

# **CONSERVATION DISTRICT USE APPLICATION (CDUA)**

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

File No.:

Acceptance Date: **Assigned Planner:**  **180-Day Expiration Date:** 

for DLNR Use

### PROJECT NAME ROAD REPAIR & DRAINAGE IMPROVEMENTS BOOTH ROAD 740

Conservation District Subzone: General and Resource
Identified Land Use: Conservation (Identified Land Uses are found in Hawai'i Administrative Rules (HAR) §13-5-22 through §13-5-25)
Project Address: End of Booth Road

Tax Map Key(s): (1) 2-2-041: 001 Ahupua'a: 1 & 3 Kaoiwai County: Oahu Proposed Commencement Date: 6/2024 Estimated Project Cost: \$175,000

District: (1) 2-2-041: 001 Island: Oahu Proposed Completion Date: 1/2025

**TYPE OF PERMIT SOUGHT** Board Permit

# **Departmental Permit**

# **ATTACHMENTS**

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

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

- 20 copies of CDUA (5 hard + 15 hard or digital copies)
- Draft / Final Environmental Assessment (EA) or Draft / Final Environmental Impact Statement (EIS) or Statement of Exemption
- State Historic Preservation Division HRS 6E Submittal Form (dlnr.hawaii.gov/shpd/review-compliance/forms)
- Management Plan or Comprehensive Management Plan (ref §13-5-39) if required
- Special Management Area Determination (*ref Hawai'i Revised Statutes 205A*)
- Shoreline Certification (*ref §13-5-31(a)(8)*) if land use is subject to coastal hazards.
- Kuleana documentation (ref \$13-5-31(f)) if applying for a non-conforming kuleana use.
- Boundary Determination (ref §13-5-17) if land use lies within 50 feet of a subzone boundary.

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#### **REQUIRED SIGNATURES**

#### Applicant

Name: Ernest Lau Title; Agency: Manager and Chief Engineer, Board of Water Supply Mailing Address: 630 South Beretania Street Honolulu, Hawaii 96843

Contact Person & Title: Leizel C. De Laz Cruz BWS Project Manager Phone: (808) Email: Leizel C. De La Cruz < Idelacruz@hbws.org> Interest in Property: Landowner

Signature:< Date: 9/10 Signed by an authorized officer if for a Corporation, Partnership, Agency or Organization (See Next Page for BWS release of liability Letter to DLNR)

Landowner (if different than the applicant)

Name: Title; Agency: Mailing Address: P.O Box Honolulu, Hawaii

Phone: (808) Email:

Signature:

Date: \_\_\_\_\_

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

#### **Agent or Consultant**

Agency: Bills Engineering Inc. Contact Person & Title: David B. Bills, President Mailing Address: 1108 Fort Street Mall Ste 4\_ Honolulu, Hawaii 96813

Phone: (808) 792-2022 Email: dbills@billsengineering.com

Signature:

Date: August 1, 2023

#### For DLNR Managed Lands

Sta	te	of	Hawai`i	
-				

Chairperson, Board of Land and Natural Resources State of Hawai'i Department of Land and Natural Resources P.O. Box 621 Honolulu, Hawai'i 96809-0621

Date:

State of Hawai'i, Department of Land and Natural Resources Conservation District Use Application, Revised 08/07/20

Signature

BOARD OF WATER SUPPLY KA 'OIHANA WAI

# CITY AND COUNTY OF HONOLULU

630 SOUTH BERETANIA STREET • HONOLULU, HAWAII 96843 Phone: (808) 748-5000 • www.boardofwatersupply.com

RICK BLANGIARDI MAYOR MEIA

ERNEST Y. W. LAU, P.E. MANAGER AND CHIEF ENGINEER MANAKIA A ME KAHU WILIKI

ERWIN KAWATA DEPUTY MANAGER HOPE MANAKIA



NA'ALEHU ANTHONY, Chair KAPUA SPROAT, Vice Chair BRYAN P. ANDAYA JONATHAN KANESHIRO EDWIN H. SNIFFEN, Ex-Officio GENE C. ALBANO, P.E., Ex-Officio

November 2, 2023

Mr. Michael Cain, Administrator Department of Land and Natural Resources Office of Conservation & Coastal Lands 1151 Punchbowl Street, Room 131 Honolulu, Hawaii 96809-0621

Dear Mr. Cain:

Subject: Conservation District Use Permit Application; Repair and Drainage Improvements for Booth Road, TMK: (1) 2-2-041: 001 and 003

We respectfully resubmit the subject Conservation District Use Permit Application. Based on previous discussions, the Board of Water Supply (BWS) proposal to create Lot 2 requires land dispositions that includes an Executive Order for the lot and easement for the access road. BWS provided modifications to resubmit a CDUA for subdivision and file a Board Permit.

We are submitting the following with respect to this CDUA:

- 1. Filing Fee of \$2,500 made out the State of Hawaii (Board Permit).
- 2. Public Hearing Fee (\$250) made out to State of Hawaii
- 3. Five (5) hard copies of the CDUP application.
- 4. Fifteen (15) copies of the CDUP on separate CDs.

If you have any questions, please contact Michael Domion, Support Branch Head, Capital Projects Division, at (808) 748-5740.

Very truly yours,

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

Enclosure

BOARD OF WATER SUPPLY KA 'OIHANA WAI

# **CITY AND COUNTY OF HONOLULU**

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September 21, 2023

NA'ALEHU ANTHONY, Chair KAPUA SPROAT, Vice Chair BRYAN P. ANDAYA MAX J. SWORD JONATHAN KANESHIRO EDWIN H. SNIFFEN, Ex-Officio GENE C. ALBANO, P.E., Ex-Officio

Ms. Dawn N. S. Chang, Chairperson State of Hawaii Board of Land and Natural Resources Department of Land and Natural Resources P.O. Box 621 Honolulu, Hawaii 96809-0621

Dear Ms. Chang:

Subject: Conservation District Use Permit (CDUP), Honolulu, Oahu, Hawaii TMK: (1) 2-2-041: 001

A condition for the approval of the subject application requires the State of Hawaii to sign as the landowner. Please sign the application in the appropriate space as the landowner.

We agree to assume and be responsible, and liable for all of the duties and obligations of the landowner under the application and shall indemnify, hold harmless, and defend the State of Hawaii from and against all claims, injuries and damages arising out of those duties and obligations. We understand and agree that by signing that application as requested, the State of Hawaii does not waive or release any of its rights and privileges, and expressly reserves all such rights and privileges as landowner reference herein.

If you have any questions, please contact Michael Domion, Support Branch Head, Capital Projects Division, at (808) 748-5740.

Very truly yours,

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

Enclosure

LD:em cc: Supp. Br.

#### PROPOSED USE

Total size/area of proposed use (indicate in acres or sq. ft.): 0.11 Acres

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

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

The 740 Reservoir is located in the back of Pauoa Valley at the end of Booth Road (TMK: 2-2-41: 1 & 3). TMK: 2-2-24:1 is a 9.1 acre parcel owned by the State of Hawaii. TMK: 2-2-41:3 is a 36.4 acre parcel owned by the City & County of Honolulu.

The proposed use is the construction of drainage improvements along the reservoir access road to protect the 4" water main running from the reservoir to Pauoa Valley and to provide BWS maintenance personnel with dependable access to the reservoir.

The project proposes to construct 4' wide concrete swales along the existing road, within the existing access easement, to intercept the overland runoff. Where a swale is constructed, the gravel road will be widened to provide a 10' minimum lane, compensating for the area to be occupied by the swale. It is estimated that about 406 linear feet of swale will be necessary to provide surface drainage for the road.

A pipe culvert consisting of reinforced concrete drain lines, reinforced concrete inlet structure, cement rubble masonry (CRM) outlet structure and fencing is proposed near the reservoir site to allow storm runoff to cross under, rather than over, the gravel access road.

While being a relatively modest repair project, heavy equipment will be utilized. A road grade will create the roadway swale. Truck loaders will transport gravel to the site and a concrete truck will be necessary to deliver concrete to the swale site. All work will be done during normal working hours (8:30AM to 3:30PM).

As with all projects that are processed through the DPP-Site Development Division, erosion and sediment control is required. Filter sock will be placed up gradient of all disturbed areas to prevent runoff from crossing the disturbed area.

The Project further includes a subdivision action to incorporate the BWS improvements in the proposed Lot2 into an actual Lot 2. Lot 2 does not legally exist at this point in time.

Figure 14 shows the proposed subdivision work. The steps to officially transfer control of Lot 2 TO BWS are as follows:

- BWS processes a Conservation Use Permit with DLNR -OCCL showing the proposed creation of Easement AU-1, Lot 2 and the remainder lot being the balance of Lot 2 removed form TMK 2-2-041:001. This constitutes a 2-lot subdivision and a Board Approved CDUP. Easement AU-1 includes roadway and drainage improvements that will be completed and also covered in this CDUP application.
- 2. DLNR Land Division (ODLO) takes the approved CDUP to Board to the DLNR Board and initiates a request for an Executive Order and Perpetual easement to ultimately be granted to BWS to cover all BWS improvements in TMK: 2-2-041 :001. With Land Board the DLNR (ODLO) of the request subdivision processing can commence.
- 3. BWS initiates the actual Subdivision process with the City and County of Honolulu Department of Planning and Permitting (DPP-Subdivision Branch) to create the subdivision described in Item 1 above until Final Subdivision approval is issued by DPP-Subdivision.
- 4. Upon subdivision approval DLNR Land Division (ODLO) will go to the DLNR Board to finalize the actual executive order over Lot 2 and perpetual access easement over AU-1.
- Figure 1 Booth Road Location Map
- Figure 2 Booth Road Tax Map 2-2-41
- Figure 3 Booth Road General Plan
- Figure 4 Booth Road Site Plan 1
- Figure 5 Booth Road Site Plan 2
- Figure 6 Booth Road Typical Sections & Profiles

Figure 7 Booth Road - Photos 1

- Figure 8 Booth Road Photos 2
- Figure 9 Erosion and Sediment Control Plan 1
- Figure 10 Erosion and Sediment Control Plan -2
- Figure 11 Erosion and Sediment Control Plan 3
- Figure 12 AIS Submittal Log No. 2014.04314 Information Including Status of SHPD Review

## Figure 13 Statement of Chapter 343 Exemption & Special Management Area Clearance

Figure 14 Subdivision Map

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#### **EXISTING CONDITIONS**

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

Existing access to site:

The site is located on the southwestern flank of the Tantalus Crater. Access to the reservoir is at the end of Booth Road, a private road maintained by the Board of Water Supply. Pauoa Valley Road is an unpaved access road that runs from the end of Booth Road to the reservoir, in a road lot fronting TMK: 2-2-39: 1 & 7 and 2-2-41: 3 & 13. The road continues through TMK: 2-2-41:001 within to the BWS 740 Reservoir. The access road is a 10-foot wide gravel access road on the eastern side of Pauoa Stream that leads to the existing water tank. Portions of the access road have eroded/washed out by uncontrolled surface runoff. The depth of erosion varied from 6" in most areas, to as much as 3 feet in an area near the reservoir.

#### Existing buildings/structures:

The 740 Reservoir is located in the back of Pauoa Valley at the end of Booth Road (TMK: 2-2-41: 001) A building for chlorinator tanks is located on the north side of the access is also on TMK: 2-2-41:001. While there are BWS water system improvements on TMK: 2-2-041:003 (owned by BWS), TMK 2-2-041: 001 is owned by the State of Hawaii. Part of the reason for this CDUP is to transfer control of the BWS facilities in 2-2-041:001 from the State to BWS. The actual transfer process is described under the Proposed Use section of this application.

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

Plans for the construction of the reservoir and access road could not be located; however, a 1996 repair project shows the 4" water line as existing. A communications utility is located within the access road based on topographical survey information.

Physiography (geology, topography, & soils):

Soil within the existing road area consists of very moist to wet sandy basaltic gravel overlying stiff clayey silt. Based on the US Soil Conservation Service "Soil Survey of Islands of Kauai, Oahu, Maui, Molokai and Lanai, State of Hawaii", the major soil at the site is classified as Tantalus Silt Loam (TAF and TAE), with moderately rapid permeability, medium to rapid runoff, and moderate to severe erosion hazard.

The topographic survey map shows that the ground surface elevation within the work area varies from about 657 ft Mean Sea Level (MSL) to about 725 ft MSL.

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

The project is located along an access road that runs roughly parallel and just south of Pauoa Stream. Pauoa Stream confluences with Nuuanu Stream just before discharging into Honolulu Harbor. There are no designated wetlands in the project vicinity.

Two areas of the access road have visible erosion due to storm runoff crossing from the upper slope (south) and down towards Pauoa Stream (north). The depth of erosion varied from about 6 inches in most eroded areas to as much as 3 feet in an area near the existing reservoir. The project proposes two swales and a culvert crossing to manage stormwater flows and prevent minimize erosion along the access road and 4" waterline.

Due to limited access and scope of the project, subsurface exploration consisting of drilled boreholes

### **EVALUATION CRITERIA**

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

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

The intention of the proposed land use is to control erosion of the existing access roads caused by overland runoff. Maintenance of the roadways will help protect the water distribution system and, in turn, public health, safety, and welfare.

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

Parcels 2-2-41: 1 & 3 are in the Resource subzone. The objective of the Resource subzone is to ensure, with proper management, the sustainable use of the natural resources of those areas. The proposed use is to maintain access to the existing water distribution system and is consistent with the Resource subzone.

3. Describe how the proposed land use complies with the provisions and guidelines contained in chapter 205A, HRS, entitled "Coastal Zone Management" (see 205A objectives on p. 12).

Refer to application page 12 for responses regarding provisions and guidelines contained in Chapter205A,HRS.

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

The intention of the proposed use is to stop erosion of the existing roadways by collecting runoff from the uphill side of the roads and discharging on the downhill side of the roads. The existing drainage patterns will be maintained. Appropriate erosion control treatment at the intake and discharge sides of the drain lines will be used to prevent soil erosion and to protect existing vegetation.

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

The proposed use will consist of a drain inlet, culvert & outlet, and concrete swales. The use is an extension of the existing road and reservoir facility. The concrete swales along the roadway will have a maximum width of 3' to minimize the paved area. Riprap will be used at the outlet and inlet of the drain culvert to make it more compatible with the surrounding vegetated area.

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

The proposed improvements will not increase the visibility of the maintenance road and will preserve the open space characteristics of the area.

was not performed. Instead visual observations, manual probing, and shallow bulk samples were used in the geotechnical investigation to support design recommendations. Groundwater was not encountered in the shallow bulk sample excavations.

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

Vegetation in the project area consisted of ferns, Ginger (Zingiber officinale), Rose Apple (Eugenia sp.), Bingabing (Macaranga mappa), and invasive vines in the understory with Monkeypod (Albizia saman), Mango (Mangifera indica), kukui (Aleurites moluccana), and Bamboo (Bambusa sp.) thickets.

No known endangered plants and/or animals are present.

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

The site lies within a Flood Hazard Area Zone X as shown on Map 15003C0360G dated January 19, 2011. Zone X includes areas determined to be outside the 0.2% annual chance floodplain.

The purpose of the project is to manage stormwater runoff to minimize erosion of the access road.

Erosion was observed along the dirt access road in the area near the existing chlorinator site - a concrete lined v-ditch is proposed to prevent runoff from causing further erosion across and along the access road. The proposed v-ditch will convey runoff to a large low area located on the upslope side of the road.

Additionally, a deep erosion gully has been cut through the roadway below the reservoir by runoff crossing from the mauka area. The gully is roughly 135 feet long and is as much as 2 feet deep and 8 feet wide in areas. Another large erosion gully was observed running downhill along the vegetated slope just south of the reservoir. The swale extends across the access road where it connects to the road swale at elevation 720.0. A pipe culvert is proposed to convey runoff under the access road. Runoff will pass through energy dissipators before continuing down slope to Pauoa Stream following the existing drainage pattern.

Historic & cultural resources:

An Archeological Inventory Survey (AIS) Report dated September 2014 was submitted to the State of Hawaii Historic Preservation Division (SHPD) on September 8, 2014 with Log No. 2014-04314. A copy of the AIS the Submittal Sheets, check, and email of current status can be reviewed in Figure 12 attached.

Based on the AIS, no new information would be likely gleaned from additional study of the project area and no further archaeological work is recommended for the project corridor. A prior OCCL requirement was to conduct an AIS in 2014 but still not reviewed as of this date by SHPD. We would hope this requirment would be a condition of any OCCL approval.

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

Not applicable.

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

The proposed land use will improve the public health, safety and welfare by maintaining access to the water distribution lines and reservoir.

## **CULTURAL IMPACTS**

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

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

The project areas are currently gated to secure vehicular access to the Board of Water Supply facilities in order to maintain public health and safety. Because the areas are not completely fenced, it is possible for native Hawaiian gathering rights to be exercised within the area by those on foot.

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

The proposed drainage facilities will be constructed along the existing roads or within grass and shrub areas and will not adversely impact these gathering activities.

What feasible action, if any, could be taken by the Board of Land and Natural Resources in regards to your application to reasonably protect Native Hawai'i rights?

The project is putting in two short lengths of drain pipe under the existing unpaved and gravel Booth Road, pouring concrete for a short swale and processing subdivision to correct ownership issues. It is not contemplated that the minor amount of work to an existing gravel road could do anything to cause infringement on Native Hawaii rights. 6. At the end of operations, all the drainage structures surrounding the project shall be inspected for any accumulations of sediment and debris. The accumulated sediment and debris shall be removed from the drainage structures (flushing into the drain inlets is prohibited).

During implementation of the drainage improvements the swales, drain lines and the inlet and outlet structures will be inspected by BWS maintenance personnel. Debris & soil will be removed.

Pleaser refer to project Erosion and Sediment Control Figures included in this application as follows:

Figure 9 Booth Road - Erosion Control Plan - 1

Figure 10 Booth Road - Erosion Control Plan - 2

Figure 11 Booth Road - Erosion Control Plan - 3

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

With respect to environmental impacts the project will be using Best Management Processes) BMP's as developed by the City and County of Honolulu to minimize to the maximum extent possible environmental impacts

The project is putting in two short lengths of drain pipe under the existing unpaved and gravel Booth Road, pouring concrete for a short swale and processing subdivision to correct ownership issues. It is not contemplated that the minor amount of work to an existing gravel road will not create cultural impacts.

## **OTHER IMPACTS**

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

The proposed improvements are along existing access roads to BWS facilities. The roadways are gated, restricting access to the Board of Water Supply facilities to maintain public health and safety.

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

No effect.

Will the proposed use cause increased sedimentation?

No. The proposed drainage improvements are proposed to minimize damage caused by existing runoff.

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

No. The proposed drainage improvements are along existing access roads that have restricted public access. The swale dimensions are the minimum required to carry runoff. The drainage outlet & inlet structures will be constructed of grouted rock to minimize visual impact.

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

None proposed.

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

None proposed.

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

During construction the following Best Management Practices will be used:

1. Perimeter runoff control using temporary filter sock.

2. 1" - 3" or larger (7" max.) crushed rock stabilized construction entrance road.

3. The roadway shall be cleaned on a daily basis to be free of debris and sediment resulting from grading operations.

4. Good housekeeping shall be utilized to ensure protection of roadways from mud, dirt & debris.

5. Stabilization control - hydroseed steep slopes (>15%) as soon as final grades are established.

# SINGLE FAMILY RESIDENTIAL STANDARDS

Not Applicable

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

SIZE OF LOT

	Existing	Proposed	Total
Proposed building			
footprint			
Paved areas/			
impermeable surfaces			
Landscaped areas			
Unimproved areas			

SETBACKS Front: Side: Back:

SHORELINE PROPERTIES

Average Lot Depth (ALD): Average annual coastal erosion rate:

Minimum shoreline setback based on Exhibit 4:

Actual shoreline setback or proposed structure:

## MAXIMUM DEVELOPABLE AREA

The Maximum Developable Area includes all floor areas under roof, including first, second, and third stories, decks, pools, saunas, garage or carport, and other above ground structures.

Maximum Developable Area based on Exhibit 4:

Actual Developable Area of proposed residence:

Actual height of the proposed building envelope as defined in Exhibit 4:

## COMPATIBILITY

Provide justification for any propose deviation from the established residential standards.

How is the design of the residence compatible with the surrounding area?

If grading is proposed, include a grading plan which provides the amount of cut and fill. Has grading or contouring been kept to a minimum?

The Grading for the plan is minimal. The quantities do not even meet the requirments of the Department of Planning an Permitting - Civil Engineering Branch to qualify for a Grading Permit. The total amount of earthwork involved in this Project is under fifty (50) cubic yards.

#### CHAPTER 205A – COASTAL ZONE MANAGEMENT

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

- **Recreational resources:** Provide coastal recreational opportunities accessible to the public. *This provision and Guideline are not applicable to this Project.*
- **Historic resources:** Protect, preserve, and, where desirable, restore those natural and manmade historic and prehistoric resources in the coastal zone management area that are significant in Hawaiian and American history and culture. *The project is putting in two short lengths of drain pipe under the existing unpaved and gravel Booth Road, pouring concrete for a short swale and processing subdivision to correct ownership issues. It is not contemplated that the minor amount of work to an existing gravel road could do anything of significance to Hawaiian and American history and culture.to cause i*
- Scenic and open space resources: Protect, preserve, and, where desirable, restore or improve the quality of coastal scenic and open space resources. *This provision and Guideline are not applicable to this Project.*
- **Coastal ecosystems:** Protect valuable coastal ecosystems, including reefs, from disruption and minimize adverse impacts on all coastal ecosystems. *This provision and Guideline are not applicable to this Project.*
- Economic uses: Provide public or private facilities and improvements important to the State's economy in suitable locations. While minor in nature, keeping access road in working condition allows BWS to provide water the whole Island of Oahu. Loss of access and use of the BWS 740 reservoir would be detrimental to the State's economy.
- **Coastal hazards:** Reduce hazard to life and property from tsunami, storm waves, stream flooding, erosion, subsidence, and pollution. *This provision and Guideline are not applicable to this Project*
- Managing development: Improve the development review process, communication, and public participation in the management of coastal resources and hazards. *The review process includes obtaining a CDUP, Subdivision processing and construction plan processing with numerous agencies for approval including the Disability Communication and Access Board (DCAB).*

Public participation is discussed under Public Participation below.

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

Even as minor as this project is it still requires a Board approved CDUP. As a part f that process there will be a public hearing as one step of the approval. The Land DLNR Board will oversee the hearing and the public is welcome.

- **Beach protection:** Protect beaches for public use and recreation. *This provision and Guideline are not applicable to this Project.* 
  - Marine resources: Promote the protection, use, and development of marine and coastal resources to assure their sustainability.

This provision and Guideline are not applicable to this Project.

#### CERTIFICATION

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

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

Pan B. Pr 8/10/2023

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

**AUTHORIZATION OF AGENT** 

I hereby authorize David Bills of Bills Engineering Inc. to act as my representative and to bind me in all matters concerning this application.

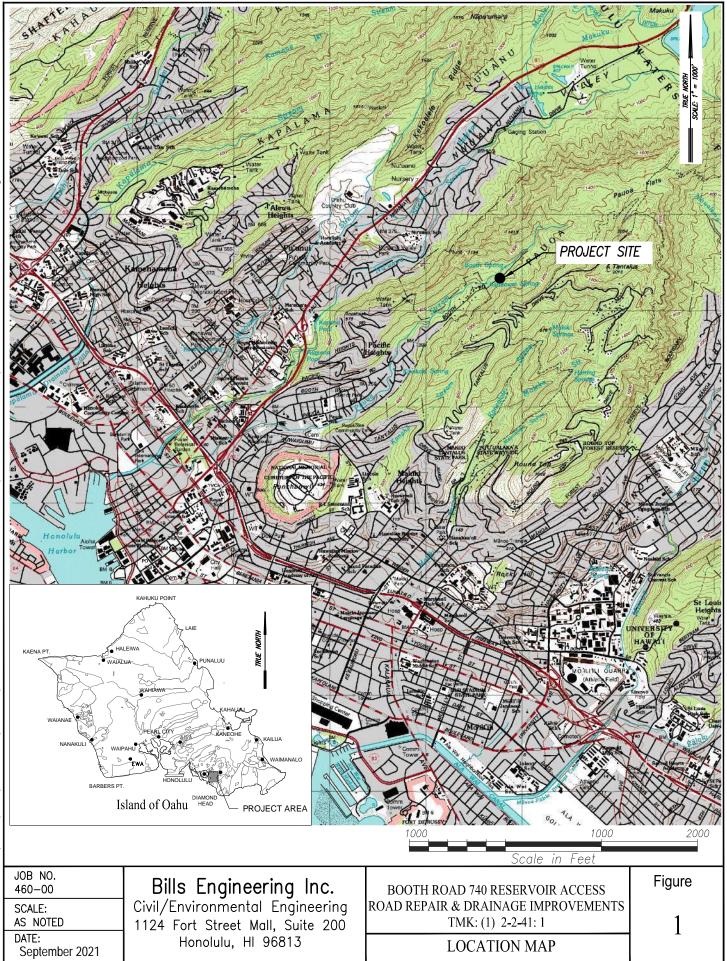
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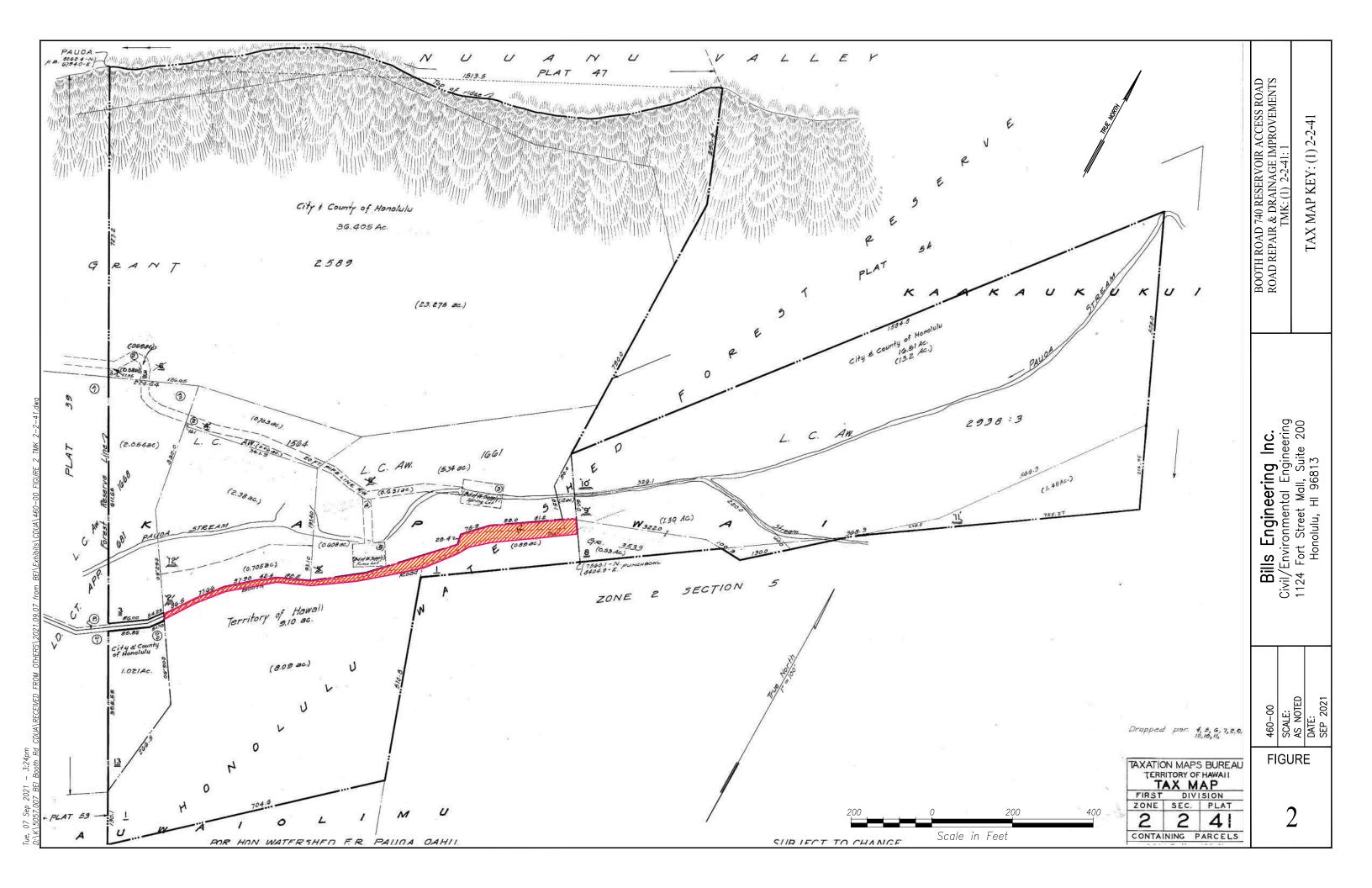
8/10/2023

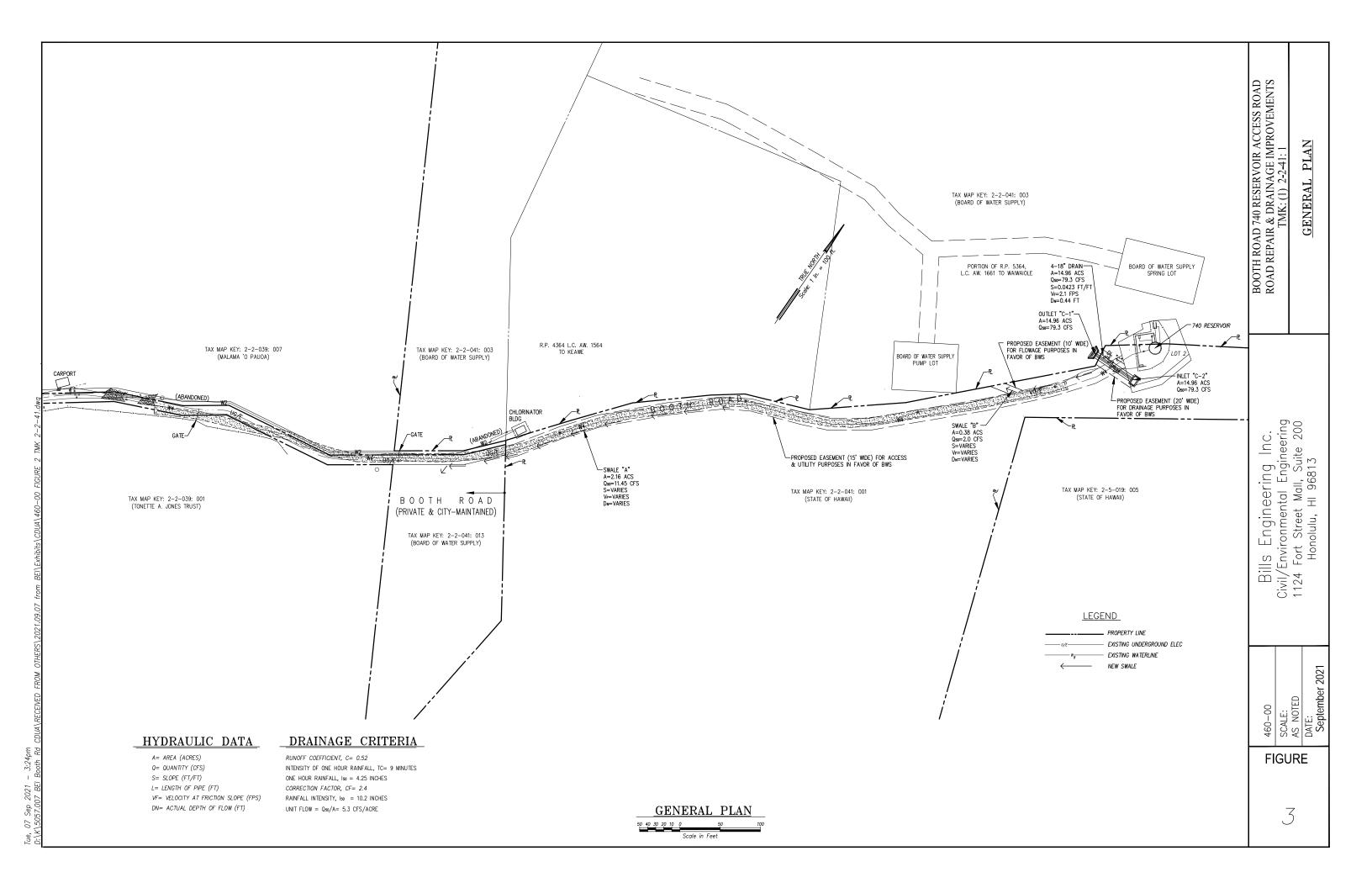
ERNEST Y. LAU. P.E. Manager and Chief Engineer

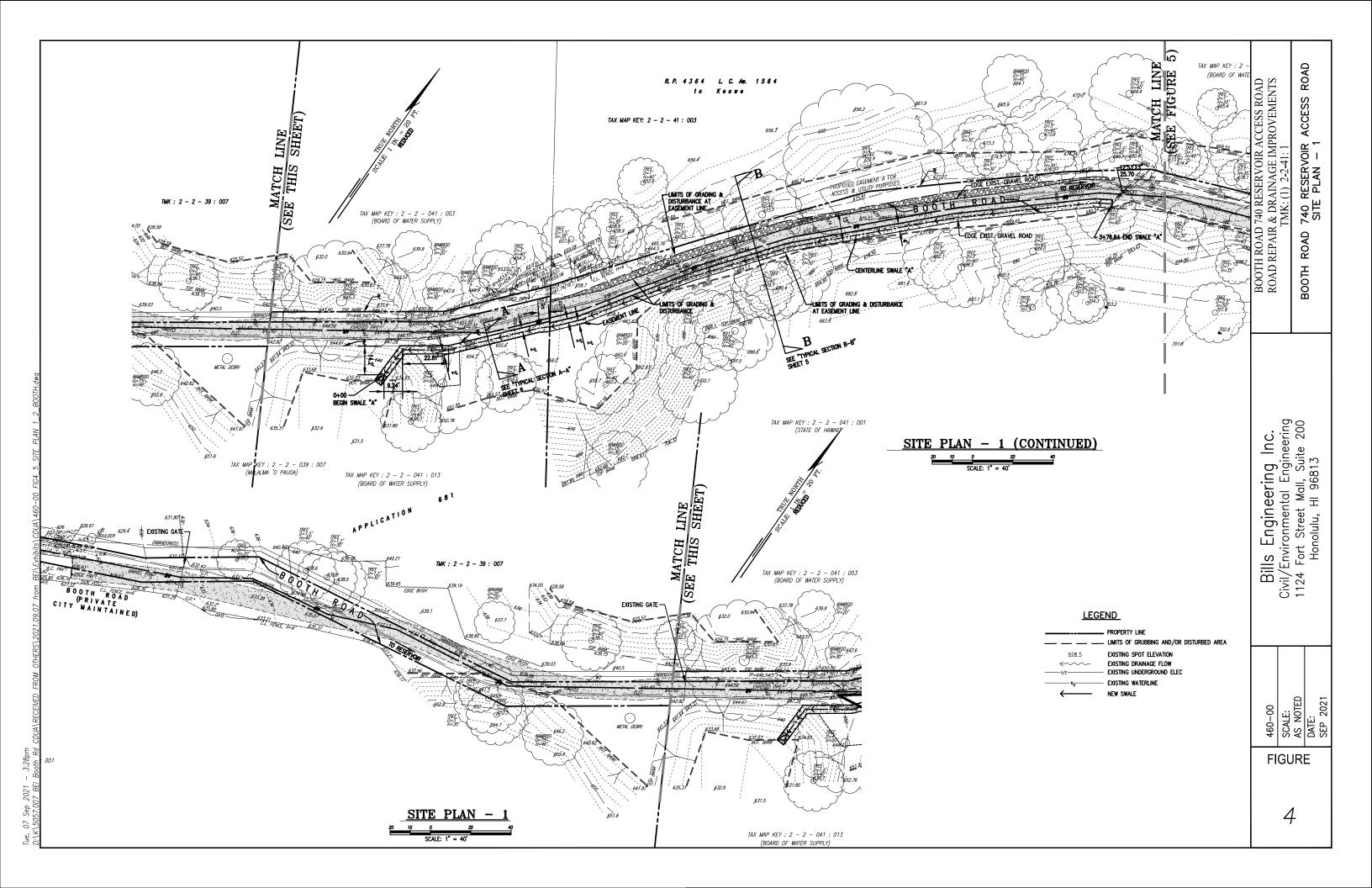
Signature of applicant(s)

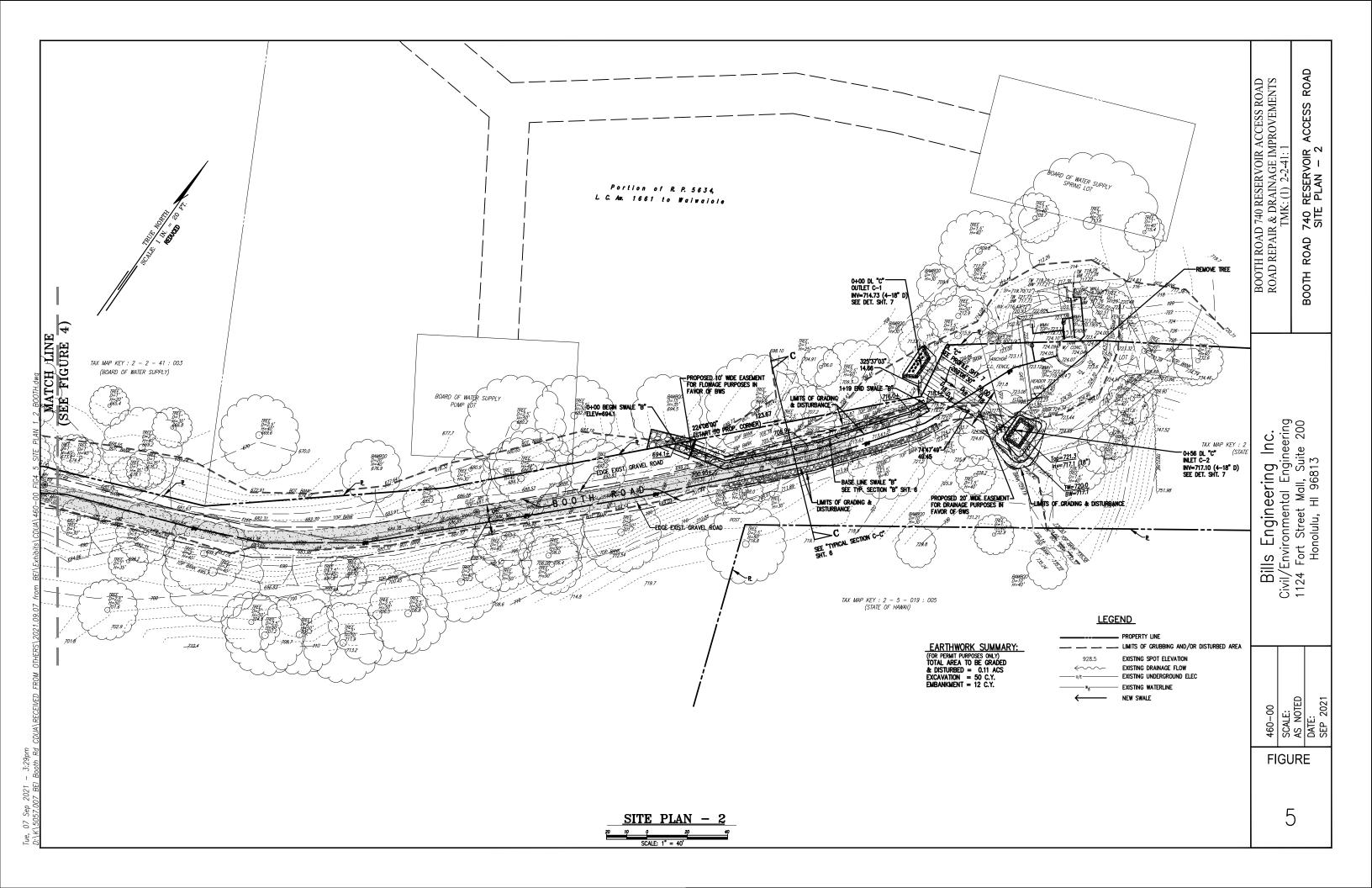
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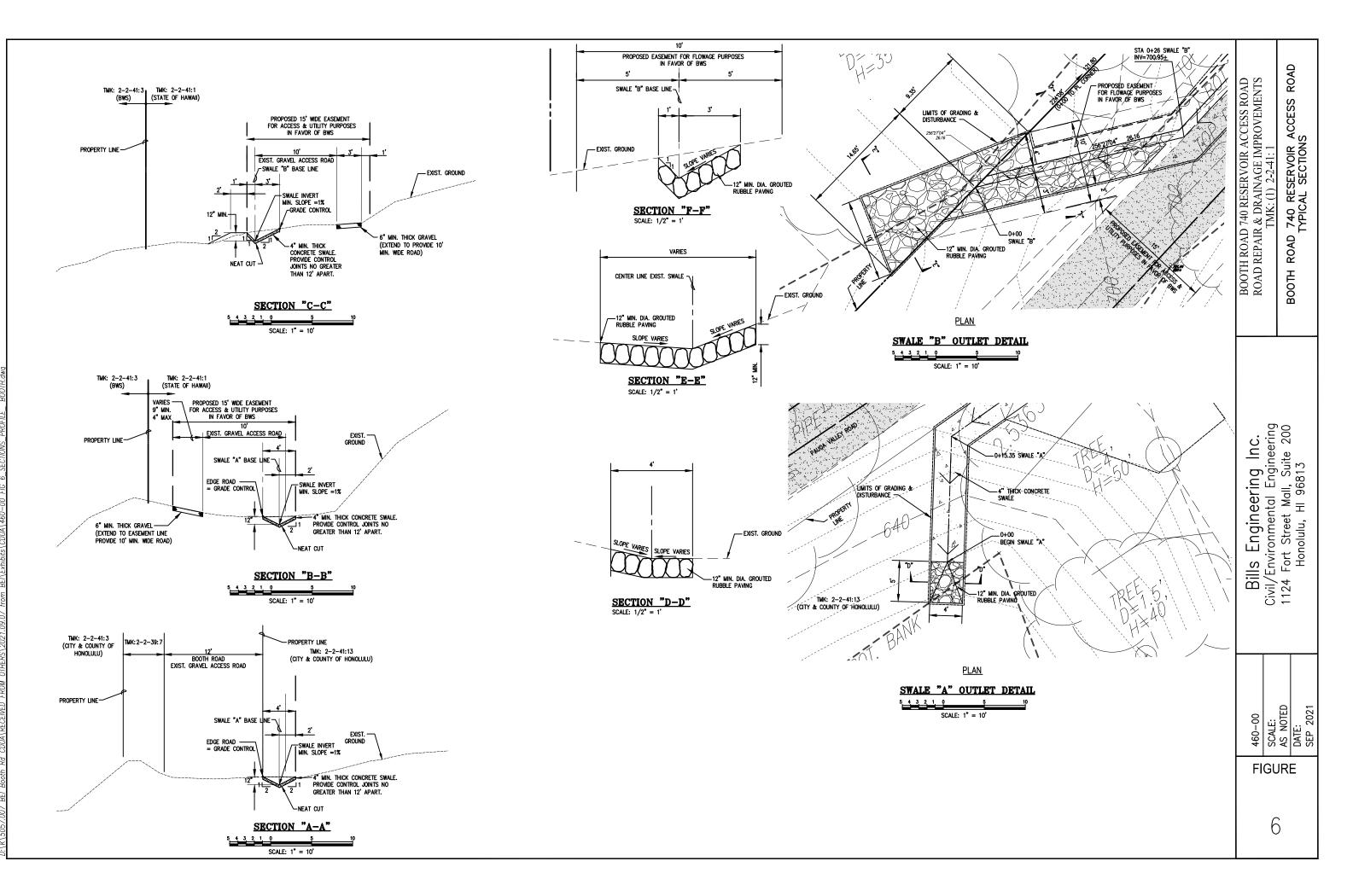














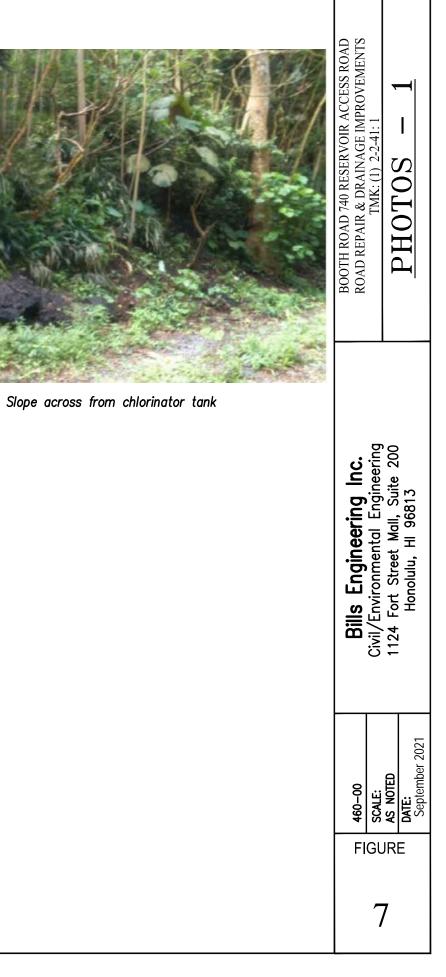
Slight erosion of access road above chlorinator mixer



Looking at end of Booth Road from start of BWS gravel access road



Looking down access road towards gate.





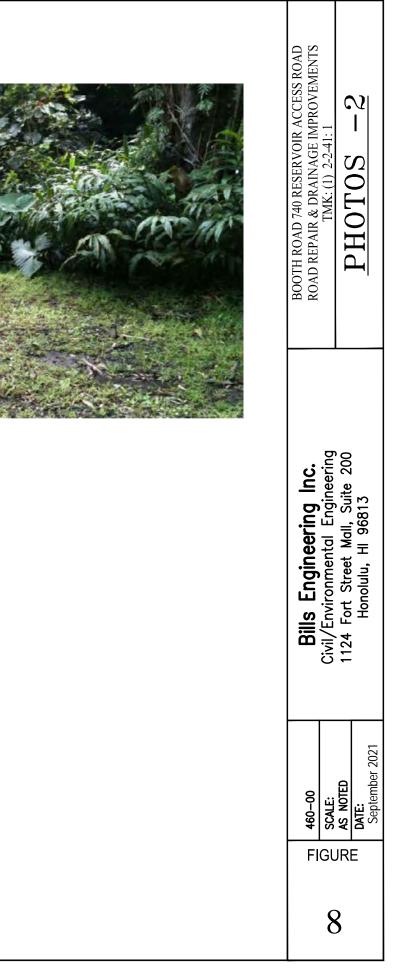
Reservoir at end of road

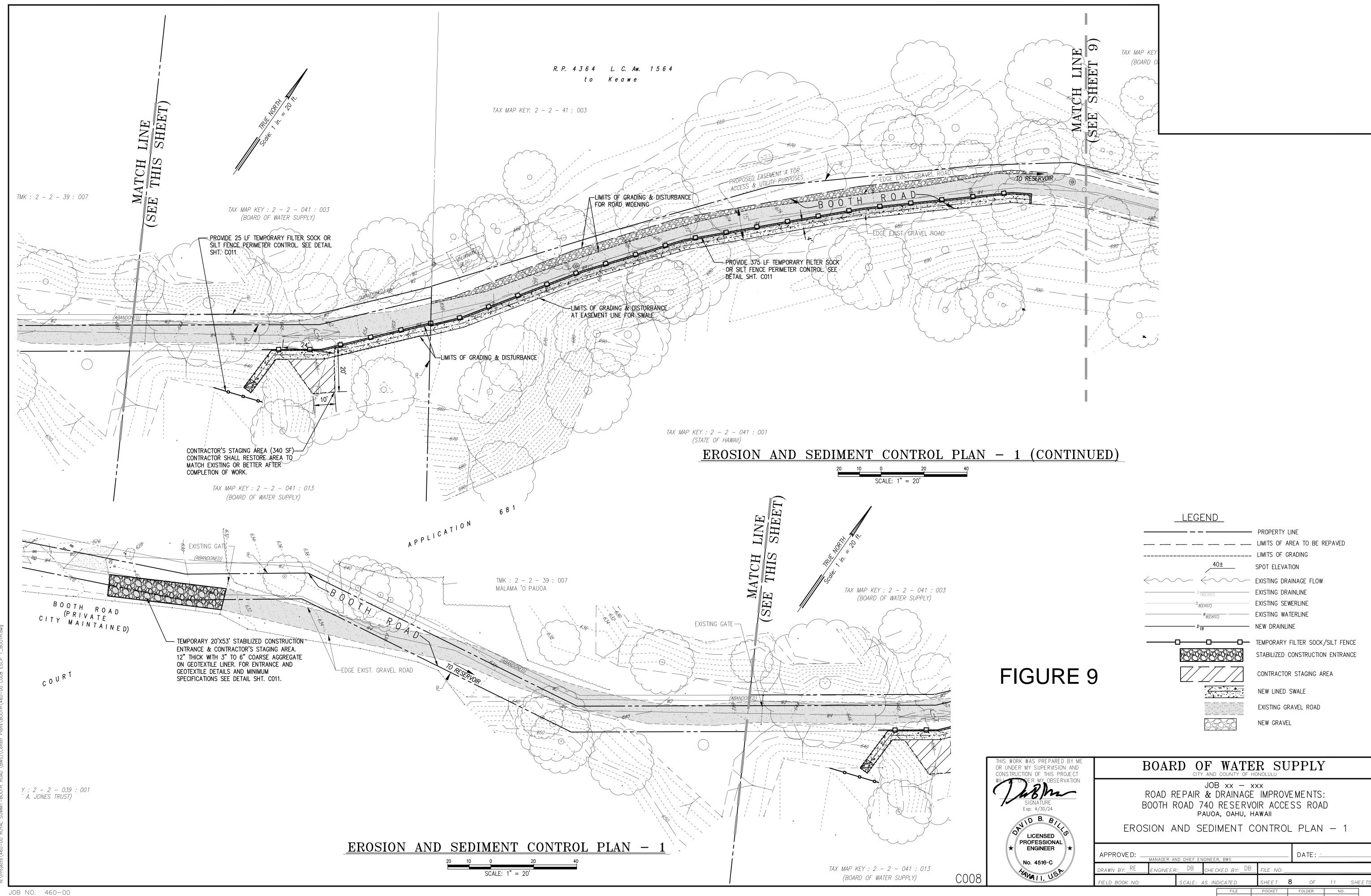


Swale along Pauoa Stream side of road

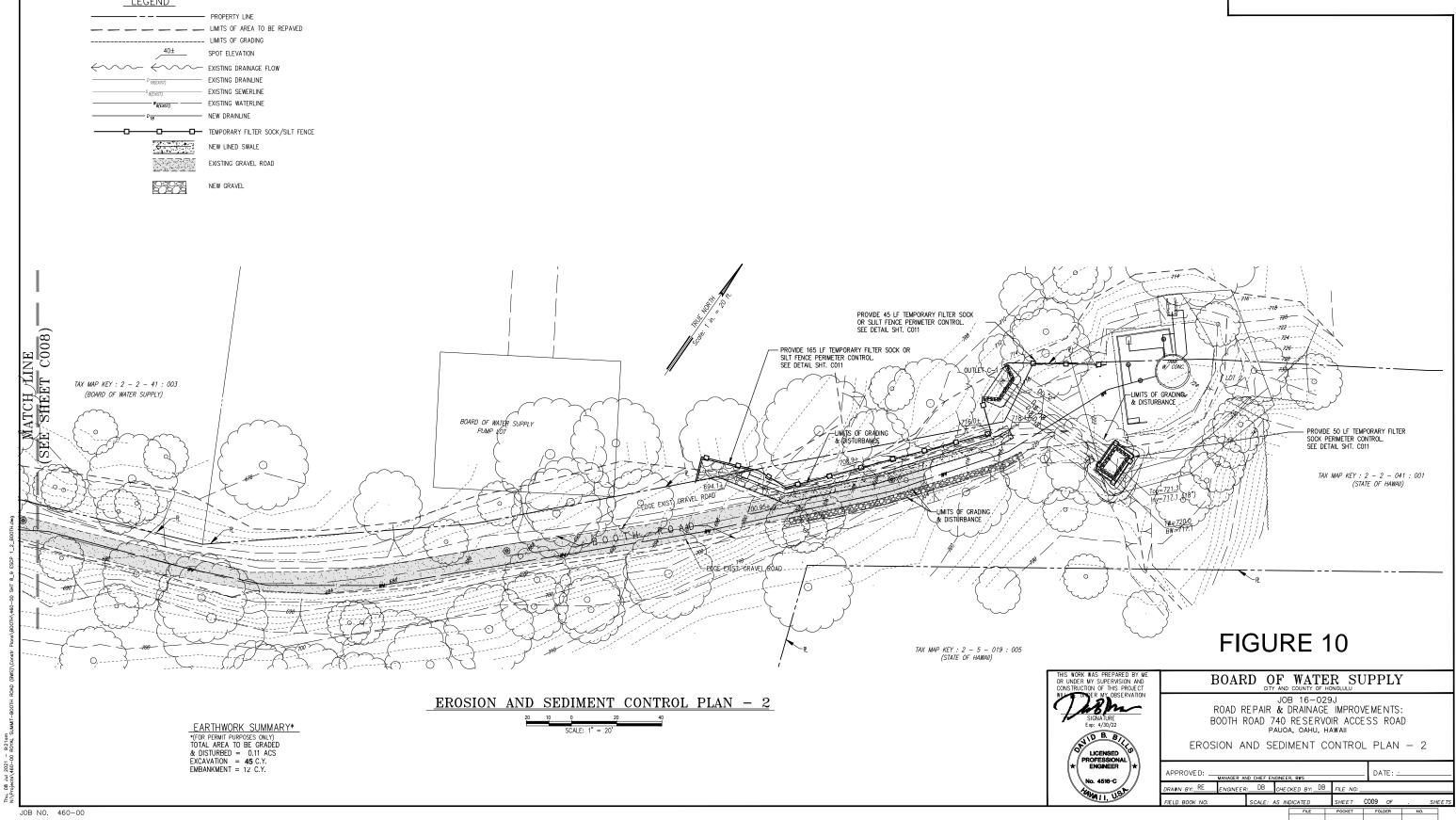


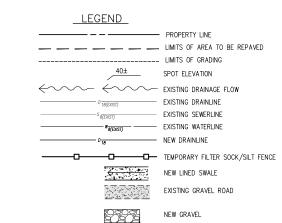
Close-up of geotextile fabric exposed in swale.





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SIGNATURE Exp: 4/30/24	BOOTH	JOB xx — x REPAIR & DRAINAGE ROAD 740 RESERVO PAUOA, OAHU, H AND SEDIMENT C	IMPROVE DIR ACCES AWAII	SS ROAE	)	
PROFESSIONAL ENGINEER	APPROVED:	R AND CHIEF ENGINEER, BWS		DATE:		
No. 4516-C	DRAWN BY: ENGINE	EER:DBCHECKED_BY:DB	_ FILE NO:			
WAII, 0.9	FIELD BOOK NO:	SCALE: AS INDICATED	SHEET 8	<b>S</b> OF	11	SHEETS





# Figure 10

#### GOOD HOUSEKEEPING BMPs NOTES:

- 1. Street Sweeping, Vacuuming. All pollutants discharged from construction site to offsite areas must be swept or vacuumed each day before leaving the job site.
- 2. Material Delivery, Storage and Use Management. Prevent, reduce or eliminate the discharge of pollutants from material delivery, storage and use to the storm water system or watercourses by minimizing the storage of hazardous materials onsite, storing materials in a designated area, installing secondary containment. Construction materials, waste, toxic and hazardous substances, stockpiles and other sources of pollutant shall not be stored in buffer areas, near areas of concentrated flow, or areas abutting the MS4, receiving waters, or drainage improvements that discharge offsite. Primary and secondary containment controls and covers shall be implemented to
- 3. Spill Prevention and Control. Create and implement spill prevention and response plan to eliminate and minimize the discharge of pollutants to the MS4 and receiving waters from leaks and spills by reducing the chance for spills, absorbing, containing, and cleaning up spills and properly disposina of spill materials. At a minimum, all projects shall cleanup all leaks and spills immediately
- 4. Hazardous Waste Management. Prevent or reduce the discharge of pollutants to storm water from hazardous waste through proper material use and waste disposal. In the event that hazardous materials are discharged to the MS4, the property owner or ESCP coordinator shall immediately notify the Department of Facilities Maintenance, Honolulu Fire Department, and Honolulu Police Department of the discharge by telephone. A written report describing the pollutants that were discharged, the reasons for the discharge, and the measures that have been taken or will be taken to prevent a reoccurrence of the discharge shall be submitted to the Director no less than 3 days after notification by phone.
- 5. Nonhazardous Materials. In the event that nonhazardous materials are discharge to the MS4, the property owner or ESCP coordinator shall notify the City Department of Facilities Maintenance by telephone no later than the next business day. A written report describing the pollutants that were discharged, the reasons for the discharge and the measures that have been taken or will be taken to prevent a reoccurrence of the discharge shall be submitted to the Director no less than 3 days after notification by phone.
- 6. Vehicle and Equipment Cleaning. Eliminate and minimize the discharge of pollutants to storm water from vehicle and equipment cleaning operations by using offsite facilities when feasible, washing in designated, contained areas only, and eliminating discharges to the storm drain system by evaporating and/or treating wash water, as appropriate or infiltrating wash water for exterior cleaning activities that use water only.
- 7. Vehicle and Equipment Fueling. Prevent fuel spills and leaks by using offsite facilities, fueling only in designated areas, enclosing or covering stored fuel, and implementing spill controls such as secondary containment and active measures using spill response kits.
- 8. Vehicle and Equipment Maintenance. Eliminate and minimize the discharge of pollutants to storm water from vehicle and equipment maintenance operations by using offsite facilities when feasible, performing work in designated areas only, using spill pads under vehicles and equipment, checking for leaks and spills, and containing and cleaning up spills immediately.
- 9. Solid Waste Management. Prevent or reduce discharge of pollutants to the land, groundwater, in storm water, from solid waste or construction and demolition waste, by providing designated waste collection areas. Collect site trash daily, and ensure that construction waste is collected, removed. and disposed of, only at authorized disposal areas.
- 10. Sanitary/Septic Waste Management. Temporary and portable sanitary and septic waste systems shall be mounted or staked in, well-maintained, and scheduled for regular waste disposal and servicing. Sources of sanitary and/or septic waste shall not be stored near the MS4 or receiving waters
- 11. Stockpile Management. Stockpiles shall not be located in drainage ways, within 50-feet from areas of concentrated flows, and are not allowed in the City right-of-way. Sediment barriers or silt fences shall be used around the base of all stockpiles. Stockpiles shall not exceed 15 feet in height. Stockpiles greater than 15 feet in height shall require 8 foot wide benching in accordance with ROH Chapter 14, Article 15. Stockpiles must be covered with plastic sheeting or a comparable material if they will not be actively used within 7 days.
- 12. Liquid Waste Management. Liquid waste shall be contained in a controlled area such as a holding pit, sediment basin, roll-off bin, or portable tank, of sufficient volume and to contain the liquid wastes generated. Containment areas or devices must be impermeable and leak free and should not be located where accidental release of the contained liquid can discharge to water bodies. channel or storm drains.
- 13. Concrete Waste Management. Prevent or reduce the discharge of pollutants to storm water from concrete waste by conducting washout offsite or performing onsite washout, in a designated area constructed and maintained in sufficient quantity and size to contain all liquid and concrete waste generated by washout operations. Plastic lining material shall be a minimum of 10 millimeter polyethylene sheeting and shall be free of holes, tears, or other defects that compromise the impermeability of the material. Containment areas and devices shall not be located where accidental release of the contained liquid can discharge to water bodies, channels, or storm drains. Washout facilities must be cleaned, or new facilities must be constructed and ready for use once the washout is 75 percent full. Once concrete wastes are washed into designated area and allowed to harden, the concrete shall be broken up, removed, and disposed of as solid
- 14. Contaminated Soil Management. At a minimum, contain contaminated material soil by surrounding with impermeable lined berms or cover exposed contaminated material with plastic sheetina. Contaminated soil shall be disposed of properly in accordance with all applicable regulations.

#### GOOD HOUSEKEEPING BMPs NOTES (CONT'D.):

15. Dust Control Note:

- A. The Contractor shall be fully responsible for the measures it will take for the control of fugitive dust from the worksite. The measures may include but are not limited to watering of the site and fill material being placed, and delaying work in the week that prevailing wind direction should shift. The Contractor, at his own expense shall keep the project area and surrounding area free from dust nuisance. The work shall be in conformance with the Air Pollution Standardd contained in the Hawaii Administrative Rules: Chapter 11–60. "Air Pollution Control" Dust shall be kept within acceptable levels at all times, including non-working hours, weekends and holidays in conformance with Title 11, Chapter 60.1-Air Pollution Control, as amended, of the State Dept. of Health, Public Health Regulations. The method of dust control, and all costs incurred therefore shall be the responsibility of the Contractor. The Contractor shall be responsible for all dust damage claims.
- B. Construction activities shall comply w/ provisions of HAR Ch. 11-60-1 "Air Pollution Control" Section 11–60–1–33, fugitive dust. The Contractor shall provide adequate measures to control dust from Road areas and during various phases of construction which shall include, but are not limited to:
  - 1) Plan the different phases of construction, focusing on minimizing the amount of dust generating materials and activities, centralizing on-site vehicular traffic routes, and locating potentially dusty equip. in areas of least impact.
  - 2) Provide adequate water source at the site prior to start up of construction
  - activities 3) Landscape and provide rapid covering of bare areas, including slopes, starting
  - from the initial aradina phase.
  - 4) Minimize dust from shoulders & access roads
  - 5) Provide adequate dust control measures during weekends, after hours, and prior to daily start-up of construction activities.
  - 6) Control dust from debris being hauled away from project site.
- 16. BMP and Site Maintenance. Contractor shall inspect, maintain, and replace, as required, the BMPs for the site throughout the duration of the project.
- 17. Tracking Control. Good housekeeping shall be utilized to ensure protection of roadways from mud dirt and debris.
- 18. Stabilized Construction Entrance and Exit. Provide 3"-6" (min.) coarse aggregate or larger (7" max) 12" thick stabilized construction entrance and exit.

#### RAIN RESPONSE PLAN NOTES:

- 1. The following shall be performed when heavy rain, tropical storm or hurricane is imminent, or is forecasted in the next 48 hours:
- 2. Temporarily suspend active grading and trenching.
- 3. Inspect all perimeter controls and inlet protection devices, and maintain as needed. Reinstall any perimeter controls that were removed due to active work in the area. If a severe storm is expected, remove inlet protection devices to prevent flooding on surrounding streets.
- 4. Cover or relocate material stockpiles and liquid material containers to avoid contact with rainwater.
- 5. Place spill pans or oil-only spill pads under construction vehicles to prevent runoff from contacting any spilled petroleum products. Properly dispose of any accumulated oily water after the rain event. 6. Re-inspect after the approaching heavy rains, tropical storm or hurricane, and replace or maintain
- BMPs as needed.

PRE-CONSTRUCTION, DURING CONSTRUCTION AND POST CONSTRUCTION BMP TABLE

PRE – CONS TRUCTION	DURING CONSTRUCTION	POST CONSTRUCTION
Stabilized construction entrance	Stabilization of steep slopes (>15%) with hydroseeding as soon as grading is completed on those areas.	Permanent stabilization
Temporary silt fencing/filter sock perimeter control for protected areas	Temporary silt fencing/filter sock perimeter control for protected areas	
	Temporary stabilization	

#### EROSION PREVENTION/SEDIMENT CONTROL NOTES:

- 1. The Contractor shall follow the quidelines in the City & County of Honolulu's "Rules Relating to Water Quality"
- 2. Measures to control erosion and other pollutants shall be in place before any earthwork is initiated.
- 3. Slope protection is required on areas with slopes greater than 15% and on areas of moderate slope that are prone to erosion unless they are being actively worked. Use diversion upstream of slope (dikes, swales, slope drains) to divert water around the slope. Provide a 10-ft buffer zone at the toe of slope. Only 5 acres maybe disturbed at anytime on slopes greater than 15%.
- 4. Temporary stabilization is required on disturbed areas which are at final grade or when the disturbed area will not be worked for 14 consecutive days or more.
- 5. Permanent stabilization. All disturbed areas shall be permanently stabilized using vegetative covering, pavement, or equivalent, prior to removing erosion and sediment measures. Trapped sediment and areas of disturbed soil which result from the removal of the temporary measures shall be immediately and permanently stabilized.
- 6. Preserve existing vegetation. Clearly mark the areas to be preserved with flags or temporary fencing. Where temporary fencing is used, fencing shall be adequately supported by posts and maintained in an upright position.
- 7. Minimize soil compaction areas. Where final stabilization or infiltration practices are to be installed, area shall be protected from excessive compaction during construction. Vehicle and equipment use shall be restricted or techniques to condition the soils to support vegetation shall be implemented in the areas that have been compacted and are designated to remain vegetative or post-construction infiltration areas. Clearly mark the areas to be avoided with flags or temporary fencing. Where temporary fencing is used, fencing shall be adequately supported by posts and maintained in an upright position.
- 8. Perimeter controls are required down slope of all disturbed areas. Maintain downstream vegetated buffer area.
- 9. Inlet protection
  - a) All storm drain inlets onsite and those offsite which may receive runoff from the site
- b) Sediment levels may not exceed one third of the height of a sediment barrier or inlet protection device at any point along the length of the sediment barrier or the inlet protection device.
- c) Sediment barriers and inlet protection devices shall be unclogged and cleaned when performance is compromised
- d) Torn, weathered, or sagging, sediment barriers or inlet protection devices shall be repaired or replaced immediately.
- 10 Tracking Control
  - a) Minimize sediment track-out onto offsite streets, other paved areas, and sidewalks from vehicles exiting the construction site by restricting vehicle traffic to properly designated areas and using additional controls to remove sediment from vehicle tires prior to exiting the site.
- b) Vehicular parking and movements on project site shall be confined to paved surfaces of predefined parking areas and vehicle paths, which shall be marked with flags or boundary fencina.
- discharged from a project to offsite streets, other paved areas, sidewalks or the MS4 shall be cleaned using dry methods such as sweeping or vacuuming.
- d) Washing pollutants and materials that are discharged from the project site to the MS4 into drain inlets or catch basins is prohibited unless the material is sediment and the inlets are directed to a sedimen't basin or sediment trap.
- 11. Best Management Practices (BMPs) shall not be removed until final stabilization is complete for that phase.
- 12. Refer to City & County of Honolulu Best Management Practices Manual Construction, for more information on BMPs.
- 13. The owner of the property or their authorized agent must designate a person responsible for implementing the ESCP at the Project Site ("ESCP Coordinator") prior to permit issuance using the form provided as Appendix A to the rules Relating to Water Qualtiy.
- 14. The following BMPs were determined to be not applicable based on the specific site conditions. A brief explanation of why each omitted BMP is unnecessary or impracticable has been provided under separate documentation to DPP. As construction progresses, revisions may be necessary and shall be provided to DPP inspectors. a) Dewatering operations BMPs
- b) Velocity Dissipation Devices
- c) Diversion BMPs to divert runoff from upstream areas around disturbed areas of the site
- d) Buffer Zones
- é) Sediment Basins
- f) Sediment Barriers

15. Contractor shall comply with the project schedule requirements of the City's Rules Relating to Water Quality and is to submit the scheduled start date two weeks prior.

16. This is a Category 5 Project

17. The Contractor shall submit the ESCP Coordinator Designation using the form from Appendix A to the City's Rules Relating to Water Quality at the time of application for the grading permit. 18. See sheet COO1 for Water Body Name, Classification and Coordinate.



2021 -08 Jul

shall use an inlet protection device unless they are directed to a sediment basin.

c) All pollutants and materials that are dropped, washed, tracked, spilled or otherwise

# Figure 11



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SIGNATURE Exp: 4/30/22		JOB 16–029 EPAIR & DRAINAGE ROAD 740 RESERVO PAUOA, OAHU, HA	IMPROVEMENT	-		
LICENSED	EROSION	AND SEDIMENT	CONTROL N	IOTE S		
ENGINEER *	APPROVED:	ND CHIEF ENGINEER, BWS	DATE :	<u> </u>		
MULASIO-C	DRAWN BY:REENGINEER	R:DBCHECKED_BY:DB	FILE NO:			
	FIELD BOOK NO:	SCALE: AS INDICATED	SHEET CO10 OF	. SHEETS		
		FILE	POCKET FOLDER	NO		

# Figure 12 - Archeological Inventory Survey (AIS) Information

#### Submittal Sheet for Historic Preservation Review Filing Fees State Historic Preservation Division Department Land and Natural Resources

Agency/Firm (Requesting Review): Scientific Consultant Services, Inc.

Contact: \_Robert L. Spear

Phone: 808-597-1182 Fax: 808-597-1193 E-mail: bob@scshawaii.com

Address: 1347 Kapiolani Blvd, suite 408, Honolulu HI 96814

Title of Report/Plan: AIS for BWS Proposed Road Repair and Drainage Improvements, Booth Road,

Pauoa Ahupuaa, Kona (Honolulu) District, Island of Oahu, Hawaii [TMK: (1) 2-2-041:001 and 003]

Island:	Oahu	District:	Kona (Honolulu)	Ahupua`a:	Pauoa
TMK [(I)	I-I-001:001]: [T	MK (1) 2	-2-041:001 and 0	03]	
Acreage inventoried (hectares):			0.1	1	new sites inventoried: 3
	aracterize survey ssance or intensiv				

Submitted Plan/Report Fee & Type: (All reports or plans submitted to the SHPD for review shall be accompanied by the appropriate fee in accordance with HAR §13-275-4 and §284-4).

		Check if Report is a Re-Submittal (no fee charged)
	\$50	Archaeological Assessment
	\$150	Archaeological Inventory Survey Plan
Proj. 1525 - A15-1	√ \$450	Archaeological, Architectural or Ethnographic Survey Report
5	\$150	Preservation Plan
	\$25	Monitoring Plan
	\$150	Archaeological Data Recovery Plan
	\$250	Burial Treatment Plan
	\$100	Archaeological Monitoring Report, if resources reported
	\$450	Archaeological Data Recovery Report
	\$450	Ethnographic Documentation Report
	\$25	Burial Disinterment Report
	\$50	Osteological Analysis Report
		<del>-</del>

Fee Total:

\$450

(Make check payable to "Hawaii Historic Preservation Special Fund")

#### For Office Use Only:

Date Received:	Payment Method:	
	Cash	\$
	Check	Check No.:
Log No.:	Receipt Issued:	

SCIENTIFIC CONSULTANT SERV	TCES, Inc.
1347 Kapiolani Blvd. Suite 408 Honolulu, 1	Hawai'i 96814
PH: 808-597-1182	FAX: 808-597-1193
FAX OR TRANSMITTAL ME	EMORANDUM
SHPD - Oahu	Date: 9-08-14
Firm: Gol Kamokila Blud #555	Phone: 692-8015
To: SHPD - Oahu Firm: Gol Kamokula Blud #555 Address: Kapolei HI 96707	Fax: 6912 - 8020
	-
The following is being sent to you:By FaxEn	closedUnder Separate Cover
SCS Report(s)Bil	ling(s)BidOther
Enclosed: Item: SCS Project Number: 1525 - AIS -1 1 [TMK (1) 2-2-041;001 and 003] A1	S for BWS Road Repair Booth Road
I Subnittal Sheet for Historic Preservation	
1 Check for Filing Fees	
<ul> <li>( ) For your files</li> <li>( ) For your signature and return</li> <li>( ) For your client</li> <li>( ) Submitted as a "DRAFT"</li> <li>( ) For review and comment</li> <li>( ) Submitted as a "FINAL"</li> </ul>	<ul> <li>( ) For necessary action</li> <li>( ) As requested</li> <li>( ) As per our conversation</li> </ul>
Comments:	
h	
Mahalo, For SCS: Dr. Alcrander D. Hazlett	tems listed above received by:

Date: \_

Spear / Chaffee / Dega / Pestana / Dagher/ Baker / Tome

#### BOOTH ROAD AIS REVIEW STATUS WITH SHPD (SUBMITTED TO SHPD 9-3-2014)

From: Raymondo Remigio <RREMIGIO@hbws.org>
Sent: Friday, July 9, 2021 10:39 AM
To: Gregory Shiu <GSHIU@hbws.org>
Cc: David Bills <DBills@billsengineering.com>; Michael Domion <MDOMION@hbws.org>
Subject: RE: [External] Booth Road Submittal to SHPD

Greg,

It's on SHPD's document intake log. SHPD Log No. 2014.04314

But it's at the bottom of our Priority List and not likely to be reviewed anytime soon.

Thanks, Ray

From: Gregory Shiu <<u>GSHIU@hbws.org</u>>
Sent: Tuesday, July 6, 2021 11:50 AM
To: Raymondo Remigio <<u>RREMIGIO@hbws.org</u>>
Cc: David Bills <<u>DBills@billsengineering.com</u>>; Michael Domion <<u>MDOMION@hbws.org</u>>; Gregory Shiu
<<u>GSHIU@hbws.org</u>>
Subject: Booth Road Submittal to SHPD

Ray, By the chance do you know if SHPD still reviewing this or not? It was submitted to SHPD back in 2014 by the consultant.

Gregory Shiu, PE Civil Engineer Capital Projects Division Board of Water Supply Ph: (808)748-5751, Fax: (808)550-5065 email: <u>gshiu@hbws.org</u>

SCS Project Number 1525-AIS-1

# AN ARCHAEOLOGICAL INVENTORY SURVEY REPORT FOR THE BOARD OF WATER SUPPLY'S PROPOSED ROAD REPAIR AND DRAINAGE IMPROVEMENTS, BOOTH ROAD, PAUOA VALLEY, O'AHU TMK: (I) 2-2-041:001 AND 003)

Prepared by: Alexander Hazlett, Ph.D., and Robert L. Spear, Ph.D. September 2014 DRAFT

Prepared for: Bills Engineering, Inc. 1124 Fort Street Mall, Suite 200 Honolulu, HI 96813-2715

SCIENTIFIC CONSULTANT SERVICES Inc.

es.

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

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#### ABSTRACT

At the request of Bills Engineering, Inc., Scientific Consultant Services, Inc. (SCS) conducted an Archaeological Inventory Survey for the Board of Water Supply's (BWS) proposed road repair and drainage improvements, Booth Road, Pauoa Valley, O'ahu (TMK: (1) 2-2-041 :001 and 003). The project will include improvements on a 0.1-acre portion of 14.96 acres along Booth Road; improvements to facilitate the expansion of the existing 10 ft. wide gravel easement to 15 ft. wide along Booth Road; improvements to facilitate the expansion of the existing 10 ft. wide gravel easement to 20 ft. wide for drainage improvements at the entrance of the existing BWS outlet structure; construction of two swales along Booth Road (Swale A will be 340 linear ft. long, Swale B will be approximately 140 linear ft. long); construction of a staging area within the boundaries of the property; and installation of a new fence and gate for construction purposes.

At the recommendation of the State Historic Preservation Division (LOG NO: 2013.4414, DOC NO: 1310GC24), this Archaeological Inventory Survey was conducted in advance of the proposed road improvements to facilitate identification and proper treatment of any historic properties that may be discovered during project construction, in accordance with Hawaii Administrative Rules (HAR) §13-276. During the survey three new archaeological sites, State Sites 50-80-14-7681, -7682, and -7683 (SCS Temporary Sites TS-1, TS-2, and TS-3) were identified. Site -7681 (TS-1) consisted of a Historic artifact scatter and two terrace features. Site -7682 (TS-2) consisted of four terrace features. Site -7681 (TS-3) consisted of a single terrace. Based on feature type, construction methods, and construction materials, the terrace features most likely date to the late pre-Contact and/or early Post-Contact period. Except for the historic artifact scatter alongside the road, all features of all three sites were stone-edged terraces which were most likely used for dry-land agriculture.

Recovered cultural material, including glass, metal, and porcelain was collected for laboratory analysis to confirm archaeological origins. Based on this analysis the rubbish scatter, Feature 1 of Site 50-80-14-7681, was determined to date to the early 20<sup>th</sup> Century.

In addition to the pedestrian survey, SCS excavated shovel probes within six of the seven terrace features, (given the proximity of Site -7682 Features 4 and 5, only one shovel probe was excavated for the pair of features), to characterize their construction and to look for buried cultural material. Subsurface testing of the terrace features did not reveal the presence of subsurface features or associated cultural material.

All three new sites have been evaluated for significance, as outlined in HAR §13-275-6, and found to be significant only under Criterion d, for information content. Thus, no further archaeological work is recommended for the three sites.

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#### **INTRODUCTION**

At the request of Bills Engineering, Inc., Scientific Consultant Services, Inc. (SCS) conducted an Archaeological Inventory Survey for the Board of Water Supply's (BWS) proposed road repair and drainage improvements, Booth Road, Pauoa Valley, O'ahu (TMK: (I) 2-2-041 :001 and 003)].

The road repair and drainage improvement project will include improvements on a 0.1acre portion of 14.96 acres along Booth Road; improvements to facilitate the expansion of the existing 10 ft. wide gravel easement to 15 ft. wide along Booth Road; improvements to facilitate the expansion of the existing 10 ft. wide gravel easement to 20 ft. wide for drainage improvements at the entrance of the existing BWS outlet structure; construction of two swales along Booth Road (Swale A will be 340 linear ft. long, Swale B will be approximately 140 linear ft. long); construction of a staging area within the boundaries of the property; and installation of a new fence and gate for construction purposes.

Fieldwork, consisting of a pedestrian survey of the entire project corridor and the manual excavation of six shovel probes, was conducted intermittently from April 16 to May 28, 2014, by SCS archaeologists Guerin Tome, B.A. and Elizabeth Pestana, B.A., under the direction of Robert L. Spear, Ph.D., Principal Investigator. The Archaeological Inventory Survey was performed in order to identify and document archaeological sites; to gather sufficient information on the sites; to evaluate the significance of the sites, and to compile the information in accordance with Hawaii Administrative Rules (HAR) §13-276.

During the survey three new archaeological sites, State Sites 50-80-14-7681, -7682, and -7683 (SCS Temporary Sites TS-1, TS-2, and TS-3) were identified. Site -7681 (TS-1) consisted of a Historic artifact scatter and two terrace features. Site -7682 (TS-2) consisted of four terrace features (a fifth feature was determined to be a modern push pile). Site -7681 (TS-3) consisted of a single terrace. Based on feature type, construction methods, and construction materials, the terrace features most likely date to the late pre-Contact and/or early Post-Contact period.

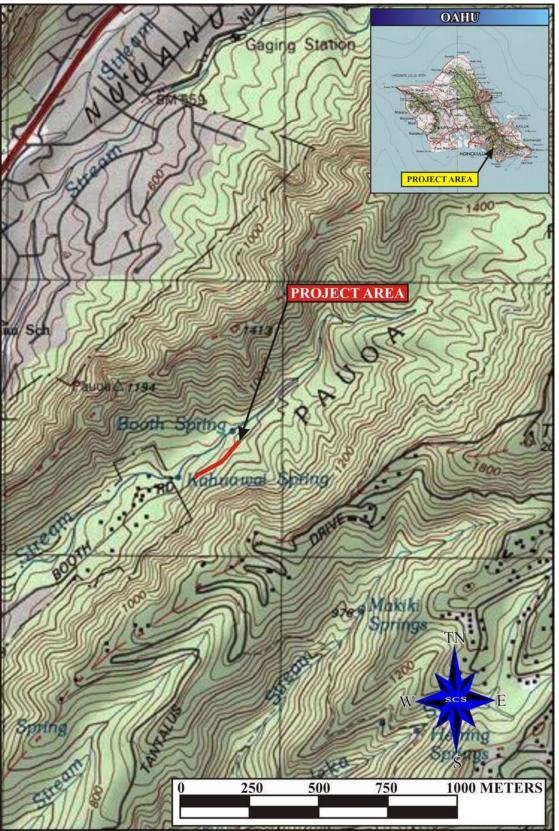


Figure 1: Portion of 1988 USGS Map (Honolulu Quadrangle) Showing Project Area Location.

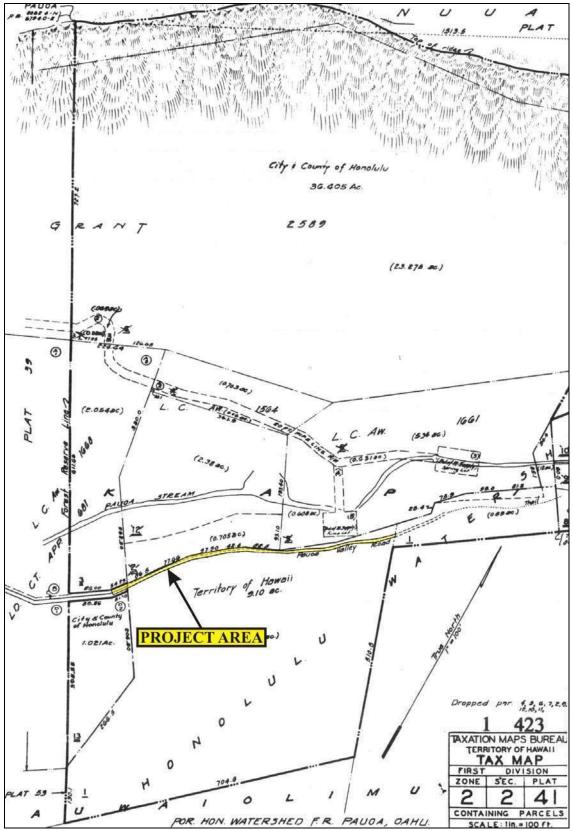


Figure 2: Portion of Tax Map Key [TMK: (1) 2-2-041] Map Showing Project Area Location.

#### **ENVIRONMENTAL SETTING**

The project area lies at an elevation of ca 600 feet (182 meters) AMSL (Above Mean Sea Level) in Pauoa Valley, approximately 2.5 miles northeast of downtown Honolulu. Here, the annual rainfall averages ca 75 inches. Temperatures in the project area can range from 65 degrees Fahrenheit (F), during the winter months, to 85 degrees in the summer (Armstrong 1980: 58). The Tantalus Silt Loam soils of the area are characterized by medium runoff and moderate erosion hazard. This soil series consists of well-drained upland soils on O`ahu Island that developed from volcanic ash and material weathered from cinders (Foote et al. 1972:121).

The topography ranges from moderate to steep slopes with flat inclusions. The project area lies on an east-west slope, the base being the Pauoa Valley Stream. A narrow earthen drainage ditch runs along the northern side of the project area parallel to the gravel-paved segment of Booth Road.

Vegetation in the project area consisted of ferns, Ginger (Zingiber officinale), Rose Apple (Eugenia sp.), Bingabing (Macaranga mappa), and invasive vines in the understory with Monkeypod (Albizia saman), Mango (Mangifera indica), *kukui* (Aleurites moluccana), and Bamboo (Bambusa sp.) thickets as high cover.

# CULTURAL HISTORICAL CONTEXT

The island of O'ahu ranks third in size of the eight main islands in the Hawaiian Archipelago. The Wai'anae and Ko'olau Mountain ranges were formed by two volcanoes. Through the millennia the constant force of water carved fertile amphitheater-headed valleys and rugged passes eroded at lower elevations providing access from one side of the island to another (Macdonald *et al.* 1983:218).

# TRADITIONAL SETTLEMENT PATTERN

Archaeological settlement pattern data suggests that initial colonization and occupation of the Hawaiian Islands first occurred on the windward shoreline areas of the main islands between A. D. 850 and 1100, with populations eventually settling in drier leeward areas during later periods (Kirch 2011:3). Although coastal settlement was dominant, Native Hawaiians began cultivating and living in the upland *kula* (plains) zones. Greater population expansion to inland areas began around the 14<sup>th</sup> century and continued through the 16<sup>th</sup> century. Large scale or

intensive agriculture was implemented in association with habitation, religious, and ceremonial activities.

The Hawaiian economy was based on agricultural production and marine exploitation, as well as raising livestock and collecting wild plants and birds. Extended household groups settled in various *ahupua*'a. During the pre-Contact Period (pre-1778), there were primarily two types of agriculture, wetland and dry land, both of which were dependent upon geography and physiography. River valleys provided ideal conditions for wetland *kalo* (*Colocasia esculenta*) agriculture that incorporated pond fields and irrigation canals. Other cultigens, such as  $k\bar{o}$  (sugar cane, *Saccharum officinaruma*) and *mai*'a (banana, *Musa* sp.), were also grown and, where appropriate, such crops as '*uala* (sweet potato, *Ipomoea batatas*) were cultivated. This was the typical agricultural pattern seen during traditional times on all the Hawaiian Islands (Kirch and Sahlins 1992, Vol. 1:5, 119; Kirch 1985).

The generally accepted paradigm of Hawaiian settlement is that the earliest settlements were located in the wet, windward regions. As population pressure increased or politics changed, populations began to branch out into leeward, less hospitable regions of Hawai`i, adapting their cultivation strategies as they moved into dryer climates (Cordy 2002). Previous archaeological studies have documented long-term Hawaiian settlement of the 'Ewa Plain, beginning around A.D. 1000-1250 and peaking between A.D. 1400 and 1800 (Athens et al. 1999:23; Davis 1990; Davis et al. 1995; Tuggle and Tomonari-Tuggle 1997a:18, 1997b:73-88, Appendices D-F).

#### PAST POLITICAL BOUNDARIES

Traditionally, the division of O'ahu's land into districts (*moku*) and sub-districts (*`ili*) was said to be performed by Mā`ilikukahi, a ruling chief of O`ahu, who was chosen by the chiefs to be the *mō`īho`oponopono o ke aupuni* (administrator of the government; Kamakau 1961). It was Mā`ilikukahi who had the Island of O`ahu thoroughly surveyed, and permanently defined the boundaries between the different divisions and lands (Fornander 1969:89; Kame`eleihiwa 1992:26; Beckwith 1985: 383). Cordy (2002: 23) places Mā`ilikukahi's reign over O`ahu at the beginning of the 16<sup>th</sup> century. Mā`ilikukahi created six districts and six district chiefs (*ali`i`ai moku*). Land was considered the property of the king or *ali`i`ai moku* (chief who rules a *moku*) (Pukui and Elbert 1986: 20), which he held in trust for the gods. The title of *ali`i`ai moku* ensured rights and responsibilities to the land, but did not confer absolute ownership. The king kept the parcels he wanted, his higher chiefs received large parcels from him and, in turn,

distributed smaller parcels to lesser chiefs. The *maka`āinana* (commoners) worked the individual plots of land. It is said that Mā`ilikukahi gave land to *maka`āinana* all over the island of O`ahu.

In general, several terms, such as *moku*, *ahupua*`*a*, `*ili* or `*ili*` *āina* were used to delineate various land sections. A district (*moku*) contained smaller land divisions (*ahupua*`*a*) that customarily continued inland from the ocean and upland into the mountains. Extended household groups living within the *ahupua*`*a* were therefore able to harvest from both the land and the sea. Ideally, this situation allowed each *ahupua*`*a* to be self-sufficient by supplying needed resources from different environmental zones (Lyons 1875:111). The `*ili*`*āina* or `*ili* were smaller land divisions next in importance to the *ahupua*`*a* and were administered by the chief who controlled the *ahupua*`*a* in which it was located (Lyons 1875:33; Lucas 1995:40). The *mo*`*o*`*āina* were narrow strips of land within an `*ili*. The land holding of a tenant or *hoa*`*āina* residing in an *ahupua*`*a* was called a *kuleana* (Lucas 1995:61).

## LEGENDS AND MYTHS

Pauoa is noted in legends as "the pit of excrement" for the menehune, who lived on Puowaina (Punchbowl Crater). Puowaina, the contracted form of Pu'u o waiho ana, means "the hill of offering," which was utilized for human sacrifice.

Formerly there was an imu ahi, a fire oven for burning men on this hill. Chiefs and common people were burned as sacrifices in that noted place. Men were brought for sacrifice from Kauai, Oahu, and Maui, but not from Hawaii. People could be burned in this place for violating the tabus of the divine chiefs (McAllister 1933:82).

Puowaina, means "the hill of offering" or sacrifice, puu o waiho ana, an antique form. The bodies of those slain for breaking tabu were laid down on the alter-like ledge at the top and burned, the crack below giving a good draught of air (sterling and Summers 1978:291).

Pauoa is noted in legends as being the home of Kapoi, a poor man who showed kindness to an owl by not eating her eggs. In return for this kindness the owl became Kapoi's god and commanded him to build a heiau in Manoa. When Kapoi did so he broke a kapu of king Kakuhihewa, who imprisoned Kapoi and sentenced him to death. With the aid of owls from all the islands, Kapoi's owl-god attacked the men of Kakuhihewa and Kapoi was set free (Westervelt 1964:132-137).

Pauoa is also mentioned in the legend as the place where the menehune built a heiau for Kahanaiakeakua, (The adopted child of the gods) (Westervelt 1964:91).

# HEIAU

Three heiau were recorded by Thrum as previously existing in Pauoa. These were:

Manua ..... Punchbowl, about rear of Queen 's Hospital: of husbandry class; actual site of same now lost.

Hale-wa ... Little Greenwich, Pauoa--Heiau pookanaka, of round construction: about 150 feet diam. Destroyed before Lord George Paulet's time, 1843.

Kahuoi ... Pacific Heights--Of husbandry class. Destroyed about 1850: foundations said to be yet traceable (Thrum 1907:45).

# HISTORIC LAND USE

According to historic accounts, Pauoa Valley had long been utilized for the cultivation of taro and sweet potato:

The flatland in the bottom of Pauoa Valley above Punchbowl was completely developed in terraces. About half of the old terrace area is now covered by streets and school and dwelling houses. Of the upper portion a considerable area is still under cultivation (Handy 1940:78).

Pauoa is a small valley between the ridge that borders Nuuanu on the east (Pacific Heights) and the mountain (Tantalus) behind Makiki. This little valley had its streams, and the entire flatland in and below the valley was terraced for wet taro (Handy 1972:478).

Down Pauoa Valley dashes a stream of beautiful clear water. This passes along the eastern edge of a small extinct crater known as Punchbowl Hill, whose ancient name was Puu-o-wai-na. The water from this stream was easily diverted into choice taro patch land (Westervelt 1964:133).

Uluhaimalama, Queen Liliuokalani's Royal Flower Garden, was planted in Pauoa Valley

in 1891:

This flower garden is up in Pauoa, above the stream, below the Chinese cemetery and in front of J. Mana's residence but a little way above it. This land belongs to the ruler herself (Sterling and Summers 1978:292).

### LAND COMMISSION AWARDS

Fourteen Land Commission Awards (LCAs) were granted at Pauoa. Three of these LCAs were granted in the vicinity of the project area; LCAs 1564 and 1661, located northwest of the project area, and 1668, located to the west of the project area.

L.C.A. No.	Awardee	Acreage	Land Use
1564	Keawe	3.56 acres	dryland taro cultuvation
1661	Waiwaiole	3.90 acres	dryland taro cultivation
1668	Makaau	6.17 acres	dryland taro cultuvation

 Table 1. Land Commission Awards in the Vicinity of the Project Area

In the 20<sup>th</sup> century this portion of Pauoa Valley was utilized by Portuguese, Japanese, and Chinese families for ranching, truck farming, fruit orchards, and flower nursery (Sinoto and Pantaleo 1992:33).

# PREVIOUS ARCHAEOLOGY

Much of Pauoa Valley was developed prior to the creation of regulatory requirements for systematic archaeological surveys. Very few archaeological studies have been conducted in Pauoa Valley, and even fewer in the vicinity of the current project area. Studies in the vicinity of the project area described below.

In March 1991, Bishop Museum conducted a surface assessment of a parcel located approximately 0.14 miles southwest of the current project area, straddling Pauoa Stream, which identified roughly eight agricultural terraces within the western half of their study area (this assessment was mentioned briefly in Sinoto and Pantaleo 1992). Subsequently, Aki Sinoto Consulting (ASC) conducted an archaeological inventory survey of the same parcel for the proposed Laniolu Senior Housing and Care Facility project (Sinoto and Pantaleo 1992). Twenty-two features, consisting of twenty discrete features and two modified areas, designated State Site 50-80-14-4490, Features 1 through 22, were located on the southern bank of the stream during the 1992 survey. A second complex of features, not formally surveyed (because the northern bank was not slated to be developed), on the northern bank of the stream was designated as Site 50-80-14-4491.

The ASC report gives only the briefest of descriptions of Site 50-80-14-4491;

The extant terraces of Site 4491 were generally smaller in area and lower in height. The retaining walls, however, were sturdilyconstructed with medium to large boulders of fairly uniform shape. The relative placement, size, and style of construction indicate these features to be pondfields. No recent historic modifications or modern materials, such as cement or lead pipe, were evident in the construction. Preliminary evidence indicated that the remains on the northern bank pre-date those of the project area (Sinoto and Pantaleo 1992:34).

In 2013, Aki Sinoto Consulting (ASC) conducted an archaeological inventory survey in conjunction with planning for the proposed Pauoa Valley Preserve residential development (Sinoto et al. 2013). The project included 4.30 acres on the northern bank and 8.345 acres on the southern bank of Pauoa Stream (the southern parcel was previously documented in Sinoto and Pantaleo 1993). In April 2013, a surface survey was conducted on an additional 0.68 acres adjoining the original southwest terminus on the northern side of the stream. The total area of the Pauoa Valley Preserve project area consisted of 12.645 acres. The purpose of the archaeological inventory survey was (1) to complete documentation of the extant surface remains within Site 50-80-14-4491, on the northern bank of Pauoa Stream, and (2) to reconsider and revise the recommendations previously made for features within Site 50-80-14-4490 on the southern bank of Pauoa Stream, in light of revised construction plans for the south bank parcel. ASC documented 11 feature complexes comprised of 54 discrete features within Site 50-80-14-4491. These features consisted of a terrace platform, an enclosure, agricultural terraces, a large boundary wall that extended the length of the property and continued beyond the project boundaries, and one anomalous feature, a WWII-era bomb shelter, carved into the base of a large outcrop ledge in a low-lying area near a waterfall. Based on the survey findings and on archival and historical research, Site 4491 was largely abandoned by the late 1800s or early 1900s. ASC recommended all 11 features of Site -4491be preserved in situ; for Site 4490 [recorded in the original AIS (Sinoto and Pantaleo 1993)], they recommended preservation in situ for 15 of the 22 features and that portions of another 5 should be passively preserved to the extent possible within the proposed house lots; 2 features would not be preserved (Sinoto et al. 2013:36).

#### PAUOA VALLEY SETTLEMENT PATTERN

Based on historical accounts as well as the results of previous archaeology (Sinoto and Pantaleo 1992), Pauoa Valley was a locus of agricultural activity in the pre-Contact period, with taro fields along the streams and spread across the flat portion of the valley. This agricultural activity continued after Western contact; fourteen Land Commission Awards (LCAs) were

granted in Pauoa Valley. Three of these LCAs were granted in the vicinity of the project area; all three of the LCAs were for dry-land taro fields. Although urban Honolulu eventually expanded into the lower portion of Pauoa Valley in the late 19<sup>th</sup> century, the upper portion of Pauoa Valley (in the vicinity of the project area) continued to be used primarily for ranching, truck farming, fruit orchards, and flower nursery until the 1970s (Sinoto and Pantaleo 1992:33).

# EXPECTED FINDINGS WITHIN THE SURVEY AREA

According to LCA documents (See Table 1), three dry-land taro plots were being cultivated during the 1850's in the vicinity of the project area. Evidence of prehistoric agricultural activities may be identified as well as historic period modifications and continued agricultural development into recent periods. Based on the previous archaeological studies southwest of the project area, expected findings would include Traditional Hawaiian agricultural complexes and features, as well as historic structures and features associated with agriculture or ranching.

#### FIELD METHODS

## FIELD METHODOLOGY

Multiple field tasks were completed during the current Archaeological Inventory Survey. Fieldwork was conducted intermittently from April 16 to May 28, 2014, by SCS archaeologists Guerin Tome, B.A. and Elizabeth Pestana, B.A., under the direction of Robert L. Spear, Ph.D., Principal Investigator. A pedestrian survey of 100% of the project corridor was conducted with transects spaced five meters (16.4 feet) apart, as ground visibility was moderate. Once surface archaeological features were identified, they were marked with biodegradable flagging tape, and the survey results were compiled on standard graphing paper as well as with digital photography. Based on spatial context (*i.e.*, proximity) surface architectural features were consolidated into sites. Each site was given an SCS temporary site designation (e.g., TS-1) and plotted on a United States Geological Survey (USGS) map with a handheld Garmin GPSMap 60CSx global positioning system (GPS) unit. The datum and coordinate system used for the GPS unit was NAD83 and UTM (Universal Transverse Mercator). True north compass orientation was also employed. All measurements were recorded in metric units. Individual sites were also documented in plan-view drawings. Site boundaries were primarily determined by spatial distance between surface feature clusters.

Limited excavation was conducted during the current Archaeological Inventory Survey; SCS excavated shovel probes in proximity to six features (Site TS-1 Features 2 and 3, Site TS-2 Features 1, 2, and 4, and Site TS-3 Feature 1) to characterize their construction and identify subsurface cultural deposits if present. All excavated materials were visually inspected for the presence of cultural materials. Equipment utilized to perform these excavations included shovel, trowel, pick ax, and whisk broom. Soil matrices were recorded using United States Department of Agriculture (USDA) Munsell (2000) soil color descriptions.

#### LABORATORY METHODOLOGY

All field notes and digital photographs were curated at the SCS laboratory, Honolulu. Representative plan view sketches showing location and morphology of identified sites/features/deposits were illustrated. All samples collected during the project have undergone analysis at the SCS laboratory in Honolulu. All data were clearly recorded on standard laboratory forms.

#### ARCHAEOLOGICAL INVENTORY SURVEY RESULTS

The current Archaeological Inventory Survey was conducted in an approximately 250meter-long corridor along Booth Road. During the survey three new archaeological sites, SCS Temporary Site TS-1 through TS-3, which were designated State Sites 50-80-14-7681, -7682, and -7683, were identified.

State Site 50-80-14-7681 (TS-1) consisted of a Historic artifact scatter and two terrace features (Figure 3). Site -7682 (TS-2) consisted of four terrace features, and Site -7683 (TS-3) consisted of a single terrace (Figure 4). Based on feature type, construction methods, and construction materials, the terrace features most likely date to the late pre-Contact and/or early Post-Contact period.

## SITE DESCRIPTIONS

#### STATE SITE 50-80-14-7681 (TEMPORARY SITE TS-1)

State Site 50-80-14-7681 (TS-1) comprised three surface features; one historic artifact scatter (Feature 1) a habitation or soil retention terrace (Features 2), and a soil retention terrace (Feature 3). Overall, TS-1 measured 244.0 meters (m) long by 8.0 m. Based on the presence of historic material at all three features, the site was interpreted as a Historic complex.

Although State Site 50-80-14-7681 (TS-1) exhibited the effects of weathering and several features had been damaged, it remained in good condition overall. Site -76811 was evaluated for significance, as outlined in Hawai'i Administrative Rules §13-275-6, and found to be significant under Criterion d, for information content, only.

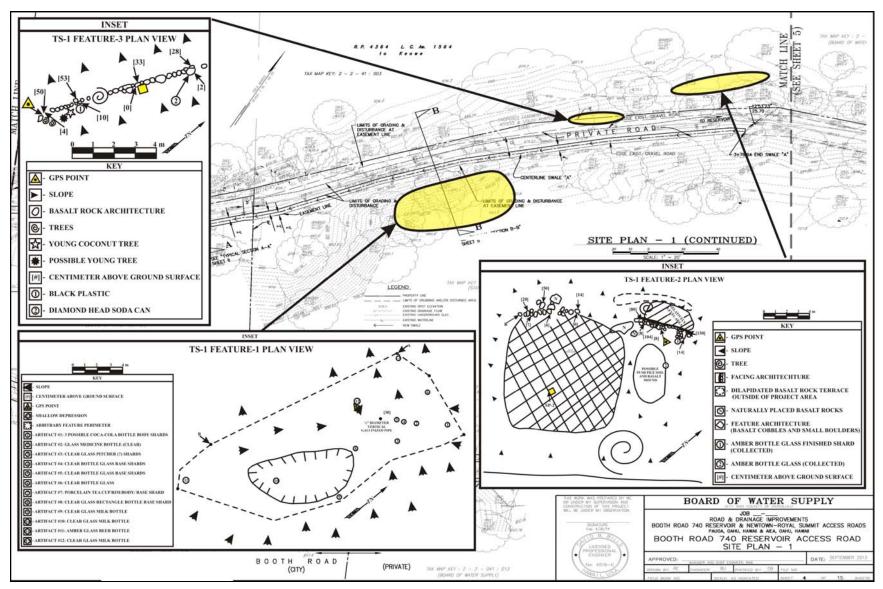


Figure 3: Client-Provided Plan Map Showing the Location of Site -7681 (TS-1) Features in Relation to the Project Corridor.

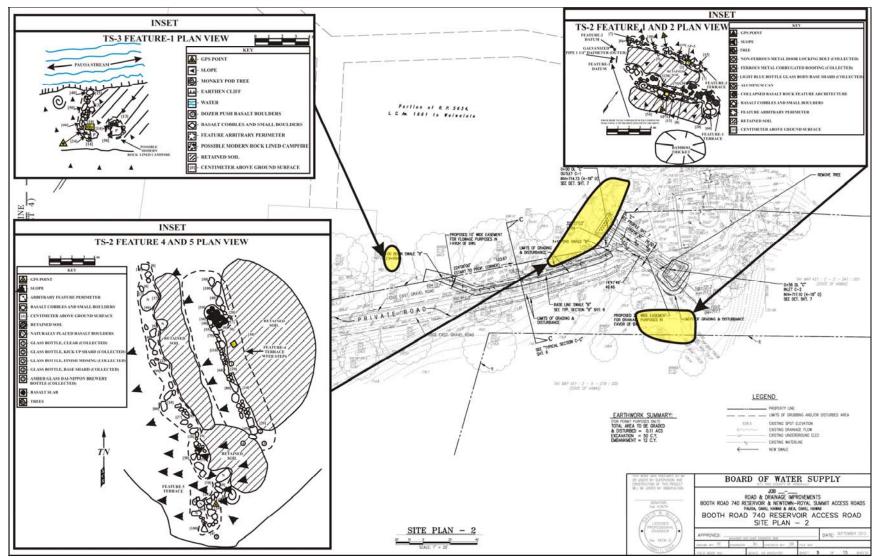


Figure 4: Client-Provided Plan Map Showing the Location of Sites -7682 (TS-2) and -7683 (TS-3) Features in Relation to the Project Corridor.

#### State Site 50-80-14-7681 (TS-1), Feature 1

State Site 50-80-14-7681 (TS-1), Feature 1 consisted of a historic artifact scatter, which measured approximately 23 m long (NE-SW) and approximately 10 m wide (NW-SE), consisting of historic glass bottles, glass sherds, and a single porcelain sherd. Based on construction material and styles, all artifacts were determined to date to the first half of the 20th Century.

#### State Site 50-80-14-7681 (TS-1), Feature 2

State Site 50-80-14-7681 (TS-1), Feature 2 consisted of a curvilinear terrace, approximately 12 m long and 0.4 to 1.0 m wide (Figure 6). Erosion had breached the center of the terrace, but both ends remained in fair condition. The northeast portion of the terrace consisted of one to five dry-laid, stacked and faced courses of basalt cobbles and boulders, 0.8 to 1.3 m high, incorporating larger, naturally-placed boulders (Figure 7). The southwest portion of the terrace consisted of one to two courses of dry-laid basalt cobbles and boulders, 0.14 to 0.5 m tall (Figure 8). One amber glass bottle and amber glass sherds were collected from the surface of sediments retained behind the northeast terrace. A low mound of soil and basalt, approximately 4 m long by 2.5 m wide, was located 2.0 m upslope from the northeastern portion of the terrace; based on the mix of sediment and cobbles this mound was determined to be a push pile associated with the construction or repair of Booth Road. Although erosion had breached the central portion of Feature 2, the feature remained in fair condition.

## State Site 50-80-14-7681 (TS-1), Feature 3

State Site 50-80-14-7681 (TS-1), Feature 3 consisted of a linear terrace, approximately 8 m long and 0.4 to 1.0 m wide, constructed of one to four courses of stacked, dry-laid basalt cobbles and boulders, 0.28 to 0.53 cm tall. Fragments of black plastic and a single aluminum "Diamond Head Soda" can were observed on the surface of the sediment retained by the terrace. TS-1 Feature 3 remained in good condition.

#### STATE SITE 50-80-14-7682 (TEMPORARY SITE TS-2)

State Site 50-80-14-7682 (TS-2) comprised four terrace features (Features 1 through 4). Overall, State Site 50-80-14-7682 (TS-2) measured 105.0 meters (m) long by 65.0 m wide. Based on feature type and construction materials, the site was interpreted as an agricultural complex.

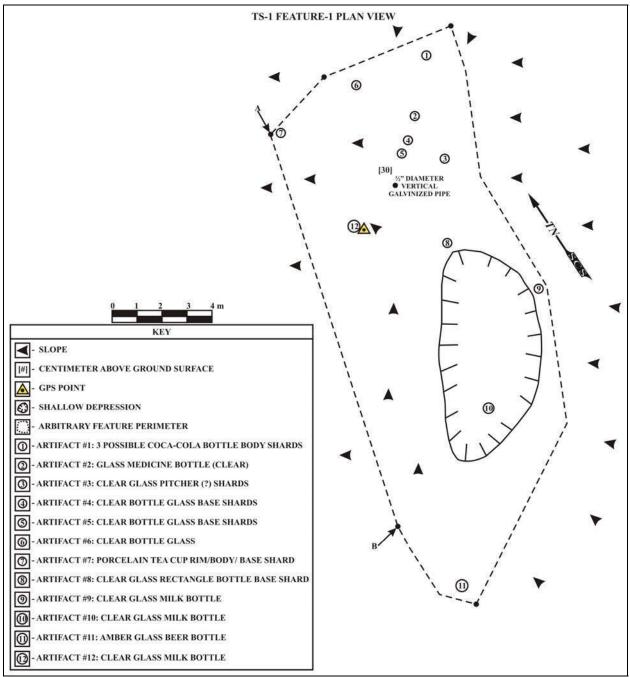


Figure 5. Plan View Map Showing the Distribution of Artifacts Across Site -7681 (TS-1) Feature 1 Historic Artifact Scatter.

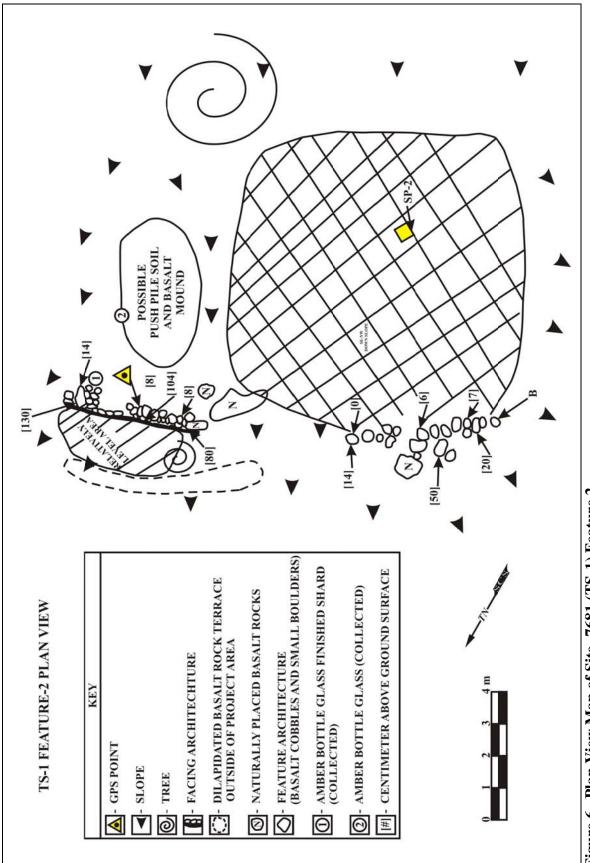


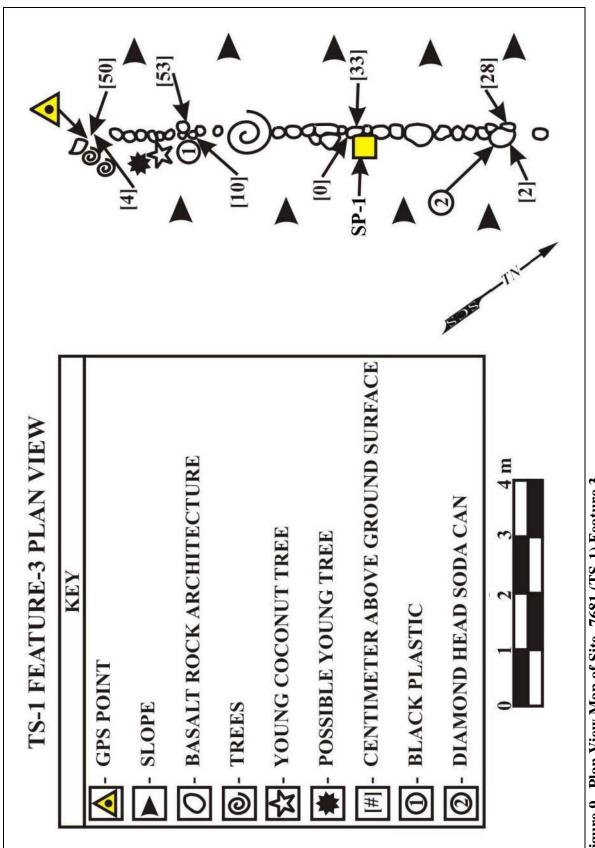




Figure 7: Photograph of the Northeast Portion of State Site -7681 (TS-1) Feature 2 Terrace, Looking Southwest.



Figure 8: Photograph of the Southwest Portion of State Site -7681 (TS-1) Feature 2 Terrace, Looking West.



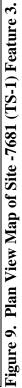




Figure 10: Photograph of State Site 50-80-14-7681 (TS-1) Feature 3 Terrace, Looking South.

#### State Site 50-80-14-7682 (TS-2), Feature 1

State Site 50-80-14-7682 (TS-2), Feature 1 consisted of a linear terrace, approximately 9 m long and 0.8 m wide, constructed of one to five courses of stacked, dry-laid basalt cobbles, 0.2 to 1.2 m tall. One light blue bottle glass sherd and one aluminum can were collected from the surface of Feature 1. Although some portions of the feature have collapsed due to erosion and weathering and a short section of the feature has been overgrown by a Bingabing (Macaranga mappa) tree, TS-2 Feature 1 remained in fair condition.

#### State Site 50-80-14-7682 (TS-2), Feature 2

State Site 50-80-14-7682 (TS-2), Feature 2 consisted of a linear terrace, approximately 7 m long and 0.6 m wide, constructed of one to two courses of stacked, basalt cobbles, 0.07 to 0.18 m tall. One non-ferrous metal artifact (a sliding bolt such as would be used to secure a door) and a fragment of ferrous metal corrugated roofing material were collected from the surface of the feature. Feature 2 exhibited the effects of weathering; the feature remained in fair condition.

# Feature 3

The feature originally designated as Feature 3 was determined to be a modern boulder push most likely associated with the construction of the Booth Road water tank.

# State Site 50-80-14-7682 (TS-2), Feature 4

State Site 50-80-14-7682 (TS-2), Feature 4 consisted of a large soil retention terrace; the stone face of the terrace was split between northern and southern portions by a five-tier stairway a 5-tier stairway (Figure). The northern segment of the terrace facing was constructed of piled and dry-laid basalt cobbles and small to medium boulders, approximately 4.0 m long and 0.3 to 1.0 m wide. A five-tiered stairway constructed of basalt cobbles and slabs rises parallel to the front of the terrace, approximately 1.2 m wide and 2.4m long. The southern segment of the terrace facing was constructed of stacked, dry-laid basalt cobbles and small to medium boulders, approximately 11.0 m long and 0.3 to 1.0 m wide. Two glass bottles and one glass sherd were collected from the surface of the feature. Although Feature 4 exhibited the effects of weathering, the feature remained in good condition.

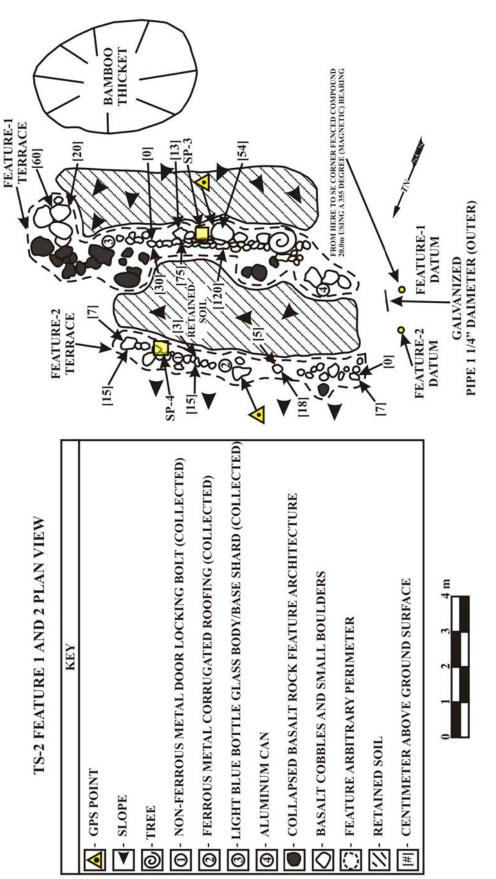


Figure 11. Plan View Map of Site 50-80-14-7682 (TS-2) Features 1 and 2.



Figure 12: Photograph of State Site 50-80-14-7682 (TS-2) Feature 1 Terrace, Looking East



Figure 13: Photograph of State Site 50-80-14-7682 (TS-2) Feature 2 Terrace, Looking East.

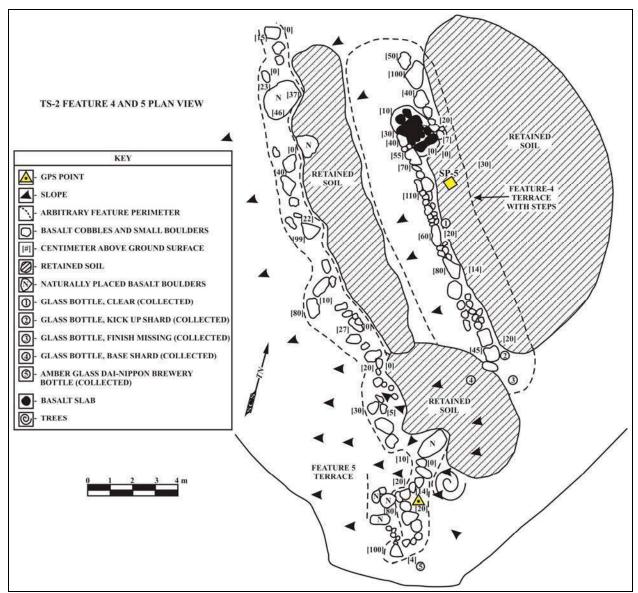


Figure 14. Plan View Map of Site 50-80-14-7682 (TS-2) Features 4 and 5.



Figure 15: Photograph of State Site 50-80-14-7682 (TS-2) Feature 4 Terrace, Looking East.

#### State Site 50-80-14-7682 (TS-2), Feature 5

State Site 50-80-14-7682 (TS-2), Feature 5 consisted of a curvilinear terrace, approximately 9.0 m long and 2.0 m wide, constructed of one course of basalt cobbles and small boulders. One amber glass "Dai Nippon" beer bottle was collected from the surface of the feature. Although the center of Feature 5 had been damaged by erosion and weathering, the feature remained in fair condition.

#### STATE SITE 50-80-14-7683 (TEMPORARY SITE TS-3)

State Site 50-80-14-7683 (TS-3) consisted of one terrace feature (Feature 1). Overall, State Site 50-80-14-7683 (TS-3) measured approximately 4.0 m long and 0.5 to 0.8 m wide. Based on feature type and construction materials, the site was interpreted as an agricultural or soil retention terrace.

## State Site 50-80-14-7683 (TS-3), Feature 1

State Site 50-80-14-7683 (TS-3), Feature 1 consisted of a linear soil-retention terrace, approximately 4.0 m long and 0.5 to 0.8 m wide, constructed of one to three courses of stacked, dry-laid basalt cobbles and small boulders, 0.24 to 0.5 m high. A possibly modern basalt-cobble-lined campfire was located on the retained soil, approximately 1.5 m from the stone edge of the terrace. Two basalt boulders had been pushed downslope onto the terrace, most likely during the construction of the gravel road located approximately 1.0 m east of the terrace. Although Feature 1 exhibited the effects of weathering, and modern alteration by boulder push and the construction of a stone-lined campfire, the feature remained in good condition.

#### SHOVEL TEST PITS

In addition to the pedestrian survey, SCS excavated shovel probes within six of the seven terrace features, (given the proximity of Site -7682 (TS-2) Feature 4 to Site -7682 (TS-2) Feature 5, only one shovel probe was excavated for the pair of features), to characterize their construction and to look for buried cultural material. All cultural material identified during six shovel probes was collected for laboratory analysis to confirm archaeological origins.



Figure 16: Photograph of State Site 50-80-12-7572 (TS-2) Feature 5 Terrace, Looking North.

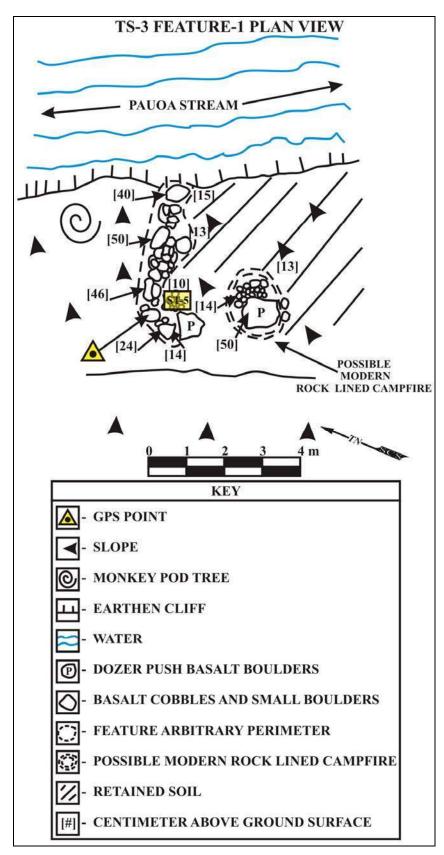


Figure 17. Plan View Map of Site 50-80-14-7683 (TS-3) Feature 1.



Figure 18: Photograph of State Site 50-80-14-7683 (TS-3) Feature 1 Terrace, Looking North.

## SHOVEL PROBE 1 (SP-1)

Shovel Probe 1 (SP-1) (0.4 m diameter by 0.12-0.24 m deep) was placed just behind the stone edge of the Site -7681 (TS-1) Feature 3 terrace (see Figure 8). Two pieces of basalt gravel were collected from the surface of SP-1. Shovel Probe 1 contained two stratigraphic layers which are described below (Figure 19, Figure 20).

## Layer I

Layer I (0 to 6 cmbs) consisted of semi-loose black (7.5YR 2.5/1, moist) loamy clayey silt with vertical short tree roots and shrub roots. One piece of basalt gravel and one non-diagnostic olive green glass bottle sherd were collected from Layer I. As the lower boundary was diffuse, Layer I was interpreted as a natural stratum.

# Layer II

Layer II (6 to 54 cmbs) consisted of semi-loose very dark brown (7.5YR 2.5/2, moist) clayey silt with vertical tree roots and shrub roots. A few angular and sub-rounded basalt cobbles were observed and interpreted as colluvium given that soil was found around each of them. The feature architecture was visible, on the northwest side of the pit, in Layer II but terminated approximately 10 cm above the termination of Layer II. A single naturally-place basalt cobble located below but touching the feature architecture was interpreted as colluvium it was surrounded by undisturbed soil. Layer II was interpreted as a natural stratum affected by colluvium.

# SHOVEL PROBE 2 (SP-2)

Shovel Probe 2 (SP-2) (0.4 m diameter by 0.12-0.24 m deep) was placed approximately 6 m behind the stone edge of Site 7681 (TS-1) Feature 2, in the flat retained soil of the terrace (see Figure 5). SP- 2 contained two stratigraphic layers which are described below (Figure 21, Figure 22).

#### Layer I

Layer I (0 to 4 cmbs) consisted of semi-loose black (10YR 2/1, moist) loamy clayey silt with short vegetation roots. No cultural material was identified in Layer I. As the lower boundary was diffuse, Layer I was interpreted as a natural stratum.

#### Layer II

Layer II (4 to 24 cmbs) consisted of semi-loose very dark brown (7.5YR 2.5/2, moist) loamy clayey silt with tree roots and saprolitic boulders. Layer II was interpreted as a natural stratum because of the diffuse boundary between Layer I and Layer II and because of the presence of saprolitic boulders in situ.



Figure 19: Photo of Shovel Probe 1 (SP-1) Excavation. View to Southeast.

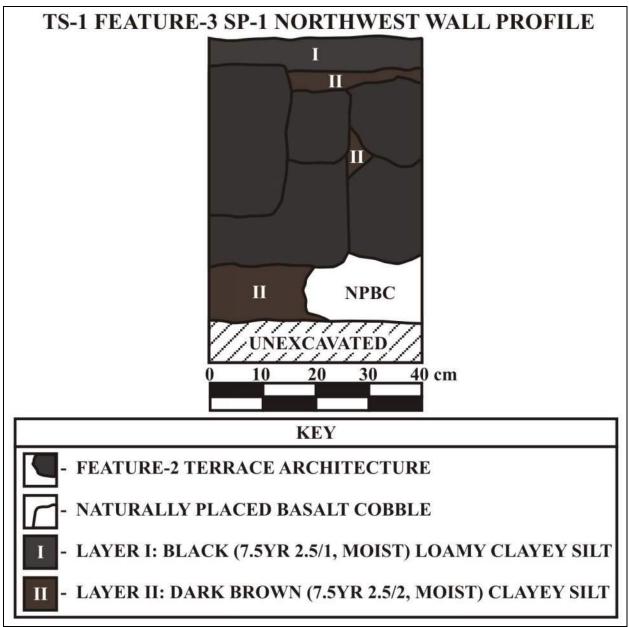


Figure 20: Stratigraphic Profile of Shovel Probe 1 (SP-1), Northwest Wall.



Figure 21: Photo of Shovel Probe 2 (SP-2) Excavation, View to Northeast.

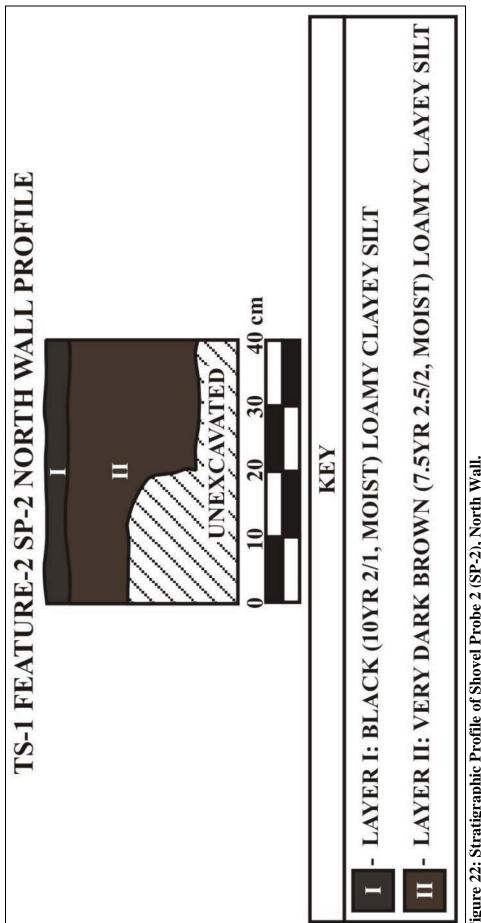


Figure 22: Stratigraphic Profile of Shovel Probe 2 (SP-2), North Wall.

#### SHOVEL PROBE 3 (SP-3)

Shovel Probe 3 (SP-3) (0.5 m diameter by 0.42 m deep) was placed just behind the stone edge of the Site -7682 (TS-2) Feature 1 terrace (see Figure 10). Two pieces of basalt gravel were collected from the surface of SP-1. Shovel Probe 3 contained two stratigraphic layers which are described below (Figure 23, Figure 24).

#### Layer I

Layer I (0 to 4 cmbs) consisted of semi-loose black (10YR 2/1, moist) loamy clayey silt with shrub roots and a few sub-rounded basalt cobbles and pebbles. A whiteware sherd was collected from Layer I. The terrace architecture was visible in Layer I on the northwest face of the pit. As the lower boundary was diffuse, Layer I was interpreted as a natural stratum.

#### Layer II

Layer II (4 to 42 cmbs) consisted of semi-loose dark brown (7.5YR3/2, moist) clayey silt with shrub roots and sub-angular and sub-rounded basalt cobbles and pebbles (basalt cobbles and pebbles made up approximately 20% of Layer II's excavated matrix). Charcoal, an olive green bottle glass flake, a clay pipe stem fragment, and a porcelain sherd were collected from the top 10cmof Layer II, no cultural material was identified deeper than 10cm into Layer II. The terrace architecture was visible in Layer II on the northwest face of the pit Layer II was interpreted as a natural colluvium stratum containing historic period cultural material in its upper stratum.

Based on the presence of cultural material in Layers I and II, TS-2 Feature I was constructed during the latter formation of the natural Layer II stratum. Whoever constructed the terrace stayed until Layer I was created, and left during the creation of Layer I.

#### SHOVEL PROBE 4 (SP-4)

Shovel Probe 4 (SP-4) (0.5 m diameter by 0.31 m deep) was placed just behind the stone edge of the Site -7682 (TS-2) Feature 2 terrace (see Figure 10). Shovel Probe 4 contained two stratigraphic layers which are described below (Figure 25, Figure 26).

#### Layer I

Layer I (0 to 4 cmbs) consisted of semi-loose black (10YR 2/1, moist) loamy clayey silt with shrub roots and a few sub-rounded basalt cobbles and pebbles. Corroded ferrous metal corrugated roofing was collected from Layer I. The terrace architecture was visible in Layer I on the northwest face of the pit. As the lower boundary was diffuse, Layer I was interpreted as a natural stratum.



Figure 23: Photo of Shovel Probe 3 (SP-3) Excavation. View to Northwest.

# **TS-2 FEATURE-1 SP-3 NORTHWEST WALL PROFILE**

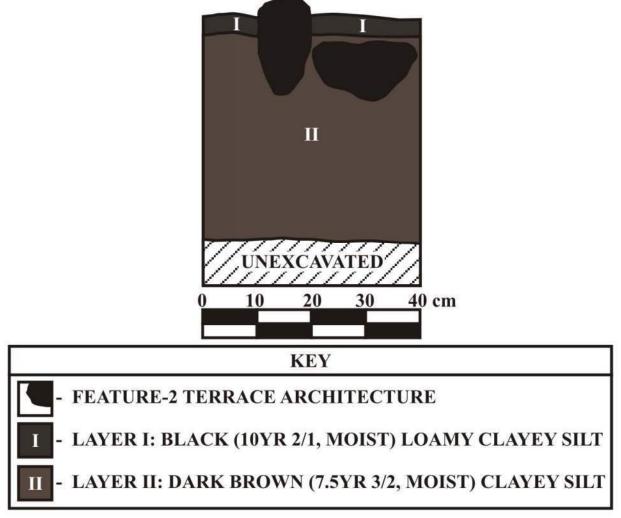


Figure 24: Stratigraphic Profile of Shovel Probe 3 (SP-3), Northwest Wall.



Figure 25: Photo of Shovel Probe 4 (SP-4) Stratigraphy, Northeast Wall.

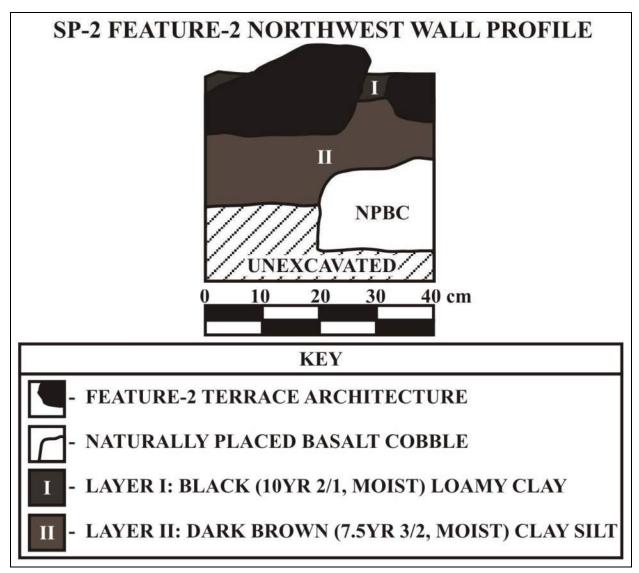


Figure 26: Stratigraphic Profile of Shovel Probe 4 (SP-4), Northwest Wall.

#### Layer II

Layer II (4 to 31 cmbs) consisted of semi-loose dark brown (7.5YR3/2, moist) clayey silt with shrub roots and sub-angular and sub-rounded basalt cobbles and pebbles. No cultural material was identified in Layer II. Basalt cobbles that were surrounded by soil were interpreted as colluvium, cobbles touching each other were distinguished as feature architecture. The terrace architecture was constrained to the upper portion of Layer II. Layer II was interpreted as a natural colluvium stratum.

Based on the presence of cultural material in Layer I, TS-2 Feature 2 was constructed during the latter formation of the natural Layer II stratum. Once occupation of the area commenced the formation of Layer II terminated and Layer I formation commenced.

#### SHOVEL PROBE 5 (SP-5)

Shovel Probe 5 (SP-5) (0.5 m diameter by 0.48 m deep) was placed just behind the stone edge of the Site -7682 (TS-2) Feature 4 terrace, in the flat retained soil of the terrace (see Figure 13). Shovel Probe 4 contained two stratigraphic layers which are described below (Figure 27, Figure 28).

#### Layer I

Layer I (0 to 4 cmbs) consisted of semi-loose black (10YR2/1, moist) loamy clayey silt with shrub and tall tree roots. No cultural material was identified in Layer I. As the lower boundary was diffuse, Layer I was interpreted as a natural stratum.

#### Layer II

Layer II (4 to 48 cmbs) consisted of semi-loose very dark brown (7.5YR2.5/2, moist) loamy clayey soil with a few sub-rounded basalt pebbles, a basalt boulder, and several tall tree roots. No cultural material was identified in Layer II. Due to the diffuse boundary with Layer I, and the presence of random sub-rounded basalt pebbles and one basalt boulder, Layer II was interpreted as a natural stratum.

#### SHOVEL PROBE 6 (SP-6)

Shovel Probe 6 (SP-6) (0.5 m diameter by 0.30 m deep) was placed just behind the stone edge of the Site -7683 (TS-3) Feature 1 terrace (See Figure 16). Shovel Probe 6 contained two stratigraphic layers which are described below (Figure 29, Figure 30).

#### Layer I

Layer I (0 to 5 cmbs) consisted of semi-loose black 10YR 2/1, moist) loamy clayey silt with a few short tree roots and a few sub-rounded basalt cobbles. Basalt construction gravel and a chunk of asphalt were present on the surface of Layer I, most likely washed down from the Board of water Supply (BWS) gravel access road. As the lower boundary was diffuse, Layer I was interpreted as a natural stratum.



Figure 27: Photo of Shovel Probe 5 (SP-5) Excavation. View to North.

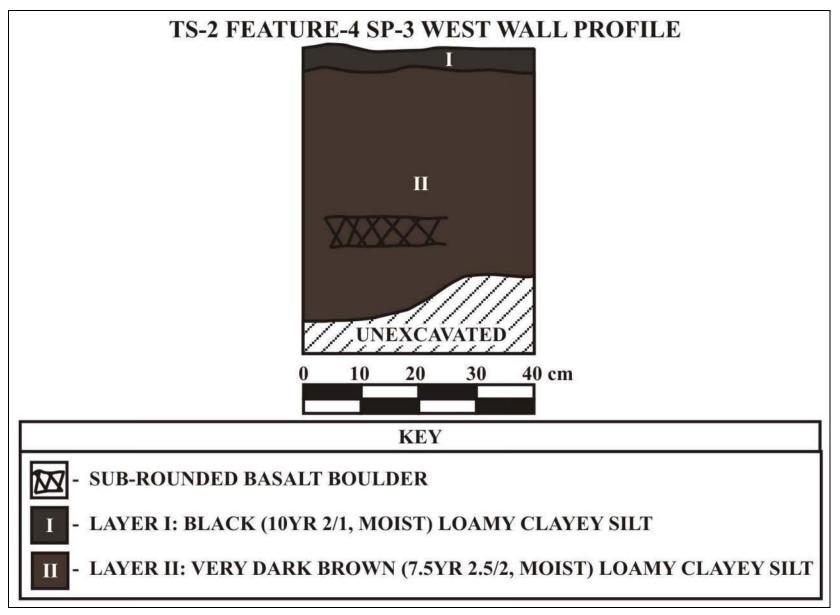


Figure 28: Stratigraphic Profile of Shovel Probe 5 (SP-5), East Wall.



Figure 29: Photo of Shovel Probe 6 (SP-6) Excavation. View to Southeast.

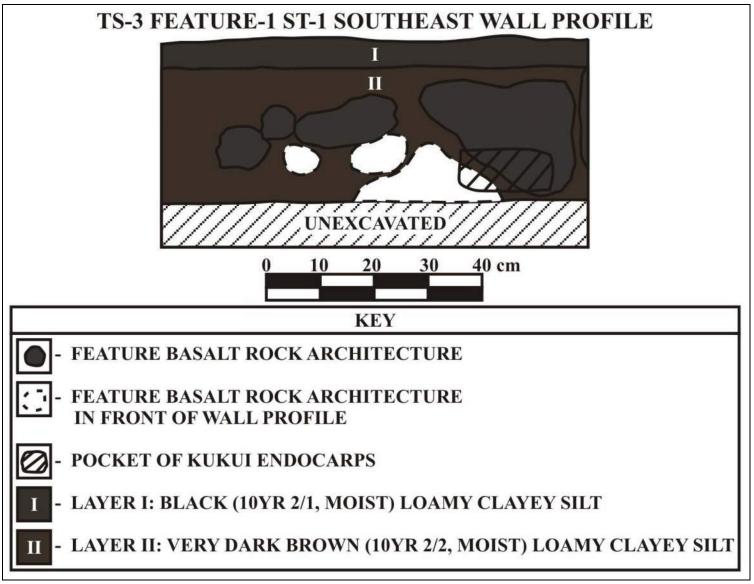


Figure 30: Stratigraphic Profile of Shovel Probe 6 (SP-6), Southeast Wall.

#### Layer II

Layer II (5 to 30 cmbs) consisted of semi-compact very dark brown (10YR 2/2, moist) loamy clayey silt with a few short tree roots and multiple basalt cobbles interpreted as a portion of the feature 1 terrace architecture. As in other pits, cobbles surrounded by soil were interpreted as colluvium, while cobbles in contact with each other were interpreted as architectural. A clear glass sherd, a whiteware sherd, and basalt gravel were identified in the top 10cm of Layer II, the glass and ceramic sherds were collected. In the southern half of the pit a pocket of kukui endocarps was discovered adjacent to the basalt cobbles of the terrace architecture; a sample of the kukui endocarps was collected. Based on the proximity of the Kukui endocarps to the terrace architecture, the kukui samples can be used to date the terrace.

Based on the diffuse boundary between Layer I and Layer II, and the presence of cultural material and terrace architecture in Layer II, this terrace was constructed during the creation of Layer II, and the terrace was filled with Layer II sediments as colluvium. At some point Layer II creation terminated, which allowed Layer I to form.

#### **DISCUSSION AND CONCLUSIONS**

At the request of Bills Engineering, Inc., Scientific Consultant Services, Inc. (SCS) conducted an Archaeological Inventory Survey for the Board of Water Supply's (BWS) proposed road repair and drainage improvements, Booth Road, Pauoa Valley, O'ahu (TMK: (1) 2-2-041 :001 and 003). Because no archaeological inventory survey had been conducted in the proposed project area, the State Historic Preservation Division (LOG NO: 2013.4414, DOC NO: 1310GC24) recommended that an Archaeological Inventory Survey be conducted in advance of the proposed road improvements to facilitate identification and proper treatment of any historic properties that may be discovered during project construction, in accordance with Hawaii Administrative Rules (HAR) §13-276.

According to historical records and previous archaeological studies in the vicinity of the project area, Pauoa Valley had been utilized for agriculture for centuries prior to Western contact, and the upper portion of the valley, in the vicinity of the project area, continued to be utilized for agriculture as late as the 1970s.

During a pedestrian survey of the project corridor three new archaeological sites (State Sites 50-80-14-7681, -7682, and -7683) were identified. Site -7681 consisted of a Historic artifact scatter, dating to the early 20<sup>th</sup> Century, and two terrace features. Site -7682 consisted of four terrace features. Site -7683 consisted of a single terrace. Based on feature type, construction

methods, and construction materials, the terrace features most likely date to the late pre-Contact and/or early Post-Contact period. Except for the historic artifact scatter alongside the road, all features of all three sites were stone-edged terraces which were most likely used for dry-land agriculture.

In addition to the pedestrian survey, SCS excavated shovel probes within six of the seven terrace features, (given the proximity of TS-2 Feature 4 to TS-2 Feature 5, only one shovel probe was excavated for the pair of features), to characterize their construction and to look for buried cultural material. Since the subsurface testing of the terrace features did not reveal the presence of subsurface features or associated cultural material, feature function was difficult to ascertain. However, given feature typology and construction, the terraces were interpreted as archaeological although temporal affinity could not be assigned.

Recovered cultural material including glass, metal, and porcelain was collected for laboratory analysis to confirm archaeological origins. Based on this analysis the rubbish scatter, Feature 1 of Site 50-80-14-7681, was determined to date to the early 20<sup>th</sup> Century.

#### **SIGNIFICANCE**

A total of three newly identified sites, State Sites 50-80-14-7681, -7682, and -7683, were found in the project area during the current Archaeological Inventory Survey. Except for Site-7681 Feature 1 (the Historic artifact scatter) all documented features of all three sites were simple agricultural terraces.

These three sites were assessed for their significance as outlined in Hawai'i Administrative Rules §13-275-6. To be assessed as significant, a site must be characterized by one or more of the following five criteria:

- (A) It must be associated with events that have made a significant contribution to the broad patterns of our history, or be considered a traditional cultural property.
- (B) It must be associated with the lives of persons significant in the past.
- (C) It must embody distinctive characteristics of a type, period, or method of construction, or represent a significant and distinguishable entity whose components may lack individual distinction.
- (D) It must have yielded or may be likely to yield, information important in prehistory or history.

(E) Have important value to native Hawaiian people or other ethnicities in the state, due to associations with cultural practices and traditional beliefs that were, or still are, carried out.

All three sites identified within the project area were found to be significant only under Criterion d, "It must have yielded or may be likely to yield, information important in prehistory or history."

## **RECOMMENDATIONS**

Based on the findings of the Archaeological Inventory Survey, it seems likely that little new information would be gleaned from additional study of the project area. As such, no further archaeological work is recommended for the project corridor.

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# Figure 13 Statement of Chapter 343 Exemption & Special Management Area Clearance

July 13, 2023



Mr. Ernest Y. W. Lau, P.E. Manager and Chief Engineer Board of Water Supply City and County of Honolulu 630 South Beretania Street Honolulu, Hawaii 96843

Attention: Ms. Leizel De La Cruz, Project Manager

460-00

Project: Booth Road 740 Reservoir Access Road

Gentlemen:

We, Bills Engineering Inc. (BEI) have reviewed your "*Comprehensive Exemption List for the City and County of Honolulu Board of Water Supply as Reviewed and Concurred Upon by the Environmental Council on April 5, 2022*" and it is our opinion that the exemptions highlighted in yellow apply to the Booth Road portion of this project (Attachment 1).

Should you concur with our evaluation we understand BWS will complete the Declaration of Exemption form and DOH's Exempt Project Certification form for SRF projects for the Booth 740 Road Reservoir Access Road Project.

Should you have any questions regarding this matter please contact David Bills at <u>dbills@billsenginering.com</u> or at 808-792-2022.

Very truly yours,

BILLS ENGINEERING INC.

By: \_\_\_\_\_ B. Pu

David B. Bills, P.E. President

DBB:lk

Enclosures

cc: Environmental Review Program (ERP)

# **BOARD OF WATER SUPPLY**

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



Reviewed and concurred upon by the Environmental Advisory Council, State of Hawaii, on April 5, 2022

RICK BLANGIARDI, MAYOR

BRYAN P. ANDAYA, Chair KAPUA SPROAT, Vice Chair RAY C. SOON MAX J. SWORD NA'ALEHU ANTHONY

JADE T. BUTAY, Ex-Officio DAWN B. SZEWCZYK, P.E., Ex-Officio

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

ELLEN E. KITAMURA, P.E. Deputy Manager and Chief Engineer

State of Hawaii Office of Planning and Sustainable Development Environmental Review Program 235 South Beretania Street, Suite 702 Honolulu, Hawaii 96813 Via email: dbedt.opsd.erp@hawaii.gov

Attention: Puananionaona Thoene, Chair, The Environmental Advisory Council

Subject: City and County of Honolulu Board of Water Supply's Exemption List

Ms. Puananionaona Thoene, the Honolulu Board of Water Supply is pleased to submit its exemption list for stamped concurrence and publishing on the Environmental Review Program's web page. The final list has been edited to address the minor grammatical edit discussed during the Council's meeting on April 5<sup>th</sup>, 2022. It has also been edited to reflect this amendment and concurrence date on the first page.

If you have any questions or comments, please feel free to call Dominic Dias at (808) 748-5928, or via email at <u>ddias@hbws.org.</u>

Very truly yours,

ERNESTY: W. LAU, P.E. Manager and Chief Engineer

Attachment

# COMPREHENSIVE EXEMPTION LIST FOR THE CITY AND COUNTY OF HONOLULU BOARD OF WATER SUPPLY

# Amended April 5, 2022

Pursuant to HAR §11-200.1-8, all exemptions under Subchapter 8 are inapplicable when the cumulative impact of planned successive actions in the same place, over time, is significant, or when an action that is normally insignificant in its impact on the environment may be significant in a particularly sensitive environment.

# Part 1 - De Minimis Actions:

Routine activities and ordinary functions within the jurisdiction or expertise of the agency that by their nature do not have the potential to individually or cumulatively adversely affect the environment more than negligibly and that the agency considers to not rise to the level of requiring chapter 343, HRS, environmental review. Examples of routine activities and ordinary functions may include, among others: routine repair, routine maintenance, purchase of supplies, and continuing administrative activities involving personnel only, nondestructive data collection, installation of routine signs and markers, financial transactions, personnel-related matters, construction or placement of minor structures accessory to existing facilities; interior alterations involving things such as partitions, plumbing, and electrical conveyances.

- (1) Operations, repairs or maintenance of existing structures, facilities, equipment, or topographical features, involving negligible or no expansion or change of use beyond that previously existing;
  - 1. Painting of structure exterior or interior
  - 2. Repair of damage to structure exterior or interior caused by termites, dry rot, spalling, cracking, delaminating, and so forth
  - 3. Fumigation and treatment of building for termites, cockroaches, ants, vermin, and other pests using pesticides registered by the State Department of Agriculture and the EPA
  - 4. Floodlighting less than 15 feet in height for security, safety, and decorative purposes, which is low blue spectrum lighting, shielded to minimize fugitive light
  - 5. Litter container pick up
  - 6. Manhole and meter box adjustment

- 7. Parking lot cleaning
- 8. Parking lot resurfacing and striping
- 9. Reroofing
- 10. Maintenance of spillway channels and streams by use of hand tools and light equipment, but not by use of herbicides
- 11. Storm drain cleaning
- 12. Vegetation clearing from vacant lots, except by use of herbicides
- 13. Repair of vehicles, equipment and tools including testing and maintenance of compressors, generators, tapping and boring machines, pipe cutters, small water pumps, welding and soldering equipment, electrical testing equipment, water analysis equipment, and telemetering equipment
- 14. Well sealing
- 15. Repair and maintenance of pipeline tunnels
- 16. Repair and maintenance of access roads and pathways
- 17. Mechanical control of vegetation along roadways, trails, and building sites
- 18. Repair and maintenance of water mains, meters, fire hydrants, fire standpipes, valves, manholes, stream gages, and monitor wells
- 19. Repair and maintenance of water treatment equipment and facilities
- 20. Repair and maintenance of water well and booster pumps, pressure breaker tanks, surface and ground water intakes, remote control valves, chlorination equipment, and appurtenances
- 21. Repair and maintenance of electrical equipment
- 22. Repair and maintenance of cable cars, tracks and winches
- 23. Repair and maintenance of elevators
- 24. Repair and maintenance of fencing and gates
- 25. Repair of curbs and sidewalks

- 26. Repair and maintenance of tank reservoirs and pump buildings
- 27. Repair and maintenance of retaining walls and screen walls
- 28. Repair and maintenance of air conditioning and ventilator equipment
- 29. Repair and maintenance of telemetered circuits and communications systems
- 30. Repair and maintenance of microwave reflectors, antennas, towers and poles
- 31. Repair of berms
- 32. Repair of bridging for pipeline support
- 33. Repair of drainage structures and storm drain lines
- 34. Repair and maintenance of footbridges
- 35. Repair and maintenance of guardrails
- 36. Repair and maintenance of electrical equipment
- 37. Repair of fuel tanks
- 38. Maintenance of dams
- 39. Acquisition of land or easements required for existing facilities
- 40. Maintenance of grounds by such means as mowing, trimming and weeding
- 41. Spot control and treatment of plant growth, insects and weeds of landscaped grounds of the department using pesticides and herbicides approved by the State Department of Agriculture and the EPA, where mowing, trimming, weeding and other means or methods are not feasible
- 42. Temporary and permanent road patching for repair and maintenance of water facilities
- 43. Rock removal to stabilize slopes
- 44. Slope stabilization using rip-rap, shotcrete, net drapery, rockfall impact barrier, or other methods
- 45. Hydro-mulching or using other methods to prevent soil erosion

- (2) Replacement or reconstruction of existing structures and facilities where the new structure will be located generally on the same site and will have substantially the same purpose, capacity, density, height, and dimensions as the structure replaced;
  - 1. Replacement or reconstruction:
    - a. Buildings provided there would be no substantial change in use
    - b. Bridging for pipeline support
    - c. Berms
    - d. Drainage structures
    - e. Driveways
    - f. Bridges
    - g. Curbs and sidewalks
    - h. Wells
    - i. Booster pumps
    - j. Pressure breaker tanks
    - k. Surface and groundwater intakes
    - I. Remote control valves
    - m. Chlorination and water treatment
  - 2. Replacement of:
    - a. Equipment, including electrical and water treatment
    - b. Partitions, doors, windows, and plumbing
    - c. Guardrails
    - d. Fuel tanks and associated infrastructure related to its spill prevention control and countermeasures
    - e. Water meters, fire hydrants, fire standpipes, manholes, stream gages, and monitor wells

- f. Water well and booster pumps and appurtenances
- g. Cable cars, tracks and winches
- h. Elevators
- i. Fencing and gates
- j. Telemetered circuits and communications systems
- k. Microwave reflectors, antennas, towers, and poles
- 3. Replacement of signs
- 4. Replacement of vehicles, equipment, tools including compressors, generators, tapping and boring machines, small water pumps, welding and soldering equipment, electrical testing equipment, water analysis equipment, and telemetering equipment
- (3) Construction and location of single, new, small facilities or structures and the alteration and modification of same and installation of new small equipment and facilities and the alteration and modification of same including but not limited to: (a) single family residences less than 3,500 square feet, if not in conjunction with the building of two (2) or more such units; (b) multi-unit structures design for not more than four (4) dwelling units, if not in conjunction with the building of two (2) or more such structures; (c) stores, offices and restaurants designed for total occupant load of twenty (20) persons or less, if not in conjunction with the building of two (2) or more such structures; (d) water, sewage, electrical, gas, telephone, and other essential public utility services extensions to serve such structures or facilities; and (e) accessory or appurtenance structures including garages, carports, patios, swimming pools, and fences; and acquisition of utility easements;
- 1. Construction and alteration of:
  - a. Carports and garages (less than 3500 square feet) on or at existing BWS parcels or facilities
  - b. Cement rubble masonry, hollow block, or reinforced concrete walls not more than six feet in height
  - c. Fencing
  - d. Guardrails
  - e. Sidewalks and covered walkways

- f. Observation well shelters (kiosks)
- g. Stream gauging stations
- h. Rain gauging stations
- i. Telemetry and remote control **(SCADA)** equipment and appurtenances including interior or exterior cabinets, solar power equipment, antenna, electronic equipment, and telemetry equipment
- j. Shelters for emergency generators at existing pump stations
- k. Site security upgrades including fencing, access controls, intrusion alarms, security cameras, and telemetry
- I. Existing building and facilities to comply with the Americans with Disabilities Act (ADA) requirements
- m. Construction at existing facilities of small new building or small building additions, such as storage sheds, offices or shower/locker rooms
- n. Construction or location of portable field buildings
- o. Construction or location of temporary field buildings
- 2. Installation and modification of:
  - a. Office air conditioning and ventilation
  - b. Equipment in existing building, such as emergency electric generators in existing water pump stations
  - c. Intrusion alarm systems
  - d. Monitoring devices
  - e. Water meters and service laterals
  - f. Motor control centers and chlorinator buildings
  - g. Telemetering and other monitoring and control equipment
- 3. Installation of new water service connections off existing mains
- 4. Extension of water laterals
- 5. Installation of temporary emergency water well pumping, filtration and water treatment equipment

- 6. Construction of additional storage tank capacity not to exceed 100,000 gallons, on or at existing BWS parcels or facility
- 7. Alterations to water well pumping equipment including installation of control valves, chlorination systems or alterations of pump
- 8. Utility connections for electricity, gas and sewage
- 9. Window modifications
- 10. Installation of telemetering equipment and wires
- 11. Installation of signs
- 12. Installation of filtration and water treatment equipment
- 13. Installation of monitoring equipment and facilitators for measuring physical, chemical and biological parameters of water quality
- 14. Installation of pressure regulating equipment such as booster pumps, pressure reducers, pressure relief valves, etc. where the intent is to route water from one pressure zone to the next; including associated infrastructure to house the equipment.
- 15. Installation of exterior lights designed to mitigate impacts to wildlife and aesthetics. Exterior lights will be 15 feet or less above ground level, and will be low blue spectrum lighting, shielded to minimize fugitive light

#### (4) Minor alterations in the condition of land, water or vegetation;

- 1. Construction of berms
- 2. Tree trimming and removal of trimmings, grubbing and mowing of lawn area, planting of trees, other plants and sods, and pruning of trees and shrubs
- 3. Construction of drainage ditches
- 4. Construction of footpaths
- 5. Landscaping and installation of irrigation systems
- 6. Construction of seepage drains, including dry wells for groundwater recharge
- 7. Minor adjustments for landscaping purposes or for leveling grounds for which grading permits are not required

- 8. Temporary access roads with minimal grading and tree removal to repair and maintain existing facilities
- 9. Incidental clearing of land and preliminary work sites for surveying, engineering design, and geologic and hydrologic studies
- (5) Basic data collection, research, experimental management, and resource evaluation activities which do not result in a serious or major disturbance to an environmental resource;
  - 1. Chemical, biological and viral laboratory analyses
  - 2. Fresh and saline water sampling
  - 3. Recycling of wastewater studies
  - 4. Stream studies and surveys
  - 5. Subsurface exploration soil boring and archaeological investigation. Archaeological investigation includes historical research and archaeological inventory surveys, including subsurface pits
  - 6. Collection of geologic samples
  - 7. Leak detection surveys
  - 8. Use at any one time of not more than 5.0 curies of Americium 241 and Beryllium and the storage of the same radioactive material for well logging purposes in accordance with the requirement of the USA Nuclear Regulatory Commission
  - 9. Surveying, engineering design, and geologic and hydraulic studies with minor trimming of vegetation
  - 10. Surveying work to verify control points and topographic work
  - 11. Drilling and testing of monitor wells as defined by the Commission on Water Resources management. The wells shall not be capable of being used or intended to be used to withdraw groundwater for the purposes of exploring or developing groundwater
  - 12. Collection of water samples for bacteriological and chemical analysis

# (6) Demolition of structures, except those structures that are listed on the national register or Hawaii Register of Historic Places;

- 1. Removal of architectural features
- 2. Demolition of abandoned buildings and structures
- 3. Demolition of tank reservoirs and other abandoned watersystem appurtenances
- 4. Removal and disposal of demolition materials
- 5. Demolition of sidewalks and curbs

## (7) Zoning variances except shoreline setback variances;

1. Building setback variances

## (8) Continuing administrative activities including

- 1. Purchases of supplies, services and equipment to support existing operations
- 2. Personnel-related actions
- 3. Subdivision of Board of Water Supply property to accommodate State or County road improvement projects
- 4. Consolidation of existing parcels acquired over a period of time
- 5. Acquisition of land easements on which water system facilities and appurtenances are presently situated or under construction
- (9) Acquisition of land and existing structures, including single or multi-unit dwelling units, for the provision of affordable housing, involving no material change of use beyond previously existing uses, and for which the legislature has appropriated or otherwise authorized funding

- (10) New construction of affordable housing, where affordable housing is defined by the controlling law applicable for the state or county proposing agency or approving agency, that meets the following:
  - (a) Has the use of state or county lands or funds or is within Waikiki as the sole triggers for compliance with Chapter 343, HRS;

- (b) As proposed conforms with the existing state urban land use classification;
- (c) As proposed is consistent with the existing county zoning classification that allows housing; and
- (d) As proposed does not require variances for shoreline setbacks or siting in an environmentally sensitive area, as stated in section 11-200.1-13(b)(II);

None

# Part 2 – General types of actions for exemption

Types of actions that the agency considers to be included within the exempt general types listed in Section 11-200.1-15 of the Hawaii Administrative rules

(1) Operations, repairs or maintenance of existing structures, facilities, equipment, or topographical features, involving negligible or no expansion or change of use beyond that previously existing;

- (2) Replacement or reconstruction of existing structures and facilities where the new structure will be located generally on the same site and will have substantially the same purpose, capacity, density, height, and dimensions as the structure replaced;
  - 1. Replacement or reconstruction:
    - a. Stream retaining walls
    - b. Baseyards
    - c. Tank Reservoirs
  - Replacement of waterlines and appurtenances including concrete jackets within existing rights-of-way where no change in purpose is intended. Replacement may be size for size, or may involve an increase in pipe diameter if the existing waterline is inadequate to meet current Water System Standards and current zoning requirements

- (3) Construction and location of single, new, small facilities or structures and the alteration and modification of same and installation of new small equipment and facilities and the alteration and modification of same including but not limited to:
  - (a) single family residences less than 3,500 square feet, if not in conjunction with the building of two (2) or more such units;

None

(b) multi-unit structures design for not more than four (4) dwelling units, if not in conjunction with the building of two (2) or more such structures;

- (c) stores, offices and restaurants designed for total occupant load of twenty (20) persons or less, if not in conjunction with the building of two (2) or more such structures; and
  - 1. modular trailer structures
  - 2. modifications to expand for occupant load within the existing facilities
- (d) water, sewage, electrical, gas, telephone, and other essential public utility services extensions to serve such structures or facilities; and (e) accessory or appurtenance structures including garages, carports, patios, swimming pools, and fences; and acquisition of utility easements;
  - 1. Installation and modification of:
    - a. Storm drain lines
  - 2. Extension of existing waterlines to complete grid within existing rightsof-way and easements
  - 3. Oversizing of new pipelines within existing rights-of-way as allowed by BWS Rules pertaining to extensions of mains (non-growth related)
  - 4. Oversizing of new pipelines within existing rights-of-way for redundancy and water system reliability
  - 5. Extension of existing storm drains

- 6. Expansion of existing well and booster pump stations to master planned capacity, including installation of filtration, water treatment and additional pumping equipment and appurtenances, provided circumstances have not changed substantively from the time the master plan was prepared
- 7. Installation of new water mains, fire standpipes and fire hydrants to provide fire protection
- 8. Installation of new water mains, fire standpipes and fire hydrants to improve water system reliability
- 9. Installation of new water mains for redundancy and system reliability
- 10. Installation of underground fuel tanks and dispensers not to exceed 2,000-gallon capacity
- 11. Construction of carports and garages in excess of 3500 square feet
- 12. Installation of new hydrants off existing pipeline to provide fire protection
- 13. Relocations of fire hydrants or fire standpipe to clear new construction such as driveway, or to eliminate a hazardous condition
- 14. Installation of temporary emergency water well pumping, filtration and water treatment equipment
- 15. Installation of water sampling stations connected off an existing main
- 16. Construction of Pressure Reducing Valve (PRV) housing structures
- (4) Minor alterations in the condition of land, water or vegetation;

None

(5) Basic data collection, research, experimental management, and resource evaluation activities which do not result in a serious or major disturbance to an environmental resource;

(6) Demolition of structures, except those structures that are listed on the national register or Hawaii Register of Historic Places;

None

(7) Zoning variances except shoreline setback variances;

None

(8) Continuing administrative activities;

None

(9) Acquisition of land and existing structures, including single or multi-unit dwelling units, for the provision of affordable housing, involving no material change of use beyond previously existing uses, and for which the legislature has appropriated or otherwise authorized funding; and

None

- (10) New construction of affordable housing, where affordable housing is defined by the controlling law applicable for the state or county proposing agency or approving agency, that meets the following:
  - (a) Has the use of state or county lands or funds or is within Waikiki as the sole triggers for compliance with Chapter 343, HRS;
  - (b) As proposed conforms with the existing state urban land use classification;
  - (c) As proposed is consistent with the existing county zoning classification that allows housing; and
  - (d) As proposed does not require variances for shoreline setbacks or siting in an environmentally sensitive area, as stated in section 11-200.1-13(b)(II);

DEPARTMENT OF PLANNING AND PERMITTING CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 7<sup>TH</sup> FLOOR • HONOLULU, HAWAII 96813 PHONE: (808) 768-8000 • FAX: (808) 768-6041 DEPT. WEB SITE: <u>www.honoluludpp.org</u> • CITY WEB SITE: <u>www.honolulu.gov</u>

RICK BLANGIARDI MAYOR



October 27, 2021

DEAN UCHIDA DIRECTOR

DAWN TAKEUCHI APUNA DEPUTY DIRECTOR

EUGENE H. TAKAHASHI DEPUTY DIRECTOR

2021/ELOG-2235

Mr. David Bills Bills Engineering, Inc. 1124 Fort Street Mall, Suite 200 Honolulu, Hawaii 96813

Dear Mr. Bills:

SUBJECT: Permit Determination Road Repairs and Drainage Improvements for the Booth Road 740 Reservoir (Project) End of Booth Road – Pauoa Tax Map Keys 2-2-041: 001 and 003

This responds to your request (received October 25, 2021) for confirmation that the above properties are not in the Special Management Area (SMA) or a Special District, and the Project does not require an SMA Permit, Shoreline Setback Variance (SSV) or Special District Permit. The properties are located in the State Conservation Land Use District and the P-1 Restricted Preservation District. We are pleased to inform you that the properties are not located in the SMA or any Special District, and are not shoreline lots. Therefore, the Project will not require a SMA permit or SSV; nor is it subject to any land use permit regulated by the Land Use Ordinance, such as a Special District Permit.

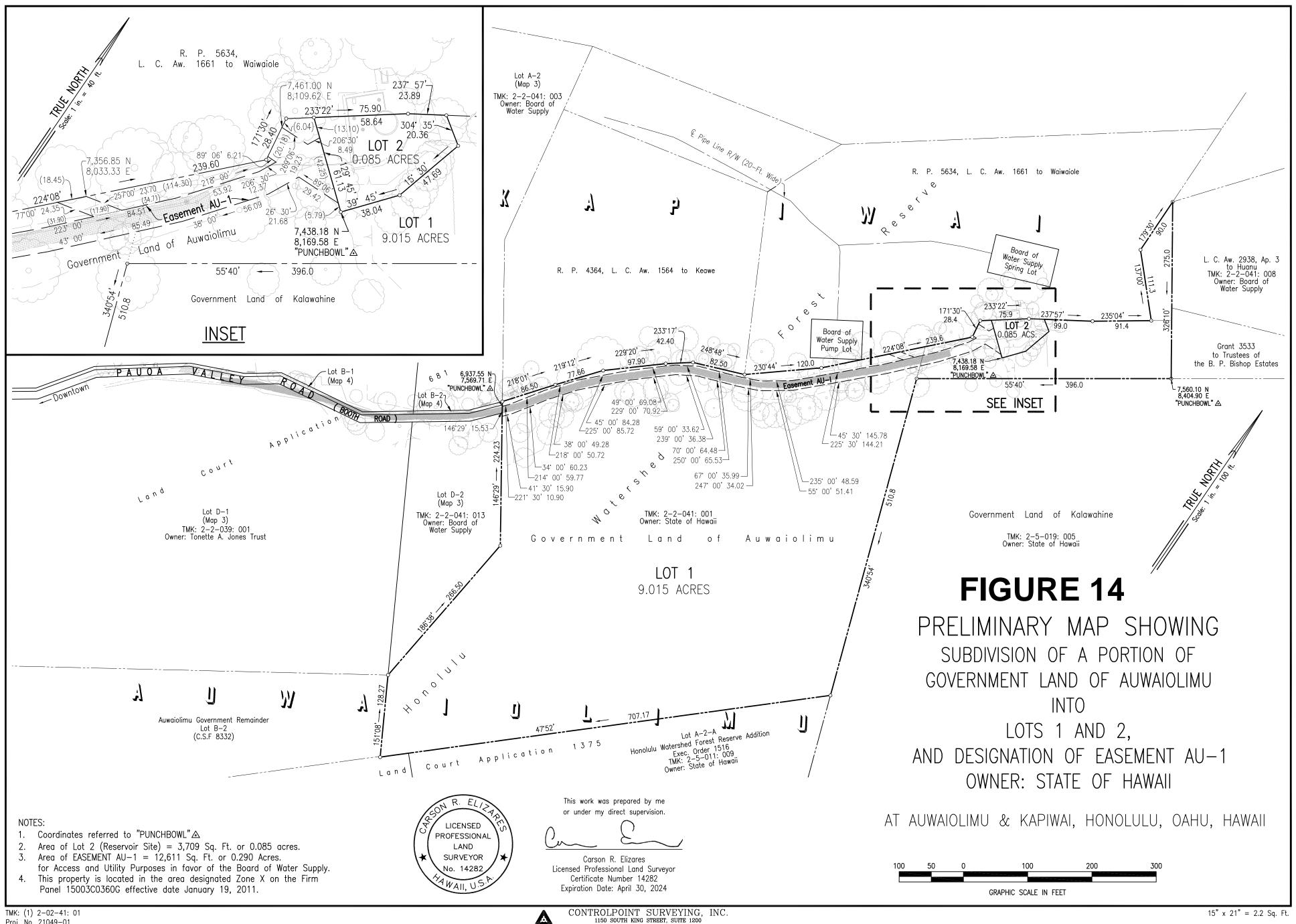
Please be advised that the City and County of Honolulu does not have zoning or land use jurisdiction within the State Conservation Land Use District. Development on the properties are regulated by the appropriate State agencies.

Should you have any questions on this matter, please contact Joyce Shoji, of our staff, at 768-8014.

Very truly yours,

Dean Uchi Director

# Figure 14 - Subdivision Map



HONOLULU, HAWAII 96814