

## Section 3 Zone 7 West Kaka'ako (Test Excavations 116 through 161)

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### 3.1 Overall Location

For reporting purposes for this archaeological inventory survey, the HHCTCP Section 4 (City Center) has been divided into 11 zones based on geographic and cultural boundaries. The West Kaka'ako Zone runs along Halekauwila Street from Richards Street on the west end to Ward Avenue on the east end (Figure 15). The West Kaka'ako Zone is located within Honolulu Ahupua'a.

The West Kaka'ako Zone includes 46 AIS test excavations: T-116 through T-161 (T-135 was abandoned). Test excavation numbering proceeds from northwest to southeast. The test excavations were located within TMKs [1] 2-1-014, -026, and -030 (Halekauwila Street; land area excavated owned by the City and County of Honolulu); [1] 2-1-026 (area *mauka* of Halekauwila Street; land area excavated owned by the State of Hawai'i); [1] 2-1-031:002 (column location; owned by Dora Aoyagi); [1] 2-1-030:043 (column location; owned by the Bishop Estate); [1] 2-1-030:001 (section of *makai* portion of Civic Center Station; owned by the Bishop Estate); [1] 2-1-050:067 (*makai* utility relocation areas owned by the Hawaii Community Development Authority); and [1] 2-1-052:022 and :027 and [1] 2-1-050:001 and :062 (*mauka* and *makai* utility relocation areas owned by Victoria Ward, Ltd.).

### 3.2 Transit Infrastructure

HHCTCP infrastructure for the current project within the West Kaka'ako Zone consists of the Civic Center Station, to be constructed on Halekauwila Street between South and Keawe Streets, with four station columns, 13 single columns to support the fixed guideway system along Halekauwila Street, and utility relocation corridors (for electric lines, telecommunication cables, fiber optic lines, storm drains, and sewers) throughout. Test excavations focused on utility relocation corridors (T-116, T-118, T-120, T-121, T-124 through T-126, T-140, T-142, T-147, T-149 through T-157) and the footprint of the Civic Center Station (T-130, T-132, T-133, T-138, T-139), including station columns (T-131, T-134, T-136, T-137) and guideway columns (T-117, T-119, T-122, T-123, T-127 through T-129, T-141, T-143 through T-146, T-148, T-158 through T-161) (see Volume I).

### 3.3 Geography, Geology, and Land Forms

The West Kaka'ako Zone is situated along the low-lying coastal flats immediately inland of Honolulu Harbor, generally within 1 km of the shoreline. The historic shoreline was farther inland, and the westernmost portion of the West Kaka'ako Zone (around T-116 and T-117) would have been offshore. There are no streams in this zone. Pauoa Stream was displaced to the west by the post-erosional Punchbowl Crater (Pūowaina) to join Nu'uano Stream. The two intermittent streams in Makiki Ahupua'a, Kanaha and Makiki Streams, were also displaced by the Pūowaina tuff cone with Makiki Stream forced east into Mānoa Ahupua'a and Kanaha Stream meandering and dissipating through the marshy Makiki coastal lands (see Vol. II, Figure 54). Elevations along the West Kaka'ako portion of the transit corridor range from

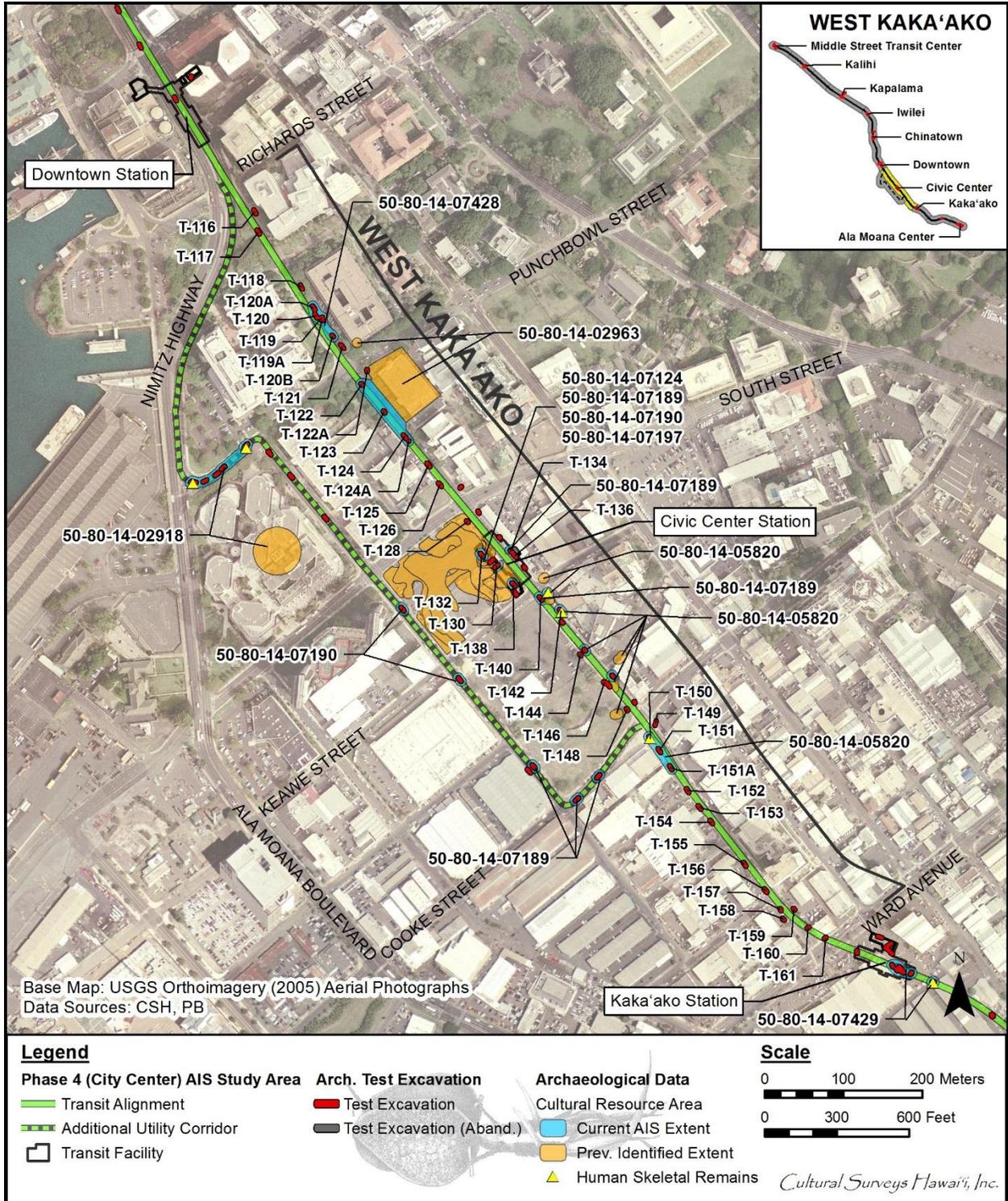


Figure 15. Aerial photograph (source: U.S. Geological Survey orthoimagery 2005b) showing the locations of the West Kaka'ako Zone AIS test excavations (T-116 through T-161) along the transit corridor and at the Civic Center Station

approximately 1 to 2 m above mean sea level (AMSL), with a slight rise in elevation to the west. The West Kaka'ako Zone receives between 663 and 691 mm (26 to 28 inches) of annual rainfall (Giambelluca et al. 2011). As the area traverses a predominantly urban landscape, vegetation consists primarily of introduced (non-indigenous) landscaping trees, shrubs, and ground cover.

According to the U.S. Department of Agriculture Soil Survey Geographic (SSURGO) Database (2001) and soils survey data gathered by Foote et al. (1972), sediment types within West Kaka'ako primarily consist of Fill land (FL) with Ewa silty clay loam (EmA) within the central portion of the zone, surrounding the Civic Center Station location (Figure 16). Fill land is described as follows:

...areas filled with material dredged from the ocean or hauled from nearby areas, garbage, and general material from other sources... This land type is used for urban development including airports, housing areas, and industrial facilities. [Foote et al. 1972:31]

Ewa silty clay loam soils are described as:

...well-drained soils in basins and on alluvial fans... [that] developed in alluvium derived from basic igneous rock... These soils are used for sugarcane, truck crops, and pasture. The natural vegetation consists of fingergrass, kiawe, koa haole, klu, and uhaloa. [Foote et al. 1972:29]

## 3.4 Traditional and Historic Land Use

### 3.4.1 Traditional Accounts of the West Kaka'ako Zone

Late nineteenth-century maps indicate that the West Kaka'ako Zone was traditionally broken down into several traditional land units (*'ili*): Ka'ākaukukui, Pu'unui, Ka'ala'a, and Kukuluāe'o. The names Ka'ākaukukui, Pu'unui, Ka'ala'a, and Kukuluāe'o do not appear in any citations in the *Hawaiian Legends Index* (Gotanda 1989) or in the index to *Fornander's Collection of Hawaiian Antiquities and Folklore*. A few references to the place name "Kaka'ako" occur in various legends and traditions. Kaka'ako is mentioned in some post-Contact chants.

These legendary accounts reveal that Ka'ākaukukui, Pu'unui ("big hill" [Pukui et al. 1974:202]), Ka'ala'a ("sacred radiance" [Thrum 1922:635]), and Kukuluāe'o were traditionally noted for their fishponds and salt pans. Kukuluāe'o ("Hawaiian stilt (bird) [Pukui et al. 1974:123]) has been described as "formerly fronting Ke-walo Basin" and "containing marshes, salt ponds, and small fishponds," an environment considered well-suited for the Hawaiian stilt bird (Griffin et al. 1987:36). Kekahuna (1958:4) described it as "the land on the upland side of Ka'ākaukukui. Salt was formerly made there." Kekahuna (1958:4) described Ka'ākaukukui as "a beautiful sand beach that formerly extended along Ala Moana Park to Kewalo Basin, a quarter mile long reef extended along the shore." The 1884 Bishop map (Figure 17) shows the area as extending from Punchbowl to Cooke Street, *makai* of Queen Street. Pukui et al. (1974:59) describe Ka'ākaukukui as a "filled-in reef," and translate the name literally as "the right (or north) light," possibly referring to a maritime navigational landmark.

*Pili* grass and other plants were collected in this area. Ceremonial sites such as Pu'ukea Heiau, Kewalo Spring, and Kawailumalumai Pond were thought to be nearby. These places'

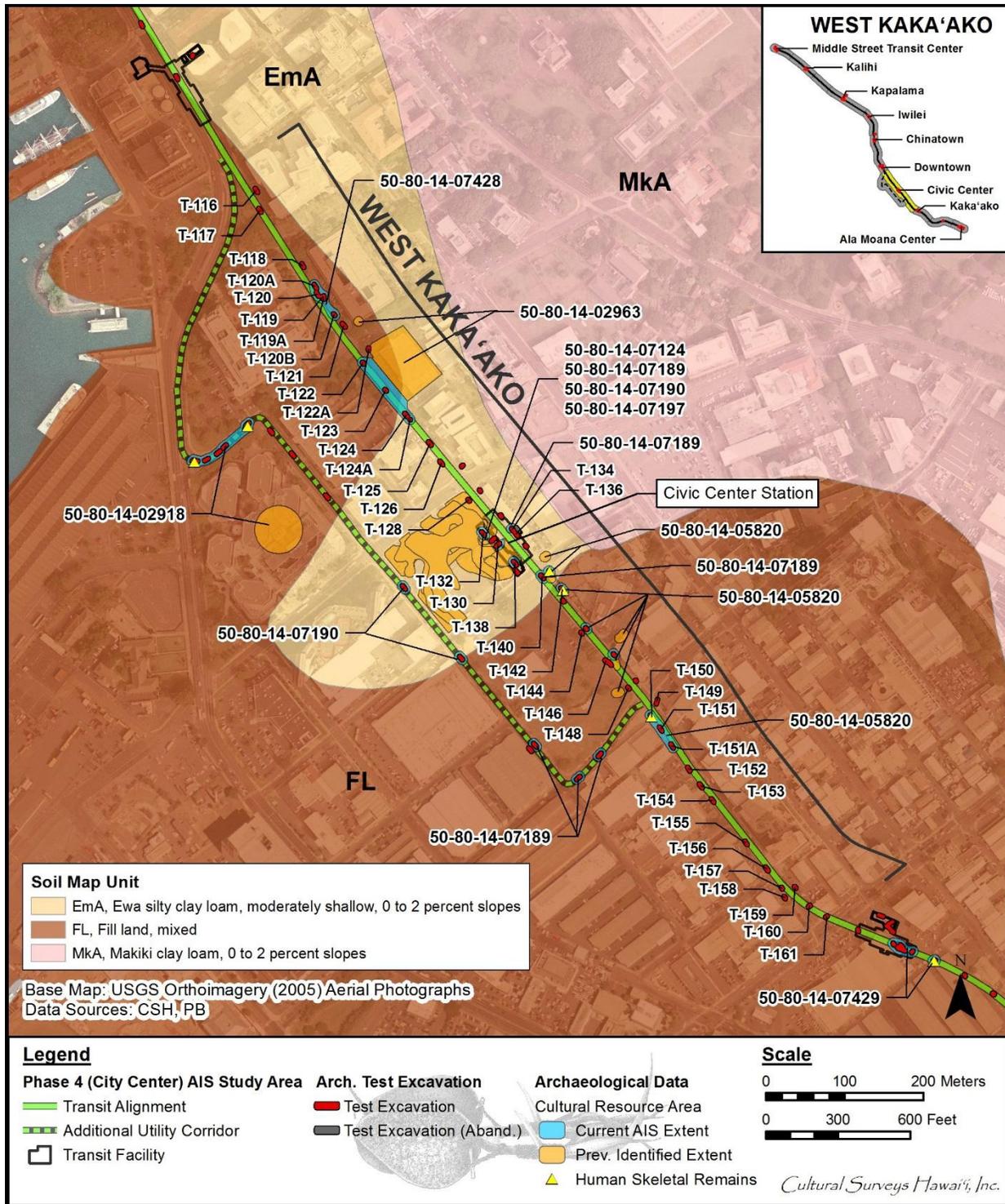


Figure 16. Aerial photograph (source: U.S. Geological Survey orthoimagery 2005b) with overlay of the *Soil Survey of Hawai'i* (Foote et al. 1972) showing sediment types and the locations of the West Kaka'ako Zone AIS test excavations (T-116 through T-161) along the transit corridor and at the Civic Center Station

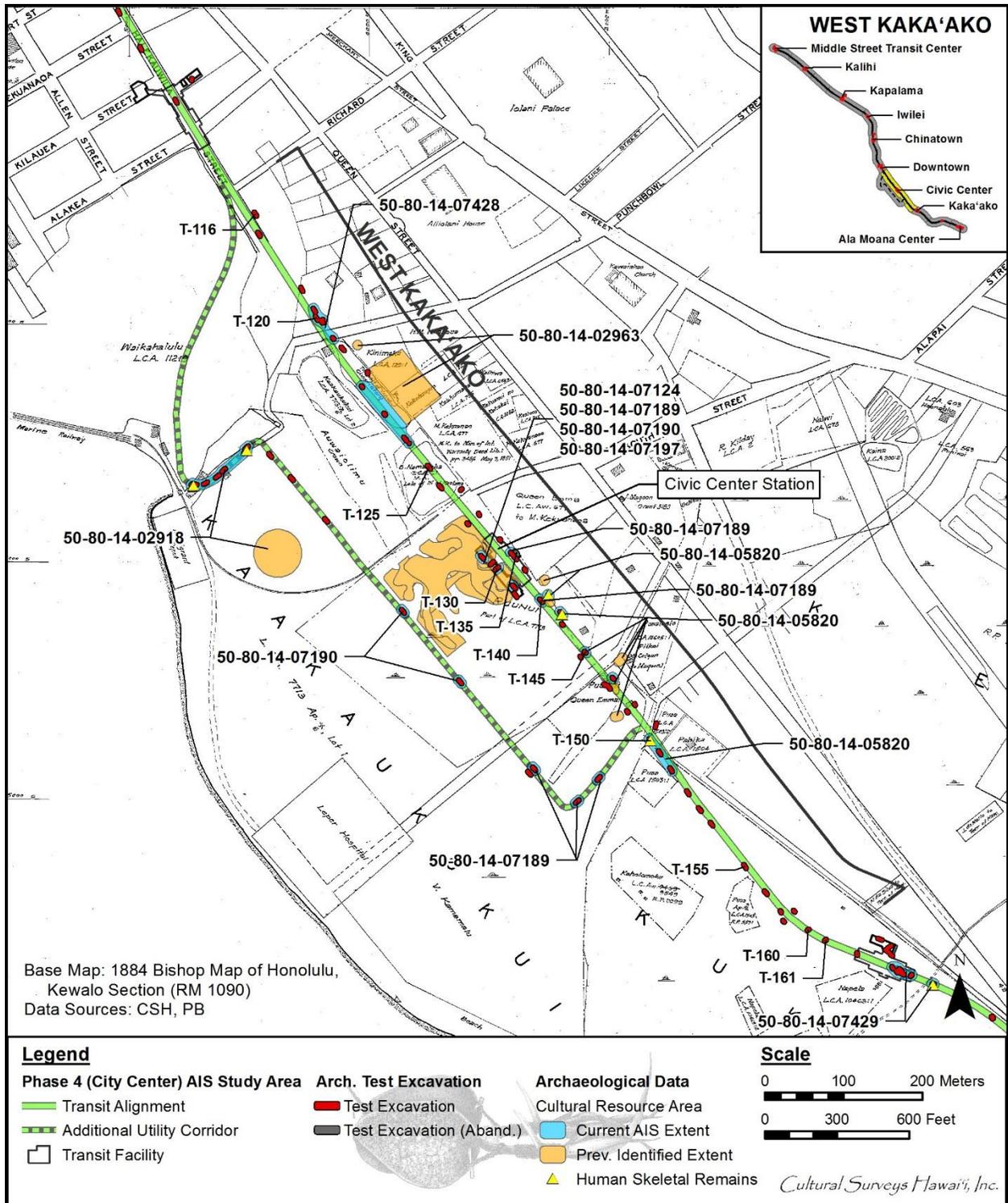


Figure 17. 1884 Map of Honolulu, Kewalo Section, by S. E. Bishop (Reg. Map 1090), showing the locations of the West Kaka'ako Zone AIS test excavations (T-116 through T-161) along the transit corridor and at the Civic Center Station

trails allowed transport between the more populated areas of Waikīkī and Honolulu. Important chiefs were born in the area and conducted religious rites, and *maka'āinana* (commoners) traveled to the area to gather food and other resources. Some *maka'āinana* probably also lived in the area, most likely adjacent to ponds and trails.

The original location and extent of the area called Kaka'ako is discussed by the ethnographer Henry Kekahuna (1958:4), who was born on Hawai'i Island in 1891 but was a long-time resident of O'ahu. Kekahuna placed Kaka'ako "on the 'Ewa side of Ke-walo to Ku-lolo-ia Stream, where the Honolulu Iron Works and Fort Armstrong are now." Kekahuna (1958:4) noted that "there were formerly scattered dunes of white sand there . . . Gilbert Islanders (Kilipaki) squatted there, and made a living by fishing, collecting coral for curios, and catching octopus." Kekahuna's description includes the area that now includes One Downtown Waterfront Plaza (between South and Punchbowl Streets). The 1884 map of the "Kewalo" section of Honolulu by S. E. Bishop (Figure 17) does not include reference to Kaka'ako, but the 1897 map of Honolulu by M. D. Monsarrat labels the area adjacent to the coastal wharfs as Kaka'ako (see Vol. II Figure 4).

Until fairly recently, Kaka'ako and the surrounding area were referred to as a wasteland, or empty space, between the better-known locations of Kou and Waikīkī. Pukui et al. (1974) do not define the place name "Kaka'ako," but the Hawaiian word *kākā'āko* is translated as "dull, slow" (Pukui and Elbert 1986:110). Thrum (1922:639) translated the word as "prepare the thatching" (*kākā* = to chop, beat, or thresh; *ako* = thatch). Thrum's translation, if correct, could relate to the fact that salt marshes, such as Kaka'ako, were excellent places to gather tall *pili* grass, which the Hawaiians traditionally used to thatch their houses.

The area surrounding the West Kaka'ako Zone was known traditionally for its low-lying marshes, fishponds, and for salt making. A string of large and small fishponds for the cultivation of marine resources was located in the western part of the zone, while the swampy coastal terrain of the eastern portion contained large tracts of saltpans and numerous ponds.

### 3.4.2 LCA Documentation

During the mid-nineteenth century Māhele, the majority of lands within and directly adjacent to the West Kaka'ako Zone were granted as large awards to *ali'i* (Figure 18 and Table 3). LCAs 180 and 7712 were awarded to Mataio Kekūanao'a, a high *ali'i* and close friend to Kamehameha II, who married Kīna'u, the daughter of Kamehameha I. The *'ili*, or land unit, of Ka'ākaukukui (LCA 7713) was awarded to Victoria Kamāmalu, the sister of Kamehameha IV and Kamehameha V. LCA 7713 is shown as the same area designated as LCA 7712 on the 1884 Bishop map (Figure 17). Victoria Kamāmalu, Mataio Kekūanao'a's daughter, inherited the land upon her father's death in 1868. LCA 7712/7713 included Ka'ākaukukui *'ili* and Pu'unui *'ili*, both of which consisted of non-contiguous sections, a type of *'āina* (land) called a *lele*.

Māhele Award 61 was awarded to Beneli (Bennett) Nāmakehā, a member of Kamehameha II's privy council. Nāmakehā was the uncle of Queen Emma (wife of Kamehameha IV) and the first husband of Kapi'olani, who later married King Kalākaua, the seventh Hawaiian monarch (Kame'eleihiwa 1992:276). Figure 17 shows Nāmakehā's award, a fishpond, to the west of the Civic Center Station, identified as "Lele of ili of Kaalaa."

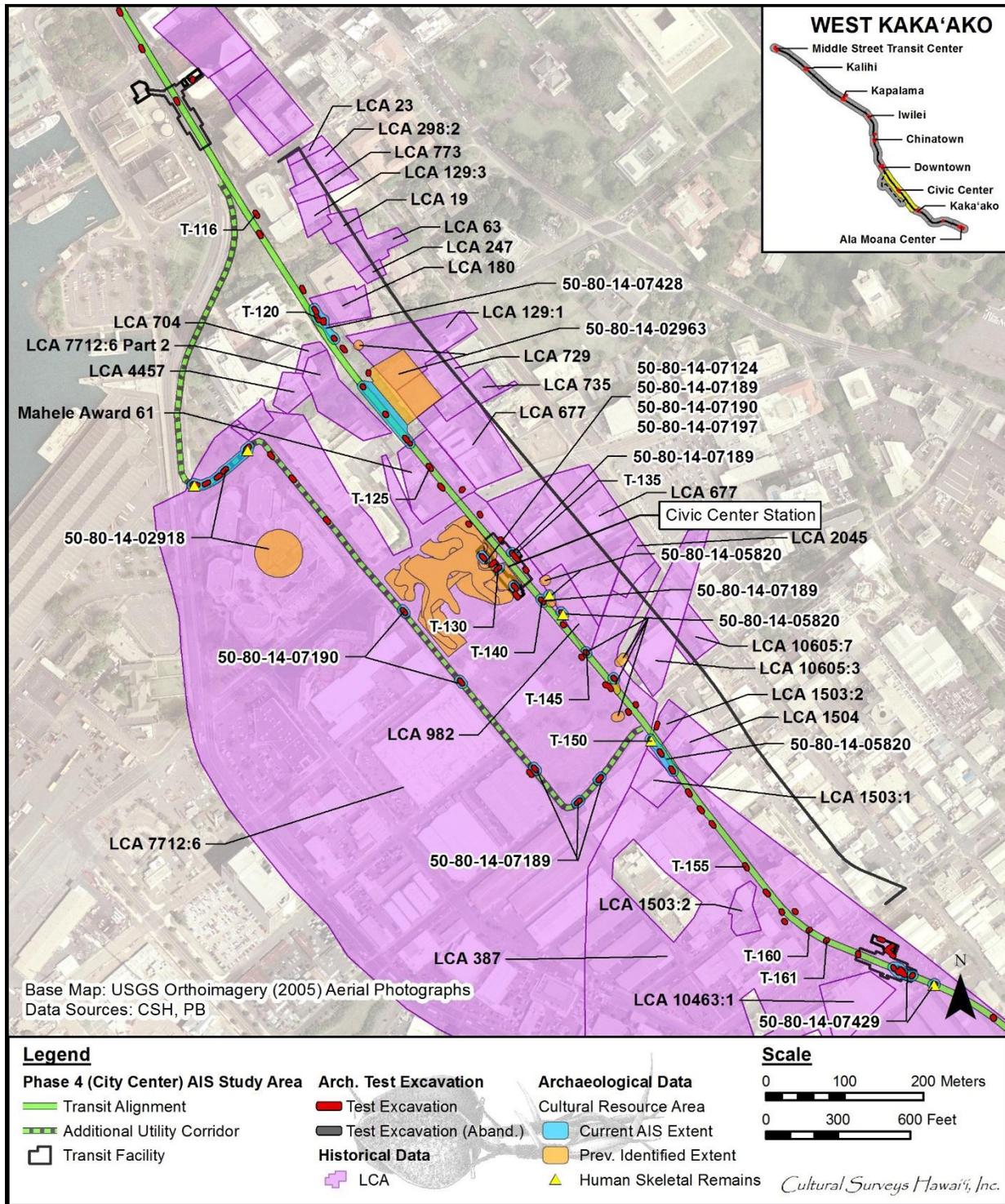


Figure 18. Aerial photograph (base map: U.S. Geological Survey orthoimagery 2005b) showing the locations of LCAs and the location of the West Kaka'ako Zone AIS test excavations (T-116 through T-161) along the transit corridor and at the Civic Center Station

Nāmakehā willed the *lele* of Ka'ala'a to his widow Kapi'olani. In a legal suit concerning the property, the *lele* was described as follows:

...a piece of land situate at Honuakaha, Honolulu, and containing an area of 1.6 acres. The property consisted formerly of a fishpond and its banks and, perhaps, a small piece, additional, of dry land, and was a *lele* of the Ili of Kaalaa...

...from 1852 or, perhaps, 1850, [Kapiolani and Namakeha married in 1850] Kapiolani at various times had the pond cleaned out, that her servants by her direction fished therein and delivered the fish to her for her use, that she sometimes gave them some of the fish, that she erected a small building on the bank of the pond or on the kula adjoining, that a man employed and directed by her to care for and the care of the pond occasionally lived in that building, and that she at times objected to horses being pastured on the kula of the pond because the animals might enter the pond and cause injury to it. [Hawaii Supreme Court 1903:321, 324]

Subsequent to the Māhele, individual *kuleana* lots were awarded pursuant to the 1850s Kuleana Act. Three *kuleana* lots were awarded within or directly adjacent to the West Kaka'ako Zone (Figure 18 and Table 3). The LCA records indicate that the traditional Hawaiian use of the region and its environs may have been confined to salt making and farming of fishponds. The LCA records also reveal that midway through the nineteenth century, taro cultivation, traditional salt making, and fishpond farming continued in the Kaka'ako area. The marginal swamp and intertidal lands in the *makai* portion of Kaka'ako became more valuable, and more than half of the awards in the West Kaka'ako Zone were granted to the royal family, loyal retainers, and other distinguished individuals.

Table 3. LCAs in the West Kaka'ako Zone (in numerical order)

LCA Number	Contents of Award
Māhele Award 61	One house lot to Namakeha
180	One house lot to Mataio Kekūanao'a for Lot Kamehameha
982	One house lot (four houses) to Kukao
1503:2	Two fishponds to Puaa
1504	One house lot (house, pond, and salt land) and two taro <i>lo'i</i> to Pahiha
7712/7713	Lands to Mataio Kekūanao'a/Victoria Kamāmalu

### 3.4.3 Historic Land Use

The West Kaka'ako Zone consisted of exposed coral flats dotted with salt pans and fishponds, with habitations scattered along the shore and along trails that connected Honolulu to Waikīkī. The area lacked the large expanse of irrigated taro patches found in well-watered areas. An 1855 map by La Passe (see Vol. II Figure 24) shows that the west portion of the West Kaka'ako Zone

corridor lies offshore or at the edge of the coastline. An 1883 Hawaiian Government Survey map of the Honolulu Water Works System by W. D. Alexander (1883 Baldwin map; see Vol. II, Figure 42) shows a grid system representing salt pans within the eastern portion of the West Kaka'ako Zone. The 1883 map also illustrates two fishponds within the West Kaka'ako Zone corridor west of the Civic Center Station.

Kaka'ako was delineated outside the Honolulu town boundary; in the mid-to-late nineteenth century, the area served as a place for cemeteries and burial grounds and for the quarantine of contagious patients. In the early twentieth century, the area was used for sewage treatment and garbage burning, finally becoming an area for cheap housing and commercial industries (Griffin et al. 1987:13).

Late nineteenth-century maps (see Vol. II, Figures 47 and 48) show the emerging traces of future development in Kaka'ako as the grid of roads extends southeast from Honolulu toward Waikiki. Late nineteenth-century maps indicate that the West Kaka'ako Zone remained marshland with fishponds, salt pans, and a few scattered habitations.

In 1905, the Kaka'ako area was being used for the incineration of waste from urban Honolulu. Thomas Thrum reports as follows:

Early in the year was completed the long projected garbage crematory for the disposal, daily, of the city's refuse by a patent and sanitary process. It is located on the shore of Kaka'ako, adjoining the sewer pumping station; is two stories in height and built of brick. [Thrum 1906:177]

In 1914, the majority of the West Kaka'ako Zone was condemned:

...the locality bounded by King street, Ward avenue, Ala Moana and South street, comprising a total area of about two hundred acres, had been found by the board of health of the Territory to be deleterious to the public health in consequence of being low and below 'the established grades of the street nearest thereto' and at times covered or partly covered by water and improperly drained and incapable by reasonable expenditure of effectual drainage, and that said lands were in an insanitary and dangerous condition. [Hawaii Supreme Court 1915:329]

By 1914, the West Kaka'ako Zone marshlands and fishponds were eliminated as Kaka'ako lands were filled to accommodate the expanding urbanization of Honolulu. The area had become industrialized, and a U.S. Naval Station was built at the northern end of the Zone (Figure 19). According to a 1919 U.S. Army War Department Fire Control map, the area was extensively developed, with multiple buildings and the street grid system in place (Figure 20). On the 1927 Sanborn Series maps, the area still appears as heavily industrialized (Figure 21). A U.S. Army Reservation appears next to the U.S. Naval Station *makai* of the West Kaka'ako Zone at the northern end, and the Honolulu Rapid Transit & Light Co.'s material yard is shown just *mauka* of the Civic Center Station. According to a 1933 U.S. Army War Department Fire Control map (Figure 22) and a 1943 U.S. Army War Department Terrain map (see Vol. II Figure 51), the West Kaka'ako Zone continued to be extensively developed, except for a parcel in the eastern portion of the transit corridor near Ward Avenue. During the same period, only a few scattered buildings are shown for the area just *mauka* of the Civic Center Station that had been developed

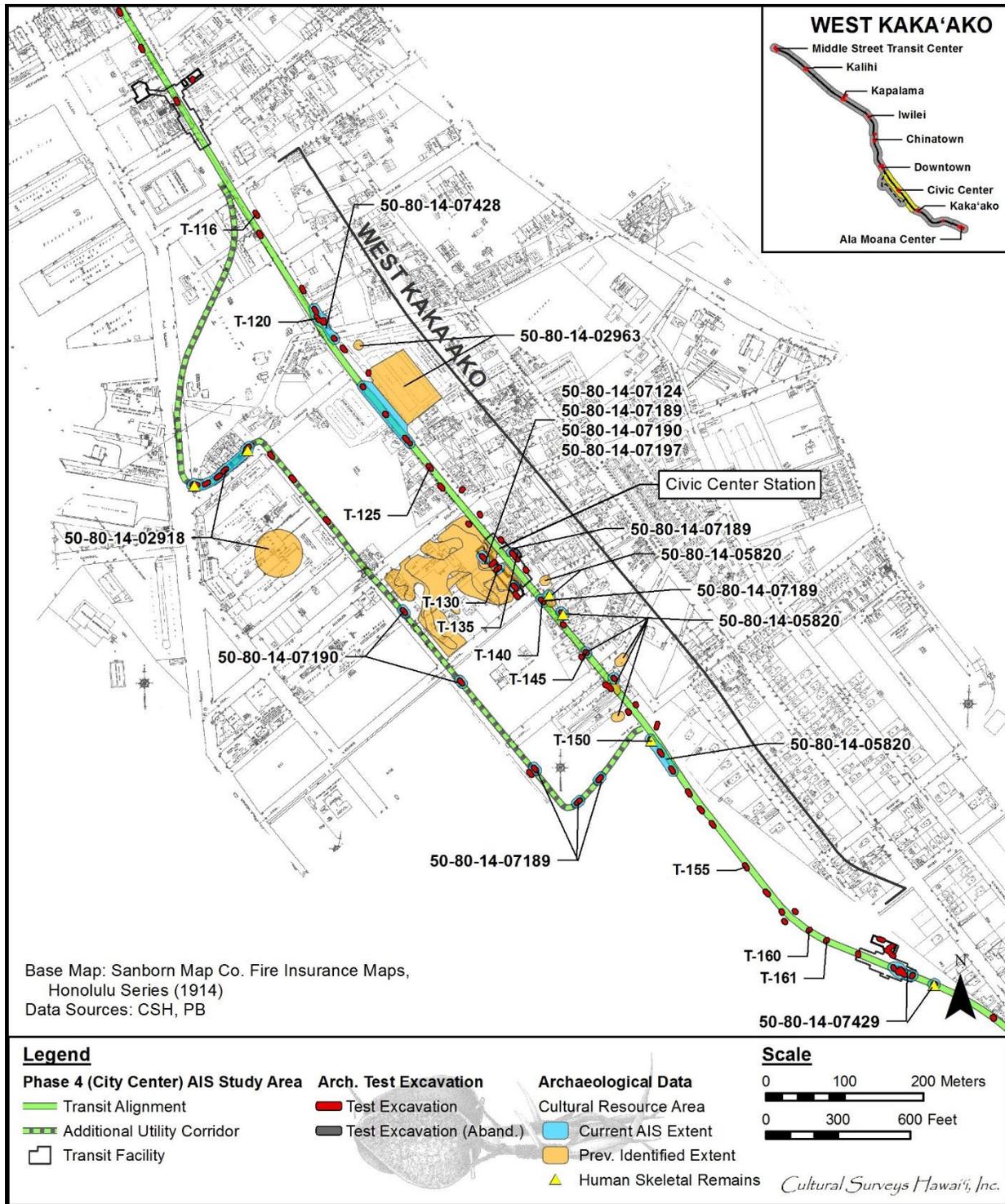


Figure 19. 1914 Sanborn Series map showing that by this time the former marshlands and fishponds were gone and the area had become intensively urbanized; the locations of the West Kaka'ako Zone AIS test excavations (T-116 through T-161) are shown along the transit corridor and at the Civic Center Station

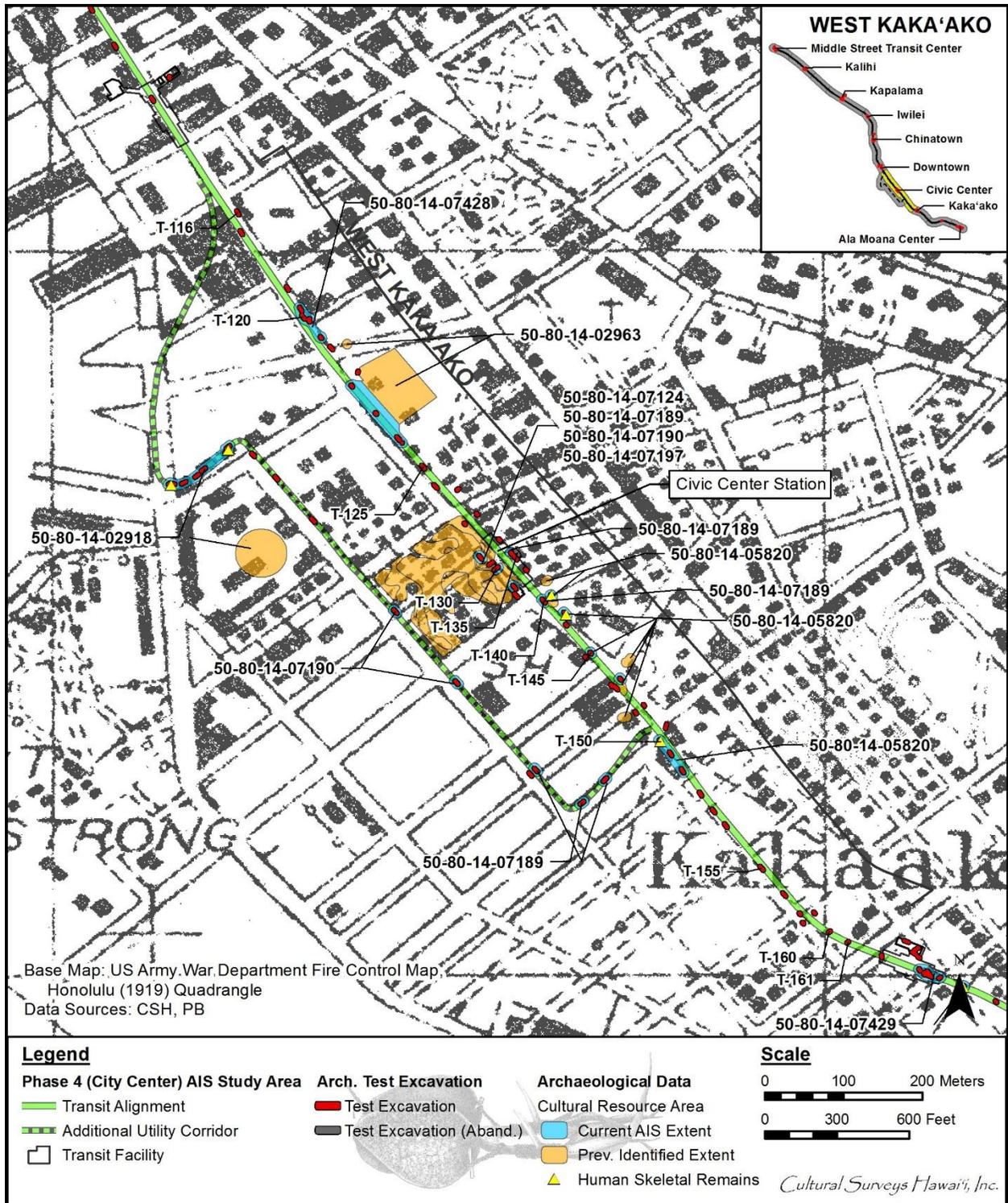


Figure 20. 1919 U.S. Army War Department Fire Control Map, Honolulu Quadrangle, showing the locations of the West Kaka'ako Zone AIS test excavations (T-116 through T-161) along the transit corridor and at the Civic Center Station

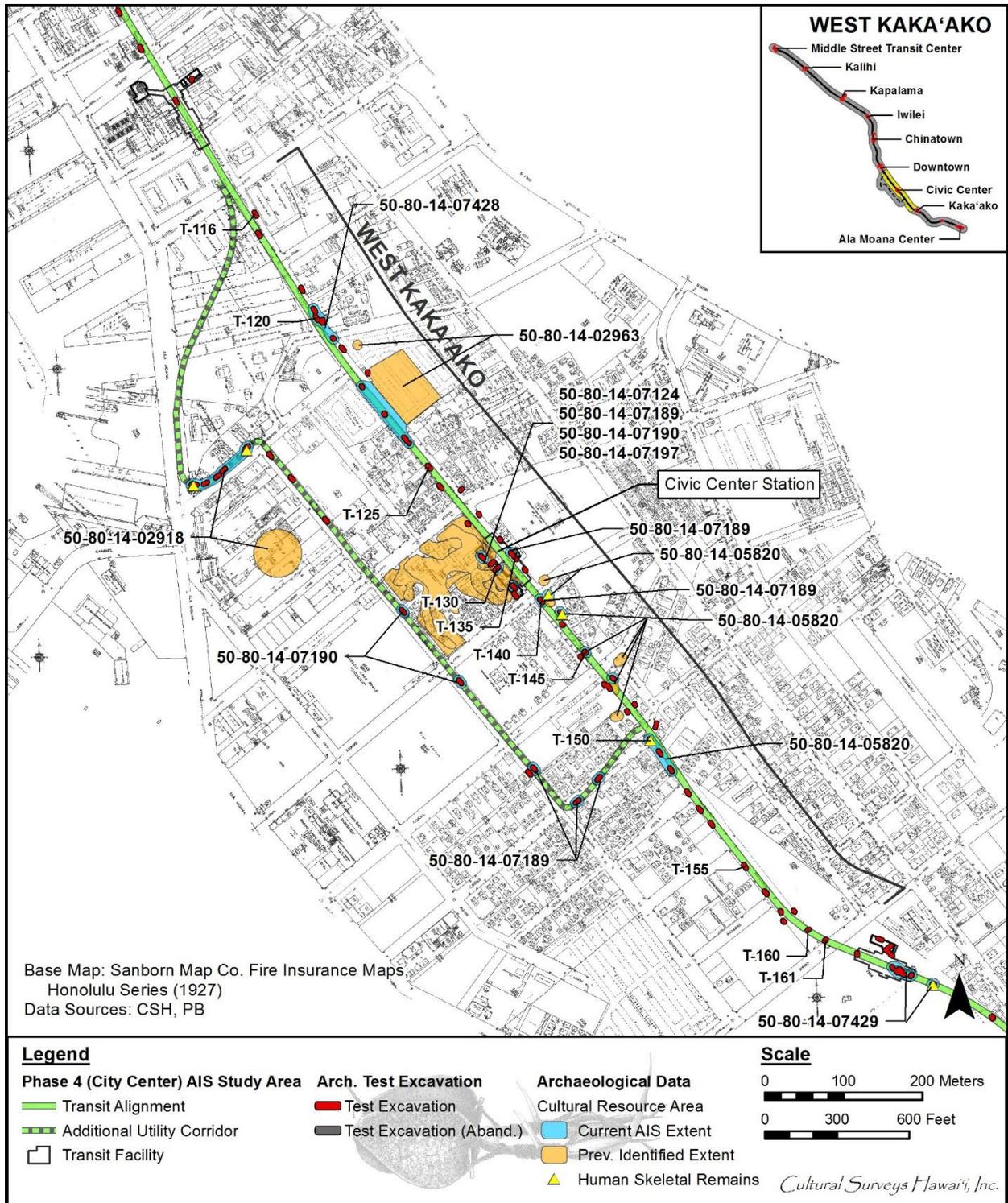


Figure 21. 1927 Sanborn Series map showing intensive industrialization and the locations of the West Kaka'ako Zone AIS test excavations (T-116 through T-161) along the transit corridor and at the Civic Center Station

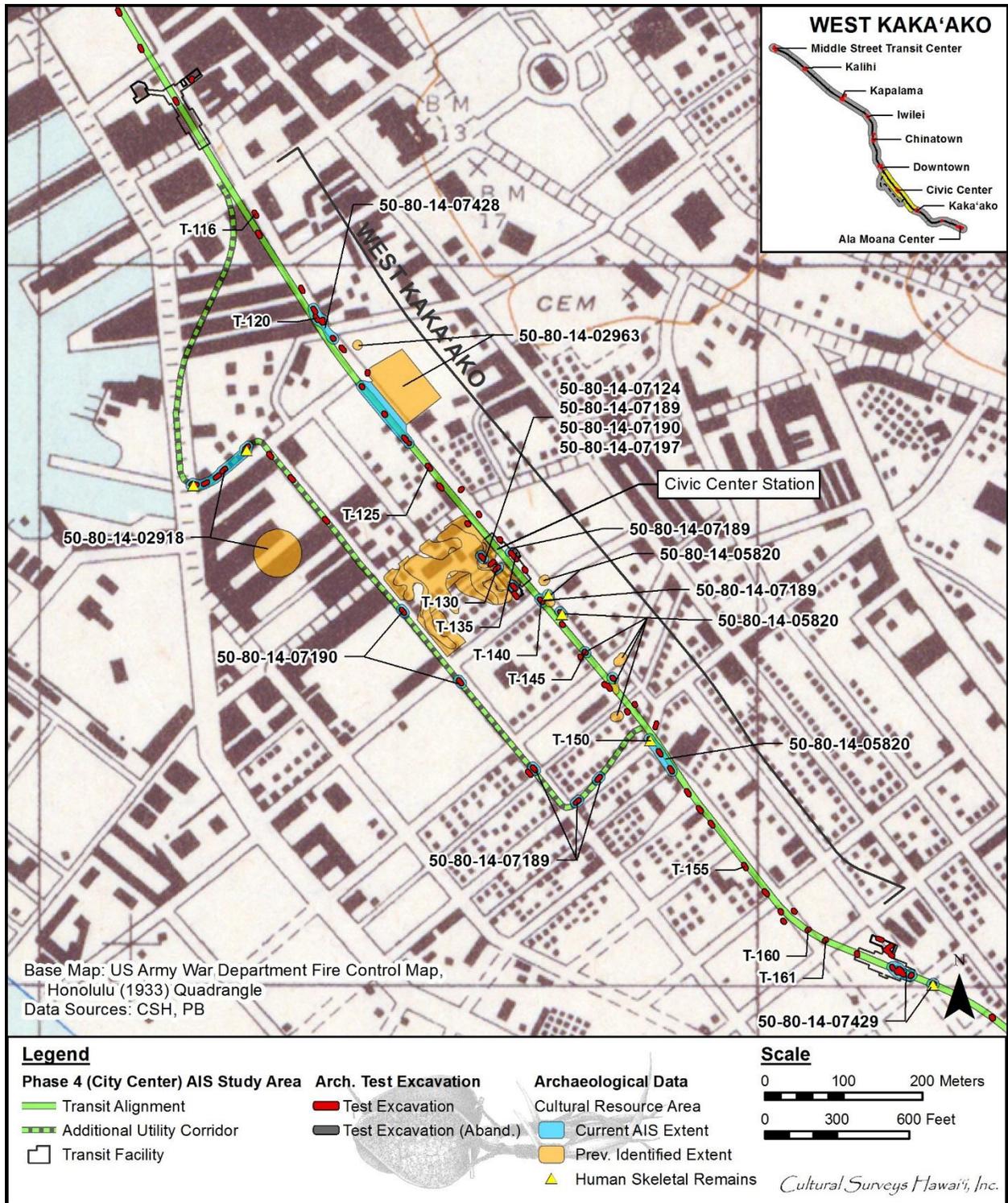


Figure 22. 1933 U.S. Army War Department Fire Control Map, Honolulu Quadrangle, showing the locations of the West Kaka'ako Zone AIS test excavations (T-116 through T-161) along the transit corridor and at the Civic Center Station

by 1919. By 1950, the U.S. Army Reservation had expanded to both sides of the transit corridor at the northern end of the zone and increased development had occurred at the southern end of the Zone (Figure 23). Although details elucidating development of the West Kaka'ako Zone are lacking on the 1953 U.S. Army Mapping Service map (Figure 24), Mother Waldron Park with Pohukaina School is shown adjacent to the transit corridor.

### **3.4.4 Settlement Pattern Summary**

The land around the West Kaka'ako Zone in Honolulu Ahupua'a offered desirable environmental conditions for traditional Hawaiian subsistence practices. The traditional settlement pattern at the shoreline of the western portion of the West Kaka'ako Zone would have included small fishponds and salt pans. No large fishponds were documented within this stretch of coastline. The central portion of the West Kaka'ako Zone did not contain perennial streams that would have provided water to the coastal plains. Consequently, the central coastal plains were relatively dry and not extensively cultivated with wetland taro. The coastal area, below present-day King Street, consisted of extensive swamp lands used for fishponds and salt pans along with occasional taro *lo'i* and habitation. Habitation was likely scattered along the shore and along trails that connected Honolulu to Waikiki.

## **3.5 Previous Archaeology**

Numerous archaeological studies have been conducted in the West Kaka'ako Zone, including 13 studies within or directly adjacent to the corridor (Figure 25). Table 4 lists and summarizes the 13 studies, which are detailed below.

### **Punchbowl Street (Cordy and Hammatt 2005)**

In 2005, CSH completed archaeological monitoring along Punchbowl Street for the installation of planters, improved sidewalk access, and the establishment of a north-bound contra-flow lane. No historic properties were identified. Observed stratigraphy at the *makai* end of the project area revealed layers of historic and modern fill material overlying natural Jaucas sand (Cordy and Hammatt 2005).

### **Corner of Punchbowl and Halekauwila Streets (Clark 1987; Ota and Kam 1982)**

In 1982, six partial sets of human remains were documented during the construction of State Office Building #2 at the southeast side of Punchbowl Street between Halekauwila and Queen Streets (Ota and Kam 1982). The remains were in poor condition, and ethnicity could not be determined for four of the six partial sets of remains. Two of the burials showed evidence of incisor evulsion (forcible extraction), which was practiced by late pre- and early post-Contact Hawaiians. These burials were designated SIHP #50-80-14-2963.

In 1987, seven sets of human remains were discovered during the construction of a parking garage on the same corner of Punchbowl and Halekauwila Streets (Clark 1987). Four of the burials were intact with well-defined burial pits, and these were assumed to be of Hawaiian ancestry. Only one of the burials was believed to date from the pre-Contact era. These burials were incorporated into SIHP #50-80-14-2963, previously identified by Ota and Kam (1982). Clark (1987:52) identified a total of 35 traditional Hawaiian and historic features, including seven burial features. Additional cultural material recovered at the site included basalt tools, glass bottles, ceramic fragments, and metal objects.

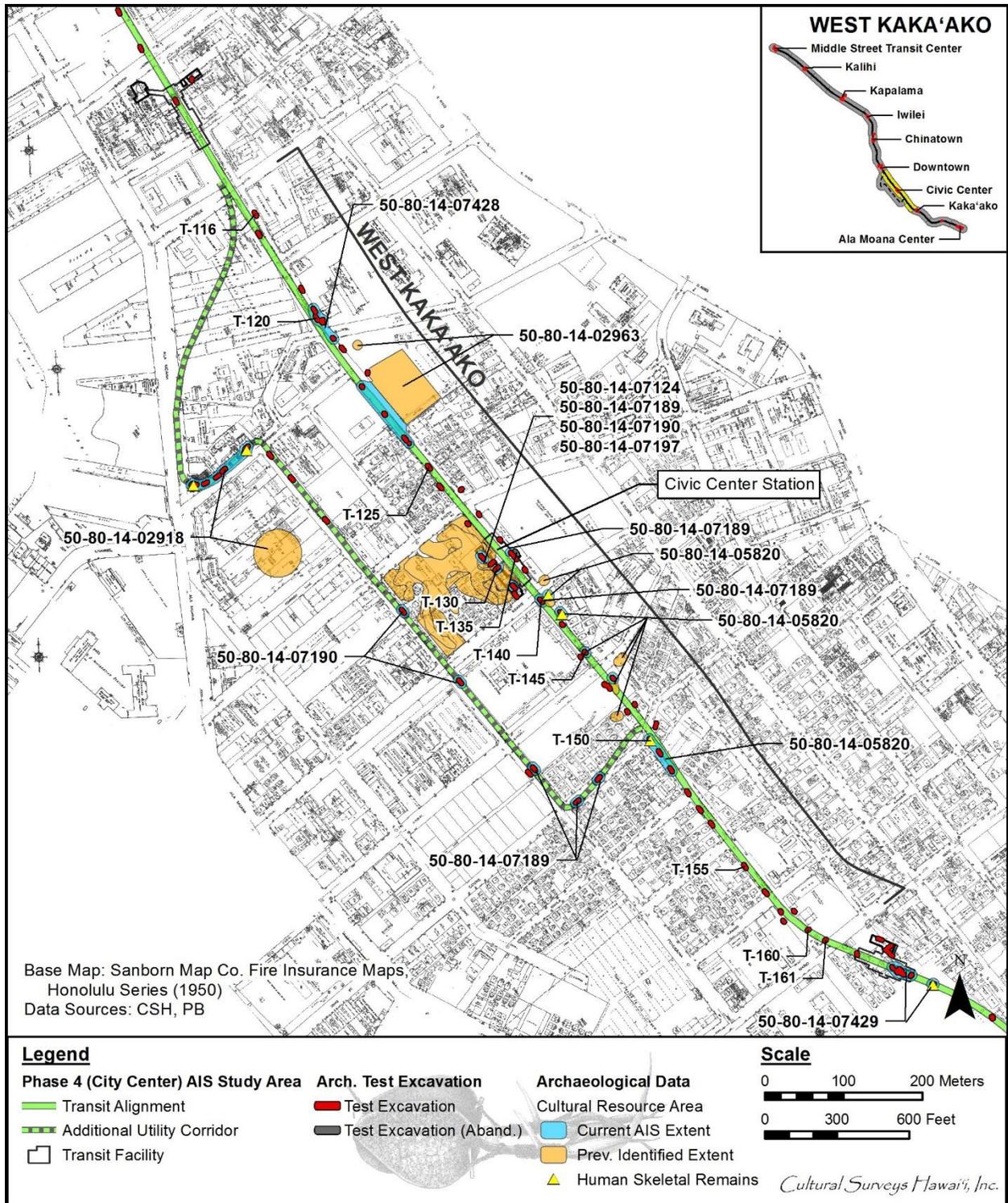


Figure 23. 1950 Sanborn Series map showing intensive industrialization and the locations of the West Kaka'ako Zone AIS test excavations (T-116 through T-161) along the transit corridor and at the Civic Center Station

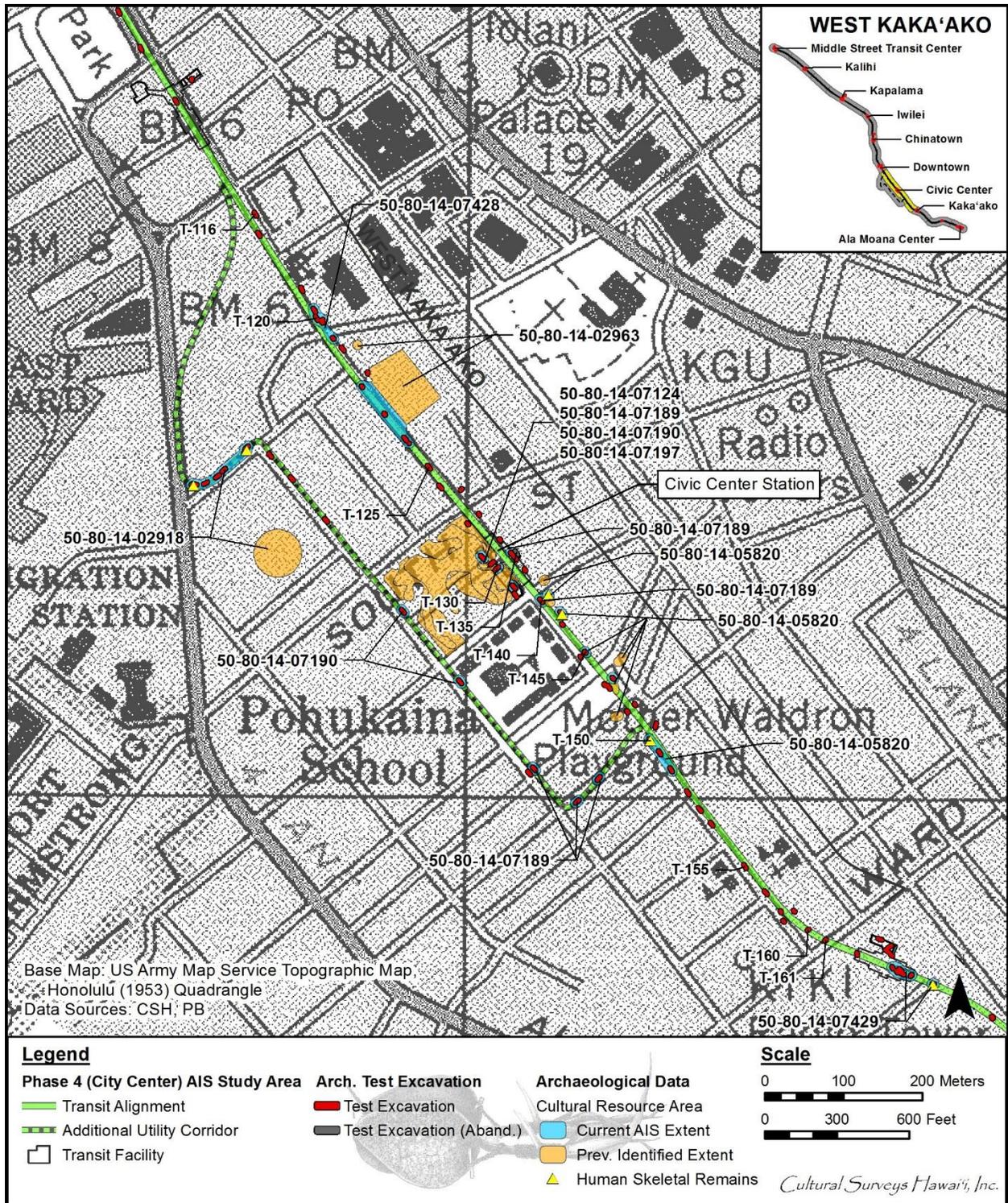


Figure 24. 1953 U.S. Army Mapping Service topographic Map, Honolulu Quadrangle, showing the locations of the West Kaka'ako Zone AIS test excavations (T-116 through T-161) along the transit corridor and at the Civic Center Station

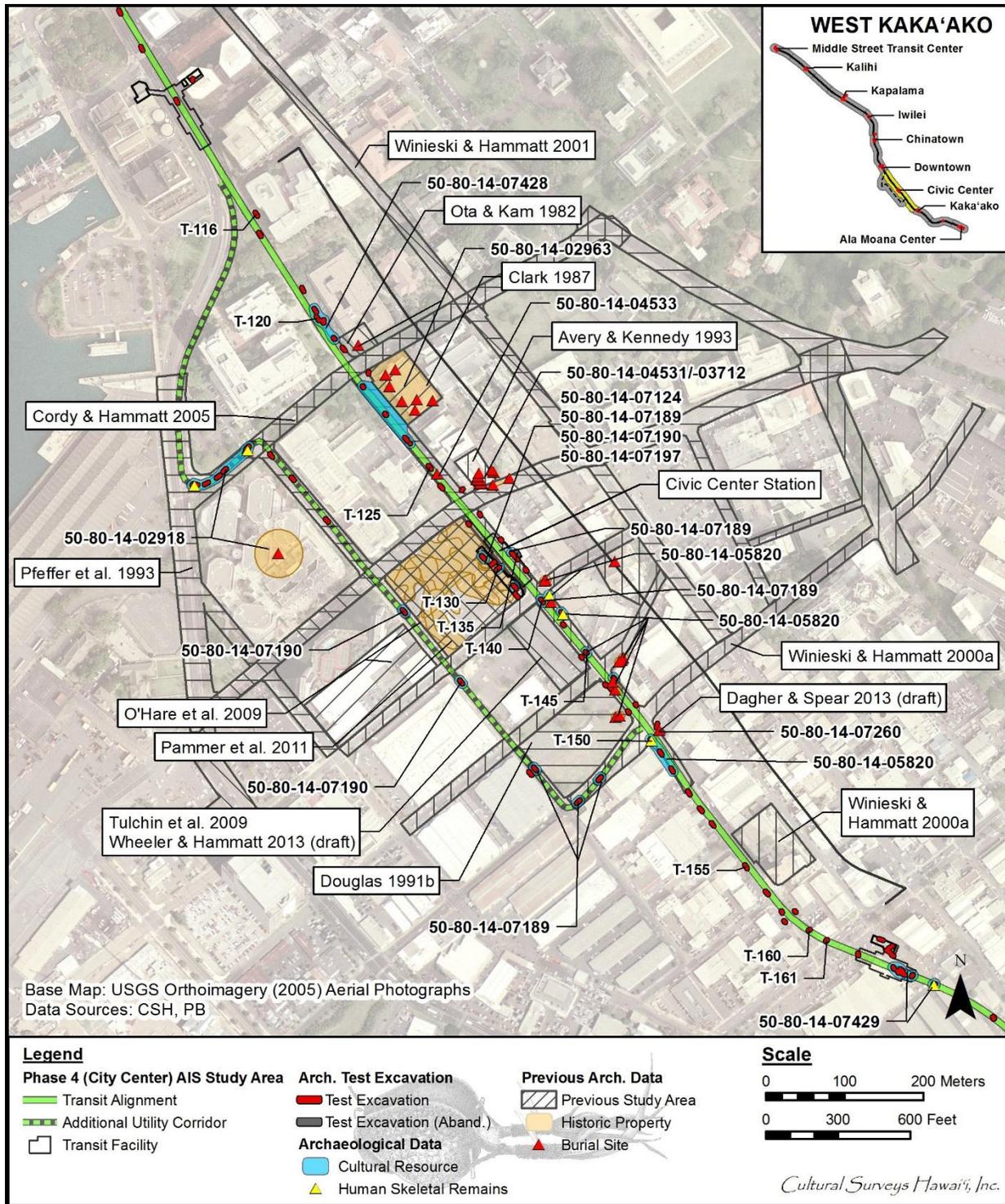


Figure 25. Aerial photograph (source: U.S. Geological Survey Orthoimagery 2005b) showing previous archaeological studies in the West Kaka'ako Zone AIS test excavations (T-116 through T-161) along the transit corridor and at the Civic Center Station

Table 4. Previous Archaeological Studies and Identified Historic Properties

<b>Author</b>	<b>SIHP #50-80-14</b>	<b>Report Description and Findings</b>
Ota and Kam 1982	-2963	Osteological study for the State Office Building #2 Project, corner of Punchbowl and Halekauwila Streets; six partial burials found. Tooth evulsion indicates probable date as pre-Contact to 1850.
Clark 1987	-2963	Archaeological monitoring at Makai Parking Garage, corner of Punchbowl and Halekauwila Streets (TMK 2-1-31:23). One historic property identified: SIHP # -2963, seven burials probably dating to pre-1850.
Douglas 1991b	-4380	Burial report; burial determined to be an adult female of Polynesian ancestry; an immature pig burial was associated with the burial and believed to represent a pet.
Avery and Kennedy 1993	-3712	Archaeological monitoring report for the South Street Building Complex; documented nine human burials from the Honuakaha Smallpox Cemetery and a historic trash pit.
Pfeffer, Borthwick, and Hammatt 1993	-3712; -4532; -4533; -4534	Archaeological monitoring and data recovery report for Kaka'ako Improvement District 1; 149 burials documented from four burial sites (two cemeteries and two isolated burials).
Winieski and Hammatt 2000a	-1388; -4380; -5820	Archaeological monitoring report for Kaka'ako Improvement District 3; documented 20 human burials.
Winieski and Hammatt 2001	-5942	Archaeological monitoring report for the Nimitz Highway reconstructed sewer project; one historic property encountered: a remnant of a light-gauge rail associated with the historic Honolulu Rapid Transit trolley system.
Cordy and Hammatt 2005	N/A	Archaeological monitoring report for Punchbowl Street; no historic properties identified.
O'Hare, Tulchin, Borthwick, and Hammatt 2009	N/A	Archaeological inventory survey plan with limited subsurface testing for three Kamehameha Schools Kaka'ako <i>Mauka</i> parcels; no historic properties identified.
Tulchin, Altizer, Borthwick, and Hammatt 2009	N/A	Archaeological assessment for the Halekauwila Place project with subsurface testing; no historic properties identified.

Author	SIHP #50-80-14	Report Description and Findings
Pammer, Fong, and Hammatt 2011	-7124; -7189; -7190; -7197	Archaeological inventory survey of the Block 2 Parking Lot for Kamehameha Schools; documented four historic properties: SIHP #-7124 historic building remnants; SIHP #-7189 a layer of burnt historic debris; SIHP #-7190 old salt pan remnants; and SIHP #-7197 a sandy buried cultural layer.
Dagher and Spear 2013	-7260	Burial site component of a data recovery plan; documented a partial set of human skeletal remains from the east corner of Halekauwila Street and Cooke Street.
Wheeler and Hammatt 2013	N/A	Archaeological inventory survey and monitoring for the Halekauwila Place project. Various fill layers documented, sometimes overlying natural wetland sediments.

### **Kaka'ako Improvement District 1 (Pfeffer et al. 1993)**

Between 1986 and 1988, CSH conducted archaeological monitoring, data recovery, and burial disinterment in the Hawai'i Community Development Authority's Kaka'ako Improvement District 1, which was bounded by Punchbowl Street, South Street, King Street, and Ala Moana Boulevard, and included portions of Kawaiaha'o Lane, Queen Street, Auahi Street, Pohukaina Street, Quinn Lane, and Reed Lane. The observed stratigraphy generally consisted of imported construction fill material overlying naturally-occurring Jaucas sand or volcanic cinder. In many cases, the Jaucas sand or volcanic cinder deposits were culturally enriched with pre- and post-Contact deposits, including human burials, building foundations, trash pits, midden concentrations, and various pre- and post-Contact artifacts.

A total of 149 burials were documented during the project, including 116 historic burials from Kawaiaha'o Cemetery (SIHP #50-80-14-4534) at Queen Street (used from 1825–1920), 31 burials from the 1853–1854 Honuakaha Smallpox Cemetery (SIHP #50-80-14-3712) at Quinn Lane, one historic burial from Punchbowl Street (SIHP #50-80-14-4532), and one possibly pre-Contact burial from Halekauwila Street (SIHP #50-80-14-4533).

### **South Street Building Complex (Avery and Kennedy 1993)**

Archaeological monitoring was conducted at 614 South Street in 1993 (Avery and Kennedy 1993). Monitoring was required following the inadvertent discovery of three in situ burials. The subject property was located above a portion of the historic Honuakaha Smallpox Cemetery (SIHP #50-80-14-3712). The excavation of trenches across the property and on Quinn Lane identified the presence of six additional in situ human burials. A historic trash pit dated to the early twentieth century was also identified.

All nine burials and the trash pit were included as features of the Honuakaha Smallpox Cemetery (SIHP #50-80-14-3712). All of the burials were situated in the known bounds of the cemetery and were probably interred during the smallpox epidemic of 1853 (Avery and Kennedy

1993:19). Two of the burials contained grave goods consisting of a dog tooth pendant, a gold earring, and glass and shell beads. All of the identified burials were situated within Jaucas sand deposits.

#### **Nimitz Highway Reconstructed Sewer Project (Winieski and Hammatt 2001)**

In 2001, CSH conducted archaeological monitoring for the Nimitz Highway reconstructed sewer project (Winieski and Hammatt 2001). The project ran along River Street, Nimitz Highway, Queen Street, South Street, and Ala Moana Boulevard. Only one historic property was encountered: a remnant of a light-gauge rail associated with the historic Honolulu Rapid Transit trolley system (SIHP #50-80-14-5942) at the intersection of Queen Street and Nimitz Highway (outside of the West Kaka'ako Zone and immediately adjacent to the Downtown Waterfront Zone corridor). A historic-era brick-lined manhole was also observed at this location. A historic period soda bottle was encountered in a historic fill layer at the intersection of Pohukaina and South Streets (within the Kaka'ako Makai Zone corridor). Sediments at the intersection of South and Halekauwila Streets within the West Kaka'ako Zone corridor consisted of fill layers down to the water table at 220 cmbs overlaying gley sediment over the coral shelf.

#### **Kamehameha Schools Kaka'ako Mauka Parcels (O'Hare et al. 2009; Pammer et al. 2011)**

In 2009, CSH prepared an archaeological inventory survey plan for three Kamehameha Schools Kaka'ako *mauka* parcels and conducted limited subsurface testing within the Block 2 parking lot parcel. This parcel, bounded by South, Halekauwila, Keawe, and Pohukaina Streets, encompasses the *makai* half of the Civic Center Station. The limited subsurface testing documented various fill layers over naturally-occurring wetland sediments.

In 2011, CSH completed the archaeological inventory survey for the Block 2 parking lot parcel. A total of four historic properties were identified within the project area: SIHP #s 50-80-14-7124, -7189, -7190 and -7197. SIHP #50-80-14-7124 consists of 31 features of historic building remnants. The features included brick and mortar clusters, slabs of concrete/basalt, concrete footings with metal supports, large slabs of very hard, melted metal, and pit features containing demolition debris. SIHP #50-80-14-7189 consists of a layer of burnt historic debris, suspected to result from the open air burning of urban refuse during the early 1900s. The charred remains were used to fill in the wetlands around the project area. The observed cultural materials included glass bottles, ceramics, and other domestic waste. SIHP #50-80-14-7190 consisted of old salt pan remnants, presenting as an approximately 5 cm-thick layer of alternating peat and clay striations. SIHP #50-80-14-7197 consisted of a sandy, buried cultural layer containing one late pre-Contact/early post-Contact fire pit feature.

#### **Halekauwila Place Project (Tulchin et al. 2009; Wheeler and Hammatt 2013)**

In 2009, CSH completed an archaeological assessment of the proposed Halekauwila Place project, located just *makai* of the study area between Keawe and Coral Streets. The assessment consisted of the excavation of 18 backhoe trenches. No historic properties were identified.

The stratigraphy observed within the project area generally consisted of various layers of historic and modern fill overlying naturally-occurring sediment (sandy clay and gleyed clay sediments) typical of a wet, marsh-type environment.

At the time of the current report, CHS was conducting an archaeological inventory survey and performing archaeological monitoring for the Halekauwila Place project (Wheeler and Hammatt 2013). Although the project report is pending, field notes documented various thick fill layers sometimes overlying natural wetland sediments.

#### **Mother Waldron Park (Douglas 1991b)**

The Douglas (1991b) report provides an analysis of a burial identified during construction across from Mother Waldron Park (SIHP #50-80-14-5820). The remains were determined to be those of an adult female of Polynesian ancestry. An associated immature pig burial was believed to represent a pet. Both burials are considered part of SIHP #50-80-14-4380.

#### **Kaka'ako Improvement District 3, *Mauka* and *Makai* of Halekauwila Street (Winieski and Hammatt 2000a)**

Between 1990 and 1992, CSH conducted archaeological monitoring, data recovery, and burial disinterment in the Hawai'i Community Development Authority's Kaka'ako Improvement District 3. Subsurface excavations revealed that although the area had been previously disturbed to a great extent, a cultural layer and in situ beach sand and volcanic cinder deposits were still intact below fill layers. The cultural layer contained historic artifacts mixed with scant traditional Hawaiian cultural materials. In addition, 20 human burials were documented. Eleven burials were documented in and around Mother Waldron Park (SIHP #50-80-14-5820) and nine burials were documented at the Pohulani Elderly Rental Housing site (SIHP #50-80-14-4380) one block northwest of the corridor. Seventeen of these burials were recovered and reinterred within Mother Waldron Park and three burials were preserved in place beneath the Pohulani Elderly Rental Housing Facility.

#### **East Corner of Halekauwila and Cooke Streets (Dagher and Spear 2013)**

The Dagher and Spear report is a burial site component of a data recovery plan that documents a partial set of human skeletal remains and associated artifacts (SIHP #50-80-14-7260) that were identified during construction at the east corner of Halekauwila and Cooke Streets. The remains were determined to be those of a subadult of Native Hawaiian ancestry. Traditional Hawaiian artifacts, possible midden material, and historic artifacts were documented in the backdirt pile in which the remains were found. The human remains and all associated finds are planned for reinterment near the original location of the burial.

### **3.6 Modern Land Use and Built Environment**

The West Kaka'ako Zone corridor traverses an urban environment through the neighborhood of Kaka'ako. The centerline of this project alignment within the West Kaka'ako Zone lies within Halekauwila Street. Parcels bordering Halekauwila Street contain largely commercial structures, some warehouses, parking lots, some multi-story residential structures, and Mother Waldron Park (SIHP #50-80-14-5820), with roads, alleyways, and driveways extending outward from Halekauwila Street. Portions of Halekauwila Street have been lined with cut basalt curbstones. A massive utility corridor is also present throughout the West Kaka'ako Zone containing electrical, gas, water, sewer, and storm lines. The number and distribution of these existing utilities indicates that this West Kaka'ako corridor portion of Halekauwila has been heavily disturbed in the past.

### 3.7 Test Excavation 116 (T-116)

<b>Ahupua'a:</b>	Honolulu
<b>LCA:</b>	N/A
<b>TMK #:</b>	2-1-026 [Plat]
<b>Elevation:</b>	1.93 m
<b>UTM:</b>	617997.33 mE, 2356354.49 mN
<b>Max Length/Width/Depth:</b>	6.80 m/0.80 m/1.70 m
<b>Orientation:</b>	153/333° TN
<b>Targeted Project Component:</b>	Utility Relocation (Tel Com Manhole)
<b>USDA Soil Designation:</b>	Fill land (FL)

**Setting:** Test Excavation 116 (T-116) was located approximately 40 m southeast of South Nimitz Highway and Richards Street intersection on Halekauwila Street. T-116 was located on property owned by the City and County of Honolulu. Utilities located near the excavation included two sewer lines approximately 2.8 m northwest and 1.0 m southeast of T-116. The excavation surface was level with the surrounding land surface.

**Summary of Background Research and Land Use:** According to Metcalf's 1847 map, T-116 was originally situated 40 m offshore, within Honolulu Harbor. By the early 1880s and proceeding into the 1890s, the area around T-116 was intentionally filled in with hydraulic fill material from Honolulu Harbor and other areas. The 1883 Baldwin map shows T-116 situated approximately 50 m offshore, still within the harbor. Just one year later, the 1884 Bishop map indicates T-116 was 24 m inland from the shoreline, 5 m northeast of Halekauwila Street (see Figure 17). The 1887 Wall map shows that the shoreline had been extended 300 m and T-116 was located 5 m north of Halekauwila Street. Hence in roughly four years the Honolulu shoreline had been infilled and extended approximately 350 m (~1150 ft). The 1897 Monsarrat map shows continued development in the area around the harbor. The 1904 Newton map shows T-116 between the Navy Building and T.H. Davies & Co. Warehouse on Halekauwila Street between Richards Street and Mililani Street. The U.S. Army War Department maps (1919, 1933, and 1943) and 1953 U.S. Army Mapping Service map depict increased industrialization throughout the surrounding area (see Figure 20, Figure 22, and Figure 24).

LCA records for the area indicated that traditional land use was limited to salt making, taro cultivation, and fishpond farming. Although T-116 was not located within an LCA, a small cluster of LCAs were located west of the excavation area. LCA 773 (awarded to Kealoha) was located 53 m northeast of T-116. LCA 129 (awarded to Kinimaka) was located 60 m east of T-116 (see Figure 18).

Previous archaeology of the surrounding area included several studies (see Figure 25). Previous archaeological investigations in the West Kaka'ako zone included a monitoring report for the Nimitz Highway Reconstructed Sewer by Winieski and Hammatt (2001) approximately 125 m east of T-116. The survey identified one historic property, a remnant of a light-gauge rail associated with the historic Honolulu Rapid Transit trolley system (SIHP #50-80-14-5942). An

archaeological monitoring report completed by Hazlett et al. (2008) (see Figure 12, Figure 14, and Table 2 in the Downtown Waterfront Zone, Section 3.5) documented thick fill and reclamation layers; however, no historic properties or archaeological features were documented. T-116 was located 25 m east of an area that was monitored in 2009 (Petrey et al.) for the Nimitz Highway and Ala Moana Boulevard Resurfacing Project. No historic properties or archaeological features were documented.

**Documentation Limitations:** T-116 was excavated to a depth of 1.70 mbs. The water table was encountered at 1.63 mbs. There were no factors limiting documentation of T-116.

**Stratigraphic Summary:** The stratigraphy of T-116 consisted of fill strata to the water table. Observed strata were asphalt (Ia), very gravelly loam base course (Ib), sandy loam fill (Ic), gravelly sandy loam (Id), medium to coarse sand (Ie), fine sand (hydraulic fill) (If), clay fill (Ig), medium grained sand (Ih), silty clay fill (Ii), and gravelly sandy loam (Ij) to the water table. The stratigraphy conformed to the USDA soil survey designation of Fill land (FL).

**Artifacts Discussion:** A total of thirteen (13) artifacts (Acc. #s 116-A-1 through A-13, see following table and photographs) were collected from Stratum Ij between 1.3 and 1.7 mbs. The six ceramic artifacts consist of three Euro-American ironstone vessels, a Chinese porcelain rice bowl, and two British stoneware bottles (made 1835–1900). The seven glass bottle artifacts may all date to the last decades of the nineteenth century based on their trademarks and lip finishes (applied finish dating to 1820–1890; tooled finish dating to 1880–1920). The artifacts collected from Stratum Ij date from the late 1800s to early 1900s.

**Features Discussion:** No features observed.

**Terrestrial Faunal Remains Discussion:** A single *Bos taurus* rib fragment was collected during excavation from Stratum Ij (1.2–1.8 mbs). This bone shows marks from being butchered by a metal blade, which in addition to being an introduced species indicates this food bone dates to the historic period.

**Sample Results:** No sample analysis was conducted.

**GPR Discussion:** A review of amplitude slice maps indicated linear features outside excavation boundaries. Reflectivity was relatively uniform throughout the grid and decreases with depth except for the linear features. A transition from higher reflectivity to lower reflectivity was observed at approximately 0.5 mbs.

GPR depth profiles for T-116 identified horizontal banding, commonly associated with stratigraphic layering, throughout the survey area. This banding corresponded to variations of density and chemical composition within fill deposits. The profile also indicated a change in reflectivity occurring around 0.25 mbs and again around 0.7 mbs. No utilities were observed in the profile. The maximum depth of clean signal return was approximately 1.25 mbs.

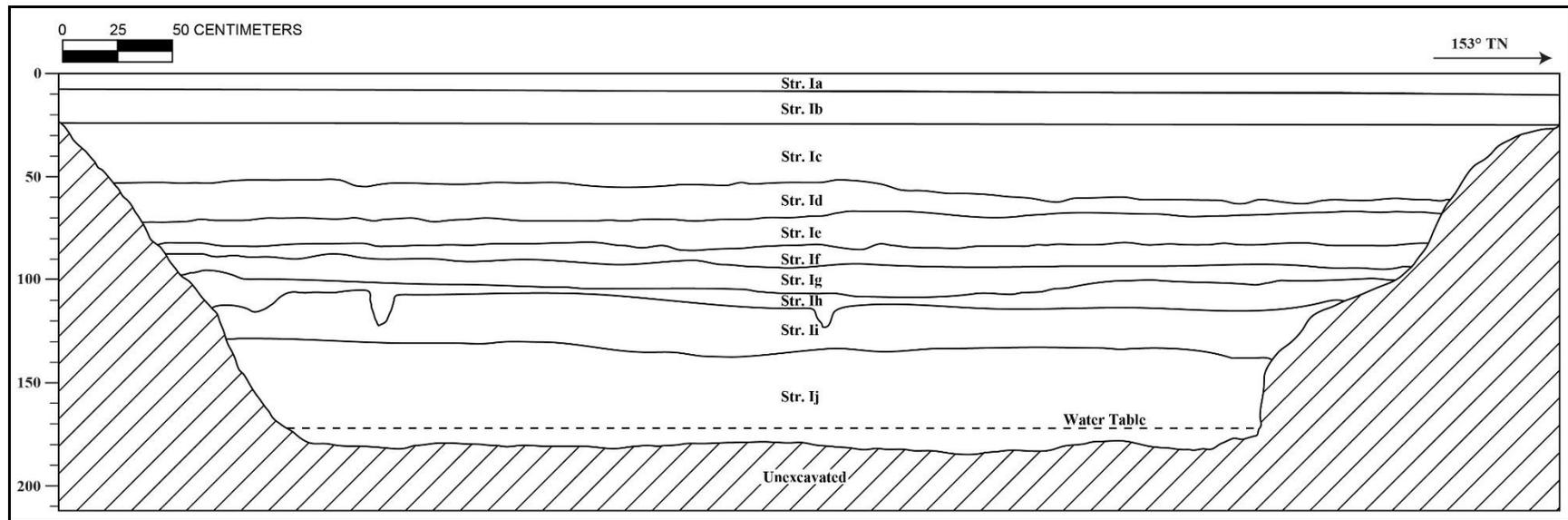
**Summary:** T-116 was excavated to a depth of 1.70 mbs. The water table was encountered at 1.63 mbs. The stratigraphy consisted of fill (Ia–Ij) to the base of excavation and conformed to the USDA soil survey designation of Fill land. The artifacts collected from Stratum Ij date from the 1800s to early 1900s. The butchered cow bone also probably dates to this period. Stratum Ij likely represents a fill deposit associated with the infilling of this area beginning in the early 1880s. No archaeological cultural resources were identified within T-116.



T-116 general location, view to the west



T-116 northeast profile wall, view to east



T-116 northeast profile wall

## T-116 Stratigraphic Description

Stratum	Depth (cmbs)	Description
Ia	0–8	Asphalt
Ib	8–23	Fill; 10 YR 3/2 (very dark grayish brown); very gravelly loam; structureless, single-grain; moist, very friable consistency; non-plastic; terrigenous origin; abrupt, smooth lower boundary; gravel base course
Ic	23–60	Fill; 2.5 YR 6/2 (light brown gray) with common very coarse mottles 2.5 YR 3/1 (very dark gray); sandy loam; structureless, single-grain; moist, friable consistency; non-plastic; mixed origin; abrupt, wavy lower boundary; contained metal wire and glass (not collected); contained few crushed coral gravel
Id	50–66	Fill; 10 YR 6/2 (light brown gray) with common coarse mottles 2.5 YR 6/2 (light brown gray); gravelly sandy loam; structureless, single-grain; moist, firm consistency; non-plastic; mixed origin; abrupt, wavy lower boundary; contained crushed coral gravels
Ie	63–80	Fill; 10 YR 6/2 (light brown gray); medium to coarse sand; structureless, single-grain; moist, friable consistency; non-plastic; marine origin; very abrupt, smooth lower boundary; contained few crushed coral gravels and lenses of very coarse sand; lower boundary indicated fill event
If	77–85	Fill; 10 YR 7/2 (light gray); fine sand; structureless, single-grain; moist, friable consistency; non-plastic; marine origin; very abrupt, smooth lower boundary; very likely hydraulic fill deposit
Ig	85–103	Fill; GLEY 2 7/10B (light bluish gray); clay; structureless, massive; moist, firm consistency; very plastic; very abrupt, smooth lower boundary; hydraulic fill; micro-banded stratigraphy, slightly lighter and darker bands, 2–6 mm thick
Ih	95–115	Fill; 10 YR 6/3 (pale brown); medium sand; structureless, single-grain; moist, friable consistency; non-plastic; marine origin; very abrupt, smooth lower boundary; contained some crushed coral gravels; tan sand fill between hydraulic fill layers
Ii	102–129	Fill; 10 YR 6/3 (pale brown); silty clay; structureless, single-grain; moist, firm consistency; plastic; marine origin; lower boundary not visible; hydraulic fill; water table in the layer below
Ij	130–170 (BOE)	Fill; 10 YR 2/2 (very dark brown); gravelly sandy loam; structureless, massive; moist, friable consistency; slightly plastic; terrigenous origin; lower boundary not visible; contained bottles, ceramics, and butchered bone (collected), and leather, wood, metal, and nails (not collected)

T-116 Historic Artifacts Analysis Table

Acc.# 116- A-	Prov.	Ceramic Vessel Type	Portion	No.	Paste	Origin; Age	Comments
1	T-116, St. Ij	Hollowware – large	Base to body	1	Refined earthenware	Euro-American	Ironstone; no decoration
2	T-116, St. Ij	Flatware – saucer with cup ring	Base to rim	1	Refined earthenware	Euro-American	Ironstone; leaf molded
3	T-116, St. Ij	Hollowware – large mug	Body to rim	1	Refined earthenware	Euro-American	Ironstone; no decoration
4	T-116, St. Ij	Hollowware – rice bowl	Base to body	1	Porcelain	Chinese	Sweet Pea motif; painted underglaze
5	T-116, St. Ij	Bottle	Complete	1	Stoneware	British; 1835–1900	Two tone: ferruginous glaze (upper), Bristol glaze (lower)
6	T-116, St. Ij	Bottle	Complete	1	Stoneware	British; 1850–1900	Two tone: ferruginous glaze (upper), Bristol glaze (lower)
Acc.# 116- A-	Prov.	Glass Bottle Type	Portion	No.	Color	Origin; Age	Comments
7	T-116, St Ij	Bottle, beverage	Base-neck	1	Green, light		“863” – embossed on base; “9” in center of base
8	T-116, St Ij	Bottle, soda	Base-neck	1	Amber	American; 1870– ca. 1900	Vincent Hathaway & Co., Boston – Ginger Ale
9	T-116, St Ij	Bottle, beverage	Complete	1	Olive	1820–1890	
10	T-116, St Ij	Bottle, beer	Base-body	1	Amber	American; 1866–1890	Lindell Glass Co., St. Louis, Mo. base mark
11	T-116, St Ij	Vial, medicine	Complete	1	Clear	1880–1920s	
12	T-116, St Ij	Bottle, beverage	Complete	1	Green, light	1820–1890	
13	T-116, St Ij	Bottle, sauce	Complete	1	Blue, light	American; 1877–1890	Lea & Perrins; JDS American distributor



T-116 ceramic fragments; Euro-American ironstone hollowware (Acc. #116-A-1; upper left), Euro-American ironstone saucer (Acc. #116-A-2; upper right), Euro-American ironstone mug (Acc. #116-A-3; lower left), and Chinese porcelain rice bowl with “Sweet Pea” motif (Acc. #116-A-4; lower right) from Stratum Ij, exterior



T-116 ceramic fragments (Acc. #s 116-A-1 through A-4) from Stratum Ij, interior



T-116 stoneware bottles (Acc. #s 116-A-5 and A-6) collected from Stratum Ij



T-116 “Vincent Hathaway” glass bottle (Acc. #116-A-8) collected from Stratum Ij



T-116 glass bottles (Acc. #s 116-A-10, A-9, A-8, and A-7, left to right) collected from Stratum Ij



T-116 glass bottles (Acc. #s 116-A-12, A-13, and A-11, left to right) collected from Stratum Ij

### 3.8 Test Excavation 117 (T-117)

<b>Ahupua'a:</b>	Honolulu
<b>LCA:</b>	N/A
<b>TMK #:</b>	2-1-026 [Plat]
<b>Elevation Above Sea Level:</b>	1.85 m
<b>UTM:</b>	618002.10 mE, 2356329.04 mN
<b>Max Length/Width/Depth:</b>	7.2 m/0.7 m/2.0 m
<b>Orientation:</b>	144/324° TN
<b>Targeted Project Component:</b>	Guideway Column
<b>USDA Soil Designation:</b>	Fill land (FL)

**Setting:** Test Excavation 117 (T-117) was located in Halekauwila Street, 40 m northwest of the Mililani Street and Halekauwila Street intersection. A water line was present 1.5 m east of T-117, and an electric utility lay 1.5 m west. T-117 was located on property owned by the City and County of Honolulu. The excavation surface was level with the surrounding land surface.

**Summary of Background Research and Land Use:** According to Metcalf's 1847 map, T-117 was originally situated 40 m offshore, within Honolulu Harbor. The 1883 Baldwin map shows T-117 situated approximately 70 m offshore, still within the harbor. The 1884 Bishop map indicates that T-117 was 20 m inland from the shoreline while the 1887 Wall map indicates that the shoreline had been extended 300 m and T-117 was located within Halekauwila Street. The 1897 Monsarrat map reveals continued development in the area, and the 1904 Newton map shows T-117 between the Navy Building and T.H. Davies & Co. Warehouse on Halekauwila Street between Richards Street and Mililani Street. The U.S. Army War Department maps (1919, 1933, and 1943) and the 1953 U.S. Army Mapping Service map depict increased industrialization throughout the surrounding area (see Figure 20, Figure 22, and Figure 24). In summary, T-117 was originally located offshore, but beginning in the early 1880s and into the 1890s, the area around T-117 was intentionally filled in with hydraulic fill material from Honolulu Harbor and other nearby areas.

LCA records for the area indicated that traditional land use was limited to salt making, taro cultivation, and fishpond farming. Although T-117 was not within an LCA, a small cluster of LCAs were located west of the excavation area. T-117 was 57 m west of LCA 129, awarded to Kinimaka, 65 m southwest of LCA 773, which was awarded to Kealoha, and 82 m northwest of LCA 19, which was awarded to Na'ahu (see Figure 18).

Previous archaeology of the surrounding area included several studies (see Figure 25). Previous archaeological investigations in the Downtown Waterfront area included archaeological monitoring for the Nimitz Highway Reconstructed Sewer approximately 140 m east of T-117 (Winieski and Hammatt 2001). The survey identified one historic property, a remnant of a light-gauge rail associated with the historic Honolulu Rapid Transit trolley system (SIHP #50-80-14-5942). Archaeological monitoring completed by Hazlett et al. (2008) (see Figure 12, Figure 14, Table 2) documented thick fill and reclamation layers; however, no historic properties or

archaeological features were documented. T-116 was located 30 m east of an area that was monitored for the Nimitz Highway and Ala Moana Boulevard Resurfacing Project (Petrey et al. 2009). No historic properties or archaeological features were documented. Human skeletal remains (SIHP #50-80-14-4605) were found 110 m southeast of T-117 (Denham and Kennedy 1993), and six partial burial sets (SIHP #50-80-14-2963) were found 173 m south of T-117 (Ota and Kam 1982). The State Tax office or "Hale 'Auhau" (50-80-14-1307) was located 143 m southeast of T-117.

**Documentation Limitations:** T-117 was excavated to a depth of 2.0 mbs. The water table was encountered at 1.73 mbs. A concrete utility jacket spanned approximately half the test excavation at 0.93 mbs. Portions of another utility jacket were encountered in the southeast and northwest ends of the test excavation just below the asphalt. In addition, a portion of a possible former concrete road surface was encountered below Stratum Ia and covered the middle area of T-117. The former concrete road surface was considered to be less than 50 years old. A copper water line approximately 0.60 mbs was also encountered in the southeast corner.

**Stratigraphic Summary:** The stratigraphy of T-117 consisted of fill strata overlying natural sediment to the base of excavation. Observed strata were asphalt (Ia), extremely gravelly sand (Ib), and gravelly sandy loam (Ic) overlying natural silty clay (II) to the water table. The stratigraphy conformed to the USDA soil survey designation of Fill land (FL).

**Artifacts Discussion:** A total of 28 artifacts (Acc. #s 117-A-1 through A-28, see following table and photographs) were collected from Stratum Ic at 0.21 to 1.34 mbs. The artifacts included 37 ceramic fragments (from at least four vessels) consisting of a Chinese bowl with a "Bamboo" motif, fragments of two Chinese stoneware vessels, and a Euro-American ironstone large bowl/wash basin (33 fragments). The 24 glass bottle fragments (from at least 15 items) included three bottles made in a turn mold, dated from 1860 to the 1920s, and four clear and two light brown bottle fragments post-dating the 1870s based on the color of the glass. The bottles may all date between the mid-1800s and early 1900s. Miscellaneous historic artifacts consisted primarily of building materials, including brick fragments, nails, a sewer pipe, and window glass. The majority of artifacts collected from Stratum Ic appear to date to the late 1800s to early 1900s.

**Feature Discussion:** No features were observed.

**Terrestrial Faunal Remains Discussion:** *Bos taurus* fragments were collected individually during excavation throughout Stratum Ic (0.20–1.33 mbs) and a concentration of *Bos taurus*, *Sus scrofa*, and *Canis lupus familiaris* skeletal elements was collected from Stratum Ic at 1.0 mbs. Most of the *Bos taurus* fragments had been butchered with a metal blade (indicating an historic origin), while the rest of the bones show no signs of cultural modifications.

**Sample Results:** No sample analysis was conducted.

**GPR Discussion:** A review of amplitude slice maps indicated linear features which might correspond to the utility jackets encountered during excavation. Reflectivity was relatively uniform throughout the grid and decreases with depth except for the linear features. A transition from higher reflectivity to lower reflectivity was observed at approximately 0.5 mbs.

GPR depth profiles for T-117 identified horizontal banding, commonly associated with stratigraphic layering, throughout the survey area. This banding corresponded to variations of density and chemical composition within fill deposits. The profile also indicated a change in

reflectivity occurring around 0.25 mbs. Several anomalies were observed in the profile that correspond to the copper pipe and the concrete utility jackets that were encountered during excavation. The maximum depth of clean signal return was approximately 1.25 mbs.

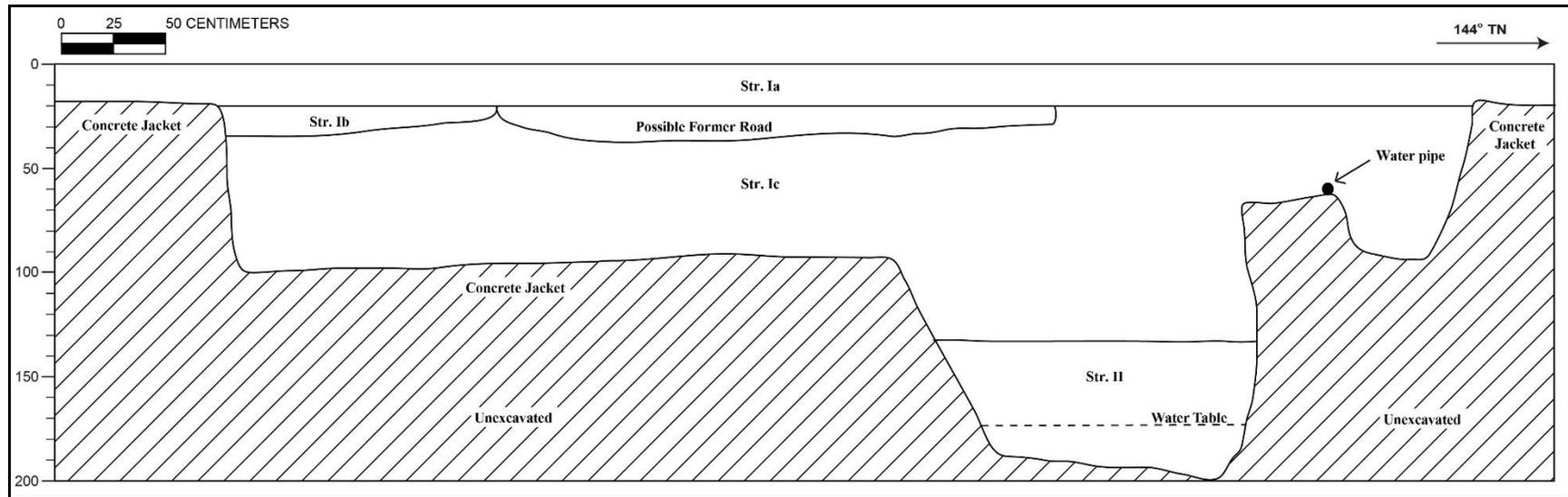
**Summary:** T-117 was excavated to a depth of 2.00 mbs. The water table was encountered at 1.73 mbs. The stratigraphy consisted of fill strata (Ia–Ic) overlying natural sediment (II) to the base of excavation. The stratigraphy conformed to the USDA soil survey designation of Fill land above Stratum II. The majority of artifacts collected from Stratum Ic date to the late 1800s to early 1900s. T-117 was originally located offshore, but beginning in the early 1880s and into the 1890s the area around T-117 was intentionally filled in with hydraulic fill material from Honolulu Harbor and other nearby areas. Due to the presence of a concrete jacket (0.93 mbs) below and pre-dating Stratum Ic, it is likely that Stratum Ic dates to a later period than the initial infilling of the harbor. In addition to historic cultural material, Stratum Ic contained naturally-occurring marine shells and sand, suggestive of a locally-procured fill from an A-horizon. Remnants of a possible former concrete road surface were exposed below a portion of the asphalt (Stratum Ia). This concrete road segment is believed to be less the 50 years old. The road appears to have been cut and partially removed during previous construction activity.



T-117 general location, view to south



T-117 east wall profile, view to northeast



T-117 northeast profile wall

## T-117 Stratigraphic Description

<b>Stratum</b>	<b>Depth (cmts)</b>	<b>Description</b>
Ia	0–21	Asphalt
Ib	21–36	Fill; 10 YR 8/6 (yellow); extremely gravelly sand; structureless, single-grain; dry, loose consistency; non-plastic; mixed origin; abrupt, broken/discontinuous lower boundary; base course
Ic	21–134	Fill; 10 YR 4/2 (dark gray brown); gravelly sandy loam; weak, fine, crumb structure; moist, friable consistency; non-plastic; mixed origin; clear, smooth lower boundary; few, medium roots; contained ceramic pipe fragment, red brick fragment, ceramic plate fragments, cut faunal, glass (collected); locally procured re-deposited; possible A-horizon with cultural material
II	133–200 (BOE)	Natural; 10 YR 3/3 (dark brown); silty clay; structureless, massive; firm, moist consistency; plastic; terrigenous origin; lower boundary not visible; possible natural surface, homogenous alluvial clay

## T-117 Historic Artifacts Analysis Table

Acc. # 117-A-	Prov.	Ceramic Vessel Type	Portion	No.	Paste	Origin; Age	Comments
1	T-117, St. Ic	Hollowware – bowl	Base to rim	2	Porcelain	Chinese	Bamboo motif, painted underglaze
2	T-117, St. Ic	Hollowware – crook or jar	Body	1	Stoneware	Chinese	Brown slip glaze
3	T-117, St. Ic	Hollowware – large crock	Base	1	Stoneware	Chinese	Cylindrical vessel; brown slip glaze
4	T-117, St. Ic	Hollowware – bowl or wash basin	Body and rim	33	Refined earthenware	Euro- American	Ironstone; no decoration
Acc. # 117-A-	Prov.	Glass Bottle Type	Portion	No.	Color	Origin; Age	Comments
5	T-117, St. Ic	Bottle, spirits	Complete	1	Olive, dark	1860– 1920s	Base: push-up
6	T-117, St. Ic	Bottle, spirits	Shoulder –lip	1	Green, light	1880– 1920	
7	T-117, St. Ic	Bottle	Base– body	1	Green	1800– post	Base: kick-up
8	T-117, St. Ic	Bottle, gin	Base	1	Green, dark		Case gin; rounded corners
9	T-117, St. Ic	Bottle	Body	2	Amber		
10	T-117, St. Ic	Bottle, spirits	Base– body	1	Olive	1860– 1920s	
11	T-117, St. Ic	Vial, medicine	Complete	1	Clear	1870s– post	
12	T-117, St. Ic	Bottle, medicine	Neck–lip	1	Blue, cobalt	1880– 1920	
13	T-117, St. Ic	Bottle, medicine	Lip	1	Clear	1870s– post	
14	T-117, St. Ic	Bottle, spirits	Base– body	1	Amber	1860– 1920s	Base: push-up
15	T-117, St. Ic	Bottle	Base	6	Olive		
16	T-117, St. Ic	Bottle	Base	1	Aqua		Flat corners
17	T-117, St. Ic	Bottle, medicine	Base– body	2	Brown, light	1870s– post	
18	T-117, St. Ic	Bottle, beverage	Body	2	Clear	1870s– post	
19	T-117, St. Ic	Bottle	Body	2	Green, light		
Acc. # 117-A-	Prov.	Misc. Type	Portion	No.	Material	Origin; Age	Comments
20	T-117, St. Ic	Brick	Complete	1	Fired clay		Composite material brick; textured surface with glazed face, dark brown
21	T-117, St. Ic	Brick	Fragment	3	Fired clay		3 light brown fragments

Acc. # 117-A-	Prov.	Misc. Type	Portion	No.	Material	Origin; Age	Comments
22	T-117, St. Ic	Nails and rusted chunks	Fragment	7	Metal		
23	T-117, St. Ic	Pebble, rounded	Complete	1	Stone		Dark gray
24	T-117, St. Ic	Pipe stem	Complete	1	Wood		Pipe stem
25	T-117, St. Ic	Plastic item	Fragment	1	Plastic		Hard, dark gray
26	T-117, St. Ic	Rubber	Fragment	1	Rubber		
27	T-117, St. Ic	Sewer Pipe?	Fragment	1	Ceramic		Thick ceramic salt-glazed curved fragment
28	T-117, St. Ic	Window glass	Fragment	2	Glass		Clear small fragment



T-117 ceramic fragments; Chinese rice bowl fragments with “Bamboo” motif (Acc. #117-A-1, top) and Chinese stoneware fragments (Acc. #s 117-A-2 and A-3, bottom) from Stratum Ic, exterior



T-117 ceramic fragments (Acc. #s 117-A-1 to A-3) from Stratum Ic, interior



T-117 ceramic fragments; Euro-American ironstone bowl or wash basin (Acc. #117-A-4) from Stratum Ic, exterior



T-117 ceramic fragments; Euro-American ironstone bowl or wash basin (Acc. #117-A-4) from Stratum Ic, interior



T T-117 glass bottle artifacts and glass bottle fragments (Acc. #s 117-A-5 through A-11, left to right) from Stratum Ic



T-117 glass bottle artifact fragments (Acc. #s 117-A-12 through A-19) from Stratum Ic

### 3.9 Test Excavation 118 (T-118)

<b>Ahupua'a:</b>	Honolulu
<b>LCA:</b>	N/A
<b>TMK #:</b>	2-1-026 [Plat]
<b>Elevation Above Sea Level:</b>	1.89 m
<b>UTM:</b>	618056.95 mE, 2356259.11 mN
<b>Max Length/Width/Depth:</b>	7.5 m/1.0 m/1.85 m
<b>Orientation:</b>	168/348° TN
<b>Targeted Project Component:</b>	Utility Relocation
<b>USDA Soil Designation:</b>	Fill land (FL)

**Setting:** Test Excavation 118 (T-118) was located on Halekauwila Street, 110.0 m northwest of the Halekauwila Street and Punchbowl Street intersection, on property owned by the City and County of Honolulu. T-118 was 2.0 m north of a water line, 1.6 m *mauka* of a storm drain and 1.6 m *makai* of a sewer line. The test excavation was level with the surrounding land surface.

**Summary of Background Research and Land Use:** According to Metcalf's 1847 map, T-118 was originally situated 6 m inshore, next to Honolulu Harbor. The 1883 Baldwin map shows T-118 situated approximately 70 m offshore, still within the harbor. The 1884 Bishop map indicates that T-118 was 70 m inland from the shore. The 1887 Wall map indicates that the shoreline had been extended and T-118 was located within Halekauwila Street. The 1897 Monsarrat map depicts continued development in the area. The 1904 Newton map shows T-118 between the Navy Building and T.H. Davies & Co. Warehouse on Halekauwila Street between Richards Street and Mililani Street. The U.S. Army War Department maps (1919, 1933, and 1943) and 1953 U.S. Army Mapping Service map depict increased industrialization throughout the surrounding area (see Figure 20, Figure 22, and Figure 24). Thus, T-118 was originally located offshore, but beginning in the early 1880s and into the 1890s, the area around T-118 was intentionally filled in with hydraulic fill material from Honolulu Harbor and other nearby areas.

LCA records for the area indicate that traditional land use was limited to salt making, taro cultivation, and fishpond farming. Although T-118 was not located within an LCA, it was near a small cluster of LCAs. T-118 was located 75 m southwest of LCA 63, which was awarded to Namauu. LCA 247, which was awarded to W.C Lunalilo, was located 80 m east of T-118. LCA 180, awarded to Lot Kamehameha, was located 18 m southeast of T-118 (see Figure 18).

Several archaeological studies were conducted in the vicinity of T-118 (see Figure 25). An archaeological monitoring study conducted for the Nimitz Highway and Ala Moana Boulevard Resurfacing Project (Petrey et al. 2009) was located 100 m west of T-118. No historic properties or archaeological features were documented. Archaeological monitoring of the State Capitol Complex Telecommunication Conduits, Phase III Project (Denham and Kennedy 1993) identified human skeletal remains (SIHP #50-80-14-4605) approximately 85 northeast of T-118. In addition, six partial burial sets (SIHP #50-80-14-2963) were found 63 m south of T-118 (Ota

and Kam 1982). The State Tax office or "Hale 'Auhau" (50-80-14-1307) was located 95 m east of T-118.

**Documentation Limitations:** T-118 was excavated to 1.85 mbs where the coral shelf was encountered. The water table was present at 1.75 mbs. A possible water main ran through T-118, and the middle portion of T-118 was unexcavated to prevent disturbance of the utility.

**Stratigraphic Summary:** The stratigraphy of T-118 consisted of multiple layers of fill overlaying natural sediments. Observed strata were concrete sidewalk (Ia), very gravelly sandy loam fill (Ib), very gravelly cobbly sand (Ic), clay fill (Id), sandy clay loam fill (Ie), overlying the coral shelf (II). The stratigraphy conformed to the USGS soil survey designation of Fill land (FL).

**Artifacts Discussion:** A total of ten artifacts (Acc. #s 118-A-1 through A-10, see following table and photographs) were collected, three from Stratum Ib and seven from Stratum Ie. Artifacts collected from Stratum Ib consist of a Euro-American whiteware plate fragment and two glass bottle fragments. Four glass bottles and three bottle glass fragments were collected from Stratum Ie. Three bottles were made in a two-piece cup mold, the most common type of mold used during and following the 1870s. A cone-shaped or conical ink bottle was made as early as the 1830s, but this was the dominant form from the 1880s to the 1910s. Artifacts collected from Stratum Ie likely date from the 1870s to the early twentieth century.

**Feature Discussion:** No features were observed.

**Terrestrial Faunal Remains Discussion:** No terrestrial faunal remains were collected individually during excavation.

**Sample Results:** One 3-liter bulk sediment sample was collected from Stratum Ie between 1.55 and 1.70 mbs. The sediment sample was wet screened. The sample contained charcoal (0.1 g), possible coconut (5.6 g), medium seeds (0.1 g), possible coal (0.2 g), bottle glass (27.7 g), rusted metal (2.7 g), unidentified fish skeletal remains (0.1 g), a shark tooth (0.1 g), gastropods (1.15 g), *Nerita picea* (5.3 g), *Turbo sandwicensis* (3.2 g), *Brachidontes crebristriatus* (1.9 g), *Isognomon* sp. (0.8 g), *Echinothrix diadema* sp. and *Echinometra mathaei* sp. (0.1 g). The faunal material is consistent with a marine environment. Stratum Ie is a sandy clay loam fill deposit.

**GPR Discussion:** A review of amplitude slice maps indicated a linear feature, possibly a water line, but the feature was not ground-truthed. Reflectivity was relatively uniform throughout the grid and decreases with depth except for the linear feature. A transition from higher reflectivity to lower reflectivity was observed at approximately 0.75 mbs.

GPR depth profiles for T-118 identified horizontal banding, commonly associated with stratigraphic layering, throughout the survey area. This banding corresponded to variations of density and chemical composition within fill deposits. The profile also indicated a change in reflectivity occurring around 0.15 mbs. An anomaly observed in the profile was suspected to be a water line although ground-truthing was not conducted. The maximum depth of clean signal return was approximately 0.9 mbs.

**Summary:** T-118 was excavated to 1.85 mbs where the coral shelf was encountered. The stratigraphy consisted of multiple layers of fill overlaying natural sediments and conformed to the USGS soil survey designation of Fill land. The datable historic cultural material in Stratum Ie

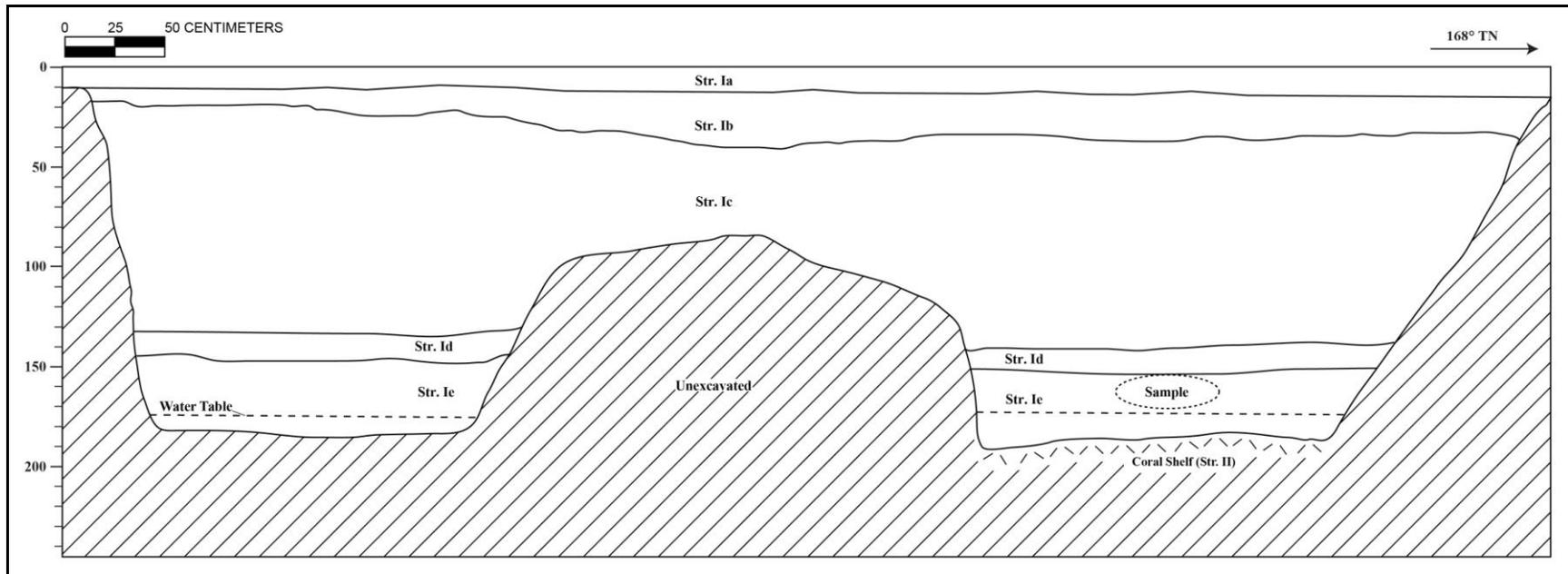
generally date from the 1870s to early twentieth century. No archaeological cultural resources were identified within T-118.



T-118 general location, view to southwest



T-118 northeast wall profile, view to northeast



T-118 northeast wall profile

## T-118 Stratigraphic Description

<b>Stratum</b>	<b>Depth (cmbs)</b>	<b>Description</b>
Ia	0–12	Concrete sidewalk
Ib	12–40	Fill; 10 YR 4/3 (brown); very gravelly sandy loam; weak, medium to coarse, crumb structure; moist, friable consistency; non-plastic; terrigenous origin; abrupt, smooth lower boundary; many, fine-medium-coarse roots; contained glass bottle fragments and a ceramic plate piece (collected); gravel base course
Ic	15–138	Fill; 2.5 YR 7/3 (pale yellow); very gravelly cobbly sand; structureless, single-grain; moist, loose to very friable consistency; non-plastic; marine origin; clear, smooth lower boundary; few, medium sized roots; crushed coral base course
Id	138–152	Fill; GLEY 1 8/5GY (light greenish gray); clay; structureless, massive; wet, sticky consistency; plastic; marine origin; clear, smooth lower boundary; hydraulic fill material with striations present
Ie	145–185	Fill; 7.5 YR 2.5/1 (black); sandy clay loam; weak, medium, crumb structure; wet, slightly sticky consistency; non-plastic; mixed origin; abrupt lower boundary; few, medium-very coarse roots; contained whole bottles and bottle fragments (collected); a bulk sample was collected from bucket
II	175–185 (BOE)	Natural; 10 YR 7/4 (very pale brown); bedrock-limestone; structureless, massive; moist, weakly to strongly cemented; discontinuous consistency; non-plastic; marine origin; lower boundary not observed; Pleistocene coral shelf

## T-118 Historic Artifacts Analysis Table

Acc. # 118-A-	Prov.	Ceramic Vessel Type	Portion	No.	Paste	Origin; Age	Comments
1	T-118, St. Ib	Flatware – plate	Base to rim	1	Refined earthenware	Euro- American	Whiteware; no decoration
Acc. # 118-A-	Prov.	Glass Bottle Type	Portion	No.	Color	Origin; Age	Comments
2	T-118, St. Ib	Bottle	Base	1	Aqua		
3	T-118, St. Ib	Bottle	Base-body	1	Green		
4	T-118, St. Ie	Bottle, ink	Complete	1	Aqua	1830s–post	Cone-shaped ink; most common from 1880s to 1910
5	T-118, St. Ie	Bottle	Neck-lip	1	Aqua		Laid-on-ring lip
6	T-118, St. Ie	Bottle	Body	1	Brown		
7	T-118, St. Ie	Lid	Complete	1	White	1870s–post	Milk glass
8	T-118, St. Ie	Bottle	Neck-lip	1	Clear	1880–1920	
9	T-118, St. Ie	Bottle	Complete	1	Aqua	1870s–post	“P10” embossed on base
10	T-118, St. Ie	Lid, medicine	Complete	1	Aqua	1870s–post	Glass lid



T-118 ceramic fragment (Acc. #118-A-1) from Stratum Ib, interior



T-118 ceramic fragment (Acc. #118-A-1) from Stratum Ib, exterior



T-118 ink glass bottle (Acc. #118-A-4) from Stratum Ie



T-118 glass bottle and bottle fragments (Acc. #s 118-A-9, A-8, A-5, A-6, and A-7, clockwise from left) from Stratum Ie

### 3.10 Test Excavation 119 (T-119)

<b>Ahupua'a:</b>	Honolulu
<b>LCA:</b>	180
<b>TMK #:</b>	2-1-026:022
<b>Elevation Above Sea Level:</b>	1.71 m
<b>UTM:</b>	618082.98 mE, 2356220.20 mN
<b>Max Length/Width/Depth:</b>	3.4 m/1.0 m/1.9 m
<b>Orientation:</b>	236/56° TN
<b>Targeted Project Component:</b>	Guideway Column
<b>USDA Soil Survey Designation:</b>	Fill land (FL)

**Setting:** Test Excavation 119 (T-119) was located within the Halekauwila Street northeast sidewalk partition planter, next to the Department of Labor and Industrial Relations Building, on property owned by the State of Hawai'i. A storm drain was located 5.6 m and electric lane was 8.0 m southwest of T-119. There was a slight slope between the road and the parking lot.

**Summary of Background Research and Land Use:** Baldwin's 1883 Map shows T-119 located approximately 30 m east of the former shoreline. The 1884 Bishop map shows the shoreline farther west, and T-119 90 m east of the shoreline. The Monsarrat map shows more urban development, street grids and sparse distribution of structures, and T-119 located near the corner of Halekauwila Street and Punchbowl Street. The 1904 Newton map depicts T-119 about 190 m east of Ala Moana Boulevard. The 1919 U.S. Army War Department Fire Control map shows increased development, and the 1933 U.S. Army War Department Fire Control map shows massive urbanization (see Figure 20 and Figure 22). 1943–1953 U.S. Army maps and the UH SOEST Aerial photos (1939–1941 and 1952) show continued development; however, the current structures are not depicted (see Figure 24). LCA records for the area indicate that traditional land use was limited to salt making, taro cultivation, and fishpond farming. T-119 was located within LCA 180, which was one house lot awarded to Mataio Kekūanā'ō'a for Lot Kamehameha. LCA 129 (awarded to Kinimaka) was located 38 m southeast of T-119 (see Figure 18).

Previous archaeology for the surrounding area includes several studies (see Figure 25). A burial report by Ota and Kam (1982) identified the remains of six individuals (SIHP #50-80-14-2963) during construction, located 32 m southeast of T-119, on the corner of Halekauwila Street and Punchbowl Street. Archaeological monitoring was conducted for the Kaka'ako Improvement District 1 construction project, approximately 64 m southeast of T-119, which identified one probable pre-Contact burial (SIHP #50-80-14-4533) with 11 sling stones and other traditional Hawaiian artifacts, which were removed to Bernice Pauahi Bishop Museum (Pfeffer, Borthwick, and Hammatt 1993). Approximately 88 m southeast of T-119 archaeological monitoring was conducted for the Makai Parking Garage on the corner of Punchbowl Street and Halekauwila Street, which identified one historic property (SIHP #50-80-14-2963) consisting of seven burials pre-dating 1850 (Clark 1987). Denham and Kennedy (1993) identified a site consisting of

multiple burial finds and ten pre- and post-Contact features (SIHP #50-80-14-4605), and nine trash pit features (SIHP #50-80-14-4606) located approximately 78 m east of T-119.

**Documentation Limitations:** T-119 was excavated to the water table at a depth of 1.9 mbs. Utilities and a concrete jacket limited excavation in the northeast end of T-119.

**Stratigraphic Summary:** The stratigraphy of T-119 was composed predominately of fill material overlaying a reworked cultural layer (II) and natural sand (III). Observed strata were silty clay landscape fill (Ia), very gravelly sandy loam fill (Ib), gravelly sand fill (Ic), reworked natural loamy silt (II), and natural medium grained sand (III). The stratigraphy observed was consistent with the USDA Fill land (FL) soil designation for the area. The Stratum II natural sediments contained fire-cracked rock, charcoal staining, and historic cane slag. This deposit is identified as a component of SIHP #50-80-14-7428, a culturally-enriched former land surface.

**Artifacts Discussion:** Seven brick fragments from at least two bricks (Acc. #s 119-A-1 and A-2) were collected from Stratum Ic at 0.60–0.95 mbs. One of the bricks may have been manufactured between 1807 and 1860.

**Features Discussion:** A historic wall (SIHP #50-80-14-7428 Feature 1), constructed of basalt stone and mortar, was observed in the south portion of T-119. The wall was encountered at approximately 1.3 mbs and terminated at 1.9 mbs where the coral shelf was located. SIHP #7428 Feature 1 measured 0.6 m tall, 0.5 m wide, and 1.0 m long, and extended into both the northeast and southwest sidewalls. T-119A was an additional excavation unit excavated adjacent to the southeast of T 119 to increase documentation of the SIHP #7428 Feature 1 (see Test Excavation 119A).

**Terrestrial Faunal Remains Discussion:** Faunal remains of *Bos taurus* were collected during excavation from Stratum Ic at a depth of 0.80 mbs. Faunal fragments included a cervical vertebra portion cut with a metal blade (historic origin) and irregular bones that mend (fit together). No vertebrate faunal remains were found in the underlying natural sediments identified as a component of SIHP #50-80-14-7428.

**Sample Results:** One (10 L) bulk sediment sample from Stratum II at 1.15–1.55 mbs was dry screened in the field. It contained fire-cracked rock and various marine shell midden (37.2g). The midden collected included *Cypraea tigris* (9.9 g), *Conus* sp. (8.5 g), *Cypraea caputserpentis* (7.3 g), *Tellina palatam* (6.8 g), *Nassarius gaudiosus* (2.2 g), *Brachidontes crebristriatus* (1.1 g), *Strombus* sp. (0.9 g), and *Isognomon* sp. (0.5 g). The results of sample analysis indicated possible cultural activity.

**GPR Discussion:** A review of amplitude slice maps indicated linear features outside the excavation boundaries. Reflectivity was relatively uniform throughout the grid and decreases with depth except for the linear features. A transition from higher reflectivity to lower reflectivity was observed at approximately 0.25 mbs.

GPR depth profiles for T-119 identified horizontal banding, commonly associated with stratigraphic layering, throughout the survey area. This banding corresponded to variations of density and chemical composition within fill deposits. The profile also indicated a change in reflectivity occurring around 0.2 mbs. An anomaly was observed in the profile that corresponds to the utility and utility jacket encountered during excavation. The maximum depth of clean signal return was approximately 1.0 mbs.

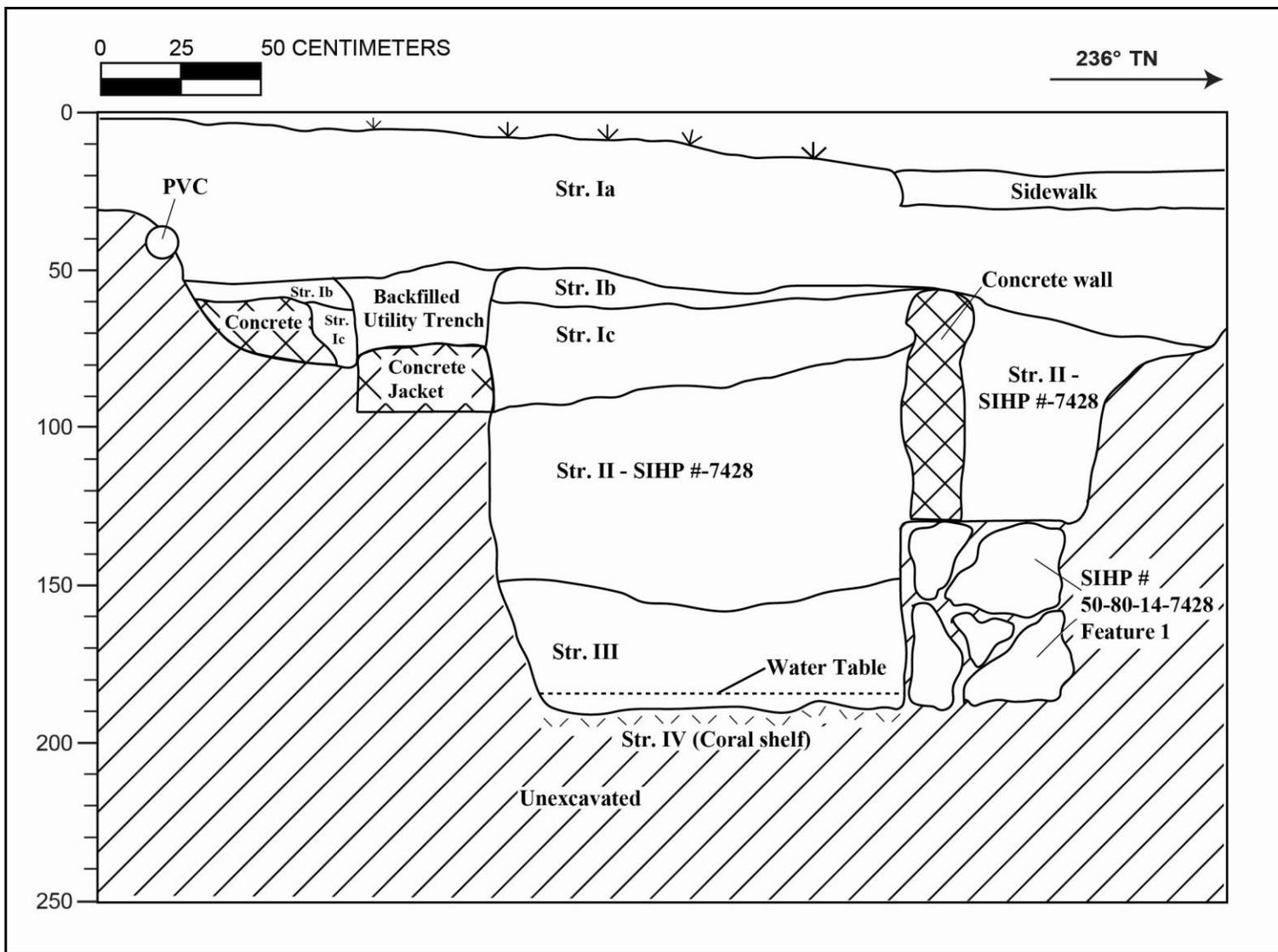
**Summary:** T-119 was excavated to the water table at a depth of 1.9 mbs. The stratigraphy consisted predominately of fill strata (Ia–Ic) overlying a reworked cultural layer (II) and natural sand (III). Stratigraphy observed was consistent with the USDA Fill land soil designation for the area. Seven brick fragments were collected from Stratum Ic at 0.60–0.95 mbs and faunal remains of *Bos taurus* were collected at a depth of 0.8 mbs. A historic wall (SIHP #-7428 Feature 1) constructed of basalt stone and mortar, was observed in the south portion of T-119. This wall pre-dates the deposition of Stratum III and the overlying Stratum II which contained minimal midden remains as well as fire-cracked rock and charcoal staining. Stratum II is identified as a component of SIHP #50-80-14-7428, a buried culturally-enriched sand A-horizon and historic warehouse foundation (see Volume I).



T-119 general location, view to southwest



T-119 northwest profile wall, view to west



T-119 northwest wall profile

## T-119 Stratigraphic Description

Stratum	Depth (cmbs)	Description
Ia	0–75	Fill; 7.5 YR 2.5/2 (very dark brown); silty clay; moderate, medium to coarse, blocky structure; moist, firm consistency; slightly plastic; terrigenous origin; abrupt, smooth lower boundary; common, fine roots; landscape, top soil
Utility	30–95	PVC pipe, modern concrete wall, utility trench, and concrete jackets
Ib	50–60	Fill; 10 YR 7/4 (very pale brown); very gravelly sandy loam; weak, fine, crumb structure; moist, loose consistency; non-plastic; abrupt, smooth lower boundary; crushed coral fill
Ic	60–95	Fill; 10 YR 6/1 (gray); gravelly sand; weak, medium crumb structure; dry, loose, strong consistency; non-plastic; mixed origin; abrupt, smooth lower boundary; red bricks; pea pebble fill, cement
II	65–157	Natural; 10 YR 2/2 (very dark brown); loamy silt; weak, fine crumb structure; moist, loose consistency; non-plastic; terrigenous origin; clear, smooth lower boundary; fire-cracked rock, charcoal staining, cane slag, marine shell midden; re-worked cultural layer, designated a component of SIHP #-7428
SIHP #-7428 Feature 1	130–190	Historic mortared basalt stone wall; SIHP #-7428 Feature 1
III	145–190	Natural; 10 YR 5/4 (yellowish brown); medium sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; lower boundary not visible; natural sand over coral shelf, water table
IV	190 (BOE)	Natural; 10 YR 7/4 (very pale brown); bedrock-limestone; structureless, massive; moist, weakly to strongly cemented; discontinuous consistency; non-plastic; marine origin; lower boundary not observed; Pleistocene coral shelf

### 3.11 Test Excavation 119A (T-119A)

<b>Ahupua'a:</b>	Honolulu
<b>LCA:</b>	180
<b>TMK #:</b>	2-1-026:022
<b>Elevation Above Sea Level:</b>	1.69 m
<b>UTM:</b>	618083.20 mE, 2356217.91 mN
<b>Max Length/Width/Depth:</b>	3.23 m/0.93 m/1.63 m
<b>Orientation:</b>	319/139° TN
<b>Targeted Project Component:</b>	Guideway Column
<b>USDA Soil Survey Designation:</b>	Fill land (FL)

**Setting:** Test Excavation 119A (T-119A) was located within the Halekauwila Street sidewalk, parallel to the Halekauwila Street next to the Department of Labor and Industrial Relations Building, on state-owned property. T-119A was added to further investigate and delineate the boundaries of the basalt stone and mortar wall found within adjacent T-119 to the northwest (SIHP #50-80-14-7428 Feature 1). T-119A also investigated a utility relocation. No utilities were present near T-119A. The excavation surface was level with the surrounding land surface.

**Summary of Background Research and Land Use:** Baldwin's 1883 Map shows T-119A approximately 30 m east of the former shoreline. The 1884 Bishop map shows the shoreline farther west, and T-119A 90 m east of the shoreline. The 1897 Monsarrat map shows more urban development, street grids and sparse distribution of structures, with T-119A located near the corner of Halekauwila Street and Punchbowl Street. The 1904 Newton map shows T-119A as 190 m east of Ala Moana Boulevard. The 1919 U.S. Army War Department Fire Control map illustrates increased development, and the 1933 U.S. Army War Department Fire Control map shows massive urbanization (see Figure 20 and Figure 22). The 1943 U.S. Army War Department Terrain map, 1953 U.S. Army Mapping Service map, and the UH SOEST Aerial photos (1939-1941 and 1952) show continued development (see Figure 24). LCA records for the area indicate that traditional land use included salt making, taro cultivation, and fishpond farming. T-119A was located within LCA 180, which consisted of one house lot awarded to Mataio Kekūānō'a for Lot Kamehameha. LCA 129 (awarded to Kinimaka) was located 38 m southeast of T-119A (see Figure 18).

Several historical studies identified historic properties in the vicinity of T-119A (see Figure 25). A burial report by Ota and Kam (1982) identified the remains of six individuals (SIHP #50-80-14-2963) during construction, located 30 m southeast of T-119A, on the corner of Halekauwila Street and Punchbowl Street. Archaeological monitoring was conducted for the Kaka'ako Improvement District 1, approximately 60 m southeast of T-119A, which identified one probable pre-Contact burial (SIHP #50-80-14-4533) with 11 sling stones and other traditional Hawaiian artifacts, which were removed to Bernice Pauahi Bishop Museum (Pfeffer, Borthwick, and Hammatt 1993). Approximately 82 m southeast of T-119A for the Makai Parking Garage on the corner of Punchbowl Street and Halekauwila Street, archaeological monitoring was conducted

and identified one historic property (SIHP #50-80-14-2963) consisting of seven burials pre-dating 1850 (Clark 1987). Denham and Kennedy (1993) identified a site consisting of multiple burial finds and ten pre-Contact and post-Contact features (SIHP #50-80-14-4605) and nine trash pit features (SIHP #50-80-14-4606) located approximately 78 m east of T-119A.

**Documentation Limitations:** T-119A was excavated to the water table at a depth of 1.63 mbs. No factors limited excavation of T-119A.

**Stratigraphic Summary:** The stratigraphy of T-119A was comprised of fill and natural sediments. Observed strata for the northeast wall were asphalt (Ia), loam fill (Ib), gravelly medium grained sand fill (Ic), and a sandy loam fill (SIHP #50-80-14-7428 Feature 1a). Observed strata for the southwest wall included concrete (Ia), loamy sand fill (Ib), very gravelly sand fill (Ic), previously disturbed sandy loam (II), natural Jaucas sand (III). Stratigraphy generally conforms to the USDA designation of Fill land (FL) above natural sediments. The Stratum IIa natural sediment was part of a culturally-enriched buried A-horizon above natural Jaucas sand (III). Stratum IIa is identified as a component of SIHP #50-80-14-7428.

**Artifacts Discussion:** A single traditional Hawaiian artifact, a fire-affected vesicular basalt sling stone (Acc. #119A-H-1) was collected from Stratum II (SIHP #-7428) at 0.96 mbs.

A total of eleven fragments from at least ten historic artifacts (Acc. #s 119A-A-1 through A-10, see following table and photographs) were collected from T-119A, one each from Strata Ib and Ic, three from Feature 1a, and five from Stratum IIa. Artifacts collected from Strata Ib and Ic consist of building materials including a rectangular stone block (Ib) and brick fragments (Ic) dating from 1807 to 1860. Artifacts collected from SIHP #-7428 Feature 1a include two Chinese porcelain flatware vessels. One is decorated with an "Om" motif (Sino-Sanskrit Om) and the other with an "Allah" (Sino-Islamic Allah) motif. Also collected from Feature 1a is a metal tag with a "Body Fisher" logo from the Fisher Body (automobile) Company, dating to post-1908. Stratum IIa artifacts consist of an Asian, probably Japanese, porcelain rice bowl fragment and miscellaneous items, including two water-worn pebbles and a cobble, as well as an unidentified stone/marble mass.

**Feature Discussion:** Two historic features were recorded within T-119A, SIHP #-7428 Feature 1 (mortared basalt wall) and SIHP #-7428 Feature 1a (infilled builders trench). SIHP #-7428 Feature 1a is an infilled trench of mixed sediment containing historic material, marine shell midden, and faunal remains adjacent to the SIHP #-7428 Feature 1 wall. The northern portion of SIHP #-7428 Feature 1 was originally recorded within T-119. The wall originates at 0.47 mbs at the interface of Strata Ib and Ic and terminates at 1.68 mbs at the coral shelf. SIHP #-7428 Feature 1 measures approximately 1.20 m high, by 2.60 m in length, and 0.20 m wide. SIHP #-7428 Feature 1a is 2.85 m in length by 0.70 m wide and extends beyond the width of the northeast profile wall. Approximately 38 liters of sediment from SIHP #-7428 Feature 1a was screened (see below for sample analysis results).

**Terrestrial Faunal Remains Discussion:** Terrestrial faunal remains were collected individually during excavation from the back dirt (unknown depth) and Stratum II (0.45–1.30 mbs). The back dirt collection consisted of unmodified *Canis lupus familiaris* (diaphysis sections). Faunal remains from Stratum II consisted of *Canis lupus familiaris* molar fragments that mend. No cultural modifications were observed. *Canis lupus familiaris* is a Polynesian introduction

common in both pre- and post-Contact contexts. Stratum IIa of this test excavation is a culturally-enriched A-horizon of SIHP #50-80-14-7428.

**Sample Results:** A total of two bulk sediment samples and two field screened samples were collected from T-119A. All of the samples were wet screened.

A 3.8-liter bulk sample was collected from SIHP #-7428 Feature 1a at 0.80–0.93 mbs. The sample contained charcoal (8.0 g), various species of marine shell midden (43.3 g; see Midden Results tables at the end of the section), naturally-occurring shell (0.8 g), organics (0.8 g), burned bottle glass (1.6 g), rusted metal fragments (1.5 g), vesicular basalt (83.6 g), coral gravel (>500.0 g), *Canis lupus familiaris* mandible first molar (1.8 g), and *Pervagor spilosoma* (1.4 g, Fantail file fish).

A 3.0-liter bulk sample was collected from SIHP #-7428 Feature 1a at 1.25–1.55 mbs. The sample contained charcoal (2.8 g), marine shell midden (11.6 g), naturally-occurring shell (0.3 g) and medium mammal remains (0.1 g).

Two 19.0-liter screened samples were also collected. One sample collected from SIHP #-7428 Feature 1a at 1.25–1.55 mbs contained various marine shell midden (36.7 g; see Midden Results tables at the end of the section), naturally-occurring shell (2.2 g), roots (7.1 g), possible bone pipe stem (1.3 g), slag (5.0 g), glass (1.7 g) and *Pervagor spilosoma* (0.3 g, Fantail file fish). The second sample was collected from SIHP #-7428 Feature 1a at 0.8–1.03 mbs and contained midden (28.2 g; see Midden Results tables at the end of the section), naturally-occurring shell (0.1 g), and possible coal fragments (6.5 g).

Charcoal from SIHP #-7428 Feature 1a (0.80–0.93 mbs and 1.25–1.55 mbs) was sent for taxa identification analysis. The charcoal sample from Feature 1a at 0.80–0.93 mbs (see Taxa ID Table) contained *Kolomona* (cf. *Senna* sp.), 'Akoko (*Chamaesyce* sp.), *Kukui* (*Aleurites moluccana*), and 'Ōhi'a lehua (cf. *Metrosideros polymorpha*). The charcoal sample from Feature 1a at 1.25–1.55 mbs contained *Kolomona* (cf. *Senna* sp.), *Kōpiko* (cf. *Psychotria* sp.), 'Ōhi'a lehua (cf. *Metrosideros polymorpha*), *Kukui* (*Aleurites moluccana*), *Ipu* (cf. *Lagenaria siceraria*), 'Āheaheal'āweoweo (*Chenopodium oahuense*), and 'Ōhi'a 'ai/roseapple/Java plum (cf. *Syzygium* sp.). The charcoal identified as *kukui* nutshell (0.08 g) from SIHP #-7428 Feature 1a (0.80–0.93 mbs) was submitted for radiocarbon dating analysis and yielded seven possible date ranges, with a calibrated 2-sigma date between AD 1660 to 1890 (78.2%) as the most probable. The charcoal sample identified as *kukui* nutshell (0.03 g) from SIHP #-7428 Feature 1a at 1.25–1.55 mbs was also submitted for radiocarbon dating analysis and yielded four possible date ranges, with a calibrated 2-sigma date with AD 1800 to AD 1940 (65.6%) as the most probable. The wood taxa identification results table and radiocarbon results are presented at the end of the section.

The results of sample analysis indicate that the SIHP #-7428 Feature 1a fill material consists of the remnants of a culturally-enriched A-horizon, likely procured from the immediate area. SIHP #-7428 Feature 1a sediment contained abundant marine shell midden, charcoal, and faunal bone, as well as historic artifacts. The reworked A-horizon fill material, if indeed procured from the immediate area as seems likely, indicates the use of this coastal environment during the late pre- to early post-Contact era. The presence of marine shell midden materials within the buried A-horizon suggests temporary habitation and/or food consumption activities in the area.

**GPR Discussion:** A review of amplitude slice maps indicated no linear features which might indicate the presence of utilities. Reflectivity was relatively uniform throughout the grid and decreases with depth. A transition from higher reflectivity to lower reflectivity was observed at approximately 0.5 mbs.

GPR depth profiles for T-119A identified horizontal banding, commonly associated with stratigraphic layering, throughout the survey area. This banding corresponded to variations of density and chemical composition within fill deposits. The profile also indicated a change in reflectivity occurring around 0.2 mbs. An anomaly was observed in the profile but was not encountered during excavation. The maximum depth of clean signal return was approximately 0.75 mbs.

**Summary:** T-119A was excavated to the water table at a depth of 1.63 mbs. The stratigraphy consisted of fill strata (Ia–Id) and natural sediments (II–III). Stratigraphy conforms to the USDA designation of Fill land (FL) above Strata II and III. A single traditional Hawaiian artifact, a fire-affected vesicular basalt sling stone, and ten historic artifacts were collected from T-119A. Two historic features associated with SIHP #50-80-14-7428 were identified. SIHP #-7428 Feature 1, a mortared-basalt wall was previously recorded in adjacent T-119. SIHP #-7428 Feature 1a abuts SIHP #-7428 Feature 1 on one side (*makai* side) and consists of a large infilled trench of sandy loam fill sediment, likely locally procured A-horizon material, containing marine shell midden, charcoal, unmodified faunal remains, and historic artifacts. SIHP #-7428 Feature 1a was not present within T-119 which profiled the *mauka* side of the wall. A single *Canis lupus familiaris* molar was found in Stratum IIa. Documentation of Stratum IIa and the results of sample analysis of SIHP #-7428 Feature 1a, likely a locally procured A-horizon utilized as fill, indicate use of the coastal environment during the late pre- to early post-Contact time period. The presence of fire-cracked rock within the buried A-horizon and marine shell midden in SIHP #-7428 Feature 1a fill suggests temporary habitation and/or food consumption activities in the area. Stratum II is identified, along with SIHP #-7428 Features 1 and 1a, as a component of SIHP #50-80-14-7428, a buried culturally-enriched sand A-horizon and historic warehouse foundation (see Volume I).



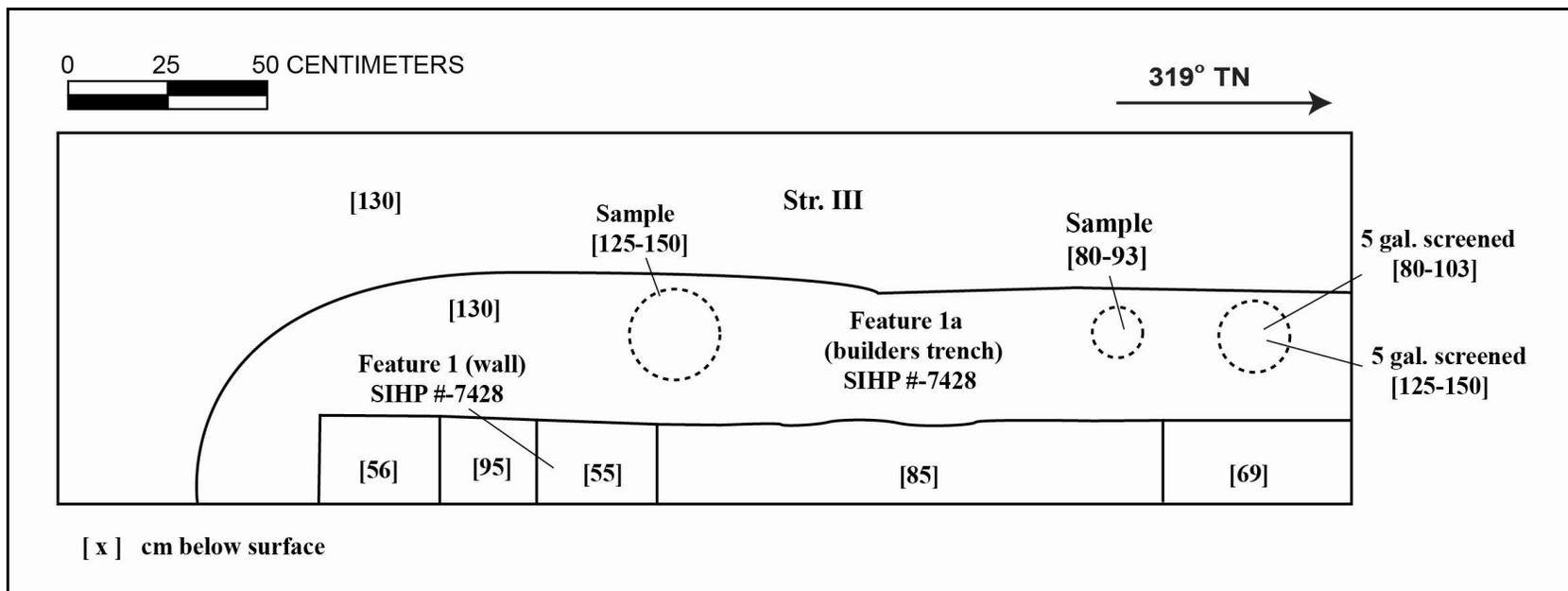
T-119A general location, view to north



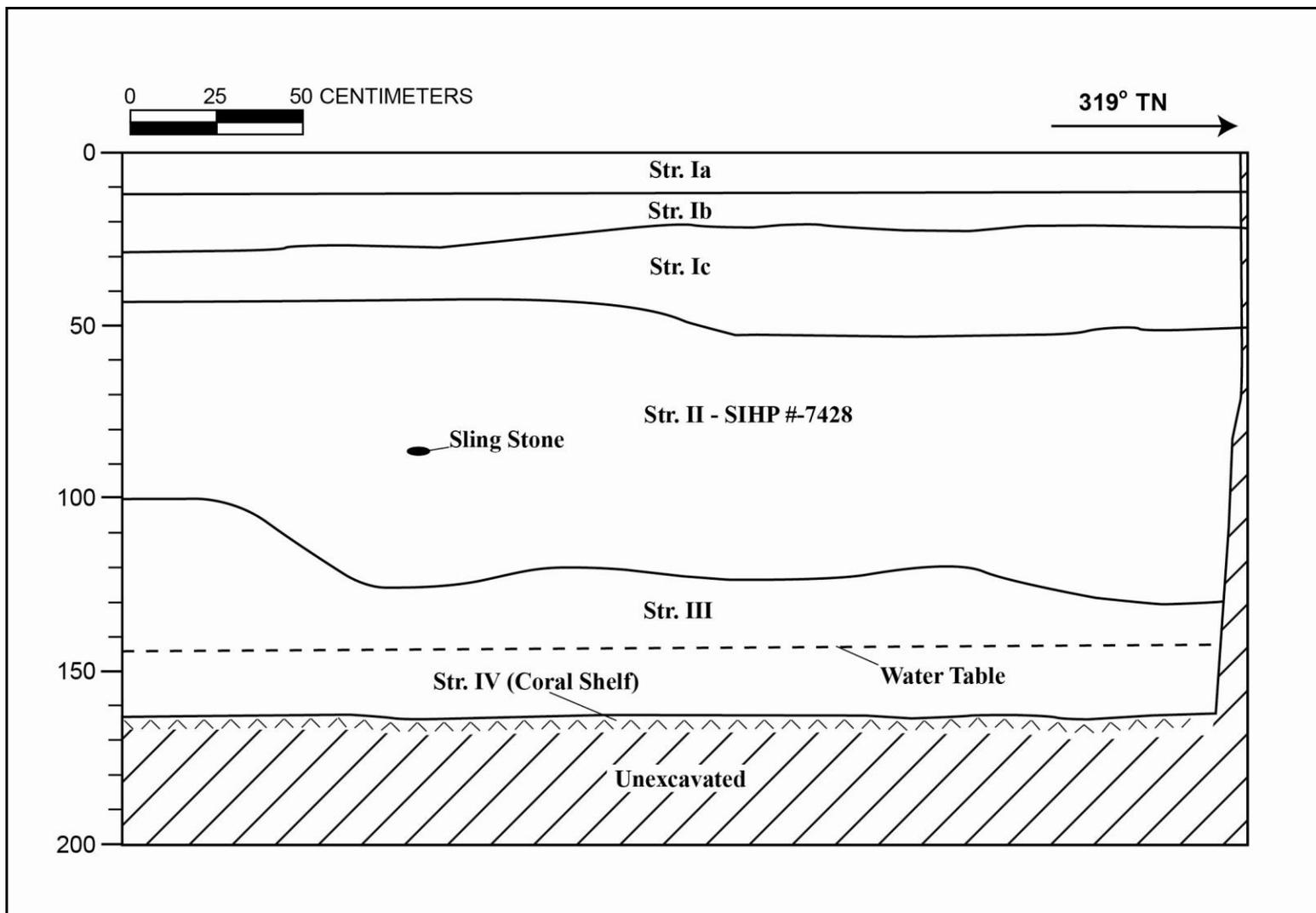
T-119A northeast profile wall, view to east



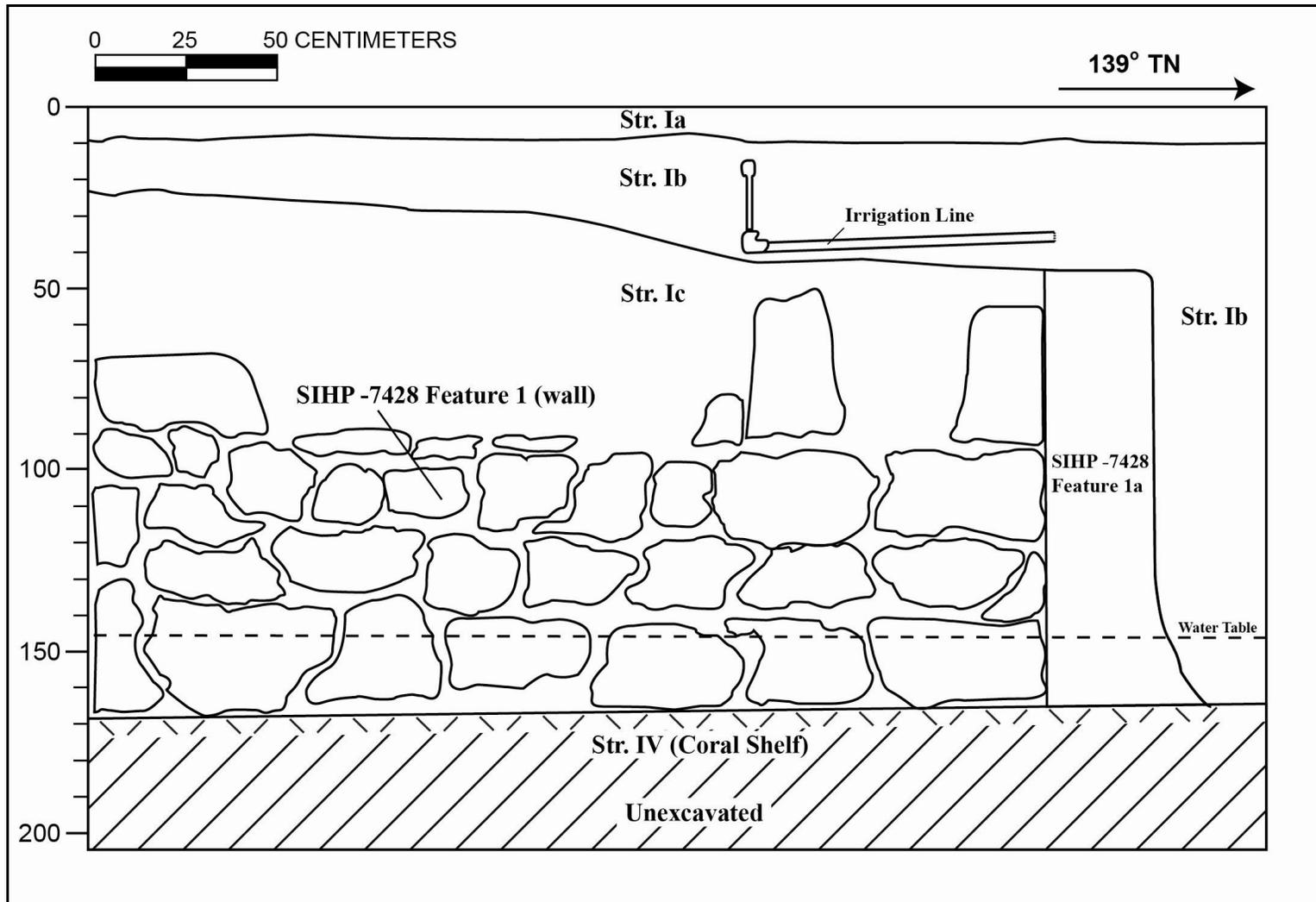
T-119A southwest profile wall, view to west



T-119A plan view



T-119A southwest wall profile



T-119A northeast profile wall, showing SIHP #-7428 Features 1 and 1a

## T-119A Stratigraphic Description, northeast wall

Stratum	Depth (cmbs)	Description
Ia	0–10	Fill; 10 YR 2/2 (very dry brown); loam; weak, medium, granular structure; dry, weakly coherent consistency; non-plastic; terrigenous origin; abrupt, smooth lower boundary; few fine to coarse roots; imported fill, basalt gravel, inclusions
Ib	10–165	Fill; 10 YR 3/2 (very dark gray brown); loam; weak, medium, granular structure; dry, weakly coherent consistency; non-plastic; terrigenous origin; abrupt, smooth lower boundary; few, fine to coarse roots; contained irrigation line; imported fill, basalt gravel inclusions
Ic	25–90	Fill; 10 YR 5/3 (brown); gravelly, medium sand; structureless, single-grain; loose, dry consistency; non-plastic; marine origin; abrupt, smooth lower boundary; crushed coral and sand fill
SIHP #-7428 Feature 1	47–165	Historic mortared basalt stone wall; SIHP #-7428 Feature 1
SIHP #-7428 Feature 1a	45–165 (BOE)	Builders trench; 10 YR 3/2 (very dark grayish brown); sandy loam; weak, medium, granular structure; moist, loose consistency; non-plastic; terrigenous origin; abrupt lower boundary; few fine, medium and coarse roots; contained ceramics (collected), a metal tag (collected), and red brick (not collected); sample contained charcoal, marine shell midden, naturally-occurring shell, organics, burned bottle glass, rusted metal fragments, vesicular basalt, coral gravel, faunal
IV	165 (BOE)	Natural; 10 YR 7/4 (very pale brown); bedrock-limestone; structureless, massive; moist, weakly to strongly cemented; discontinuous consistency; non-plastic; marine origin; lower boundary not observed; Pleistocene coral shelf

## T-119A Stratigraphic Description, southwest wall

Stratum	Depth (cmbs)	Description
Ia	0–12	Concrete sidewalk
Ib	12–28	Fill; 10 YR 3/2 (very dark grayish brown); loamy sand; weak, very fine, crumb structure; moist, loose consistency; slightly plastic; mixed origin; abrupt, smooth lower boundary; fill material imported
Ic	21–53	Fill; 10 YR 8/1 (white); very gravelly sand; structureless, single-grain; moist, loose consistency; non-plastic; abrupt, smooth lower boundary; imported crushed coral fill
II	42–130	Natural; 10 YR 3/2 (very dark grayish brown); sandy loam; weak, medium granular structure; loose consistency; non-plastic; mixed origin; diffuse, wavy lower boundary; common fine, medium and coarse roots; contained faunal bone, water-rounded pebbles, and a sling stone (collected); natural A-horizon, SIHP #-7428

<b>Stratum</b>	<b>Depth (cmbs)</b>	<b>Description</b>
III	100–163	Natural; 10 YR 6/3 (pale brown); medium sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; smooth lower boundary; contained shell and faunal bone fragments; natural Jaucas sand
IV	163 (BOE)	Natural; 10 YR 7/4 (very pale brown); bedrock-limestone; structureless, massive; moist, weakly to strongly cemented; discontinuous consistency; non-plastic; marine origin; lower boundary not observed; Pleistocene coral shelf

## T-119A Historic Artifact Analysis Table

Acc. # 119A- A-	Prov.	Ceramic Vessel Type	Portion	No.	Paste	Origin; Age	Comments
1	T-119A, SIHP #-7428, Feature 1a	Flatware – plate or dish	Body–rim	2	Porcelain	Chinese	Om motif, blue painted underglaze; two blue bands
2	T-119A, SIHP #-7428, Feature 1a	Flatware – plate or dish	Base	1	Porcelain	Chinese	Allah motif, blue painted underglaze
3	T-119A, SIHP #-7428, Feature 1a	Hollowware – rice bowl	Body	1	Porcelain	Asian, probably Japanese	Asian style, blue floral exterior design
Acc. # 119A- A-	Prov.	Misc. Type	Portion	No.	Material	Origin; Age	Comments
4	T-119A, St. Ib	Stone block	Fragment	1	Stone		Rectangular block; smooth outer surface
5	T-119A, St. Ic	Brick	Fragment	2	Fired clay	1807– 1860	Brick 8 1/4 x 3 3/4 x 1 3/4 cm; reddish brown
6	T-119A, SIHP #-7428, Feature 1a	Tag	Complete	1	Metal	1908 – post	Thin oval metal plate with two holes
7	T-119A, St. II, SIHP #- 7428	Cobble	Complete	1	Stone		Waterworn cobble, tabular, polished; possible cobblestone or ballast stone?
8	T-119A, St. II, SIHP #- 7428	Pebble, rounded	Complete	1	Stone		Waterworn pebble, unpolished, round
9	T-119A, St. II, SIHP #- 7428	Pebble, rounded	Complete	1	Stone		Waterworn pebble, slightly polished, oblate
10	T-119A, St. II, SIHP #- 7428	Stone/ marble mass	Fragment	1	Stone		



T-119A ceramic fragments; Chinese porcelain plate/platter with “Om” motif (Acc. #119A-A-1) from SIHP #-7428 Feature 1a, exterior



T-119A ceramic fragments; Chinese porcelain plate/platter with “Om” motif (Acc. #119A-A-1) from SIHP #-7428 Feature 1a, interior



T-119A ceramic fragment; Chinese porcelain plate or dish with “Allah” motif (Acc. #119A-A-2) fragment from SIHP #-7428 Feature 1a, exterior



T-119A ceramic fragment; Chinese porcelain plate or dish with “Allah” motif (Acc. #119A-A-2) fragment from SIHP #-7428 Feature 1a, interior



T-119A metal car tag with “BODY FISHER” identification mark (Acc. #119A-A-6) from SIHP #7428 Feature 1a

## T-119A SIHP #-7428 Feature 1a (0.80–0.93 mbs) Midden Results

<b>Midden Type</b>	<b>Weight (g)</b>
<i>Nerita picea</i>	20.5
<i>Brachidontes crebristriatus</i>	5.7
<i>Tellina palatam</i>	5.1
cf. <i>Tellina elizabethae</i>	2.9
<i>Nassarius hirtus</i>	2.3
<i>Morula granulata</i>	2.0
<i>Conus</i> sp.	1.4
<i>Cypraea caputserpentis</i>	0.9
Cymatiidae	0.7
Crustacean	0.5
Gastropod fragment	0.5
<i>Cypraea</i> sp.	0.4
<i>Trochus</i> sp.	0.3
<i>Echinometra mathaei</i> sp.	0.1

## T-119A SIHP #-7428 Feature 1a (0.80–1.03 mbs) Screened Sample Midden Results

<b>Midden Type</b>	<b>Weight (g)</b>
<i>Nerita picea</i>	10.7
<i>Brachidontes crebristriatus</i>	8.5
Conidae	2.7
<i>Strombus</i> sp.	1.2
Echinoidea	1.1
Cymatiidae	1.0
Turbinidae operculum	1.0
<i>Pinctada radiata</i>	0.8
<i>Turbo sandwicensis</i>	0.8
Naticidae	0.4

## T-119A SIHP #-7428 Feature 1a (1.25–1.50 mbs) Screened Sample Midden Results

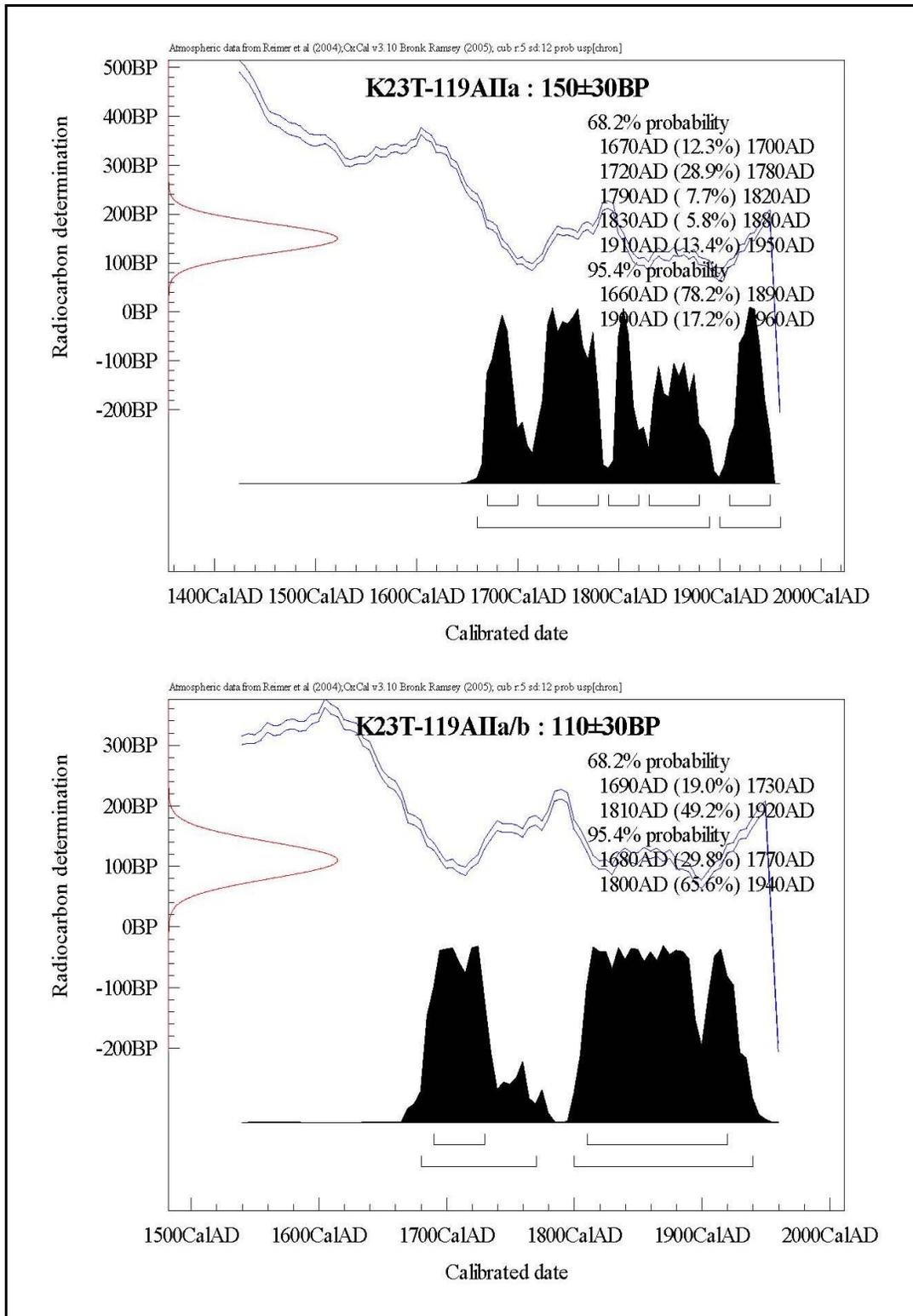
<b>Midden Type</b>	<b>Weight (g)</b>
<i>Nerita picea</i>	22.5
<i>Conus</i> sp.	4.2
<i>Brachidontes crebristriatus</i>	2.9
<i>Tellina palatam</i>	2.3
Shell (burned)	2.0
<i>Echinothrix diadema</i> sp.	0.4
Crustacean	0.3
<i>Isognomon</i> sp.	0.1

## T-119A SIHP #-7428 Feature 1a (1.25–1.50 mbs) Midden Results

<b>Midden Type</b>	<b>Weight (g)</b>
<i>Nerita picea</i>	5.5
<i>Tellina</i> spp.	2.4
<i>Brachidontes crebristriatus</i>	1.8
<i>Strombus</i> sp.	1.6
Crustacean	0.1
<i>Echinothrix diadema</i> sp./ <i>Echinometra mathaei</i> sp.	0.1
<i>Isognomon</i> sp.	0.1

T-119A Taxa ID Table

Prov.	WIDL No.	Taxa	Common/Hawaiian name	Origin/ Habitat	Part	Count	Weight (g)
<b>T-119A:</b> SIHP #-7428 Feature 1a (80–93 cmbs)	1302-12	cf. <i>Senna</i> sp.	<i>Kolomona</i>	Native+Historic Introductions/ Shrub-Tree	Wood	2	0.03
	1302-13	<i>Chamaesyce</i> sp.	' <i>Akoko</i>	Native/Shrub	Wood	2	0.09
	1302-14	<i>Aleurites moluccana</i>	<i>Kukui</i>	Polynesian Introduction/Tree	Nutshell	1	0.08
	1302-15	cf. <i>Metrosideros polymorpha</i>	' <i>Ōhi'a lehua</i>	Native/Tree	Wood	7	0.27
<b>T-119A:</b> SIHP #-7428 Feature 1a (125–150 cmbs)	1302-16	Unknown 1			Wood	1	0.05
	1302-17	cf. <i>Senna</i> sp.	<i>Kolomona</i>	Native+Historic Introductions/ Shrub-Tree	Wood	3	0.05
	1302-18	cf. <i>Psychotria</i> sp.	<i>Kōpiko</i>	Native/Tree	Wood	3	0.22
	1302-19	Unknown 2			Stem	1	0.05
	1302-20	cf. <i>Metrosideros polymorpha</i>	' <i>Ōhi'a lehua</i>	Native/Tree	Wood	1	0.04
	1302-21	<i>Aleurites moluccana</i>	<i>Kukui</i>	Polynesian Introduction/Tree	Nutshell	1	0.03
	1302-22	cf. <i>Lagenaria siceraria</i>	<i>Ipu</i>	Polynesian Introduction/Vine	Fruit rind	1	<0.01
	1302-23	<i>Chenopodium oahuense</i>	' <i>Āheahea</i> , ' <i>āweoweo</i>	Native/Shrub	Wood	1	<0.01
	1302-24	cf. <i>Syzygium</i> sp.	' <i>Ōhi'a 'ai</i> (mountain apple), roseapple, Java plum	Native + Historic Introductions/Tree	Wood	1	0.02



T-119A Radiocarbon analysis results for SIHP #-7428 Feature 1a (formerly Stratum IIa and Stratum IIb)

### 3.12 Test Excavation 120 (T-120)

<b>Ahupua'a:</b>	Honolulu
<b>LCA:</b>	N/A
<b>TMK #:</b>	2-1-027 [Plat]
<b>Elevation Above Sea Level:</b>	1.74 m
<b>UTM:</b>	618075.97 mE, 2366222.81 mN
<b>Max Length/Width/Depth:</b>	6.67 m/0.7 m/1.45 m
<b>Orientation:</b>	150/330° TN
<b>Targeted Project Component:</b>	Utility Relocation
<b>USDA Soil Survey Designation:</b>	Fill land (FL)

**Setting:** Test Excavation (T-120) was located within the northeast (*mauka*) lane of the southeast bound lane of Halekauwila Street. T-120 was located 0.54 m southwest (*makai*) of the sidewalk curb. T-120 was located on public property owned by the City and County of Honolulu. A storm utility was located 3.00 m northeast of T-120. The surface area surrounding T-120 was level in all directions.

**Summary of Background Research and Land Use:** According to the 1847 Metcalf map, T-120 was 25 m east of the former shoreline and 11 m north of Honuakaha Street (Punchbowl Street). The area is still largely undeveloped in the 1883 and 1884 Maps by Baldwin and Bishop, respectively, but there were several house lots near T-120. The 1887 Wall map depicts T-120 15 m east of the Halekauwila Street corridor. Monsarrat's 1897 map shows similar street grids, and Newton's 1904 map shows T-120 to be within Halekauwila Street. The land lot east of T-120 belonged to the Bishop Estates. The 1919 U.S. Army War Department Fire Control map indicates that T-120 was located within an undeveloped portion of a city block with several structures present in the vicinity (see Figure 20). By 1933, there was increased development in the area (1933 U.S. Army War Department Fire Control map; see Figure 22). The 1943 U.S. Army War Department Terrain map and 1953 U.S. Army Mapping Service map show similar structures (see Figure 24).

LCA records for the area indicate that the traditional land use was limited to salt making, taro cultivation, and fishpond farming. T-120 was located 8 m west of LCA 180, which comprised one house lot awarded to Mataio Kekūanā'oa for Lot Kamehameha. LCA 129 (awarded to Kinimaka) was located 48 m southeast of T-120 (see Figure 18). A burial (SIHP #50-80-14-02963) was found 63 m southeast of T-120, within LCA 129 (Ota and Kam 1982).

Several historical studies identified historic properties in the vicinity of T-120 (see Figure 25). A burial was identified by Ota and Kam (1982) on the corner of Halekauwila Street and Punchbowl Street. A monitoring study for the Kaka'ako Improvement District 1 identified one probable pre-Contact burial (SIHP #50-80-14-4533) with 11 sling stones and other pre-Contact artifacts, which were removed to Bernice Pauahi Bishop Museum (Pfeffer, Borthwick, and Hammatt 1993). An additional monitoring project was performed 96 m southeast of T-120 for the Makai

Parking Garage on the corner of Punchbowl Street and Halekauwila Street. One historic property was identified (SIHP #50-80-14-2963) with seven burials pre-dating 1850 (Clark 1987).

**Documentation Limitations:** T-120 was excavated to the water table at a depth of 1.45 mbs. A 10 cm abandoned metal pipe was encountered approximately 0.50 m from the north portion of the excavation, running perpendicular to the excavation.

A natural surface layer (Stratum II) was observed at 0.70 to 1.30 mbs and excavated by hand. The water table was encountered at 1.37 mbs. Several features were observed and drawn in the plan view.

The location was mapped, and depths of potential features in the plan view were measured and photographed in broad and close-up view (see below). Each potential feature was excavated with a trowel and the material sifted through a 1/8 inch screen. All unscreened material was collected and bagged for future sample analysis. T-120 was excavated by hand to the water table.

**Stratigraphic Summary:** The stratigraphy of T-120 was comprised of several layers of fill and natural sediments. The observed strata of the southwest wall were asphalt (Ia), concrete (Ib), extremely gravelly sand fill (Ic), natural loamy sand with brown clay lens near the top (II), overlying natural fine grained sand (III). The observed strata for the northeast wall were asphalt (Ia), concrete (Ib), gravelly sandy clay (Ic), extremely gravelly sand (Id), a natural fine loamy sand (II), overlying fine grained sand (III). Stratum II was a culturally-enriched, buried A-horizon associated with SIHP #50-80-14-7428. The stratigraphy generally conformed to the USDA soil survey designation of Fill land (FL) above Stratum II.

**Artifacts Discussion:** Traditional Hawaiian artifacts consisting of three pieces of volcanic glass debitage (Acc. #s 120-H-1 through H-3) were found in bulk samples from SIHP #-7428 Features 4, 5, and 6, respectively, and a basalt flake (Acc. #120-H-4) was collected from SIHP #-7428 Feature 6. Three red brick fragments from at least two bricks (Acc. #s 120-A-1 and A-2) were collected from Stratum Id from 0.30 to 0.70 cmbs. One machine-made fragment had datable attributes indicating a date range of 1886–1918. Artifacts collected from Stratum Id date from the late 1800s to early 1900s.

**Features Discussion:** A total of seven features (Features 2–8) were identified within T-120. Features 2–8 originated within the buried A-horizon (Stratum II) and extended into the natural Jaucas sand (Stratum III). The features were designated Features 2–8 of SIHP #50-80-14-7428.

SIHP #-7428 Feature 2 originated at approximately 1.12 mbs and terminated at 1.29 mbs. Feature 2 was circular in shape with a 0.25 m diameter. It was visible in plan view and extended into the northeast sidewall. SIHP #-7428 Feature 2 was interpreted as a possible postmold.

SIHP #-7428 Feature 3 originated at 1.12 mbs and terminated at 1.16 mbs. Feature 3 was circular in shape, about 0.4 m long by 0.15 m wide. It was visible in plan view and extended into the northeast sidewall. SIHP #-7428 Feature 3 was interpreted as a possible postmold.

SIHP #-7428 Feature 4 originated at 1.12 mbs and terminated at 1.26 mbs. Feature 4 was irregularly-shaped and was 0.95 m long by 0.22 m wide. It was visible in plan view and extended into the northeast sidewall. SIHP #-7428 Feature 4 was interpreted as a pit of indeterminate function.

SIHP #-7428 Feature 5 originated at 1.10 mbs and terminated at 1.18 mbs. SIHP #-7428 Feature 5 was irregularly shaped, measured 0.65 m long by more than 0.75 m wide, and extended into the northeast and southwest sidewalls. SIHP #-7428 Feature 5 was interpreted as a pit of indeterminate function.

SIHP #-7428 Feature 6 originated at 1.07 mbs and terminated at 1.20 mbs. SIHP #-7428 Feature 6 was irregularly shaped, measured 0.85 m long by more than 0.75 m wide, and extended into the northeast and southwest sidewalls. It contained abundant charcoal and a circular sub-feature was observed extending into the northeast wall between 1.17–1.37 mbs. SIHP #-7428 Features 6 and subfeature 6 were interpreted as pits of indeterminate function.

SIHP #-7428 Feature 7 originated at 1.04 mbs and terminated at 1.07 mbs. SIHP #-7428 Feature 7 was irregularly shaped and was 0.50 m long by 0.53 m wide. It was a light stain visible in plan view and extended into the southwest sidewall. SIHP #-7428 Feature 7 was interpreted as a pit of indeterminate function.

SIHP #-7428 Feature 8 was adjacent to SIHP #-7428 Feature 7 and originated at 1.04 mbs and terminated at 1.17 mbs. Feature 8 was irregularly shaped, was 0.45 m long by more than 0.75 m wide, and extended into the northeast and southwest sidewalls. SIHP #-7428 Feature 8 contained faunal remains at 1.04 mbs and was interpreted as a pit of indeterminate function that exhibited by heavy root disturbance.

**Terrestrial Faunal Remains Discussion:** Faunal remains were collected individually during excavation from Stratum II (0.65–1.35 mbs). These consisted of one *Bos taurus* fragment, two *Canis lupus familiaris* fragments, and one *Sus scrofa* fragment. The *Bos taurus* fragment was butchered with a metal saw blade indicating an historic origin. Stratum II is a culturally-enriched A-horizon of SIHP #50-80-14-7428.

**Sample Results:** A total of nine screened samples were collected from Stratum II (SIHP #-7428) of T-120. Seven of the samples were collected from SIHP #-7428 Features 2 through 8 and two were general screens of Stratum II sediments. The samples were collected and screened in the field. The samples from SIHP #-7428 Features 4 through 8 also were wet screened. In addition, volcanic glass samples from SIHP #-7428 Features 4, 5, and 6 were submitted for EDXRF analysis.

Two screened samples were collected from Stratum II (SIHP #-7428) between 0.80 and 0.85 mbs (30.0 L) and 1.0 and 1.05 mbs (11.4 L). The sample collected from Stratum II (SIHP #-7428) at 0.80–0.85 mbs contained charcoal (2.5 g), ceramics (28.9 g), glass (1.5 g), fish remains (0.1 g), basalt fragments (34.0 g), and midden (280.6 g; see Midden Results tables at the end of the section). The sample collected from Stratum II (SIHP #-7428) at 1.0–1.05 mbs contained charcoal (6.0 g), naturally-occurring marine shell (0.5 g), burned *kukui* nutshell (1.2 g), bottle glass fragments (0.6 g), burned medium mammal (1.3 g), *Canis lupus familiaris* vertebra, epiphysis, long bone, canine, and molar (3.4 g), *Sus scrofa* molar (0.3 g), *Rattus* sp. (0.1 g), *Chaetodon miliaris* and *Diodon holocanthus* (0.6 g; Milletseed Butterflyfish and Puffer fish), and midden (138.0 g; see Midden Results tables at the end of the section).

An 11.4-liter screened sample was collected from SIHP #-7428 Feature 2 at 1.12–1.29 mbs. The sample contained charcoal (1.9 g), naturally-occurring marine shell (10.5 g), fish remains (0.1 g), a shark tooth (0.1 g), and midden (8.2 g; see Midden Results tables at the end of the section).

An 11.4-liter screened sample was collected from SIHP #-7428 Feature 3 at 1.12–1.16 mbs. The sample contained charcoal (6.9 g), naturally-occurring marine shells (1.8 g), fish remains (0.1 g), medium mammal remains (0.1 g), and midden (6.4 g). Midden collected included *Brachidontes crebristriatus* (3.6 g), *Nerita picea* (1.8 g), crustacean (0.7 g), and Echinoidea fragments (0.3 g).

An 11.4-liter screened sample was collected from SIHP #-7428 Feature 4 at 1.12–1.26 mbs. The sample contained charcoal (7.2 g), naturally-occurring marine shell (18.3 g), small roots (0.1 g), a piece of volcanic glass debitage (0.3 g), basalt manuport fragment (0.2 g), medium mammal remains (0.9 g), *Rattus* sp. remains (0.1 g), unidentified fish remains (0.3 g), *Pervagor spilosoma* (0.1 g, Fantail Filefish), and midden (50.6 g; see Midden Results tables at the end of the section).

An 18.9-liter screened sample was collected from SIHP #-7428 Feature 5 at 1.10–1.18 mbs. The sample contained charcoal (66.2 g), naturally-occurring marine shell (1.3 g), volcanic glass (1.5 g), burned *kukui* (1.6 g), fresh roots and leaves (0.4 g), medium mammal long bone fragments (2.2 g), burned *Canis lupus familiaris* long bone (0.6 g), burned Aves remains (0.1 g), *Sus scrofa* third molar (7.3 g), *Rattus* sp. remains (0.1 g), *Scarus perspicillatus* and *Pervagor spilosoma* (0.3 g, Parrotfish and Fantail Filefish), a shark tooth (0.1 g), and midden (64.3 g; see Midden Results tables at the end of the section).

An 18.9-liter screened sample was collected from SIHP #-7428 Feature 6 at 1.07–1.20 mbs. The sample contained charcoal (28.1 g), burned *kukui* nut shell (1.8 g), organic filaments (0.5 g), basalt fragment (3.9 g), volcanic glass (<0.1 g), plastic filament, fire-cracked rock fragments (148.3 g), three shark teeth (0.3 g), *Canis lupus familiaris* juvenile molars, metatarsus, burned fragments (8.3 g), *Sus scrofa* molar fragments (0.5 g), *Rattus* sp. mandible, long bone, and other fragments (0.9 g), *Pervagor spilosoma* (5.5 g, Fantail Filefish), and midden (236.5 g; see Midden Results tables at the end of the section).

An 18.9-liter screened sample was collected from SIHP #-7428 Feature 7 at 1.04–1.07 mbs. The sample contained charcoal (8.6 g), naturally-occurring marine shell (3.3 g), fire-cracked rock and vesicular basalt (17.9 g), *Canis lupus familiaris* molar and long bone fragments (1.2 g), *Rattus* sp. maxilla and long bone fragments (0.1 g), a shark tooth (0.1 g), *Bilunulatus alboteniatus* and *Pervagor spilosoma* (0.6 g, Hawaiian Hogfish and Fantail Filefish), and midden (129.5 g; see Midden Results tables at the end of the section).

An 18.9-liter screened sample was collected from SIHP #-7428 Feature 8 at 0.74–1.17 mbs. The sample contained charcoal (15.1 g), naturally-occurring marine shell (2.1 g), burned *kukui* nut (3.6 g), *Canis lupus familiaris* (13.6 g), *Rattus* sp. (0.1 g), a shark tooth (0.1 g), *Pervagor spilosoma* and *Scarus* sp. (0.3 g, Fantail Filefish and Parrotfish), and midden (38.0 g; see Midden Results tables at the end of the section).

All charcoal collected from SIHP #-7428 Feature 4 (1.12–1.26 mbs), SIHP #-7428 Feature 5 (1.10–1.18 mbs), and SIHP #-7428 Feature 7 (1.04–1.07 mbs) were submitted for wood taxa analysis and radiocarbon dating. The samples from Feature 4, Feature 5, and Feature 7 were dominated by native shrub and tree species, and had few Polynesian-introduced species. The wood taxa identified *kukui* nut shell (0.32 g) from Feature 4 yielded five possible date ranges, with a calibrated 2-sigma date of AD 1790 to 1940 (62.7%) as being the most probable. The wood taxa identified *kukui* nut shell (2.28 g) from SIHP #-7428 Feature 5 yielded seven possible date ranges, with a calibrated 2-sigma date of AD 1810 to 1920 (67.1%) as being the most

probable. The wood taxa identified *kukui* nut shell (1.04 g) from SIHP #-7428 Feature 7 yielded five possible date ranges, with a calibrated 2-sigma date of AD 1800 to 1930 (68.9%) as being the most probable. The complete wood taxa identification and radiocarbon results are presented at the end of the section.

Volcanic glass samples from SIHP #-7428 Features 4, 5, and 6 (three pieces total) were submitted for EDXRF analysis. Specific source information was not available; however the volcanic glass samples clearly did not match sources derived from Hawaii County. The samples from SIHP #-7428 Features 4 and 5 were from "Group 2" and the sample from SIHP #-7428 Feature 6 was from "Group 1." The samples represent two distinct geochemical groups identified from the 35 City Center AIS EDXRF volcanic glass samples, likely representing different volcanic sources on O'ahu (see EDXRF discussion in Volume V).

The results of sample analysis indicated use of this coastal environment during the late pre-Contact to post-Contact time period. The presence of marine shell midden materials within the buried A-horizon suggests temporary habitation and/or food consumption activities. The presence of post-Contact materials found within Stratum II correlate with the radiocarbon dates for SIHP #-7428 Features 4, 5, and 7 associated with Stratum II. The Stratum II culturally-enriched, buried A-horizon was overlying Jaucas sand. Stratum II was considered a component of SIHP #50-80-14-7428.

**GPR Discussion:** A review of amplitude slice maps indicated a linear feature and could correspond to the abandoned utility encountered during excavation. Reflectivity was relatively uniform throughout the grid and decreases with depth. A transition from higher reflectivity to lower reflectivity was observed at approximately 0.5 mbs.

GPR depth profiles for T-120 identified horizontal banding, commonly associated with stratigraphic layering, throughout the survey area. This banding corresponded to variations of density and chemical composition within fill deposits. The profile also indicated a change in reflectivity occurring around 0.25 mbs and again around 0.75 mbs. An anomaly was observed in the profile and corresponds to the utility encountered during excavation. The maximum depth of clean signal return was approximately 0.9 mbs.

**Summary:** T-120 was excavated to the water table at a depth of 1.45 mbs. The stratigraphy of T-120 was comprised of several different layers of fill (Ia–Id) and natural sediments (II–III). The stratigraphy generally conformed to the USDA soil survey designation of Fill land (FL) above the natural sediments (II and III). Artifacts collected from Stratum Id date from the late 1800s to early 1900s. Faunal remains collected individually during excavation from Stratum II (0.65–1.35 mbs) consisted of one post-Contact butchered *Bos taurus* fragment. Seven features (Features 2–8) were identified originating within the buried A-horizon (Stratum II) and extending into the natural Jaucas sand (Stratum III). The results of sample analysis indicated use of this coastal environment during the late pre-Contact and post-Contact periods. The presence of marine shell midden materials within the buried A-horizon suggests temporary habitation and/or food consumption activities. The historic artifacts (Stratum II) and the radiocarbon dates indicate Stratum II is a buried culturally-enriched A-horizon. It overlies Jaucas sand (Stratum III). This A-horizon and associated Features 2–8, are components of SIHP #50-80-14-7428 (see Volume I for discussion).



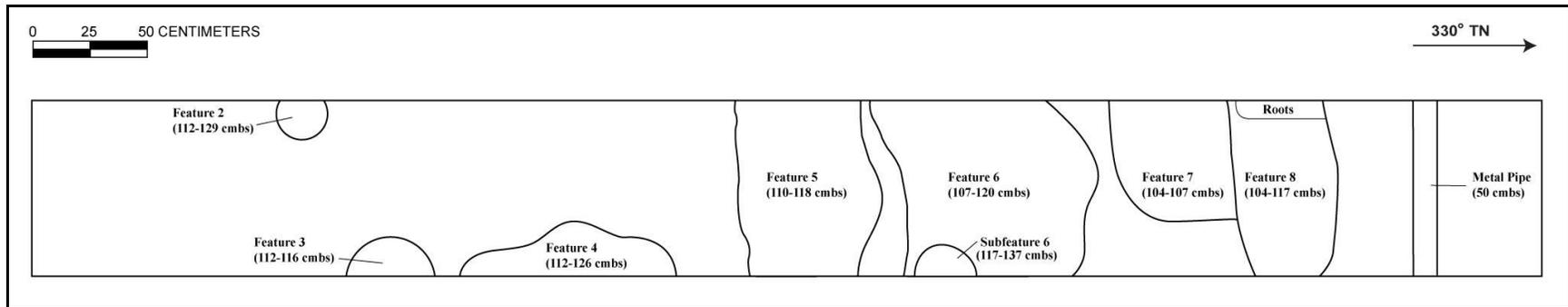
T-120 general location, view to east



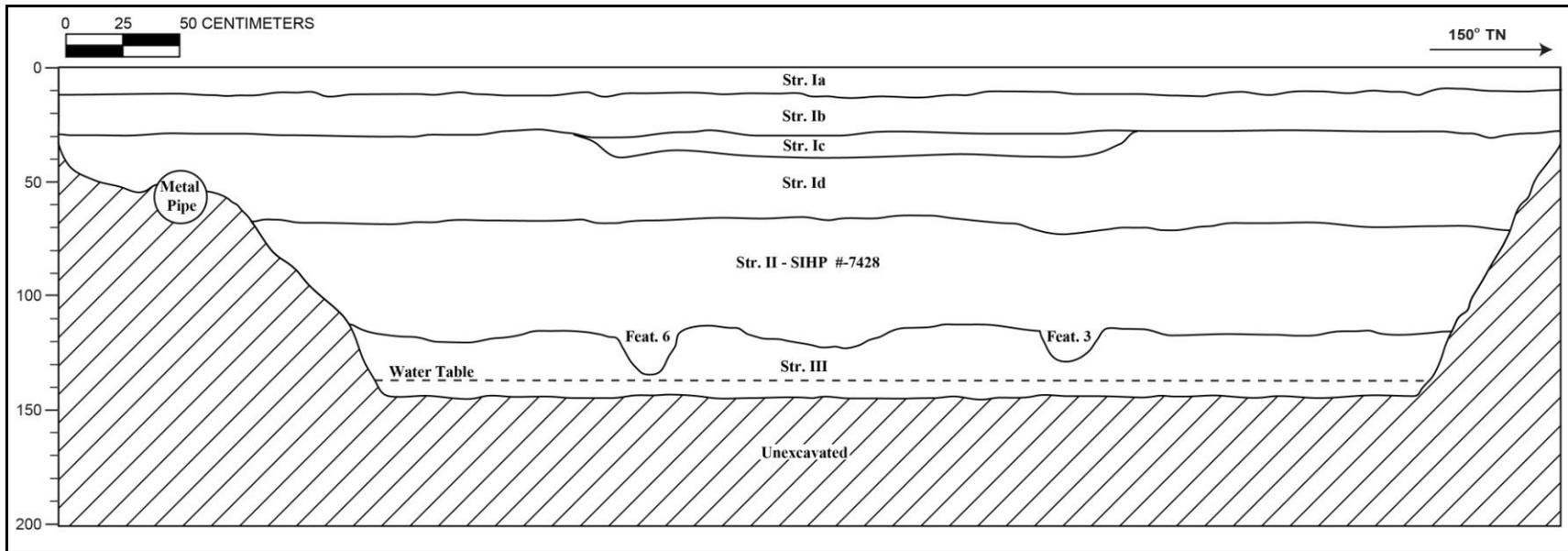
T-120 southwest profile wall, view to south



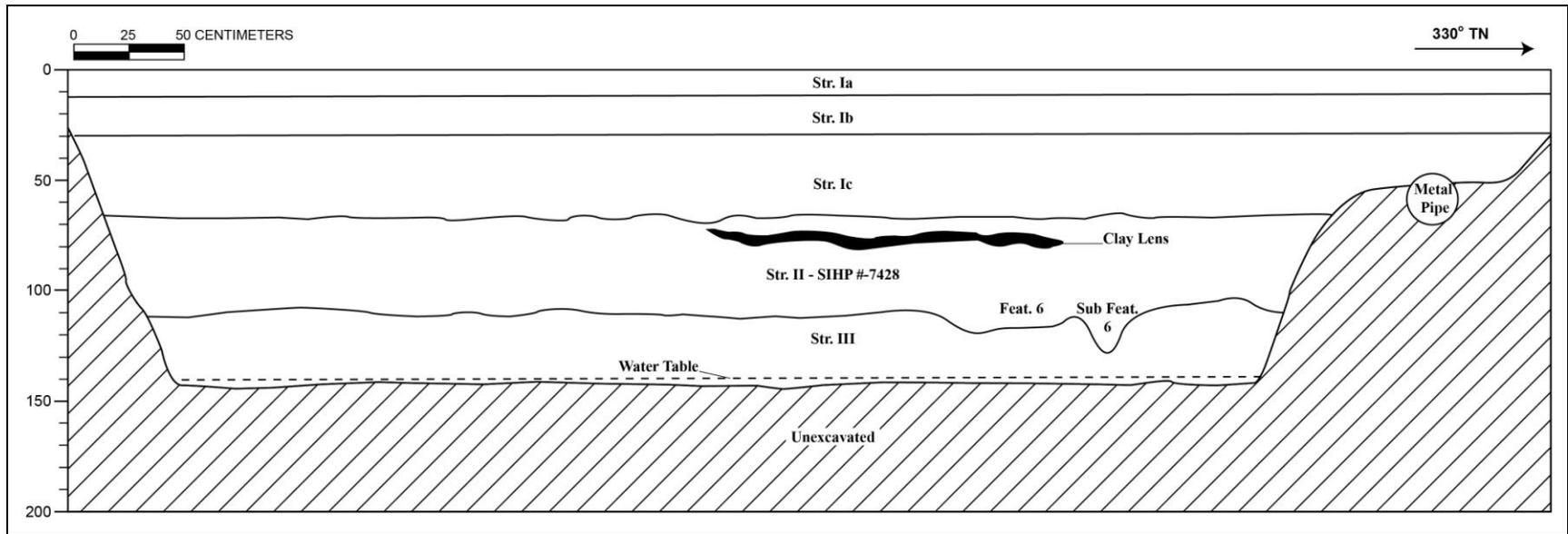
T-120 northeast profile wall, view to east



T-120 plan view of excavation floor in Stratum II (SIHP #-7428)



T-120 northeast wall profile



T-120 southwest wall profile

## T-120 Stratigraphic Description, southwest wall

Stratum	Depth (cmbs)	Description
Ia	0–14	Asphalt
Ib	14–30	Concrete
Ic	30–70	Fill; 10 YR 7/3 (very pale brown); extremely gravelly sand; structureless, single-grain; moist, friable consistency; non-plastic; marine origin; very abrupt, smooth lower boundary; red brick (not collected), metal pipe; crushed coral base course
II	70–130	Natural; 10 YR 2/2 (very dark brown) with few mottles of 7.5 YR 3/2 (dark brown clay); <5cm lens; loamy sand; weak, fine structure; moist, very friable consistency; mixed origin; wavy lower boundary; common, fine to medium roots; contained ceramic, marine shells (collected), Features 2–8 ; buried A-horizon; with (<5.0 cm) brown clay lens near upper boundary; component of SIHP #-7428
III	130–145 (BOE)	Natural; 10 YR 5/4 (yellowish brown); fine grain sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; lower boundary not visible; natural Jaucas sand

## T-120 Stratigraphic Description, northeast wall

Stratum	Depth (cmbs)	Description
Ia	0–14	Asphalt
Ib	14–30	Concrete
Ic	30–40	Fill; 10 YR 4/1 (dark gray); gravelly sandy clay; weak, fine, crumb structure; moist, friable consistency; plastic; mixed origin; clear, broken/discontinuous lower boundary; fill, crushed coral gravel
Id	30–73	Fill; 10 YR 7/3 (very pale brown); extremely gravelly sand; structureless, single-grain; moist, friable consistency; non-plastic; marine origin; very abrupt, smooth lower boundary
II	65–135	Natural; 10 YR 2/2 (very dark brown); fine loamy sand; weak, fine, crumb structure; moist, very friable consistency; non-plastic; mixed origin; wavy lower boundary; common, fine, medium roots; contained Features 2–8, faunal remains, ceramic, marine shells (collected); buried A-horizon; component of SIHP #-7428
SIHP #-7428 Feature 2	112–129	Natural; 10 YR 2/2 (very dark brown); fine loamy sand; weak, fine, crumb structure; moist, very friable consistency; non-plastic; mixed origin; possible postmold originating in Stratum II; sample contained charcoal, marine shell midden, fish bone, a shark tooth, and naturally-occurring marine shell; SIHP #-7428 Feature 2

Stratum	Depth (cmbs)	Description
SIHP #-7428 Feature 3	112-116	Natural; 10 YR 2/2 (very dark brown); fine loamy sand; weak, fine, crumb structure; moist, very friable consistency; non-plastic; mixed origin; pit feature originating in Stratum II; sample contained charcoal, marine shell midden, fish bone, medium mammal bone, and naturally-occurring marine shell; SIHP #-7428 Feature 3
SIHP #-7428 Feature 4	112-126	Natural; 10 YR 2/2 (very dark brown); fine loamy sand; weak, fine, crumb structure; moist, very friable consistency; non-plastic; mixed origin; pit feature originating in Stratum II; sample contained one piece of volcanic glass debitage, a basalt manuport fragment, charcoal, marine shell midden, fish bone (including <i>Pervagor spilosoma</i> , or Fantail Filefish), rat bone, medium mammal bone, and naturally-occurring marine shell; SIHP #-7428 Feature 4
SIHP #-7428 Feature 5	110-118	Natural; 10 YR 2/2 (very dark brown); fine loamy sand; weak, fine, crumb structure; moist, very friable consistency; non-plastic; mixed origin; pit feature originating in Stratum II; sample contained one piece of volcanic glass debitage, charcoal, marine shell midden, pig bone, medium mammal bone, dog bone, rat bone, bird bone, fish bone ( <i>Pervagor spilosoma</i> , or Fantail Filefish, and <i>Scarus perspicillatus</i> , or Spectacled parrotfish), a shark tooth, burned <i>kukui</i> nutshell, and naturally-occurring marine shell; SIHP #-7428 Feature 5
SIHP #-7428 Feature 6	107-120	Natural; 10 YR 2/2 (very dark brown); fine loamy sand; weak, fine, crumb structure; moist, very friable consistency; non-plastic; mixed origin; pit feature and sub-feature originating in Stratum II; sample contained one piece of volcanic glass debitage, basalt, charcoal, marine shell midden, three shark teeth, pig bone, dog bone, rat bone, fish bone ( <i>Pervagor spilosoma</i> , or Fantail Filefish), burned <i>kukui</i> nutshell, fire-cracked rock, a plastic filament, and naturally-occurring marine shell; SIHP #-7428 Feature 6
SIHP #-7428 Feature 7	104-107	Natural; 10 YR 2/2 (very dark brown); fine loamy sand; weak, fine, crumb structure; moist, very friable consistency; non-plastic; mixed origin; pit feature originating in Stratum II; sample contained charcoal, marine shell midden, dog bone, rat bone, a shark tooth, fish bone ( <i>Pervagor spilosoma</i> , or Fantail Filefish, and <i>Bilunulatus albotaeniatus</i> , or Hawaiian hogfish), fire-cracked rock, and naturally-occurring marine shell; SIHP #-7428 Feature 7
SIHP #-7428 Feature 8	104-117	Natural; 10 YR 2/2 (very dark brown); fine loamy sand; weak, fine, crumb structure; moist, very friable consistency; non-plastic; mixed origin; pit feature originating in Stratum II; sample contained charcoal, marine shell midden, dog bone, rat bone, a shark tooth, fish bone ( <i>Pervagor spilosoma</i> , or Fantail Filefish), burned <i>kukui</i> nutshell, and naturally-occurring marine shell; SIHP #-7428 Feature 8

<b>Stratum</b>	<b>Depth (cmbs)</b>	<b>Description</b>
III	113–145 (BOE)	Natural; 10 YR 5/4 (yellowish brown); fine grain sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; lower boundary not visible; natural Jaucas sand

## T-120 Stratum II (SIHP #-7428) (0.80–0.85 mbs) Midden Results

<b>Midden Type</b>	<b>Weight (g)</b>
<i>Theodoxus neglectus/Nerita picea</i>	215.5
Gastropod fragment, large	29.7
<i>Tellina palatam</i>	13.8
<i>Brachidontes crebristriatus</i>	5.5
<i>Conus</i> sp.	4.3
<i>Turbo sandwicensis</i> , operculum	3.3
Gastropod fragment, very large	2.1
<i>Pinctada radiata</i>	1.3
<i>Natica</i> sp.	1.2
<i>Trochus</i> sp.	1.2
Fascioliariidae	1.0
Nassariidae	1.0
<i>Strombus</i> sp.	0.5
<i>Echinothrix diadema</i> sp.	0.1
<i>Planaxis labiosa</i>	0.1

## T-120 Stratum II (SIHP #-7428) (1.0–1.05 mbs) Midden Results

<b>Midden Type</b>	<b>Weight (g)</b>
<i>Nerita picea</i> , operculum	100.5
<i>Brachidontes crebristriatus</i>	8.5
<i>Cymatium maricium</i>	3.3
Shell fragments	3.1
<i>Cypraea teres</i>	1.2
<i>Tellina palatam</i>	1.2
<i>Strombus</i> sp.	0.6
<i>Cypraea caputserpentis</i>	0.4
<i>Echinothrix diadema</i> sp.	0.2

## T-120 SIHP #-7428 Feature 2 (1.12–1.29 mbs) Screened Sample Midden Results

<b>Midden Type</b>	<b>Weight (g)</b>
<i>Brachidontes crebristriatus</i>	3.2
<i>Nerita picea</i>	2.7
Crustacean	1.3
<i>Cypraea</i> sp.	0.4
Shell (burned)	0.2
<i>Tellina palatam</i>	0.2
<i>Echinometra mathaei</i> sp.	0.1
<i>Isognomon</i> sp.	0.1

## T-120 SIHP #-7428 Feature 4 (1.12–1.26 mbs) Screened Sample Midden Results

<b>Midden Type</b>	<b>Weight (g)</b>
<i>Brachidontes crebristriatus</i>	13.4
<i>Nerita picea</i>	13.0
Shell (burned)	8.3
Crustacean	7.4
<i>Echinothrix diadema</i> sp./ <i>Echinometra mathaei</i>	5.0
<i>Tellina palatam</i>	1.8
<i>Trochus intextus</i>	1.1
<i>Isognomon</i> sp.	0.6

## T-120 SIHP #-7428 Feature 5 (1.10–1.18 mbs) Screened Sample Midden Results

<b>Midden Type</b>	<b>Weight (g)</b>
<i>Nerita picea</i>	21.2
<i>Brachidontes crebristriatus</i>	19.1
<i>Tellina palatam</i>	7.6
Crustacean	4.6
<i>Echinothrix diadema</i> sp./ <i>Echinometra mathaei</i>	3.8
Burned shell fragments	3.0
<i>Natica gualteriana</i>	2.2
<i>Strombus</i> sp.	1.7
<i>Conus</i> sp.	0.6
<i>Ctena bella</i>	0.5
<i>Pinctada radiata</i>	0.1

## T-120 SIHP #-7428 Feature 6 (1.07–1.20 mbs) Screened Sample Midden Results

<b>Midden Type</b>	<b>Weight (g)</b>
<i>Nerita picea</i>	66.9
<i>Brachidontes crebristriatus</i>	62.0
<i>Conus quercinus</i>	35.4
<i>Tellina palatam</i>	17.9
<i>Echinothrix diadema</i> sp./ <i>Echinometra mathaei</i>	11.5
Cymatiidae	9.1
Crustacean	4.0
<i>Trochus</i> sp.	2.9
<i>Isognomon</i> sp.	2.5
<i>Cypraea caputserpentis</i> and <i>Cypraea</i> sp. (burned)	2.4
Ostreidae	2.4
<i>Turbo sandwicensis</i>	1.8
<i>Nassarius hirtus</i>	1.7

## T-120 SIHP #-7428 Feature 7 (1.04–1.07 mbs) Screened Sample Midden Results

<b>Midden Type</b>	<b>Weight (g)</b>
<i>Brachidontes crebristriatus</i>	62.7
<i>Nerita picea</i> (some juvenile)	43.0
<i>Tellina palatam</i>	5.5
<i>Echinothrix diadema</i> sp./ <i>Echinometra mathaei</i> sp.	5.0
Crustacean	3.8
<i>Natica gualteriana</i>	2.6
<i>Isognomon</i> spp.	2.1
Shell fragments (burned)	1.6
<i>Trochus</i> sp.	1.3
<i>Strombus</i> sp.	1.0
<i>Cypraea</i> sp.	0.9

## T-120 SIHP #-7428 Feature 8 (0.74–1.17 mbs) Screened Sample Midden Results

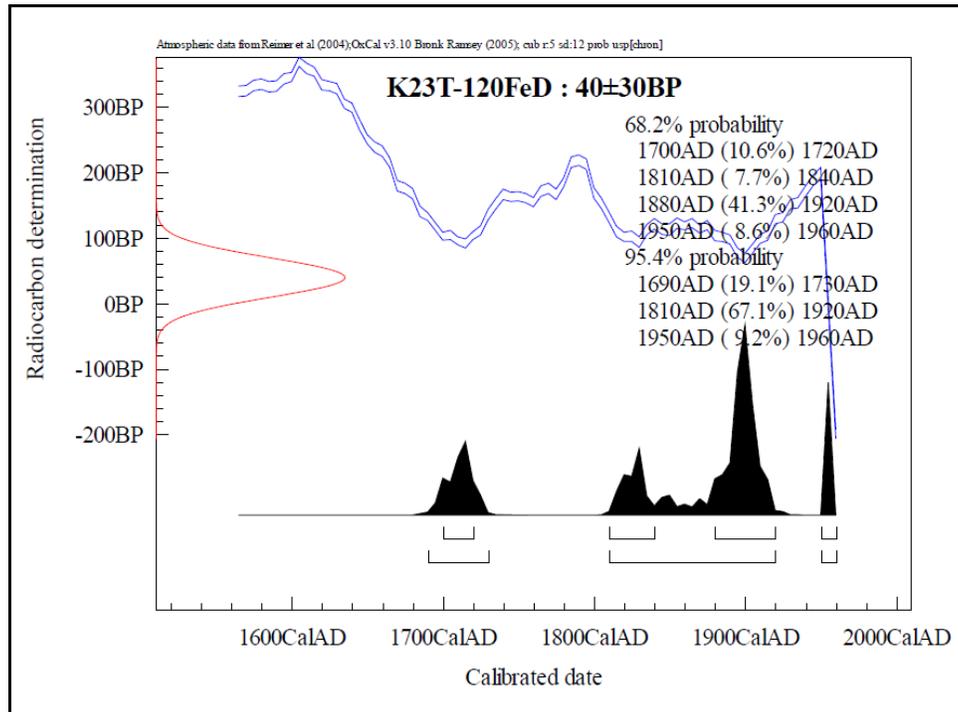
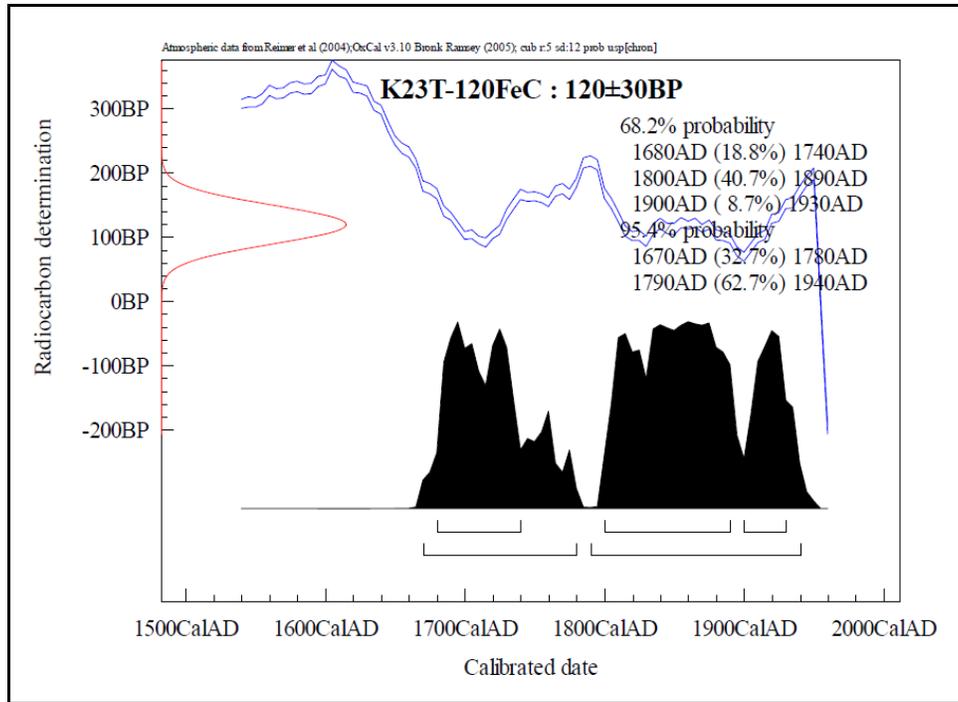
<b>Midden Type</b>	<b>Weight (g)</b>
<i>Brachidontes crebristriatus</i>	13.9
<i>Nerita picea</i> , operculum (juveniles)	9.4
Shell fragments (burned)	5.5
Echinoidea	2.4
<i>Cymatium</i> sp.	2.3
<i>Tellina palatam</i>	1.7
Crustacean	1.3
<i>Isognomon</i> sp.	1.0
<i>Casmaria ponderosa</i>	0.5

## T-120 Wood Taxa Identification Results

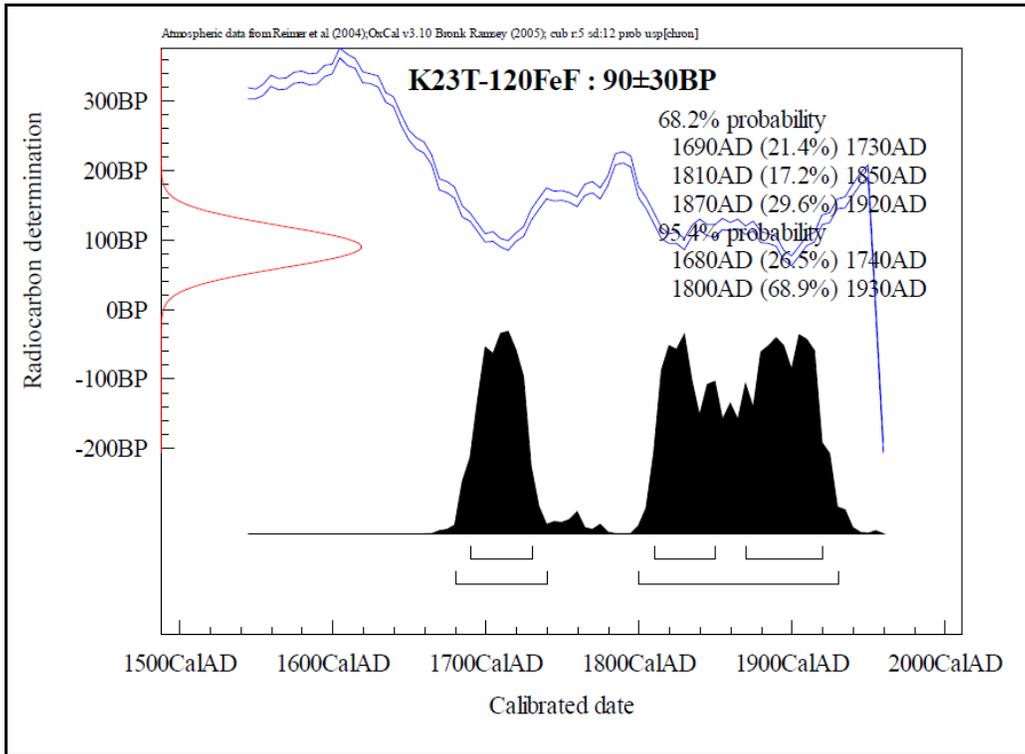
Prov.	WIDL No.	Taxa	Common/Hawaiian Name	Origin/Habit	Part	Count	Weight (g)
T-120: SIHP #-7428 Feature 4 (112-126 cmbs)	1228-1	<i>Aleurites moluccana</i>	<i>Kukui</i>	Polynesian Introduction/ Tree	Nut-shell	11	0.32
	1228-2	<i>Hibiscus tiliaceus</i>	<i>Hau</i>	Native/Shrub-Tree	Wood	2	0.27
	1228-3	Monocot			Stem ?	9	0.48
	1228-4	cf. <i>Wikstroemia</i> sp.	<i>'Ākia</i>	Native/Shrub	Wood	3	0.12
	1228-5	unidentified			Wood	13	0.39
	1228-6	cf. <i>Senna</i> sp.	<i>Kolomona</i>	Native + Historic Introductions/ Shrub-Tree	Wood	10	0.38
	1228-7	cf. <i>Syzygium</i> sp.	<i>'Ōhi'a 'ai</i> (mountain apple), roseapple, Java plum	Native + Historic Introductions/ Tree	Wood	2	0.06
	1228-8	<i>Sida fallax</i>	<i>'Ilima</i>	Native/Shrub	Wood	9	0.17
	1228-9	cf. <i>Osteomeles anthyllidifolia</i>	<i>'Ūlei</i>	Native/Shrub	Wood	1	0.09
	1228-10	cf. <i>Pritchardia</i> sp.	<i>Loulu</i>	Native/Tree	Wood	8	0.22
	1228-11	<i>Chenopodium oahuense</i>	<i>'Āheahea,</i> <i>'aweoweo</i>	Native/Shrub	Wood	6	0.12
	1228-12	cf. <i>Lagenaria siceraria</i>	<i>Ipu</i>	Polynesian Introduction/ Vine	Fruit rind	1	<0.01
	1228-13	cf. <i>Coprosma</i> sp.	<i>Pilo</i>	Native/Shrub-Tree	Wood	1	0.02
	1228-14	<i>Chamaesyce</i> sp.	<i>'Akoko</i>	Native/Shrub	Wood	2	0.02
	1228-15	cf. <i>Bobea</i> sp.	<i>'Ahakea</i>	Native/Tree	Wood	3	0.04
	1228-16	unidentified			Wood	15	0.50
	1228-17	unidentified			Wood	3	0.04
	1228-18	unidentified			Wood	4	0.06

Prov.	WIDL No.	Taxa	Common/Hawaiian Name	Origin/Habit	Part	Count	Weight (g)
T-120: SIHP #-7428 Feature 5 (110-118 cmbs)	1228-19	Monocot			Stem	70	35.94
	1228-20	<i>Aleurites moluccana</i>	<i>Kukui</i>	Polynesian Introduction/ Tree	Nut-shell	20	2.28
	1228-21	unidentified			Wood	4	0.49
	1228-22	unidentified			Wood	3	3.21
	1228-23	unidentified			Bark	3	0.50
	1228-24	<i>Chamaesyce sp.</i>	<i>'Akoko</i>	Native/Shrub	Wood	3	0.49
	1228-25	cf. <i>Metrosideros polymorpha</i>	<i>'Ōhi'a lehua</i>	Native/Tree	Wood	3	0.75
	1228-26	unidentified			Wood	12	2.37
	1228-27	<i>Hibiscus tiliaceus</i>	<i>Hau</i>	Native/Shrub-Tree	Wood	3	0.05
	1228-28	unidentified			Wood	4	0.64
	1228-29	cf. <i>Sida fallax</i>	<i>'Ilima</i>	Native/Shrub	Wood	5	0.21
	1228-30	cf. <i>Syzygium sp.</i>	<i>'Ōhi'a 'ai</i> (mountain apple), roseapple, Java plum	Native + Historic Introductions/ Tree	Wood	5	0.58
1228-31	cf. <i>Coprosma sp.</i>	<i>Pilo</i>	Native/Shrub-Tree	Wood	1	0.06	

Prov.	WIDL No.	Taxa	Common/Hawaiian Name	Origin/Habit	Part	Count	Weight (g)
T-120: SIHP #-7428 Feature 7 (104–107 cmbs)	1228-101	cf. <i>Sida fallax</i>	'Ilima	Native/Shrub	Wood	4	0.44
	1228-102	cf. <i>Coprosma</i> sp.			Wood		
	1228-103	<i>Aleurites moluccana</i>	Kukui	Polynesian Introduction/ Tree	Nut-shell	17	1.04
	1228-104	<i>Chenopodium oahuensis</i>	Āheahea, 'āweoweo	Native/Shrub	Wood	1	0.04
	1228-105	cf. <i>Dodonaea viscosa</i>	'A'ali'i	Native/Shrub	Wood	11	1.03
	1228-106	unidentified			Wood	4	0.37
	1228-107	cf. <i>Pteridophyta</i>	Fern		Stem	5	0.65
	1228-108	unidentified			Wood	1	0.04
	1228-109	unidentified			Wood	2	0.20
	1228-110	cf. <i>Senna</i> sp.	Kolomona	Native+Historic Introduction/ Shrub-Tree	Wood	2	0.34
	1228-111	unidentified			Wood	3	0.23
	1228-112	unidentified			Wood	2	0.04
	1228-113	cf. <i>Osteomeles anthyllidifolia</i>	'Ūlei	Native/Shrub	Wood	10	0.60



T-120 Radiocarbon results for SIHP #-7428 Feature 4 (formerly Feature C, top) and SIHP #-7428 Feature 5 (formerly Feature D, bottom)



T-120 Radiocarbon results for SIHP #-7428 Feature 7 (formerly Feature F)

### 3.13 Test Excavation 120A (T-120A)

<b>Ahupua'a:</b>	Honolulu
<b>LCA:</b>	N/A
<b>TMK #:</b>	2-1-026:022
<b>Elevation Above Sea Level:</b>	1.77 m
<b>UTM:</b>	618072.98 mE, 2356232.78 mN
<b>Max Length/Width/Depth:</b>	6.70 m/0.67m/1.70 m
<b>Orientation:</b>	140/320° TN
<b>Targeted Project Component:</b>	Utility Relocation
<b>USDA Soil Designation:</b>	Fill land (FL)

**Setting:** Test Excavation T-120A (T-120A) was located within the east sidewalk of Halekauwila Street. T-120A was on public property owned by the City and County of Honolulu. T-120A was an additional excavation added to further investigate and delineate the boundaries of the feature concentration found within T-120, approximately 5.0 m to the northeast (part of SIHP #50-80-14-7428). T-120A also investigated a utility relocation. A storm drain was located 3.0 m west, a sewer line was 3.8 m east, and a water line was 10.0 m south of T-120A. The excavation surface was level with the surrounding land surface.

**Summary of Background Research and Land Use:** According to the 1847 Metcalf map T-120A was 22 m east of the former shoreline and 11 m north of Honuakaha Street (Punchbowl Street). The area was still largely undeveloped in 1883 (Baldwin Map) and 1884 (Bishop map), but there were several house lots near T-120A. The 1887 Wall map depicts T-120A 18 m east of Halekauwila Street corridor. Monsarrat's 1897 map shows similar street grids, and Newton's 1904 map shows T-120A within Halekauwila Street. The land lot east of T-120A belonged to the Bishop Estates at that time. The 1919 U.S. Army War Department Fire Control map indicates that T-120A was located within an undeveloped portion of a city block with several structures in the vicinity (see Figure 20). By 1933, there was increased development in the area (1933 U.S. Army War Department Fire Control map; see Figure 22). The 1943 U.S. Army War Department Terrain map and 1953 U.S. Army Mapping Service map shows similar structures (see Figure 24). LCA records for the area indicate that traditional land use was limited to salt making, taro cultivation, and fishpond farming. T-120A was located 3m west of LCA 180, which was comprised of one house lot awarded to Mataio Kekūānāo'a for Lot Kamehameha. LCA 129 (awarded to Kinimaka) was located 53 m southeast of T-120A (see Figure 18). A burial (SIHP #50-80-14-02963) was found 68 m southeast of T-120A, within LCA 129 (Ota and Kam 1982).

Several studies identified historic properties in the vicinity of T-120A (see Figure 25). A burial report by Ota and Kam (1982) identified the remains of six individuals (SIHP #50-80-14-2963) found during construction, located 50 m southeast of T-120A, on the corner of Halekauwila Street and Punchbowl Street. Archaeological monitoring conducted for the Kaka'ako Improvement District 1, approximately 83 m southeast of T-120A, identified one probable pre-Contact burial (SIHP #50-80-14-4533) with 11 sling stones and other traditional Hawaiian

artifacts that were removed to Bernice Pauahi Bishop Museum (Pfeffer, Borthwick, and Hammatt 1993). Approximately 105 m southeast of T-120A for the Makai Parking Garage on the corner of Punchbowl Street and Halekauwila Street, archaeological monitoring identified one historic property (SIHP #50-80-14-2963) consisting of seven burials pre-dating 1850 (Clark 1987). Denham and Kennedy (1993) identified a multi-component site consisting of multiple burial finds and ten pre- and post-Contact features (SIHP #50-80-14-4605) and nine trash pit features (SIHP #50-80-14-4606) located approximately 78 m northeast of T-120A.

**Documentation Limitations:** T-120A was excavated to the coral shelf at a depth of 1.70 mbs. The water table was encountered at 1.60 mbs. No factors limited excavation.

**Stratigraphic Summary:** The stratigraphy of T-120A was comprised of several layers of fill and natural sediment. The Observed strata were asphalt (Ia), very gravelly sandy loam fill (Ib), very gravelly loamy sand fill (Ic), gravelly loamy sand fill (Id), natural, gravelly sandy loam (II), natural sand (III), and the coral shelf (IV). Stratigraphy generally conformed to the USDA soil survey designation of Fill land (FL) above Stratum II. Stratum II is a culturally-enriched buried A-horizon and a component of SIHP #50-80-14-7428.

**Artifacts Discussion:** Two traditional Hawaiian artifacts (Acc. #s 120A-H-1 and H-2) consisting of volcanic glass debitage were collected from Stratum II (SIHP #-7428). A single historic artifact, a clear glass bottle fragment (Acc. #120A-A-1) was collected from SIHP #-7428 Feature 11. Based on its color, the fragment was dated to post-1870. The edge of the glass fragment had been worked.

**Features Discussion:** A total of five features (Features 9–13) were identified within Stratum II and determined to relate to features found in T-120 and to be part of SIHP #50-80-14-7428. All of the features contained midden and charcoal. A bulk sample was collected for each and additional screened samples were collected from SIHP #-7428 Features 11 and 12.

SIHP #-7428 Feature 9 originated at 1.18 mbs and terminated at 1.36 mbs. The pit was oval shaped in plan, measured 0.30 m by more than 0.15 m, and extended into the northeast side wall of T-120A. SIHP #-7428 Feature 9 is interpreted as a pit of indeterminate function.

SIHP #-7428 Feature 10 originated at 1.28 mbs and terminated at 1.37 mbs. It was circular in shape and measured 0.25 m in diameter within the center of T-120A. SIHP #-7428 Feature 10 is interpreted as a pit of indeterminate function or possible postmold.

SIHP #-7428 Feature 11 originated at 1.30 mbs and terminated at 1.40 mbs. It was linear in shape, measured 0.65 m wide and 0.67 m long, and extended into both the northeast and southwest side walls of T-120A. SIHP #-7428 Feature 11 is interpreted as a pit of indeterminate function.

SIHP #-7428 Feature 12 originated at 1.28 mbs and terminated at 1.32 mbs. It was irregularly-shaped and measured 1.75 m long and 0.4 m wide, extending into the southwest side wall of T-120A. Feature 12 is interpreted as a pit of indeterminate function.

SIHP #-7428 Feature 13 originated at 1.28 mbs and terminated at 1.32 mbs. It was circular in shape and measured approximately 0.15 m in diameter, slightly extending into the northeast side wall of T-120A. Feature 13 is interpreted as a pit of indeterminate function or a possible postmold.

**Terrestrial Faunal Remains Discussion:** Faunal remains collected individually during excavation from Stratum II consisted of *Equus ferus caballus*, *Bos taurus*, *Sus scrofa*, and unidentified medium mammal. The *Sus scrofa* fragments were butchered with a metal saw blade, indicating an historic origin, which is consistent with the presence of introduced species (*Bos taurus* and *Equus ferus caballus*) in the same deposit. The medium mammal long bone fragments show evidence of burning. Stratum II is a culturally-enriched A-horizon and is identified as a component of SIHP #50-80-14-7428.

**Sample Results:** A total of eight bulk sediment samples and three screened midden samples were collected from Stratum Id, Stratum II, SIHP #-7428 Features 9–13, and Stratum III. All the samples were wet screened. In addition, volcanic glass samples from SIHP #-7428 Feature 12 and from Stratum II were submitted for EDXRF analysis.

A general bulk sediment sample was collected from Stratum Id at 1.05–1.15 mbs. The sample contained charcoal (0.7 g), midden (4.0 g), naturally-occurring shell (0.4 g), fish remains (0.1 g), and coral gravel (2.0 g). Marine shell midden collected included *Brachidontes crebristriatus* (1.5 g), (1.5 g), *Tellina palatam* (0.5 g), *Isognomon* sp. (0.3 g), crustacean (0.1 g), *Echinothrix diadema* sp. and *Echinometra mathaei* sp. (0.1 g).

A 34-liter screened sample was collected from Stratum II (SIHP #-7428) at 1.1–1.8 mbs, containing charcoal (21.8 g), naturally-occurring shell (3.3g), roots (1.6 g), coal (4.8 g), *kukui* nut burned and unburned (0.7 g), slag (1.0 g), medium mammal (0.6 g), unidentified fish remains (0.5g), burned fish vertebrae (0.2 g), *Pervagor spilosoma* (0.2 g, Fantail Filefish fragment), small mammal cf. *Rattus* sp. (0.2 g), *Scaridae* jaw fragment (0.1 g), and marine shell midden (93.2 g; see Midden Results tables at the end of the section).

A hand-collected midden sample from Stratum II (SIHP #-7428) at 1.2 mbs contained various marine shell midden (17.3 g), light green, olive green and brown glass fragments (58.2g), and ceramic fragments (29.8g). Marine shell midden collected included *Tellina palatam* (10.3 g), Veneridae (5.8 g), and *Cypraea caputserpentis* (1.2 g).

A 1-liter general bulk sample was collected from Stratum III at 1.32–1.45 mbs and contained charcoal (0.2g), and various marine shell midden (35.1 g). Marine shell midden collected included large fragments of *Conus* sp. (32.8 g), and *Tellina palatam* (2.0 g). A second general bulk sample collected from Stratum III at 1.49–1.65 mbs contained charcoal (1.9 g), various marine shell midden (8.1 g), naturally-occurring shell (1.5 g), *kukui* nut shell (5.1 g), a shark tooth (0.1 g), and basalt (3.5 g). The midden collected included *Brachidontes crebristriatus* (2.0 g), *Nerita picea* (1.6 g), *Tellina* spp. (1.4 g), *Conus* sp. (1.3 g), crustacean (1.2 g), and *Echinothrix diadema* sp. and *Echinometra mathaei* sp. (0.6 g).

A 1-liter screened sample was collected from SIHP #-7428 Feature 9 at 1.18–1.36 mbs. The sample contained charcoal (0.3 g), various marine shell midden (1.9 g), and naturally-occurring marine shell (0.4g). Marine shell midden collected included crustacean (1.0 g), *Nerita picea* (0.9 g), *Tellina palatam* (0.7 g), *Echinothrix diadema* sp. and *Echinometra mathaei* sp. (0.1 g), *Brachidontes crebristriatus* (0.1 g), and *Trochus* sp. (0.1 g).

A 3-liter bulk sample was collected from SIHP #-7428 Feature 10 at 1.28–1.37 mbs. The sample contained charcoal (2.9 g), various marine shell midden (10.5 g), *kukui* nutshell (0.1 g), fish fragments (2.2 g), and coral fragments (12.8 g). The marine shell midden collected included

burned shell (3.9 g), *Nerita picea* (2.4 g), *Tellina* sp. (1.8 g), *Brachidontes crebristriatus* (1.2 g), *Echinothrix diadema* sp. and *Echinometra mathaei* sp. (0.8 g), *Trochus* sp. (0.3 g), and *Strombus* sp. (0.1 g).

A 6-liter bulk sample and a 9.5-liter screened sample were collected from SIHP #-7428 Feature 11 at 1.30–1.45 mbs. The combined samples contained charcoal (45.1 g), various marine shell midden (12.2 g, see Midden Results tables at the end of the section) naturally-occurring marine shell (0.1 g), roots (1.2 g), glass (0.2 g), white ceramic fragment (14.1 g), medium mammal remains (0.3 g), a shark tooth (0.1 g), and basalt water worn cobble (18.8 g).

A 2-liter bulk sample was collected from SIHP #-7428 Feature 12 at 1.28–1.32 mbs. The sample contained charcoal (16.1 g), various marine shell midden (37.7 g; see Midden Results tables at the end of the section), naturally-occurring marine shell (1.8 g), volcanic glass (0.1 g), and fire-racked rock (17.7 g).

A 1-liter bulk sample was collected from SIHP #-7428 Feature 13 at 1.28–1.32 mbs. The sample contained charcoal (0.1 g) and marine shell midden (1.0 g). Marine shell midden collected included *Nerita picea* (0.8 g), crustacean (0.1 g), and *Tellina palatam* (0.1 g).

A sample of 3.4 g of charcoal from Stratum II (SIHP #-7428) at 1.10–1.18 mbs was submitted for wood taxa identification. Results of wood taxa identification included *Kōpiko* (cf. *Psychotria* sp.), 'Ōhi'a 'ai/roseapple/Java plum (cf. *Syzygium* sp.), 'Ūlei (cf. *Osteomeles anthyllidifolia*), 'Ōhi'a lehua (cf. *Metrosideros polymorpha*), *Kolomona* (cf. *Senna* sp.), 'Ulu (cf. *Artocarpus altilis*), 'A'ali'i (cf. *Dodonaea viscosa*), Hao (cf. *Rauvolfia sandwicensis*), *Kukui* (*Aleurites moluccana*), *Pilo* (cf. *Coprosma* sp.), 'Akoko (*Chamaesyce* sp.), *Lama* (*Diospyros sandwicensis*), and one unidentified species. Most identified species consisted of native or Polynesian-introduced species. Charcoal identified as *kukui* nutshell (0.08 g) was submitted for radiocarbon dating analysis, which yielded seven possible date ranges, with a calibrated 2-sigma date of AD 1660 to 1890 (78.2%) as the most probable.. The complete wood taxa identification results and radiocarbon results are presented at the end of the section.

All charcoal (0.3 g) collected from SIHP #-7428 Feature 9 (1.28–1.36 mbs) was submitted for wood taxa identification. Results of wood taxa identification included *Kōpiko* (cf. *Psychotria* sp.), *Hau* (*Hibiscus tiliaceus*), *Pilo* (cf. *Coprosma* sp.), and one unidentified species. All identified species consisted of endemic species. Charcoal identified as *pilo* (0.04 g) was submitted for radiocarbon dating analysis and yielded five possible date ranges, with a calibrated 2-sigma date of AD 1660 to AD 1890 (77.3%) as the most probable. The complete wood taxa identification results and radiocarbon results are presented at the end of the section.

A 2.9 g sample of charcoal collected from SIHP #-7428 Feature 10 (1.25–1.37 mbs) was submitted for wood taxa identification. Results of wood taxa identification included *Āheahea*/'āweoweo (*Chenopodium oahuense*), 'Ōhi'a 'ai/roseapple/Java plum (cf. *Syzygium* sp.), *Kukui* (*Aleurites moluccana*), *Lama* (*Diospyros sandwicensis*), *Kolomona* (cf. *Senna* sp.), *Kōpiko* (cf. *Psychotria* sp.), and 'A'ali'i (cf. *Dodonaea viscosa*). Most identified species consisted of native or Polynesian-introduced species. However, one species (cf. *Syzygium*) may have been a historic introduction. Charcoal identified as *kukui* nutshell (0.35 g) was submitted for radiocarbon dating analysis and yielded five possible date ranges, with a calibrated 2-sigma

date of AD 1660 to AD 1890 (77.3%) as the most probable. The complete wood taxa identification results and radiocarbon results are presented at the end of the section.

All charcoal (13.7 g) collected from SIHP #-7428 Feature 12 (1.28–1.32 mbs) was submitted for wood taxa identification. Results of wood taxa identification included 'Akoko (*Chamaesyce* sp.), *Kolomona* (cf. *Senna* sp), 'A'ali'i (cf. *Dodonaea viscosa*), 'Ōhi'a lehua (cf. *Metrosideros polymorpha*), 'Ulu (cf. *Artocarpus altilis*), Kukui (*Aleurites moluccana*), Palm (cf. *Arecaceae*), grass (Poaceae), and three unidentified species. Most identified species consisted of native or Polynesian-introduced species. However, one species (*Kolomona*) may have been a historic introduction. Charcoal identified as 'Akoko (3.43 g) was submitted for radiocarbon dating analysis and yielded seven possible date ranges, with a calibrated 2-sigma date of AD 1720 to AD 1820 (50.7%) as the most probable. The complete wood taxa identification results and radiocarbon results are presented at the end of the section.

Volcanic glass samples from SIHP #-7428 Feature 12 (one piece) and Stratum II (SIHP #-7428 ) at 1.10–1.18 mbs (one piece) were submitted for EDXRF analysis. Specific source information was not available; however the volcanic glass samples clearly did not match sources derived from Hawai'i County. One sample from Stratum II (SIHP #-7428) contained only coal and the second contained coal and volcanic glass from "Group 2." The sample from SIHP #-7428 Feature 12 was from "Group 2. The samples represent a distinct geochemical group, one of two identified from the 35 City Center AIS EDXRF volcanic glass samples, likely representing different volcanic sources on O'ahu (see EDXRF discussion in Volume V).

Results of sample analysis are indicative of use of the surrounding coastal landscape during the late pre-Contact/early post-Contact time period. The contents of the buried A-horizon, Stratum II (SIHP #50-80-14-7428) and its associated features (Features 9–13) suggest this area may have served as a temporary habitation site and/or for food consumption activities.

**GPR Discussion:** A review of amplitude slice maps indicated no linear features although a concrete surface was encountered during excavation. Reflectivity was relatively uniform throughout the grid and decreases with depth. A transition from higher reflectivity to lower reflectivity was observed at approximately 0.5 mbs.

GPR depth profiles for T-120A identified horizontal banding, commonly associated with stratigraphic layering, throughout the survey area. This banding corresponded to variations of density and chemical composition within fill deposits. The profile also indicated a change in reflectivity occurring around 0.2 mbs. Anomalies were observed in the profile and correspond to the concrete surface and pipe that were encountered. The maximum depth of clean signal return was approximately 0.75 mbs.

**Summary:** T-120A was excavated to the coral shelf at a depth of 1.70 mbs. The water table was encountered at 1.60 mbs. The stratigraphy consisted of several layers of fill (Ia–Ic) and natural sediment (II–III) and the coral shelf (IV). It generally conformed to the USDA soil survey designation of Fill land above Stratum II. Two traditional Hawaiian artifacts (Acc. #s 120A-H-1 and H-2) consisting of volcanic glass debitage were collected from Stratum II (SIHP #-7428). A single historic artifact, a clear glass bottle fragment, was collected from Stratum II. The five features identified in Stratum II (SIHP #-7428 Features 9–13) each contained midden and charcoal. A bulk sample was collected from each and additional screen samples were collected

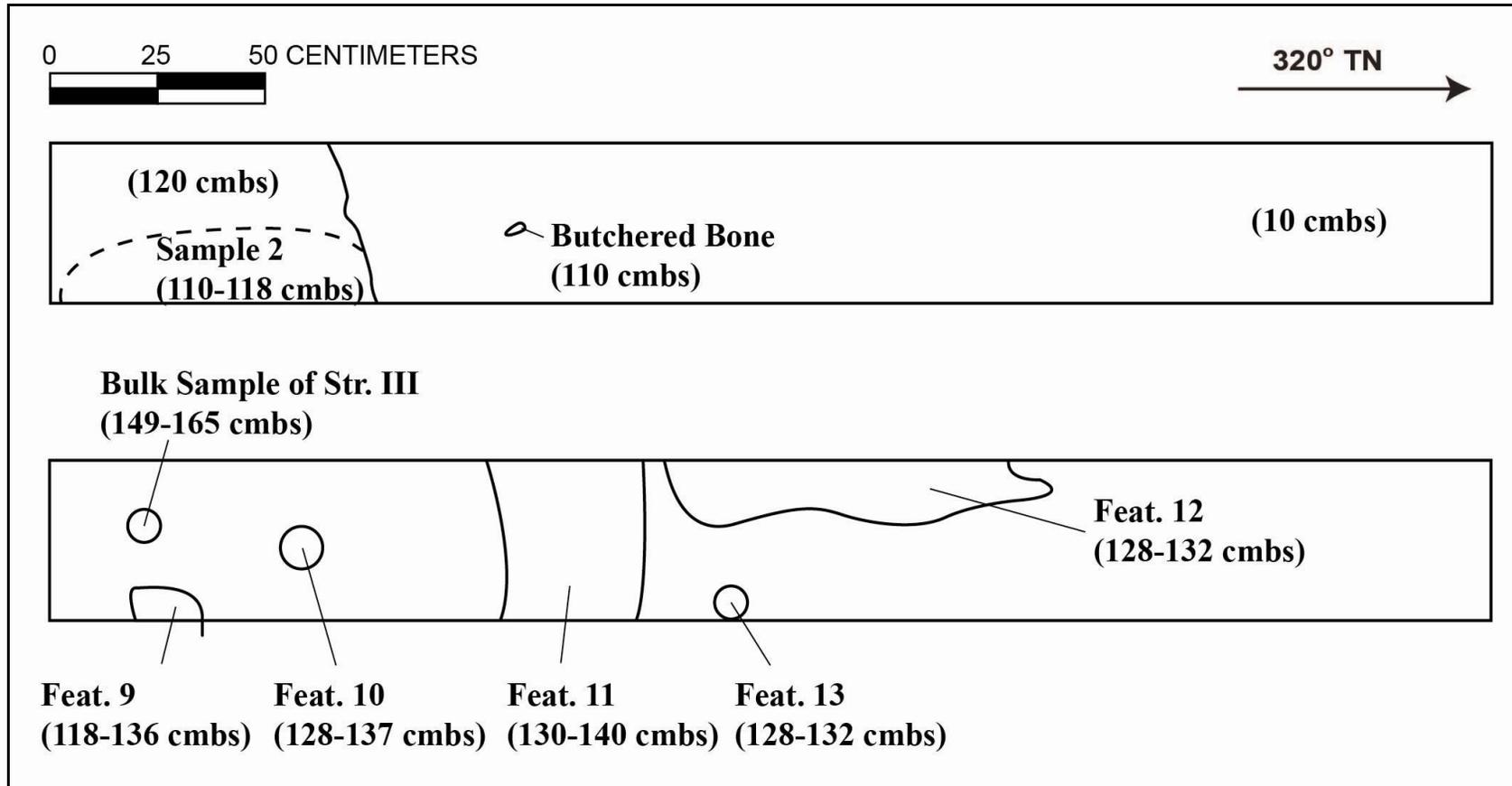
from SIHP #-7428 Features 11 and 12. Within Stratum II (SIHP #-7428), faunal fragments collected and identified consisted of *Bos taurus*, *Equus ferus caballus*, Osteichthyes (fish), *Sus scrofa*, and medium mammal. Results of sample analysis indicate use of the surrounding coastal landscape during the late pre-Contact/early post-Contact time period. The contents of the buried A-horizon, Stratum II and associated features (Features 9–13) suggest this area may have served as a temporary habitation site and/or for food consumption activities. Stratum II and Features 9–13 are identified as components of SIHP #50-80-14-7428 (see Volume I for further discussion).



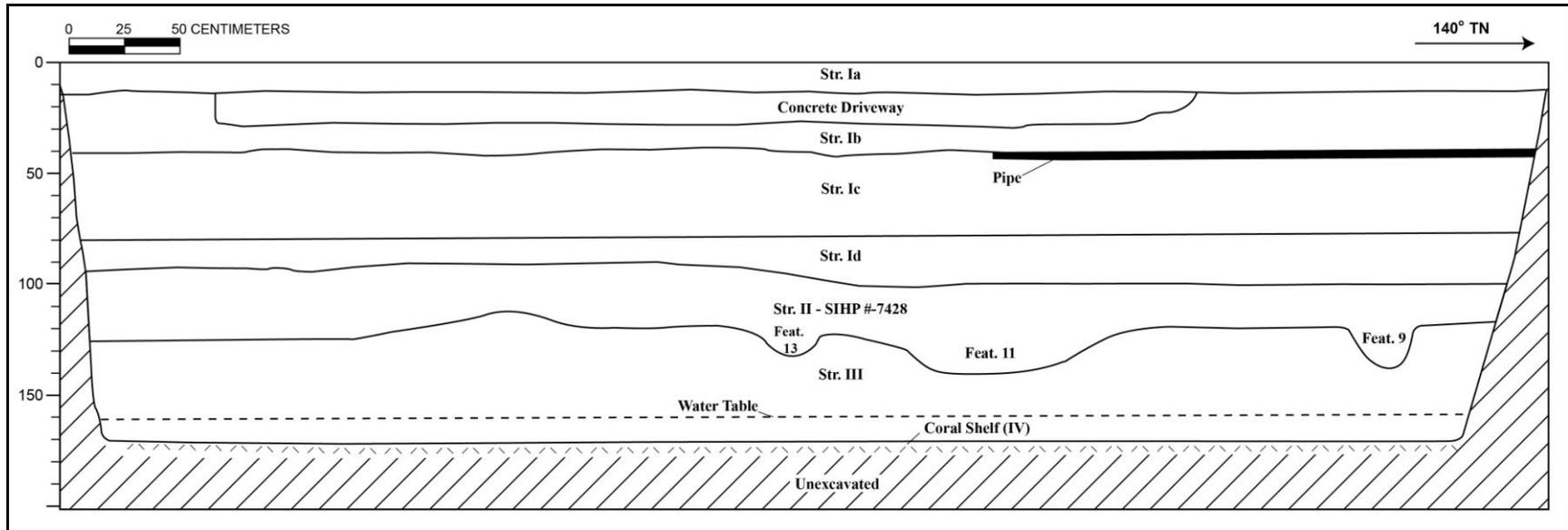
T-120A general location, view to south



T-120A northeast profile wall, view to east



T-120A plan view



T-120A northeast wall profile

## T-120A Stratigraphic Description

Stratum	Depth (cmbs)	Description
Ia	0–15	Asphalt; fill
Ib	15–40	Fill; 10 YR 7/4 (very pale brown); very gravelly sandy loam; medium, crumb structure; moist, loose, weak consistency; non-plastic; mixed origin; clear, smooth lower boundary; common, fine roots; coral gravel, large coral cobbles, very gravelly sandy loam
Ic	40–80	Fill; 10 YR 7/4 (very pale brown); very gravelly loamy sand; structureless, single-grain; weak, fine, medium, granular structure; moist, loose, weak consistency; non-plastic; mixed origin; clear, smooth lower boundary; common, fine roots; coral gravel, large coral cobbles, very gravelly loamy sand
Id	80–100	Fill; 10 YR 2/2 (very dark brown); gravelly loamy sand; structureless, single-grain; moist, friable consistency; non-plastic; mixed origin; abrupt, smooth lower boundary; bulk sample contained faunal, midden, charcoal (collected)
II	90–125	Natural; 10 YR 2/2 (very dark brown); gravelly sandy loam; structureless, single-grain; moist, friable consistency; non-plastic; mixed origin; abrupt, smooth lower boundary; common, fine roots; bulk and/or screened samples contained <i>bos taurus</i> , glass, marine mollusk shell, <i>Mytilidae</i> , <i>Neritidae</i> , <i>Tellinidae</i> (collected); contains five pit features (Features 9–13) designated as components of SIHP #-7428
SIHP #-7428 Feature 9	118–136	Natural; 10 YR 2/2 (very dark brown); gravelly sandy loam; structureless, single-grain; moist, friable consistency; non-plastic; mixed origin; pit feature; sample contained charcoal, marine shell midden, and naturally-occurring marine shell; SIHP #-7428 Feature 9
SIHP #-7428 Feature 10	128–137	Natural; 10 YR 2/2 (very dark brown); gravelly sandy loam; structureless, single-grain; moist, friable consistency; non-plastic; mixed origin; pit feature; sample contained charcoal, marine shell midden, <i>kukui</i> nutshell, and fish bone; possible postmold; SIHP #-7428 Feature 10
SIHP #-7428 Feature 11	130–140	Natural; 10 YR 2/2 (very dark brown); gravelly sandy loam; structureless, single-grain; moist, friable consistency; non-plastic; mixed origin; pit feature; sample contained charcoal, marine shell midden, glass fragments, one white ceramic fragment, one basalt water-worn cobble, medium mammal remains, one shark tooth, and naturally-occurring marine shell; SIHP #-7428 Feature 11

<b>Stratum</b>	<b>Depth (cmbs)</b>	<b>Description</b>
SIHP #-7428 Feature 12	128–132	Natural; 10 YR 2/2 (very dark brown); gravelly sandy loam; structureless, single-grain; moist, friable consistency; non-plastic; mixed origin; pit feature; sample contained charcoal, marine shell midden, one piece of volcanic glass debitage, fire-cracked rock, and naturally-occurring marine shell; SIHP #-7428 Feature 12
SIHP #-7428 Feature 13	128–132	Natural; 10 YR 2/2 (very dark brown); gravelly sandy loam; structureless, single-grain; moist, friable consistency; non-plastic; mixed origin; pit feature; sample contained charcoal and marine shell midden; SIHP #-7428 Feature 13
III	125–170	Natural; 10 YR 5/4 (yellowish brown); sand; structureless, single-grain; moist, friable consistency; non-plastic; marine origin; abrupt, smooth lower boundary
IV	170 (BOE)	Natural; 10 YR 7/4 (very pale brown); bedrock-limestone; structureless, massive; moist, weakly to strongly cemented; discontinuous consistency; non-plastic; marine origin; lower boundary not observed; Pleistocene coral shelf

## T-120A Stratum II (SIHP #-7428) (1.10–1.18 mbs) Screened Sample Midden Results

<b>Midden Type</b>	<b>Weight(g)</b>
<i>Nerita picea</i>	33.0
<i>Brachidontes crebristriatus</i>	20.3
<i>Tellina palatam</i>	9.5
<i>Tellina</i> spp.	1.4
<i>Conus</i> sp.	5.1
Gastropod/bivalve (burned)	3.0
<i>Echinothrix diadema</i> sp./ <i>Echinometra mathaei</i> sp.	3.0
Crustaceans	1.9
<i>Cymatium</i> sp.	1.7
<i>Turbo sandwicensis</i>	2.8
<i>Cypraea caputserpentis</i>	1.2
<i>Cypraea</i> spp.	0.7
<i>Isognomon</i> sp.	0.6
<i>Strombus</i> sp.	1.8
<i>Natica</i> sp.	0.4
<i>Trochus</i> sp.	0.4
Trochidae	2.7
Crustaceans (burned)	0.3
Ostreidae	0.3
Tellinidae	0.3
Nassariidae	2.5
<i>Turbo</i> sp. (burned)	0.2

## T-120A SIHP #-7428 Feature 12 (1.28–1.32 mbs) Midden Results

<b>Midden Type</b>	<b>Weight (g)</b>
<i>Nerita picea</i>	9.8
<i>Nerita picea</i> (burned)	1.1
<i>Brachidontes crebristriatus</i>	9.5
cf. Terebridae	7.1
<i>Echinothrix diadema</i> sp./ <i>Echinometra mathaei</i> sp.	2.9
Shell matrix (burned)	2.7
<i>Tellina palatam</i>	2.6
<i>Conus</i> sp.	0.3
Cypraeidae	0.1
Crustacean	0.3
Crustacean (burned)	0.3
<i>Isognomon</i> sp.	1.0

## T-120A Terrestrial Vertebrate Material Collected Individually During Excavation

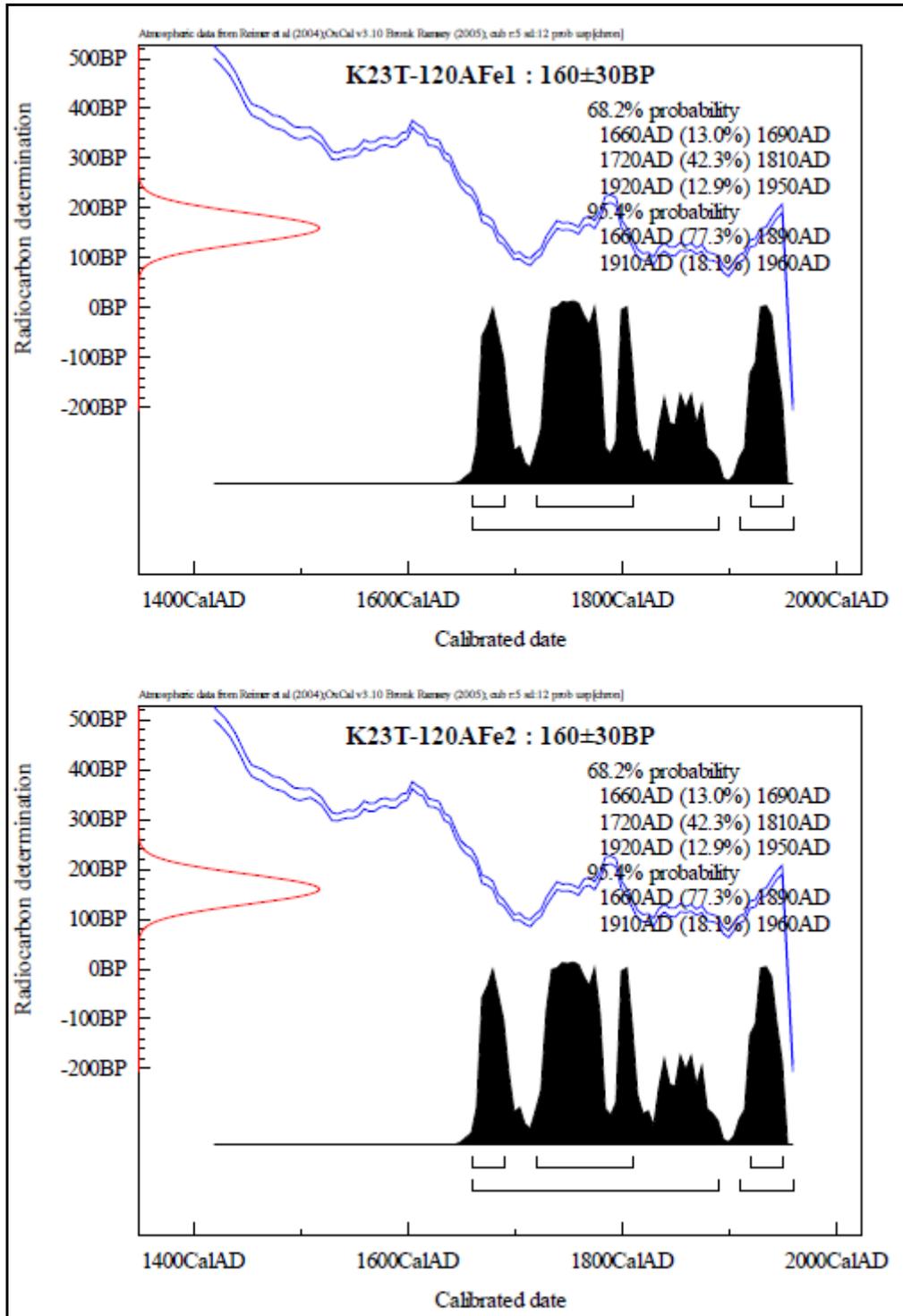
Acc. #	Stratum	Depth (cmbs)	Depth(cmbs)	Feature	Family/Class	Species	Element	Description	Modification
120A-F-1	II	110-118	110-118	-	Equidae (horse)	<i>Equus ferus caballus</i> (horse)	Scapula; Distal portion metacarpus; Mandibular molar	Fragments	None
120A-F-2	II	110-118	110-118	-	Bovidae	<i>Bos taurus</i> (cow)	Scapula; Right proximal metatarsal; Rib; Spinous process (pieces mend); Astragalus	Fragments	None
120A-F-3	II	110-118	110-118	-	Suidae	<i>Sus scrofa</i> (pig)	Ulna; Distal end metatarsal	Fragments	Ulna butchered (cut with metal blade)
120A-F-4	II	110-118	110-118	-	Mammalia	Medium mammal	Irregular bones; Diaphyses sections	Fragments	Burned diaphysis sections

## T-120A Wood Taxa Identification Results

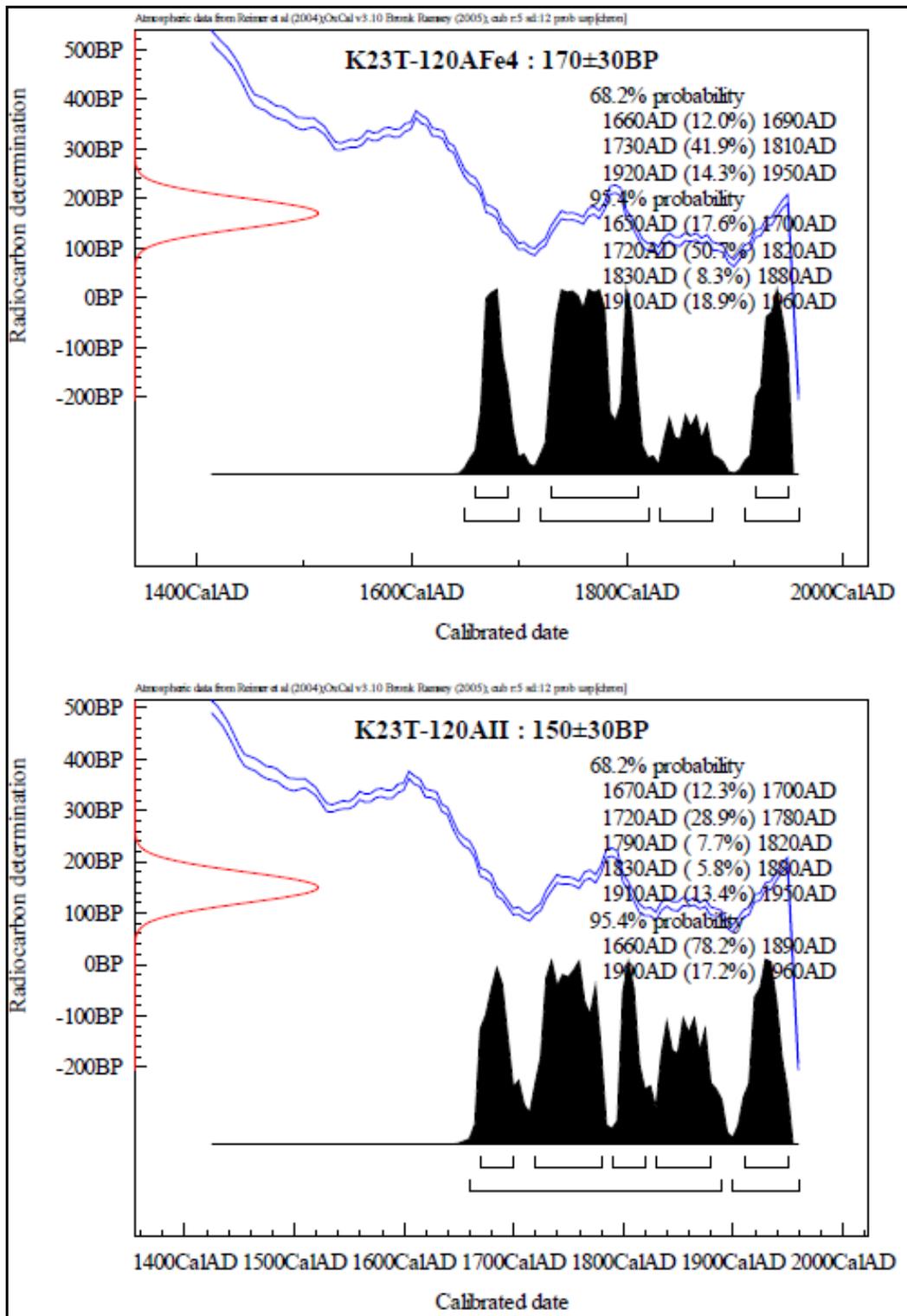
Prov.	WIDL no.	Taxa	Common/Hawaiian name	Origin/Habitat	Part	Count	Weight (g)
T-120A: SIHP #- 7428 Stratum II (110–118 cmbs)	1302-25	cf. <i>Psychotria</i> sp.	<i>Kōpiko</i>	Native/Tree	Wood	10	0.83
	1302-26	cf. <i>Syzygium</i> sp.	'Ōhi 'a 'ai (mountain apple), roseapple, Java plum	Native + Historic Introductions/Tree	Wood	3	0.22
	1302-27	cf. <i>Osteomeles anthyllidifolia</i>	'Ūlei	Native/Shrub	Wood	5	0.53
	1302-28	cf. <i>Metrosideros polymorpha</i>	'Ōhi 'a lehua	Native/Tree	Wood	7	0.63
	1302-29	cf. <i>Senna</i> sp.	<i>Kolomona</i>	Native+Historic Introductions/Shrub-Tree	Wood	6	0.36
	1302-30	cf. <i>Artocarpus altilis</i>	'Ulu	Polynesian Introduction/Tree	Wood	3	0.11
	1302-31	cf. <i>Dodonaea viscosa</i>	'A 'ali 'i	Native/Shrub	Wood	4	0.12
	1302-32	cf. <i>Rauwolfia sandwicensis</i>	<i>Hao</i>	Native/Shrub-Tree	Wood	4	0.16
	1302-33	<i>Aleurites moluccana</i>	<i>Kukui</i>	Polynesian Introduction/Tree	Nutshell	3	0.08
	1302-35	cf. <i>Coprosma</i> sp.	<i>Pilo</i>	Native/Shrub-Tree	Wood	1	0.02
	1302-36	<i>Chamaesyce</i> sp.	'Akoko	Native/Shrub	Wood	1	0.04
	1302-37	Unknown 3				1	0.02
	1302-38	<i>Diospyros sandwicensis</i>	<i>Lama</i>	Native/Tree	Wood	1	0.03

Prov.	WIDL no.	Taxa	Common/Hawaiian name	Origin/Habitat	Part	Count	Weight (g)
<b>T-120A:</b> SIHP #-7428 Feature 9 (128–136 cmbs)	1302-39	cf. <i>Psychotria</i> sp.	<i>Kōpiko</i>	Native/Tree	Wood	1	0.08
	1302-40	Not identified			Bark	2	0.18
	1302-41	<i>Hibiscus tiliaceus</i>	<i>Hau</i>	Native/Shrub-Tree	Wood	2	0.08
	1302-42	cf. <i>Coprosma</i> sp.	<i>Pilo</i>	Native/Shrub-Tree	Wood	1	0.04
<b>T-120A:</b> SIHP #-7428 Feature 10 (125–137 cmbs)	1302-43	<i>Chenopodium oahuense</i>	<i>‘Āheahea, ‘āweoweo</i>	Native/Shrub	Wood	2	0.49
	1302-44	cf. <i>Syzygium</i> sp.	<i>‘Ōhi‘a ‘ai</i> (mountain apple), roseapple, Java plum	Native + Historic Introductions/Tree	Wood	4	0.78
	1302-45	<i>Aleurites moluccana</i>	<i>Kukui</i>	Polynesian Introduction/Tree	Nutshell	2	0.35
	1302-46	<i>Diospyros sandwicensis</i>	<i>Lama</i>	Native/Tree	Wood	1	0.05
	1302-47	cf. <i>Senna</i> sp.	<i>Kolomona</i>	Native+Historic Introductions/Shrub-Tree			
	1302-48	cf. <i>Psychotria</i> sp.	<i>Kōpiko</i>	Native/Tree	Wood	1	0.15
	1302-49	cf. <i>Dodonaea viscosa</i>	<i>‘A‘ali‘i</i>	Native/Shrub	Wood	2	0.56

Prov.	WIDL no.	Taxa	Common/Hawaiian name	Origin/Habitat	Part	Count	Weight (g)
T-120A: SIHP #-7428 Feature 12 (128–132 cmbs)	1302-50	<i>Chamaesyce</i> sp.	'Akoko	Native/Shrub	Wood	10	3.43
	1302-51	cf. <i>Senna</i> sp.	<i>Kolomona</i>	Native+Historic Introductions/ Shrub-Tree	Wood	20	1.09
	1302-52	cf. <i>Dodonaea viscosa</i>	'A'ali'i	Native/Shrub	Wood	3	0.20
	1302-53	cf. <i>Metrosideros polymorpha</i>	'Ōhi'a lehua	Native/Tree	Wood	2	0.46
	1302-54	cf. <i>Artocarpus altilis</i>	'Ulu	Polynesian Introduction/ Tree	Wood	2	0.37
	1302-55	cf. <i>Arecaceae</i>	Palm		Petiole	5	0.26
	1302-56	cf. <i>Aleurites moluccana</i>	<i>Kukui</i>	Polynesian Introduction/ Tree	Wood	6	0.40
	1302-57	cf. <i>Arecaceae</i>	Palm		Wood	1	0.08
	1302-58	Unknown 4			Wood	2	0.19
	1302-59	Not identified			cf. tuber	1	<0.01
	1302-60	Poaceae	Grass		Stolon	1	0.04
1302-61	Unknown 3			Wood	10	0.39	



T-120A Calibrated radiocarbon analysis results for SIHP #-7428 Feature 9 (formerly, Feature 1, top) and SIHP #-7428 Feature 10 (formerly Feature 2, bottom)



T-120A Calibrated radiocarbon analysis results for SIHP #-7428 Feature 12 (formerly Feature 4, top) and general Stratum II (SIHP #-7428) sample (bottom)