-23/45 cmbs) dark brown (7.5 YR 3/2, moist) semi-compact, rocky, loamy clay, with micro roots, and approximately 40 percent basalt cobble (3-6 cm diameter) content; and abrupt wavy boundary. No features or significant cultural deposits were identified. Layer II was interpreted as fill-soil.

Layer III: (10-23/55 cmbs) very dark gray (7.5 YR 3/1, moist) semi-compact, consolidated clay-loam with little to no rock content. Layer III was interpreted as a previously disturbed natural soil deposit.

SP-5

SP-5 was placed at base of slope, in the central area of the APE northern limit (see Figure 19). The excavation measured approximately 40 cm in diameter, and reached 50 cmbs in depth. Three soil layers (Layers I through III) were recorded as follows (Figures 28 and 29).

Layer I: (0-5 cmbs) dark brown (7.5 YR 3/2, moist) semi-compact, rocky, silty clay-loam with few micro roots, and approximately 25 percent basalt gravel/cobble (2-4 cm diameter) content; and distinct wavy boundary. No significant features or cultural materials were identified in this layer. Layer I was interpreted as fill top-soil.

Layer II: (5-20/23 cmbs) dark yellowish brown (10 YR 3/4, dry) semi-compact, rocky clay-loam, with few micro roots, and approximately 20 percent gravel and rock content; and indistinct boundary. One piece of coral gravel was observed in this layer; no features or significant cultural materials were identified. Layer II was interpreted as mixed fill-soil.

Layer III: (20/23-50 cmbs) very dark gray (7.5 YR 3/1, dry) semi-compact, clay with approximately 15 percent rock content; and abrupt wavy boundary. This layer was composed of fairly consolidated clay. One marine shell (bi-valve) fragment and coral

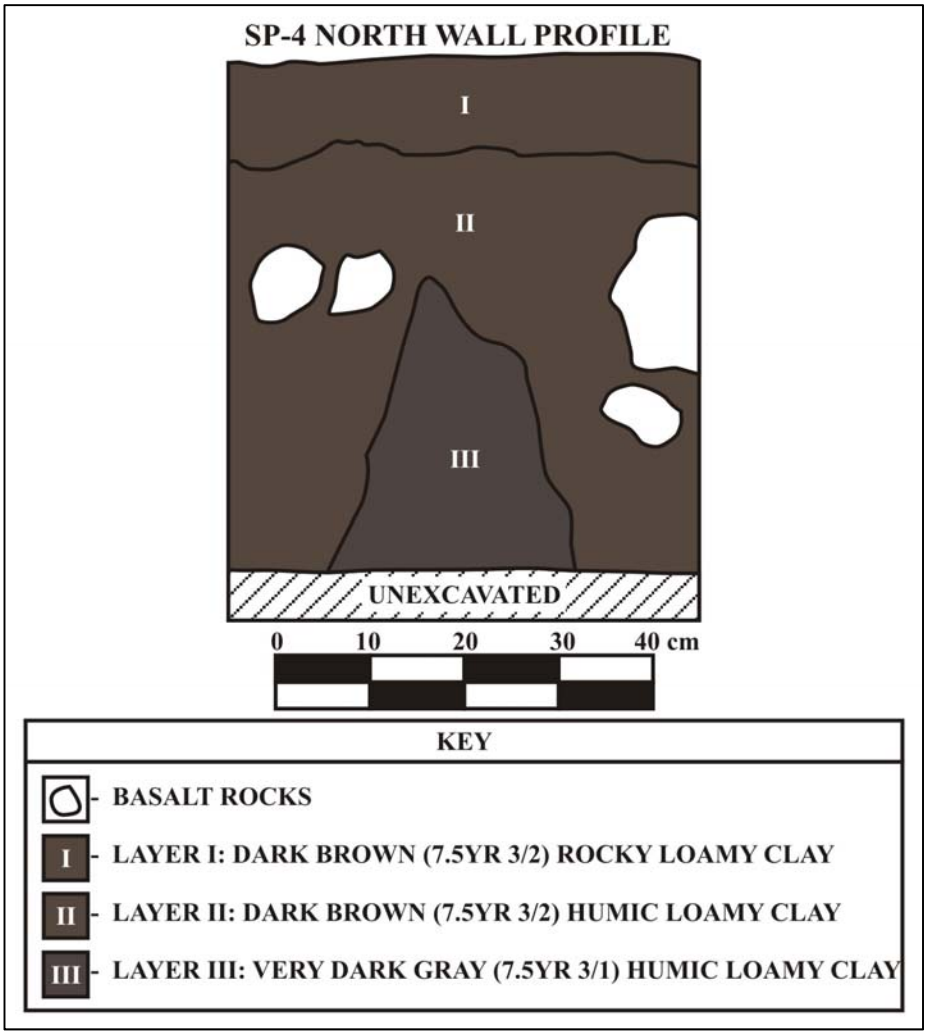


Figure 26: Profile Illustration Depicting SP-4 North Wall Stratigraphy.

Figure 27: Photographic View of SP-4 North Wall Stratigraphy.

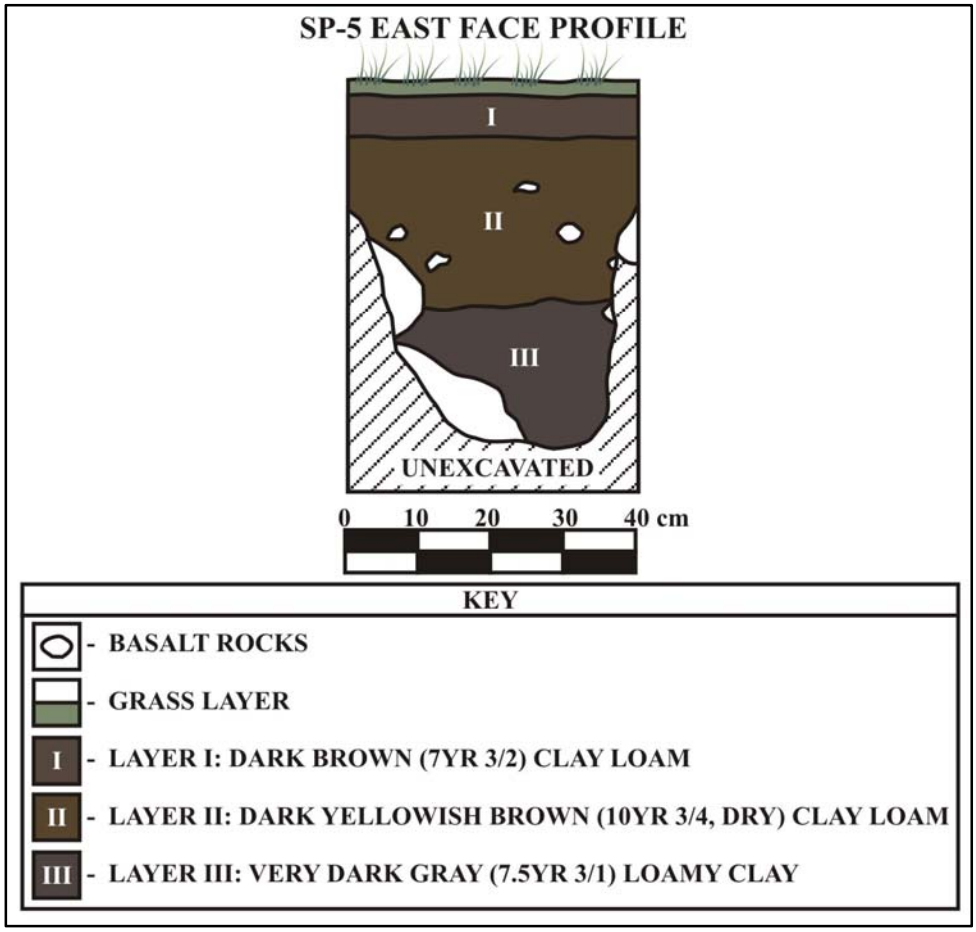


Figure 28: Profile Illustration Depicting SP-5 East Wall Stratigraphy.

Figure 29: Photographic View of SP-5 East Wall Stratigraphy.

gravel were observed in backfill matrices from this layer. No significant features or cultural materials were identified. Layer III was interpreted as a previously disturbed natural soil deposit.

SP-6

SP-6 was placed at base of slope, at the central parcels boundary in the APE (see Figure 19). The excavation measured approximately 45 cm in diameter, and reached a depth of 44 cmbs. Three soil layers (Layers I through III) were recorded as follows (Figures 30 and 31).

Layer I: (0-5 cmbs) mottled dark brown (7.5 YR 3/2, moist) semi-compact, rocky, silty clay-loam with few micro roots, and approximately 25 percent basalt gravel/cobble (2-4 cm diameter) content; and fairly distinct wavy boundary. No significant features or cultural materials were identified in this layer. Layer I was interpreted as fill topsoil.

Layer II: (5-20/23 cmbs) dark yellowish brown (10 YR 3/4, dry) semi-compact, silty clay-loam, with few micro roots, and approximately 20 percent rock content. Some coral gravel was observed in this layer; and indistinct boundary. No features or significant cultural materials were identified. Layer II was interpreted as fill-soil.

Layer III: (20/23-50 cmbs) very dark gray (7.5 YR 3/1, dry) semi-compact, rocky, fairly consolidated clay with approximately 15 percent rock content. No significant features or cultural materials were identified. Layer III was interpreted as a previously disturbed natural soil deposit.

SP-7

SP-7 was placed at base of slope, in the central area of the APE northern limit abutting the east end of SIHP #50-80-15-7764- Feature 3, concrete ditch (Figure 30; see Figure 19). The excavation measured approximately 40 cm in diameter, and reached a depth of 50 cmbs. Three soil layers (Layers I through III) were recorded as follows (Figures 32 and 33).

Layer I: (0-5 cmbs) mottled dark brown (7.5 YR 3/2-3, moist) semi-compact, rocky, silty clay-loam with few micro roots, and approximately 30 percent basalt gravel/ cobble/saprolite (2-4 cm diameter) content. A ceramic tile fragment was observed in the west wall of this layer. No significant features or cultural materials were identified in this layer. Layer I was interpreted as fill soil.

Layer II: (5-20/23 cmbs) dark yellowish brown (10 YR 3/4, dry) semi-compact, clay-loam, with few micro roots, and approximately 20 percent rock content. No features or significant cultural materials were identified. Layer II was interpreted as a mixed fill and natural soil deposit.

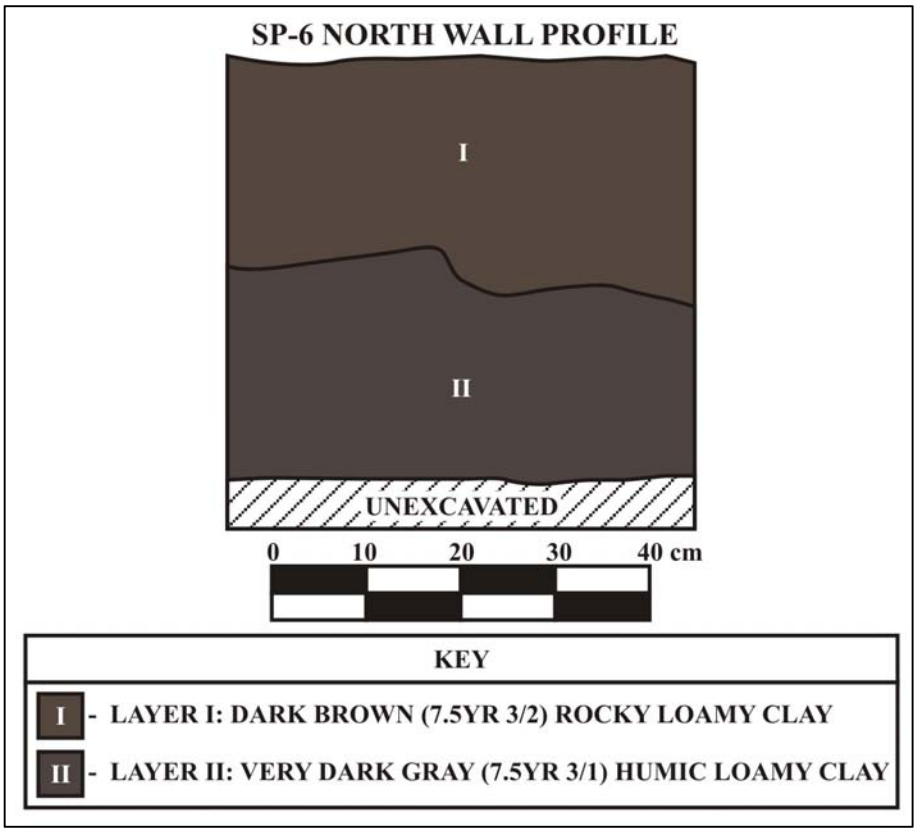


Figure 30: Profile Illustration Depicting SP-6 North Wall Stratigraphy.

Figure 31: Photographic View of SP-6 North Wall Stratigraphy.

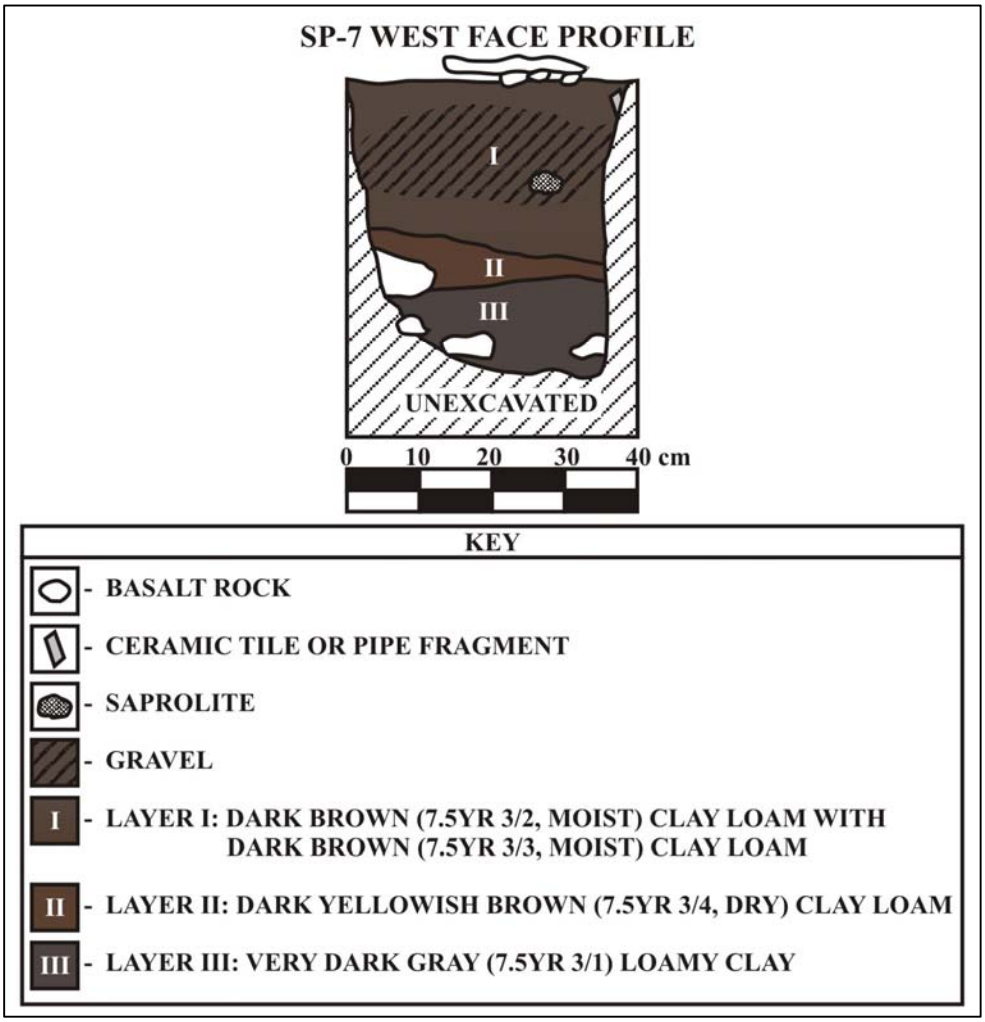


Figure 32: Profile Illustration Depicting SP-7 West Wall Stratigraphy.

Figure 33: Photographic View of SP-7 West (Southwest) Wall Stratigraphy.

Layer III: (20/23-50 cmbs) very dark gray (7.5 YR 3/1, dry) semi-compact, rocky silty clay-loam with approximately 25 percent rock content consisting of angular saprolitic cobbles. No significant features or cultural materials were identified. Layer III was interpreted as a mixed fill and natural soil deposit.

SP-8

SP-8 was placed at base of slope, in the central area of the APE northern limit (see Figure 19). The excavation measured approximately 40 cm in diameter, and reached 50 cmbs in depth. Three soil layers (Layers I through III) were recorded as follows (Figures 34 and 35).

> **Layer I:** (5-20/23 cmbs) dark yellowish brown, dry) semi-compact, humic clay-loam, with few micro roots, and approximately 20 percent rock content, including small (angular) coral and basalt cobbles (3-8 cm thick). No features or significant cultural materials were identified. Layer II was interpreted as fill-soil.
>
> **Layer II:** (20/23-50 cmbs) very dark gray (7.5 YR 3/1, moist) semi-compact, consolidated clay absent of roots, with little rock content. No features or cultural materials were identified. Layer III was interpreted as a natural soil deposit.

CONTROL UNIT
Test Unit-1

A control unit (TU-1) was excavated at SIHP # 50-80-15-7764- Feature 2, rock and mortar retaining wall, to assess subsurface contexts associated with the wall construction, particular to the wall's subsurface architecture. TU-1 was placed to abut the north face of Feature 2 at its east end, centered between SPs 6 and 7 (Figure 36; see Figure 19). TU-1 measured 1.0 meter by 0.50 meter, and was excavated to a depth of 37-42 cmbd exposing three soil layers (Layers I through II) and revealing a course of the rock wall subsurface construction (Figures 37 through 39). The soil stratigraphy of the east and south walls in TU-1 was recorded as follows.

> **Layer I:** (0-12 cmbd) dark brown (7.5 YR 3/3, moist) semi-compact, silty clay-loam absent of roots, and approximately 15 percent basalt and coral gravel/cobble (2-4 cm diameter) content; and indistinct boundary. No significant features or cultural materials were identified in this layer. Layer I was interpreted as fill-soil.
>
> **Layer II:** (12-37/42cmbd) dark brown (7.5 YR 3/4, dry) semi-compact, silty clay-loam, absent of roots, with approximately 15 percent basalt and coral gravel/cobble (2-4 cm diameter) content; and distinct uniform boundary. No features or significant cultural materials were identified. Layer II was interpreted as fill-soil.

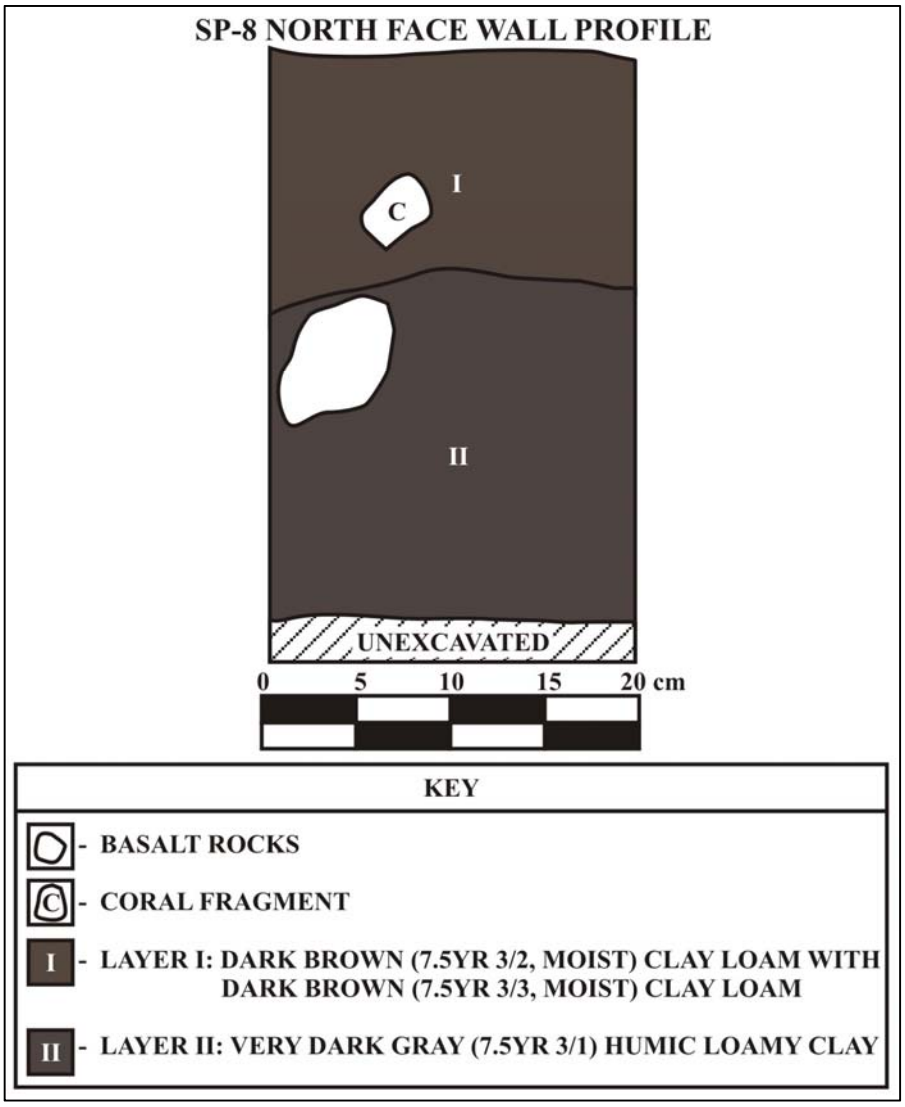


Figure 34: Profile Illustration Depicting SP-8 North Wall Stratigraphy.

Figure 35: Photographic View of SP-8 North Wall Stratigraphy.

Figure 36: Photographic Overview of TU-1, Pre-Excavation, at SIHP # 50-80-15-7764-Feature 2.

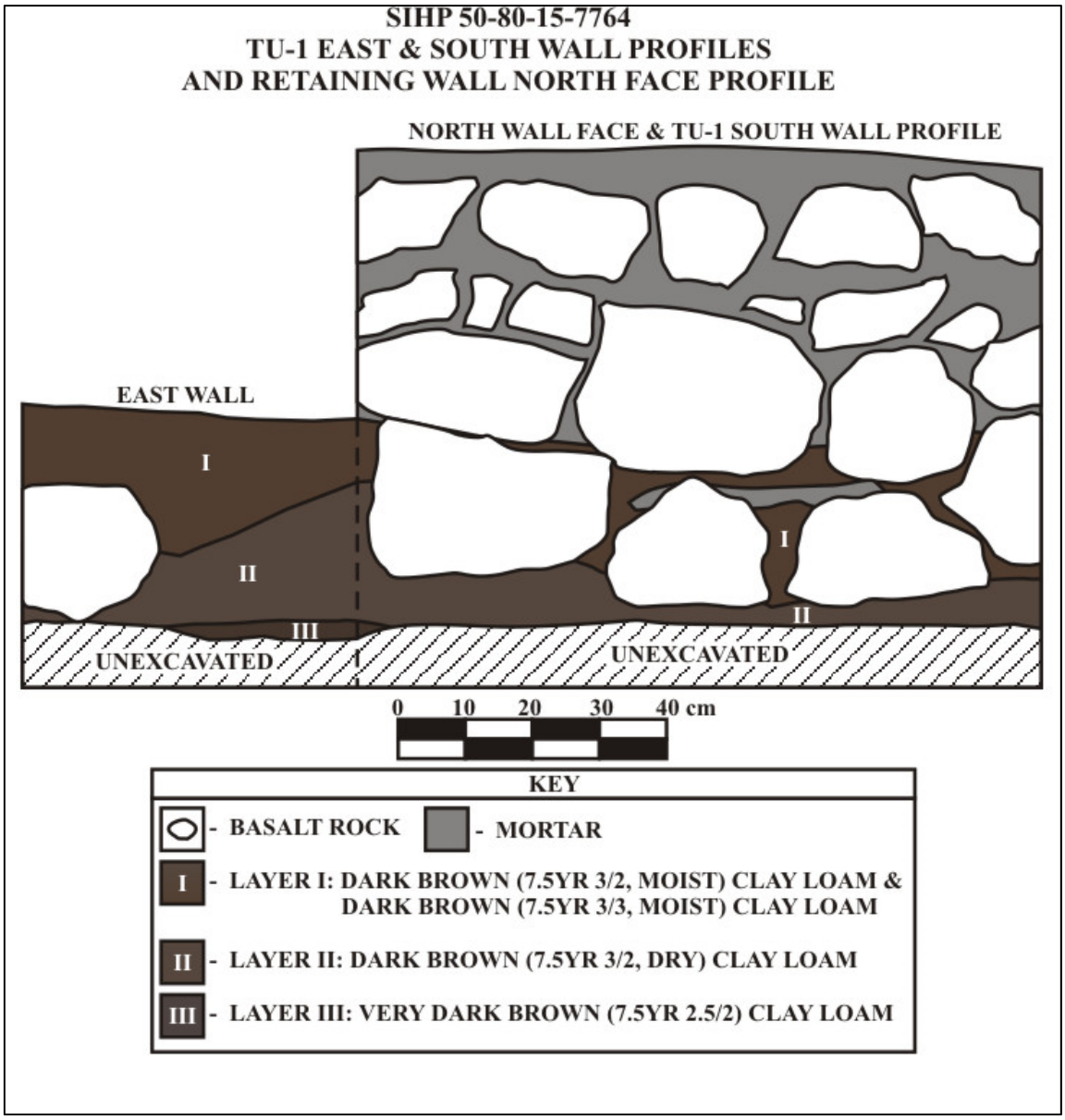


Figure 37: Profile Illustration Depicting TU-1 East and South Walls Stratigraphy, and SIHP # 50-80-15-7764- Feautre 2, Rock and Mortar Wall North Face, and Subsurface Architecture.

Figure 38: Photographic View of TU-1 South Wall Stratigraphy, and SIHP # 50-80-15-7764- Feautre 2, Rock and Mortar Wall North Face. Note Subsurface Architecture.

Figure 39: Photographic View of TU-1 East Wall Stratigraphy, at SIHP # 50-80-15-7764-Feautre 2, Rock and Mortar Wall North Face. Note Subsurface Architecture (Right Frame).

Layer III: (37-42 cmbd) very dark gray (7.5 YR 3/1, dry) semi-compact, rocky clay with approximately 25 percent rock content with some coral gravel. This layer was composed of fairly consolidated clay. No significant features or cultural materials were identified. Layer III was interpreted as a previously disturbed/truncated natural soil deposit.

DISCUSSION AND CONCLUSIONS

Archaeological Inventory Survey in the 0.9619-Acre project area for the proposed BWS Aina Haina 170' Potable Reservoir No.2 Project, located in Wailupe Ahupua`a, Kona District, O`ahu Island, Hawai`i [TMK: (1) 3-6-016:040 and 3-6-0198:012 Por.]. The archaeological pedestrian survey and subsurface testing revealed no indications of traditional cultural materials, and documented SIHP # 50-80-15-7764 which include mid-late historic architectural, and structural Features 1 through 3. The current Archaeological Inventory Survey was carried out in County owned lands comprising the BWS Aina Haina 170' Potable Reservoir No. 1 (0.9319-Acres) parcel, and an adjacent portion of the Wailupe Community Park (0.03-Acres) parcel. This study was in advance of proposed construction related to construction and installations of an additional storage tank, and appurtenances, in the project area.

Survey work for the project included archival research relating to the project area historic and archaeological background, one hundred percent surface survey, and subsurface testing in the pertinent portion of the project area. This study also included an architectural reconnaissance level survey (RLS), conducted by Mason Architects on behalf of SCS. The supplemental RLS evaluation the primary BWS facility in order to determine the architectural-historic status of the reservoir tank enclosure structure and associated booster pump station building construction.

Surface survey documented SIHP # 50-80-15-7764 that includes Feature 1, reservoir enclosure and structure and associated booster pump station building Feature 2, rock and mortar retaining wall; and Feature 3 concrete ditch. Subsurface testing involved the manual excavation of eight shovel probes (SP-1 though SP-8) and one test unit (TU-1) within a 0.03-Acre portion of the project area which represents the area subject to ground alterations by construction activity for the proposed BWS project. A small amount of debris that consisted mainly of construction-type material (roofing material, carpentry nails), and glass, was produced from only one shovel probe, and TU-1 exposed the subsurface rock and mortar architecture of Feature 2. No additional significant cultural/historic deposits or features were identified in any of the test excavations.

SIGNIFICANCE ASSESSMENT

The features of newly documented SIHP #50-80-15-7764 were evaluated for significance according to the established criteria for the Hawai`i State Register of Historic Places §13-284-6. Administrative rules state that a historic property, to be considered significant, must possess integrity of location, design, setting, materials, workmanship, feeling, and association, and meet one or more of the following criteria:

Criterion a: Site is associated with events that have made a significant contribution to the broad patterns of our history;

Criterion b: Site is associated with the lives of persons significant to our past;

Criterion c: Site is an excellent site type; embodies distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components may lack individual construction;

Criterion d: Site has yielded or has the potential to yield information important in prehistory or history; and

Criterion e: Site has cultural significance to an ethnic group; examples include religious structures, burials, major traditional trails, and traditional cultural places.

SIHP #50-80-15-7764 Feature 1, booster pump station building and associated reservoir enclosure structure, is assessed as significant under both Criterion ‘b’ for its association with the lives of persons significant to Hawai`i’s historic past; and Criterion ‘c’, as an excellent example of historic regional architecture which “…embodies distinctive characteristics of a type, period or method of construction, or represents the work of a master, or possesses high artistic values.” As such, SIHP 50-80-15- 7764 Feature 1, reservoir enclosure and booster pump station building, is eligible for preservation.

SIHP 50-80-15- 7764, Feature 2 rock retaining wall and Feature 3 concrete ditch, were assessed as being significant under Criterion ‘d’ for the potential to yield information important to the history of Hawai`i. However, archaeological excavations at both Features 2 and 3 have yielded sufficient information and these features are no longer significant under Criterion d.

RECOMMENDATONS

Based on its assessed significance, and because the proposed construction of an additional storage tank and enclosure at the BWS Aina Haina Facility will have no adverse effect on SIHP # 50-80-15- 7764-Feature, no further work is recommended. The booster pump station building and reservoir (Feature 1) is currently active, and will continue to function as a fundamental component in the BWS potable water supply and distribution system, known as the 'East Honolulu 170' System'. While the integrity of the site has been well maintained during its time in use and remains in very good condition, thus the site is recommended for preservation.

The portions of Site 50-80-15-7764-Features 2 and 3, consisting of a rock and mortar retaining wall segment, and associated concrete ditch, within the project area APE have been adequately documented by the current inventory survey study. These properties are associated with the former Wailupe Valley elementary school, probably constructed concurrently in circa 1959, and as such are part of the broarder built landscape extending outside the project area boundaries, further along the Wailupe Community Park south parcel boundary. No further archaeological work is recommended for these properties in the current project area. Because these features are constructions over fifty years old, the portions of Features 2 and 3 that lie beyond the current project limits also represent historic properties that hold qualities, so far undetected, of potential significance.

REFERENCES

Anderson, L.
1998 *Emergency Data Recovery of the Inadvertent Discovery of Human Skeletal Remains Located at 5371 Kalaniana`ole Highway, Honolulu, Hawai'i (TMK: 3-6-03:32)*. Anderson Archaeological Research Consultants

Barrera, W.
1984 *Archaeological Reconnaissance, Aina Haina, Oahu TMK: 4-6-02:4*. Chiniago Inc., Kanuela, Hawai`i.

Beckwith, M. Warren
1985 *Hawaiian Mythology*. University of Hawai`i Press, Honolulu.

Beauchan, B., and J. Kennedy
2013 *Archaeological Inventory Survey for a Property Located at Wailupe Circle, Wailupe Ahupua`a, Kona District, Island of O'ahu [TMK (1) 3-6-001:038]*. Archaeological Consultants of the Pacific, Inc., Haleiwa, Hawai`i.

Bordner, R.
1992 *Wailupe Well II, `Iliof Wailupe, Island of O`ahu*. Research Systems Cooperative, Honolulu

Bush, A., and H.H. Hammatt
2002 *Archaeological Monitoring Report for the Installaion of the Honolulu Boarc of Water Supply 16 inch Water Main and Appurtenances Along Kalaniana`ole Highway in East Honolulu, O`ahu, (TMK 3-5-019, 021, to 023, 042, 044, to 47, 049; 3-6-001, 009, &011)*. Cultural Surveys Hawai`i, Inc.

Chaffee, D., and R.L. Spear
1994 *An Archaeological Assessment of the Wiliwilinui Trail Realignment on Waialae Iki Ridge, Waialae Iki, Kona, O`ahu*. Scientific Consultant Services, Inc., Kane`ohe, Hawai`i.

Collins, S.
2002 *Inadvertent Discovery of Human Skeletal Remains at 925 Wailupe Place, Aina Haina, O`ahu*. Department of Land and Natural Resources, State Historic Preservation Division, Kapolei, Hawai`i

Erkelens, C., and S.J. Athens
1994 *Burials, Highways, and History: Archaeology along Kalaniana`ole Highway, East Honolulu, O`ahu, Hawai`i*. International Archaeological Research Institute, Inc., Honolulu.

Fong, J.W.K.., and H.H. Hammatt
2008 *Archaeological Assessment for the Mike Horack Residential Use Single Family Dwelling Project Wailupe Ahupua`a, Kona District O`ahu Island TMK: [1} 3-6-004: por. 023*. Cultural Surveys Hawai`i, Inc., Kailua, Hawai`i.

Foote, D.E., E.L. Hill, S. Nakamura, and F. Stephens
1972 *Soil Survey of the Islands of Kaua`i, O`ahu, Maui, Molokai, and Lanai, State of Hawai`i.* USDA Soil Conservation Service, GPO, Washington, D.C.

Google Earth. "Wailupe Valley Elementary." lat 21.292122° and lon -157.753952°. Google Earth; January 29, 2013. Accessed February 25, 2015.

Hammatt, H.H., and A.R. Bush
2001 *Archaeological Monitoring Report for the 4-inch Gas Main within the Kalaniana`ole Highway Right-of-Way, Ainakoa Avenue to Wailupe Circle, East Honolulu, Kona, O`ahu*. Cultural Surveys Hawai'i, Inc., Kailua, Hawai`i.

Handy, E.S.C.
1940 *The Hawaiian Planter—Volume 1: His Plants, Methods, and Areas of Cultivation.* Bernice Pauahi Bishop Museum Press, Honolulu.

Handy, E.S.C., and E.G. Handy
1972 *Native Planters in Old Hawaii: Their Life, Lore and Environment.* B.P. Bishop Museum Bulletin 233. Bernice Pauahi Bishop Museum, Honolulu.

Hoʻokuleana LLC
2013 www.totakeresponsibilityblogspot.com; (Cultural Survey) Posted by Peter T. Young 2013. © Hoʻokuleana LLC Accessed 2015.

I`i, J.P.
1983 *Fragments of Hawaiian History*. Bishop Museum Press. Honolulu.

Kamakau, S.
1961 *Ruling Chiefs of Hawaii*. The Kamehameha Schools Press, Honolulu.

Kame`eleihiwa, L.
1992 *Native Land and Foreign Desires: Pehea La E Pono Ai?* Bishop Museum Press, Honolulu.

Kawachi, C.
1991 *Kawaikui Beach Park Burial, DOT Highway Widening Project, Wailupe, Kona, O`ahu*. Department of Land and Natural Resources, State Historic Preservation Division, Kapolei, Hawaii

Kirch, P.V.
1985 *Feathered Gods and Fishhooks: An Introduction to Hawaiian Archaeology and Prehistory.* University of Hawai`i Press, Honolulu.

Kirch, P.V. and M. Sahlins
1992 *Anahulu*. Vol. 1 and 2. University of Chicago Press, Chicago.

2011 " When Did the Polynesians Settle Hawai‘i? A Review of 150 Years of Scholarly Inquiry and a Tentative Answer," in *Hawaiian Archaeology*. 12 (2011) pp. 3-26.

McAllister, J.G.
1933 *Archaeology of Oahu.* Bernice Pauahi Bishop Museum Bulletin 104. Bernice Pauahi Bishop Museum, Honolulu.

McMahon, N.
1988 *Archaeological Reconnaissance Survey of a Five-Acre parcel in Niu Valley, O`ahu Island, Hawai`i*. Public Archaeology Section, ARG, Bernice P. Bishop Museum, Honolulu.

Moore, K.
1974 *Report of Walk through Survey at Hawaii Loa Ridge,Oahu*. Bernice P. Bishop Museum, Honolulu.

Munsell Soil Color Charts
2000 Munsell Soil Color Charts (revised). GretagMacbeth, New Windsor, New York.

O`Hare, C.R., and D.W. Shidler
2009 *Archaeological Literature Review, Field Inspection, and Cultural Background Study for the Proposed Kalaniana`ole Highway Sewer System Improvements Project, Wai`alae Wailupe, Niu, and Kuli`ou`ou Ahupua`a, O`ahu island TMK [1] 35-5-023:001 to 004, 038, 039; 3-5-058:001 to 011; 3-5-022:001 to 023; 3-6-001:000; 3-6-002:000; 3-6-003:000, 007 to 010, , 012 to 015, 029, 021, 042; 3-7-010:00 to 006; 3-7-011:001 to 007l 3-8-014:017, 019, 034*. Cultural Surveys Hawai`i, Inc., Honolulu, Hawai`i.

Price, S.
1983 *Atlas of Hawaii* (2nd edition), ed. by R.W. Armstrong. University of Hawaii Press, Honolulu.

Pukui, M. and S. Elbert
1986 *Hawaiian Dictionary.* University of Hawai'i Press, Honolulu.

Pukui, M. Kawena, S. Elbert, E. Mookini
1974 *Place Names of Hawaii*. University of Hawai`i Press, Honolulu.

State Historic Preservation Division
2002b *Hawaii Administrative Rules Chapter 13-276, Rules Governing Standards for Archaeological Inventory Survey and Reports.*

Stearns, H.
1940 *Supplement to the Geology and Ground-Water Resources of the Island of Oahu, Hawaii*. Bulletin No. 5, Division of Hydrography, Territory of Hawaii. Advertiser Publishing Company, Honolulu.

Sterling, E.P., and C.C. Summers
1978 *Sites of Oahu.* Department of Anthropology, Department of Education, Bernice Pauahi Bishop Museum, Honolulu.

Thrum, T.G.
1907 Tales From the Temples. Hawaiian Annual.

1923 *More Hawaiian Folk Tales*. Chicago.

Waihona `Aina Corporation
2013 *Māhele Database*. www.waihona.com, Kailua. Accessed on April 2013.

Whistler, W.A.
1995 *Wayside Plants of the Islands. A Guide to the Lowland Flora of the Pacific Islands including Hawai`i, Samoa, Tonga, Tahiti, Fiji, Guam, Belau.* Isle Botanica, Honolulu.

APPENDIX A: RLS DOCUMENTATI

ARCHITECTURE
RESTORATION
RENOVATION
RESEARCH

Mason
Architects

February 19, 2015

Jessica Puff State Historic Preservation
Division Kakuhihewa Building 601
Kamokila Blvd., Suite 555 Kapolei, HI
96707

Re: Board of Water Supply, Aina Haina Reservoir – Reconnaissance Level Survey

Dear Jessica,

Mason Architects, Inc. was hired by Scientific Consultant Services on behalf of Limtiaco Consulting Group for the Board of Water Supply to complete a Reconnaissance Level Survey (RLS) of the Aina Haina Reservoir and Booster Pumping Station. See correspondence under LOG NO. 2014.03211, DOC NO.1406GC08. This RLS was undertaken in preparation for the construction of a second concrete reservoir structure on the property.

To follow are the survey parameters, our summary of findings, and an evaluation of the effects of the proposed project. The RLS forms for the Aina Haina Booster Pumping Station and Reservoir are attached. The spreadsheet summary and photographs that are required by SHPD are included in the enclosed disc.

Survey Parameters and Findings A total of two facilities (one building and one structure) were surveyed. Research indicates that they were built in 1951. Both facilities were evaluated for NRHP eligibility, and were found to be eligible under Criterion C as part of a potential multiple property nomination for Board of Water Supply buildings built from the early 1930s through the late 1950s. Explanations of these findings, and additional detail about the facilities, are found in the attached RLS forms.

Evaluation of Effects of the Proposed Project According to 36 CFR 800.5 (a)(1) and 800.5(a)(2), respectively:

> *Adverse effects occur when an undertaking may directly or indirectly alter characteristics of a historic property that qualify it for inclusion in the Register. Reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance, or be cumulative also need to be considered.*
>
> *Examples of adverse effects include physical destruction or damage; alteration not consistent with the Secretary of the Interior's Standards; relocation of a property; change of use or physical features of a property's setting; visual, atmospheric, or audible intrusions; neglect resulting in deterioration; or transfer, lease, or sale of a property out of Federal ownership or control without adequate protections.*

The addition of a second reservoir to the Board of Water Supply's property, as shown in the proposed site plan, will not have an adverse affect on the historic property, as explained below.

119 MERCHANT STREET • SUITE 501 • HONOLULU, HI 96813 • VOICE: 808.536.0556 • FAX: 808.526.0577 • INFO@MASONARCH.COM

The new reservoir structure will not alter the architectural characteristics which qualify the booster pumping station building or the existing reservoir for the Register, since the structures will not be physically altered. The proposed project requires site work, including construction and installation of new drainage infrastructure, trenching for new connections to existing infrastructure and utility lines, possible extension of the existing maintenance road to encompass the new potable reservoir, and realignment of the existing CRM wall and chain link fencing. These alterations are largely at grade or below ground, and are relatively minimal from an architectural design perspective. The modification to the CRM wall at the back of the property, which is certainly above ground, is not visible from the primary / public façade on Alamuku Street, and does not significantly alter the original design of the property. See Figure 3.

While the addition of a new reservoir structure within the property limits is certainly notable, its placement on the northwest side of the site does not significantly affect Hart Wood's design for the way the site functioned. The original intent for this side of the property is shown on historic plot plans as having "future garages" and a "future new house" (although it does not appear that they were ever built, and if they were, they were subsequently removed). Accordingly, the new reservoir will be located in an area that was originally intended to be used functionally by the Board of Water Supply, rather than decoratively, or left "open."

These Board of Water Supply facilities fit well within the existing residential neighborhood. The proposed reservoir does not significantly alter this arrangement; it is the same size as the existing reservoir, which is not prominently visible from Alamuku Street. This is due to the large front retaining walls and the landscaping, which includes tall Eucalyptus trees. See Figure 4.

In summary, the proposed new reservoir does not preclude the booster pumping station, the reservoir structure, or the overall site design from conveying their historic significance.

Please let me know if you have any questions.

Sincerely,

Polly Cosson Tice

Enclosures: Figures 1-4 RLS
Survey Forms

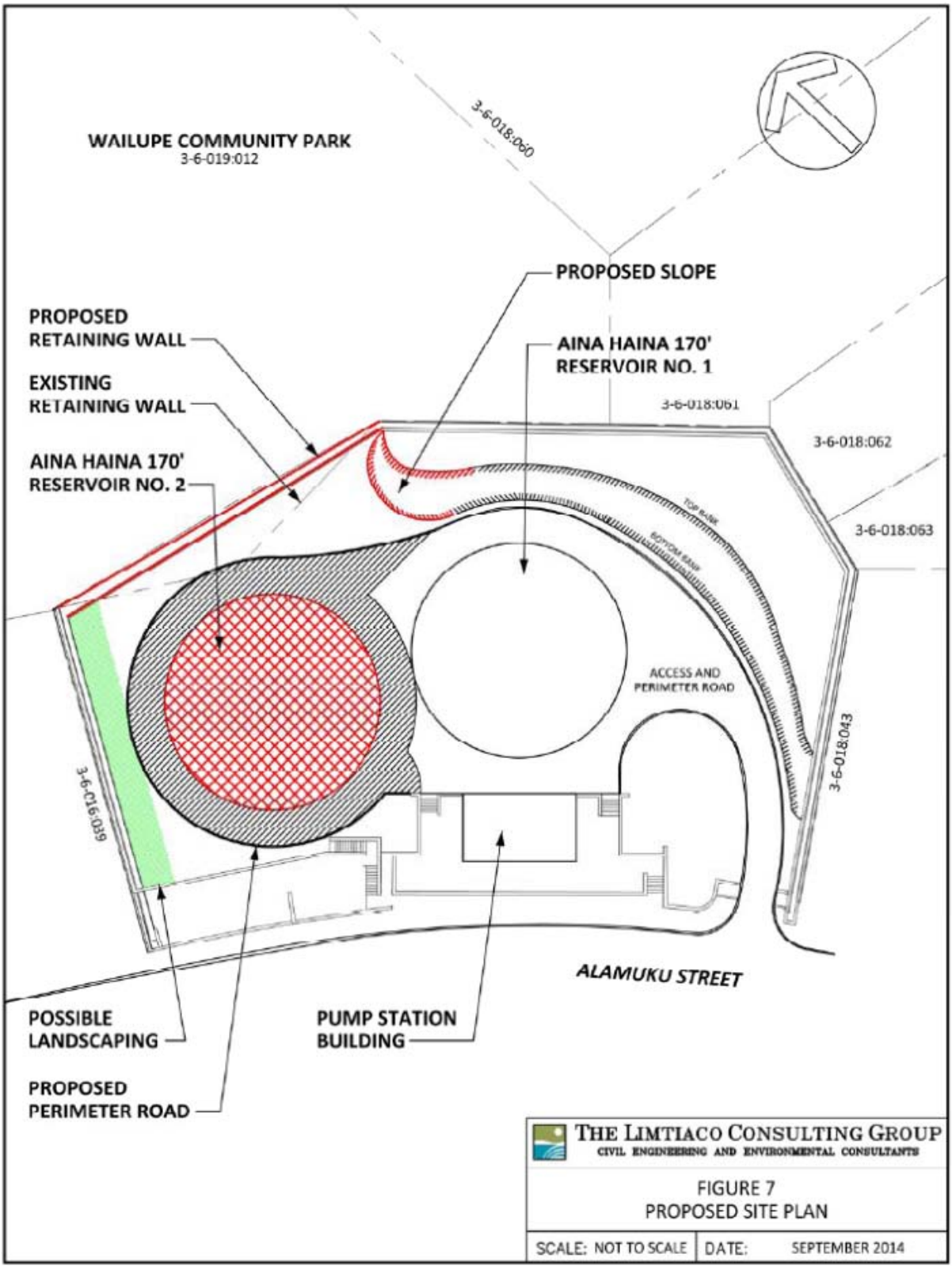


Figure 2: Proposed Site Plan Showing location of proposed new reservoir. *(Limtiaco Consulting Group)*

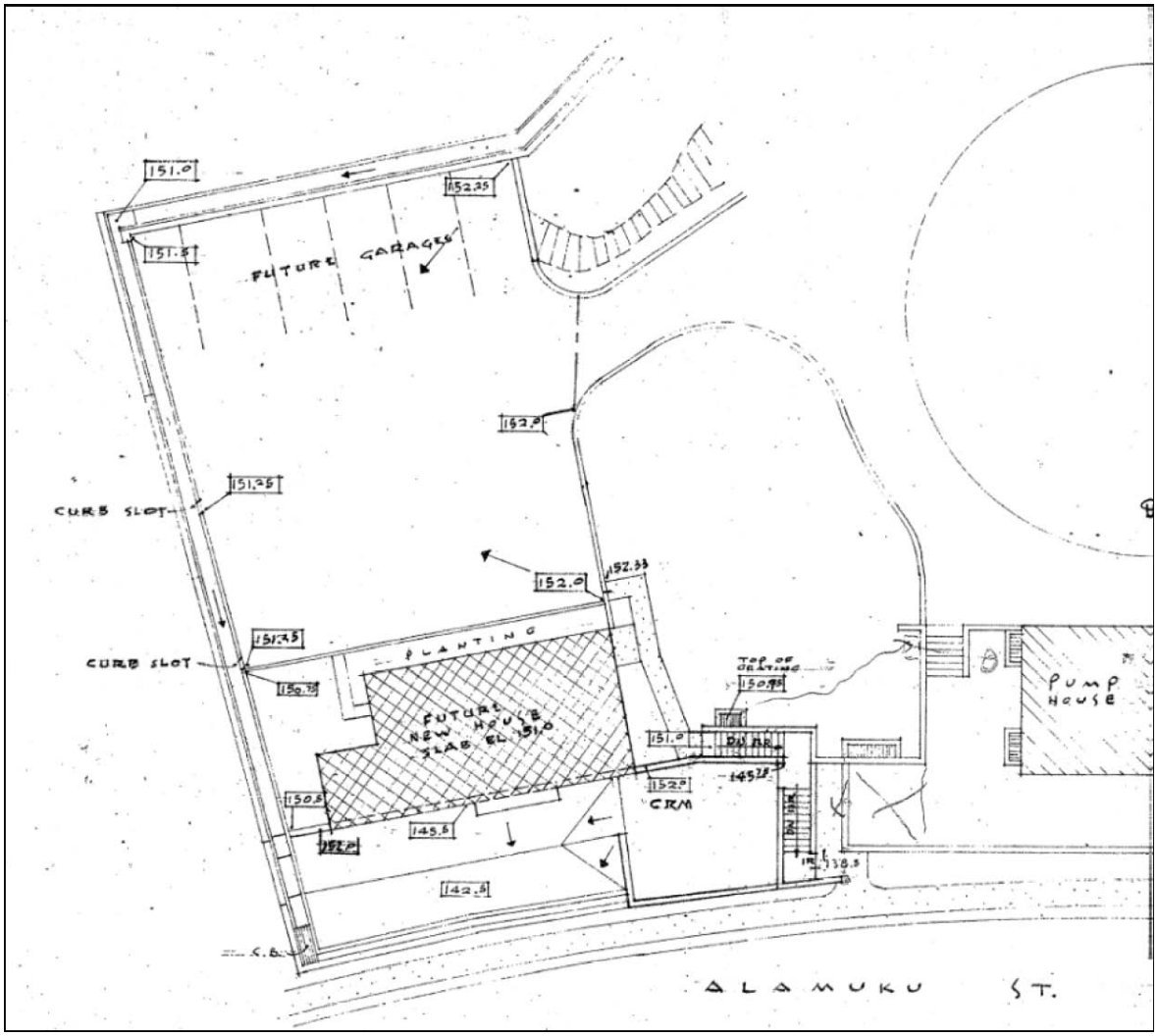


Figure 2: Hart Wood's Revised Partial Plot Plan showing proposed uses for the area proposed for the new reservoir as "future garages" and "future new house". (Proposed reservoir location added by author.) Drawing dated 2/12/1952.

Figure 3: Area designated for new reservoir. Retaining wall (rear left) will be altered. ***(Mason Architects, Inc.)***

Figure 4: Front view of Board of Water Supply complex from Alamuku Street. ***Mason Architects, Inc.)***

APPENDIX D

Pre-Assessment Consultation

THE LIMTIACO CONSULTING GROUP
CIVIL ENGINEERING AND ENVIRONMENTAL CONSULTANTS

July 3, 2014

Mr. Loyal Mehrhoff, Field Supervisor
U.S. Department of the Interior
Fish and Wildlife Service
Pacific Islands Fish and Wildlife Office
300 Ala Moana Boulevard, Room 3-122
Honolulu, HI 96850

Subject: Pre-Consultation for Environmental Assessment
Proposed Board of Water Supply Aina Haina 170' Potable Reservoir No. 2
Tax Map Key (1) 3-6-016: 040
Honolulu, Oahu, Hawaii

Dear Mr. Mehrhoff,

On behalf of the Honolulu Board of Water Supply (BWS), we wish to inform you that the BWS is proposing to improve its system reliability and redundancy by adding a second 0.5 million gallon reservoir within its existing property at 855 Alamuku Street in Wailupe Valley (see attached location map). The project site is the BWS-owned parcel that abuts single-family residences and Wailupe Community Park (formerly Wailupe Valley Elementary School).

The BWS facility in Wailupe Valley currently houses an existing 0.5 million gallon potable water reservoir (Aina Haina 170' Potable Reservoir No. 1) and pump station building that were constructed in the 1950s. The existing reservoir and pump station are part of the BWS potable water supply and distribution system for the East Honolulu communities of Aina Haina, Niu Valley and Kuliouou.

With the passage of time, water demand in the service area has increased. The BWS has determined that the proposed reservoir is needed to adequately address potable water storage requirements and to improve reliability of the East Honolulu 170' System. The project will increase the total potable water reservoir capacity for the East Honolulu 170' System from 1.5 to 2.0 million gallons. No additional pumping capacity is proposed as part of the project. The new reservoir, which would be known as the Aina Haina 170' Potable Reservoir No. 2, will be designed to have the identical capacity, spillway elevation and dimensions as Aina Haina 170' Potable Reservoir No. 1. The installation of the new reservoir would require new connections to on-site drainage infrastructure. Construction activities would generate short-term effects such as fugitive dust, noise, intermittent traffic, solid waste, and potential disruptions to utility services that would cease upon project completion. Best management practices will be used to mitigate these impacts to the extent practical.

The BWS proposes to install the new reservoir within a flat, vacant area on the western portion of its property. The affected area was previously graded and originally planned for use as a baseyard; however, those plans were abandoned and the previously graded area has remained vacant. A geologic survey of the affected area confirmed shallow cut-and-fill conditions with relatively shallow depths to basalt. It is anticipated that a conventional foundation on the

underlying basalt stratum can support the proposed concrete reservoir. There are no indications of settlement or poor soil conditions at the project site.

The proposed project may involve the acquisition of approximately 0.03 acres of unobstructed land from the adjacent Wailupe Community Park site at TMK 3-6-019: 012 in order to comply with the setback requirements specified in the City and County of Honolulu's Land Use Ordinance. The retaining wall and concrete gutter between the two parcels would be realigned accordingly.

We would appreciate any information that you may have on how construction of the additional reservoir at the BWS facility could have possible impacts on important biological, archaeological and historic resources. Additionally, we would appreciate any input and information about potential project impacts on traditional and cultural practices and beliefs of any cultural or ethnic group(s). The name(s) and contact information of knowledgeable individual(s) whom we could contact regarding any such beliefs, practices, or resources that may be affected would be very helpful to us.

An Environmental Assessment (EA) will be prepared for this project pursuant to Chapter 343, Hawaii Revised Statutes. If you wish to provide preliminary input on the project at this time or be a consulted party while the EA is being prepared, please review the enclosed figures and submit your written comments to the address below by Friday, August 8, 2014.

Please send comments to:

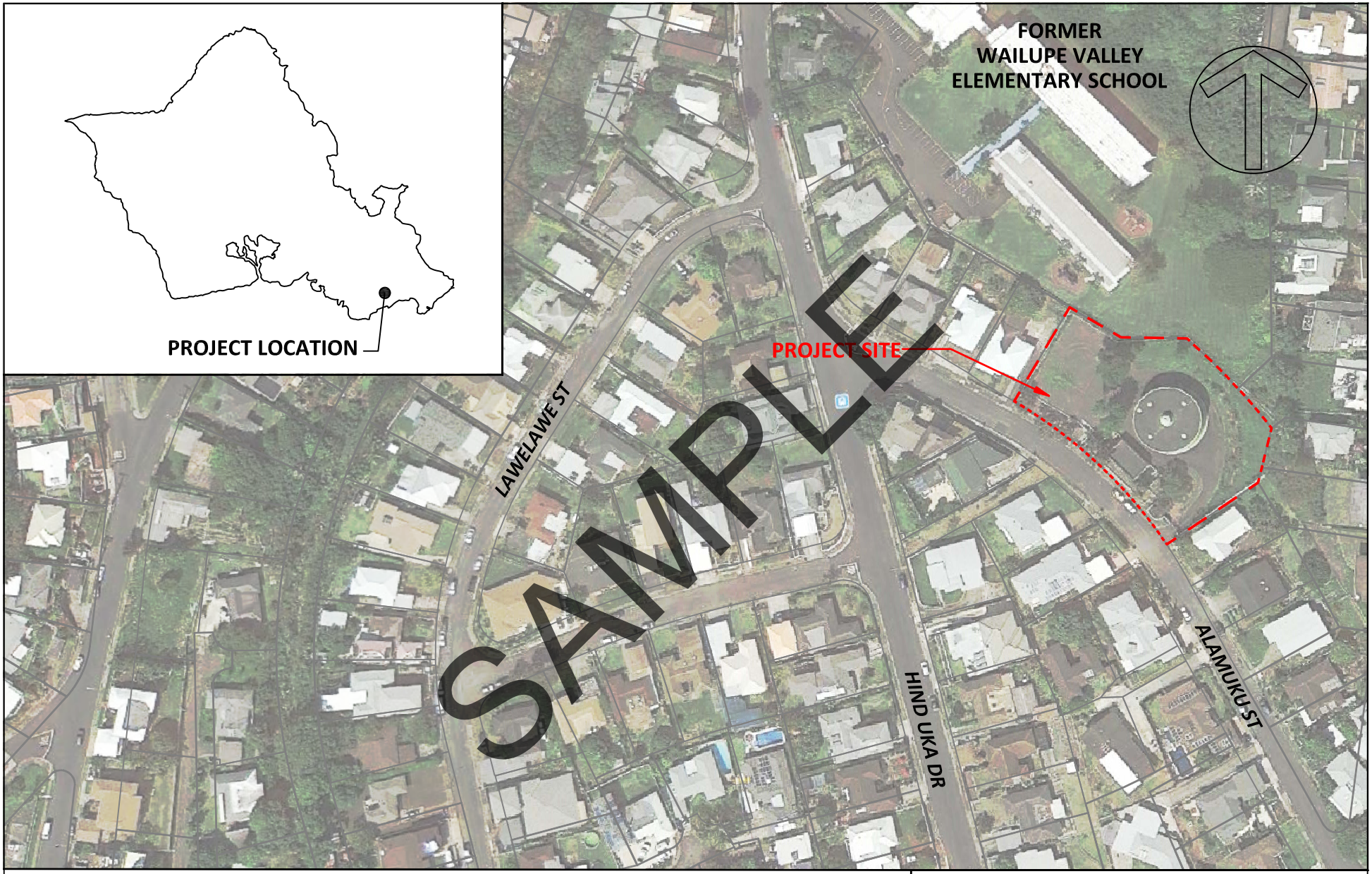
Jason Nakata, Staff Engineer
The Limtiaco Consulting Group
1622 Kanakanui Street
Honolulu, HI 96817

Thank you for your interest and participation in the environmental review process. You will be notified when the Draft EA is completed and available for public review. Should you have any questions, please contact me at (808) 596-7790.

Best regards,
The Limtiaco Consulting Group, Inc.

Jason Nakata
Staff Engineer

Enc
cc: Scot Muraoka, P.E., Honolulu BWS



LEGEND

APPROXIMATE SITE BOUNDARY

THE LIMTIACO CONSULTING GROUP
CIVIL ENGINEERING AND ENVIRONMENTAL CONSULTANTS

PROJECT LOCATION

SCALE: NOT TO SCALE | DATE: JUNE 2014

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pacific Islands Fish and Wildlife Office
300 Ala Moana Boulevard, Room 3-122
Honolulu, Hawai`i 96850

07-30-14P03:09 RCVD

In Reply Refer To:
2014-TA-0354

JUL 2 8 2014

Mr. Jason Nakata
Staff Engineer
The Limitaco Consulting Group
1622 Kanakanui Street
Honolulu, Hawaii 96817

Subject: Technical Assistance for the Board of Water Supply Proposed Construction of Aina Haina Potable Water Reservoir, Wailupe Valley, Oahu

Dear Mr. Nakata:

The U.S. Fish and Wildlife Service (Service) is in receipt of your letter, dated July 7, 2014, in which you requested input on the biological impacts for the proposed construction of an additional Aina Haina 170-foot potable water reservoir at the Board of Water Supply facility in Wailupe Valley, Oahu. The proposed action would install a second 0.5 million-gallon reservoir on the existing property [TMK (1) 3-6-016: 040] to meet the increased potable water demands in the service area. The proposed action would increase the total potable water reservoir capacity for the East Honolulu 170-foot system from 1.5 million gallons to 2.0 million gallons. This response is in accordance with section 7 of the Endangered Species Act of 1973 (ESA), as amended (16 U.S.C. 1531 *et seq.*).

We have reviewed the information you provided, and pertinent information in our files. While there are no federally listed species or designated critical habitat in the immediate vicinity, it is likely that the proposed project may inadvertently attractive listed waterbirds to the area, including the endangered Hawaiian stilt (*Himantopus mexicanus knudseni*), Hawaiian coot (*Fulica alai*), Hawaiian moorhen (*Gallinula chloropus sandivicensis*), and Hawaiian duck (*Anas wyvilliana*). In particular, unwanted waterbird attraction could result in failed nesting attempts and adult mortality which creates what is referred to as a "population sink."

To avoid the potential for the site to become an attractive nuisance if it is an open basin, we recommend: (1) no or limited vegetation immediately adjacent to reservoir edges; (2) all standing water be deeper than three feet; and (3) if possible, reservoir edges should have steep sided greater than 45 degree angle to minimize shallow water habitat. Alternately, the use of bird deterrent balls is an acceptable method in creating a more unattractive habitat for waterbirds.

We recommend coordination with our office to develop avoidance and minimization measures for the protection of federally listed species. If, during the construction or operation of this project, it is found that listed Hawaiian waterbird species are being attracted to the site despite avoidance measures, the project manager should contact our office immediately. These measures are unnecessary if this is a closed basin.

If it is determined that the proposed project may affect federally listed species we recommend you contact our office early in the planning process so that we may assist you with the ESA compliance. If the proposed project is funded, authorized, or permitted by a Federal agency, then the Federal agency should consult with us pursuant to section 7(a)(2) of the ESA. If no Federal agency is involved with the proposed project, the applicant should apply for an incidental take permit under section 10(a)(1)(B) of the ESA. A section 10 permit application must include a habitat conservation plan laying out the proposed actions, determine the effects of the action on affected fish and wildlife species and their habitats, and define measures to minimize and mitigate adverse effects.

We hope this information assists you in developing a comprehensive and thorough Environmental Assessment. We appreciate your efforts to conserve listed species. If you have questions about our comments, please contact Michelle Bogardus, Consultation and Habitat Conservation Planning Program (phone: 808-792-9400, fax: 808-792-9581).

Sincerely,

Aaron Nadig
Acting Assistant Field Supervisor
Oahu, Kauai, American Samoa, NWHI

THE LIMTIACO CONSULTING GROUP
CIVIL ENGINEERING AND ENVIRONMENTAL CONSULTANTS

June 1, 2015

Aaron Nadig, Acting Assistant Field Supervisor
U.S. Department of the Interior
Fish and Wildlife Service
Pacific Islands Fish and Wildlife Office
300 Ala Moana Boulevard
Honolulu, Hawaii 96850

Re: Response to Pre-Assessment Consultation Comments for the Proposed Board of Water Supply Aina Haina 170' Potable Reservoir No. 2 Tax Map Key (1) 3-6-016:040 Honolulu, Oahu, Hawaii

Dear Mr. Nadig,

Thank you for your letter dated July 28, 2014 regarding the pre-assessment consultation for the proposed Honolulu Board of Water Supply (BWS) Aina Haina 170' Potable Reservoir No. 2 project.

We acknowledge that there are no federally listed species or designated critical habitats in the immediate vicinity. With regards to the proposed reservoir possibly attracting listed waterbirds to the area, we would like to clarify that the Aina Haina 170' Reservoir No. 2 will be an enclosed concrete structure; the proposed project will not result in potential nesting sites or habitat for listed waterbirds.

We do not anticipate federal funding for the proposed project, nor any impacts to federally listed species.

Publication of the Draft Environmental Assessment is anticipated for July 2015. We look forward to continued participation of the U.S. Fish and Wildlife Service in the environmental review process. If you have any questions, please contact me at 596-7790.

Best regards,
The Limtiaco Consulting Group, Inc.

Jason S. Nakata
Staff Engineer

cc: Scot Muraoka, Honolulu Board of Water Supply

1622 Kanakanui Street • Honolulu, Hawaii 96817
(808) 596-7790 • tlcghawaii.com

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

WILLIAM J. AILA, JR.
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

JESSE K. SOUKI
FIRST DEPUTY

WILLIAM M. TAM
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

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

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

September 8, 2014

Mr. Jason Nakata, Staff Engineer
The Limtiaco Consulting Group
1622 Kanakanui Street
Honolulu, Hawaii 96817

LOG NO: 2014.03211
DOC NO: 1406GC08
Architecture, Archaeology

Dear Sir:

SUBJECT: **Chapter 6E-8 Historic Preservation Review –**
Board of Water Supply – Request for Concurrence of "No Historic Properties Affected"
Installation of new Aina Haina 170' Potable Reservoir No. 2
Waikiki Ahupua'a, Kona District, Island of O'ahu
TMK: (1) 3-6-016:040

Thank you for the opportunity to comment on Limtiaco Consulting Group's request on behalf of the Board of Water Supply (BWS) for concurrence of "no historic properties affected" for the proposed BWS project to install an additional 0.5 million gallon potable water reservoir within their facility at 855 Alamuku Street. We received this submittal on July 11, 2014.

The property is owned by the City and County of Honolulu and consists of 0.93 acres. It includes an existing 0.5 million gallon reservoir and a pump station within a CRM wall and fence enclosure. The proposed project may involve acquiring an additional 0.03 acres of land from the adjacent 6.59-acre City and County of Honolulu Wailupe Community Park (TMK: (1) 3-6-019:012). The scope of work involves the installation of a new 0.5 million gallon potable water reservoir, construction and installation of new drainage infrastructures, trenching for new connections to existing infrastructures and utility lines, realignment of the existing CRM wall and chain link fencing, and possible extension of the existing maintenance road to encompass the new potable reservoir. The anticipated trenching depth is approximately 6 feet. The acquisition of the additional acreage will require grading, cutting and excavation to meet the current grade of the existing reservoir facility.

The submittal indicates that the existing BWS structures began service in 1951, access to the property is restricted to BWS personnel, and that no archaeological historic properties have been previously identified on the facility property. In addition, Limtiaco will notify and consult with surrounding residents and interested groups and organizations about the proposed BWS project and the identification of potential historic properties.

The Aina Haina reservoir pump station is a rectangular concrete structure circa 1950. The front of the structure has ribbon windows, and on the left hand side are open rectangular vents. Just below the flat roof is script reading Board of Water Supply. Based on the information provided, the water pumping station is eligible for the State and National Registers of Historic Places under Criterion C as a contributing element in a Board of Water Supply multi-property nomination. However, the new reservoir will not affect the architectural historic integrity of the station and the existing structures will not be altered.

Our records indicate that no archaeological inventory survey has been conducted, and that no historic properties have been identified within the subject project area. The soils are identified as Lualualei extremely stony clay, 3-6%

slopes. In addition, our geographical information system (GIS) indicates that the property has undergone ground disturbances during the construction of the existing station, CRM walls and irrigation system.

At this time we have insufficient information to concur with Limtiaco's determination of "no historic properties affected." We look forward to finalization of the project area boundaries and acreage and anticipated ground-disturbing activities subject to a decision on possible land acquisition, and to notification of the results of the planned community outreach and consultation concerning potential historic properties within the project area. In addition, SHPD recommends that an **archaeological inventory survey** be conducted of the project area to identify and document any surface and subsurface historic properties that may be present and, if necessary, an appropriate course of mitigation. We also request that a report of the survey findings that meets the standards of Hawaii Administrative Rule §13-276 be submitted to SHPD for review and acceptance prior to initiation of the proposed project.

Please contact Anna Broverman at (808) 692-8023 or at Anna.E.Broverman@hawaii.gov if you have any questions regarding architectural resources. Please contact me at (808) 692-8019 or at Susan.A.Lebo@hawaii.gov if you have any questions or concerns regarding this letter.

Aloha,

Susan A. Lebo

Susan A. Lebo, PhD.
Oahu Lead Archaeologist

cc: Scot Muraoka, P.E., BWS (smuraoka@hbws.org)
Jonathan Suzuki, P.E. BWS (jsuzuki@hbws.org)

THE LIMTIACO CONSULTING GROUP
CIVIL ENGINEERING AND ENVIRONMENTAL CONSULTANTS

June 1, 2015

Susan A. Lebo, Ph.D., Oahu Lead Archaeologist
State of Hawaii
Department of Land and Natural Resources
State Historic Preservation Division
601 Kamokila Boulevard, Suite 555
Kapolei, Hawaii 96707
Attn:

Re: **Response to Pre-Assessment Consultation Comments for the Proposed Board of Water Supply Aina Haina 170' Potable Reservoir No. 2 Tax Map Key (1) 3-6-016:040 Honolulu, Oahu, Hawaii**

Dear Ms. Lebo,

Thank you for your letter dated September 8, 2014 regarding the pre-assessment consultation for the proposed Honolulu Board of Water Supply (BWS) Aina Haina 170' Potable Reservoir No. 2 project. Your letter stated that insufficient information was available to concur with a "no historic properties affected" determination and recommended that an archaeological inventory survey be prepared in support of the proposed project.

Based on your recommendation, the *Archaeological Inventory Survey Report for the Proposed Aina Haina 170' Potable Reservoir No. 2 Project in Wailupe Ahupuaa, Kona District, Oahu Island, Hawaii* was prepared in April 2015 and submitted to your office for review. The study included subsurface field investigations at the proposed areas of ground disturbance in the Wailupe Community Park, a reconnaissance of the existing BWS facility, and an architectural analysis of existing structures within the BWS property.

There were no major archaeological finds resulting from the survey, and the report determined that no further archaeological work is required at the project site. The architectural analysis determined that the existing pump station building and reservoir at the project site are eligible for listing in the National Register of Historic Places. However, the report states that the proposed project will not significantly affect these structures since no demolition or alternation of these structures is proposed.

A copy of the draft archaeological inventory survey will be included as part of the Draft Environmental Assessment (EA). A copy of the final archaeological inventory survey will be included with the Final EA.

1622 KANAKANUI STREET • HONOLULU, HAWAII 96817
(808) 596-7790 • tlcghawaii.com

Publication of the Draft EA is anticipated for July 2015. We look forward to continued participation of the SHPD in the environmental review process. If you have any questions, please contact me at 596-7790.

Best regards,
The Limtiaco Consulting Group, Inc.

Jason S. Nakata
Staff Engineer

cc: Scot Muraoka, Honolulu Board of Water Supply

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

WILLIAM J. AILA, JR.
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

JESSE K. SOUKI
FIRST DEPUTY

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

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

July 15, 2014

TO: Jason Nakata, Staff Engineer
The Limtiaco Consulting Group
1622 Kanakanui Street
Honolulu, HI 96817

THROUGH: William J. Aila, Jr.
Chairperson
Department of Land and Natural Resources

FROM: Lisa J. Hadway
Administrator
Division of Forestry and Wildlife

SUBJECT: Pre-Consultation for Environmental Assessment
Proposed Board of Water Supply Aina Haina 170' Potable Reservoir No. 2
Tax Map Key (1) 3-6-016:040
Honolulu, Oahu, Hawaii

We have no objections to the proposed work. In general, we recommend maintenance of a vegetated condition to help to reduce sediment runoff. Diverting water from paved areas to vegetated bio-swales could improve water quality and reduce sediment transport (please do appropriate research to assure that any grass species selected for hydro-seeding are not invasive in nature). Establishment of tree canopy will improve aesthetics and produce shading to help reduce the heat-island effect from urban sites. Use of flat-lens lighting helps to protect the night sky, and minimizes the impacts of facility lighting on wildlife such as seabirds. The Division of Forestry and Wildlife would encourage consideration of all of the above.

The Division of Forestry and Wildlife's Kaulunani Urban and Community Forestry Program is always looking for ways that they can assist with tree establishment and impact mitigation projects in urban areas, if such expertise is of interest to you.

THE LIMTIACO CONSULTING GROUP
CIVIL ENGINEERING AND ENVIRONMENTAL CONSULTANTS

June 1, 2015

Lisa Hadway, Administrator
State of Hawaii
Department of Land and Natural Resources
Division of Forestry and Wildlife
1151 Punchbowl Street, Room 325
Honolulu, Hawaii 96813

Re: Response to Pre-Assessment Consultation Comments for the Proposed Board of Water Supply Aina Haina 170' Potable Reservoir No. 2 Tax Map Key (1) 3-6-016:040 Honolulu, Oahu, Hawaii

Dear Ms. Hadway,

Thank you for your letter dated July 15, 2014 regarding the pre-assessment consultation for the proposed Honolulu Board of Water Supply (BWS) Aina Haina 170' Potable Reservoir No. 2 project. We acknowledge that the Division of Forestry and Wildlife (DFW) has no objections to the proposed works.

Your recommendations for implementation of bioswales, tree cover, and flat-lens lighting will be included in the Draft EA, and will be considered further during the project's design phase. Thank you for informing us of the Kaulunani Urban and Community Forestry Program. The Draft EA will include your recommendation to consult with the Kaulunani Urban and Community Forestry Program if tree installation is proposed as part of the project.

Publication of the Draft EA is anticipated for July 2015. We look forward to continued participation of the DFW in the environmental review process. If you have any questions, please contact me at 596-7790.

Best regards,
The Limtiaco Consulting Group, Inc.

Jason S. Nakata
Staff Engineer

cc: Scot Muraoka, Honolulu Board of Water Supply

1622 KANAKANUI STREET • HONOLULU, HAWAII 96817
(808) 596-7790 • tlcghawaii.com

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

WILLIAM J. AILA, JR.
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

August 7, 2014

The Limtiaco Consulting Group
Attention: Mr. Jason Nakata
1622 Kanakanui Street
Honolulu, HI 96817

via email: jason.n@tlcghawaii.com

Dear Mr. Nakata,

SUBJECT: Pre-Consultation for Environmental Assessment, Proposed Board of Water Supply Aina Haina 170' Potable Reservoir No. 2

Thank you for the opportunity to review and comment on the subject matter. The Department of Land and Natural Resources' (DLNR) Land Division distributed or made available a copy of your report pertaining to the subject matter to DLNR Divisions for their review and comments.

At this time, enclosed are comments from (1) Land Division – Oahu District; and (2) Engineering Division. No other comments were received as of our suspense date. Should you have any questions, please feel free to call Supervising Land Agent Steve Molmen at 587-0439. Thank you.

Sincerely,

Russell Y. Tsuji
Land Administrator

Enclosure(s)

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

WILLIAM J. AILA, JR.
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

July 9, 2014

MEMORANDUM

TO: **DLNR Agencies:**
__Div. of Aquatic Resources
__Div. of Boating & Ocean Recreation
_X_Engineering Division
__Div. of Forestry & Wildlife
__Div. of State Parks
_X_Commission on Water Resource Management
_X_Office of Conservation & Coastal Lands
_X_Land Division – Oahu District
_X_Historic Preservation

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Pre-Consultation for Environmental Assessment, Proposed Board of Water Supply Aina Haina 170' Potable Reservoir No. 2
LOCATION: Tax Map Key (1) 3-6-016: 040; Honolulu, Oahu, Hawaii
APPLICANT: Honolulu Board of Water Supply by its consultant, The Limtiaco Consulting Group

Transmitted for your review and comment on the above-referenced document. We would appreciate your comments on this document.

Please submit any comments by August 6, 2014. If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Supervising Land Agent Steve Molmen at (808) 587-0439. Thank you.

Attachments

( ) We have no objections.
(✓) We have no comments.
( ) Comments are attached.

Signed: T Chee
Print Name: Trinity Chee
Date: 7/14/14

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

WILLIAM J. AILA, JR.
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

RECEIVED
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2014 AUG -5 PM 3:22
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

July 9, 2014

MEMORANDUM

~~TO~~: From: **DLNR Agencies:**
__Div. of Aquatic Resources
__Div. of Boating & Ocean Recreation
X Engineering Division
__Div. of Forestry & Wildlife
__Div. of State Parks
X Commission on Water Resource Management
X Office of Conservation & Coastal Lands
X Land Division – Oahu District
X Historic Preservation

~~FROM~~: TO: Russell Y. Tsuji, Land Administrator
SUBJECT: Pre-Consultation for Environmental Assessment, Proposed Board of Water Supply Aina Haina 170' Potable Reservoir No. 2
LOCATION: Tax Map Key (1) 3-6-016: 040; Honolulu, Oahu, Hawaii
APPLICANT: Honolulu Board of Water Supply by its consultant, The Limtiaco Consulting Group

Transmitted for your review and comment on the above-referenced document. We would appreciate your comments on this document.

Please submit any comments by August 6, 2014. If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Supervising Land Agent Steve Molmen at (808) 587-0439. Thank you.

Attachments

( ) We have no objections.
( ) We have no comments.
(✓) Comments are attached.

Signed: [signature]
Print Name: for Carty S. Chang, Chief Engineer
Date: 8/5/14

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LD/ Russell Y. Tsuji
REF: Pre-Consultation for EA for Proposed BWS Aina Haina 170' Potable Reservoir No. 2
Oahu.040

COMMENTS

( ) We confirm that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Flood Zone ___.

(X) Please take note that the project site according to the Flood Insurance Rate Map (FIRM), is located in Zone X. The National Flood Insurance Program (NFIP) does not regulate developments within Zone X.

( ) Please note that the correct Flood Zone Designation for the project site according to the Flood Insurance Rate Map (FIRM) is ___.

( ) Please note that the project must comply with the rules and regulations of the National Flood Insurance Program (NFIP) presented in Title 44 of the Code of Federal Regulations (44CFR), whenever development within a Special Flood Hazard Area is undertaken. If there are any questions, please contact the State NFIP Coordinator, Ms. Carol Tyau-Beam, of the Department of Land and Natural Resources, Engineering Division at (808) 587-0267.

Please be advised that 44CFR indicates the minimum standards set forth by the NFIP. Your Community's local flood ordinance may prove to be more restrictive and thus take precedence over the minimum NFIP standards. If there are questions regarding the local flood ordinances, please contact the applicable County NFIP Coordinators below:

( ) Mr. Mario Siu Li at (808) 768-8098 of the City and County of Honolulu, Department of Planning and Permitting.

( ) Mr. Frank DeMarco at (808) 961-8042 of the County of Hawaii, Department of Public Works.

( ) Mr. Carolyn Cortez at (808) 270-7253 of the County of Maui, Department of Planning.

( ) Mr. Stanford Iwamoto at (808) 241-4896 of the County of Kauai, Department of Public Works.

( ) The applicant should include project water demands and infrastructure required to meet water demands. Please note that the implementation of any State-sponsored projects requiring water service from the Honolulu Board of Water Supply system must first obtain water allocation credits from the Engineering Division before it can receive a building permit and/or water meter.

( ) The applicant should provide the water demands and calculations to the Engineering Division so it can be included in the State Water Projects Plan Update.

( ) Additional Comments: _____

_____

( ) Other: _____

_____

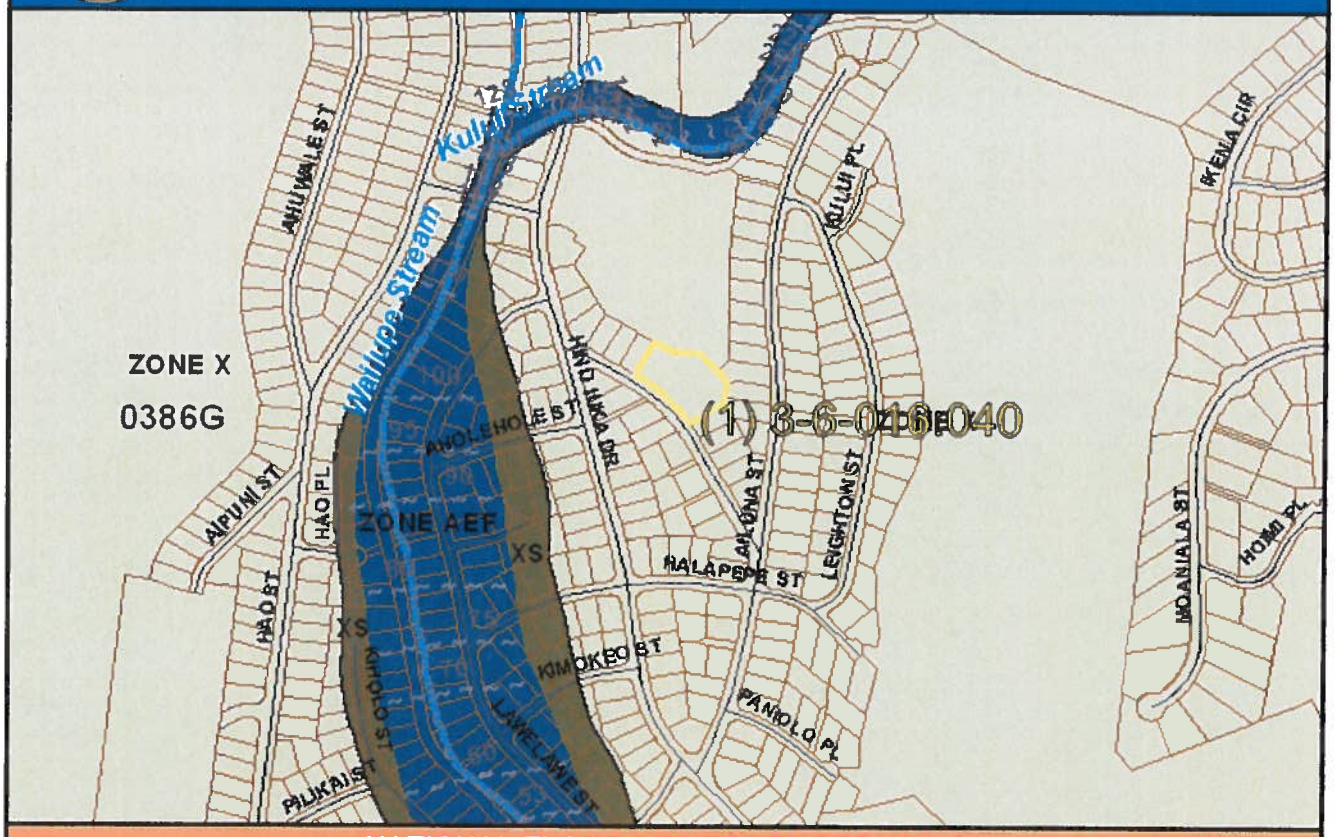
Should you have any questions, please call Mr. Dennis Imada of the Planning Branch at 587-0257.

Signed: Chris Takaichi for
CARTY S. CHANG, CHIEF ENGINEER

Date: 8/5/14

State of Hawaii

FLOOD HAZARD ASSESSMENT REPORT



NATIONAL FLOOD INSURANCE PROGRAM

FLOOD ZONE DEFINITIONS

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

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

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

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

OTHER FLOOD AREAS

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

PROPERTY INFORMATION

COUNTY:	HONOLULU
TMK NO:	(1) 3-6-016-040
PARCEL ADDRESS:	855 ALAMUKU ST HONOLULU, HI 96821
FIRM INDEX DATE:	JANUARY 19, 2011
LETTER OF MAP CHANGE(S):	NONE
FEMA FIRM PANEL(S):	15003C0386G
PANEL EFFECTIVE DATE:	JANUARY 19, 2011

PARCEL DATA FROM:	APRIL 2014
IMAGERY DATA FROM:	MAY 2006

IMPORTANT PHONE NUMBERS

County NFIP Coordinator	
City and County of Honolulu	
Mario Siu-Li, CFM	(808) 768-8098
State NFIP Coordinator	
Carol Tyau-Beam, P.E., CFM	(808) 587-0267

THE LIMTIACO CONSULTING GROUP
CIVIL ENGINEERING AND ENVIRONMENTAL CONSULTANTS

June 1, 2015

Russell Y. Tsuji, Land Administrator
State of Hawaii
Department of Land and Natural Resources
Land Division
1151 Punchbowl Street, Room 220
Honolulu, Hawaii 96813

Re: Response to Pre-Assessment Consultation Comments for the Proposed Board of Water Supply Aina Haina 170' Potable Reservoir No. 2 Tax Map Key (1) 3-6-016:040 Honolulu, Oahu, Hawaii

Dear Mr. Tsuji,

Thank you for your letter dated August 7, 2014 regarding the pre-assessment consultation for the proposed Honolulu Board of Water Supply (BWS) Aina Haina 170' Potable Reservoir No. 2 project. We have the following responses to your comments:

We acknowledge that the Land Division does not have any comments on the subject project at this time.

We acknowledge the Engineering Division comment that the project site is located within Flood Zone X, and that the National Flood Insurance Program does not regulate development within Zone X.

Publication of the Draft Environmental Assessment is anticipated for July 2015. We look forward to continued participation of the DLNR in the environmental review process. If you have any questions, please contact me at 596-7790.

Best regards,
The Limtiaco Consulting Group, Inc.

Jason S. Nakata
Staff Engineer

cc: Scot Muraoka, Honolulu Board of Water Supply

1622 KANAKANUI STREET • HONOLULU, HAWAII 96817
(808) 596-7790 • tlcghawaii.com

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

LINDA ROSEN, M.D., M.P.H.
DIRECTOR OF HEALTH

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

In reply, please refer to:
EMD/CWB

07023PCTM.14

July 14, 2014

Mr. Jason Nakata
Staff Engineer
The Limtiaco Consulting Group
1622 Kanakanui Street
Honolulu, Hawaii 96817

Dear Mr. Nakata:

**SUBJECT: Comments on the Pre-Consultation for Environmental Assessment for the Proposed Board of Water Supply Aina Haina 170' Potable Reservoir No. 2 Project
Honolulu, Island of Oahu, Hawaii**

The Department of Health (DOH), Clean Water Branch (CWB), acknowledges receipt of your letter, dated July 3, 2014, requesting comments on your project. The DOH-CWB has reviewed the subject document and offers these comments. Please note that our review is based solely on the information provided in the subject document and its compliance with the Hawaii Administrative Rules (HAR), Chapters 11-54 and 11-55. You may be responsible for fulfilling additional requirements related to our program. We recommend that you also read our standard comments on our website at: http://health.hawaii.gov/epo/files/2013/10/CWB_Oct22.pdf

1. Any project and its potential impacts to State waters must meet the following criteria:

   a. Antidegradation policy (HAR, Section 11-54-1.1), which requires that the existing uses and the level of water quality necessary to protect the existing uses of the receiving State water be maintained and protected.

   b. Designated uses (HAR, Section 11-54-3), as determined by the classification of the receiving State waters.

   c. Water quality criteria (HAR, Sections 11-54-4 through 11-54-8).

2. National Pollutant Discharge Elimination System (NPDES) permit coverage is required for pollutant discharges into State surface waters and for certain situations involving storm water (HAR, Chapter 11-55).

a. Discharges into Class 2 or Class A State waters can be covered under an NPDES general permit only if all of the NPDES general permit requirements are met. Please see the DOH-CWB website (http://health.hawaii.gov/cwb/) for the NPDES general permits and instructions to request coverage.

b. All other discharges into State surface waters and discharges into Class 1 or Class AA State waters require an NPDES individual permit. To request NPDES individual permit coverage, please see the DOH-CWB forms website located at: http://health.hawaii.gov/cwb/site-map/clean-water-branch-home-page/forms/

c. NPDES permit coverage for storm water associated with construction activities is required if your project will result in the disturbance of one (1) acre or more of total land area. The total land area includes a contiguous area where multiple separate and distinct construction activities may be taking place at different times on different schedules under a larger common plan of development or sale. NPDES permit coverage is required before the start of the construction activities.

   Land disturbance includes, but is not limited to clearing, grading, grubbing, uprooting of vegetation, demolition (even if leaving foundation slab), staging, stockpiling, excavation into pavement areas which go down to the base course, and storage areas (including areas on the roadway to park equipment if these areas are blocked off from public usage, grassed areas, or bare ground).

3. If your project involves work in, over, or under waters of the United States, it is highly recommend that you contact the Army Corp of Engineers, Regulatory Branch (Tel: 438-9258) regarding their permitting requirements.

   Pursuant to Federal Water Pollution Control Act [commonly known as the "Clean Water Act" (CWA)], Paragraph 401(a)(1), a Section 401 Water Quality Certification (WQC) is required for "[a]ny applicant for Federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may **result** in any discharge into the navigable waters..." (emphasis added). The term "discharge" is defined in CWA, Subsections 502(16), 502(12), and 502(6); Title 40 of the Code of Federal Regulations, Section 122.2; and Hawaii Administrative Rules (HAR), Chapter 11-54.

4. Please note that all discharges related to the project construction or operation activities, whether or not NPDES permit coverage and/or Section 401 WQC are required, must comply with the State's Water Quality Standards. Noncompliance with water quality requirements contained in HAR, Chapter 11-54, and/or permitting requirements, specified in HAR, Chapter 11-55, may be subject to penalties of $25,000 per day per violation.

5. For information regarding potential impacts on traditional and cultural practices and beliefs of any cultural or ethnic groups, it is recommended that you contact the Office of Hawaiian Affairs or the Department of Land and Natural Resources, State Historic Preservation Division for comments on the proposed project.

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

Sincerely,

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

CTM:tg

THE LIMTIACO CONSULTING GROUP
CIVIL ENGINEERING AND ENVIRONMENTAL CONSULTANTS

June 1, 2015

Alec Wong, P.E., Chief
State of Hawaii
Department of Health
Clean Water Branch
919 Ala Moana Boulevard, Room 301
Honolulu, Hawaii 96814

Re: Response to Pre-Assessment Consultation Comments for the Proposed Board of Water Supply Aina Haina 170' Potable Reservoir No. 2 Tax Map Key (1) 3-6-016:040 Honolulu, Oahu, Hawaii

Dear Mr. Wong,

Thank you for your letter dated July 14, 2014 regarding the pre-assessment consultation for the proposed Honolulu Board of Water Supply (BWS) Aina Haina 170' Potable Reservoir No. 2 project. We have the following responses to the Clean Water Branch's (CWB) comments:

1. We acknowledge that any project and its potential impacts must meet the anti-degradation policy, designated uses, and water quality criteria outlined in the State of Hawaii (State) Water Quality Standards (Chapter 11-54, Hawaii Administrative Rules). The nearest water body – Wailupe Stream – is a "class 2" inland water body.

   The proposed project will conform with the general policy of water quality anti-degradation (§11-54-1.1, Hawaii Administrative Rules) and will not endanger the designated uses of nearby water bodies (§11-54-3, Hawaii Administrative Rules). Implementation of BMPs during construction will mitigate possible impacts to the water quality criteria (§11-54-4, Hawaii Administrative Rules).

2. We acknowledge that a National Pollutant Discharge Elimination System (NPDES) permit must be obtained for discharges of wastewater, including storm water runoff, into State surface waters. Possible NPDES triggers for the proposed project include a disturbed area greater than 1-acre (for stormwater runoff related to construction activities) and discharges associated with hydrotesting; however, exact NPDES permit requirements will be determined during the design and construction phases of the proposed project. The BWS will obtain required NPDES permits prior to any regulated discharge.

3. The proposed project does not involve work in, over, or under waters of the United States or Navigable Waters of the United States. If it is later found that such work is required, we understand that additional permit requirements may be triggered pursuant to Section 401 & 404, Clean Water Act and Section 10, Rivers and Harbors Act. If such work is required, the United States Army Corps of Engineers will first be consulted.

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4. We acknowledge that all discharges related to the project must comply with the State water quality standards, regardless of whether or not a CWB permit is required. We understand that noncompliance may be subject to penalties of $25,000 per day per violation.

5. Thank you for your input regarding groups or individuals knowledgeable of potential impacts to traditional and cultural practices and beliefs of any cultural or ethnic groups. We have contacted the Office of Hawaiian Affairs and the State Historic Preservation Division as a part of this pre-assessment consultation and will continue to consult with them through the EA process.

Publication of the Draft EA is anticipated for July 2015. We look forward to continued participation of the CWB in the environmental review process. If you have any questions, please contact me at 596-7790.

Best regards,
The Limtiaco Consulting Group, Inc.

Jason S. Nakata
Staff Engineer

cc: Scot Muraoka, Honolulu Board of Water Supply

NEIL ABERCROMBIE
GOVERNOR OF HAWAI

LINDA ROSEN, M.D., M.P.H.
DIRECTOR OF HEALTH

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

In reply, please refer to:
File:

EPO 14-141

July 11, 2014

Jason Nakata, Staff Engineer
The Limtiaco Consulting Group
1622 Kanakanui Street
Honolulu, Hawaii 96817

Dear Mr. Nakata:

SUBJECT: Pre-Consultation for Environmental Assessment for the Proposed Board of Water Supply Aina Haina 170' Potable Reservoir No. 2 Tax Map Key (1) 3-6-016: 040, Honolulu, Oahu, Hawaii

On behalf of the Department of Health (DOH), the Environmental Planning Office (EPO) acknowledges receipt of your letters dated July 3, 2014 to Deputy Director Keith Y. Yamamoto, Environmental Management Division Chief Stuart Yamada, and myself. Thank you for allowing us to review and comment on the subject document. The document was routed to the Safe Drinking Water Branch. They will provide specific comments to you if necessary. EPO recommends that you review the standard comments at: http://health.hawaii.gov/epo/home/landuse-planning-review-program/. You are required to adhere to all applicable standard comments.

You may also wish to review the recently revised Water Quality Standards Maps that have been updated for all islands. The new Water Quality Standards Maps can be found at: http://health.hawaii.gov/cwb/site-map/clean-water-branch-home-page/water-quality-standards/.

The EPO suggests that you examine the many sources available on sustainability, including the following: 2014 National Climate Change Report – Highlights for Hawaii: http://ipcc-wg2.gov/AR5/images/uploads/WGIIAR5-Chap29_FGDall.pdf; and Intergovernmental Panel on Climate Change (IPCC): http://ipcc-wg2.gov/AR5/images/uploads/WGIIAR5-Chap29_FGDall.pdf

The DOH encourages everyone to apply these sustainability strategies and principles early in the planning and review of projects.

Mahalo,

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

c. Joanna Seto, Safe Drinking Water Branch

THE LIMTIACO CONSULTING GROUP
CIVIL ENGINEERING AND ENVIRONMENTAL CONSULTANTS

June 1, 2015

Laura Leialoha Phillips McIntyre, AICP, Program Manager
State of Hawaii
Department of Health
Environmental Planning Office
P.O. Box 3378
Honolulu, Hawaii 96801

Re: Response to Pre-Assessment Consultation Comments for the Proposed Board of Water Supply Aina Haina 170' Potable Reservoir No. 2 Tax Map Key (1) 3-6-016:040 Honolulu, Oahu, Hawaii

Dear Ms. McIntyre,

Thank you for your letter dated July 11, 2014 regarding the pre-assessment consultation for the proposed Honolulu Board of Water Supply (BWS) Aina Haina 170' Potable Reservoir No. 2 project.

We will review the standard comments of the Clean Air Branch, Clean Water Branch, Hazard Evaluation and Emergency Response Office, Noise Radiation and Indoor Air Quality Branch, Safe Drinking Water Branch, Solid Hazardous Waste Branch and Wastewater Branch. All applicable comments will be addressed in the Draft Environmental Assessment (EA).

Thank you for providing information regarding the new Water Quality Standard Maps and reference material regarding sustainability. They will be considered, and any applicable material will be referenced in the Draft EA.

Publication of the Draft EA is anticipated for July 2015. We look forward to continued participation of the Environmental Planning Office in the environmental review process. If you have any questions, please contact me at 596-7790.

Best regards,
The Limtiaco Consulting Group, Inc.

Jason S. Nakata
Staff Engineer

cc: Scot Muraoka, Honolulu Board of Water Supply

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DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR
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KIRK CALDWELL
MAYOR

MARK YONAMINE, P.E.
ACTING DIRECTOR

GERALD HAMADA, P.E.
ACTING DEPUTY DIRECTOR

August 6, 2014

The Limtiaco Consulting Group
1622 Kanakanui Street
Honolulu, Hawaii 96817

Attn: Jason Nakata

Dear Mr. Nakata:

Subject: Pre-Consultation for Environmental Assessment
Proposed Board of Water Supply Aina Haina 170' Potable Reservoir No. 2
Tax Map Key (1) 3-6-016: 040
Honolulu, Oahu, Hawaii

Thank you for the opportunity to review and comment. The Department of Design and Construction (DDC) has the following comment to offer on the subject project:

The package does not contain sufficient detail (e.g., site topographic survey or schematic design drawings) to allow DDC to assess the impact on the existing park.

Should there be any questions, please contact Clifford Lau, Chief, Facilities Division at 768-8483.

Sincerely,

Mark Yonamine, P.E.
Acting Director

MY: cf (570115)

THE LIMTIACO CONSULTING GROUP
CIVIL ENGINEERING AND ENVIRONMENTAL CONSULTANTS

June 1, 2015

Robert J. Kroning, P.E., Director
City and County of Honolulu
Department of Design and Construction
650 South King Street, 11th Floor
Honolulu, Hawaii 96813

Re: Response to Pre-Assessment Consultation Comments for the Proposed Board of Water Supply Aina Haina 170' Potable Reservoir No. 2 Tax Map Key (1) 3-6-016:040 Honolulu, Oahu, Hawaii

Dear Mr. Kroning,

Thank you for your letter dated August 6, 2014 regarding the pre-assessment consultation for the proposed Honolulu Board of Water Supply (BWS) Aina Haina 170' Potable Reservoir No. 2 project.

Because the Environmental Assessment (EA) occurs during the planning stage of the proposed project, we currently do not have topographic data or schematic design drawings for your review. A topographic survey and design drawings will be prepared during design, which will occur after the EA process is completed. Prior to construction, the BWS will obtain a building permit from the City and County of Honolulu (City), at which time the topographic information and design drawings will be available for review by the City.

Publication of the Draft EA is anticipated for July 2015. We look forward to continued participation of the Department of Design and Construction in the environmental review process. If you have any questions, please contact me at 596-7790.

Best regards,
The Limtiaco Consulting Group, Inc.

Jason S. Nakata
Staff Engineer

cc: Scot Muraoka, Honolulu Board of Water Supply

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DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU
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KIRK CALDWELL
MAYOR

GEORGE I. ATTA, FAICP
DIRECTOR

ARTHUR D. CHALLACOMBE
DEPUTY DIRECTOR

2014/ELOG-1248

August 4, 2014

05-06-14P03:12 RCVD

Mr. Jason Nakata
Staff Engineer
The Limtiaco Consulting Group
1622 Kanakanui Street
Honolulu, Hawaii 96817

Dear Mr. Nakata:

In response to your pre-consultation notice dated July 3, 2014 for the Board of Water Supply's proposed Aina Haina 170' Potable Reservoir No. 2 (Tax Map Key 3-6-16: 40), we have the following comments:

1. Your review should address the project's conformance with the following City policies and regulations: the General Plan, the East Honolulu Sustainable Communities Plan, the Land Use Ordinance (LUO), and the Public Infrastructure Map (PIM). You should note that a PIM revision will be required for the proposed new reservoir, and that the LUO classifies the use as "Public Uses and Structures," which are allowed in all zoning districts.

2. In addition to the drainage impacts and Wailupe Community Park impacts that your letter already mentions, you should also address impacts on the surrounding area, including visual impacts. We recommend that illustrations be provided showing how the new reservoir will look at ground level from the nearby street, from the adjacent park, and so forth.

3. Please identify the following: The extent of the service area, the sources of growing demand in the service area, and the locations and storage capacities of the other reservoirs in the East Honolulu 170' system.

Should you have any questions, please contact Mike Watkins of our staff at 768-8044.

Very truly yours,

George I. Atta, FAICP
Director

GIA:js

THE LIMTIACO CONSULTING GROUP
CIVIL ENGINEERING AND ENVIRONMENTAL CONSULTANTS

June 1, 2015

George I. Atta, FAICP, LEED AP, CEI, Director
City and County of Honolulu
Department of Planning and Permitting
650 South King Street, 7th Floor
Honolulu, Hawaii 96813

Re: Response to Pre-Assessment Consultation Comments for the Proposed Board of Water Supply Aina Haina 170' Potable Reservoir No. 2 Tax Map Key (1) 3-6-016:040, Honolulu, Oahu, Hawaii

Dear Mr. Atta,

Thank you for your letter dated August 4, 2014 regarding the pre-assessment consultation for the proposed Honolulu Board of Water Supply (BWS) Aina Haina 170' Potable Reservoir No. 2 project. We have the following responses to your comments:

1. The Draft Environmental Assessment (EA) will address the project's conformance with the General Plan, East Honolulu Sustainable Communities Plan, and Land Use Ordinance. We acknowledge that a Public Infrastructure Map revision will be required for the proposed new reservoir. We also acknowledge that the Department of Planning and Permitting (DPP) considers the proposed new reservoir to fall under the category of "Public Uses and Structures", which is allowed in all zoning districts.

2. The Draft EA will address the project's potential impacts on the surrounding community, including visual impacts. Digital renderings of the proposed reservoir from various vantage points will be included in the Draft EA.

3. The extent of the service area, sources of growing demand in the service area, and locations and storage capacities of other reservoirs in the Aina Haina to Kuliouou 170' system will be included in the Draft EA.

Publication of the Draft EA is anticipated for July 2015. We look forward to continued participation of the DPP in the environmental review process. If you have any questions, please contact me at 596-7790.

Best regards,
The Limtiaco Consulting Group, Inc.

Jason S. Nakata
Staff Engineer

cc: Scot Muraoka, Honolulu Board of Water Supply

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DEPARTMENT OF PARKS & RECREATION

CITY AND COUNTY OF HONOLULU

1000 Uluohia Street, Suite 309, Kapolei, Hawaii 96707
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Website: www.honolulu.gov

KIRK CALDWELL
MAYOR

MICHELE K. NEKOTA
DIRECTOR

JEANNE C. ISHIKAWA
DEPUTY DIRECTOR

July 17, 2014

07-13-14P02:44 RCVD

Mr. Jason Nakata, Staff Engineer
The Limtiaco Consulting Group
1622 Kanakanui Street
Honolulu, Hawaii 96817

Dear Mr. Nakata:

SUBJECT: Pre-Consultation for an Environmental Assessment
Proposed Board of Water Supply
Aina Haina 170' Potable Reservoir No. 2
Tax Map Key (1) 3-6-016:040

Thank you for the opportunity to review and comment at the pre-consultation stage of the environmental assessment for the subject Board of Water Supply (BWS) Aina Haina 170' Potable Reservoir No. 2.

The Department of Parks and Recreation (DPR) has no comment on the proposed new reservoir however, please note that there are existing park improvements including children's play apparatus that may represent challenges to BWS' contractor being able to utilize park property for vehicles and equipment required to construct the reservoir.

DPR recommends that BWS contact Todd Hiranaga, District I Manager, at 373-8013 to confirm what access to park property will be permitted during construction.

Should you have any questions, please contact Mr. John Reid, Planner at 768-3017.

Sincerely,

Michele K. Nekota
Director

MKN:jr
(570126)

cc: Scott Muraoka, P.E., BWS
Todd Hiranaga, DPR

THE LIMTIACO CONSULTING GROUP
CIVIL ENGINEERING AND ENVIRONMENTAL CONSULTANTS

June 1, 2014

Michelle Nekota, Director
City and County of Honolulu
Department of Parks and Recreation
1000 Uluohia Street, Suite 309
Honolulu, Hawaii 96707

Re: **Response to Pre-Assessment Consultation Comments for the Proposed Board of Water Supply Aina Haina 170' Potable Reservoir No. 2 Tax Map Key (1) 3-6-016:040 Honolulu, Oahu, Hawaii**

Dear Ms. Nekota,

Thank you for your letter dated July 17, 2014 regarding the pre-assessment consultation for the proposed Honolulu Board of Water Supply (BWS) Aina Haina 170' Potable Reservoir No. 2 project.

We acknowledge that the existing park improvements, including children's play apparatus, may present access challenges to the BWS contractor during construction of the proposed project. While this project is still in its early planning phases, construction of the proposed reservoir should be able to be performed within BWS property to minimize disturbance to Wailupe Community Park.

The BWS will coordinate with the City and County of Honolulu, Department of Parks and Recreation (DPR) should construction access through the park be required.

Publication of the Draft Environmental Assessment is anticipated for July 2015. We look forward to continued participation of the DPR in the environmental review process. If you have any questions, please contact me at 596-7790.

Best regards,
The Limtiaco Consulting Group, Inc.

Jason S. Nakata
Staff Engineer

cc: Scot Muraoka, Honolulu Board of Water Supply

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DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU

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KIRK CALDWELL
MAYOR

MICHAEL D. FORMBY
DIRECTOR

MARK N. GARRITY, AICP
DEPUTY DIRECTOR

TP7/14-570251R

August 6, 2014

08-06-14P03:13 RCVD

Mr. Jason Nakata
Staff Engineer
The Limtiaco Consulting Group
1622 Kanakanui Street
Honolulu, Hawaii 96817

Dear Mr. Nakata:

SUBJECT: Pre-Consultation for Draft Environmental Assessment (DEA)
Proposed Board of Water Supply Aina Haina 170' Potable
Reservoir No. 2; Tax Map Key (TMK) (1) 3-6-016: 040;
Honolulu, Oahu, Hawaii

In response to your letter dated July 3, 2014, we have the following comments:

1. The affected Neighborhood Board, as well as the area residents, businesses, etc., should be kept apprised of the project's details and its impacts on the adjoining local street area network particularly during construction.

2. A street usage permit from the City's Department of Transportation Services shall be obtained for any construction-related work that may require the temporary closure of any traffic lane on a City street.

3. Any construction materials and equipment should be transferred to and from the project site during off-peak traffic hours (8:30 a.m. to 3:30 p.m.) to minimize any possible disruption to traffic on the local streets.

We reserve further comment pending submission of the DEA.

Thank you for the opportunity to review this matter. Should you have any further questions, please contact Michael Murphy of my staff at 768-8359.

Very truly yours,

Michael D. Formby
Director

cc: Scot Muraoka, P.E.
Board of Water Supply

THE LIMTIACO CONSULTING GROUP
CIVIL ENGINEERING AND ENVIRONMENTAL CONSULTANTS

June 1, 2015

Michael D. Formby, Director
City and County of Honolulu
Department of Transportation Services
650 South King Street, 3rd Floor
Honolulu, Hawaii 96813

Re: Response to Pre-Assessment Consultation Comments for the Proposed Board of Water Supply Aina Haina 170' Potable Reservoir No. 2 Tax Map Key (1) 3-6-016:040 Honolulu, Oahu, Hawaii

Dear Mr. Formby,

Thank you for your letter dated August 6, 2014 regarding the pre-assessment consultation for the proposed Honolulu Board of Water Supply (BWS) Aina Haina 170' Potable Reservoir No. 2 project. We have the following responses to your comments:

1. We have sent consultation letters to the Kuliouou-Kalani Iki Neighborhood Board, Aina Haina Community Association, and property owners adjacent to the project site. The BWS will continue to consult with these parties throughout the Environmental Assessment (EA) process. The EA will acknowledge that the affected residents, businesses, and community organizations should be kept apprised of the project's details and impacts during construction.

2. The need for a street usage permit will not be determined until construction; however, the EA will acknowledge that a street usage permit will be required for any construction-related work that may require the temporary closure of any traffic lane on a City street.

3. The EA will acknowledge that materials and equipment should be transferred to and from the project site during off-peak traffic hours when feasible.

Publication of the Draft EA is anticipated for July 2015. We look forward to continued participation of the DTS in the environmental review process. If you have any questions, please contact me at 596-7790.

Best regards,
The Limtiaco Consulting Group, Inc.

Jason S. Nakata
Staff Engineer

cc: Scot Muraoka, Honolulu Board of Water Supply

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HONOLULU FIRE DEPARTMENT

CITY AND COUNTY OF HONOLULU

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Honolulu, Hawaii 96813-5007
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KIRK CALDWELL
MAYOR

MANUEL P. NEVES
FIRE CHIEF

LIONEL CAMARA JR.
DEPUTY FIRE CHIEF

07-23-14P01:11 RCVD

July 22, 2014

Mr. Jason Nakata, Staff Engineer
The Limtiaco Consulting Group
1622 Kanakanui Street
Honolulu, Hawaii 96817

Dear Mr. Nakata:

Subject: Preconsultation for Environmental Assessment
Proposed Board of Water Supply Aina Haina 170' Potable Reservoir No. 2
Tax Map Key: 1-3-6-016: 040

In response to your letter of July 3, 2014, regarding the above-mentioned subject, the Honolulu Fire Department determined that there will be no significant impact to fire department services.

Should you have questions, please contact Battalion Chief Terry Seelig of our Fire Prevention Bureau at 723-7151 or tseelig@honolulu.gov.

Sincerely,

Keith Yasui

KEITH YASUI
Acting Assistant Chief

KY/SY:bh

THE LIMTIACO CONSULTING GROUP
CIVIL ENGINEERING AND ENVIRONMENTAL CONSULTANTS

June 1, 2015

Manuel P. Neves, Fire Chief
City and County of Honolulu
Honolulu Fire Department
636 South Street
Honolulu, Hawaii 96813-5007

Re: Response to Pre-Assessment Consultation Comments for the Proposed Board of Water Supply Aina Haina 170' Potable Reservoir No. 2 Tax Map Key (1) 3-6-016:040 Honolulu, Oahu, Hawaii

Dear Mr. Neves,

Thank you for your letter dated July 22, 2014 regarding the pre-assessment consultation for the proposed Honolulu Board of Water Supply (BWS) Aina Haina 170' Potable Reservoir No. 2 project.

We acknowledge that the proposed project will not result in significant impact to fire department services.

Publication of the Draft EA is anticipated for July 2015. We look forward to continued participation of the Honolulu Fire Department in the environmental review process. If you have any questions, please contact me at 596-7790.

Best regards,
The Limtiaco Consulting Group, Inc.

Jason S. Nakata
Staff Engineer

cc: Scot Muraoka, Honolulu Board of Water Supply

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POLICE DEPARTMENT

CITY AND COUNTY OF HONOLULU

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PETER B. CARLISLE
MAYOR

LOUIS M. KEALOHA
CHIEF

DAVE M. KAJIHIRO
MARIE A. McCAULEY
DEPUTY CHIEFS

OUR REFERENCE EO-WS

July 23, 2014

07-24-14P02:09 RCVD

Mr. Jason Nakata, Staff Engineer
The Limtiaco Consulting Group
1622 Kanakanui Street
Honolulu, Hawaii 96817

Dear Mr. Nakata:

This is in response to your letter dated July 3, 2014, requesting comments on the Pre-Consultation, Draft Environmental Assessment, for the proposed Board of Water Supply Aina Haina 170' Potable Reservoir No. 2 project.

The Honolulu Police Department (HPD) anticipates possible short-term impacts to neighborhood vehicular and pedestrian traffic on the roadway of Alamuku Street.

We recommend that adequate personnel be hired to conduct traffic control. Additionally, we recommend that all necessary signs, lights, barricades, cones, and other safety equipment be installed and maintained by the contactor to facilitate the flow of vehicular and pedestrian traffic during construction. The HPD further recommends notifying the neighborhood board and the affected homeowners of any traffic issues related to local ingress and egress within the area. Lastly, the moving of heavy equipment or construction-related supplies should be conducted during nonpeak hours.

If there are any questions, please contact Major Calvin Tong of District 7 (East Honolulu) at 723-3369 or via e-mail at ctong@honolulu.gov.

Sincerely,

LOUIS M. KEALOHA
Chief of Police

By RL K. Macadangdang
RANDAL K. MACADANGDANG
Assistant Chief
Support Services Bureau

Serving and Protecting With Aloha

THE LIMTIACO CONSULTING GROUP
CIVIL ENGINEERING AND ENVIRONMENTAL CONSULTANTS

June 1, 2015

Louis M. Kealoha, Chief
City and County of Honolulu
Honolulu Police Department
801 South Beretania Street
Honolulu, Hawaii 96813

Re: Response to Pre-Assessment Consultation Comments for the Proposed Board of Water Supply Aina Haina 170' Potable Reservoir No. 2 Tax Map Key (1) 3-6-016:040 Honolulu, Oahu, Hawaii

Dear Mr. Kealoha,

Thank you for your letter dated July 23, 2014 regarding the pre-assessment consultation for the proposed Honolulu Board of Water Supply (BWS) Aina Haina 170' Potable Reservoir No. 2 project.

We acknowledge that short-term impacts to vehicular and pedestrian traffic may occur during construction of the proposed project. The Environmental Assessment (EA) will consider the use of traffic control personnel, traffic control devices, neighborhood notification, and limiting the moving of heavy equipment to off-peak hours in order to mitigate traffic related impacts.

Publication of the Draft EA is anticipated for July 2015. We look forward to continued participation of the Honolulu Police Department in the environmental review process. If you have any questions, please contact me at 596-7790.

Best regards,
The Limtiaco Consulting Group, Inc.

Jason S. Nakata
Staff Engineer

cc: Scot Muraoka, Honolulu Board of Water Supply

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