

FINAL ENVIRONMENTAL ASSESSMENT

WAIPIO HEIGHTS WELLS AND WELLS I GAC SYSTEM UPGRADE



**HONOLULU
BOARD OF
WATER SUPPLY**

FINAL ENVIRONMENTAL ASSESSMENT

WAIPIO HEIGHTS WELLS AND WELLS I GAC SYSTEM UPGRADE

July 2008

Prepared for:

**Board of Water Supply
City and County of Honolulu**

Prepared by:



**Belt Collins Hawaii Ltd.
Honolulu, Hawaii**

TABLE OF CONTENTS

ACRONYMS AND ABBREVIATIONS		iii
1 SUMMARY		1
2 DESCRIPTION OF THE PROPOSED ACTION		2
2.1 Project Objective.....		2
2.2 Description of the Proposed Action.....		2
2.3 Estimated Cost.....		9
2.4 Construction Schedule.....		9
3 DESCRIPTION OF AFFECTED ENVIRONMENT AND POTENTIAL PROJECT IMPACTS		9
3.1 Regional Setting.....		9
3.2 Existing Land Use and Land Tenure.....		11
3.3 Topography.....		11
3.4 Geology and Soils.....		12
3.5 Hydrology.....		12
3.6 Natural Hazards.....		12
3.7 Flora and Fauna.....		12
3.8 Air Quality.....		13
3.9 Soundscape.....		13
3.10 Scenic Resources.....		13
3.11 Archaeological and Cultural Resources.....		13
4 SOCIOECONOMIC SETTING		14
4.1 Social Characteristics and Considerations.....		14
4.2 Economic Conditions and Considerations.....		14
5 PUBLIC FACILITIES AND SERVICES		14
5.1 Circulation and Traffic.....		14
5.2 Water, Sewer, Electricity, Telephone, Gas, and Cable TV.....		15
5.3 Stormwater Drainage.....		15
5.4 Solid Waste.....		15
5.5 Public Services and Facilities.....		18
6 RELATIONSHIP TO PUBLIC LAND USE POLICIES		18
6.1 Hawaii State Plan.....		18
6.2 State Land Use Law.....		18
6.3 State Environmental Policy.....		18
6.4 City and County General Plan.....		19
6.5 Central Oahu Sustainable Community Plan.....		19
6.6 Honolulu Land Use Ordinance.....		19
6.7 Special Management Area.....		19
6.8 Required Permits and Approvals.....		19
6.9 Compliance with the Drinking Water State Revolving Fund Program Requirements.....		21
6.9.1 Archaeological and Historic Preservation Acts.....		22
6.9.2 Clean Air Act.....		22
6.9.3 Coastal Zone Management Act.....		22

6.9.4 Endangered Species Act 23

6.9.5 Environmental Justice, Executive Order 12898..... 23

6.9.6 Floodplain Management, Executive Order 11988 23

6.9.7 Protection of Wetlands, Executive Order 11990 23

6.9.8 Farmland Protection Policy Act..... 23

6.9.9 Fish and Wildlife Coordination Act..... 24

6.9.10 National Historic Preservation Act 24

6.9.11 Safe Drinking Water Act 24

6.9.12 Wild and Scenic Rivers Act..... 24

7 SUMMARY OF MAJOR PROJECT IMPACTS 24

7.1 Short-Term Impacts 24

7.2 Long-Term Impacts 25

8 PROPOSED MITIGATION MEASURES 26

8.1 Short-Term Impacts Mitigation 26

8.2 Long-Term Impacts Mitigation..... 28

9 ALTERNATIVES CONSIDERED 29

9.1 No Action..... 29

9.2 Alternative Location 29

9.3 Alternative Design 29

10 DETERMINATION 30

11 FINDINGS AND REASONS SUPPORTING DETERMINATION30

**12 COMMENTS FROM AND RESPONSES TO AGENCIES, ORGANIZATIONS,
PUBLIC OFFICIALS, AND PROPERTY OWNERS..... 31**

13 REFERENCES 34

FIGURES

Figure 1 Island of Oahu.....3

Figure 2 Location Map4

Figure 3 Waipio Heights Wells and Wells I.....5

Figure 4 Waipahu Wells III Site.....6

Figure 5 Proposed GAC Contactor Units.....7

Figure 6 Proposed Transmission Line.....8

Figure 7 Existing Land Use.....10

Figure 8 Circulation and Traffic.....16

Figure 9 Existing Utilities17

Figure 10 Existing Zoning.....20

Figure 11 Traffic Control Measures During Project Construction.....27

APPENDICES

Appendix A Letters Received During Early Consultation Period

Appendix B Cultural Impact Evaluation

ACRONYMS AND ABBREVIATIONS

BLNR	Board of Land and Natural Resources, State of Hawaii
BMP	Best Management Practices
BWS	Board of Water Supply, City & County of Honolulu
C&C	City and County (of Honolulu)
CSH	Cultural Surveys Hawaii
CZM	Coastal Zone Management
DDC	Department of Design and Construction, City & County of Honolulu
DES	Department of Environmental Services, City & County of Honolulu
DFM	Department of Facility Maintenance, City & County of Honolulu
DFW	Division of Forestry and Wildlife (State of Hawaii)
DLNR	Department of Land and Natural Resources, State of Hawaii
DOH	Department of Health, State of Hawaii
DPR	Department of Parks & Recreation, City & County of Honolulu
DPP	Department of Planning and Permitting, City & County of Honolulu
DTS	Department of Transportation Services, City & County of Honolulu
DWSRF	Drinking Water State Revolving Fund
EA	Environmental Assessment
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Significant Impact
GAC	Granular Activated Carbon
HAR	Hawaii Administrative Rules
HDOT	Hawaii State Department of Transportation
HRS	Hawaii Revised Statutes

LUO	Land Use Ordinance
MCL	Maximum Contaminant Level
MG	million gallon
NAAQS	National Ambient Air Quality Standards
NPDES	National Pollutant Discharge Elimination System
OBC	Oahu Burial Council
OHA	Office of Hawaiian Affairs, State of Hawaii
OEQC	Office of Environmental Quality Control
SHPD	State Historic Preservation Division, State of Hawaii
SMA	Special Management Area
TCP	Traffic Control Plan
USFWS	U.S. Fish and Wildlife Service

1 SUMMARY

PROPOSING AGENCY	The Board of Water Supply (BWS), City and County (C&C) of Honolulu
APPROVING AGENCY	BWS, C&C of Honolulu
GENERAL PROJECT DESCRIPTION	The BWS is proposing to upgrade the quality of water drawn from its Waipio Heights Wells and Wells I site (Tax Map Key (TMK) 9-4-44: 35 & 36) by installing two granular activated carbon (GAC) contactor units at its Waipahu Wells III site (TMK 9-4-05: 76) and connecting the two facilities with a 16-inch diameter transmission main along Kamehameha Highway, Lumiaina Street, Lumihoahu Street, and Lumimoe Street, a distance of approximately 3,900 feet.
PROJECT LOCATION	The Waipio Heights Wells and Wells I site is located at the corner of Lumihoahu Street and Lumimoe Street in Crestview and the Waipahu Wells III site is located along Kamehameha Highway in the Patsy T. Mink Central Oahu Regional Park. With the transmission line along Kamehameha Highway, the entire project is located in Waipio, Oahu, Hawaii.
PRELIMINARY DETERMINATION	Anticipated Finding of No Significant Impact (FONSI)
CONSULTED AGENCIES	State Agencies Department of Business, Economic Development and Tourism Department of Transportation, Highways Division Environmental Management Division, Department of Health (DOH) Land Division, Department of Land and Natural Resources (DLNR)

Office of Environmental Quality Control (OEQC)
Office of Hawaiian Affairs (OHA)
State Historic Preservation Division, DLNR

County Agencies

Department of Design and Construction (DDC)
Department of Environmental Services (DES)
Department of Facility Maintenance (DFM)
Department of Parks and Recreation (DPR)
Department of Planning and Permitting (DPP)
Department of Transportation Services (DTS)
Honolulu Fire Department
Honolulu Police Department

2 DESCRIPTION OF THE PROPOSED ACTION

2.1 Project Objective

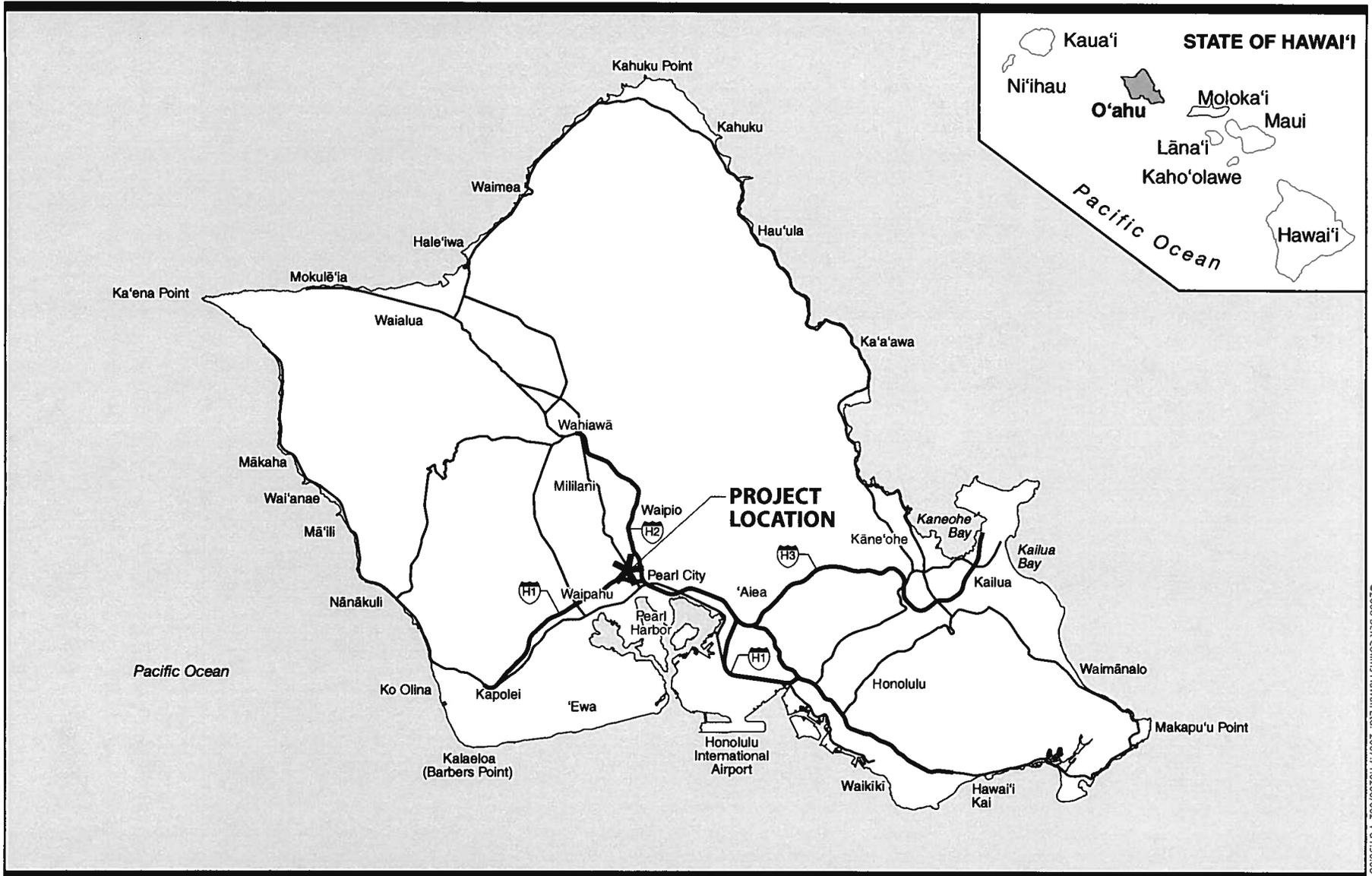
The objective of the proposed action is to upgrade BWS's water system at the Waipio Heights Wells and Wells I site in Waipio, Oahu (see Figures 1 and 2) to assure that water quality from this well site continually meets water quality standards.

2.2 Description of the Proposed Action

The BWS is proposing to upgrade its well system at the Waipio Heights Wells and Wells I site by installing two contactor units in its existing ten-contactor-unit GAC treatment system located at the Waipahu Wells III site in the nearby Patsy T. Mink Central Oahu Regional Park (see Figures 3 to 5). The water drawn from the Waipio Heights Wells and Wells I site will be conveyed to the Waipahu Wells III site via a 16-inch diameter transmission line along Kamehameha Highway (see Figure 6), where the expanded GAC system (pad and stub-outs already exist for the two additional contactor units) will filter the conveyed water before it is placed into BWS's distribution network for public consumption.

Routine water quality tests at the Waipio Heights Wells and Wells I site have shown an increase in the concentration levels of Trichloropropane. While these levels are below the State DOH established Maximum Contaminant Level (MCL), the BWS is proposing to upgrade its system to allow for the removal of excess concentration levels of Trichloropropane. This is to assure that should TCP levels continue to rise an acceptable quality of water is maintained and that State and Federal water quality standards derived from the U.S. Safe Drinking Act are continuously met.

The water that enters the GAC treatment system is filtered to remove most organic and synthetic chemical elements. The contactors in the GAC treatment system contain activated carbon that has a porous surface structure. This porous composition allows for adsorption of the contaminants as the water passes through the activated carbon.

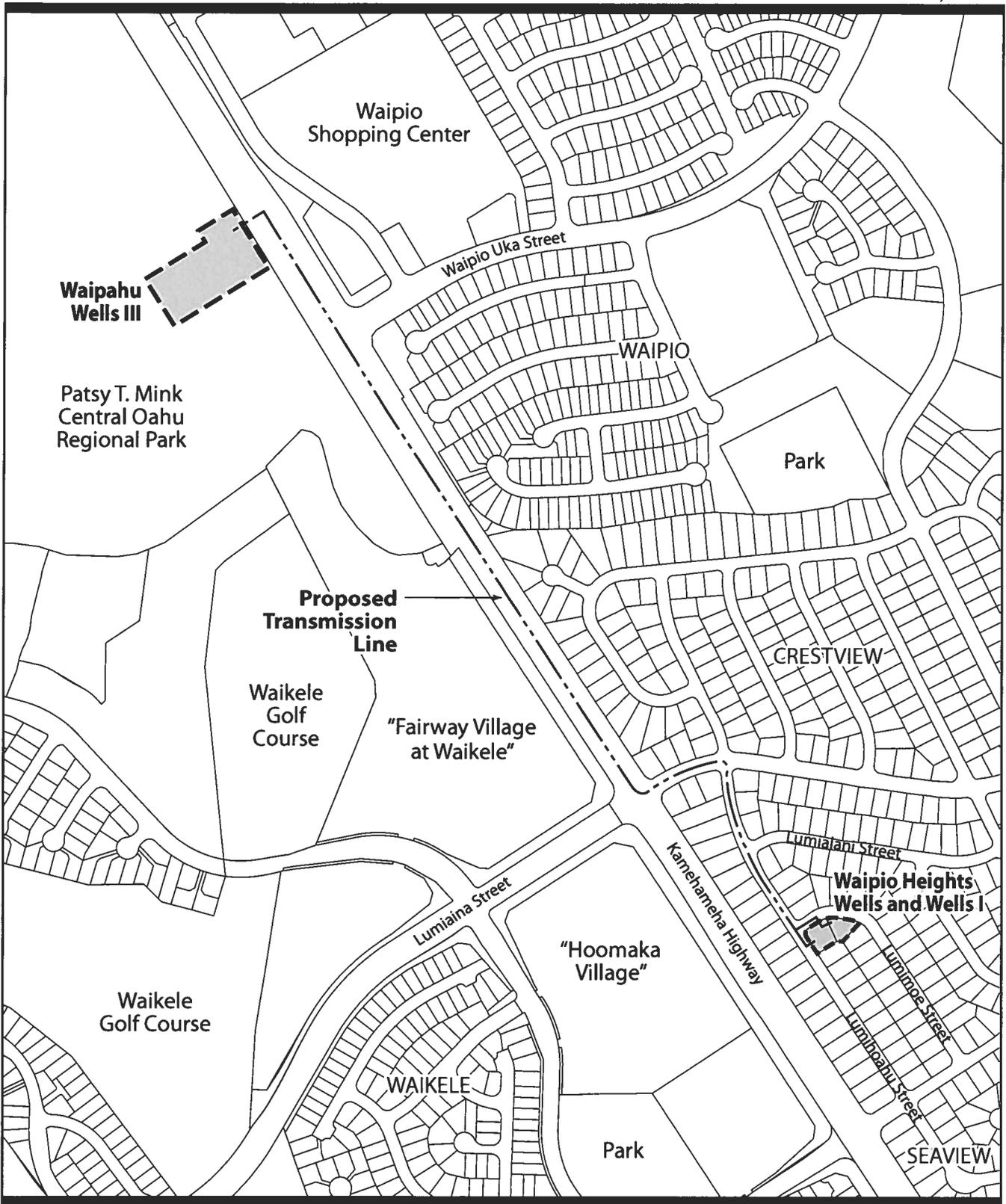


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Figure 1
ISLAND OF OAHU

Waipio Heights Wells and Wells I
Honolulu Board of Water Supply



**Figure 2
LOCATION MAP**

Waipio Heights Wells and Wells I
Honolulu Board of Water Supply

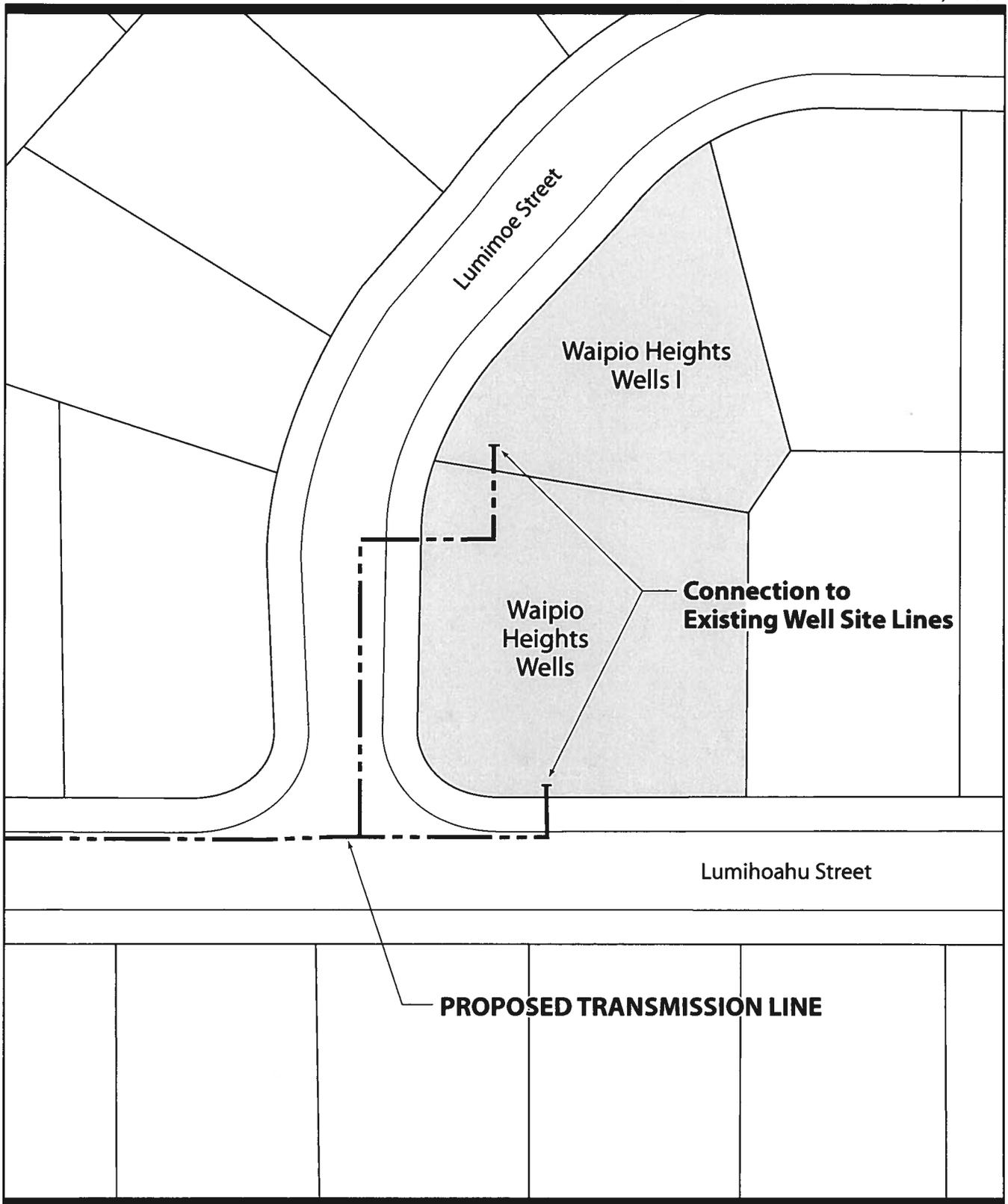


Figure 3
WAIPIO HEIGHTS WELLS AND WELLS I

Waipio Heights Wells and Wells I
Honolulu Board of Water Supply

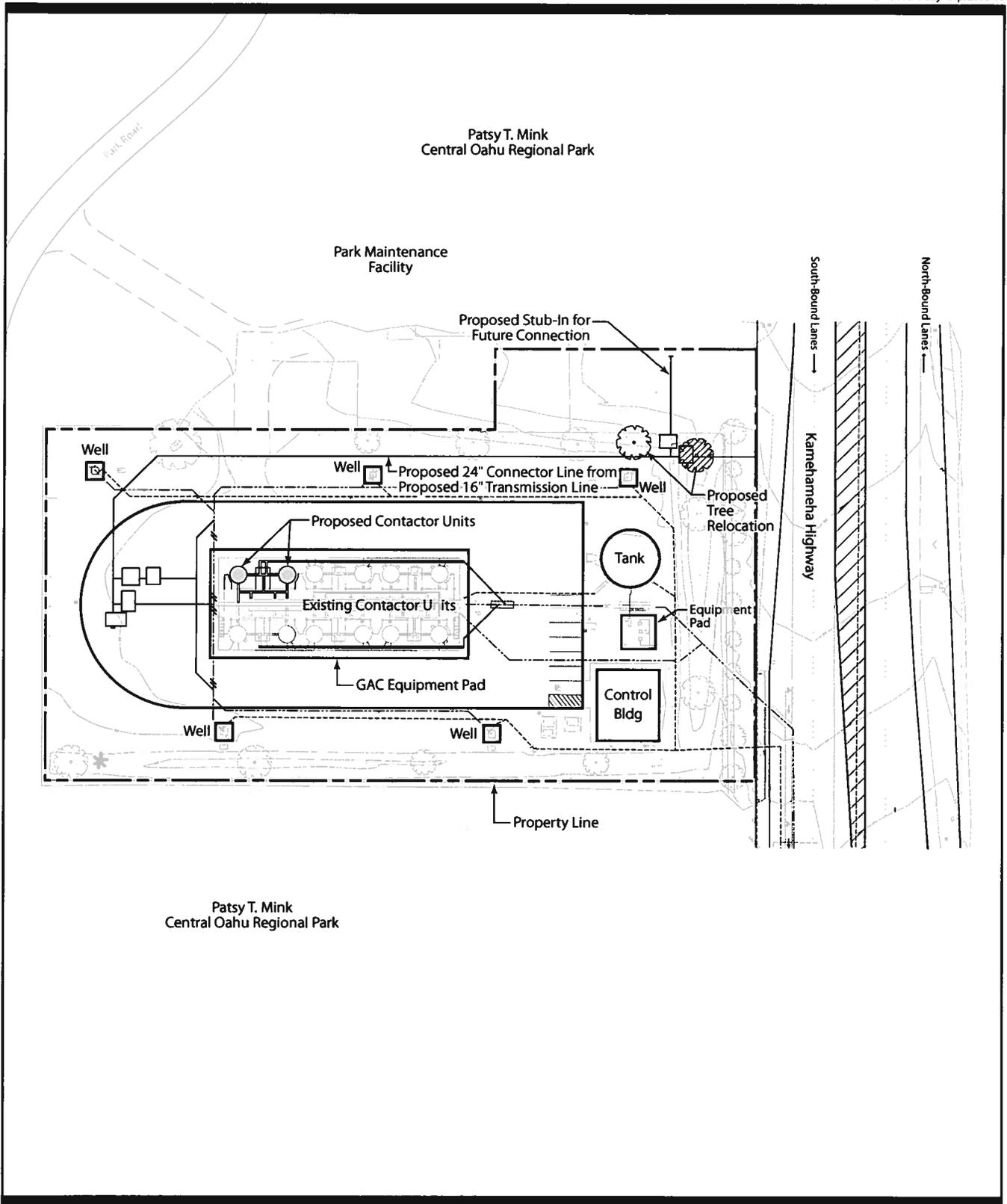


Figure 4
WAIPAHU WELLS III SITE
Waipio Heights Wells and Wells I
Honolulu Board of Water Supply

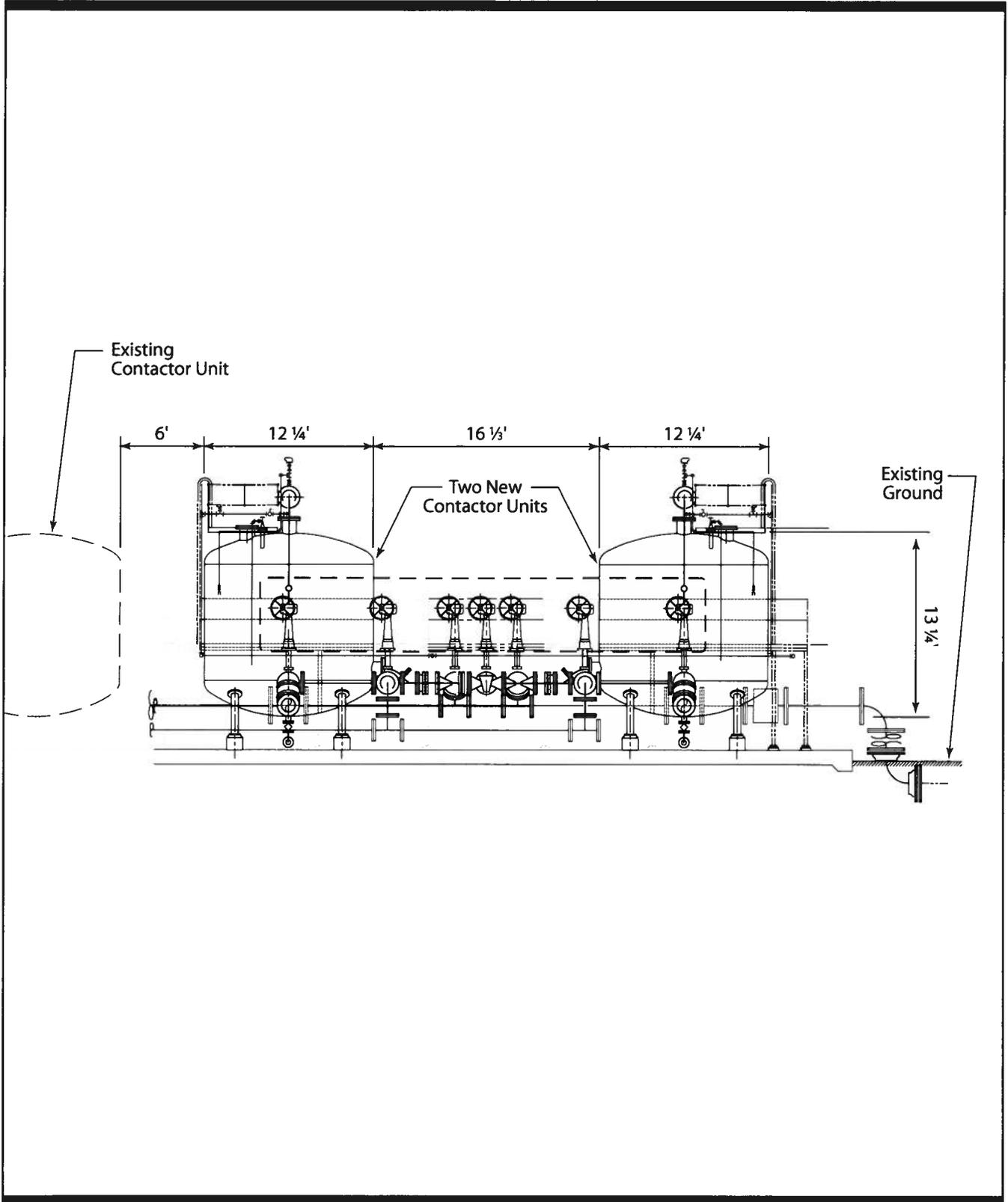
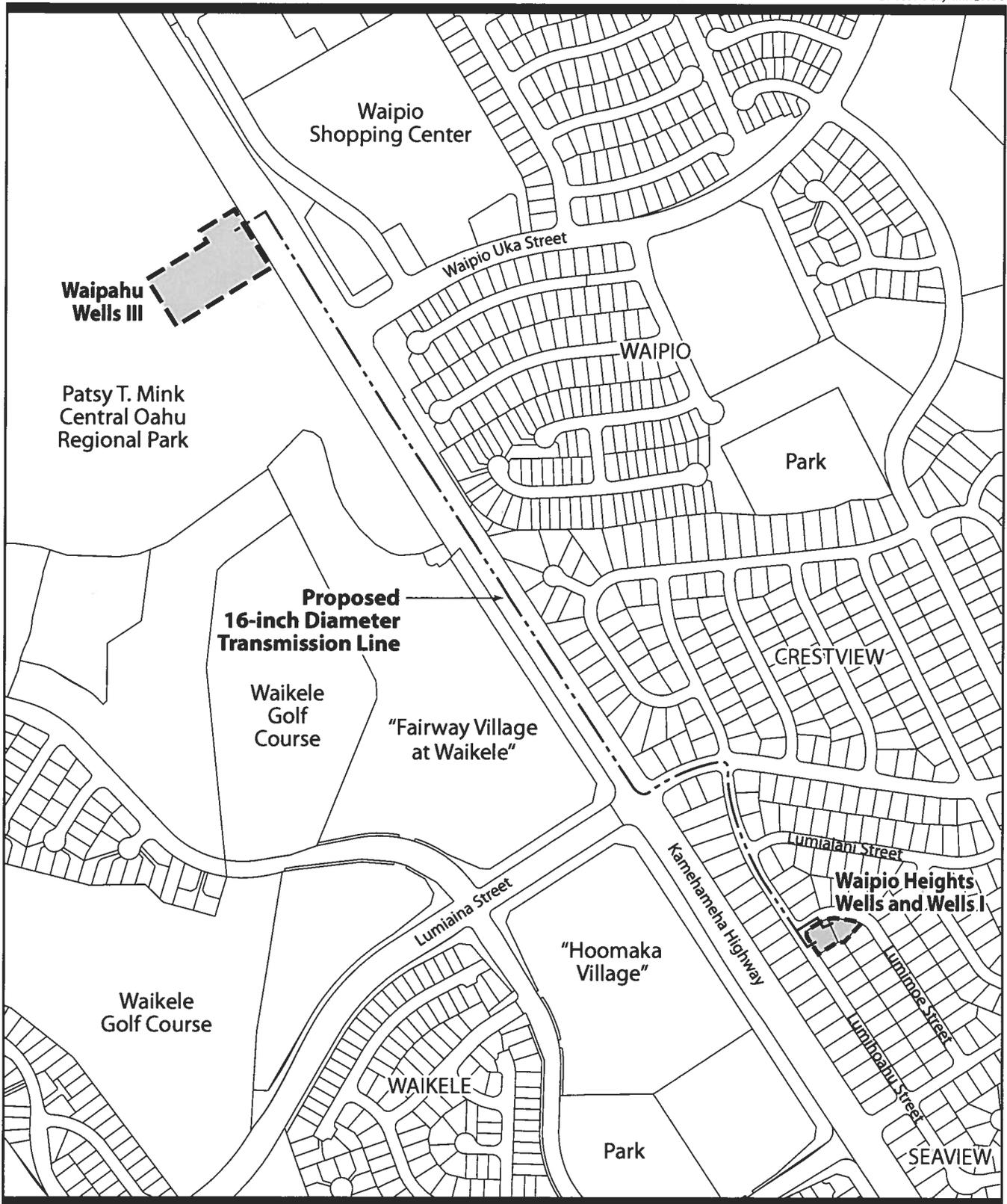


Figure 5
PROPOSED GAC CONTACTOR UNITS

Waipio Heights Wells and Wells I
Honolulu Board of Water Supply



0 250 500
SCALE IN FEET

Figure 6
PROPOSED TRANSMISSION LINE

Waipio Heights Wells and Wells I
Honolulu Board of Water Supply

There are currently ten contactor units in the GAC treatment system serving the wells in the Waipahu Wells III site. The existing pad supporting the contactor units has provisions to accommodate two additional contactor units. Under the proposed plan, two new contactors will be installed to accommodate the flow from the Waipio Heights Wells and Wells I site. The new contactors will be similar in design and profile as the existing units.

Included also with the GAC system upgrade at the Waipahu Wells III site are ancillary electrical and plumbing work, as well as the restoration of the existing driveway, landscaping, and irrigation, all of which are within the existing site.

The new 16-inch transmission line between the Waipio Heights Wells and Wells I site and the Waipahu Wells III site will extend a distance of approximately 3,900 feet and be located entirely within the existing rights-of-way of Lumihoahu Street, Lumiaina Street, Lumimoe Street, and Kamehameha Highway. No adjacent private residential properties will be encroached.

Within the Waipahu Wells III site, a 400-foot long 24-inch diameter main will be installed to connect the 16-inch transmission line from Kamehameha Highway and an on-site stub-out to the GAC contactor units (see Figure 4). The stub-out will be available for future connection from other nearby BWS facilities.

2.3 Estimated Cost

The current preliminary cost estimate to construct the proposed improvements is \$ 5.7 million. Funding will come from the BWS, C&C of Honolulu, however, the BWS may apply for a low-interest loan from the Federal government through the Drinking Water State Revolving Fund (DWSRF) Program.

2.4 Construction Schedule

Construction of the water system upgrade will be scheduled after all environmental and construction permits/approvals are obtained, and construction funding is secured. Preliminarily, it is estimated the earliest start date for construction would be the third quarter of 2009. Construction is expected to occur in phases over a two-year period.

3 DESCRIPTION OF AFFECTED ENVIRONMENT AND POTENTIAL PROJECT IMPACTS

3.1 Regional Setting

The project site is located in the Ewa District of Oahu in a residential community on the western outskirts of Honolulu, the primary urban center of Oahu. Waipio is one of the residential communities in this district. It is comprised of several neighborhoods, including Crestview, Seaview, Waipio, and Waikele (see Figure 7). With a population of over 12,000,¹ this suburban community has a full range of commercial, recreational, and public facilities. The main commercial center is Waikele Shopping Center and a nearby secondary center, the Waipio Shopping Center. There are

¹ U.S. Census Bureau, Census 2000.



0 250 500
SCALE IN FEET

LEGEND

- | | |
|---|---|
|  Single-Family Residential |  Park/Recreational |
|  Multi-Family Residential |  Open Space |
|  Commercial |  Church |

**Figure 7
EXISTING LAND USE**

Waipio Heights Wells and Wells I
Honolulu Board of Water Supply

neighborhood parks, a golf course, a fire station, and the Patsy T. Mink Central Oahu Regional Park, a recreational facility that serves the region.

3.2 Existing Land Use and Land Tenure

The Waipio Heights Wells and Wells I site is located at the corner of Lumihoahu Street and Lumimoe Street in Crestview. It is comprised of two parcels: TMK 9-4-44: 35 which is owned by the BWS, C&C of Honolulu, and occupied by the Waipio Heights Wells, and TMK 9-4-44: 36 which is also owned by the BWS, C&C of Honolulu, and occupied by the Waipio Heights Wells I. Parcel 35 is comprised of 8,299 sq. ft. and has two wells and a control building. Parcel 36 has 6,057 sq. ft. and is also occupied by two wells and an associated control building. The BWS facilities on these two adjoining parcels operate together to supply water to the area’s distribution system.

The Waipahu Wells III site is located along Kamehameha Highway approximately 3,900 feet to the north of the Waipio Heights Wells and Wells I site. Identified as TMK 9-4-05: 76, it is situated along Kamehameha Highway within the Patsy T. Mink Central Oahu Regional Park. The site consists of approximately 2.1 acres and is owned by the BWS, C & C of Honolulu. The major facilities on the site include five wells, a control building, storage tank, equipment pad, 10 GAC contactor units, and ancillary equipment.

Kamehameha Highway is a major State right-of-way that connects H-I Freeway with Central Oahu and North Shore. Lumiaina Street, Lumihoahu Street, and Lumimoe Street are C&C roads that provide access through the Crestview community.

The table below lists the properties included in the project site, their tax map key, and their land owner. BWS will seek permission or authorization from the landowners prior to undertaking the proposed action on their properties.

Site and Land Use	TMK	Property Owner
Waipio Heights Wells & Wells I	9-4-44: 35 & 36	BWS, C&C of Honolulu
Waipahu Wells III	9-4-05: 76	BWS, C&C of Honolulu
Lumihoahu Street	9-4-44: ROW	C&C of Honolulu
Lumiaina Street	9-4-44: ROW	C&C of Honolulu
Lumimoe Street	9-4-44: ROW	C&C of Honolulu
Kamehameha Highway	9-4-07: ROW	Hawaii State DOT

3.3 Topography

The topography at the Waipio Heights Wells and Wells I site and the Waipahu Wells III site is relatively level. The elevation at the Waipio Heights Wells and Wells I site is approximately 202 feet, and at the Waipahu Wells III site, is approximately 314 feet.

The elevations along Kamehameha Highway range from 228 feet at Lumiaina Street to 314 feet at the Waipahu Wells III site resulting in an overall slope of 3.4 percent.

3.4 Geology and Soils

The project area is part of the central Oahu plateau that was formed by successive volcanic lava flows from the Koolau that overlapped the Waianae Mountains' eastern flank. In time, very hard volcanic rock formed bedrock in the plateau. Long-term volcanic inactivity and extensive erosion then occurred forming gulches and ravines, and sedimentation and soil.

Soils in the project area are comprised primarily of Molokai silty clay loam, 3 to 7 percent slopes (MuB).² This soil type is well-drained and was formed in material weathered from basic igneous rock. The runoff on this soil is slow to medium and its erosion hazard characteristic is slight to moderate.

3.5 Hydrology

Natural drainage throughout the project area and vicinity has been altered by urban development. Surface runoff presently occurs within man-made drainage systems of roadway curbs and gutters or swales and stormwater catchment basins.

No natural streams or surface water bodies occupy the project area. Existing groundwater is located far beneath the ground surface and will not result in a need for dewatering during water line installation.³ The wells at the Waipahu Wells III station have a depth of over 450 feet.

The nearest coastal waters are in Pearl Harbor which are identified as Priority Category 5 waters according to the list of impaired water bodies in Section 303(d) of the Clean Water Act.

3.6 Natural Hazards

Flood Insurance Rate Map (FIRM), Map No. 15003C0240F, revised September 30, 2004 and prepared by the Federal Emergency Management Agency (FEMA), indicates that the project area is located in Flood Zone D. This delineated zone is an area where flood hazards are undetermined, but possible.

There are no streams located in the project vicinity that could overflow their banks and flood the project area. A system of drainage swales and stormwater catchment basins occur in the regional park and around the BWS Waipahu well site.

The Waipio Heights Wells and Wells I site is situated in a residential neighborhood that contains a street and stormwater collection system.

Brush fire is not a potential problem for the Waipahu Wells III site, although it is in an open area that is susceptible to potential high winds. The Waipio Heights Wells and Wells I site is shielded from high winds by surrounding development.

3.7 Flora and Fauna

Flora in the general project area is comprised of man-made landscapes and residential yards of a variety of introduced trees, plants, and groundcover. The proposed improvements will be

² Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii, August 1972.

³ Waipahu Wells III Station, Final Environmental Assessment, February 1995.

constructed entirely within the Waipio Heights Wells and Wells I, and Waipahu Wells III sites and pavement area of Lumihoahu Street, Lumiaina Street, Lumimoe Street, and Kamehameha Highway. Hence, no existing tree or plant will require removal (except for an African tulip tree in the Waipahu Wells III site which will be relocated). No rare, threatened, or endangered floral species will be impacted.

The predominant fauna in the area is urban avifauna comprised typically of the common myna, zebra dove, house sparrow, rice finch, Japanese white eye, Java finch, bulbul, and red-crested cardinal. These are all introduced species, none of which are rare, threatened, or endangered.

3.8 Air Quality

The quality of air in the project vicinity is good and is expected to be well within Federal and State air quality standards. The surrounding residential areas do not contain any industrial uses or agricultural operations that include burning activities, crop fires, or nuisance odors from farm activities.

3.9 Soundscape

The sounds in the area are predominantly from vehicular traffic on Kamehameha Highway. The noise level generated by vehicular travel is more pronounced at night when ambient sounds are less in amplitude to mask any traffic sounds. Other sounds come from human activities that occur in the adjoining residential properties, nearby shopping center, regional park, and roadway sidewalks.

3.10 Scenic Resources

The visual amenities of the Waipio urban setting include the prominent mountain ranges of Koolau and Waianae as well as the distant ocean and East and Middle Lochs of Pearl Harbor. The serene park setting and playing fields of the Central Oahu Regional Park is located at the northern end of the project area.

3.11 Archaeological and Cultural Resources

Surface archaeological sites do not occur in the project area. The project site has been completely developed and is currently in use by BWS or as public roads. The alignment for the new transmission line is primarily within the pavement area of Lumihoahu Street, Lumiaina Street, and Kamehameha Highway.

In 2008, Cultural Surveys Hawaii (CSH) completed a cultural impact evaluation of the project area to ascertain whether any traditional Hawaiian gathering or cultural practices would be impacted by the proposed project.⁴ Hawaiian cultural organizations, government agencies, long-time residents, and knowledgeable informants were contacted and consulted for the project.

From its research and survey, CSH noted that a portion of the Kamehameha Highway right-of-way follows a well-documented traditional trail that connected Ewa to the Waialua District of Oahu. Traditional native Hawaiian cultural practices in the Waipio area declined with the recent extensive

⁴ Cultural Surveys Hawaii, DRAFT "Cultural Impact Evaluation for the Board of Water Supply Waipio Heights Wells and Wells I Site . . .," January 2008.

land modification and urbanization of the area. None of the community contacts, who were queried on the project, identified any strong cultural concerns.

The Office of Hawaiian Affairs noted that Waipio was the scene of historic battles and rebellions as well as the home of many a high-ranking chiefs, in addition to being known for its agricultural terraces and the *Loko Eo* (a large fishpond stocked with excellent fish), but did not identify the project site as specifically affected.

In its final summary, CSH determined that the proposed project will have minimal impact upon native Hawaiian cultural resources, beliefs and practices.

4 SOCIOECONOMIC SETTING

4.1 Social Characteristics and Considerations

The proposed action will occur in a residential community and along a major public roadway. Kamehameha Highway provides a major link between Waipio and Mililani, but also serves as an alternative route for the H-2 Freeway which connects Honolulu and Central Oahu. For this reason, it is important to residents of this district that Kamehameha Highway remains open as much as possible.

Since the improvements will be located within existing BWS sites and State and City rights-of-way, no displacements of residential or community facilities will occur. Further, since the proposed action will not require additional staffing for operations and facility maintenance, no population increase is expected to be generated. This would mean no increase in traffic and no increase in demand for housing, community facilities, and public services are anticipated.

4.2 Economic Conditions and Considerations

Waipio is primarily a bedroom community for residents who work in Honolulu and Waikiki, and who must commute daily to their workplace. Although the BWS project is relatively moderate in size, it will have a multiplier effect on the local economy. Construction of the BWS improvements will mobilize employment in the construction industry, prompt sales in construction material and supplies, generate personal income, and contribute to government revenues from sales and income taxes. Secondary impacts would result from monies generated by new income spent at markets, retail stores and other business establishments.

5 PUBLIC FACILITIES AND SERVICES

5.1 Circulation and Traffic

Kamehameha Highway is a four-lane State highway with restricted access (see Figure 8). Access onto the highway is permitted at connecting side streets; no adjacent properties have direct access to the right-of-way (except BWS's Waipahu Wells III site and the Central Oahu Regional Park). Traffic lights operate at the Lumiaina Street intersection and Waipio Uka Street intersection, each having turning lanes in either direction. The existing median strip on Kamehameha Highway is striped on the road pavement.

Hawaii State Department of Transportation (HDOT) records show that the average daily traffic on Kamehameha Highway is 37,210 vehicles.⁵ The typical morning peak-hour traffic occurs between 11:00 a.m. and 12:00 a.m. with a volume of 2,070 vehicles. The afternoon peak-hour traffic occurs between 4:45 p.m. and 5:45 p.m. with a volume of 3,704 vehicles. The posted speed limit is 35 miles per hour.

Lumiaina Street, which is one of the primary accesses into Crestview and Waikele, is a City right-of-way with connections from other local roads in the area. Within Crestview, Lumiaina Street is a two-lane right-of-way with permitted unmarked parking on either side of the travelway. In Waikele, Lumiaina Street is a four-lane drive with wide shoulders, sidewalk, and no on-street parking. HDOT does not have traffic count records for this road.

Lumihoahu Street and Lumimoe Street, which are in Crestview and provide direct access to the Waipio Heights Wells and Wells I site, are two-lane City streets with parking on one side of the road. The posted speed limit is 25 mph.

5.2 Water, Sewer, Electricity, Telephone, Gas, and Cable TV

The right-of-way for Kamehameha Highway contains water and sewer lines as well as underground and overhead electrical and telephone lines to serve the local area (see Figure 9). Near the Hawaiian Telcom substation, one of the lines, an 18-inch sewer line, crosses the highway. There is also an underground cable TV line which serves area customers.

Lumiaina Street on the north side of Kamehameha Highway area has underground water, sewer, gas, and cable TV lines, but overhead electrical and telephone lines. Lumihoahu Street has underground water, sewer, gas, electrical, and telephone lines as well as cable TV.

The location of these utilities within the rights-of-way determines the most feasible location for the new water transmission line. Minimum disruption of services to customers will be a vital aim when construction of the water line is undertaken.

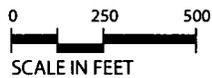
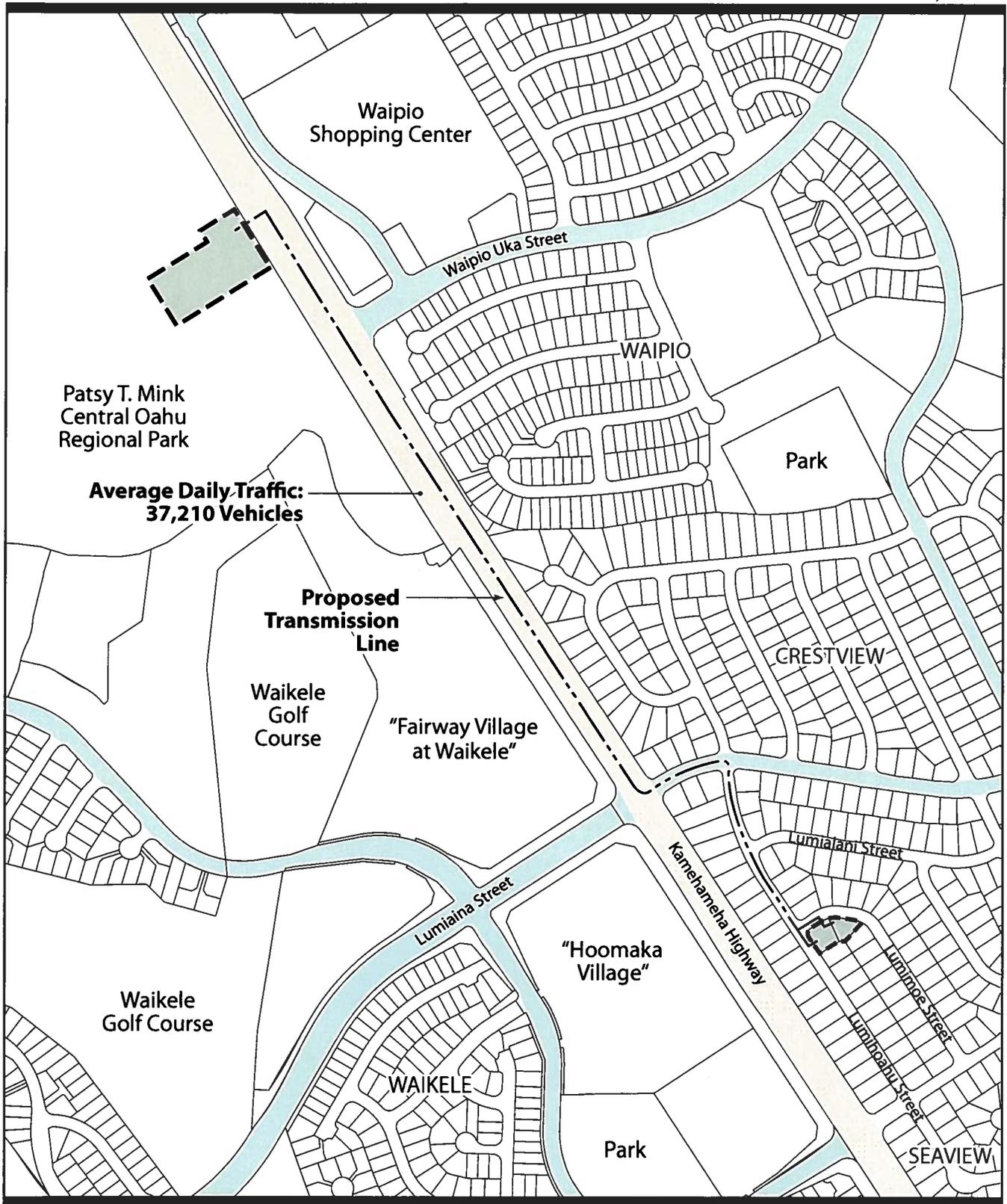
5.3 Stormwater Drainage

Stormwater runoff along Kamehameha Highway is collected in paved swales and catchment basins within the State DOT right-of-way. Lumiaina Street, Lumihoahu Street, and Lumimoe Street have curbs and gutters which direct surface runoff to catchment basins and the C&C's underground stormwater drainage system.

5.4 Solid Waste

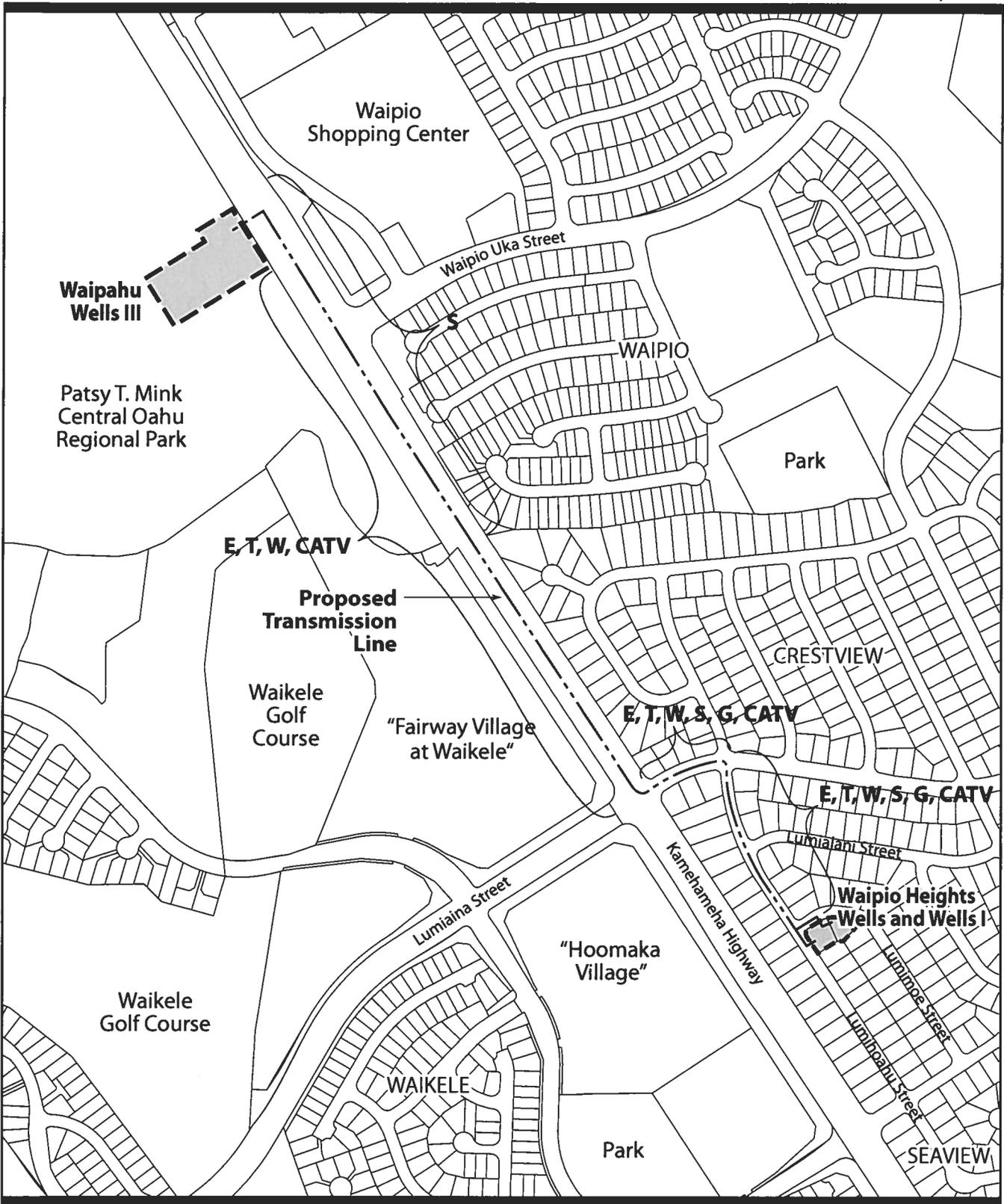
The C&C of Honolulu currently provides garbage collection and solid waste disposal services to residential properties in the project area. Commercial properties provide their own solid waste disposal by contract with commercial operators. Combustible solid waste is taken to H-Power in Campbell Industrial Park for disposal. This waste-to-energy plant processes over 600,000 tons of

⁵ 24-Hour Traffic Count Station Summary, Station No. B72009901586, Kamehameha Highway between Waipio Uka Street and Lumiaina Street, Hawaii State Department of Transportation, Highway Planning Branch.



MAJOR ROUTES
 State Highway
 City Street

Figure 8
CIRCULATION AND TRAFFIC
 Waipio Heights Wells and Wells I
 Honolulu Board of Water Supply



UTILITIES WITHIN R/W OF PROJECT

- E** Electricity
- T** Telephone
- W** Water
- S** Sewer
- G** Gas
- CATV** Cable TV

**Figure 9
EXISTING UTILITIES**

Waipio Heights Wells and Wells I
Honolulu Board of Water Supply

waste annually and, in turn, produces approximately seven percent of Oahu's electricity. Non-combustible construction and demolition debris and industrial wastes are taken directly to the Waimanalo Gulch Landfill or a landfill in Nanakuli (the latter receives only construction debris).

5.5 Public Services and Facilities

Public schools, parks, and medical facilities are available to the residents of the project area. Police and fire protection services cover the Waipio community and can provide quick response time to emergency calls.

6 RELATIONSHIP TO PUBLIC LAND USE POLICIES

6.1 Hawaii State Plan

The Hawaii State Plan was established by state law to serve as a guide for the future long-range development of the state. It was intended to identify the goals, objectives, policies, and priorities for the state government to: (1) provide a basis for determining priorities and allocating limited resources, such as public funds, services, human resources, land, energy, water, and other resources; (2) improve coordination of federal, state, and county plans, policies, programs, projects, and regulatory activities; and (3) establish a system for plan formulation and program coordination to provide for an integration of all major state and county activities.

The relevant objective of the State Plan on water and for the Waipio service area is to assist in improving the quality, efficiency, service, and storage capabilities of water systems for domestic and agricultural use. The BWS is proposing the upgrade to the well system at the Waipio Heights Wells and Wells I site to improve the quality of the water for its area customers.

6.2 State Land Use Law

The project site is located in the Urban District as designated by the State Land Use Commission, and as a utility improvement, the proposed project is a permitted use under the State Land Use Law.

6.3 State Environmental Policy

The proposed action is consistent with the State Environmental Policy, as stated in Hawaii Revised Statutes (HRS) Chapter 344, to "enhance the quality of life" by "creating opportunities for the residents of Hawaii to improve their quality of life through diverse economic activities which are stable and in balance with the physical and social environments." The proposed action will provide the necessary infrastructure to support such economic opportunities, allowing them to flourish and establish themselves in the County.

The following guidelines of the State Environmental Policy relate to the proposed project:

- Encourage management practices that conserve and fully utilize all natural resources.
- Encourage management practices that conserve and protect watersheds and water sources, forest, and open space areas.

6.4 City and County General Plan

The proposed action is consistent with the General Plan's Transportation and Utilities goal and its Objective B, "to meet the needs of the people of Oahu for an adequate supply of water . . . ," Objective C, "to maintain a high level of service for all utilities," and Objective D, "to maintain transportation and utility systems which will help Oahu continue to be a desirable place to live and visit."

The proposed action will result in providing not only a continued supply of adequate water, but an acceptable quality of water to its BWS customers. This improvement will help maintain a public utility that satisfactorily serves its Waipio-Waikele residents, as well as sustain the good health and welfare of the general public.

6.5 Central Oahu Sustainable Community Plan

The Central Oahu Sustainable Communities Plan, adopted by the C&C of Honolulu in December 2002, establishes policies on potable and non-potable water for the Central Oahu area and specifically addresses adequacy of supply, protection of watersheds, development and allocation of supply, use, and agricultural water sources. Water quality issues are expected to be addressed by State DOH requirements. Notably, the proposed action is a systems upgrade that will only assure that the water delivered to BWS's customers is safe and usable to adequately meet public demand.

6.6 Honolulu Land Use Ordinance

The City's Land Use Ordinance (LUO) designates the Waipio Heights Wells and Wells I site as R-5 Residential, and the Waipahu Wells III site as AG-1 Restricted Agriculture (see Figure 10). On either site, the proposed BWS improvements are permitted. Kamehameha Highway, Lumiaina Street, Lumihohu Street, and Lumimoe Street are identified as public rights-of-way and are intended and designated for public use and utilities.

6.7 Special Management Area

The project site is a distant location from the special management area of the island of Oahu which incorporates the coastal lands of Pearl Harbor as well as the rest of the island. The City's Special Management Area (SMA) Rules and Regulations on land use do not apply to the proposed action.

6.8 Required Permits and Approvals

Construction work in the Kamehameha Highway right-of-way will require approval from the State Department of Transportation Highways Division.

Work within the City streets, including Lumiaina, Lumimoe, and Lumihohu Streets, will require approval from various City agencies. In particular, a Permit to Excavate a Public Right-of-Way (Trenching) and a Grubbing, Grading and Stockpiling Permit will be required from the Department of Planning and Permitting. A Street Usage Permit for construction within a City street will be required from the Department of Transportation Services. A Permit to Discharge Effluent

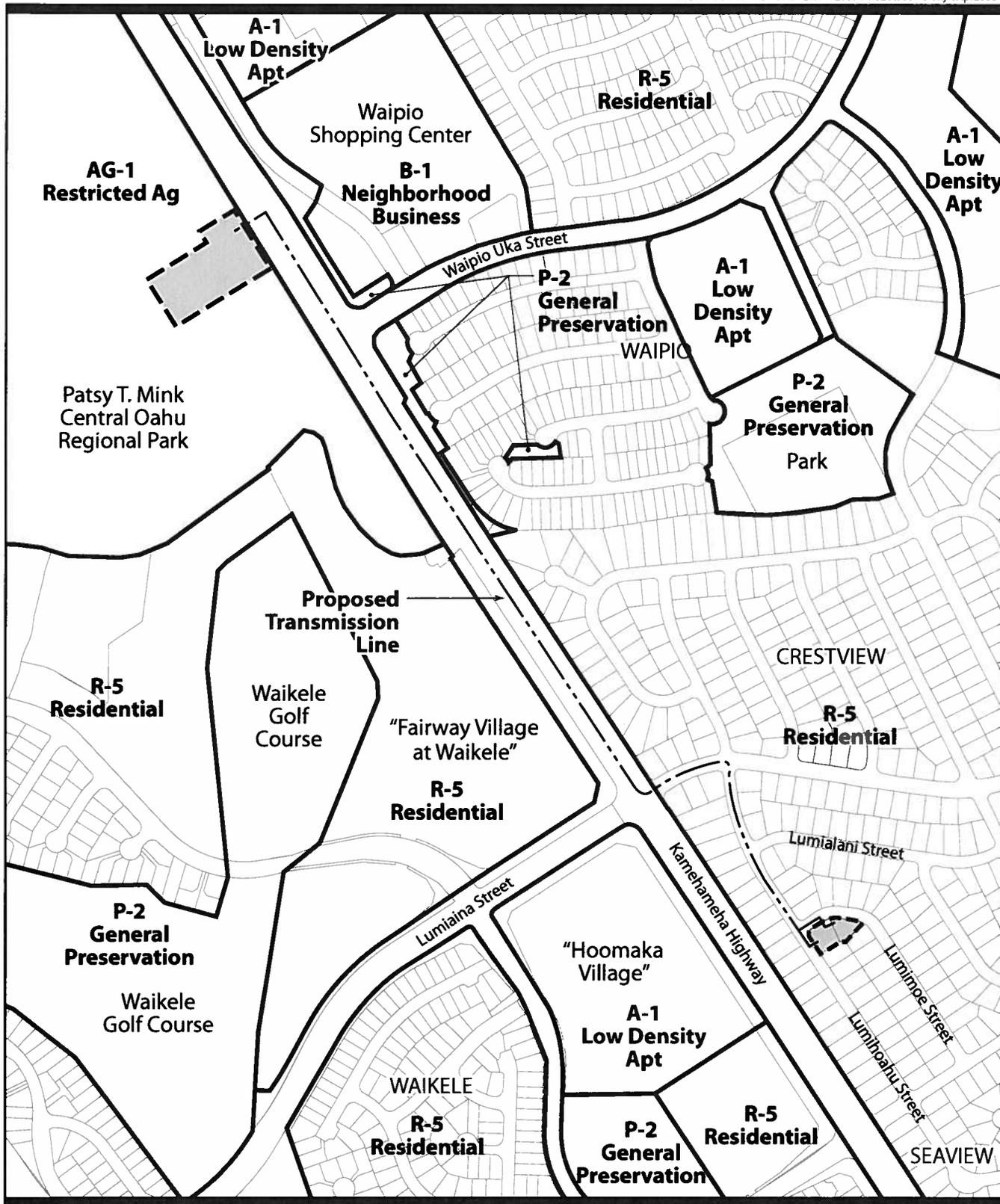


Figure 10
EXISTING ZONING

Waipio Heights Wells and Wells I
Honolulu Board of Water Supply

(Temporary) for discharging hydro-test water from the new transmission line will be required from the Department of Environmental Services.

For the project’s two new GAC contactor units, a building permit from the DPP will be required, but no Plan Review Use approval is necessary.

The project’s total construction area, which is over one acre in size, will require a National Pollutant Discharge Elimination System (NPDES) Permit from the State Department of Health.

Application for a Community Noise Permit may be submitted to the State DOH for possible excessive noise associated with the project construction.

The table below summarizes the required permits and approvals for the project, approving agency, and likely applicant for the permits.

State Permits/Approvals	Approving Agency
Work within State Right-of-Way	HDOT
Stormwater Discharge within State Right-of-Way	HDOT
National Pollutant Discharge Elimination System (NPDES) Permit	DOH
Community Noise Permit	DOH
C&C Permits/Approvals	Approving Agency
Street Usage Permit	DTS
Permit to Excavate Public Right-of-Way (Trenching) Permit	DPP
Grubbing, Grading and Stockpiling Permit	DPP
Permit to Discharge Effluent (Non-Storm Water), Temporary	DES
Building Permit for Contactor Units	DPP

6.9 Compliance with the Drinking Water State Revolving Fund Program Requirements

As previously described, the proposed action may be funded by a low-interest loan from federal funds through the DWSRF Program. The Program was established to promote projects that help prevent contamination through source water protection and enhanced water system management. This environmental assessment (EA) includes environmental information required for compliance

with the DWSRF Program. The following subsections address the proposed action's relationship to the federal "cross-cutting" authorities.

6.9.1 Archaeological and Historic Preservation Acts

No surface archaeological features exist in the project area. The proposed action is planned to occur within existing BWS well sites and public road rights-of-way. No undeveloped, unaltered lands are present. If any subsurface cultural artifacts are uncovered during the project's construction, all work in the immediate vicinity of the find will cease and the State Historic Preservation Division (SHPD) of the DLNR and the Oahu Burial Council (OBC), if necessary, will be contacted and consulted for appropriate treatment. Work will not resume in the area until approval is first obtained from these agencies.

In 2008, CSH completed a study of the project site to determine if the proposed action would have any cultural impact. CSH contacted and consulted Hawaiian cultural organizations, government agencies, and long-time residents familiar with the area. Although there were past trails, historic battles, and agricultural activities in the general region, none of the informants cited any activities that occurred in the specific project area. The project area has since been completely modified and urbanized by modern residential development.

6.9.2 Clean Air Act

The U.S. Environmental Protection Agency (EPA) compares concentrations of criteria pollutants to established National Ambient Air Quality Standards (NAAQS) in order to characterize air quality. Criteria pollutants at the national level include carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), particulate matter, ozone (O₃), and lead (Pb). Based on ambient air monitoring data, the EPA has classified the state as being in attainment of the federal standards. Pollutant concentrations within the islands also comply with the more stringent state standards.

The proposed action will not have long-term emissions due to the nature of its operations. Short-term construction-related emissions, such as those from fugitive dust, would be generated and subject to compliance with the Hawaii Administrative Rules (HAR) 11-60-1. These State provisions are designed to control emissions of substantial size and require fugitive dust to be minimized. Hence, no significant impact on air quality is expected to occur.

6.9.3 Coastal Zone Management Act

The Hawaii Coastal Zone Management (CZM) Program was promulgated in 1977 as a result of the Federal Coastal Zone Management Act of 1972. Jurisdiction of the Hawaii CZM Program encompasses the entire state including its uplands, coastal plains, and coastal waters. Its policies on the environment relate to recreational resources, historic resources, scenic and open space resources, coastal ecosystems, economic uses, coastal hazards, managing development, public participation, beach protection, and marine resources.

Other elements of the program are a permit system to control development within the SMA and the State shoreline setback area, a Hawaii Ocean Resources Management Plan to provide a comprehensive, integrated ocean policy and management framework for Hawaii's marine waters,

and a federal consistency program that requires all federal activities, permits, and financial assistance to be consistent with the Hawaii CZM Program.

Located at the approximately 202-foot elevation of Waipio above Pearl Harbor, the proposed action is more than six miles from the island's coastline. The town of Waipahu is situated on the shores of Pearl Harbor below the project site.

The distant location of the proposed action from the shoreline will not involve any construction or change of land use on or near the ocean. It will not interfere with any existing beach accesses, negatively affect significant historic and prehistoric resources, obstruct coastal scenic and open space resources, nor impair valuable coastal ecosystems.

The proposed project will, however, include opportunities for public participation, via the provisions of HRS Chapter 343, and allow the State to implement its ocean resources management program. The proposed action is consistent with the objectives and policies of the Hawaii CZM Program.

6.9.4 Endangered Species Act

Floral and faunal species within the project area have been identified as typical or common to urban Honolulu. None of these species have been identified as rare, threatened, or endangered.

6.9.5 Environmental Justice, Executive Order 12898

The project site is located in a suburb of Honolulu occupied by residents of wide ethnic backgrounds. All customers of the BWS, whether they are a minority or majority in the region, or are high-, middle-, or low-income, will equally benefit from the proposed improved system.

The project site is located in existing BWS facilities and public road rights-of-way. The proposed action will not displace any existing residences or business operations. Aside from possible traffic slowdowns during construction, the proposed action will have a minimal long-term adverse effect on the human environment and on visual amenities for motorists, pedestrians, and residents.

6.9.6 Floodplain Management, Executive Order 11988

The project site is located more than six miles from the ocean and remote from any streams or other natural bodies of water. According to the FIRM prepared by FEMA, the project site is located in Zone D. The National Flood Insurance Program does not have any regulations for development in these areas. The Flood Zone D is designated specifically for areas where flood hazards are undetermined, but possible. Additionally, no portion of the project site is located within a 100-year riverine floodway.

6.9.7 Protection of Wetlands, Executive Order 11990

There are no natural surface water features or wetlands in the project area.

6.9.8 Farmland Protection Policy Act

The proposed action calls for installation and operation of an upgraded water system within an existing urban area. No farmlands or agricultural properties will be affected.

6.9.9 Fish and Wildlife Coordination Act

The proposed action will not result in any alteration of a stream or natural water feature or impact any critical wildlife habitat. The U.S. Fish and Wildlife Service (USFWS) and State Division of Forestry and Wildlife (DFW) are expected to comment on the proposed project during the Draft EA's 30-day public comment period.

6.9.10 National Historic Preservation Act

As described above, no surface archaeological features exist in the project area. The proposed action will occur within existing BWS well sites and public road rights-of-way. If any subsurface cultural artifacts are uncovered during construction, all work in the immediate area of the find will cease and the SHPD as well as the OBC, if necessary, will be contacted and consulted for appropriate treatment. Work will not resume in the project area until approval is first secure from these agency(s).

Further, a cultural impact evaluation was conducted and none of the Hawaiian cultural groups or individual informants were able to identify any traditional gathering or cultural practices that may have occurred or are currently being exercised specifically in or along the BWS site.

6.9.11 Safe Drinking Water Act

The Safe Drinking Water Act of 1974 is the primary federal law that ensures acceptable quality in our drinking water. Under this Act, the Environmental Protection Agency has set standards for drinking water quality and is overseeing the states, local municipalities, and water suppliers who implement those standards. The Act requires all public water systems to meet stringent water quality standards.

One of the purposes of the proposed action is to upgrade the existing water system in Waipio to assure that BWS continues to meet current water quality standards. The proposed action does not include the development of a new source of water, but does include improvements to its processing system that consists of treatment and filter components.

In addition to the Safe Drinking Water Act, the BWS is subject to the provisions of the State DOH water quality standards for drinking water.

6.9.12 Wild and Scenic Rivers Act

No streams, watercourses or other identifiable natural water features occur in the project area. The National Wild and Scenic Rivers System of the Wild and Scenic Rivers Act will not be impacted.

7 SUMMARY OF MAJOR PROJECT IMPACTS

7.1 Short-Term Impacts

Construction of the new transmission line within Kamehameha Highway, Lumiaina Street, and Lumihoahu Street would involve possibly the conventional trenching methodology. Depending on the selected contractor, however, the alternative trenchless methodology may be used that involve

micro-tunneling or horizontal drilling. In either methodology, impact to traffic and possible unexpected individual utility lines will result.

With the use of the conventional construction methodology, because it would produce more predictive results, the pipeline installation would occur in phases over an approximately 24-month period. Its construction would generate short-term, temporary impacts that would occur primarily during the site preparation, trenching operations, pipeline installation, backfilling, and clean up operations.

During this period, heavy equipment including jack hammers, backhoes, dump trucks, pick-up trucks, boom-mounted flatbed trucks, asphaltic concrete hauling trucks, and mini-pavers or rollers will be used. Diesel-powered generators may be used if electric power for flood lights is employed during night-time operations.

During the pipeline installation, when construction work calls for excavation or trenching, noise and ambient dust will be generated. Adjacent residential properties will be affected, but mitigation measures (discussed in Section 8.1) will be employed to minimize potential impacts. Possible sedimentation runoff may result after heavy rainfall and flow to adjacent private properties and the City's stormwater drainage system.

Although existing and as-built utility plans have been reviewed, unexpected or altered utility line alignments may be encountered during trenching for the new transmission line. Despite no evidences of surface archaeological features in the project area, underground archaeological deposits may be encountered considering the openness and accessiblensness of the area during pre-modern and historic times. It is noted, however, that extensive use by past sugar plantations could have removed any likelihood of such underground deposits.

The installation of the transmission line within the roadway will also disrupt vehicular travel as traffic will be diverted to adjacent lanes or to other local streets while work on the new line is being performed. Access to some adjacent homes and the BWS's fire hydrants may be temporarily blocked when construction occurs directly in front of these properties.

Starting at approximately the same time as the transmission line installation, the construction of the two GAC contactor units would proceed and extend for approximately 24 months. Construction of the contactor units would also generate short-term, temporary impacts. It would involve primarily above-ground activities as opposed to underground activities that would occur for the transmission line construction. The GAC construction will be entirely within the existing Waipahu Wells III site which is located in an area surrounded by the Central Oahu Regional Park. No residential homes are adjacent to the well site, however park users may be impacted.

The primary impacts from the new contactor units would be construction noise and fugitive dust. Both of these impacts are expected to be minor as neither would be generated from intense, prolong sources. Further, the Waipahu Wells III site can be readied to accommodate the two additional contactor units. A base pad and connector fittings are already in place to incorporate the new addition.

7.2 Long-Term Impacts

Once the proposed improvement is installed and the utility is in full operation, the long-term impacts would be positive to BWS customers. The quality of water in the system will be sustained at

acceptable standards, benefitting public health. Traffic, dust, and noise will be return to normal or to pre-construction conditions.

The additional contactor units in the Waipahu Wells III GAC system will not result in increased noise to area residents. Further, there will be no discharge of emissions to ambient air. The additional contactor units will increase the visual element of the GAC system, but the design and profile of the new units will be visually integrated with the other existing contactor units. Visibility of the site is already screened by existing landscaping.

Maintenance of the expanded facility will increase slightly but no additional personnel will be required for the upgrade. Hence, there would be no demand for additional employee parking and no associated increase in traffic. Moreover, there would be no generated increase in population which could affect local housing demand, public facilities, and services.

No increase in electrical energy use will be required to pump the water from the Waipio Heights Wells and Wells I site to the Waipahu Wells III site and through the GAC treatment system. The transported water will be pumped into a pressurized system that does not call for additional pumpage needs.

8 PROPOSED MITIGATION MEASURES

8.1 Short-Term Impacts Mitigation

A traffic control plan (TCP), that calls out mitigation measures for implementation during the transmission line construction along Kamehameha Highway, will be prepared and submitted to the HDOT for review and approval. Similarly, a TCP will be prepared for review and approval by the City's DPP for Lumiaina Street, Lumihoahu Street, and Lumimoe Street. The TCP (see Figure 11 for general concept) will include traffic controls and traffic management provisions that are designed to maintain safe vehicular passage through or around the project construction area.

Traffic cones and posted signs will be placed well in advance of the construction area to provide adequate warning to motorists of the upcoming construction area. Some road segments will be temporarily closed during construction and their traffic will be rerouted to adjacent streets. Other road segments will have a single lane closure and their traffic will be diverted to adjacent lanes. Traffic monitors or flaggers may be on duty to assist in the smooth passage of traffic through or around the construction area.

Work on the transmission line will be conducted in phases so impacted areas will occur in small sections at a time. To further minimize traffic impact, work will be conducted during off-peak hours to avoid the heaviest traffic periods of the day. In the event that pipeline construction directly blocks a resident's access to his or her home, the construction contractor will be required to immediately cease work in the area, place a metal plate over the pipeline trench, and allow the owner to traverse the affected area. The contractor would subsequently remove the plate and then resume work. This procedure would also apply to the Honolulu Fire Department whose access to their fire hydrants may be blocked during construction.

As bus transit routes occur in the project area, advance notice will be transmitted to the Oahu Transit Services Inc. (TheBus) of the impending construction work.

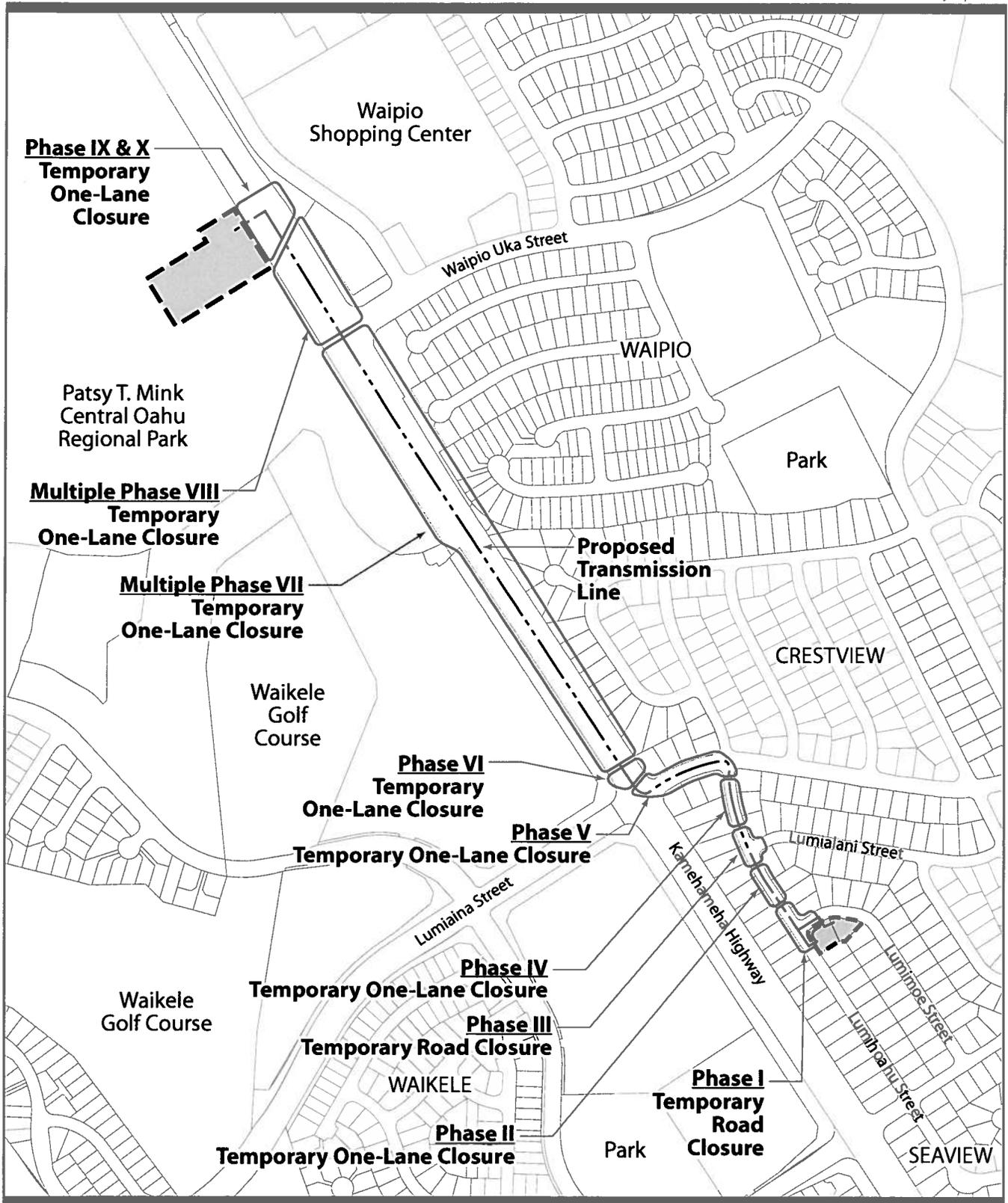


Figure 11
TRAFFIC CONTROL MEASURES
DURING PROJECT CONSTRUCTION

Waipio Heights Wells and Wells I
 Honolulu Board of Water Supply



The noise from construction activities should be short-term and localized to the immediate vicinity of the construction work in progress. A community noise permit will be sought from the State DOH prior to the commencement of any construction activity. Night-time construction is not anticipated, but should that be necessary, a public informational meeting would be held before all residents and property owners who might be impacted by the proposed construction. DOH's maximum permissible noise level for construction equipment during night hours in residential areas is 45 dBA (55 dBA during daytime hours or the ambient noise level whichever is higher). If the generated noise is expected to exceed DOH's maximum permissible noise level, a noise variance will be sought from the DOH.

Compliance with the DOH noise standards will be part of the construction contract and the responsibility of the contractor.

Construction equipment or devices and on-site vehicles that emit gas or other emissions during their operations (excluding pneumatic hand tools weighing less than 15 pounds) must be equipped with mufflers.

Dust control measures would include the use of dust screens, if necessary, frequent water sprinkling of exposed dirt areas, and temporary ceasing of operations during high wind conditions.

The project design engineers (or consultants) and construction contractor are expected to coordinate construction of the water line installation within the roadway rights-of-way with all potentially affected utility companies. For the design engineers, this would begin early in the planning and design stage, and with the construction contractor, continue into the construction stage. The cost of any concessions or required alterations to the affected utilities may be borne by the BWS, contractor or design engineer, or any combination of the three.

Although surface archaeological artifacts are non-existent in the project area, possible buried cultural deposits might be present. OHA is recommending that if such deposits are found during construction that work cease in the immediate area and that the appropriate authorities be notified and consulted for proper treatment before work is allowed to resume.

Erosion and sedimentation control measures and Best Management Practices (BMPs), such as berming, silt screens, and sedimentation basins, will be employed, if necessary, to ensure that no runoff from the construction site flows into the City stormwater drainage system. Groundwater is not expected to be encountered during trenching operations for the transmission line as the existing water table is well below the ground surface of the project site.

All solid waste and debris generated during construction will be collected and hauled away to a public landfill by the construction contractor.

8.2 Long-Term Impacts Mitigation

The visual impact of the new contactor units will be mitigated by existing landscaping along the perimeter of the Waipahu Wells III site. The new units will be similar in design and color as the existing units and will blend in with the overall well facility.

The other components of the project including the transmission line and connecting apparatuses will be underground and have no visual impact.

Although there will be additional contactor units on the site, the Waipahu Wells III facility will not require additional operational or maintenance personnel. No mitigation measures will be required for social-generated impacts.

9 ALTERNATIVES CONSIDERED

9.1 No Action

If the proposed action were not implemented, the water drawn from the Waipio Heights Wells and Wells I site may, in time, raise questions on its long-term quality. More frequent monitoring and testing of the water may be required to assure that current water quality standards are met.

Under this alternative, existing conditions at the project site would be unaltered. Existing land uses would continue to operate in the current status quo. It would also mean there would be no construction in the roadway rights-of-way which would temporarily disrupt local traffic and raise access issues.

Although this alternative would be environmentally desirable because there would be no alteration to the existing project site, there would still be no long-term beneficial effect for the BWS customers of the Waipio Heights Wells and Wells I service area. With the public welfare as the intent of the proposed upgrade, the “no action” alternative was removed from further consideration.

9.2 Alternative Location

The selected route for the proposed transmission line was dictated by a need for the most direct alignment between the Waipio Heights Wells and Wells I site and the Waipahu Wells III site through existing public rights-of-way. The only flexibility in the alignment would be in the specific location of the transmission line within the existing rights-of-way. The underground pipeline could be located within the sidewalk and shoulder area, under the road pavement edge, or in the center of the road. The final selected location was based on the least construction impact to existing utilities (underground and overhead) and to local traffic.

Most of the proposed transmission line will be located along Kamehameha Highway, and its proposed location within the highway’s center or median strip would avoid various utilities that are located near the right-of-way edge. The center location would also avoid the need to temporarily close more than one travel lane at a time during project construction.

Along Lumiaina Street, Lumimoe Street, and Lumihoahu Street, the transmission line will be located also in the center of the road to avoid impacting other utility lines in the road edge and sidewalk area.

9.3 Alternative Design

The BWS considered the installation of a GAC treatment system at its Waipio Heights Wells and Wells I site to avoid installing a transmission line along Kamehameha Highway to the Waipahu Wells III site. This alternative, however, was dismissed when it was determined that the Waipio Heights Wells and Wells I site was not adequate in size nor readily equipped to accommodate the

GAC treatment system. It did not have the proper plumbing and auxiliary fittings, and a control building that could control and operate the contactor units. The existing GAC treatment system at the Waipahu Wells III site was, in fact, designed for expansion and has stub-outs for two new contactor units, the same number of units that would be sufficient to accommodate the Waipio Heights Wells and Wells I facility.

10 DETERMINATION

This Final EA demonstrates that the proposed action will have no significant adverse impact on the environment and that an Environmental Impact Statement (EIS) is not warranted. A FONSI is, therefore, determined for this project.

11 FINDINGS AND REASONS SUPPORTING DETERMINATION

The following findings and reasons demonstrate that the proposed action will have no significant adverse impact on the environment and, consequently, support the above determination.

- Alternative designs were considered to determine the best solution for upgrading the Waipio Heights Wells and Wells I facility without resorting to significant loss or destruction on the site's natural and archaeological resources.
- The proposed action calls for upgrading current facilities within existing BWS sites and public rights-of-way. No new land uses are planned. The proposed action does not require changes that would curtail the range of beneficial uses on the environment.
- As demonstrated in this document, the proposed action is consistent with the state's long-term environmental policies and guidelines as expressed in HRS, Chapter 344.
- The proposed action is expected to sustain and improve the positive economic effects that a utility provides to a community. Moreover, the construction work associated with the proposed action will generate jobs and infuse business and personal income into the local economy. No negative effects are anticipated on the social welfare of the community.
- The proposed action will not result in the use of hazardous material or construction methodology that could be detrimental to the public health and safety of the area residents. In fact, the very intent of the proposed action is to benefit the public health of BWS's customers.
- There will be no significant adverse social impact generated by the proposed action. The new improvement will not change the character of the neighborhood nor generate undue increase in resident population. It will not result in a notable long-term negative impact on traffic or overburden existing public facilities and services.

- The proposed action is not designed to alter the overall stormwater drainage condition of the project vicinity. No long-term degradation of the natural environment or negative impact from a larger project is anticipated.
- No federal- nor state-listed rare, threatened, or endangered avifauna or flora species will be affected.
- The anticipated impacts associated with the project construction, such as dust and noise, are short-term and temporary. These impacts would be minimized by the implementation of mitigation measures in accordance with applicable laws, statutes, ordinances, and rules and regulations of the federal, state, and county governments. Erosion and sedimentation control measures and BMPs will be employed to prevent construction-related surface runoff from impacting adjacent properties and nearby water resources.
- Current FIRM maps indicate that the project area is located in Flood Zone D. This particular zone is an area where flood hazards are undetermined . . . but possible. It is noted, however, there are no rivers or streams in the project vicinity which could be a source of potential flooding.
- Except for the two new contactor units, the proposed action will be primarily underground and out of view from the general public. The new contactor units will be integrated with the existing ten contactor units already in place on the Waipahu Wells III site.
- The proposed action will not result in increased energy consumption during its operation and will not overburden the island's current energy supply.

12 COMMENTS FROM AND RESPONSES TO PUBLIC AGENCIES, ORGANIZATIONS, PUBLIC OFFICIALS, AND PROPERTY OWNERS

A Draft EA for this project was transmitted to the following agencies, organizations, public officials, and property owners for review and comment. The parties that responded are indicated below and a copy of their correspondence with a response from the BWS is included in this section. Comments that are directly applicable to the project have been incorporated into this Final EA.

Agencies, Organizations, Public Officials, and Property Owners	Agencies and Parties Responding w/No Comment	Agencies and Parties Responding w/ Comment	Comment Letters & Responses Attached in This Section
State Agencies			
Office of Environmental Quality Control			
Environmental Planning Office, DOH		X	X
Department of Land and Natural Resources		X	X
Highways Division, HDOT		X	X
Office of Hawaiian Affairs		X	X
State Historic Preservation Division, DLNR		X	X
City & County of Honolulu			
Department of Design and Construction		X	X
Department of Environmental Services			
Department of Facility Maintenance		X	X
Department of Parks and Recreation	X		X
Department of Planning and Permitting		X	X
Department of Transportation Services			
Fire Department	X		X
Police Department		X	X

Agencies, Organizations, Public Officials, and Property Owners	Agencies and Parties Responding w/No Comment	Agencies and Parties Responding w/ Comment	Comment Letters & Responses Attached in This Section
Utility Companies			
Hawaiian Electric Company		X	X
Hawaiian Telcom			
The Gas Company		X	X
Oceanic Time Warner Cable		X	X
Elected Officials			
Senator Ron Menor			
Representative Ryan Yamane			
Councilmember Gary Okino			
Community			
Waipahu Neighborhood Board No. 22			
Property Owners			
Property owners on Lumiaina Street, Lumihoahu Street, Lumimoe Street, and Lumialani Street			



RECEIVED

2008 JUN 16 PM 2:16

CHRYOMIE L. FUKINO, M.D.
DIRECTOR OF HEALTH

STATE OF HAWAII BELT COLLINS HAWAII
DEPARTMENT OF HEALTH
P.O. Box 3378
HONOLULU, HAWAII 96801-3378

In reply, please refer to:
EPO-08-075

June 9, 2008

Mr. Glen T. Koyama
Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200
Honolulu, Hawaii 96819-4554

Dear Mr. Koyama:

SUBJECT: Draft Environmental Assessment for Proposed Waipio Heights Wells and Wells I
GAC System Upgrade, Ewa, Oahu, Hawaii
TMK: (1) 9-4-044: 035 and 036
(1) 9-4-005: 076

Thank you for allowing us to review and comment on the subject application. The document was routed to the various branches of the Department of Health (DOH) Environmental Health Administration. We have the following Clean Water Branch (CWB) and General comments.

Clean Water Branch

The Department of Health, Clean Water Branch (CWB), has reviewed the subject document and offers these comments on your project. Please note that our review is based solely on the information provided in the subject document and its compliance with Hawaii Administrative Rules (HAR), Chapters 11-54 and 11-55. You may be responsible for fulfilling additional requirements related to our program. We recommend that you also read our standard comments on our website at <http://www.hawaii.gov/health/environmental/env-planning/landuse/CWB-standardcomment.pdf>

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

- a. Antidegradation policy (HAR, Section 11-54-1.1), which requires that the existing uses and the level of water quality necessary to protect the existing uses of the receiving State water be maintained and protected.
- b. Designated uses (HAR, Section 11-54-3), as determined by the classification of the receiving State waters.
- c. Water quality criteria (HAR, Sections 11-54-4 through 11-54-8).

Mr. Koyama
June 9, 2008
Page 2

2. The Pearl Harbor is identified as a Priority Category 5 waters in the Section 303(d) of the Clean Water Act list of impaired water bodies. Priority 5 waters are described as surface waters where available data and/or information indicate that at least one (1) designated use is not being supported or is threatened, and a Total Maximum Daily Load is needed. Accordingly, the subject DEA should also include this consideration toward ensuring the protection and improvement of this water body with respect to the subject project.
3. You are required to obtain a National Pollutant Discharge Elimination System (NPDES) permit for discharges of wastewater, including storm water runoff, into State surface waters (HAR, Chapter 11-55). For the following types of discharges into Class A or Class 2 State waters, you may apply for NPDES general permit coverage by submitting a Notice of Intent (NOI) form:
 - a. Storm water associated with construction activities, including clearing, grading, and excavation, that result in the disturbance of equal to or greater than one (1) acre 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. An NPDES permit is required before the start of the construction activities.
 - b. Hydro-testing water.
 - c. Construction dewatering effluent.

You must submit a separate NOI form for each type of discharge at least 30 calendar days prior to the start of the discharge activity, except when applying for coverage for discharges of storm water associated with construction activity. For this type of discharge, the NOI must be submitted 30 calendar days before to the start of construction activities. The NOI forms may be picked up at our office or downloaded from our website at <http://www.hawaii.gov/health/environmental/water/cleanwater/forms/genl-index.html>.

4. For types of wastewater not listed in Item No. 3 above or wastewater discharging into Class 1 or Class AA waters, you may need an NPDES individual permit. An application for an NPDES individual permit must be submitted at least 180 calendar days before the commencement of the discharge. The NPDES application forms may be picked up at our office or downloaded from our website at <http://www.hawaii.gov/health/environmental/water/cleanwater/forms/indiv-index.html>.
5. You must also submit a copy of the NOI or NPDES permit application to the State Department of Land and Natural Resources, State Historic Preservation Division (SHPD), or demonstrate to the satisfaction of the CWB that SHPD has or is in the process of evaluating

Mr. Koyama
June 9, 2008
Page 3

your project. Please submit a copy of your request for review by SHPD or SHPD's determination letter for the project along with your NOI or NPDES permit application, as applicable.

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

If you have any questions, please visit our website at <http://www.hawaii.gov/health/environmental/water/cleanwater/index.html>, or contact the Engineering Section, CWB, at 586-4309.

General

We strongly recommend that you review all of the Standard Comments on our website: www.hawaii.gov/health/environmental/env-planning/landuse/landuse.html. Any comments specifically applicable to this project should be adhered to.

If there are any questions about these comments please contact Jiakai Liu with the Environmental Planning Office at 586-4346.

Sincerely,



KELVIN H. SUNADA, MANAGER
Environmental Planning Office

c: EPO
CWB

BOARD OF WATER SUPPLY

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



July 18, 2008

MUFI HANNEMANN, Mayor
RANDALL Y. S. CHUNG, Chairman
SAMUEL T. HATA
ALLY J. PARK
ROBERT K. CLUNDIFF
MARC C. TILKER
CRAIG I. NISHIMURA, Ex-Officio
BRENNON T. MORIOKA, Ex-Officio
CLIFFORD P. LUM
Manager and Chief Engineer
DEAN A. NAKANO
Deputy Manager and Chief Engineer

Mr. Kelvin H. Sunada, Manager
Department of Health
Environmental Planning Office
State of Hawaii
P.O. Box 3378
Honolulu, Hawaii 96801-3378

Dear Mr. Sunada:

Subject: Your Letter (EPO-08-075) Dated June 9, 2008 Regarding the Draft Environmental Assessment (DEA) for the Board of Water Supply's Proposed Waipio Heights Wells and Wells I Granular Activated Carbon (GAC) System Upgrade, Ewa District, Oahu, Hawaii, TMK:9-4-044:035 and 036, and 9-4-005:076

Thank you for your letter to Belt Collins Hawaii regarding the Draft Environmental Assessment for the proposed Waipio Heights Wells and Wells I Granular Activated Carbon System Upgrade.

Our responses to your comments are as follows:

1. The proposed project will comply with State policies identified in Hawaii Administrative Rules (HAR), Sections 11-54-1.1, 11-54-3, and 11-54-4 through 11-54-8. The proposed GAC System Upgrade is designed to improve water quality for the general health and welfare of the community.
2. In the EA, we will identify Pearl Harbor as a Priority Category 5 waters according to the list of impaired water bodies in Section 303(d) of the Clean Water Act. We will obtain the required permits and certifications to comply with DOH's HAR, Chapter 11-54 water quality standards.
3. The BWS will submit to your agency a Notice of Intent (NOI) form for storm water associated with construction activities and for hydro-testing water activity. These submittals will be made prior to construction work on the proposed project.

Mr. Kelvin H. Sunada
July 18, 2008
Page 2

4. The proposed project does not call for submittal of a National Pollutant Discharge Elimination System individual permit application.
5. The State Historic Preservation Division has reviewed the proposed project and determined that no historic properties will be affected. A copy of its determination will be submitted with the NOI form.
6. The BWS is cognizant of the State's Water Quality Standards and will comply with those standards.

Finally, the BWS and its design consultant have reviewed the Standard Comments on your website: www.hawaii.gov/health/environmental/env-planning/landuse/landuse.html and will adhere to them.

If you have any questions, please contact Gregory Lee at 748-5716.

Very truly yours,



CLIFFORD P. LUM
Manager and Chief Engineer

cc: ✓Glen Koyama, Belt Collins

LINDA LINGLE
GOVERNOR OF HAWAII



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

June 6, 2008

Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200
Honolulu, HI 96819-4554

Attention: Mr. Glen T. Koyama

Dear Mr. Koyama:

SUBJECT: Draft Environmental Assessment – Proposed Waipio Heights Wells and Wells I GAC System Upgrade – Board of Water, Ewa District, Oahu, Hawaii; TMK: (1) 9-4-044:035 & 036 and (1) 9-4-005:076

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 the (a) Engineering Division and (b) Oahu District of the Land Division on the subject matter. Should you have any questions, please feel free to call Darlene Nakamura at 587-0417. Thank you.

Sincerely,

Darlene Nakamura
for Morris M. Atta
Administrator

Enclosures

LAURA H. THIELEN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
RECEIVED

JUN -9 PM 1:53

BELT COLLINS HAWAII

LINDA LINGLE
GOVERNOR OF HAWAII



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

May 14, 2008

MEMORANDUM

TO: DLNR Agencies:
— Div. of Aquatic Resources
— Div. of Boating & Ocean Recreation
x Engineering Division
— Div. of Forestry & Wildlife
— Div. of State Parks
x Commission on Water Resource Management
— Office of Conservation & Coastal Lands
x Land Division – Oahu District

FROM: Morris M. Atta, Administrator

SUBJECT: Draft Environmental Assessment – Waipio Heights Wells and Wells I – GAC System Upgrade

LOCATION: Ewa District, Island of Oahu; TMK: (1) 9-4-044:035 & 036 and (1) 9-4-005:076

APPLICANT: Belt Collins on behalf of the Honolulu Board of Water Supply

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by June 6, 2008.

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 my office at 587-0433. Thank you.

Attachments

- () We have no objections.
- () We have no comments.
- (x) Comments are attached.

Signed: *M. Atta*
Date: 5/14/08

cc: Central Files

RECEIVED
LAND DIVISION
MAY 28 P 1:05

08-0014 587-0433 BNR/ENR/MS

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LD/MorrisAtta
Ref.: DEAWaipioHtsWells&Welll
Oahu.615

COMMENTS

- () We confirm that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Zone ____.
- () Please take note that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Zone ____.
- () Please note that the correct Flood Zone Designation for the project site according to the Flood Insurance Rate Map (FIRM) is Zone D. The National Flood Insurance Program does not have any regulations for development within Zone D.
- () 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. Robert Sumitomo at (808) 768-8097 or Mr. Mario Siu Li at (808) 768-8098 of the City and County of Honolulu, Department of Planning and Permitting.
- () Mr. Kelly Gomes at (808) 961-8327 (Hilo) or Mr. Kiran Emler at (808) 327-3530 (Kona) of the County of Hawaii, Department of Public Works.
- () Mr. Francis Cerizo at (808) 270-7771 of the County of Maui, Department of Planning.
- () Mr. Mario Antonio at (808) 241-6620 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 projects requiring water service from the Honolulu Board of Water Supply system will be required to pay a resource development charge, in addition to Water Facilities Charges for transmission and daily storage.
- () 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: _____
- (X) Other: Our comments dated October 28, 2007 for the subject, which was incorporated at the Draft Environmental Assessment document, still apply.

Should you have any questions, please call Ms. Suzie S. Agraan of the Planning Branch at 587-0258.

Signed: Eric T. Hirano
ERIC T. HIRANO, CHIEF ENGINEER

Date: 5/15/08

LINDA LINGLE
GOVERNOR OF HAWAII



LAURA H. THELEN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
MEMBER OF WATER RESOURCES BOARD

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

May 14, 2008

MEMORANDUM

From: ~~TO:~~

DLNR Agencies:

- Div. of Aquatic Resources
- Div. of Boating & Ocean Recreation
- Engineering Division
- Div. of Forestry & Wildlife
- Div. of State Parks
- Commission on Water Resource Management
- Office of Conservation & Coastal Lands
- Land Division - Oahu District

To: ~~FROM:~~ Morris M. Atta

SUBJECT: Draft Environmental Assessment - Waipio Heights Wells and Wells I - GAC System Upgrade

LOCATION: Ewa District, Island of Oahu; TMK: (1) 9-4-044:035 & 036 and (1) 9-4-005:076
APPLICANT: Belt Collins on behalf of the Honolulu Board of Water Supply

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by June 6, 2008.

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 my office at 587-0433. Thank you.

Attachments

- () We have no objections.
- (X) We have no comments.
- () Comments are attached.

Signed: Eric T. Hirano
Date: 5/15/08

cc: Central Files

BOARD OF WATER SUPPLY

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



July 18, 2008

MUFI HANNEMANN, Mayor

RANDALL Y. S. CHUNG, Chairman
SAMUEL T. HATA
ALLY J. PARK
ROBERT K. CUNDIFF
MARC C. TILKER

CRAIG I. NISHIMURA, Ex-Officio
BRENNON T. MORIOKA, Ex-Officio

CLIFFORD P. LUM
Manager and Chief Engineer

DEAN A. NAKANO
Deputy Manager and Chief Engineer

Mr. Morris M. Atta, Administrator
Department of Land and Natural Resources
Land Division
State of Hawaii
P. O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Atta:

Subject: Your Letter Dated June 6, 2008 Regarding the Draft Environmental Assessment (DEA) for the Board of Water Supply's Proposed Waipio Heights Wells and Wells I Granular Activated Carbon (GAC) System Upgrade, Ewa District, Oahu, Hawaii, TMK:9-4-044:035 and 036, and 9-4-005:076

Thank you for your letter to Belt Collins Hawaii regarding the Draft Environmental Assessment for the proposed Waipio Heights Wells and Wells I Granular Activated Carbon System Upgrade.

We acknowledge the Engineering Division's comment of October 28, 2007 which identifies the area's flood zone. That information has been incorporated in the DEA.

We also acknowledge the Land Division's comment of no comment on the project.

If you have any questions, please contact Gregory Lee at 748-5716.

Very truly yours,

CLIFFORD P. LUM
Manager and Chief Engineer

cc: Glen Koyama, Belt Collins

LINDA LINGLE
GOVERNOR



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

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2008 JUN 25 PM 2: 02

BELT COLLINS HAWAII

BRENNON T. MORIOKA
DIRECTOR

Deputy Directors
MICHAEL D. FORMBY
FRANCIS PAUL KEENO
BRIAN H. SEKIGUCHI

IN REPLY REFER TO:

HWY-PS
2.8210

JUN 24 2008

Mr. Glen T. Koyama
Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200
Honolulu, Hawaii 96819-4554

Dear Mr. Koyama:

Subject: Draft Environmental Assessment (Draft EA)
Proposed Waipio Heights Wells and Wells I GAC System Upgrade
Honolulu, Ewa District, Waipio, TMK: (1) 9-4-44: 35 & 36; 9-4-05: 76

Thank you for consulting us on the subject project. We have the following comments:

1. Applicant should consider installing the proposed new water transmission line outside of the State highway rights-of-way or at least outside of the travel lane.
2. Our Highways Division, Design Branch should be consulted early to discuss the accepted design, construction and installation of any transmission pipes to be located within our State highway rights-of-way.
3. Should Applicant encounter any abandoned "pipes/conduits" within the State highway rights-of-way, DOT's Pipeline Removal Policy shall be complied with. The pipelines shall not be abandoned in place and allowed to cause future problems, such as creating "voids" in the ground when the lines eventually rust/deteriorate and break. As-built plan preparation is required.
4. Applicant should coordinate the construction schedule of this project with our Highways Division to minimize conflicts with our scheduled construction and maintenance projects in the area.

Mr. Glen T. Koyama
Page 2

HWY-PS
2.8210

5. A permit is required from us (a) to transport oversized equipment/overweight loads within our highway facilities and (b) for all work done within our State highway rights-of-way.

If there are any questions regarding these comments, please contact Ken Tatsuguchi, Head Planning Engineer, Highways Division, at 587-1830.

Very truly yours,

BRENNON T. MORIOKA, Ph.D., P.E.
Director of Transportation

BOARD OF WATER SUPPLY

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



July 18, 2008

MUFI HANNEMANN, Mayor

RANDALL Y. S. CHUNG, Chairman
SAMUEL T. HATA
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ROBERT K. CUNDIFF
MARC C. TILKER

CRAIG I. NISHIMURA, Ex-Officio
BRENNON T. MORIOKA, Ex-Officio

CLIFFORD P. LUM
Manager and Chief Engineer

DEAN A. NAKANO
Deputy Manager and Chief Engineer

Brennon T. Morioka, Ph.D., P.E., Director
Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii 96813-5097

Dear Dr. Morioka:

Subject: Your Letter (HWY-PS 2.8210) Dated June 24, 2008, Regarding the Draft Environmental Assessment for the Board of Water Supply's Proposed Waipio Heights Wells and Wells I Granular Activated Carbon System Upgrade, Ewa District, Oahu, Hawaii, TMK: 9-4-044:035 & 036, and 9-4-005:076

Thank you for your letter to Belt Collins Hawaii, Ltd., regarding the Draft Environmental Assessment for the proposed Waipio Heights Wells and Wells I Granular Activated Carbon System Upgrade.

We have been in contact with your office regarding the placement of our proposed waterline within the Kamehameha Highway right-of-way. The proposed alignment of the waterline will be in the striped median strip of the State highway. We are coordinating with your Highways Division on the final design and placement of the proposed facility.

Further, we will comply with the Department of Transportation's (DOT) Pipeline Removal Policy should any abandoned pipes/conduits be encountered within the State right-of-way. When the installation of our waterline is completed, as-built plans will be submitted for your records.

Our project construction schedule will be coordinated with your Highways Division to minimize any conflicts with scheduled DOT construction and maintenance projects in the area.

Finally, our contractor will obtain the required permits from the DOT to perform work within Kamehameha Highway as well as to transport oversized equipment/overweight loads over State highways that might be affected.

If you have any questions, please contact Gregory Lee at 748-5716.

Very truly yours,

CLIFFORD P. LUM
Manager and Chief Engineer

cc: Glen Koyama, Belt Collins Hawaii, Ltd.

PHONE (808) 594-1888



STATE OF HAWAII
OFFICE OF HAWAIIAN AFFAIRS
711 KAPĪOLANI BOULEVARD, SUITE 500
HONOLULU, HAWAII 96813

RECEIVED

FAX (808) 594-1865

JUN 23 PM 2:38

BELT COLLINS HAWAII

HRD08/3292C

Glen Koyama
June 16, 2008
Page 2

Thank you for the opportunity to comment. If you have further questions, please contact Grant Arnold (808) 594-0263 or e-mail him at granta@oha.org.

'O wau iho nō me ka 'oia'i'i'o,

A handwritten signature in black ink, appearing to read "Clyde W. Nāmu'o".

Clyde W. Nāmu'o
Administrator

June 16, 2008

Glen Koyama
Belt Collins Hawai'i Ltd.
2153 North King Street, Suite 200
Honolulu, Hawai'i 96819-4554

RE: Request for comments on the draft environmental assessment (DEA), Honolulu Board of Water Supply well system upgrade, Waipi'o Heights Wells, 'Ewa District, O'ahu, TMKs: (1) 9-4-44:35 and 36, 9-4-05:076

Aloha e Glen Koyama,

The Office of Hawaiian Affairs (OHA) is in receipt of the above-mentioned letter dated May 6, 2008. OHA has reviewed the project and offers the following comments.

OHA supports the proposed improvements to the processing system in the form of granular activated carbon treatment so that an acceptable quality of water is maintained and that water quality standards are continually met. OHA is pleased that the Honolulu Board of Water Supply is proposing this upgrade.

OHA is also pleased by the recent cultural survey that was conducted for this proposed project and we understand that the project area has been urbanized and that most of the project activities do fall within current urbanized footprints. However, OHA does seek assurances that if this project moves forward, should Native Hawaiian traditional, cultural, or burial sites be identified during ground disturbance, all work will immediately cease, and the appropriate agencies notified pursuant to applicable law.

Additionally, OHA would also like to suggest that the project area be landscaped with drought tolerant native or indigenous species that are common to the area. Any invasive species should also be removed. Doing so would not only serve as practical water-saving landscaping practices, but also serve to further the traditional Hawaiian concept of mālama 'āina and create a more Hawaiian sense of place. This would also help to reduce the amount of impervious surfaces in the project area, thereby reducing runoff as well.

BOARD OF WATER SUPPLY

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



July 18, 2008

MUFI HANNEMANN, Mayor
RANDALL Y. S. CHUNG, Chairman
SAMUEL T. HATA
ALLY J. PARK
ROBERT K. CUNDIFF
MARC C. TILKER
CRAIG I. NISHIMURA, Ex-Officio
BRENNON T. MORIOKA, Ex-Officio
CLIFFORD P. LUM
Manager and Chief Engineer
DEAN A. NAKANO
Deputy Manager and Chief Engineer

Mr. Clyde W. Nāmu`o, Administrator
Office of Hawaiian Affairs
State of Hawaii
711 Kapiolani Boulevard, Suite 500
Honolulu, Hawaii 96813

Dear Mr. Nāmu`o:

Subject: Your Letter Dated June 16, 2008 Regarding the Draft Environmental Assessment (DEA) for the Board of Water Supply's Proposed Waipio Heights Wells and Wells I Granular Activated Carbon (GAC) System Upgrade, Ewa District, Oahu, Hawaii, TMK:9-4-044:035 and 036, and 9-4-005:076

Thank you for your letter to Belt Collins Hawaii regarding the Draft Environmental Assessment for the proposed Waipio Heights Wells and Wells I Granular Activated Carbon System Upgrade.

In response to your comment regarding possible underground features, we have included in the construction document for the proposed project the following provision:

Pursuant to Chapter 6E, HRS, in the event any artifacts or human remains are uncovered during construction operations, the contractor shall immediately suspend work and notify the Honolulu Police Department, the State Department of Land and Natural Resources – Historic Preservation Division (692-8015). In addition, for non-City projects, the contractor shall inform the Civil Engineering Branch, Department of Planning and Permitting (768-8084); and for City projects, notify the responsible City agency.

Regarding your suggestion to plant drought tolerant native or indigenous plants or trees in the area, BWS has completed its landscape planting at the Waipahu Wells III site and Waipio Heights Wells and Wells I site. In any event, we will consult with our landscape consultant to determine if additional treatment is necessary and, if so, will consider drought tolerant native or indigenous species that are common to the area.

If you have any questions, please contact Gregory Lee at 748-5716.

Very truly yours,


CLIFFORD P. LUM
Manager and Chief Engineer

cc/ Glen Koyama, Belt Collins

LINDA LINGLE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
STATE HISTORIC PRESERVATION DIVISION
601 KAMOKILA BOULEVARD, ROOM 555
KAPOLEI, HAWAII 96707

RECEIVED

2008 APR 25 PM 1:52

Laura H. Thiele
Chairperson
Board of Land and Natural Resources
Commissioner of Water Resources Management
Russell V. Tsui
First Deputy
Ken C. Kawahara
Deputy Director - Water
Aquatic Resources
Planning and Ocean Recreation
Bureau of Land Management
Commissioner of Water Resources Management
Conservation and Coastal Lands
Management and Resource Improvement
Engineering
Forestry and Wildlife
Historic Preservation
Kauai, Lanai, Nihoa, Oahu, Molokai, Maui, Hawaii
State Parks

Mr. Koyama
Page 2

Please contact Lauren Morawski (O'ahu Archaeologist) at (808) 692-8015 if you have any questions or concerns regarding this letter.

Aloha,

Nancy McMahon, Acting Archaeology Branch Chief
State Historic Preservation Division

LM

Cc: Robin Matsunaga Belt Collins Ltd. Project Manager

April 15, 2008

Glen T. Koyama
Belt Collins Hawaii LTD
2153 North King Street, Suite 200
Honolulu HI 96819-4554

LOG NO: 2007.3540
DOC NO: 0804LM06
Archaeology

Dear Mr. Koyama:

**SUBJECT: Chapter 6E-8 Historic Preservation Review –
Proposed Granular Activated Carbon Treatment for
Waipio Wells and Waipio Wells I
Waipio Ahupua'a, 'Ewa District, Island of O'ahu
TMK: (1) 9-4-005: parcel 76 & 9-4-044: parcels 35 & 36**

Thank you for the opportunity to comment on the aforementioned project, which we received on October 18, 2007. We apologize for the delay in our review. The proposed undertaking consists of the installation of two contactor units in the existing eight-contactor-unit granular activated carbon (GAC) treatment system located on the Waipahu Wells III site in the Central Oahu Regional Park. A 16 inch diameter transmission line between Waipio Heights Wells and Wells I site will also be installed. This line will traverse a distance of 3,900 feet along Kamehameha Highway, Lumiaina Street, and Lumihoahu Street within the right of way. A 500 foot long, 24 inch diameter main will also be installed at the Waipahu Wells III site. The entire project is to occur within previously disturbed areas.

We determine that **no historic properties will be affected** by this undertaking because:

- Intensive cultivation has altered the land
- Residential development/urbanization has altered the land
- Previous grubbing/grading has altered the land
- An accepted archaeological inventory survey (AIS) found no historic properties
- SHPD previously reviewed this project and mitigation has been completed
- Other:

In the event that historic resources, including human skeletal remains, are identified during the construction activities, all work needs to cease in the immediate vicinity of the find, the find needs to be protected from additional disturbance, and the State Historic Preservation Division, O'ahu Section, needs to be contacted immediately at (808) 692-8015.

BOARD OF WATER SUPPLY

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



July 18, 2008

MUFI HANNEMANN, Mayor

RANDALL Y. S. CHUNG, Chairman
SAMUEL T. HATA
ALLY J. PARK
ROBERT K. CUNDIFF
MARC C. TILKER

CRAIG I. NISHIMURA, Ex-Officio
BRENNON T. MORIOKA, Ex-Officio

CLIFFORD P. LUM
Manager and Chief Engineer

DEAN A. NAKANO
Deputy Manager and Chief Engineer

Ms. Nancy McMahon, Acting Archaeology Branch Chief
Department of Land and Natural Resources
State Historic Preservation Division
State of Hawaii
601 Kamokila Boulevard, Room 555
Kapolei, Hawaii 96707

Dear Ms. McMahon:

Subject: Your Letter Dated April 15, 2008 Regarding the Board of Water Supply's
Proposed Waipio Heights Wells and Wells I Granular Activated Carbon (GAC)
System Upgrade, Ewa District, Oahu, Hawaii, TMK:9-4-044:035 and 036, and
9-4-005:076

Thank you for your letter to Belt Collins Hawaii regarding the proposed Waipio Heights
Wells and Wells I Granular Activated Carbon System Upgrade.

We acknowledge your determination that no historic properties will be affected by the
proposed project. Further, we will comply with the requirement that in the event historic
resources are identified during construction, all work in the immediate area of the find will
cease and your office will be immediately contacted.

If you have any questions, please contact Gregory Lee at 748-5716.

Very truly yours,

CLIFFORD P. LUM
Manager and Chief Engineer

cc: ✓ Glen Koyama, Belt Collins

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 786-8480 • Fax: (808) 523-4587
Web site: www.honolulu.gov



MUFI HANNEMANN
MAYOR

May 28, 2008

Mr. Glen T. Koyama
Belt Collins Hawaii, Ltd.
2153 North King Street, Suite 200
Honolulu, Hawaii 96819-4554

Dear Mr. Koyama:

Subject: Draft Environmental Assessment
Proposed Waipio Heights Wells and Wells I GAC System Upgrade
Board of Water Supply, City and County of Honolulu
Ewa District, Oahu, Hawaii, TMK: 9-4-44:35 & 36, TMK: 9-4-05:76,
Kamehameha Highway, Lumina Street, Lumihohu Street,
and Lumimoe Street

Thank you for giving us the opportunity to comment on the above Draft Environmental Assessment.

The Department of Design and Construction (DDC) has the following comments:

- Section 5.2 should mention that there is an existing 18-inch sewer line crossing Kamehameha Highway near the Hawaiian Telcom substation.
- DDC recommends that the Board of Water Supply consider planting additional vegetation around the Waipahu Well III site to better screen the installation visually from visitors to the Patsy T. Mink Central Oahu Regional Park.

Should you have any questions, please contact Russell Takara, Deputy Director, at 768-8481.

Very truly yours,

Eugene C. Lee, P.E.
Director

ECL:lt (260524)

c: DDC Wastewater Division
DDC Facilities Division

RECEIVED

MAY 30 PM 2:08

BELT COLLINS HAWAII

EUGENE C. LEE, P.E.
DIRECTOR

RUSSELL H. TAKARA, P.E.
DEPUTY DIRECTOR

BOARD OF WATER SUPPLY

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



July 18, 2008

MUFI HANNEMANN, Mayor

RANDALL Y. S. CHUNG, Chairman
SAMUEL T. HATA
ALLY J. PARK
ROBERT K. CLUNIFF
MARC C. TILKER

CRAIG I. NISHIMURA, Ex-Officio
BRENNON T. MORIDKA, Ex-Officio

CLIFFORD P. LUM
Manager and Chief Engineer

DEAN A. NAKANO
Deputy Manager and Chief Engineer

TO: EUGENE C. LEE, P.E., DIRECTOR
DEPARTMENT OF DESIGN AND CONSTRUCTION

FROM:
CLIFFORD P. LUM, MANAGER AND CHIEF ENGINEER

SUBJECT: YOUR LETTER DATED MAY 28, 2008, REGARDING THE DRAFT ENVIRONMENTAL ASSESSMENT FOR THE BOARD OF WATER SUPPLY'S PROPOSED WAIPIO HEIGHTS WELLS AND WELLS I GRANULAR ACTIVATED CARBON (GAC) SYSTEM UPGRADE, EWA DISTRICT, OAHU, HAWAII, TMK: 9-4-044:035 AND 036, AND 9-4-005:076

Thank you for your letter to Belt Collins Hawaii, Ltd., regarding the Draft Environmental Assessment for the proposed Waipio Heights Wells and Wells I Granular Activated Carbon System Upgrade.

Pursuant to your comment, we will describe in Section 5.2 of our Environmental Assessment, the presence of an existing 18-inch sewer line that crosses Kamehameha Highway near the Hawaiian Telcom substation. We are aware of the sewer line and plan to place our waterline well above that line's location.

Regarding your recommendation to provide additional vegetation around the Waipahu Wells III site, we believe the existing landscape planting around the Board of Water Supply facility continues to mature, and in time, will provide a full visual screen of the facility. In any event, we will consult with our landscape consultant to determine if further treatment is necessary.

If you have any questions, please contact Gregory Lee at 748-5716.

cc: ✓Glen Koyama, Belt Collins

DEPARTMENT OF FACILITY MAINTENANCE
CITY AND COUNTY OF HONOLULU

1000 Uluohia Street, Suite 215, Kapelei, Hawaii 96707
Phone: (808) 768-3343 • Fax: (808) 768-3381
Website: www.honolulu.gov

MUFI HANNEMANN
MAYOR



June 4, 2008

Mr. Glen T. Koyama
Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200
Honolulu, Hawaii 96819-4554

Dear Mr. Koyama:

Subject: Draft Environmental Assessment (DEA)
Proposed Waipio Heights Wells and Wells I
GAC System Upgrade, Board of Water Supply
Kamehameha Highway, Lumiaina Street,
Lumihohu Street and Lumimoe Street

Thank you for the opportunity to provide comments to the DEA dated April 2008 for the subject Board of Water Supply project.

To lessen the impact on the project roadways, we request that open trench construction be kept to a minimum and utilized where other less destructive trenchless methods such as micro tunneling or horizontal drilling may not be feasible. A problem inherent with open trench construction is inadequate compaction of the backfill. Therefore, if open trench construction is required, we request that flowable fill or controlled low strength material be evaluated and/or considered as backfill material.

Should you have any questions, please call Charles Pignataro of the Division of Road Maintenance, at 768-3697.

Sincerely,

Craig I. Nishimura, P.E.
Director and Chief Engineer

RECEIVED

2008 JUN -6 PM 2:15

BELT COLLINS HAWAII

CRAIG I. NISHIMURA, P.E.
DIRECTOR AND CHIEF ENGINEER

GEORGE "KEOKI" MIYAMOTO
DEPUTY DIRECTOR

IN REPLY REFER TO:
DRM 08 - 482

BOARD OF WATER SUPPLY

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



July 18, 2008

MUFI HANNEMANN, Mayor

RANDALL Y. S. CHUNG, Chairman
SAMUEL T. HATA
ALLY J. PARK
ROBERT K. CUNDOFF
MARC C. TILKER

CRAIG I. NISHIMURA, Ex-Officio
BRENNON T. MORIOKA, Ex-Officio

CLIFFORD P. LUM
Manager and Chief Engineer

DEAN A. NAKANO
Deputy Manager and Chief Engineer

TO: MR. CRAIG I. NISHIMURA, P.E., DIRECTOR AND CHIEF ENGINEER
DEPARTMENT OF FACILITY MAINTENANCE

FROM: CLIFFORD P. LUM, MANAGER AND CHIEF ENGINEER

SUBJECT: YOUR LETTER DATED JUNE 4, 2008 REGARDING THE DRAFT ENVIRONMENTAL ASSESSMENT (DEA) FOR THE BOARD OF WATER SUPPLY'S PROPOSED WAIPIO HEIGHTS WELLS AND WELLS I GRANULAR ACTIVATED CARBON (GAC) SYSTEM UPGRADE, EWA DISTRICT, OAHU, HAWAII, TMK:9-4-044:035 AND 036, AND 9-4-005:076

Thank you for your letter to Belt Collins Hawaii regarding the Draft Environmental Assessment for the proposed Waipio Heights Wells and Wells I Granular Activated Carbon System Upgrade.

In response to your comments, we have evaluated different pipeline construction techniques. The relatively short, straight segments of the pipeline installation, the short total length of work within City streets, and the relatively congested presence of subsurface utilities make trenchless construction unfeasible.

The geotechnical study for the subject project has stated that settlement of the pipeline within the trench should be minimal because of the extremely stiff subgrade. Therefore, flowable fill was not specified for this particular project.

If you have any questions, please contact Gregory Lee at 748-5716.

cc: ✓Glen Koyama, Belt Collins

DEPARTMENT OF PARKS AND RECREATION
CITY AND COUNTY OF HONOLULU

KAPOLEI MALE • 1000 ULUOHIA STREET, SUITE 309 • KAPOLEI, HAWAII 96707
TELEPHONE: 18081 768-3003 • FAX: 18081 768-7053 • INTERNET: www.honolulu.gov

RECEIVED
2008 MAY 16 PM 2:19

BELT COLLINS HAWAII



May 12, 2008

MUFI HANNEMANN
MAYOR

LESTER K.C. CHANG
DIRECTOR

GAIL Y. HARAGUCHI
DEPUTY DIRECTOR

BOARD OF WATER SUPPLY

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



July 18, 2008

MUFI HANNEMANN, Mayor

RANDALL Y. S. CHUNG, Chairman
SAMUEL T. HATA
ALLY J. PARK
ROBERT K. CLUNDIFF
MARC C. TILKER

CRAIG I. NISHIMURA, Ex-Officio
BRENNON T. MORIOKA, Ex-Officio

CLIFFORD P. LUM
Manager and Chief Engineer

DEAN A. NAKANO
Deputy Manager and Chief Engineer

Mr. Glen T. Koyama
Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200
Honolulu, Hawaii 96819

Dear Mr. Koyama:

Subject: Draft Environmental Assessment
Proposed Waipio Heights Wells and Wells I GAC System Upgrade

Thank you for the opportunity to review and comment on the Draft Environmental Assessment for the proposed Waipio Heights Wells and Wells I GAC System Upgrade.

The Department of Parks and Recreation has no comment and as the proposed project will not impact any program or facility of the department, you are invited to remove us as a consulted party to the balance of the EIS process.

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

LESTER K. C. CHANG
Director

LKCC:jr
(260701)

TO: LESTER K. C. CHANG, DIRECTOR
DEPARTMENT OF PARKS AND RECREATION

FROM:
CLIFFORD P. LUM, MANAGER AND CHIEF ENGINEER

SUBJECT: YOUR LETTER DATED MAY 12, 2008, REGARDING THE DRAFT ENVIRONMENTAL ASSESSMENT FOR THE BOARD OF WATER SUPPLY'S PROPOSED WAIPIO HEIGHTS WELLS AND WELLS I GRANULAR ACTIVATED CARBON (GAC) SYSTEM UPGRADE, EWA DISTRICT, OAHU, HAWAII, TMK: 9-4-044:035 AND 036, AND 9-4-005:076

Thank you for your letter to Belt Collins Hawaii, Ltd., regarding the Draft Environmental Assessment for the proposed Waipio Heights Wells and Wells I Granular Activated Carbon System Upgrade.

We acknowledge that you have no comment on the proposed action, and as requested, will remove your department as a consulted party on this project for the remainder of the environmental review process.

If you have any questions, please contact Gregory Lee at 748-5716.

cc: ✓ Glen Koyama, Belt Collins Hawaii, Ltd.

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 7TH FLOOR • HONOLULU, HAWAII 96813
TELEPHONE: (808) 768-8000 • FAX: (808) 527-6743
INTERNET: www.honolulu.gov • DEPT. WEB SITE: www.honolulu.gov



June 12, 2008

MUFI HANNEMANN
MAYOR

RECEIVED

2008 JUN 16 PM 2:00

BELT COLLINS HAWAII
HENRY ENG, FAICP
DIRECTOR

OAVID K. TANOUE
DEPUTY DIRECTOR

2008/ELOG-1116(MH)

BOARD OF WATER SUPPLY

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



July 18, 2008

MUFI HANNEMANN, Mayor

RANDALL Y. S. CHUNG, Chairman
SAMUEL T. HATA
ALLY J. PARK
ROBERT K. CUNDIFF
MARC C. TILKER

CRAIG I. NISHIMURA, Ex-Officio
BRENNON T. MORIOKA, Ex-Officio

CLIFFORD P. LUM
Manager and Chief Engineer

DEAN A. NAKAND
Deputy Manager and Chief Engineer

Mr. Glen T. Koyama
Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200
Honolulu, Hawaii 96819-4554

Dear Mr. Koyama:

Subject: Draft Environmental Assessment (DEA)
Waipio Heights Wells and Wells I GAC System Upgrade

In response to your request for comments of May 6, 2008 regarding the subject DEA, we have the following comments:

1. Section 6.8: Remove any and all references to the Department of Planning and Permitting (DPP) as it relates to effluent discharge permit, as our department is not involved with the processing or issuance of the permit. This responsibility lies solely with the Department of Environmental Services.
2. Aside from item 1 above, the DEA adequately responded to DPP's previous comments dated November 8, 2007, regarding the Pre-Assessment Consultation for the subject project and we have no objections.

Should you have any questions, please contact Matt Higashida of our staff at 768-8045.

Very truly yours,


Henry Eng, FAICP, Director
Department of Planning and Permitting

HE:mo

cc: Board of Water Supply
Office of Environmental Quality Control

P:\Div\Function\Ea-eis\2008\DEA Waipio Heights Wells & Wells I GAC System Upgrade.doc

TO: MR. HENRY ENG, FAIP, DIRECTOR
DEPARTMENT OF PLANNING AND PERMITTING

FROM: 
CLIFFORD P. LUM, MANAGER AND CHIEF ENGINEER

SUBJECT: YOUR LETTER DATED JUNE 12, 2008 REGARDING THE DRAFT ENVIRONMENTAL ASSESSMENT (DEA) FOR THE BOARD OF WATER SUPPLY'S PROPOSED WAIPIO HEIGHTS WELLS AND WELLS I GRANULAR ACTIVATED CARBON (GAC) SYSTEM UPGRADE, EWA DISTRICT, OAHU, HAWAII, TMK:9-4-044:035 AND 036, AND 9-4-005:076

Thank you for your letter to Belt Collins Hawaii regarding the Draft Environmental Assessment for the proposed Waipio Heights Wells and Wells I Granular Activated Carbon System Upgrade.

We will make all references to the Department of Environmental Services as the agency responsible for processing and issuing the effluent discharge permit.

Further, we acknowledge your comment regarding that your agency's comments on the Pre-Assessment Consultation for the subject project have been adequately addressed in the DEA, and that you have no objections.

If you have any questions, please contact Gregory Lee at 748-5716.

cc: Glen Koyama, Belt Collins

HONOLULU FIRE DEPARTMENT
CITY AND COUNTY OF HONOLULU

636 South Street
Honolulu, Hawaii 96813-5007
Phone: 808-723-7139 Fax: 808-723-7111 Internet: www.honolulu.gov/hfd



June 6, 2008

Mr. Glen T. Koyama
Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200
Honolulu, Hawaii 96819-4554

Dear Mr. Koyama:

Subject: Draft Environmental Assessment
Proposed Waipio Heights Wells and Wells I GAC System Upgrade
Board of Water Supply
Ewa, Oahu, Hawaii
Tax Map Keys: 9-4-044: 035 and 036
9-4-005: 076

In response to your letter of May 6, 2008, regarding the above-mentioned subject, the Honolulu Fire Department reviewed the material provided and has no additional comments. Please refer to our original letter dated November 6, 2007.

Should you have any questions, please call Battalion Chief Socrates Bratakos of our Fire Prevention Bureau at 723-7151.

Sincerely,

KENNETH G. SILVA
Fire Chief

KGS/SK:bh

cc: Clifford Lum, Board of Water Supply

RECEIVED

JUN 11 PM 1:53

BELT COLLINS HAWAII

KENNETH G. SILVA
FIRE CHIEF

ALVIN K. TOMITA
DEPUTY FIRE CHIEF

BOARD OF WATER SUPPLY

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



July 18, 2008

TO: MR. KENNETH G. SILVA, FIRE CHIEF
HONOLULU FIRE DEPARTMENT

FROM: CLIFFORD P. LUM, MANAGER AND CHIEF ENGINEER

SUBJECT: YOUR LETTER DATED JUNE 6, 2008 REGARDING THE DRAFT ENVIRONMENTAL ASSESSMENT (DEA) FOR THE BOARD OF WATER SUPPLY'S PROPOSED WAIPIO HEIGHTS WELLS AND WELLS I GRANULAR ACTIVATED CARBON (GAC) SYSTEM UPGRADE, EWA DISTRICT, OAHU, HAWAII, TMK:9-4-044:035 AND 036, AND 9-4-005:076

Thank you for your letter to Belt Collins Hawaii regarding the Draft Environmental Assessment for the proposed Waipio Heights Wells and Wells I Granular Activated Carbon System Upgrade.

We acknowledge your response that there are no additional comments on the proposed project.

If you have any questions, please contact Gregory Lee at 748-5716.

cc: Glen Koyama, Belt Collins

MUFI HANNEMANN, Mayor

RANDALL Y. S. CHUNG, Chairman
SAMUEL T. HATA
ALLY J. PARK
ROBERT K. CUNDIFF
MARC C. TLKER

CRAIG I. NISHIMURA, Ex-Officio
BRENNON T. MORIOKA, Ex-Officio

CLIFFORD P. LUM
Manager and Chief Engineer

DEAN A. NAKANO
Deputy Manager and Chief Engineer

POLICE DEPARTMENT
CITY AND COUNTY OF HONOLULU
901 SOUTH BERETANIA STREET · HONOLULU, HAWAII 96813
TELEPHONE: (808) 529-3111 · INTERNET: www.honolulu-pd.org

MUFI HANNEMANN
MAYOR



OUR REFERENCE BS-KP

May 15, 2008

Mr. Glen T. Koyama
Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200
Honolulu, Hawaii 96819-4554

Dear Mr. Koyama:

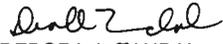
This is in response to your letter of May 6, 2008, requesting comments on the Draft Environmental Assessment for the proposed Waipio Heights Wells and Wells I GAC System Upgrade project.

This project should have no significant impact on the facilities or operations of the Honolulu Police Department.

If there are any questions, please call Major Dave Kajihiro of District 3 at 723-8803 or Mr. Brandon Stone of the Executive Office at 529-3644.

Sincerely,

BOISSE P. CORREA
Chief of Police

By 
DEBORA A. TANDAL
Assistant Chief of Police
Support Services Bureau

RECEIVED

2008 MAY 19 PH 1:55

BELT COLLINS HAWAII

BOISSE P. CORREA
CHIEF

PAUL D. PUTZULU
KARL A. GOOSEY
DEPUTY CHIEFS

BOARD OF WATER SUPPLY

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



July 18, 2008

MUFI HANNEMANN, Mayor

RANDALL Y. S. CHUNG, Chairman
SAMUEL T. HATA
ALLY J. PARK
ROBERT K. CLUNDIFF
MARC C. TILKER

CRAIG I. NISHIMURA, Ex-Officio
BRENNON T. MORIOKA, Ex-Officio

CLIFFORD P. LUM
Manager and Chief Engineer

DEAN A. NAKANO
Deputy Manager and Chief Engineer

TO: BOISSE P. CORREA, CHIEF OF POLICE
POLICE DEPARTMENT

FROM: 
CLIFFORD P. LUM, MANAGER AND CHIEF ENGINEER

SUBJECT: YOUR LETTER DATED MAY 15, 2008, REGARDING THE DRAFT ENVIRONMENTAL ASSESSMENT (DEA) FOR THE BOARD OF WATER SUPPLY'S PROPOSED WAIPIO HEIGHTS WELLS AND WELLS I GRANULAR ACTIVATED CARBON (GAC) SYSTEM UPGRADE, EWA DISTRICT, OAHU, HAWAII, TMK:9-4-044:035 AND 036, AND 9-4-005:076

Thank you for your letter to Belt Collins Hawaii, Ltd., regarding the Draft Environmental Assessment for the proposed Waipio Heights Wells and Wells I Granular Activated Carbon System Upgrade.

We acknowledge your assessment that the proposed project should not have a significant impact on the facilities or operations of the Honolulu Police Department.

If you have any questions, please contact Gregory Lee at 748-5716.

cc: Glen Koyama, Belt Collins Hawaii, Ltd.

Hawaiian Electric Company, Inc. • PO Box 2750 • Honolulu, HI 96840-0001



June 17, 2008

RECEIVED

JUN 20 PM 1:54

BELT COLLINS HAWAII

Mr. Glenn T. Koyama
Belt Collins Hawaii Ltd.
2153 North King Street - Suite 200
Honolulu, HI 96819-4554

Dear Mr. Koyama:

**Re: Proposed Granular Activated Carbon Treatment
for Waipio Heights Wells & Wells I**

Thank you for the opportunity to comment on the draft EA of the above-referenced project. Hawaiian Electric Company, Inc. (HECO) has no objections at this time. We note that our pre-assessment comments were incorporated in the draft EA, and anticipate that our concerns, reiterated below in major part, will be addressed.

- (1) HECO has existing overhead and underground facilities within the roadway rights-of-way and BWS properties identified in the project description, and will require continued access for maintenance purposes, as covered by our existing easements or agreements for location or operation within the public rights-of-way. We appreciate your efforts to keep us apprised of the planning process. As the new waterline plans progress, please continue to keep us informed. We will be better able to evaluate any effects on our system facilities further along in the project's development. We request that development plans show all affected HECO facilities and address any conflicts between the proposed plans and HECO's existing facilities. Please forward the pre-final development plans to HECO for review. A brief description and environmental analysis of any requirements for relocation or new facilities should be included in the DEA.
- (2) Should it become necessary to relocate HECO's facilities, please submit a request in writing and we will work with you so that construction of the project may proceed as smoothly as possible. Please note that there may be costs associated with any relocation work, and that such costs may be borne by the requestor. Because any redesign or relocation of HECO's facilities may cause lengthy delays, upon determination that HECO facilities will need to be relocated or built, HECO should be notified immediately in order to minimize any delays in or impacts on the project schedule.

Please continue to coordinate HECO's continuing input in this project with our point of contact, Isaac Lee, Transmission & Distribution (543-7539).

Sincerely,

Kirk S. Tomita
Senior Environmental Scientist

cc: I. Lee/M. Lum/R. Kaneshiro/R. Tamayo
P. Nakagawa

BOARD OF WATER SUPPLY

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



July 18, 2008

MUFI HANNEMANN, Mayor

RANDALL Y. S. CHUNG, Chairman
SAMUEL T. HATA
JILLY J. PARK
ROBERT K. CUNDIFF
MARC C. TILKER

CRAIG I. NISHIMURA, Ex-Officio
BRENNON T. MORIOKA, Ex-Officio

CLIFFORD P. LUM
Manager and Chief Engineer

DEAN A. NAKANO
Deputy Manager and Chief Engineer

Mr. Kirk S. Tomita
Hawaiian Electric Company, Inc.
P. O. Box 2750
Honolulu, Hawaii 96840-0001

Dear Mr. Tomita:

Subject: Your Letter Dated June 17, 2008, Regarding the Draft Environmental Assessment for the Board of Water Supply's Proposed Waipio Heights Wells and Wells I Granular Activated Carbon System Upgrade, Ewa District, Oahu, Hawaii, TMK: 9-4-044:035 and 036, and 9-4-005:076

Thank you for your letter to Belt Collins Hawaii, Ltd., regarding the Draft Environmental Assessment for the proposed Waipio Heights Wells and Wells I Granular Activated Carbon System Upgrade.

The Board of Water Supply will continue to coordinate the placement of the proposed waterline within the area's existing road rights-of-way with Hawaiian Electric Company, Inc. (HECO). We are in contact with the Engineering Department regarding our waterline construction and will continue to be involved with your Design Section. Our pre-final development plans will be sent to you for your review.

Should it become necessary to relocate HECO's facilities, a request will be submitted to you in writing for the modification, in a timely manner.

If you have any questions, please contact Gregory Lee at 748-5716.

Very truly yours,

CLIFFORD P. LUM
Manager and Chief Engineer

cc: Glen Koyama, Belt Collins Hawaii, Ltd.



May 23, 2008

Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200
Honolulu, Hawaii 96819-4554

Attention: Mr. Glen T. Koyama

Gentlemen:

Subject: Draft Environmental Assessment
Proposed Waipio Heights Wells and Wells I GAC System Upgrade
Board of Water Supply, City & County of Honolulu
Ewa District, Oahu, Hawaii, TMK 9-4-44:35 & 36, TMK 9-4-05:76,
Kamehameha Highway, Lumiaina Street, Lumihohu Street, Lumimoe Street

Please be advised that The Gas Company, LLC maintains underground utility gas mains in the project vicinity, which serves commercial and residential customers in the area. We would appreciate your consideration in any future project planning and design processes to minimize any potential conflicts with the existing gas facilities in the project area.

Thank you for the opportunity to provide comments in the planning of the proposed project. Should there be any questions, or if additional information is desired, please call Kekoa Ramos at 594-5008.

Sincerely,

Charles E. Calvet, P.E.
Manager, Engineering

CEC:krs
08-131

RECEIVED

2008 MAY 29 PM 1:43

BELT COLLINS HAWAII

P.O. Box 3000
Honolulu, Hawaii 96802-3000

BOARD OF WATER SUPPLY

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



July 18, 2008

MUFI HANNEMANN, Mayor

RANDALL Y. S. CHUNG, Chairman
SAMUEL T. HATA
ALLY J. PARK
ROBERT K. CUNDIFF
MARC C. TILKER

CRAIG I. NISHIMURA, Ex-Officio
BRENNON T. MORIOKA, Ex-Officio

CLIFFORD P. LUM
Manager and Chief Engineer

DEAN A. NAKANO
Deputy Manager and Chief Engineer

Mr. Charles E. Calvet, P.E., Manager
The Gas Company
P. O. Box 3000
Honolulu, Hawaii 96802-3000

Dear Mr. Calvet:

Subject: Your Letter Dated May 23, 2008, Regarding the Draft Environmental Assessment (DEA) for the Board of Water Supply's Proposed Waipio Heights Wells and Wells I Granular Activated Carbon (GAC) System Upgrade, Ewa District, Oahu, Hawaii, TMK: 9-4-044:035 & 036, and 9-4-005:076

Thank you for your letter to Belt Collins Hawaii, Ltd., regarding the Draft Environmental Assessment for the proposed Waipio Heights Wells and Wells I Granular Activated Carbon System Upgrade.

Our design consultant, Belt Collins Hawaii, Ltd., has been in contact with your office to coordinate our design with your existing gas lines. We look forward to continue working with you to assure there are no conflicts of facilities in the area.

If you have any questions, please contact Gregory Lee at 748-5716.

Very truly yours,

CLIFFORD P. LUM
Manager and Chief Engineer

cc: Glen Koyama, Belt Collins Hawaii, Ltd.

300 Akumainui Street
Mililani, Hawaii 96789-3999
Tel: 808-625-2100
Fax: 808-625-3333



June 5, 2008

Belt Collins Hawaii, Ltd
2153 North King Street, Suite 200
Honolulu, HI 96819-4554

Attn: Glen T. Koyama

Subject: Environmental Assessment for the Proposed Granular Activated Carbon Treatment for Waipio Heights Wells and Wells I facility (Waipio, Oahu, Hawaii)

Dear Mr. Koyama,

Thank you for the opportunity to review and comment on the above project in Waipio. Oceanic Time Warner Cable (OTWC) has existing aerial and underground facilities alongside Kamehameha Hwy, Lumiaina St and Lumioahu Street. OTWC facilities cross the intersections of Kamehameha Hwy/Waipio Uka St and at Kamehameha Hwy/Lumiaina St. Our cable facilities at the Waipio Uka St crossing are in Hawaiian Telcom's conduit system, but the Lumiaina St crossing are in OTWC's conduits.

Please forward the detailed construction drawings so we can make further evaluations. If you have any questions or require more information, please call me at 625-8337.

Sincerely,

A handwritten signature in black ink, appearing to read "Joseph Antonio".

Joseph Antonio
OSP Engineer

Enclosure(s): none

BOARD OF WATER SUPPLY

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



July 18, 2008

MUFI HANNEMANN, Mayor
RANDALL Y. S. CHUNG, Chairman
SAMUEL T. HATA
ALLY J. PARK
ROBERT K. CLUNDIFF
MARC C. TILKER
CRAIG I. NISHIMURA, Ex-Officio
BRENNON T. MORIOKA, Ex-Officio
CLIFFORD P. LUM
Manager and Chief Engineer
DEAN A. NAKANO
Deputy Manager and Chief Engineer

Mr. Joseph Antonio, OSP Engineer
Oceanic Time Warner Cable
200 Akumainui Street
Mililani, Hawaii 96789-3999

Dear Mr. Antonio:

Subject: Your Letter Dated June 5, 2008, Regarding the Draft Environmental Assessment for the Board of Water Supply's Proposed Waipio Heights Wells and Wells I Granular Activated Carbon (GAC) System Upgrade, Ewa District, Oahu, Hawaii, TMK: 9-4-044:035 and 036, and 9-4-005:076

Thank you for your letter to Belt Collins Hawaii, Ltd., regarding the Draft Environmental Assessment for the proposed Waipio Heights Wells and Wells I Granular Activated Carbon System Upgrade.

Our design consultant, Belt Collins Hawaii, Ltd., has been in contact with your office to coordinate our design with your existing facilities. We look forward to working with you to assure there are no conflicts of facilities in the area.

If you have any questions, please contact Gregory Lee at 748-5716.

Very truly yours,

A handwritten signature in black ink, appearing to read "Clifford P. Lum".

CLIFFORD P. LUM
Manager and Chief Engineer

cc: ✓ Glen Koyama, Belt Collins Hawaii, Ltd.

REFERENCES

- Cultural Surveys Hawaii, Inc. DRAFT *Cultural Impact Evaluation for the Board of Water Supply Waipio Heights Wells and Wells I Site and Waipahu Wells III, Waipio Ahupuaa, Ewa District, Island of Oahu, TMK: (1) 94-4-44: 35, 36 and 9-4-05: 76.* January 2008.
- Federal Emergency Management Agency. *Flood Insurance Rate Map, Map No. 15003C0240F. Revised September 30, 2004.*
- GMP Associates, Inc. *Waipahu Wells III Station, Final Environmental Assessment.* February 1995. Prepared for Board of Water Supply, City and County of Honolulu.
- State of Hawaii, Office of Governor. *The Hawaii State Plan*
- State of Hawaii, State Land Use Commission. No date. *State Land Use District Maps.*
- University of Hawaii, Department of Geography. *Atlas of Hawaii.* Second Edition, 1983 and Third Edition, 1998.
- U.S. Census Bureau. *Census 2000.*
- U.S. Department of Agriculture Soil Conservation Service. August 1972. *Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii.*
- U.S. Geological Survey. *Pearl Harbor and Waipahu Quadrangle Maps.* 1983.

APPENDICES

APPENDIX A

Preconsultation Letters

Note

This appendix includes a sample letter with attachments that was transmitted to various State and County agencies, utility companies, and elected officials (see attached list of recipients) for preconsultation on the proposed project. Also included in this appendix are all the comment letters that were received.



October 17, 2007
2007.71.0200 / 07P-416

Mr. Henry Eng, Director
Department of Planning and Permitting
City and County of Honolulu
650 South King Street
Honolulu, HI 96813

Dear Mr. Eng:

**Environmental Assessment
Proposed Granular Activated Carbon Treatment for
Waipio Heights Wells and Wells I
Waipio, Oahu, Hawaii**

On behalf of the Honolulu Board of Water Supply (BWS), we wish to inform you that the BWS is proposing to upgrade its well system at the Waipio Heights Wells and Wells I site on Lumihoahu Street in Crestview, Waipio, Oahu (see attached location map). The upgrade will include the installation of two contactor units in its existing eight-contactor-unit granular activated carbon (GAC) treatment system located on the Waipahu Wells III site in the nearby Central Oahu Regional Park. Water drawn from that Waipio Heights Wells and Wells I site will be conveyed to the Waipahu Wells III site via a 16-inch diameter transmission line along Kamehameha Highway, where the expanded GAC system (pad and stub-outs already exist for the two additionally contactor units) will filter the conveyed water before it is placed into BWS's distribution network for public consumption. A detailed description of the proposed improvement is provided in the attached project description.

The proposed project is expected to begin construction in late 2008. A traffic management plan will be prepared and is expected to be implemented to minimize traffic impact in the area while the transmission line is being installed.

As part of this project, an Environmental Assessment (EA) will be prepared in compliance with Chapter 343, Hawaii Revised Statutes (HRS). 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 material and submit your written comments to the address below by November 8, 2007. Comments received during this period will be considered in the preparation of the Draft EA. When the draft is completed, a copy will be sent to you for further review and input.

We thank you for your interest and participation.

Sincerely yours,

BELT COLLINS HAWAII LTD.

Glen T. Koyama

GTK:lf
Attachments

Honolulu
Guam
Hong Kong
Philippines
Seattle
Singapore
Thailand

PROJECT DESCRIPTION

BWS Waipio Heights Wells and Wells I Upgrade

The Honolulu Board of Water Supply (BWS) is proposing to upgrade its well system at the Waipio Heights Wells and Wells I site in Crestview, Waipahu, Hawaii. Routine water quality tests at the site have shown an increase in the concentration levels of Trichloropropane (TCP). While these levels are below the State Department of Health established Maximum Contaminant Level (MCL), the BWS is proposing to upgrade the system to remove excess concentration levels of TCP so that an acceptable quality of water is maintained and that water quality standards are continually met.

The proposed upgrade will convey the water drawn from the Waipio Heights Wells and Wells I site through a new 16-inch diameter transmission line along Kamehameha Highway to the Waipahu Wells III site in the nearby Central Oahu Regional Park. At that location, the conveyed water will be received in an existing Granular Activated Carbon (GAC) treatment system that filters the water to remove most organic and synthetic chemical elements, before it is placed into BWS's distribution system for public consumption.

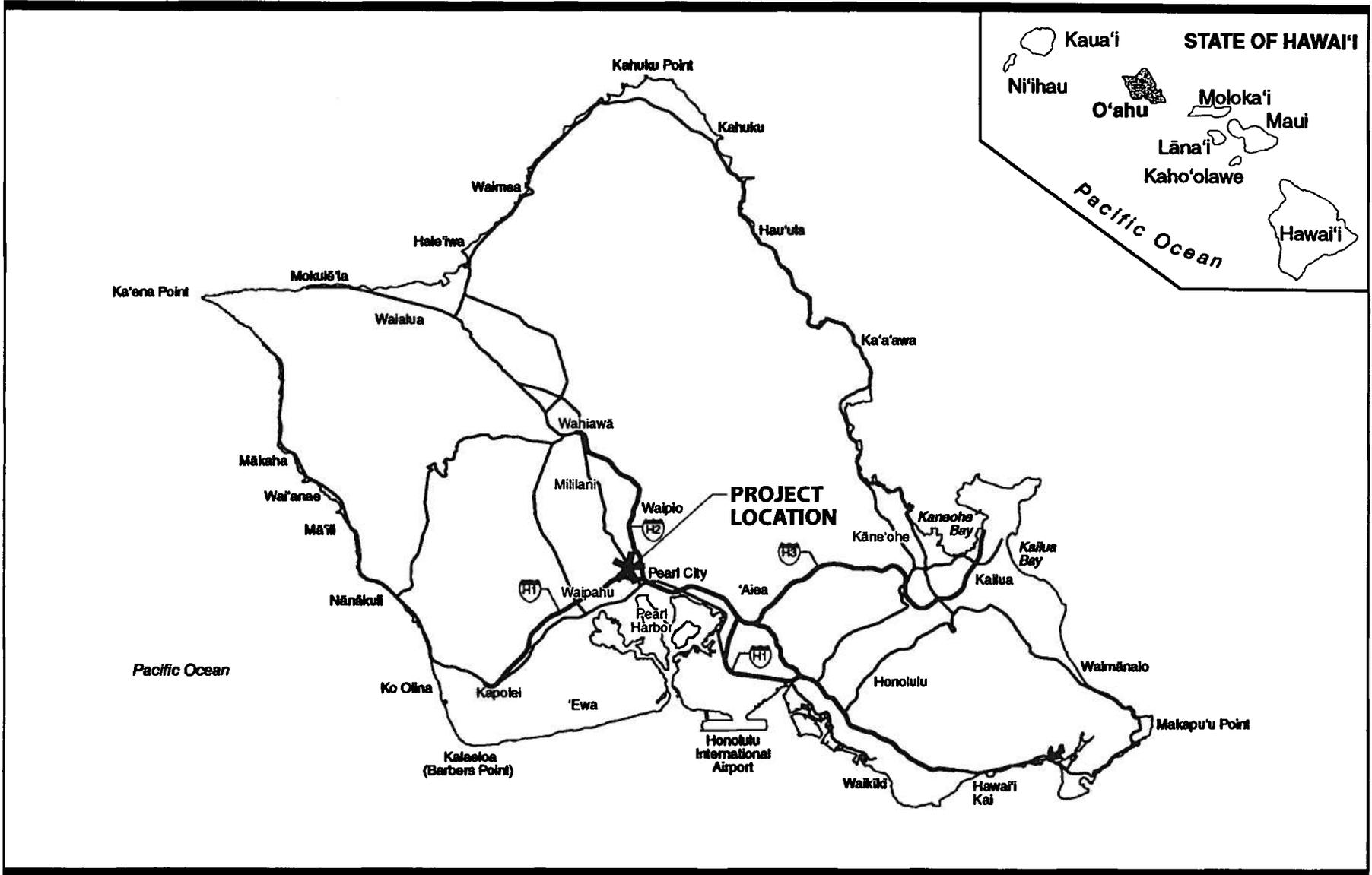
There are currently ten contactor units in the GAC treatment system serving the wells in the Waipahu Wells III site. The existing pad supporting the contactor units has provisions to serve two more contactor units. Under the proposed plan, two additional contactors will be installed to accommodate the flow from the Waipio Heights Wells and Wells I site. The contactors in the GAC treatment system contain activated carbon that has a porous surface structure. This porous composition allows for adsorption of the contaminants as the water passes through the activated carbon.

Associated with the GAC system upgrade at the Waipahu Wells III site are the replacement of the existing chlorination system with a new vacuum hypochlorite system, ancillary electrical and plumbing work, interior road improvements, and related landscaping and irrigation enhancements, all located within the existing site.

The new 16-inch transmission line between the Waipio Heights Wells and Wells I site and the Waipahu Wells III site will traverse a distance of approximately 3,900 feet and will be located entirely within the rights-of-way of Lumihoahu Street, Lumiaina Street, and Kamehameha Highway. No adjacent private residential properties will be encroached.

A 500-foot long, 24-inch diameter main will also be installed at the Waipahu Wells III site to allow for possible additional contributory flows from other nearby BWS facilities should the need for water treatment occur at those facilities.

October 17, 2007



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Figure 1
ISLAND OF OAHU

Waipio Heights Wells and Wells I
Honolulu Board of Water Supply
September 2007

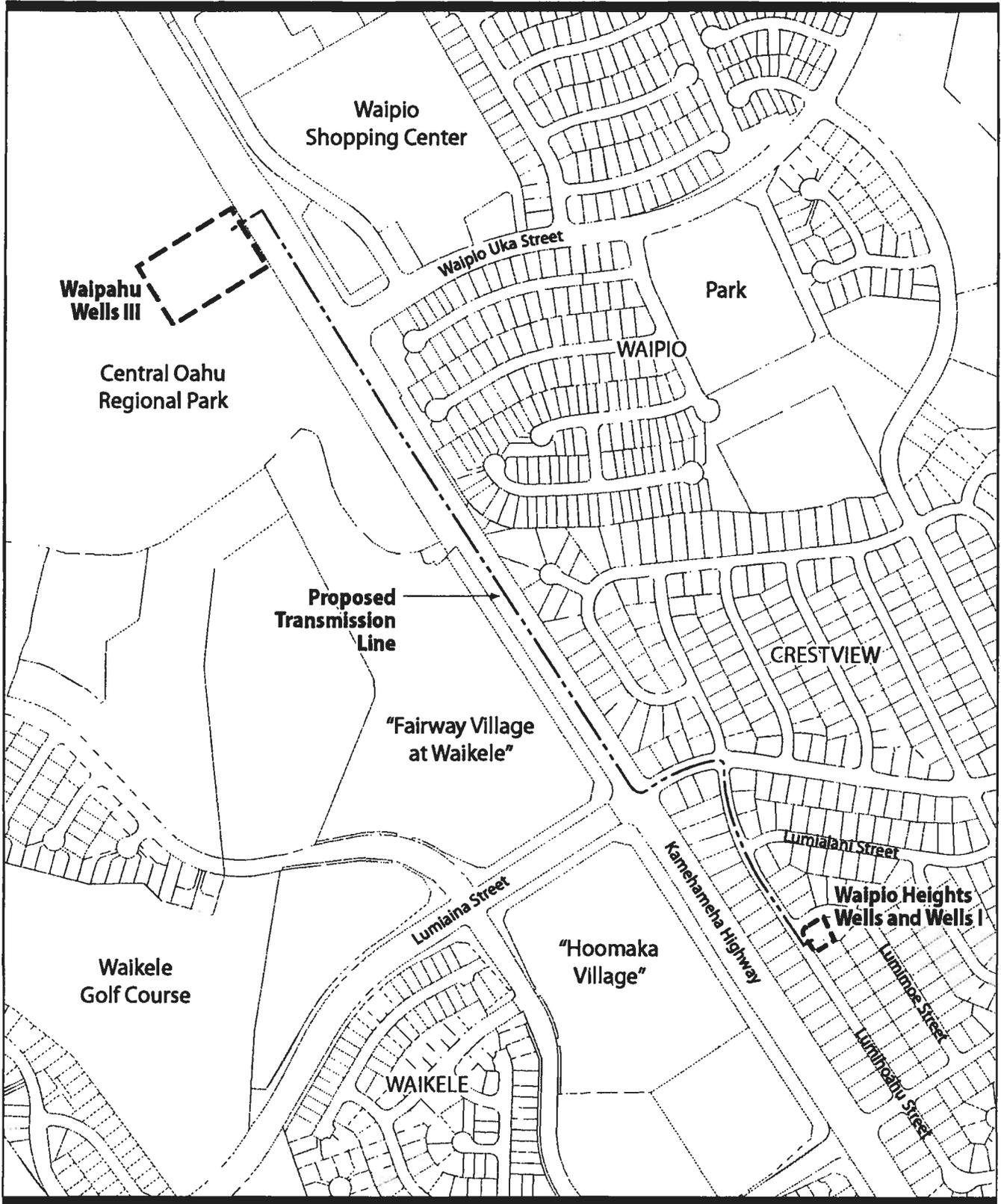


Figure 2
LOCATION MAP

Waipio Heights Wells and Wells I
Honolulu Board of Water Supply
September 2007

LIST OF ADDRESSEES

State Agencies

Mr. Laurence K. Lau
Deputy Director for Environmental Health
Office of Environmental Quality Control
State of Hawaii
235 S. Beretania Street, Ste. 702
Honolulu, HI 96813

Director
Office of Planning
Dept. of Business, Economic Dev. and Tourism
State of Hawaii
P.O. Box 2359
Honolulu, HI 96804

Mr. Thomas E. Arizumi, Chief
Environmental Management Division
Department of Health
State of Hawaii
919 Ala Moana Blvd., Room 300
Honolulu, HI 96814

Ms. Melanie Chinen, Administrator
State Historic Preservation Division
Department of Land and Natural Resources
State of Hawaii
601 Kamokila Blvd., Suite 555
Kapolei, HI 96707

Mr. Russell Y. Tsuji, Administrator
Land Division
Department of Land and Natural Resources
State of Hawaii
P.O. Box 621
Honolulu, HI 96809

Mr. Barry Fukunaga, Director
Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii 96813

Mr. Clyde W. Namu'o, Administrator
Office of Hawaiian Affairs
711 Kapiolani Boulevard, Suite 1250
Honolulu, HI 96813

County Agencies

Mr. Henry Eng, Director
Department of Planning and Permitting
City and County of Honolulu
650 South King Street
Honolulu, HI 96813

Mr. Lester K.C. Chang, Director
Department of Parks and Recreation
City and County of Honolulu
1000 Uluohia Street, Suite 309
Kapolei, HI 96707

Mr. Melvin N. Kaku, Director
Department of Transportation Services
City and County of Honolulu
650 South King Street, 3rd Floor
Honolulu, HI 96813

Mr. Eugene C. Lee, Director
Department of Design and Construction
City and County of Honolulu
650 South King Street, 11th Floor
Honolulu, Hawaii 96813

Ms. Laverne Higa, Chief Engineer
Department of Facility Maintenance
City and County of Honolulu
1000 Uluohia Street, Suite 215
Kapolei, HI 96707

Mr. Eric Takamura, Director
Department of Environmental Services
City and County of Honolulu
1000 Uluohia Street, Suite 308
Kapolei, HI 96707

Mr. Boisse P. Correa, Chief
Police Department
City and County of Honolulu
801 South Beretania Street
Honolulu, HI 96813

Mr. Kenneth G. Silva, Chief
Fire Department
City and County of Honolulu
636 South Street
Honolulu, HI 96813

Utility Companies

Hawaiian Telcom
1177 Bishop Street
Honolulu, HI 96813

Hawaiian Electric Company
820 Ward Avenue
Honolulu, HI 96814

Oceanic Time Warner Cable
Engineering/Construction Services
Mililani Tech Plaza
200 Akamainui Street
Mililani, HI 96789

The Gas Company
745 Fort Street, Suite 1800
Honolulu, HI 96813

Elected Officials

Representative Ryan Yamane
37th Representative District
State Capitol
415 South Beretania Street
Honolulu, HI 96813

Senator Ron Menor
17th Senate District
State Capitol
415 South Beretania Street
Honolulu, HI 96813

Councilmember Gary H. Okino
8th Council District
530 South King Street
Honolulu, HI 96813

LINDA LINGLE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

November 6, 2007

Laura H. Thiele
Chairperson
HAWAII LAND AND NATURAL RESOURCES
COMMISSION
RECEIVED

2007 NOV -8 PM 2:02

BELT COLLINS HAWAII

LINDA LINGLE
GOVERNOR



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

October 31, 2007

RECEIVED

2007 NOV -6 PM 1:37

BELT COLLINS HAWAII

BARRY FUKUNAGA
DIRECTOR

Deputy Directors
MICHAEL D. FORMBY
FRANCIS PAUL KEENO
BRENNON T. MORIOKA
BRIAN H. SEKIGUCHI

IN REPLY REFER TO:

STP 8.2661

Belt Collins Hawaii Ltd.
2153 North King Street Suite 200
Honolulu, Hawaii 96819

Attention: Mr. Glen t. Koyama

Gentlemen:

Subject: Pre-consultation for Draft Environmental Assessment for Proposed Granular Activated Carbon Treatment Upgrade to Waipio Heights Wells and Wells I site on Lumihohahu Street in Crestview, Waipio, Oahu

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 comment.

Other than the comments from Engineering Division, the Department of Land and Natural Resources has no other comments to offer on the subject matter. Should you have any questions, please feel free to call our office at 587-0433. Thank you.

Sincerely,


Morris M. Atta
Administrator

Mr. Glen T. Koyama
Belt Collins Hawaii, Ltd.
2153 North King Street, Suite 200
Honolulu, Hawaii 96819-4554

Dear Mr. Koyama:

Subject: Waipio Heights Wells and Wells I
Draft Environmental Assessment (DEA)

Thank you for your notice of the Honolulu Board of Water Supply's (BWS) proposal to upgrade its well system at the Waipio Heights Wells and Wells I site.

We are concerned that the project will impact State Department of Transportation (DOT) highway facilities at locations where the new 16-inch transmission line will cross or abut any DOT highway right-of-ways. The project's DEA should discuss these potential impacts and the appropriate mitigation measures. Advance review of project plans and construction coordination with the DOT Highways Division is necessary.

We request that at least four (4) copies of the project's DEA be provided to the Highways Division, Attention: HWY-P for staff use and review.

We appreciate the opportunity to provide comments.

Very truly yours,


BARRY FUKUNAGA
Director of Transportation

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LD/RYT

Ref.: PreConDEA Activated Carbon Waipio
Oahu.582

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 Flood Zone D. The Flood Insurance Program does not have any regulations for developments within Flood Zone D.
- () 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. Robert Sumitomo at (808) 768-8097 or Mr. Mario Siu Li at (808) 768-8098 of the City and County of Honolulu, Department of Planning and Permitting.
- () Mr. Kelly Gomes at (808) 961-8327 (Hilo) or Mr. Kiran Emler at (808) 327-3530 (Kona) of the County of Hawaii, Department of Public Works.
- () Mr. Francis Cerizo at (808) 270-7771 of the County of Maui, Department of Planning.
- () Mr. Mario Antonio at (808) 241-6620 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 Ms. Suzie Agraan of the Planning Branch at 587-0258.

Signed: Eric T. Hirano
ERIC T. HIRANO, CHIEF ENGINEER

Date: 10/28/07

LINDA J. JINGLE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

October 19, 2007

MEMORANDUM

TO:

DLNR Agencies:

- ___ Div. of Aquatic Resources
- ___ Div. of Boating & Ocean Recreation
- x Engineering Division
- ___ Div. of Forestry & Wildlife
- ___ Div. of State Parks
- x Commission on Water Resource Management
- ___ Office of Conservation & Coastal Lands
- ___ Land Division - District

FROM:

Ja Russell Y. Tsuji

SUBJECT:

Pre-consultation for Draft Environmental Assessment for Proposed Granular Activated Carbon Treatment Upgrade to Waipio Heights Wells and Wells I site on Lumihoahu Street in Crestview

LOCATION: Waipio, Oahu

APPLICANT: Belt Collins on behalf of the Honolulu Board of Water Supply

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by November 1, 2007.

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 my office at 587-0433. Thank you.

Attachments

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

Signed: Eric T. Hirano
Date: 10/28/07

Laura H. Threlen
Chairperson
Board of Land and Natural Resources
Commission on Water Resource Management

RECEIVED
LAND DIVISION
2007 OCT 30 A 8:06
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

OCT 19 10 57 AM '07 ENGINEERING

LIND LINGLE
GOVERNOR OF HAWAII



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

October 19, 2007

LAURA H. THIELEN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

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07 OCT 19 P 1: 07

COMMISSION ON WATER
RESOURCE MANAGEMENT

LINDA LINGLE
GOVERNOR OF HAWAII



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

November 9, 2007

LAURA H. THIELEN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

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007 NOV 14 PM 2: 22

BELT COLLINS HAWAII

MEMORANDUM

From
TO: DLNR Agencies:
_ Div. of Aquatic Resources
_ Div. of Boating & Ocean Recreation
 Engineering Division
_ Div. of Forestry & Wildlife
_ Div. of State Parks
 Commission on Water Resource Management
_ Office of Conservation & Coastal Lands
_ Land Division - District

To
FROM: Russell Y. Tsuji
SUBJECT: Pre-consultation for Draft Environmental Assessment for Proposed Granular Activated Carbon Treatment Upgrade to Waipio Heights Wells and Wells I site on Lumihohu Street in Crestview

LOCATION: Waipio, Oahu

APPLICANT: Belt Collins on behalf of the Honolulu Board of Water Supply

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by November 1, 2007.

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 my office at 587-0433. Thank you.

Attachments

- () We have no objections.
- () We have no comments.
- (x) Comments are attached.

Signed: *[Signature]*
Date: 10/25/07

Belt Collins Hawaii Ltd.
2153 North King Street Suite 200
Honolulu, Hawaii 96819

Attention: Mr. Glen Koyama

Gentlemen:

Subject: Pre-consultation for Draft Environmental Assessment for Proposed Granular Activated Carbon Treatment Upgrade to Waipio Heights Wells and Wells I site on Lumihohu Street in Crestview, Waipio, Oahu

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 comment.

Other than the comments from Commission on Water Resource Management, the Department of Land and Natural Resources has no other comments to offer on the subject matter. Should you have any questions, please feel free to call our office at 587-0433. Thank you.

Sincerely,

Charlene E. Unou
Morris M. Atta
Administrator

Morris Atta, Acting Administrator
Page 2
November 7, 2007

- 7. There is (are) well(s) located on or adjacent to this project. If wells are not planned to be used and will be affected by any new construction, they must be properly abandoned and sealed. A permit for well abandonment must be obtained.
- 8. Ground-water withdrawals from this project may affect streamflows, which may require an instream flow standard amendment.
- 9. A Stream Channel Alteration Permit(s) is (are) required before any alteration can be made to the bed and/or banks of a stream channel.
- 10. A Stream Diversion Works Permit(s) is (are) required before any stream diversion works is constructed or altered.
- 11. A Petition to Amend the Interim Instream Flow Standard is required for any new or expanded diversion(s) of surface water.
- 12. The planned source of water for this project has not been identified in this report. Therefore, we cannot determine what permits or petitions are required from our office, or whether there are potential impacts to water resources.
- 13. We recommend that the report identify feasible alternative non-potable water resources, including reclaimed wastewater.
- OTHER:

If there are any questions, please contact Ryan Imata at 587-0255.

Rt:ss

LINDA LINGLE
GOVERNOR OF HAWAII



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

November 7, 2007

LAURA H. THIELEN
CHAIRPERSON
MEREDITH J. CHING
JAMES A. FRAZIER
NEAL S. FUJIMURA
CHYOME L. FUKINO, M.D.
DONNA FAY K. KIYOSAKI, P.E.
LAWRENCE H. MIKE, M.D., J.D.
KEN C. KAWAHARA, P.E.
DEPUTY DIRECTOR

REF:

TO: Morris Atta, Acting Administrator
Land Division

FROM: Ken C. Kawahara, P.E., Deputy Director
Commission on Water Resource Management **TK**

SUBJECT: Pre-consultation for Draft EA for Proposed Granular Activation Carbon Treatment Upgrade to Waipio Heights Wells and Wells 1 site on Lumihoahu Street in Crestview

FILE NO.:

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

Our comments related to water resources are checked off below.

- 1. We recommend coordination with the county to incorporate this project into the county's Water Use and Development Plan. Please contact the respective Planning Department and/or Department of Water Supply for further information.
- 2. We recommend coordination with the Engineering Division of the State Department of Land and Natural Resources to incorporate this project into the State Water Projects Plan.
- 3. There may be the potential for ground or surface water degradation/contamination and recommend that approvals for this project be conditioned upon a review by the State Department of Health and the developer's acceptance of any resulting requirements related to water quality. (Carbon Disposal/Reactivation)

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

- 4. The proposed water supply source for the project is located in a designated ground-water management area, and a Water Use Permit is required prior to use of ground water.
- 5. A Well Construction Permit(s) is (are) required before the commencement of any well construction work.
- 6. A Pump Installation Permit(s) is (are) required before ground water is developed as a source of supply for the project.

Glen Koyama
Belt Collins Hawai'i Ltd.
November 5, 2007
Page 2

Although the TCP levels found are below the State Department of Health established maximum contaminant levels, OHA is pleased that the Honolulu Board of Water Supply is proposing this upgrade. OHA suggests that it be done in a timely manner.

OHA further requests that if the project by your client goes forward, should iwi kūpuna or Native Hawaiian cultural or traditional deposits be found during ground disturbance, work will cease, and the appropriate agencies will be contacted pursuant to applicable law.

Additionally, OHA would also like to suggest that the project area be landscaped with native or indigenous species. Any invasive species should also be removed. Doing so would not only serve as practical water-saving landscaping practices, but also serve to further the traditional Hawaiian concept of mālama 'āina and create a more Hawaiian sense of place.

Thank you for the opportunity to comment. If you have any further questions or concerns please contact Grant Arnold at (808) 594-0239 or granta@oha.org.

Sincerely,



Clyde W. Nāmu'o
Administrator

PHONE (808) 594-1888



STATE OF HAWAII
OFFICE OF HAWAIIAN AFFAIRS
711 KAPI'OLANI BOULEVARD, SUITE 500
HONOLULU, HAWAII 96813

RECEIVED
EAX(808) 594-1888

2007 NOV -9 PM 2:32

BELT COLLINS HAWAII

HRD07/3292

November 5, 2007

Glen Koyama
Belt Collins Hawai'i Ltd.
2153 North King Street, Suite 200
Honolulu, Hawai'i 96819-4554

RE: Preliminary Comments for Environmental Assessment, Proposed Upgrade to Waipi'o Heights Wells and Wells I, Lumiho'ahu Street, Crestview, Waipi'o, O'ahu.

Dear Mr. Koyama,

The Office of Hawaiian Affairs (OHA) is in receipt of your request for preliminary comments regarding the Environmental Assessment (EA) for the proposed upgrade to Waipi'o Heights Wells and Wells I on Lumiho'ahu Street in Waipi'o on O'ahu. We have the following comments:

OHA realizes that this is a request for preliminary comments regarding this project and that an EA will be prepared in compliance with Chapter 343, Hawai'i Revised Statutes. As such, OHA reserves the right to further comment on this proposed project as more information becomes available.

OHA requests that the TMK number for this project be given so that we can determine whether this project will impact any of our ceded lands.

Certainly, OHA supports the proposed granular activated carbon treatment so that acceptable quality of water is maintained and that water quality standards are continually met. OHA is, however, surprised at the concentrations of Trichloropropane (TCP) in the water sent out for public consumption. TCP will leach from deeper soil into the groundwater where it slowly breaks down. There is very little evaporation from groundwater, so TCP can stay in groundwater for a long time. People exposed to TCP can experience eye and throat irritation.

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU

850 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 768-8480 • Fax: (808) 523-4587
Web site: www.honolulu.gov

MUFI HANNEMANN
MAYOR



November 5, 2007

Mr. Glen T. Koyama
Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200
Honolulu, Hawaii 96819-4554

Dear Mr. Koyama:

Subject: Environmental Assessment
Proposed Granular Activated Carbon Treatment for
Waipio Heights Wells and Wells I
Waipio, Oahu, Hawaii

Thank you for giving us the opportunity to comment on the above Environmental Assessment.

The Department of Design and Construction has no comments to offer at this time.

Very truly yours,


Eugene C. Lee, P.E.
Director

ECL:lt (232509)

RECEIVED

2007 NOV -6 PM 1:32

BELT COLLINS HAWAII
DIRECTOR

CRAIG I. NISHIMURA, P.E.
DEPUTY DIRECTOR

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 7TH FLOOR • HONOLULU, HAWAII 96813
TELEPHONE: (808) 768-8000 • FAX: (808) 527-6743
INTERNET: www.honolulu.gov • DEPT. WEB SITE: www.honolulu.gov

MUFI HANNEMANN
MAYOR



November 8, 2007

Mr. Glen T. Koyama
Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200
Honolulu, Hawaii 96819-4554

Dear Mr. Koyama:

Subject: Pre-Assessment Consultation for
Proposed Granular Activated Carbon Treatment for
Waipio Heights Wells and Wells 1, Waipio, Oahu, Hawaii

In response to your request for comments of October 17, 2007 regarding the preparation of the Draft Environmental Assessment (DEA) for the subject project, we have the following comments:

1. The DEA should include a discussion of how the proposed project is consistent with the objectives and policies of Section V Transportation and Utilities in the City and County of Honolulu's General Plan. Refer to objectives B and C, and applicable policies of this referenced section.
2. Assuming that the proposed project is expected to begin construction in late 2008, the DEA should also disclose the estimated timeline for completion.
3. The DEA should include a complete listing of required permits and approvals.

Should you have any questions, please contact Matt Higashida of our staff at 527-6056.

Very truly yours,


Henry Eng, FAICP, Director
Department of Planning and Permitting

HE:js

cc: Office of Environmental Quality Control
Board of Water Supply

P:\DivFunction\Ea-eis\2007\Pre DEA for Gran Act Carb Treat for Waipio Heights Wells.doc

RECEIVED

2007 NOV -9 PM 2:24

BELT COLLINS HAWAII
DIRECTOR

DAVID K. TANOUÉ
DEPUTY DIRECTOR

2007/ELOG-2968(MH)

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 3RD FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 768-8305 • Fax: (808) 523-4730 • Internet: www.honolulu.gov

MUFI HANNEMANN
MAYOR



November 9, 2007

Mr. Glen T. Koyama
Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200
Honolulu, Hawaii 96819-4554

Dear Mr. Koyama:

Subject: Proposed Granular Activated Carbon Treatment for Waipio Heights Wells and Wells I

Thank you for your October 17, 2007 letter, requesting our pre-assessment comments regarding the subject project.

We have the following comments as you prepare the draft environmental assessment (EA):

1. The draft EA should address and discuss the traffic impacts of the project on the City street network during construction. Mitigation measures proposed to minimize the impact of the project on City roadways should also be discussed.
2. This project will affect bus routes, bus stops and paratransit operations. Therefore, the Public Transit Division (Phone: 768-8370) and Oahu Transit Services, Inc. (Bus Operations-Art Akana at Phone: 852-6030 and Paratransit Operations-John Black at Phone: 454-5041) must be notified of the scope of work, location, proposed closure of any street, traffic lane, or bus stop, and duration of project two weeks prior to commencing construction.

We look forward to reviewing the draft EA. Should you have any questions regarding these comments, please contact Ms. Faith Miyamoto of the Transportation Planning Division at 768-8350.

Sincerely,


MELVIN N. KAKU
Director

cc: PTD
TED

RECEIVED

2007 NOV 17 PM 2:05

BELT COLLINS HAWAII

MELVIN N. KAKU
DIRECTOR

RICHARD F. TORRES
DEPUTY DIRECTOR

TP10/07-232548R

DEPARTMENT OF FACILITY MAINTENANCE
CITY AND COUNTY OF HONOLULU

1000 Uluohia Street, Suite 215, Kapolei, Hawaii 96707
Phone: (808) 768-3343 • Fax: (808) 768-3381
Website: www.honolulu.gov

MUFI HANNEMANN
MAYOR



November 7, 2007

Mr. Glen T. Koyama
Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200
Honolulu, Hawaii 96819-4554

Dear Mr. Koyama:

Subject: Environmental Assessment (EA)
Proposed Granular Activated Carbon Treatment
for Waipio Heights Wells and Wells I
Waipio, Oahu

Thank you for the opportunity to provide comments to the EA dated October 17, 2007 for the subject Honolulu Board of Water Supply project.

The EA does not mention a construction method for installation of the proposed 16-inch transmission line within City-owned Lumaiaina and Lumihohu Streets. We assume installation will be by conventional open trench construction. A problem inherent with open trench construction is adequate compaction of the backfill. Therefore, we request that flowable fill or Controlled Low Strength Material be evaluated and/or considered for use as backfill material.

Should you have any questions, please call Charles Pignataro of the Division of Road Maintenance, at 768-3697.

Sincerely,


Laverne Higa, P.E.
Director and Chief Engineer

DEPARTMENT OF PARKS AND RECREATION
CITY AND COUNTY OF HONOLULU

KAPOLEI HALE • 1000 ULUOHA STREET, SUITE 309 • KAPOLEI, HAWAII 96707
TELEPHONE: 18081 692-5561 • FAX: 18081 692-5131 • INTERNET: www.honolulu.gov



MUFI HANNEMANN
MAYOR

LESTER K.C. CHANG
DIRECTOR

DANA TAKAHARA-DIAS
DEPUTY DIRECTOR

October 24, 2007

Mr. Glen T. Koyama
Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200
Honolulu, Hawaii 96819

Dear Mr. Koyama:

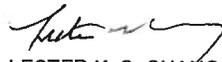
Subject: Environmental Assessment - Proposed Granular Activated
Carbon Treatment for Waipio Heights Wells and Wells I, Waipio,
Oahu, Hawaii

Thank you for the opportunity to comment on the proposed Granular Activated
Carbon Treatment for BWS water wells in Waipio.

The Department of Parks and Recreation has no comment and as the proposed
project will not impact any program or facility of the department, you are invited to
remove us as a consulted party to the balance of the EIS process.

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

Sincerely,


LESTER K. C. CHANG
Director

LKCC:mk
(232539)

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2007 OCT 26 PM 2:20

BELT COLLINS HAWAII

HONOLULU FIRE DEPARTMENT

CITY AND COUNTY OF HONOLULU

636 South Street
Honolulu, Hawaii 96813-5007
Phone: 808-723-7139 Fax: 808-723-7111 Internet: www.honolulu.gov/hfd



MUFI HANNEMANN
MAYOR

KENNETH G. SILVA
FIRE CHIEF

ALVIN K. TOMITA
DEPUTY FIRE CHIEF

November 6, 2007

Mr. Glen T. Koyama
Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200
Honolulu, Hawaii 96819-4554

Dear Mr. Koyama:

Subject: Environmental Assessment
Proposed Granular Activated Carbon Treatment
Waipio Heights Wells and Wells I
94-950 Lumihoahu Street
Tax Map Key: 9-4-044: 035

In response to your letter of October 17, 2007, regarding the above-mentioned subject,
the Honolulu Fire Department reviewed the material provided and requires that the
following be complied with for the duration of the project:

1. Maintain fire apparatus access throughout the construction site.
2. Maintain access to fire hydrants. Please notify the Fire
Communication Center at 523-4411 regarding any interruption of
the existing fire hydrant system.

Should you have any questions, please call Battalion Chief Lloyd Rogers of our Fire
Prevention Bureau at 723-7151.

Sincerely,



KENNETH G. SILVA
Fire Chief

KGS/KB:bh

Hawaiian Telcom

October 25, 2007

Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200
Honolulu, Hawaii 96819-4554

Attention: Glen T. Koyama

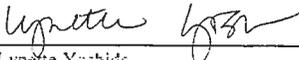
Subject: Environmental Assessment for Proposed Granular Activated Carbon Treatment
for Waipio Heights Wells and Well 1

Dear Sir:

Thank you for consulting with us on the preparation for the Environmental Assessment for Proposed Granular Activated Carbon Treatment for Waipio Heights Wells and Wells 1. Hawaiian Telcom has existing underground telephone lines along Kamehameha Highway and Lumihoahu Street within the project area. Our office would need to review the detailed construction plans in order to determine if there will be any conflicts with the new proposed 16-inch transmission line.

Should you have any questions, please call Garret Hayashi at 546-5438.

Sincerely,


Lynette Yoshida
Section Manager - OSP Engineering

cc: File (Waipahu C.O.)

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2007 OCT 29 PM 2:27

BELT COLLINS HAWAII



Hawaiian Electric Company, Inc. - PO Box 2750 - Honolulu, HI 96840-0001

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2007 NOV 20 PM 1:33

BELT COLLINS HAWAII

November 16, 2007

Mr. Glenn Koyama
Belt Collins Hawaii Ltd.
2153 North King Street - Suite 200
Honolulu, HI 96819-4554

Dear Mr. Koyama:

**Re: Proposed Granular Activated Carbon Treatment
for Waipio Heights Wells & Wells 1**

Thank you for the opportunity to comment on the above-referenced project. Hawaiian Electric Company, Inc. (HECO) has no objections at this time. The following pre-assessment comments were received from the Transmission & Distribution and Project Management Divisions of our Engineering Department:

- (1) HECO has existing overhead and underground facilities within the roadway rights-of-way and BWS properties identified in the project description, and will require continued access for maintenance purposes. We appreciate your efforts to keep us apprised of the planning process. As the new waterline plans progress, please continue to keep us informed. We will be better able to evaluate any effects on our system facilities further along in the project's development. We request that development plans show all affected HECO facilities and address any conflicts between the proposed plans and HECO's existing facilities. Please forward the pre-final development plans to HECO for review. A brief description and environmental analysis of any requirements for relocation or new facilities should be included in the DEA.
- (2) Should it become necessary to relocate HECO's facilities, please submit a request in writing and we will work with you so that construction of the project may proceed as smoothly as possible. Please note that there may be costs associated with any relocation work, and that such costs may be borne by the requestor. Because any redesign or relocation of HECO's facilities may cause lengthy delays, upon determination that HECO facilities will need to be relocated or built, HECO should be notified immediately in order to minimize any delays in or impacts on the project schedule.

Our point of contact for this project, is Isaac Lee, Transmission & Distribution (543-7539). I suggest dealing directly with him to coordinate HECO's continuing input in this project.

Sincerely,



Kirk S. Tomita
Senior Environmental Scientist

cc: I. Lee/M. Lum/R.Tamayo
K. Wong



RECEIVED

2007 NOV -7 PM 1: 46

BELT COLLINS HAWAII Honolulu, Hawaii 96802-3000

P.O. Box 3000

November 5, 2007

Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200
Honolulu, Hawaii 96819-4554

Attention: Mr. Glen T. Koyama

Gentlemen:

Subject: Environmental Assessment
Proposed Granular Activated Carbon Treatment for
Waipio Heights Wells and Wells I
Waipio, Oahu, Hawaii

Please be advised that The Gas Company, LLC maintains underground utility gas mains in the project vicinity, which serves commercial and residential customers in the area. We would appreciate your consideration in providing a copy of the Draft Environmental Assessment for our review, and involving us during the project planning and design process to minimize any potential conflicts with the existing gas facilities in the project area.

Thank you for the opportunity to provide comments in the planning of the proposed project. Should there be any questions, or if additional information is desired, please call Kekoa Ramos at 594-5008.

Sincerely,

Charles E. Calvet, P.E.
Manager, Engineering

CEC:krs
07-192

APPENDIX B

Cultural Impact Evaluation

**Cultural Impact Evaluation for the Board of Water Supply
Waipi'o Heights Wells and Wells I site and Waipahu Wells III,
Waipi'o Ahupua'a, 'Ewa District, Island of O'ahu
TMK: (1) 9-4-44:35, 36 and 9-4-05:76**

**Prepared for
Belt Collins Hawai'i Ltd.**

**Prepared by
Randy Groza, M.A.
and
Hallett H. Hammatt, Ph.D.**

**Cultural Surveys Hawai'i, Inc.
Kailua, Hawai'i
(WAIPI'O 1)**

January 2008

**O'ahu Office
P.O. Box 1114
Kailua, Hawai'i 96734
Ph.: (808) 262-9972
Fax: (808) 262-4950**

www.culturalsurveys.com

**Maui Office
16 S. Market Street, Suite
2N
Wailuku, Hawai'i 96793
Ph: (808) 242-9882
Fax: (808) 244-1994**

Table of Contents

Section 1 Introduction	1
1.1 Project Background	1
1.4 Methods	1
Section 2 Traditional and Historic Background	3
2.1 Mythological and Traditional Accounts	3
2.2 Historic Background	6
2.2.1 Pre-Contact to 1800 Waipi'o	6
2.2.2 1800s to 1850	7
2.2.3 The Māhele	9
2.2.4 1850s to 1900	10
2.2.5 1900s to Present	10
Section 3 Previous Archaeological Research	20
Section 4 Community Consultations	30
Section 5 Summary and Recommendations	35
Section 6 References.....	36
Appendix	A-43

List of Figures

Figure 1. Portion of 1899 compiled Government Surveys showing project area	12
Figure 2. Portion of 1902 'Ewa Plantation and Oahu Sugar Company Map, showing project area	13
Figure 3. Portion of 1919 United States War Department map showing project area.....	15
Figure 4. Portion of 1925 Oahu Sugar Company map showing project area	16
Figure 5. Portion of 1938 USGS topographic map showing project area	17
Figure 6. Portion of 1943 United States War Department map showing project area.....	18
Figure 7. Portion of 1956 USGS topographic map showing project area	19
Figure 8. 1978 Sterling and Summers map showing project area and site locations.....	21
Figure 9. U.S. Geological Survey topographic map, showing previous archaeological survey areas in Waipi'o and within the vicinity of the project area	29
Figure 10. Review letter from the Office of Hawaiian Affairs (OHA)	34

List of Tables

Table 1. Previous archaeological research in Waipi'o Ahupua'a.....	22
Table 2. Community Contacts	30

Section 1 Introduction

1.1 Project Background

At the request of the Belt Collins, Cultural Surveys Hawai'i Inc. (CSH) has conducted a Cultural Impact Evaluation (CIE) for a well system upgrade located at Waipi'o Heights Wells and Wells I site in Crestview, and the Waipahu Wells III site in nearby Central O'ahu Regional Park, Waipi'o Ahupua'a, 'Ewa District, on O'ahu. The Tax Map Keys for the project are (1) 9 - 4 - 44:35 and 36 (Waipi'o Heights Wells and Wells I Site) and 9 - 4 - 05:76 (Waipahu Wells III Site), Kamehameha Highway, Lumiaina Street, and Lumihohu Street.

1.2 Scope of Work

The scope for the cultural impact evaluation includes:

1. Examination of historical documents, Land Commission Awards, and historic maps with the specific purpose of identifying traditional Hawaiian activities including gathering of plant, animal and other resources or agricultural pursuits as may be indicated in the historic record.
2. A review of the existing archaeological information pertaining to the sites on the property as they may allow us to reconstruct traditional land use activities and identify and describe the cultural resources, practices and beliefs associated with the parcel and identify present uses, if appropriate.
3. Limited consultation with knowledgeable parties regarding traditional cultural practices in the vicinity.
4. Preparation of a report on items 1-3 summarizing the information gathered related to traditional practices and land use. The report will assess the impact of the proposed action on the cultural practices and features identified.

1.3 Document Purpose

The project requires compliance with the State of Hawai'i environmental review process [Hawai'i Revised Statutes (HRS) Chapter 343], which requires consideration of a proposed project's effect on cultural practices. At the request of Belt Collins Hawai'i Ltd., CSH undertook this cultural impact evaluation in partial compliance with the HRS Chapter 343 law. Through document research and CSH's initial cultural consultation efforts, this document provides preliminary information pertinent to the assessment of the proposed project's impacts to cultural practices (per the OEQC's *Guidelines for Assessing Cultural Impacts*). The document is intended to support the project's environmental review and may also serve to support the project's historic preservation review under HRS Chapter 6E-42 and Hawai'i Administrative Rules Chapter 13-284.

1.4 Methods

Historical documents, maps and existing archaeological information pertaining to the sites in the vicinity of this project were researched at the State Historic Preservation Division library,

Cultural Surveys Hawai'i Library, and the University of Hawai'i's Hamilton Library. The Office of Hawaiian Affairs, O'ahu Island Burial Council, and members of other community organizations were contacted in order to solicit cultural concerns and to identify potentially knowledgeable individuals with cultural expertise and/or knowledge of the study area and the surrounding vicinity. A discussion of the consultation process can be found in the section on "Community Consultations." Please refer to Table 2 for a complete list of individuals and organizations contacted.

Section 2 Traditional and Historic Background

2.1 Mythological and Traditional Accounts

Many of the legends of Waipi'o pertain to lands in the vicinity of modern day Pearl Harbor. The name of the *ahupua'a* itself means "curved, winding water" (Sterling and Summers 1978:1), which probably refers to the curving shorelines of the middle loch of Pearl Harbor, with its many adjacent fishponds. The loch waters were extensively used for gathering *limu* (seaweed), shellfish and other invertebrates, and fish.

The lowland areas were used for agriculture, as described in the following excerpt by E. Craighill Handy in the 1940s:

Between the West Loch of Pearl Harbor and Loko Eo, the lowlands were filled with terraces that extended for over a mile up into the flats of Waikele Stream. The lower terraces were formerly irrigated partly from Waipahu Stream, which Hawaiians believe came all the way through the mountains from Kahuku. It is said that terraces formerly existed on the flats in Kīpapa Gulch for at least two miles upstream above its junction with Waikele. Wild taros grow in abundance in upper Kīpapa Gulch. (Handy 1940:82)

In the legend of Nāmakaokapao'o, one lowland area was called "kula o Keahumoa" ("plain of Keahumoa"), which was the plain before reaching Kīpapa Gulch. Nāmakaokapao'o's mother was Pokai and his father was Kaulukahai, a great chief of Kahiki (the ancestral home of the Hawaiians). The father returned to his home before the birth of his son, leaving his O'ahu family destitute. Nāmakaokapao'o is described as a small, brave child who disliked his stepfather, Puali'i, and pulled up the sweet potatoes Puali'i had planted at their home in Keahumoa. When Puali'i chased Nāmakaokapao'o with an axe, Nāmakaokapao'o delivered his death prayer and killed Puali'i, hurling his head to a cave in Waipouli, near the beach at Honouliuli (Fornander 1919 V:274).

The plains of Keahumoa are also mentioned in other Hawaiian stories. The goddess, Hi'iaka, sister of the volcano goddess Pele, passed through 'Ewa and met some women wearing flower lei (published in *Ka Hōkū o Hawai'i*, translated by Kepa Maly):

E lei ana ke kula o Keahumoa i ka ma'o

'Ohu'ohu wale nā wahine kui lei o

ke kanahale

The plain of Keahumoa wears the

ma'o blossoms as its lei

Adorning the women who string

garlands in the wild.

(from Jensen and Head 1997:17)

Pikoi was a legendary hero, the son of a crow (*'alalā*) and brother to five god-sisters in the form of rats. He was famous for his ability to shoot arrows, and often made bets that he could hit rats from a long distance (Fornander 1917, Vol. IV, Part III:450-463). Pikoi's skill was commemorated in a saying (Pukui 1983:200):

Ku aku la i ka pana a

Shot by the arrow of Pikoi-[son]

*Pikoi-a-ka- 'alalā, keiki pana
'iole o ke kula o Keahumoa.*

of-the-crow, the expert rat-shooter
Of the plain of Keahumoa.

In the legend of the hero Palila, the warrior uses his supernatural war club to carry himself to Ka'ena Point at Wai'anae.

After leaving Ka'ena, he came to Kalena, then on to Pōhākea, then to Manuauna, then to Kānehoa, then to the plain of Keahumoa and looked toward 'Ewa. At this place he stood and looked at the dust as it ascended into the sky caused by the people who had gathered there; he then pushed his war club toward Honouliuli. When the people heard something roar like an earthquake they were afraid and they all ran to Waikele. When Palila arrived at Waikele he saw the people gathered there to witness the athletic games that were being given by the king of O'ahu, Ahupau by name. His palace was situated at Kalaepōhaku, close to Wailuakio at Kapālana. (Fornander 1918, Vol. V, part I:142)

In the *mauka* (inland) regions of Waipi'o, legend speaks of Kalelealuaka, who lived during the reign of the O'ahu chief, Kākuhihewa (Thrum 1998:74-106). Kalelealuaka was the son of Kaopele, who was born in Waipi'o, O'ahu. Kaopele had a tendency to fall into deep trances for months at a time. While awake, he would create plantations of supernatural proportions. However, he was never able to enjoy the fruits of his labors because he would always fall into another deep sleep.

During one profound slumber, Kaopele was believed to be dead; he taken to Wailua, Kaua'i to be offered as a sacrifice. Upon awakening, he married a woman named Makalani and stayed on Kaua'i. They had a son named Kalelealuaka, who was also blessed with supernatural powers. Kaopele instructed the boy in the arts of war and combat, which Kalelealuaka exhibited during two challenges with kings of Kaua'i. One day, Kalelealuaka decided to travel to O'ahu. A boy, Kaluhe, accompanied him and they paddled to Wai'anae. There, he met another companion who he later named Keinoho'omanawanui, the sloven. The three traveled toward the old plantation called Keahumoe (Keahumoa), in the *mauka* regions of Waipi'o, that were formerly planted by Kaopele.

. . . the three turned inland and journeyed till they reached a plain of soft, whitish rock, where they all refreshed themselves with food. They kept on ascending, until Keahumoe lay before them, dripping with hoary moisture from the mist of the mountain, yet as if smiling through its tears. Here were standing bananas with ripened, yellow fruit, upland *kalo*, and sugar cane, rusty and crooked with age, while the sweet potatoes had crawled out of the earth and were cracked and dry. (Thrum 1998:86-87)

To determine the best settlement location, Kalelealuaka shot an arrow to see where it would land. He then built a mountain house and called it "Lelepua" (meaning "arrow flight"), after his magic arrows.

In the stories of the demi-god Maui, Keahumoa is the home of Maui's grandfather, Ku-olo-kele (Ku-honeycreeper). One day, Maui's wife, Kumu-lama, was stolen by the chief Pea-pea-maka-walu, called eight-eyed-Pea-Pea, who is identified in the creation chant Kumulipo, as the

octopus god (Beckwith 1951:136). The chief disappeared with Kumulama in the sky beyond the sea, and escaped so quickly that Maui could not catch him. To recover his wife, Maui's mother advised him to visit the hut of his grandfather at Keahumoa:

Maui went as directed until he arrived at the hut; he peeped in but there was no one inside. He looked at the potato field on the other side of Pōhā-kea, toward Hono-uli-uli, but could see no one. He then ascended a hill, and while he stood there looking, he saw a man coming toward Waipahu with a load of potato leaves, one pack of which, it is said, would cover the whole land of Keahumoa. (Thrum 1923:253-254)

Kuolokele made a *moku-manu* ("bird-ship") for Maui, who entered the body of the bird and flew to Moanalaha, the land of the chief Peapeamakawalu. This chief claimed the bird as his own when it landed on a sacred box, and took it with him into the house he shared with Maui's wife, Kumulama. When Peapeamakawalu fell asleep, Maui killed him, cut off his head, and flew away back to O'ahu with his wife and the chief's head (Thrum 1923:252-259).

2.2 Historic Background

2.2.1 Pre-Contact to 1800 Waipi'o

Waipi'o Ahupua'a was a focus of Hawaiian settlement and activity on O'ahu during the centuries preceding western contact. "The populous dwelling place of the *alii* was formerly located on an east point of Waipi'o Peninsula known as Lēpau" (McAllister 1978:106). The *ali'i* (chiefly class) at Waipi'o were no doubt attracted to the great abundance the region offered. "The primary reason for 'Ewa's prominence in history and as an *ali'i* stronghold was undoubtedly the existence of the great number of fishponds at different points around Pearl Harbor, which was 'Ewa territory. Two of the largest were on the peninsula, and another was at its northwest corner" (Handy and Handy 1972:470). The district of 'Ewa also contained other resources that were attractive to an expanding population:

The lowlands, bisected by ample streams, were ideal terrain for the cultivation of irrigated taro. The hinterland consisted of deep valleys running far back into the Ko'olau range. Between the valleys were ridges, with steep sides, but a very gradual increase of altitude. The lower parts of the valley sides were excellent for the culture of yams and bananas. Farther inland grew the *'awa* for which the area was famous. The length or depth of the valleys and the gradual slope of the ridges made the inhabited lowlands much more distant from the *wao*, or upland jungle, than was the case on the windward coast. Yet the *wao* here was more extensive, giving greater opportunity to forage for wild foods in famine time. (Handy and Handy 1972:469)

Waipi'o was the scene of many battles between local and invading *ali'i* for political control of O'ahu (Handy and Handy 1972:470). Several accounts relate the "Battle of Kīpapa," fought during the reign of the 15th century *mō'i* (king) Ma'ilikūkāhi; it explains how the gulch and stream in Waipi'o were named.

I have before referred to the expedition by some Hawai'i chiefs, Hilo-a-Lakapu, Hilo-a Hilo-Kapuhi, and Punalu'u, joined by Luakoa of Maui, which invaded O'ahu during the reign of Ma'ilikūkāhi. It cannot be considered as a war between the two islands, but rather as a raid by some restless and turbulent Hawai'i chiefs, whom the pacific temper of Ma'ilikūkāhi and the wealthy condition of his island had emboldened to attempt the enterprise, as well as the *éclat* that would attend them if successful, a very frequent motive alone in those days. The invading force landed at first at Waikīkī, but, for reasons not stated in the legend, altered their mind, and proceeded up the 'Ewa lagoon and marched inland. At Waikakalaua they met Ma'ilikūkāhi with his forces, and a sanguinary battle ensued. The fight continued from there to Kīpapa Gulch. The invaders were thoroughly defeated, and the gulch is said to have been literally paved with the corpses of the slain, and received its name, "Kīpapa," from this circumstance. Punalu'u was slain on the plain which bears his name, the fugitives were pursued as far as Waimano, and the head of Hilo was cut off and carried in triumph to Honouliuli, and stuck up at a place still called Poo-Hilo. (Fornander 1996:89-90)

In the first half of the eighteenth century, the island of O'ahu was ruled by a chief named Kualii who consolidated his supreme power over the entire island by defeating the chiefs of 'Ewa (Cordy 2002:32). Kualii met the competing army on the plains of Keahumoa, but the 'Ewa chiefs surrendered when they saw Kualii's overwhelming forces, and they ceded the lands of Ko'olau Loa, Ko'olau Poko, Wai'anae, and Wai'anae to him (Fornander 1917, Volume IV (2):366, 400).

During the second half of the eighteenth century, Waipi'o again became a focus of political intrigue and warfare. In 1783, the forces of the Maui chief Kahekili gained control of the island of O'ahu by defeating the *mō'i*, Kahahana, "from the powerful 'Ewa chiefs' line" (Cordy 1981:207). According to the 19th Hawaiian historian Samuel Kamakau, the defeated O'ahu chiefs plotted to kill the Maui chiefs. Waipi'o was given the name "Waipi'o *kīmopō*," or "Waipi'o of secret rebellion," due to all the covert planning (Kamakau 1992:138). Following the plan's failure, Kahekili took revenge on the 'Ewa and Kona districts:

. . . and when Ka-hekili learned that Elani of 'Ewa was one of the plotters, the districts of Kona and 'Ewa were attacked and men, women, and children were massacred, until the streams of Makaho and Niuhelewai in Kona and of Kahoa'ai'ai in 'Ewa were choked with the bodies of the dead, and their waters became bitter to the taste, as eyewitnesses say, from the brains that turned the water bitter. All the O'ahu chiefs were killed and the chiefesses tortured. (Kamakau 1992:138)

If Kamakau is correct, the population of Waipi'o would have been decimated during the 1780s. Kahekili and the Maui chiefs retained control of O'ahu until the 1790s. In 1794, Kahekili died at Waikīkī. His son, Kalanikāpule, was defeated the following year at the battle of Nu'uauu by Kamehameha, who distributed the O'ahu lands - including Waipi'o Ahupua'a - among his favorite followers which resulted in the displacement of many families. "Land belonging to the old chiefs was given to strange chiefs and that of old residents on the land to their companies of soldiers, leaving the old settled families destitute" (Kamakau 1992:376-377).

As previously mentioned, the project area is within a portion of the right-of-way on Kamehameha Highway. The Highway follows the general route of a well-documented traditional trail, which formerly connected 'Ewa to the Wai'anae District through the Central O'ahu Plains, as well as to Wai'anae over Kolekole Pass.

2.2.2 1800s to 1850

John Papa 'Ī'i was placed in the household of Liholiho (Kamehameha II) when he was ten years old; he became Liholiho's personal attendant and also maintained records of life in the Hawaiian Kingdom. He was born in Waipi'o Ahupua'a at the beginning of the nineteenth century; an account of his birth details the establishment of 'Ī'i's family at Waipi'o after the ascendancy of Kamehameha on O'ahu:

John Papa 'Ī'i was born in Kūmelewai, Waipi'o, in 'Ewa, O'ahu, on the third day of August (*Hilinehu* in the Hawaiian calendar) in 1800, on the land of Papa 'Ī'i, whose namesake he was. Papa ['Ī'i's uncle] was the owner of the pond of Hanaloa and two other pieces of property, all of which he had received from

Kamehameha, as did others who lived on that *ahupua'a*, or land division, after the battle of Nu'uaniu. He gave the property to his *kaikua hine*, or cousin, who was the mother of the aforementioned boy. Her names were Wanaoa, Pahulemu, and Kalaikane. ('I'i 1959:20)

'I'i's writings provide glimpses of life within Waipi'o Ahupua'a during 'I'i's lifetime. 'I'i mentions the "family [going] to Kīpapa from Kūmelewai by way of upper Waipi'o to make ditches for the farms" ('I'i 1959:28) and recalls that, during the visit to O'ahu by the Kaua'i chief Kaumuali'i and his entourage, the chief's attendants were provided with gifts: "From Waipi'o in 'Ewa and from some lands of Hawai'i came *tapa* made of *mamaki* bark" ('I'i 1959:83). 'I'i notes how a period of famine was managed in Waipi'o and what resources were available during the famine:

Here is a wonderful thing about the land of Waipi'o. After a famine had raged in that land, the removal of new crops from the taro patches and gardens was prohibited until all of the people had gathered and the farmers had joined in thanks to the gods. This prohibition was called "*kapu 'ohi'a*" because, while the famine was upon the land, the people had lived on mountain apples [*'ohi'a 'ai*], *ti*, yams, and other upland foods. On the morning of Kane, an offering of taro greens and other things was made to remove the *'ohi'a* prohibition, after which each farmer took of his own crops for the needs of his family. ('I'i 1959:77)

The end of the eighteenth century and beginning of the nineteenth century marked Hawai'i's entry into world trade networks. One of the chief exports at this time was sandalwood (*Santalum* sp.) or *'iliahi*, which was prized in China for its unique fragrance and used in the manufacture of household items, as incense, as perfume, and as medicine (St. John 1947). The central plains of 'Ewa supplied the Hawaiian Kingdom with *'iliahi*. One of the first generation missionaries, Sereno Bishop (1901), described his memories of the central O'ahu region in the 1830s:

Our family made repeated trips to the home of Rev. John S. Emerson at Waialua during those years. There was then no road save a foot path across the generally smooth upland. We forded the streams. Beyond Kīpapa Gulch the upland was dotted with occasional groves of Koa trees. On the high plains the *ti* plant abounded, often so high as to intercept the view. No cattle then existed to destroy its succulent foliage. According to the statements of the natives, a forest formerly covered the whole of the then nearly naked plains. It was burned off by the natives in search of sandalwood, which they detected by its odor burning. (cited in Sterling and Summers 1978:89)

The dry forests formerly covering this region probably never came back, particularly considering the harm done to the *'iliahi* seedlings with the introduction of cattle soon thereafter (Judd 1933).

Native Hawaiian activity and habitation at the middle of the nineteenth century clustered in the *makai* lowlands and the fishponds near the coast. The *ahupua'a's makai* landscape was

dominated by an extensive network of taro *lo'i* (irrigated fields), as indicated by Land Commission Award (LCA) documents from the mid-nineteenth century Māhele.

2.2.3 The Māhele

The Organic Acts of 1845 and 1846 initiated the process of the Māhele, the division of Hawaiian lands, which introduced private property into Hawaiian society. In 1848, the crown, the Hawaiian government, and the *ali'i* (royalty) received their land titles. The common people (*maka'āinana*) received their *kuleana* awards (individual land parcels) in 1850. It is through records for Land Commission Awards (LCAs) generated during the Māhele that the first specific documentation of life in Waipi'o Ahupua'a, as it had evolved up to the mid-nineteenth century, come to light.

The majority of awarded land parcels were located in the *makai* portions of Waipi'o, at or just above the peninsula. John Papa 'Ī'i was awarded most of the *ahupua'a* of Waipi'o in LCA 8241, comprising approximately 20,540 acres. Included in the documentation for 'Ī'i's award is a list of "the people living on the land of Waipi'o 'Ewa in 1848" (Barrere 1994:73).

A substantial grant within the *ahupua'a* was awarded to Abenera Pākī, Bernice Pauahi Bishop's father. Part of LCA 10613 given to Pākī comprised the 350 acres of the *'ili* of Hanaloa. William Harbottle also received a land award (LCA 2937) in Waipi'o; he claimed two acres at Hanapouli'ili.

The remaining land claims documented in the records, a total of 99 (not all of which were awarded), are *kuleana* claims, where the Hawaiians of Waipi'o worked and lived. Predominant among the claimed land usages in Waipi'o are 312 *lo'i*, irrigated taro patches, of various sizes; and 43 *mo'o*, or fields, comprising indeterminate numbers of *lo'i*. Wetland taro cultivation was the primary agricultural pursuit within the *ahupua'a* at the mid-nineteenth century, and likely reflects a long history of taro farming. At the coast, four fishponds are claimed. In the *mauka* reaches of Waipi'o, 53 claims were made for portions of *kula* (pasture land) and 25 for "*okipu*" or *'okipu'u* (forest clearings). The fact that several claims were made in the *mauka* regions suggests that Waipi'o residents had particular locales that they traveled to repeatedly. *Kula* land is a general term for open fields, pastures, uncultivated fields, or fields for cultivation, and upland (drier), which is distinct from meadow or wetland (Lucas 1995:60). *Kula* lands were often used for opportunistic plantings such as bananas, sugar cane, sweet potatoes, dry land taro, and others that did not depend heavily on a consistent source of water. *Okipu'u* is defined as a forest clearing (Lucas 1995:82), a place that was presumably used to gather forest products and medicinal herbs and or for pasturage.

In contrast to the well-populated *makai* lands of Waipi'o, the *mauka* regions were often described in 19th century accounts as virtually uninhabited. The missionary William Ellis described the interior regions of 'Ewa in 1823-24:

The plain of Eva is nearly twenty miles in length, from the Pearl River to Waialua, and in some parts nine or ten miles across. The soil is fertile, and watered by a number of rivulets, which wind their way along the deep water-courses that intersect its surface, and empty themselves into the sea. Though capable of a high state of improvement, a

very small portion of it is enclosed or under any kind of culture, and in traveling across it, scarce a habitation is to be seen. (Ellis 1963:7)

Despite Ellis' impressions, there is evidence that during the early nineteenth century, the Waipi'o population was not solely focused on the fertile coast. In an inventory of advances in education during the reign of Kamehameha III (from 1825 to 1854), "schools were built in the mountains and in the crowded settlements. Waipi'o had school houses near the coast and in the uplands" (Kamakau 1992:424). The placement of a school "in the uplands" of Waipi'o suggests that some portion of the ahupua'a population had settled there.

During the 1830s, cattle grazing began in the *mauka* regions of Waipi'o (Bishop 1901:87). In 1847, residents of more *makai* land petitioned the Minister of the Interior, John Young, to resolve the problem of stray animals. These stray animals may have been from herds of cattle and goats grazing on Waipi'o's *kula* lands. In addition to damage from stray animals on the lands of Waipi'o, the impact of grazing animals was noted several kilometers away at Pearl Harbor and likely near the present project area. Stray cattle continued to be a problem until large-scale agriculture was introduced just prior to the beginning of the twentieth century. The occupation of the uplands by cattle denuded the countryside of ground cover, and caused vast quantities of earth to be washed down by storms into the lagoons, shoaling the water for a long distance seaward (Bishop 1901:87).

2.2.4 1850s to 1900

During the late 1800s, taro fields in the *makai* areas of Waipi'o were converted to rice fields as Chinese immigrants began to lease and purchase land. *Mauka* lands were cultivated in sugar and pineapple. Extensive tracts of Waipi'o land were leased for large-scale commercial agriculture in the late 1890s.

After John Papa 'I'i's death in 1870, his estate--including the Waipi'o lands-- was inherited by his daughter Irene 'I'i Brown. Shortly after, small parcels within the *ahupua'a* were sold off. The majority of the project area is within the James Robinson estate property, sold to James Robinson and Co. in September 1871 (Barrere 1994:75).

In 1889, Benjamin Dillingham organized the O'ahu Railway and Land (O.R.&L.) Company; his rail line connected outlying areas of O'ahu to Honolulu. By 1890, the railroad reached from Honolulu to Pearl City and continued on to Wai'anae in 1895, to Waialua Plantation in 1898, and to Kahuku in 1899 (Kuykendall 1967:100). O. R. & L. transported sugar and pineapple from Wahiawā through Waipi'o to Honolulu. In 1897, the newly organized Oahu Sugar Company leased 3,400 acres of Waipi'o land from the 'I'i estate (Condé and Best 1973:313). Sugarcane cultivation in Waipi'o directly affected and transformed the present project area during the twentieth century. The 1899 Government Surveys map () and the 'Ewa Plantation and Oahu Sugar Company map (Figure 2) show the project area lands within the sugar company property. Based on the presence of rail lines and roads within the vicinity, the lands were under commercial agricultural development.

2.2.5 1900s to Present

By the early decades of the twentieth century, rice farming in Waipi'o, and throughout the Hawaiian Islands, was in decline, beset by crop diseases and cheaper prices for rice from the

Mainland. Sugar dominated commercial agriculture, particularly due to the founding and development of the Oahu Sugar Company. The Oahu Sugar Co. was established in 1897 with over 900 field workers, composed of 44 Hawaiians, 473 Japanese, 399 Chinese, and 57 Portuguese. The first sugar crop was harvested in 1899, ushering in the sugar plantation era in Waipahu (Ohira 1997).

In 1901, the U.S. Congress formally ratified the annexation of the Territory of Hawai'i, and the first 1,356.01 acres of Pearl Harbor land were transferred to U.S. ownership. The U.S. Navy began a preliminary dredging program, which created a 30-foot deep entrance channel measuring 200 feet wide and 3,085 feet long. In 1908, money was appropriated for five miles of entrance channel dredged to an additional 35 feet down (Downes 1953).

At the same time, lands in *mauka* Waipi'o were being acquired for pineapple cultivation. A 1908 lease from the John 'Ī'i Estate, Ltd. to Yoshisuke Tanimoto and Kintaro Izumi led to the formation of the Waipi'o Pineapple Company, which cleared and cultivated approximately 223 acres in portions of Kīpapa Gulch. In 1909, the government appropriated the Waipi'o peninsula from the 'Ī'i estate. The land was valued at \$10,000 for purposes of fair compensation (Dept. of Land and Natural Resources Land Record Books 1909:228-235). In 1915, Libby, McNeill & Libby took over Waipi'o Pineapple Company's leases and continued to cultivate pineapple in the area. By the late 1920s, James Dole's Hawaiian Pineapple Company, incorporated in 1901, was cultivating pineapple on thousands of acres leased from the 'Ī'i estate in the *mauka* area of Waipi'o.

The Oahu Sugar Company had difficulty obtaining sufficient water to cultivate sugar. The Waiāhole Water Company, a subsidiary of Oahu Sugar, created the Waiāhole Ditch System. In 1913 the project began transporting water from the windward side of O'ahu through the Ko'olau Range to irrigate the fields and provide water for the Oahu Sugar Company mill in 'Ewa. The water system was declared "an engineering feat of epic proportion for those times" (Condé and Best 1973:37). The ditch system was completed in 1916 and, with some modifications, is still in use. The 1919 US War Department map () and the 1925 Oahu Sugar Company map () show the project area within the commercial cultivation and its association with roads and railroad tracks.

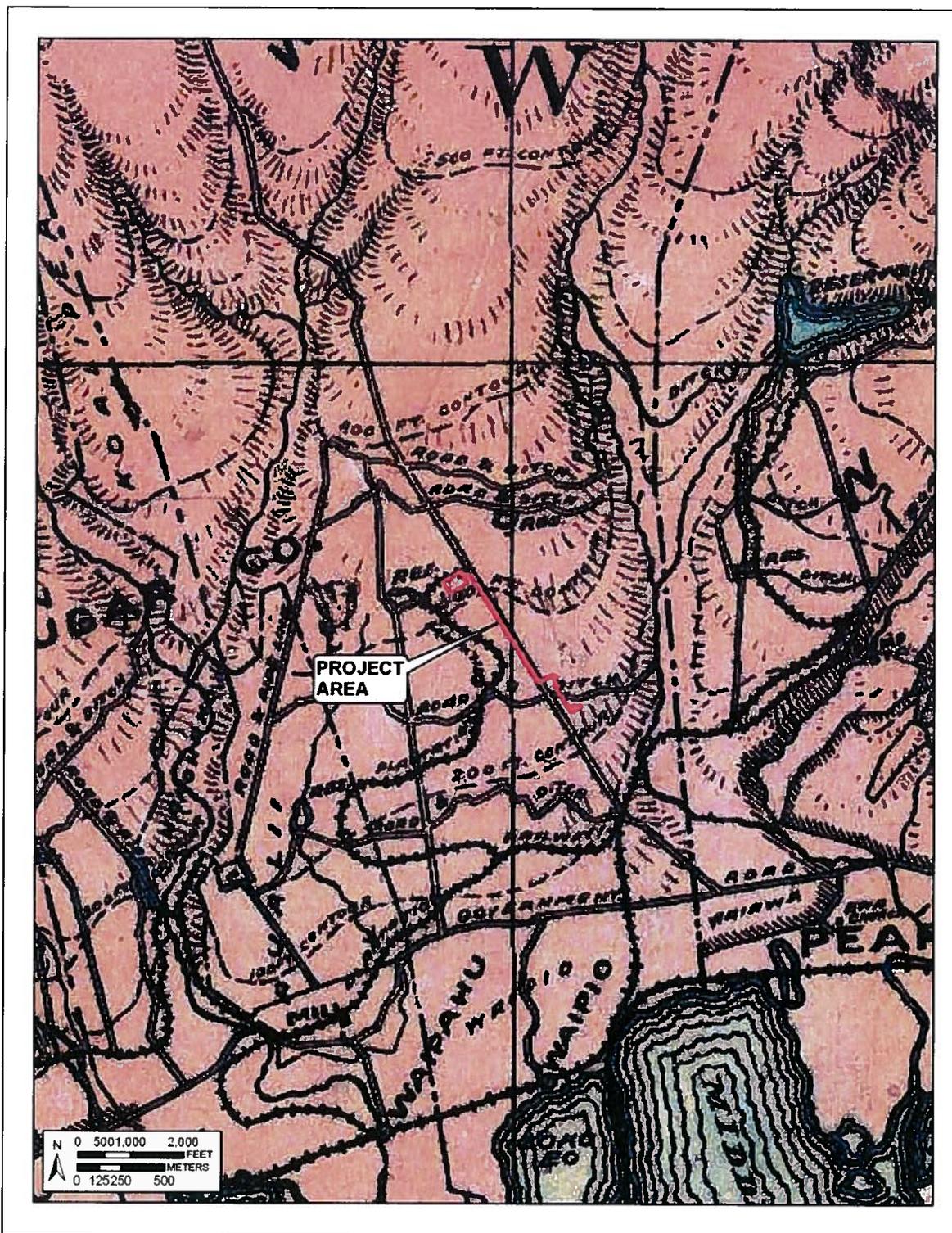


Figure 1. Portion of 1899 compiled Government Surveys showing project area

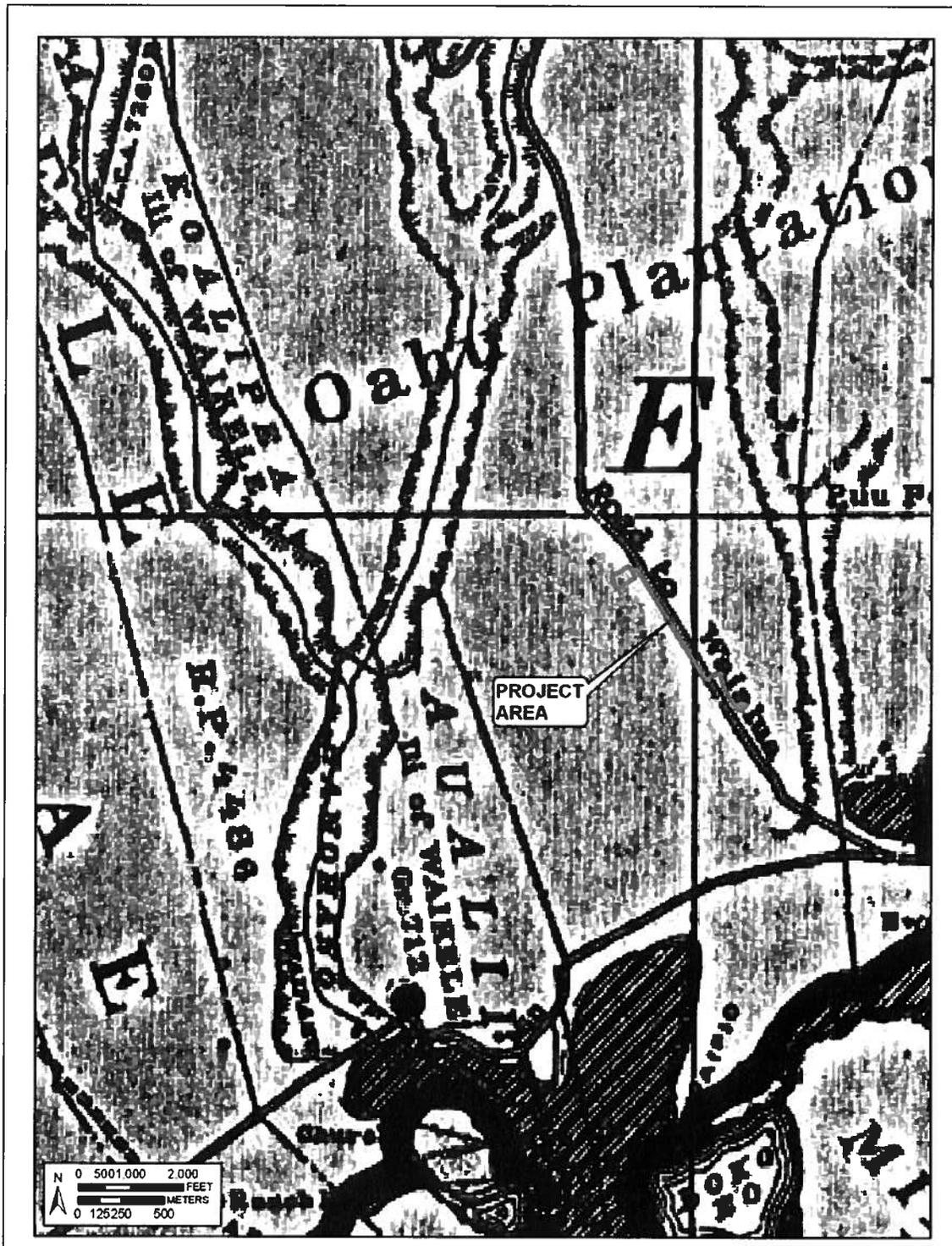


Figure 2. Portion of 1902 'Ewa Plantation and Oahu Sugar Company Map, showing project area

During the 1930s, U.S. military use of Waipi'o extended well mauka of the peninsula at Pearl Harbor. The military began the appropriation of Kipapa Gulch about 1938, although the 1938 USGS topographic map shows little change directly within and adjacent to the project area at that time. By 1941, Pacific Naval Air Bases expenditures for new construction at Pearl Harbor were in the hundreds of millions of dollars. The Japanese attack on Pearl Harbor, December 7, 1941, damaged or destroyed much of the new construction. Reconstruction was instituted to double the Pearl Harbor's war capacity. Military planners approved a new ammunition depot in the mountainside of Waipahu, a large new hospital in 'Aiea, and thousands of additional changes to the Navy Yard to accommodate the new aircraft carrier task forces (Woodbury 1946). During World War II, the military used the sugar cane rail system to "haul large quantities of ammunition" (Condé and Best 1973:315). The military modifications during WWII appear to have had little impact on the present project area as shown on the 1943 United States War Department map ().

After WWII, roads replaced railroads within the sugar plantation as shown on the 1956 USGS topographic map (). The map shows little other change in and within the vicinity of the project area. During the second half of the twentieth century, growth in Waipi'o Ahupua'a focused on the development of Mililani Town by Castle & Cooke, Inc. through its subsidiary, Oceanic Properties, Inc. (Hammatt et al. 2004). In 1964, the state Land Use Commission re-designated 705 acres of agricultural land in Waipi'o for urban use. The first section of Mililani Town opened in June 1968. In 1973, construction began on the H-2 freeway across Waipi'o, connecting Mililani to the H-1 freeway. The current Town Center of Mililani is a relatively recent construction dating to the 1990s (Hammatt et al. 2004).

By the 1960s, construction of residential developments began on Waipi'o lands. Sugar plantations gave way to residences in the 1970s and 1980s (Anon. 2007). Immediately adjacent to and east of the project area, the 133,500 sq. ft. Waipi'o Shopping Area was established in the mid-1980s to serve the residents of Waipi'o (Anon. 2005). To the south and west of the project area, the Waikele Golf Club was established in 1993. In 2001, the Central Oahu Regional Park near the project area was opened for public use. With over 269 acres, the park has baseball fields as well as areas for soccer, football, rugby and other sports such as archery and tennis (Pang 2001).

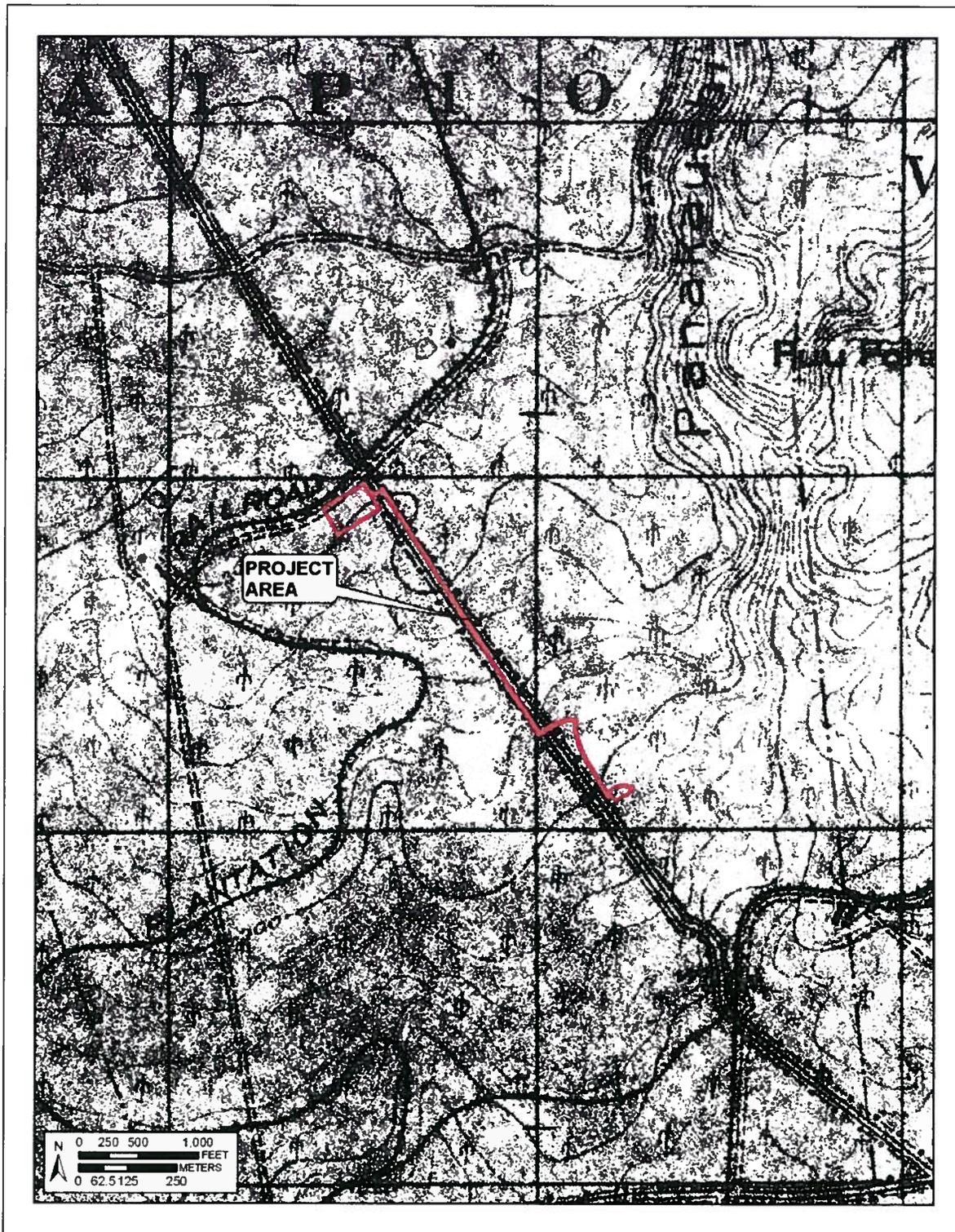


Figure 3. Portion of 1919 United States War Department map showing project area



Figure 4. Portion of 1925 Oahu Sugar Company map showing project area

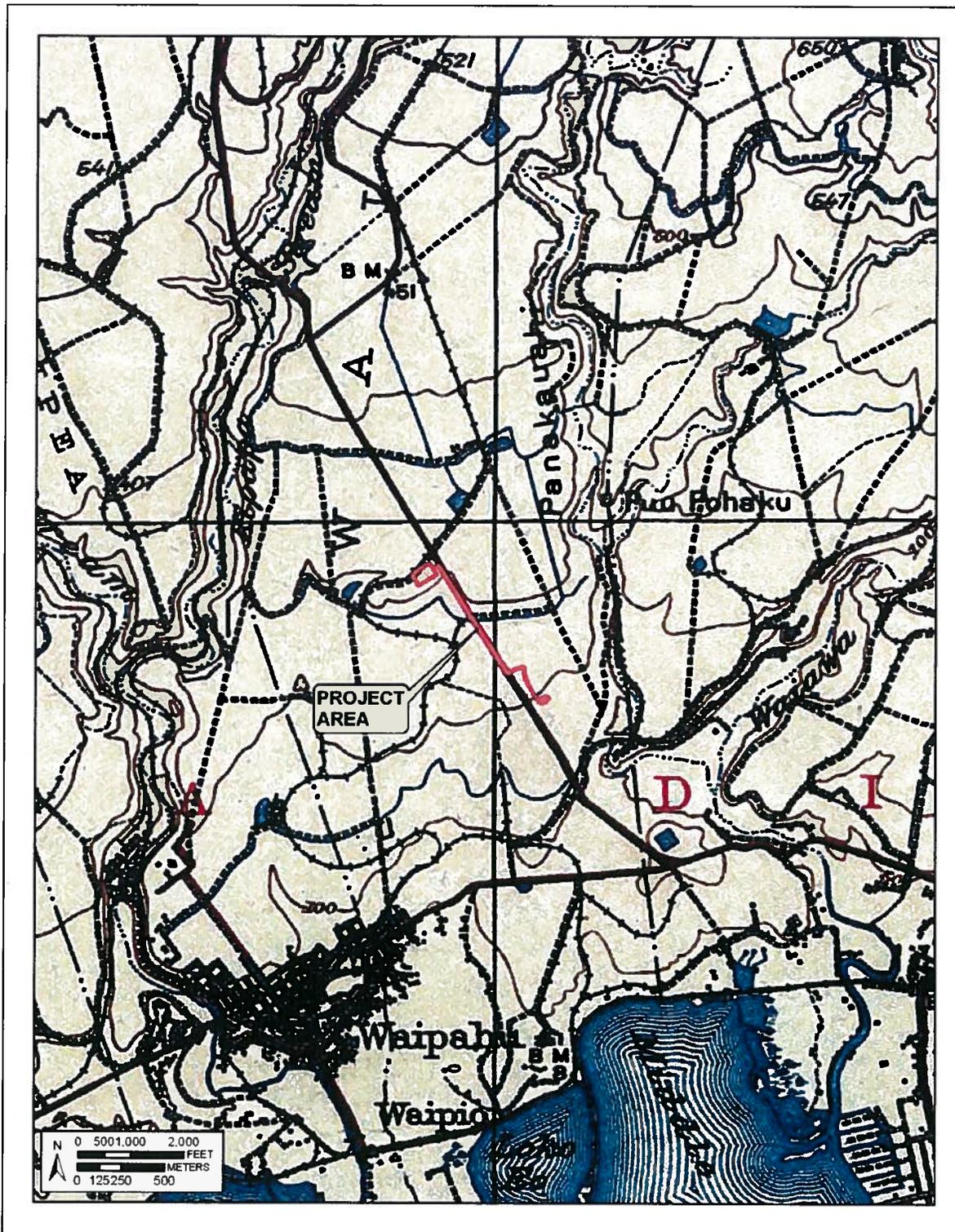


Figure 5. Portion of 1938 USGS topographic map showing project area

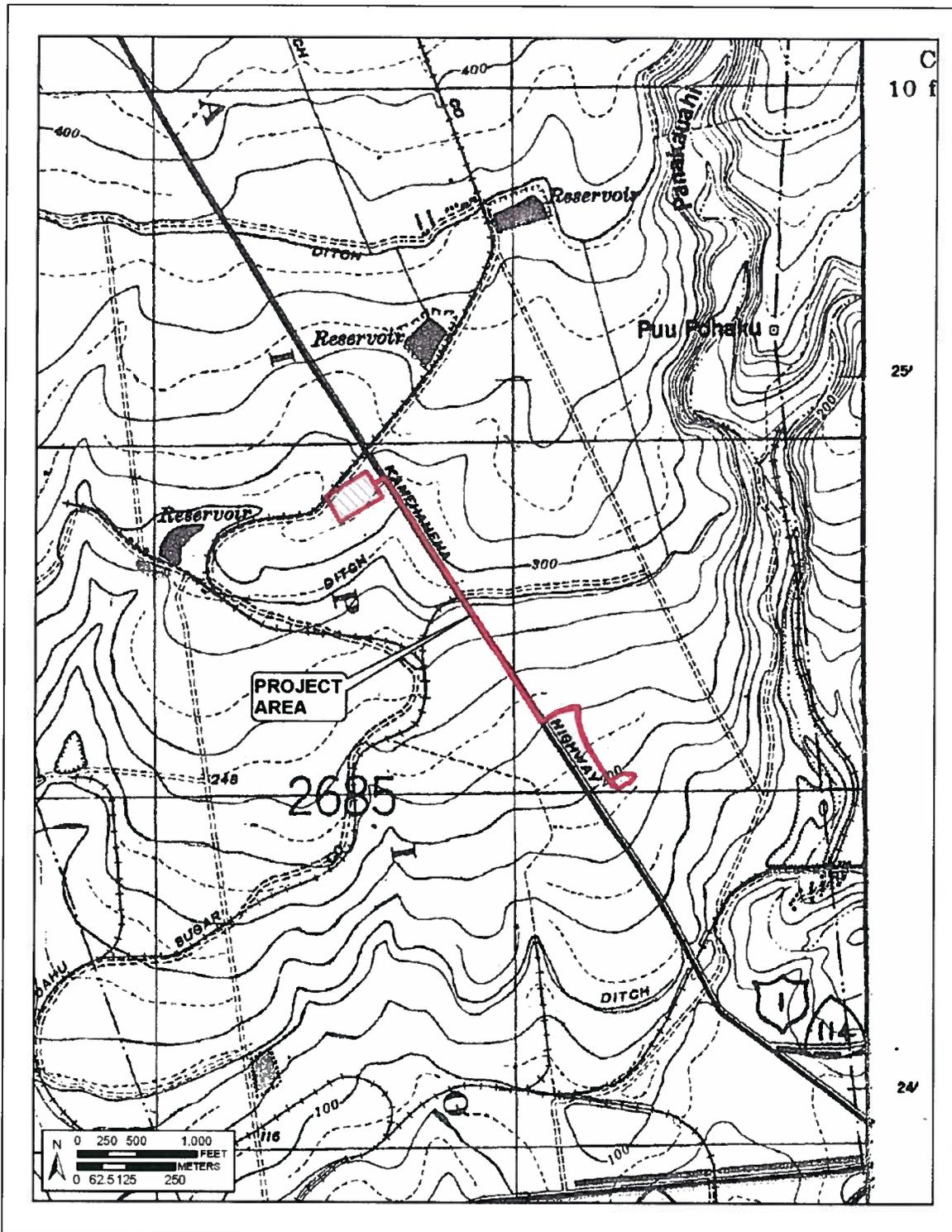


Figure 6. Portion of 1943 United States War Department map showing project area

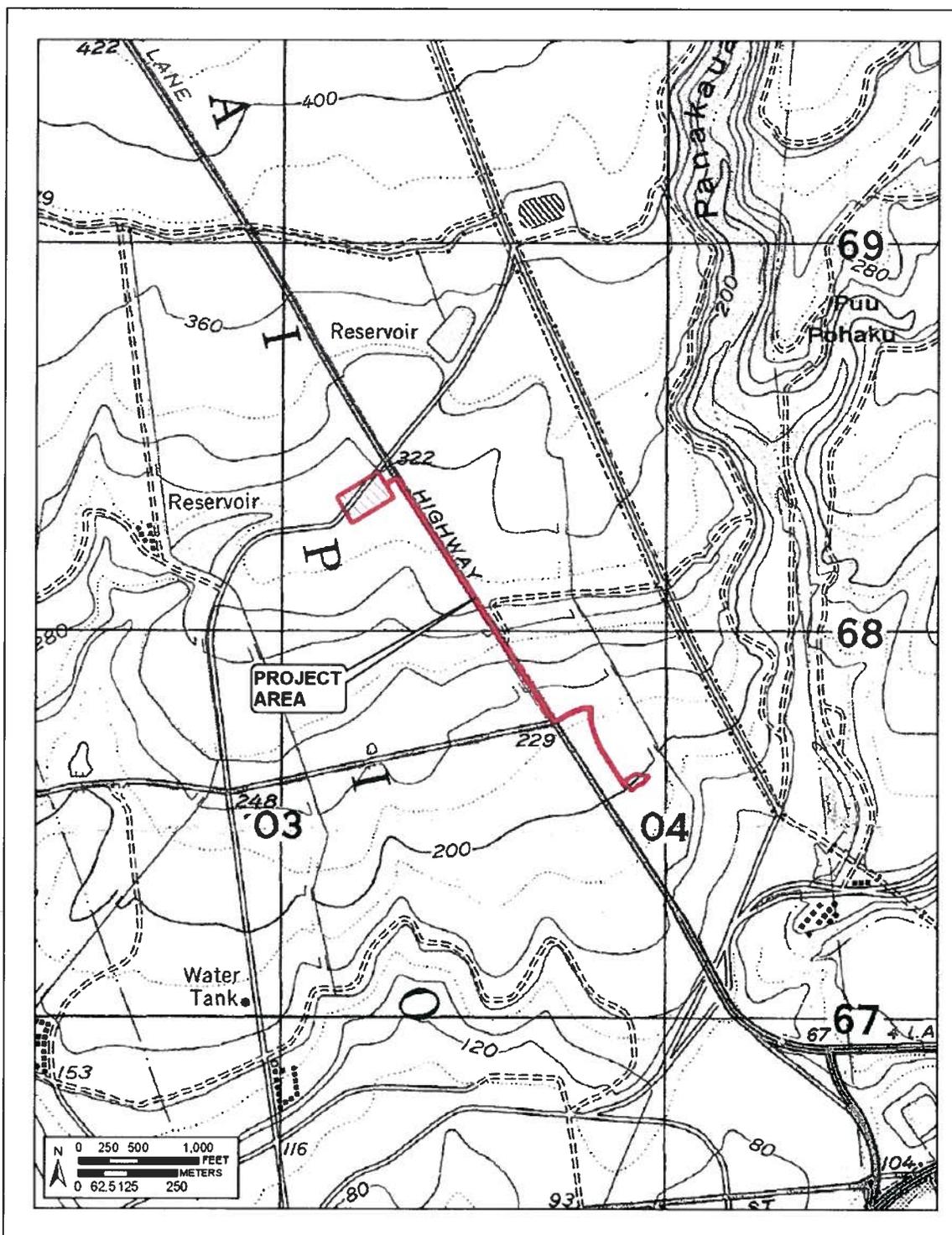


Figure 7. Portion of 1956 USGS topographic map showing project area

Section 3 Previous Archaeological Research

Table 1 lists and briefly describes previous archaeological studies in the vicinity of the project area. The earliest archaeological work in Waipi'o Ahupua'a was conducted by J. Gilbert McAllister in the 1930s. He described several sites in Waipi'o, most of which were located near the Pearl Harbor's marine resources and fishponds or on the wide coastal plain with its excellent taro lands in proximity to the Waipi'o Peninsula. The archaeological sites recorded include Site 122 and 123, located in Waipi'o Ahupua'a. Site 122 is the now-destroyed Ahuena Heiau located just northwest of the *pā* (fence or enclosure) between Loko Eo and Middle Loch. Site 123 is Loko Eo fishpond. Sites 127-129 were documented approximately 2 km to the southwest of the current project area. Site 127, Mokoula Heiau, "has been completely destroyed for building purposes of the neighborhood" (McAllister 1978:106). Site 128 was Waipahu spring, which was described as being "famous in tradition as the place at which the tapa mallet appeared after having been lost in Kahuku" (McAllister cited in Sterling and Summers, 1978:25). Site 129 is Hapupu Heiau, although nothing remains of the site.

Four other sites located in Waipi'o Ahupua'a are McAllister's numbers 130, 131, 132 and 204. Two *heiau*, sites 130 and 131, are located *mauka* of the present project area along Kīpapa Gulch. Site 130, Mo'aula Heiau, is located on the east side of Kīpapa Gulch and described as being a companion *heiau* to Heiau o Umi (Site 131), located at the bottom of Kīpapa Gulch (McAllister 1978:107). McAllister claimed both *heiau* were covered in cane during the time of his survey. In a reconnaissance survey of military lands in Kīpapa Gulch conducted by the Bishop Museum, both *heiau* were documented as located inside Kīpapa Gulch and were listed as destroyed sites (Rosendahl 1977). During a reconnaissance survey and sub-surface testing in Kīpapa Gulch in 1988, Cultural Surveys Hawai'i searched for the Moa'ula Heiau and Heiau o Umi. No structures were observed, but a fairly level area with some *ki* plants was noted (Hammatt and Borthwick 1988:31). Site 132 is described as Waikakalaua and Kīpapa Gulches, which were made famous by a battle between Hawai'i and the chief of O'ahu, Mailikāhahi (McAllister 1978:107). Site 204 is named O'ahunui and is described as a stone "whose outline is said to resemble that of O'ahu" (McAllister 1978:132). The location of the O'ahunui stone (by traditional accounts) is in the gulch near the 'Ewa-Waiialua District boundary, presumably Waikakalaua Gulch.

No archaeological resources were documented in the area for many years. In 1983, an archaeological reconnaissance survey of 300 acres was conducted for the proposed Hawai'i High Technology Park (Hommon and Ahlo 1983). One archaeological site was identified during the survey (State Site 50-80-09-3401). This site consisted of a terrace measuring 17 m long, 2-4 m wide, and 0.3-0.6 m high with one stacked retaining wall. One interpretation of the terrace was as an agricultural plot used for non-irrigated crops. No further archaeological work was recommended based on the small size of the site, its simple form, and the lack of surface artifacts encountered.

One site was identified during a 70-acre reconnaissance survey of Waikakalaua Gulch (Kennedy 1985). The site was described as "an unirrigated terrace-most likely for the cultivation

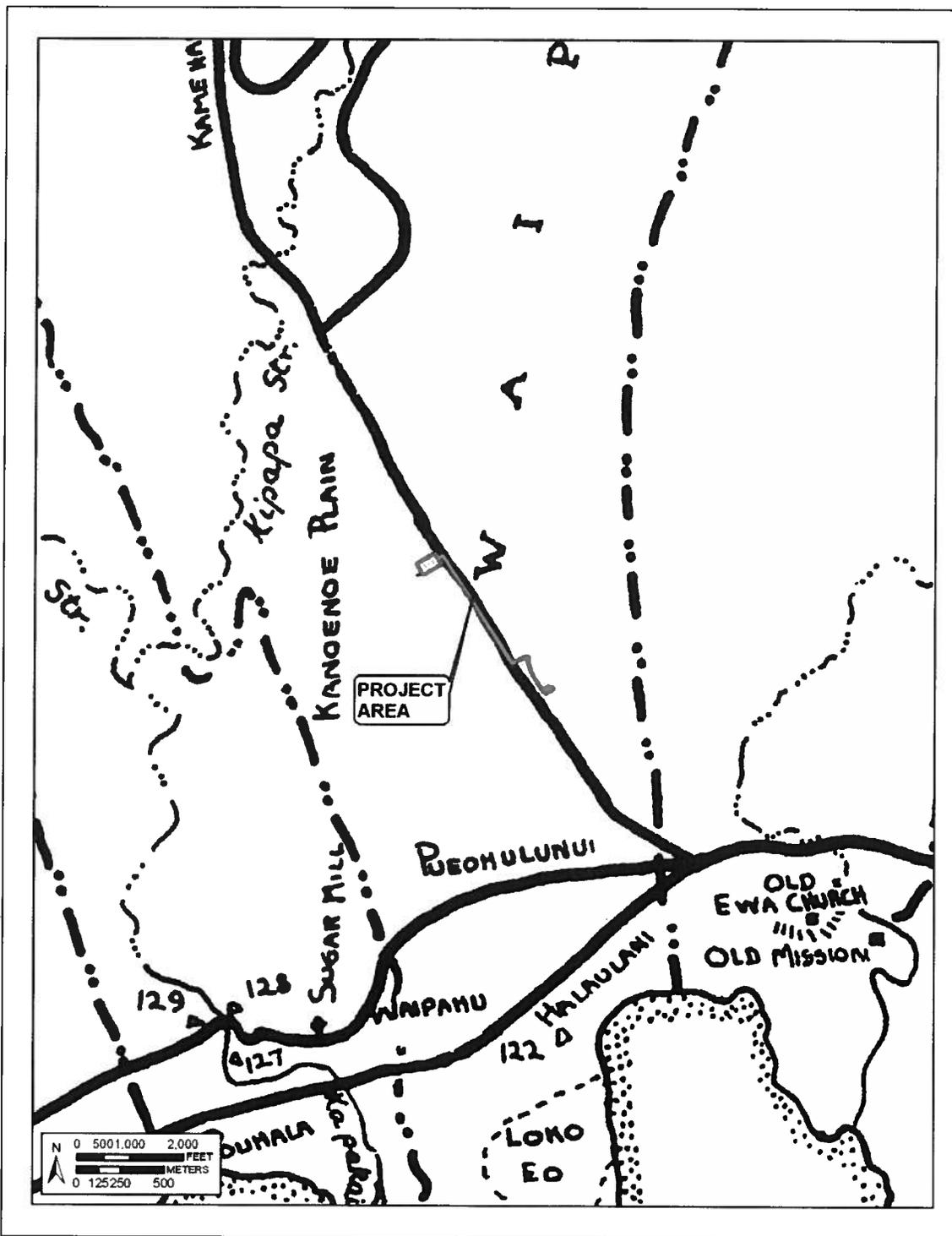


Figure 8. 1978 Sterling and Summers map showing project area and site locations

Table 1. Previous archaeological research in Waipi'o Ahupua'a

Reference	Location	Nature of Study	Findings
McAllister (1933)	Island of O'ahu	Island Archaeological Survey	Identifies Ahuena Heiau (site 122), Mokoula Heiau (Site 127), Mo'aula Heiau (site130), Heiau o Umi (Site 131), and O'ahunui Stone (site 204)
Rosendahl (1977)	Kīpapa Gulch	Archaeological Reconnaissance Survey	Documents Mo'aula Heiau (site130) and Heiau o Umi (Site 131) as located inside Kīpapa Gulch and listed as destroyed sites
Hommon and Ahlo (1983)	Hawai'i High Technology Park	Archaeological Reconnaissance Survey of 300 acres	Identifies terrace with one stacked retaining wall identified as site 50-80-09-3401
Barrera (1985)	Mililani Town (Mililani Mauka)	Archaeological Inventory Survey	No evidence of structural remains of an archaeological or historical nature. No further archaeological work was recommended
Kennedy (1985)	Waikakalaua Gulch	Archaeological Reconnaissance Survey of 70 acres	One site identified, an unirrigated terrace and 1 small piece of <i>kukui</i> nut, too small for radiocarbon testing. No additional archaeological work recommended.

Reference	Location	Nature of Study	Findings
Sinoto (1990)	Waikakalaua Gulch	Archaeological Reassessment Survey of above (Kennedy 1985)	Identified sites 50-80-08-4662 and 50-80-08-4663, historic habitation platforms, retaining walls and excavated catchments associated with Japanese plantation workers. Recommendations included possible preservation of some features.
Riford and Cleghorn (1986)	Waikele Branch of the Lualualei Naval Magazine	Archaeological Inventory Survey	Documents five archaeological sites (50-80-08-2919 to -2923). Twenty-one overhang caves and crawl spaces were identified in Waikakalaua Gulch including one modified cave and eleven with pre-contact material. Further archaeological testing was recommended for only one site, Site 50-80-08-2919.
Rosendahl (1987)	Mililani Town	Archaeological Reconnaissance Survey of 2.75 acres	No archaeological resources were identified and no further archaeological work recommended.
Hammatt and Borthwick (1988)	Waikakalaua Gulch	Archaeological Reconnaissance Survey of 422 acres.	Two small agricultural terraces were recorded, associated with sugar cane cultivation. No further archaeological work recommended for the area.

Reference	Location	Nature of Study	Findings
Goodman and Nees (1991)	3,600 acres bounded by H-1, H-2, and Wai'awa Stream	Archaeological Inventory Survey	17 historic properties, among them are: a prehistoric rockshelter complex with petroglyphs, historic plantation infrastructure, a small cemetery, a road and railroad system, historic fire pits and trash dumps
Cleghorn et al. (1992)	Mililani Summit	Archaeological Inventory Survey	Identified three sites (50-80-08-4436 to -4438). A complex of World War II military structures and two historic charcoal ovens linked to Japanese pineapple workers, considered significant under Criteria A and D of the National Register-to be avoided during development. No further archaeological work was recommended.
Stride and Hammatt (1993)	A tributary of Kīpapa Gulch	Archaeological Inventory Survey	No archaeological finds, no further archaeological work recommended.
Moore and Kennedy (1994)	Waikakalaua Gulch	Archaeological Test Excavations, and Reconnaissance Survey	Information gathered on two documented archaeological sites (Sites 50-80-08-4812-4813), suggest sites are historic. Members of the community claimed all or portions of Site -4812 constituted the O'ahunui Stone. It was concluded that the O'ahunui Stone was probably never located within the Waikakalaua Gulch. No further archaeological work recommended.

Reference	Location	Nature of Study	Findings
Hammatt et al. (1996)	<i>mauka</i> areas of Waipi'o and Wai'awa Ahupua'a	Archaeological Inventory Survey of 1339 acres	No evidence of historic settlement was found. A portion of the Waiāhole Ditch System (Site 50-80-09-2268) was identified within project area. Recommendations made to take appropriate mitigative measures if the site was to be impacted during development of area. No further archaeological work recommended.
Rechtman and Henry (1998)	West of Leeward Community College	Archaeological Reconnaissance Survey	No historic properties identified
Hammatt et al. (2002)	Mililani Transit Center	Archaeological and Cultural Impact Assessment	Study concludes that Mililani Transit Center project would have no adverse impact to historical or cultural resources. No further archaeological work recommended.
Hammatt et al. (2004)	Waipahu Drainage Improvements Project	Archaeological and Cultural Impact Assessment	No cultural resources or ongoing traditional cultural practices were found within the project area, and no additional work was recommended.
Perzinski et. al (2004)	Queen Emma Foundation Parcel, Waipi'o Ahupua'a	Archaeological Inventory Survey of 13.219 acres	Three sites recorded including the historic remnants of the Brown Estate (SIHP #50-80-09-6671), three buried cultural layers (SIHP #-6672), and a cultural layer with two associated burials (SIHP #-6673).

of dry taro or sweet potato” (Kennedy 1985:4). Subsurface testing produced one small piece of *kukui* nut, too small for radiocarbon testing. It was concluded the property needed no additional archaeological work. In 1990, a reassessment of the 70 acres was undertaken because the original survey was considered deficient and failed to “meet the minimum guidelines set by the Historic Preservation Program of the State Department of Land and Natural Resources” (Sinoto 1990:1). Due to the lack of a site location map, the single terrace recorded during the first survey was not relocated. During the 1990 resurvey, four areas of structural remains were located including areas of historic habitation platforms, retaining walls, water catchments, bridge remains, historic roadbeds and associated retaining walls. Areas 1 and 2 were assigned State site numbers 50-80-08-4662 and 50-80-08-4663, respectively. The Area 2 structures, including historic habitation platforms, retaining walls and excavated catchments, were associated with Japanese plantation workers who probably lived at the Pine Spur Camp, an early twentieth century plantation camp. Recommendations included possible preservation of some Site 50-80-08-4662 features and further archaeological work on this site (Sinoto 1990).

A survey of the Waikele Branch of the Lualualei Naval Magazine documented five archaeological sites, 50-80-08-2919 to 50-80-08-2923 (Riford and Cleghorn 1986). This study area consisted of 264 acres along Kīpapa and Waikakalaua streams near their confluence. Twenty-one overhang caves and crawl spaces were identified in Waikakalaua Gulch including one modified cave and eleven caves containing pre-contact material. Several historic features were also recorded (although not deemed archaeological sites) in Waikakalaua Valley including cement boulders, portions of an old roadbed, boulder and cobble paving associated with an abandoned railroad berm, scattered boulder mounds and facings connected to historic agricultural clearing activities and boulder rock tailings associated with road construction or ammunition storage facility excavation. In Kīpapa Gulch, three rock shelters, segments of a railroad berm, remains of a railroad cane-hauling car, and rock tailings were observed. The rock shelters along Waikakalaua Gulch were interpreted as temporary habitation sites for a possible travel route from Pu‘uloa over Kolekole Pass and into Wai‘anae. Many historic references indicate a transportation route was present between the south coast and central and western O‘ahu. Site 50-80-08-2922, situated on an intermittent tributary of Waikakalaua Stream, was recorded as a historic basalt rock quarry, but may have been used in pre-contact times. Further archaeological testing was recommended for only one site, Site 50-80-08-2919.

An archaeological reconnaissance survey was conducted for a 2.75-acre parcel of land in Mililani Town, west of Mililani High School (Rosendahl 1987). No archaeological resources were identified and no further archaeological work was recommended.

Some 422 acres of the Waikakalaua Gulch were surveyed during an archaeological reconnaissance of Waikakalaua Ammunition Storage Tunnels Site (Hammatt and Borthwick 1988). Two small agricultural terraces situated parallel to the stream were recorded. The dimensions of the terraces were 12 m long and 0.3 m wide. The two terraces were associated with sugar cane cultivation based on their low height and their location in a former cane field. The land within the study area had been heavily modified due to the grading and filling required during the construction of the 1905 railroad line and during World War II excavation of the ammunition storage tunnels. No further archaeological work was recommended for the area.

A 23-acre inventory survey investigated the Oahu Sugar Mill in Waipahu and its surroundings. The mill and associated buildings comprised 60% of the project area; the remainder comprised Skill Village, a plantation supervisors' residential area. No surface archaeological sites were observed within that project area (Cleghorn 1996).

CSH conducted an inventory survey of approximately 40 acres along Manager's Drive in Waipahu for Castle and Cook Homes. Two historic properties were found: SIHP 50-80-09-0530, pre-contact petroglyphs; and SIHP 50-80-09-4660, a former Oahu Sugar Company plantation camp named Higashi Camp (Hammatt et al. 2000).

The proposed stream clearing of Melemanu Woodlands Phase III was given archaeological clearance in a letter by Joseph Kennedy (March 16, 1992) who stated "it was in our opinion that no further work was necessary on the subject property or, by extrapolation, any lands *mauka* here due to topographic conditions" (Kennedy 1992:1). Kennedy also based his decision on a field inspection of the study parcel by Dr. Dye from the State Historic Preservation Division who maintained "the depositional environment is inhospitable to the preservation of historic deposits...there is no reason to conduct an archaeological survey for this project" (in Kennedy, 1992: 1). No map was included in the letter report and the exact location of the subject property is unknown.

An archaeological inventory survey of the proposed Mililani Summit project area produced three sites (50-80-08-4436 to -4438) consisting of two historic charcoal ovens linked to Japanese pineapple workers and a World War II military structure complex (Cleghorn et al. 1992). Large-scale land modifications were noted in the subject property commencing with pineapple cultivation, continuing with the military construction of storage facilities during World War II, and most recently with lime and lychee orchard activities. The two historic charcoal ovens were considered significant under Criteria A and D of the National Register and would be avoided during development. No further archaeological work was recommended for the study area.

An archaeological inventory survey conducted for the proposed drainage of the Mililani Mauka Subdivision produced no archaeological finds (Stride and Hammatt 1993). The project area location was in a tributary gully of Kīpapa Gulch, which showed no signs of inhabitation or agricultural modification in the pre-contact period and seemed to have been utilized only as a drainage for the pineapple fields. No further archaeological work was recommended.

Archaeological investigations were carried out for the Launani Valley Townhouse Development in 1994 (Moore and Kennedy 1994). This development is situated inside the Waikakalaua Gulch, *mauka* and a distance from the project area. The objective of the study was to gather more information on two documented archaeological sites (Sites 50-80-08-4812 and -4813) before development construction began. Site 50-80-08-4812 consists of 19 *ahu* and a capped stone flume and terrace. The capped stone flume is associated with historic agricultural modifications. After test excavation in the terrace revealed no cultural material, it was suggested this feature was a historic modification from an old foot trail, which led up the Waikakalaua Stream to a horse crossing. The *ahu* complex was interpreted as possible historic growing mounds for sweet potatoes and gourds due to their position in the ravine, which would optimize water catchment and soil retention. Site 50-80-08-4813 consists of the collapsed structures and walls associated with a former nursery that is known to have been in use until the 1960s. Additionally, this study briefly addressed community members' concerns regarding the O'ahunui

Stone. This study indicates that members of the community claimed all or portions of Site 50-80-08-4812 constituted the "O'ahunui Stone" (Moore and Kennedy 1994:1). It was concluded that because none of the *ahu* in Site 50-80-08-4812 resembled the shape of O'ahu, and the two referenced maps depicted the location of the O'ahunui Stone outside of Waikakalaua Gulch, that the O'ahunui Stone was probably never located within the Waikakalaua Gulch.

In 1996, an archaeological inventory survey was completed for 1339 acres of Castle and Cooke lands slated for residential development in the *mauka* areas of Waipi'o and Wai'awa Ahupua'a (Hammatt et al. 1996). No evidence of historic settlement was found; this was attributed to the fact that the majority of the project area lands had been cultivated in pineapple in the historic-to-modern periods. A portion of the Wai'ahole Ditch System (Site 50-80-09-2268) was identified while traversing a portion of the project area. Recommendations were made to take appropriate mitigative measures if the site was to be impacted during development. Also, the Kīpapa Ditch Site (50-80-098-9529) is located *mauka* of the project area.

CSH conducted an archaeological assessment of the H-1 Highway from Hālawā to the H1-H2 interchange at Wai'awa (Hammatt and Chiogioji 1998). No archaeological sites have been previously recorded within any portion of the study area or its immediate vicinity; no surface archaeological sites were observed during a reconnaissance survey of the lands adjacent to the highway study area corridor. Adjacent to the highway corridor at First and Second Streets in Pearl City are several buildings older than fifty years. Recommendations included consultation with the SHPD to ascertain if the buildings over 50 years old are of historical concern if future highway improvement activities will impact these structures. No further archaeological investigation was recommended due to the urban development along the H-1 Highway study area and prehistoric surface or subsurface archaeological remains were determined to be unlikely (Hammatt and Chiogioji 1998:20).

Rechtman and Henry (1998) conducted an archaeological reconnaissance survey of the 'Ewa Drum Filling and Fuel Storage area, west of Leeward Community College. No significant historic properties were identified.

CSH completed an archaeological inventory survey of 13.219 acres in Waipi'o Ahupua'a, 'Ewa District, Island of O'ahu, TMK 9-4-38:83 and 9-4-50:59 (Perzinski et. al 2004). Fieldwork included a pedestrian survey, documentation of surface sites, and subsurface testing. Three sites were recorded in the project area: (SIHP #50-80-09-6671) the remnants of the Brown Estate with six features constructed in the early 1950s and demolished in 1998; (SIHP #50-80-09-6672) three buried cultural layers in the southeast portion of the project area; and (SIHP #50-80-09-6673) a cultural layer and associated burials in the north central portion of the project area.

Hammatt et al. (2004) conducted an archaeological and cultural assessment of an approximately 38-acre area in the immediate vicinity of the August Ahrens School in the environs of urban Waipahu town. The project area is a developed residential neighborhood, with evidence of commercial sugar cane cultivation and housing development dating to 1919. No cultural resources or ongoing traditional cultural practices were found within the project area, and no additional work was recommended.

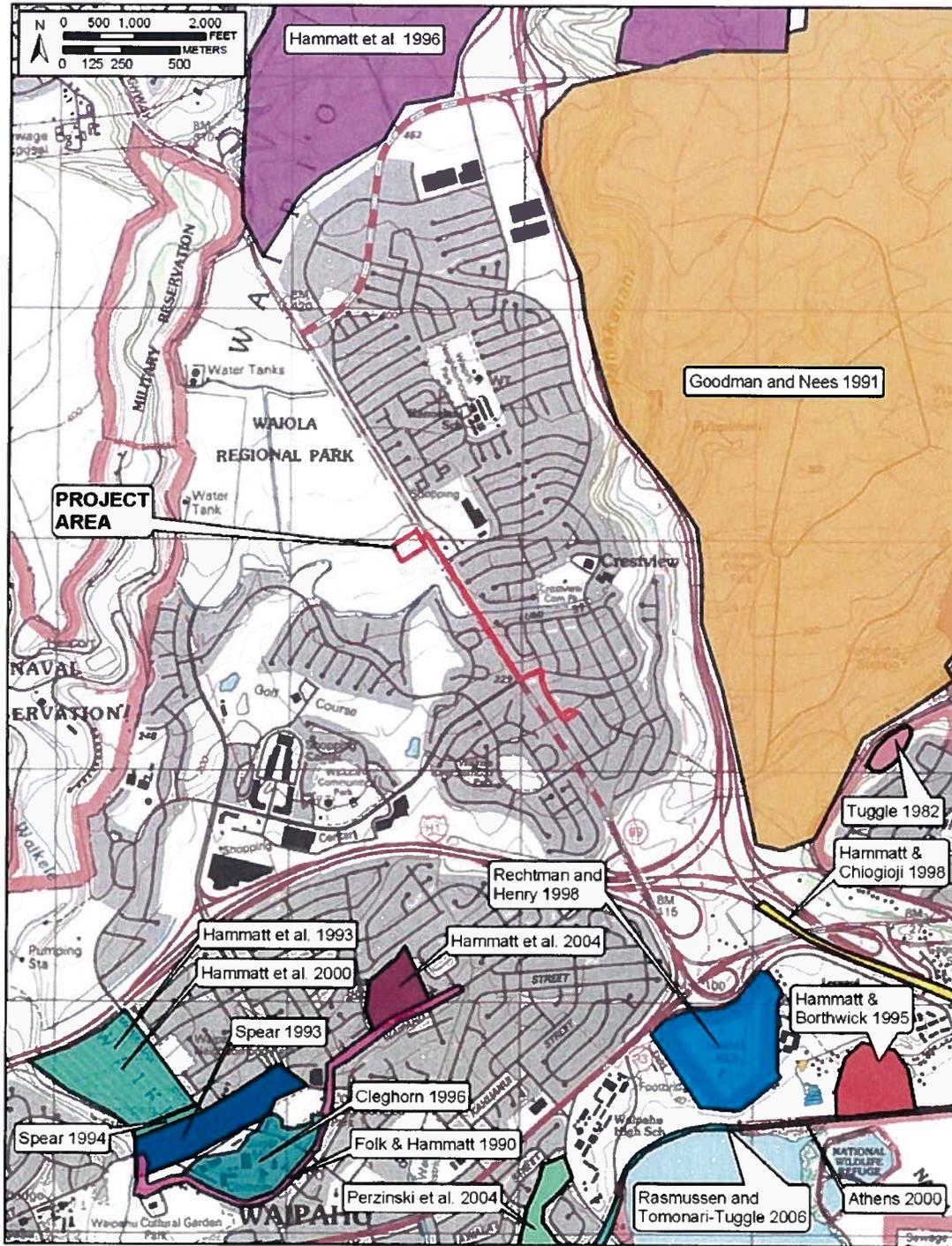


Figure 9. U.S. Geological Survey topographic map, showing previous archaeological survey areas in Waipahoehoe and within the vicinity of the project area

Section 4 Community Consultations

Throughout the course of this evaluation, an effort was made to contact and consult with Hawaiian cultural organizations, government agencies, and individuals who might have knowledge of and/or concerns about cultural resources and practices specifically related to the project area. However, due to the little likelihood that the undertaking will impact any ongoing cultural practices, this cultural impact evaluation includes some consultation but no formal interviews. The community consultation effort was made by letter, e-mail, telephone and in-person contact. In the majority of cases, letters along with a map and aerial photograph of the project area were mailed with the following text:

The purpose of this cultural study is to evaluate potential impacts to cultural practices and properties as a result of proposed improvement in Waipi'o Ahupua'a. We are seeking your *kōkua* and guidance regarding the following aspects of our study:

- **General history and present and past land use of the project area.**
- **Knowledge of cultural sites which may be impacted by future development of the project area - for example, historic sites, archaeological sites, and burials.**
- **Knowledge of traditional gathering practices in the project both past and ongoing.**
- **Cultural associations of the project area, such as legends and traditional uses.**
- **Referrals of *kūpuna* or elders and *kama'āina* who might be willing to share their cultural knowledge of the project area and the surrounding *ahupua'a* lands.**
- **Any other cultural concerns the community might have related to Hawaiian cultural practices within or in the vicinity of the project area.**

Several (3-5) attempts were made by mail, email and telephone to contact individuals, organizations, and agencies apposite to the cultural impact evaluation for Waipi'o Ahupua'a. The results of all consultations are presented in Table 2. The response of the Office of Hawaiian Affairs follows the table.

Table 2. Community Contacts

Name	Background, Affiliation	Comments
Alegado, Dr. Dean	Univ. of Hawai'i professor of Ethnic Studies and Waipahu resident	CSH mailed letter and maps of project area on Oct. 18, 2007. CSH left a message on Nov. 14, and called again on Nov. 19. Prof. Alegado declined to comment and referred CSH to Dr. Davianna MacGregor.

Name	Background, Affiliation	Comments
Chinen, Ms. Melanie	Administrator, State Historic Preservation Division (O'ahu Office)	CSH mailed letter and maps of project area on Oct. 18, 2007.
Higa, Mr. Jeffrey	Assistant Executive Director, Plantation Village	<p>CSH mailed letter and maps of project area on Oct. 18, 2007. CSH reached Mr. Higa on Nov. 8, 2007. Mr. Higa is the assistant executive director of Plantation Village, an outdoor museum located in Waipahu which portrays the experiences of Hawai'i's plantation workers.</p> <p>Mr. Higa shared the following: "I asked around and couldn't find much research on the Waipi'o Ahupua'a. There was a taro ground down here in Waipahu (near the depot), but other than that, we don't know much." Regarding the proposed BWS project, Mr. Higa replied: "At this time, I don't have any concerns."</p> <p>Mr. Higa made a referral to Mr. Ku'u Kaulia, who is a cultural specialist for Kamehameha schools. Mr. Kaulia toured Plantation Village and remarked that not much is known about Waipi'o Ahupua'a.</p>

Name	Background, Affiliation	Comments
Kane, Mr. Shad	Chair, Cultural Resources Comm., 'Ahahui Siwila Hawai'i O Kapolei Hawaiian Civic Club	CSH mailed letter and maps on Oct. 18, 2007. CSH emailed Mr. Kane on Nov. 14, and he replied with the following: "...I am not aware of any cultural resources in the immediate area of the project. There are, however, many cultural structures and native plants in depressions and valleys which are a distance from the proposed project. I am also aware of some undocumented structures in those same depressions and valleys. There is no significant impact on cultural sites in the area of the proposed BWS project..."
McKeague, Mr. Kawika	O'ahu Burial Council Member	CSH emailed letter and maps on Dec. 27, 2007. Mr. McKeague replied the same day and said to contact him after Jan. 4, 2008. CSH emailed a follow-up letter on Jan. 10, and again on Jan. 21. Mr. McKeague replied the same day and stated he will provide statement after Jan. 30.
Nāmu'o, Clyde	Administrator, Office of Hawaiian Affairs (OHA)	CSH mailed letter and maps on Oct. 18, 2007. OHA replied with statement. See letter below. OHA also replied to Belt Collins with preliminary comments in a letter dated Nov. 5, 2007. See Appendix.

PHONE (808) 594-1888



FAX (808) 594-1865

STATE OF HAWAII
OFFICE OF HAWAIIAN AFFAIRS
711 KAPI'OLANI BOULEVARD, SUITE 500
HONOLULU, HAWAII 96813

November 21, 2007

HRD07_3292B

Margaret Magat
Researcher
Cultural Surveys Hawai'i, Inc.
P.O. Box 1114
Kailua, Hawai'i 96734

Re: **Cultural Impact Assessment**
Honolulu Board of Water Supply well system upgrade
Waipi'o Heights Wells, Wells I site in Crestview, Waipahu Wells III site
Waipi'o Ahupua'a, 'Ewa District, O'ahu
Tax Map Key (1) 9-4-44:35 and 36, 9-4-05:076

Dear Ms. Magat:

The Office of Hawaiian Affairs is in receipt of your October 17, 2007 letter initiating consultation ahead of a cultural impact assessment for a proposed Honolulu Board of Water Supply well system upgrade project.

Waipi'o is famous for Loko Eo, a large fishpond known for the superior fish raised there and the agricultural terraces which were situated mauka of what is now known as Pearl Harbor. Certain traditional accounts indicate that chiefs of the highest ranks resided in Waipi'o, in a specific area known as Halaulani. The lands of Waipi'o also bore witness to several brutal battles in the Kipapa Gulch area and rebellions (Waipi'okimopō) which add to the mo'olelo associated with this wahi pana.

OHA seeks assurances that if this project moves forward, should Native Hawaiian traditional, cultural, or burial sites be identified during ground disturbance, all work will immediately cease, and the appropriate agencies notified pursuant to applicable law.

Margaret Magai, Researcher
Cultural Surveys Hawai'i, Inc.
November 21, 2007
Page 2

Thank you for initiating consultation at this early stage and we look forward to the opportunity for a comprehensive review of the completed cultural impact assessment. Should you have any questions, please contact Keola Lindsey, Lead Advocate-Culture at (808) 594-1904 or keolal@oha.org.

'O wau iho nō,



Clyde W. Nāmu'o
Administrator

Figure 10. Review letter from the Office of Hawaiian Affairs (OHA)

Section 5 Summary and Recommendations

Cultural Surveys Hawai'i, Inc., undertook this Cultural Impact Evaluation at the request of Belt Collins Hawai'i Ltd.

Traditional native Hawaiian cultural practices declined with the extensive land modification and urbanization of Waipi'o. As the cultivation of taro, yams and bananas as well as the wild *awa* and sandalwood gave way to rice, pineapple, sugar and eventually urbanization, the traditional way of life for native Hawaiians was no longer possible. Sugar cane plantations became residential communities such as Mililani and Waikele.

The project area is within a portion of the right-of-way on Kamehameha Highway which follows a well-documented traditional trail that connected 'Ewa to the Waialua District through the Central O'ahu plains, as well as to Wai'anae over Kolekole Pass. Historic maps show the present project area to be part of a government road surrounded by sugar cane fields. By the 1960s and succeeding decades, the locale around the project area was transformed by urban development. Research suggests that there are no on-going traditional cultural practices in the vicinity of the current project area.

None of the community contacts queried for this assessment identified any strong cultural concerns about the proposed project. However, the community contacts expressed concern for the greater area, the *ahupua'a* of Waipi'o. One participant stated that he is not aware of any cultural resources in the immediate project area, but there are a number of native plants and cultural structures "in depressions and valleys which are a distance from the proposed project." Another mentioned there had been a taro field in Waipahu (near the depot), but he is not aware of any other cultural resources around the project area. Both participants stated they have no concerns regarding the proposed project's impact on cultural sites and practices. The Office of Hawaiian Affairs (OHA) noted that Waipi'o was the scene of historic battles and rebellions as well as the home of many a high-ranking chief, in addition to being known for its agricultural terraces and the Loko Eo, a large fishpond stocked with excellent fish. In a letter to Belt Collins on Nov. 5, 2007, OHA also stated the following:

OHA further requests that if the project by your client goes forward, should *iwi kūpuna* or Native Hawaiian cultural or traditional deposits be found during ground disturbance, work will cease, and the appropriate agencies will be contacted pursuant to applicable law. Additionally, OHA would also like to suggest that the project area be landscaped with native and indigenous species. Any invasive species should also be removed. Doing so would not only serve as practical water-saving landscaping practices, but also serve to further the traditional Hawaiian concept of *mālama 'āina* and create a more Hawaiian sense of place.

Cultural Surveys Hawai'i finds that the proposed project will have minimal impact upon native Hawaiian cultural resources, beliefs and practices, and recommends that the concerns of the Office of Hawaiian Affairs be taken into account in the future well system upgrade.

Section 6 References

Anonymous

2005 "Gentry Waipio sold to Mainland investor." Pacific Business News 9 August:
<http://www.bizjournals.com/pacific/stories/2005/08/08/daily6.html>. Last accessed Jan. 10, 2008.

Anonymous

2008 "Home Sweet Home in Sugar Country." Community Profiles. Honolulu Advertiser 10 January:
<http://the.honoluluadvertiser.com/current/homes/zone10>. Last accessed Jan. 10, 2008.

Armstrong, Warwick (editor)

1973 *Atlas of Hawai'i*. University of Hawai'i Press, Honolulu.

Athens, J. Stephen (editor)

2000 Ancient Hawaiian Fishponds of Pearl Harbor: Archaeological Studies on U.S. Navy Lands, Hawai'i. J. Stephen Athens, Editor, with contributions from J. Stephen Athens, Dean W. Blinn, Caitlin E. Buck, J. Andres Christen, Robert H. Cowie, Tom Dye, Gail M. Murakami and Jerome V. Ward. International Archaeological Research Institute, Inc., Honolulu.

Barrera, William

1985 Archaeological Reconnaissance Survey, Mililani Area, Waipi'o, 'Ewa, O'ahu (TMK: 1-9-5-002:001). Chiniago, Honolulu, HI.

Barrere, Dorothy B.

1994 The King's Mahele: The Awardees and Their Lands. Dorothy B. Barrere, Compiler, Hilo, HI. Ms. on file, Historic Preservation Division, State of Hawai'i Department of Land and Natural Resources, Honolulu.

Beckwith, Martha Warren

1951 The Kumulipo. A Hawaiian Creation Chant. The University Press of Hawai'i, Honolulu.

Bishop, Sereno

1901 *'Ewa O'ahu Old Memories*. The Friend, May 1901.

Bureau of Land Conveyances, Hawai'i

1862-1897 Liber: Record Books 15-167. Department of Land and Natural Resources, Honolulu.

Cleghorn, Paul L.

1996 Archaeological Inventory Survey at Waipahu, Waikele, O'ahu (TMK: 9-4-2: Por. 4). Pacific Legacy, Inc., Kailua, HI.

- Cleghorn, Paul, Lisa Anderson and Akihiko Sinoto**
 1992 Archaeological Inventory Survey of the Proposed Summit Project, Mililani, Waipi'o, O'ahu, (TMK: 9-5-3: 10). Aki Sinoto Publishing, Honolulu, HI.
- Condé, Jesse C., and Gerald M. Best**
 1973 *Sugar Trains, Narrow Gauge Rails of Hawai'i*. Glenwood Publishers, Felton, California.
- Cordy, Ross**
 1981 A Study of Prehistoric Social Change: The Development of Complex Societies in the Hawaiian Islands. Academic Press, New York.
 2002 The Rise and Fall of the O'ahu Kingdom. Mutual Publishing, Honolulu.
- Department of Land and Natural Resources**
 1845-1909 Liber. (Land Record Books). Territory of Hawai'i: Commissioner of Public Lands. Pages 228-235.
- Downes, Cornelius D., (editor)**
 1953 History of Pearl Harbor. *Pearl Harbor Shipyard Log* Vol. VII No. 27, July 3, 1953. Pearl Harbor.
- Dugan, Gordon L.**
 1990 Incremental Increase of Storm Water Runoff Volume Based on 24 Hour - 100 Year Storm. Prepared for the Gentry Development Companies, Honolulu.
- Ellis, William**
 1963 Journal of William Ellis: Narrative of a Tour of Hawai'i with Remarks on the History and Traditions, [1917]. Advertising Publishing Co., Honolulu.
- Folk, William H. and Hallett H. Hammatt**
 1990 Archaeological Reconnaissance for the Proposed Waipahu Street Widening Project, Waipahu, Waikele, O'ahu. Cultural Surveys Hawai'i, Kailua, HI
- Foote, Donald E., E.L. Hill, S. Nakamura, and F. Stephens**
 1972 *Soil Survey of the Islands of Kauai, O'ahu, Maui, Molokai and Lanai*. State of Hawai'i, U.S. Dept. of Agriculture, U.S. Government Printing Office, Washington, D.C.
- Fornander, Abraham**
 1917 Fornander Collection of Hawaiian Antiquities and Folk-lore. B. P. Bishop Museum Memoirs, Volume IV, Part II-III. Bishop Museum, Honolulu. Pages 366, 400 (12), 450-463.
 1918 Fornander Collection of Hawaiian Antiquities and Folk-lore. B. P. Bishop Museum Memoirs, Volume V, Part I. Bishop Museum, Honolulu.
 1919 Fornander Collection of Hawaiian Antiquities and Folk-lore. B. P. Bishop Museum Memoirs, Volume V, Part I. Bishop Museum, Honolulu. Page 274.

- 1996 Fornander's Ancient History of the Hawaiian People to the Times of Kamehameha I. Mutual Publishing, Honolulu.
- Giambelluca, Thomas W., Michael A. Nuller and Thomas A. Schroeder**
Rainfall Atlas of Hawai'i. Department of Land and Natural Resources, State of Hawai'i.
- Goodman, Wendy and Richard C Nees**
 1991 Archaeological Reconnaissance and Inventory Surveys of 3,600 Acres in Wai'awa Ahupua'a, 'Ewa, O'ahu, with contributions by Gwen Hurst, Lisa Leimar, and Carolyn Orndoff, Supervising Archaeologist Jeffrey Pantaleo, Public Archaeology Section, Applied Research Group, Bishop Museum, Honolulu.
- Hammatt, Hallett and Douglas Borthwick**
 1985 Archaeological Reconnaissance of a 37 - Acre Wetland Parcel Wai'awa, 'Ewa, O'ahu. Cultural Surveys Hawai'i, Inc., Kailua, Hawai'i.
 1988 Archaeological Reconnaissance Survey of 422 Acres, Waikakalaua Gulch,, O'ahu. Cultural Surveys Hawai'i, Inc. Kailua, Hawai'i.
- Hammatt, Hallett H. and Rodney Chiogioji**
 1998 Archaeological Assessment of an Approximately 7.6 Kilometer Long Portion of the H-1 Freeway from Hālawā to the H1-H2 Interchange at Wai'awa, 'Ewa District, Island of O'ahu. Cultural Surveys Hawai'i, Inc., Kailua, Hawai'i.
- Hammatt, Hallett H., Matt McDermott and Rodney Chiogioji**
 1993 Archaeological Investigations of a 39.6 Acre Parcel in the Ahupua'a of Waikele, 'Ewa District, Island of O'ahu (TMK 9-4-02:05). Cultural Surveys Hawai'i, Inc., Kailua, Hawai'i.
 2000 Archaeological Inventory Survey of an Approximately 40-acre Parcel Along Manager's Drive, Waipahu, Ahupua'a of Waikele, 'Ewa District, Island of O'ahu (TMK 9-4-02:05). Cultural Surveys Hawai'i, Inc. Kailua, Hawai'i.
- Hammatt, Hallett H., David W. Shideler, and Douglas F. Borthwick**
 1996 Archaeological Reconnaissance Survey of the Waikakalaua Ammo Storage Tunnels Site, Waikele, 'Ewa , O'ahu. Cultural Surveys Hawai'i, Kailua, Hawai'i.
- Hammatt, Hallett H., Leilani Pyle, Victoria Creed, Thomas Devereaux and Rodney Chiogioji**
 1996 Archaeological Inventory Survey of a 1339-Acre Parcel at Castle and Cooke Lands Within Portions of Waipi'o and Wai'awa Ahupua'a O'ahu (TMK 9-4-06:01, 03 & 10 por.; and 9-5-03:01 por., 04 & 07; and 9-6-04:21). Cultural Surveys Hawai'i, Inc., Kailua, HI.

Hammatt, Hallett H., Kristina W. Bushnell and David W. Shideler

2002 *An Archaeological and Cultural Impact Evaluation for the Proposed Mililani Comm. Transit, Waipi'o Ahupua'a, 'Ewa, O'ahu (TMK: 9-5-53 por. 2)*. Cultural Surveys Hawai'i, Inc., Kailua, HI.

Hammatt, Hallett H., Sallee Freeman and David W. Shideler.

2004 *Archaeological and Cultural Assessment in Support of the Waipahu Drainage Improvements Project, Waipahu, Waipi'o Ahupua'a, 'Ewa District, O'ahu (TMK 9-4-09 and 9-4-59:72, 73, 74)*. Cultural Surveys Hawai'i, Inc., Kailua, Hawai'i.

Handy, E.S. Craighill

1940 *The Hawaiian Planter. Volume I. His plants, methods and areas of cultivation.* Bernice P. Bishop Museum Bulletin 161:1-227. Honolulu, HI.

Handy, E. S. Craighill, and Elizabeth Green Handy

1972 *Native Planters in Old Hawai'i Their Life, Lore, and Environment.* Bishop Museum Press, Honolulu.

Hommon, Robert J. and Hamilton M. Ahlo, Jr.

1983 *An Archaeological Reconnaissance Survey of the Proposed Hawai'i High Technology Park, 'Ewa, Hawai'i (TMK 9-5-02:11)*. Science Management, Honolulu.

Hosaka, Edward Y.

1937 *Ecological and Floristic Studies in Kīpapa Gulch, O'ahu.* Bishop Museum Occasional Papers 13 (17):175-232. Bernice P. Bishop Museum, Honolulu.

‘Ī‘Ī, John Papa

1959 *Fragments of Hawaiian History.* Bishop Museum Press, Honolulu.

Jensen, Peter M., and James Head

1997 *Archaeological Reconnaissance Survey, Naval Magazine Lualualei, NAVMAG-West Loch, Land of Pu'uloa, Honouliuli, Waikele, and Waipi'o, District of 'Ewa, Island of O'ahu.* Paul H. Rosendahl, Ph.D., Inc., Hilo, Hawai'i.

Judd, C. A.

1933 *The Parasitic Habit of the Sandalwood Tree.* *Thrum's Hawaiian Annual*: 81-88.

Kamakau, Samuel M.

1991 *Ka Pō'e Kahiko; The People of Old.* Originally published 1869-1870. Bishop Museum Press, Honolulu.

1992 *Ruling Chiefs of Hawai'i.* Revised edition. The Kamehameha Schools Press, Honolulu.

Kennedy, Joseph

1985 *An Archaeological Survey at Waikakalaua Gulch, O'ahu (TMK: 9-5-02: 4, 6,11)*. Archaeological Consultants of Hawai'i, Inc., Hale'iwa, HI.

1992 *Proposed Steam Clearing of Helemano Woodlands, Phase III, Letter to David Bills.* Archaeological Consultants of Hawai'i, Inc., Hale'iwa, HI. Page 1

Kuykendall, Ralph S.

1967 *The Hawaiian Kingdom: 1874-1893. Volume 3*, Honolulu: University Press of Hawai'i.

Lucas, Paul F.

1995 *A Dictionary of Hawaiian Legal Land-Terms*. Published by Native Hawaiian Legal Corporation, Honolulu, and the University of Hawai'i Committee for the Preservation and Study of Hawaiian Language, Art and Culture, Honolulu.

Macdonald, G.A., A.T. Abbott and Frank L. Peterson

1983 *Volcanoes in the Sea*. Second edition. University of Hawai'i Press, Honolulu, HI. Page 420.

Maly, Kepa (translator)

1916 Excerpts from a story translated by Kepa Maly. Originally published in the Hawaiian language newspaper *Ka Hōkū O Hawai'i*, Sept. 21, 1916.

McAllister, J. Gilbert

1978 *Archaeology of O'ahu*. Originally published 1933. Bernice P. Bishop Museum Bulletin 104, Bishop Museum, Honolulu.

Moore, James R. and Joseph Kennedy

1994 *Archaeological Investigations for the Launani Valley, Townhouse Development located at TMK: 9-5-02: 4,6 and in Waikakalaua Gulch, Waikele Ahupua'a, 'Ewa, O'ahu*. Archaeological Research Center Hawai'i, Inc., Lāwai, HI.

Ohira, Rod.

1997 "Waipahu Turns 100. One Sweet Century." Honolulu Star Bulletin 12 June: <http://starbulletin.com/97/06/12/news/story2.html>. Last accessed Jan. 12, 2008.

Pang, Gordon Y.K.

2001 "First of "Fields of Dreams" to open in central O'ahu." Honolulu Star Bulletin 16 November: <http://starbulletin.com/2001/07/16/news/story4.html>. Last accessed Jan. 12, 2008.

Persinski, David, Rodney Chiogioji and Hallett H. Hammatt

2004 *Archaeological Inventory Survey for the 13.219 Acre Queen Emma Foundation Parcel in Waipi'o Ahupua'a, 'Ewa District, O'ahu Island TMK 9-4-038:083 and 9-4-050:059*. Cultural Surveys Hawai'i, Inc., Kailua.

Pukui, Mary Kawena

1983 *'Ōlelo No'ēau. Hawaiian Proverbs and Poetical Sayings*. Bernice P. Bishop Museum Special Publication No. 71. Bishop Museum Press, Honolulu.

Rasmussen, Coral M. and M. J. Tomonari-Tuggle

2006 *Archaeological Monitoring of Waiau Fuel Pipeline, 'Ewa District, Island of O'ahu, TMK Zone 9 with Parcels in Sections 1,3,4,6,7, and 8*. IARII, Honolulu, HI.

Rechtman, Robert and Henry, Jack D.

- 1998 Archaeological Reconnaissance Survey Red Hill Fuel Storage Area and 'Ewa Drum Filling and Fuel Storage Area, Lands of Waipi'o, Wai'awa, Hālawā, 'Ewa District and Moanalua, Honolulu District, Island of O'ahu. Navy Contract No. N62742-93-D-0502, PHRI, Hilo, HI.

Riford, Mary F. and Paul Cleghorn

- 1986 *Archaeological Inventory Survey of Portions of Lualualei Naval Magazine, Waikele Branch*. Prepared for the Dept. of the Navy, Bishop Museum Press, Honolulu, HI.

Rosendahl, Paul H.

- 1977 Archaeological Inventory and Evaluation Report for Installations of Environmental Impact Statement for U.S. Army Support Command, Hawai'i. Bernice P. Bishop Museum, Dept. of Anthropology, Honolulu.
- 1987 *Archaeological Reconnaissance Mililani Town Station*, Waipi'o, 'Ewa District, Island of O'ahu. Rosendahl Inc., Hilo, Hawai'i.

Sinoto, Akihiko

- 1990 *Results of the Archaeological Reassessment of a Portion of Waikakalaua Gulch, TMK: 9-5-02:004, 6 and por.11*. Applied Research Group, Bishop Museum Press, Honolulu, HI.

Spear, Robert

- 1993 A Reconnaissance Survey Letter Report of the Waikele Industrial Subdivision. The Oahu Sugar Mill Project, Waipahu, Hawai'i.
- 1994 Addendum: A Reconnaissance Survey Letter Report of the Waikele Industrial Subdivision. The Oahu Sugar Mill Project, Waipahu, Hawai'i.

Sterling, Elspeth P., and Catherine C. Summers

- 1978 *Sites of O'ahu*. Bishop Museum Press, Honolulu.

St. John, Harold

- 1947 The History, Present Distribution and Abundance of Sandalwood on O'ahu, Hawaiian Islands: Hawaiian Plant Studies 14. *Pacific Science* 1: 5-20.

Stride, Mark and Hallett H. Hammatt

- 1993 *Archaeological Inventory Survey of the Proposed Drainage at Mililani Mauka (TMK: 9-5-02)*. Cultural Surveys Hawai'i, Inc., Kailua, HI.

Thrum, Thomas G.

- 1923 *More Hawaiian Folk Tales*. A.C. McClurg & Co., Chicago.
- 1998 *Hawaiian Folk Tales*. Mutual Publishing, Honolulu.

Tuggle, David

- 1982 Archaeological Survey: Mānana Marine Housing, Wai'awa (Pearl Harbor), O'ahu, TMK: 9-7-24:06. Department of the Navy, Pearl Harbor, Hawai'i.

Woodbury, David O.

1946 Builders for Battle, How the Pacific Naval Air Bases Were Constructed. E.P. Dutton and Company, New York.

Appendix

Glen Koyama
Belt Collins Hawai'i Ltd.
November 5, 2007
Page 2

Although the TCP levels found are below the State Department of Health established maximum contaminant levels, OHA is pleased that the Honolulu Board of Water Supply is proposing this upgrade. OHA suggests that it be done in a timely manner.

OHA further requests that if the project by your client goes forward, should iwi kūpuna or Native Hawaiian cultural or traditional deposits be found during ground disturbance, work will cease, and the appropriate agencies will be contacted pursuant to applicable law.

Additionally, OHA would also like to suggest that the project area be landscaped with native or indigenous species. Any invasive species should also be removed. Doing so would not only serve as practical water-saving landscaping practices, but also serve to further the traditional Hawaiian concept of mālama 'āina and create a more Hawaiian sense of place.

Thank you for the opportunity to comment. If you have any further questions or concerns please contact Grant Arnold at (808) 594-0239 or granta@oha.org.

Sincerely,



Clyde W. Nāmu'o
Administrator