

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

### 3.1 Overall Location

For reporting purposes for this archaeological inventory survey, the City Center Section 4 of the HHCTCP has been divided into 11 zones based on geographical and cultural boundaries. The West Kaka'ako Geographic 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 Geographic Zone includes 46 AIS test excavations; namely, 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, -030 (Halekauwila Street; owned by the City and County of Honolulu); [1] 2-1-026 (area *mauka* of Halekauwila Street; 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), 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 further inland, and the western-most 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'uuanu 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 approximately 1.2 to 1.9 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 Kawailumalumi Pond were thought to be nearby. These places' 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)

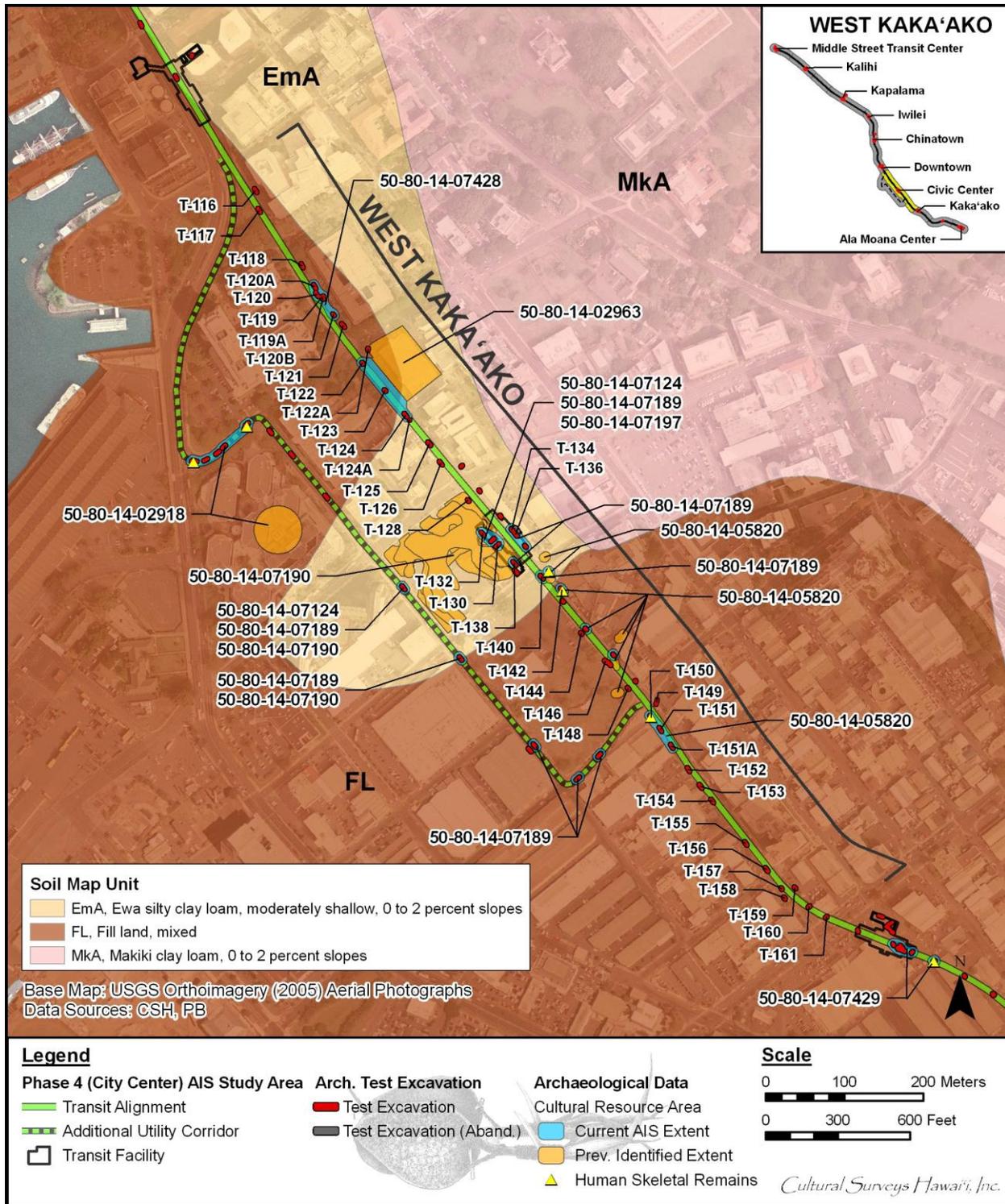


Figure 16. Aerial photograph (source: U.S. Geological Survey Orthoimagery 2005) with overlay of the Soil Survey of Hawai'i (Foote et al. 1972) showing sediment types and the locations of the West Kaka'ako Zone AIS test excavations (T-116 through T-160) along the transit corridor and at the Civic Center Station

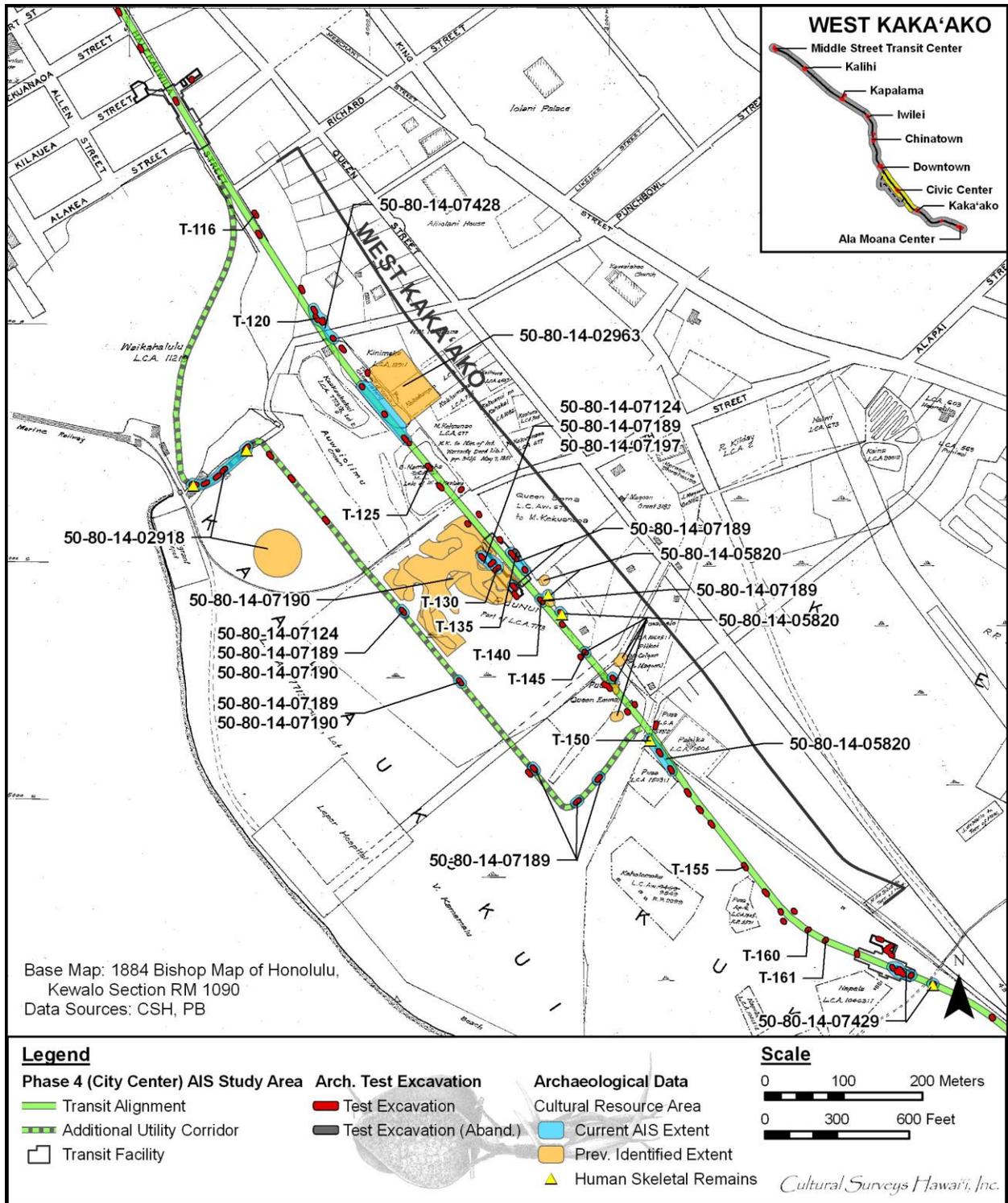


Figure 17. 1884 Map of Honolulu, Kewalo Section, by S. E. Bishop (Reg. Map 1090), showing the locations of the West Kaka'ako Zone AIS test excavations (T-116 through T-160) along the transit corridor and at the Civic Center Station

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 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 (1923:639) 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."

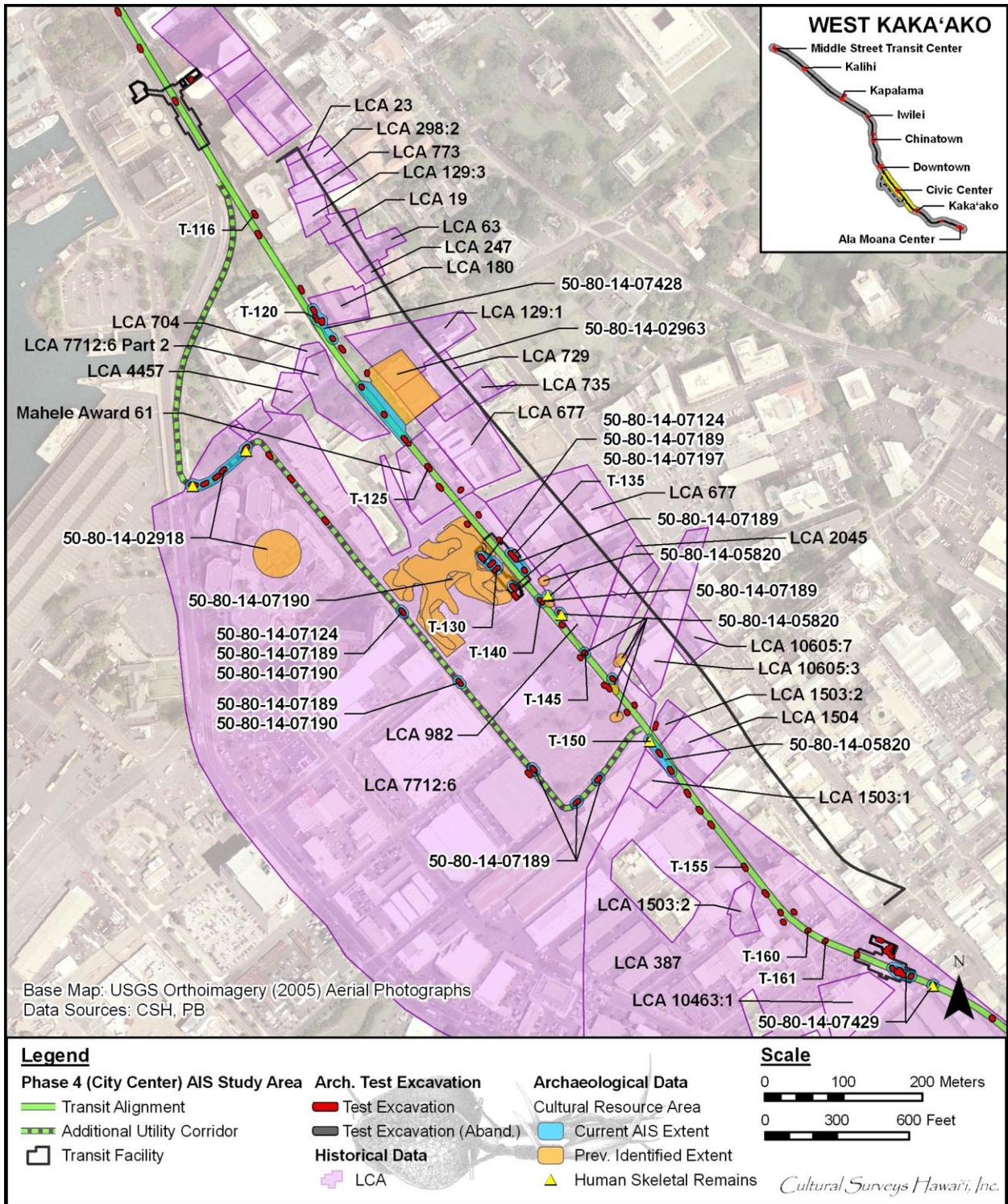


Figure 18. Aerial photograph (base map: U.S. Geological Survey Orthoimagery 2005) showing the locations of LCAs and the location of the West Kaka'ako Zone AIS test excavations (T-116 through T-160) along the transit corridor and at the Civic Center Station

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 vicinity of the West Kaka'ako Zone (in numerical order)

LCA Number	Contents of Award
Māhele Aw. 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 extending southeast from Honolulu toward Waikīkī. The late nineteenth century maps indicate that the vicinity of 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 reported 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 by 1919. By 1950, the U.S. Army Reservation had expanded to both sides of the transit corridor at the

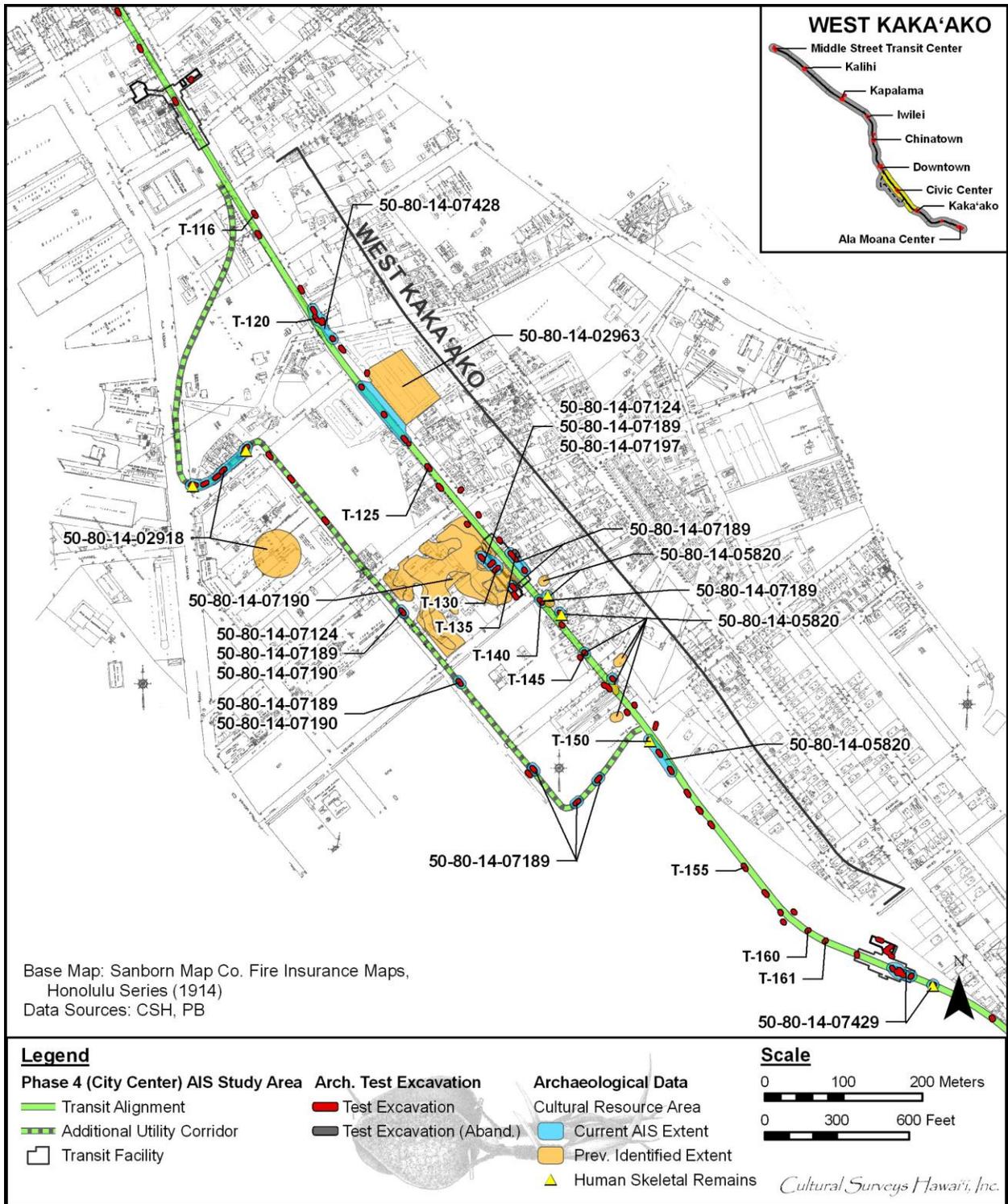


Figure 19. 1914 Sanborn Series map showing the former marshlands and fishponds gone and intensive urbanization of the West Kaka'ako Zone

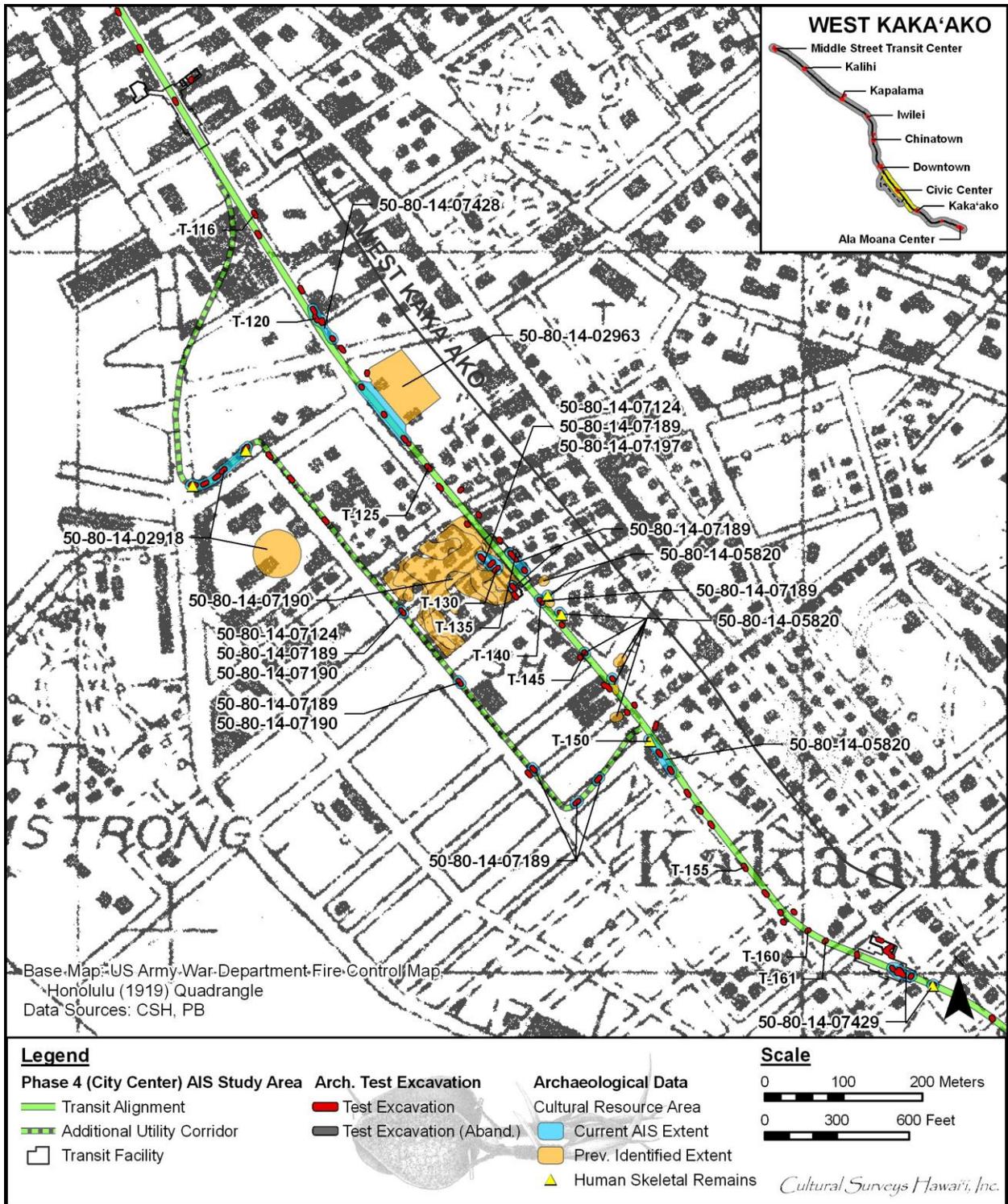


Figure 20. 1919 U.S. Army War Department Fire Control map, Honolulu Quadrangle, showing the locations of the West Kaka'ako Zone AIS test excavations (T-116 through T-160) along the transit corridor and at the Civic Center Station

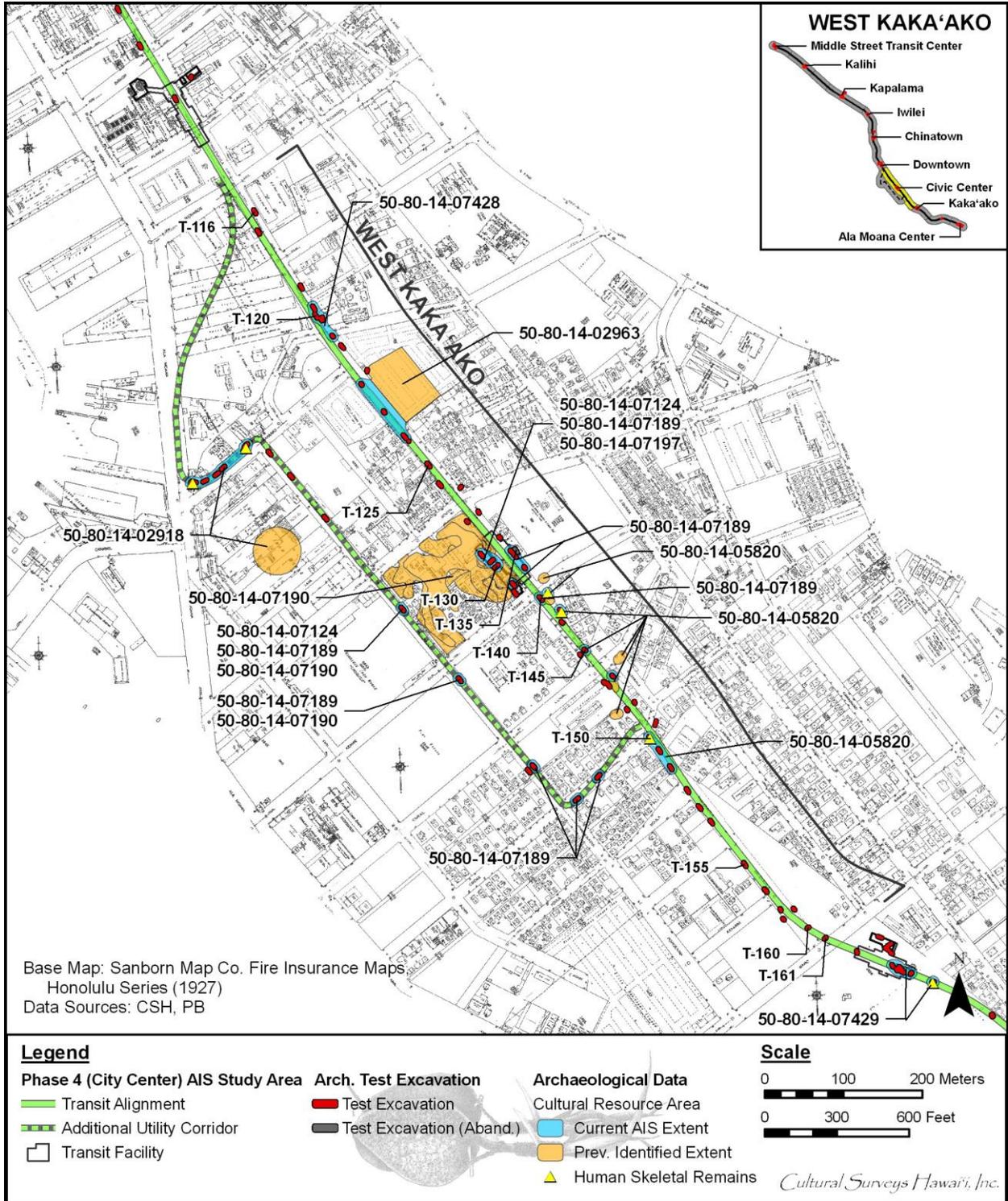


Figure 21. 1927 Sanborn Series map showing intensive industrialization of the West Kaka'ako Zone

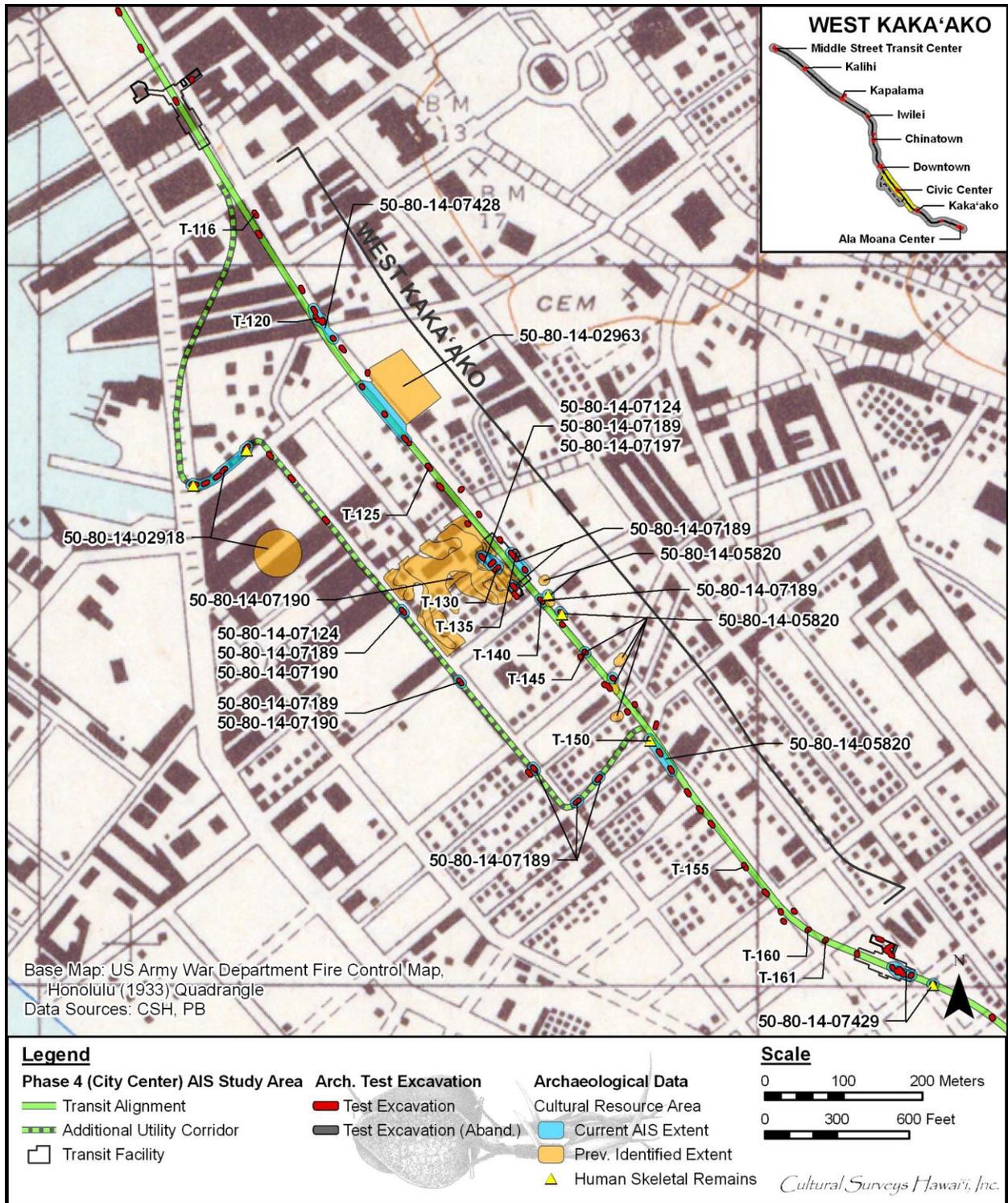


Figure 22. 1933 U.S. Army War Department Fire Control map, Honolulu Quadrangle, showing the locations of the West Kaka'ako Zone AIS test excavations (T-116 through T-160) along the transit corridor and at the Civic Center Station

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 War Department Fire Control map (Figure 24), Mother Waldron Playground 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 vicinity of the West Kaka'ako Zone, including ten studies within or directly adjacent to the zone (Figure 25). Table 4 lists and summarizes the ten studies, which are detailed as follows.

### **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).

Nearby transit excavations produced mixed results. T-121 contained fill over a former, sandy A-horizon overlying natural Jaucas sand and marine clay. T-122, however, contained several thick fill layers over natural sandy clay loam, with no Jaucas sand. T-122A, which contained only fill material, was only excavated to a shallow depth due to utilities.

### **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-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.

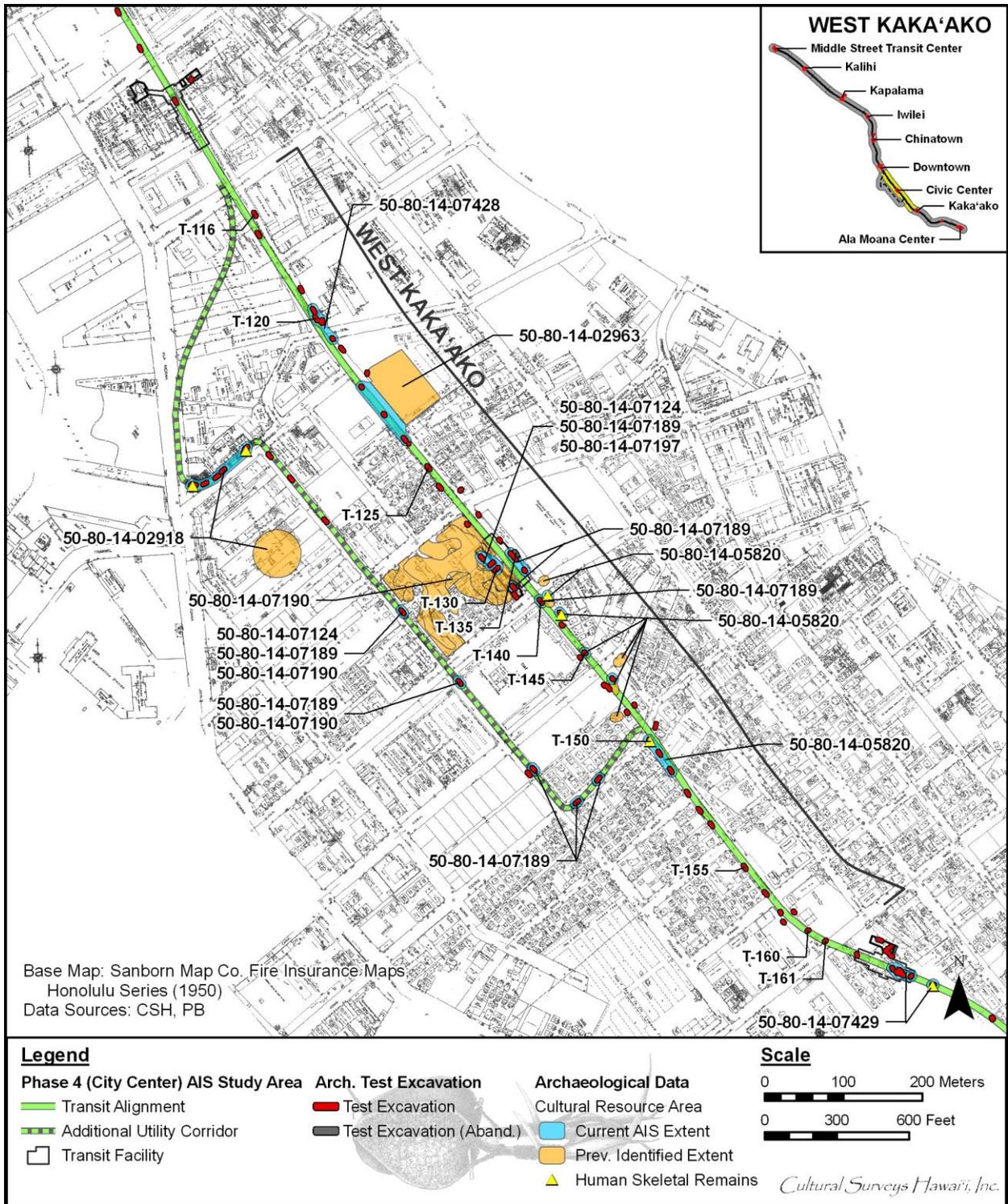


Figure 23. 1950 Sanborn Series map showing intensive industrialization of the West Kaka'ako Zone

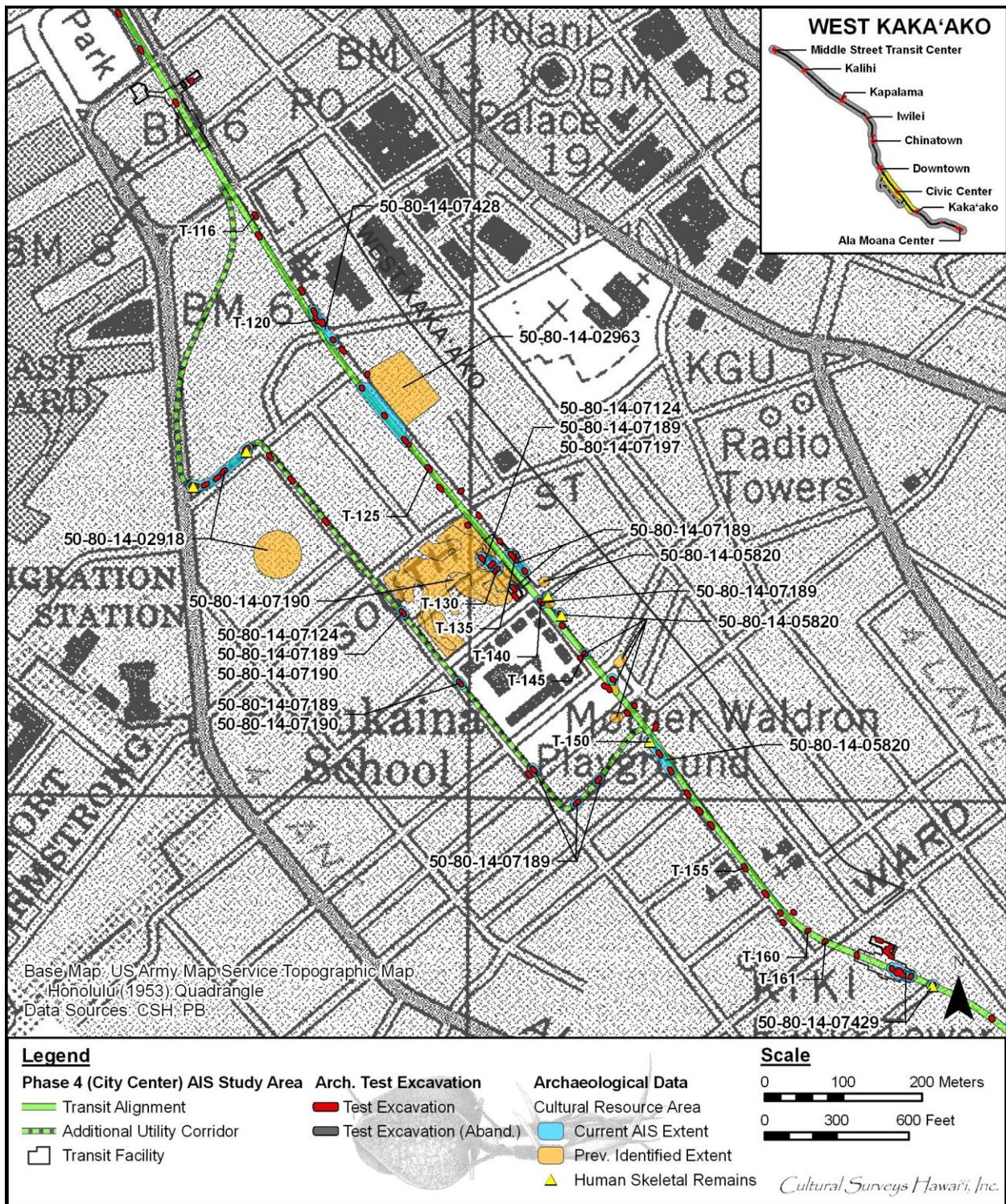


Figure 24. 1953 U.S. Army War Department Fire Control map, Honolulu Quadrangle, showing the locations of the West Kaka'ako Zone AIS test excavations (T-116 through T-160) along the transit corridor and at the Civic Center Station

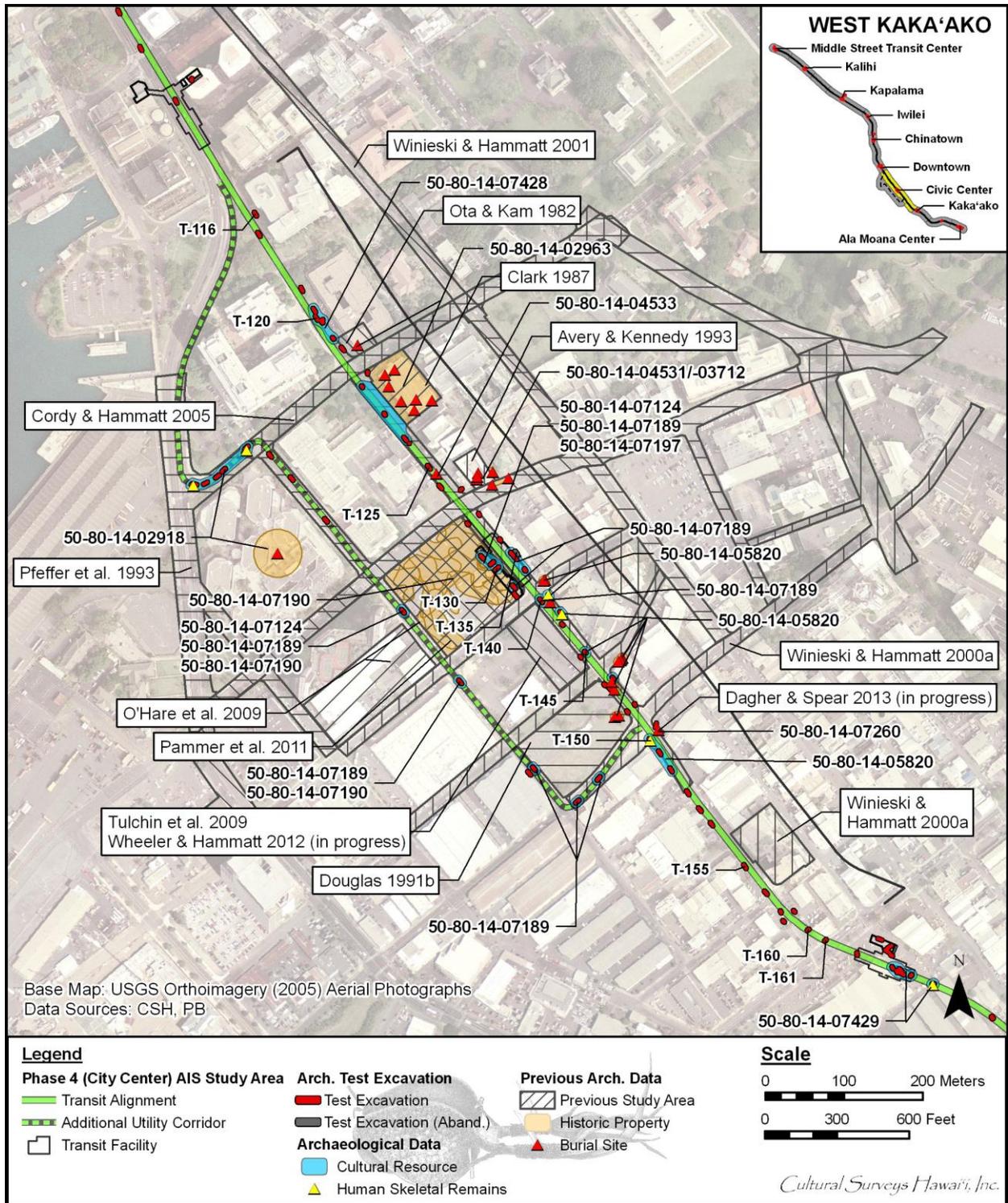


Figure 25. Aerial photograph (source: U.S. Geological Survey Orthoimagery 2005) showing previous archaeological studies in the vicinity of the West Kaka'ako Zone AIS test excavations (T-116 through T-160) along the transit corridor and at the Civic Center Station

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 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 Mauka 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 (draft)	-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.

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.

Adjacent transit excavations T-122 through T-124 contained buried pond sediments and/or a culturally enriched, sandy A-horizon identified as part of SIHP # -2963.

#### **Kaka'ako Improvement District 1 (Pfeffer, Borthwick, and Hammatt 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 deposited 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. The burials comprised 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).

Results of adjacent transit excavations associated with the current project differed from the results of the Pfeffer, Borthwick, and Hammatt (1993) study. Adjacent transit excavations contained thick fill layers over natural marine clays. Natural Jaucas sand was not prevalent and no naturally deposited volcanic cinder deposits were documented. No human burials were documented. Historic artifacts were common in fill layers.

### **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.

Nearby transit excavations T-125 through T-127 did not contain any natural Jaucas sand deposits or human burials.

### **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 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. Adjacent transit excavations T-127 and T-129 contained similar stratigraphy. Adjacent excavation T-128 was only excavated to a shallow depth due to utilities. T-128 contained only fill material.

### **Kamehameha Schools Kaka'ako Mauka Parcels (O'Hare, Tulchin, Borthwick, and Hammatt 2009; Pammer, Fong and Hammatt 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 HHCTCP Station. The limited subsurface testing documented various fill layers over naturally deposited 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.

Adjacent transit excavation T-132 similarly contained buried historic building remnants (part of SIHP # -7124), while T-130, T-132, T-134, T-138 and T-140 each contained a buried, burnt historic trash layer (part of SIHP # -7189).

### **Halekauwila Place Project (CSH ongoing project-no report yet; Tulchin, Altizer, Borthwick, and Hammatt 2009)**

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-deposited 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. Although the project report is pending, field notes documented various thick fill layers sometimes overlying natural wetland sediments.

Nearby transit excavations T-141, T-142, T-145, T-146A, T-150, T-151, and T-151A contained buried, culturally enriched, A-horizons with sand, with human skeletal remains documented in T-141, T-142, and T-150. All of these test excavations are incorporated into SIHP # 50-80-14-5820, originally identified by Winieski and Hammatt (2000a) (see below). These results are unlike those documented by Tulchin et al. (2009) and the ongoing CSH work at the Halekauwila Place Project, which documented various fill layers over 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. 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) (adjacent to the West Kaka'ako Zone) and nine burials were documented at the Pohulani Elderly Rental Housing site (SIHP # 50-80-14-4380) (one block northwest of the West Kaka'ako Zone). 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.

Nearby transit excavations T-141, T-142, T-145, T-146A, T-150, T-151, and T-151A contained buried, culturally enriched, A-horizons with sand, with human skeletal remains documented in T-141, T-142, and T-150. All of these test excavations are incorporated into SIHP # 50-80-14-5820.

#### **East corner of Halekauwila and Cooke Streets (Dagher and Spear 2013; draft)**

The Dagher and Spear (2013) 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 from 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.

Immediately adjacent transit excavation T-149 contained only fill material; however, nearby excavations T-150 and T-151 contained buried, culturally enriched, sand A-horizons, with human skeletal remains documented in T-150.

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

The West Kaka'ako Zone traverses an urban environment through the neighborhood of Kaka'ako. The centerline of the 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, 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 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 meters 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 meters northwest and 1.0 meter 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 Honolulu map, T-116 was originally situated 40 m offshore, within Honolulu Harbor. The 1883 Baldwin map showed T-116 situated approximately 50 m offshore, still within the harbor. The 1884 Bishop Honolulu map indicated T-116 was 24 m inland from the shoreline, 5 m northeast of Halekauwila Street. The 1887 Wall Honolulu map indicated that the shoreline had been extended 300 m and T-116 was located 5 m north of Halekauwila Street. The 1897 Monsarrat map depicted continued development in the area around the harbor. The 1904 Newton map showed T-116 between the Navy Building and T.H. Davies & Co. Warehouse on Halekauwila Street between Richards Street and Mililani Street. The Honolulu War Maps (1919, 1933, and 1943) and 1953 Army Mapping Service map depicted increased industrialization throughout the surrounding area. T-116 was originally located offshore, but 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 nearby areas.

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.

Previous archaeological investigations in the Waterfront included a 2001 monitoring report for the Nimitz Highway Reconstructed Sewer by Winieski and Hammatt approximately 125 m east of T-116. The survey determined one historic property and a remnant of a light-gauge rail associated with the historic Honolulu Rapid Transit trolley system. An archaeological monitoring report was completed in 2008 (Hazlett et al.) in which thick fill and reclamation layers were encountered, but 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, and beneath the water table 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 included 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. #116-A-1 to A-13, see following table and photographs) were collected from Stratum Ij between 1.2 and 1.8 mbs. The six ceramic artifacts included Asian dinnerware, Asian hollowware, and two Anglo/American Bristol-glaze stoneware bottles, which were dated to ca. 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 nineteenth to early twentieth century.

**Features Discussion:** No features observed.

**Terrestrial Faunal Remains Collected During Excavation:** A single *Bos taurus* rib fragment was collected during excavation from Stratum Ij (1.2-1.8 mbs). This bone showed marks from being butchered by a metal blade, which (in addition to being an introduced species) indicates that Stratum Ij is of historic origin, not traditional Hawaiian.

**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.

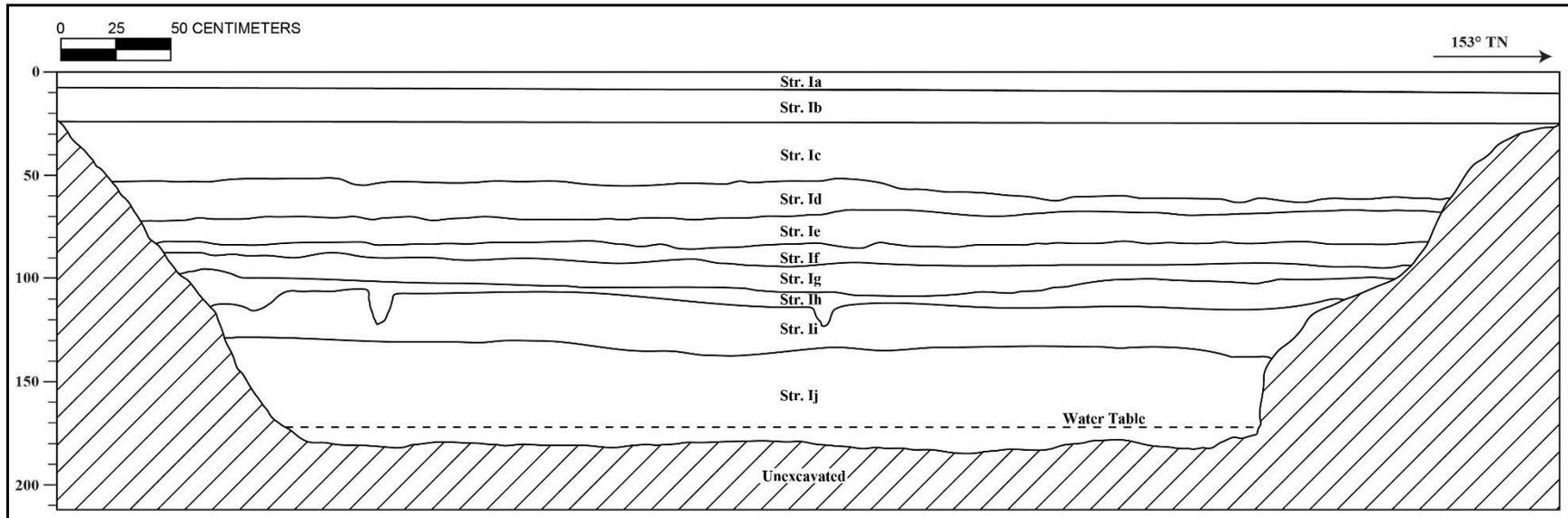
**Summary:** T-116 was excavated to a depth of 1.70 mbs, and beneath the water table at 1.63 mbs. The stratigraphy of T-116 consisted of fill (Ia-Ij) to the water table. The stratigraphy conformed to the USDA soil survey designation of Fill land. The artifacts collected from Stratum Ij date from the late nineteenth to early twentieth century. The faunal remains collected from Stratum Ij are considered to be rib portions, butchered cut from a metal blade. Historic artifacts and a faunal bone were encountered, but no cultural material was observed.



T-116: General location (view to the west).



T-116: Northeast profile wall (view to east).



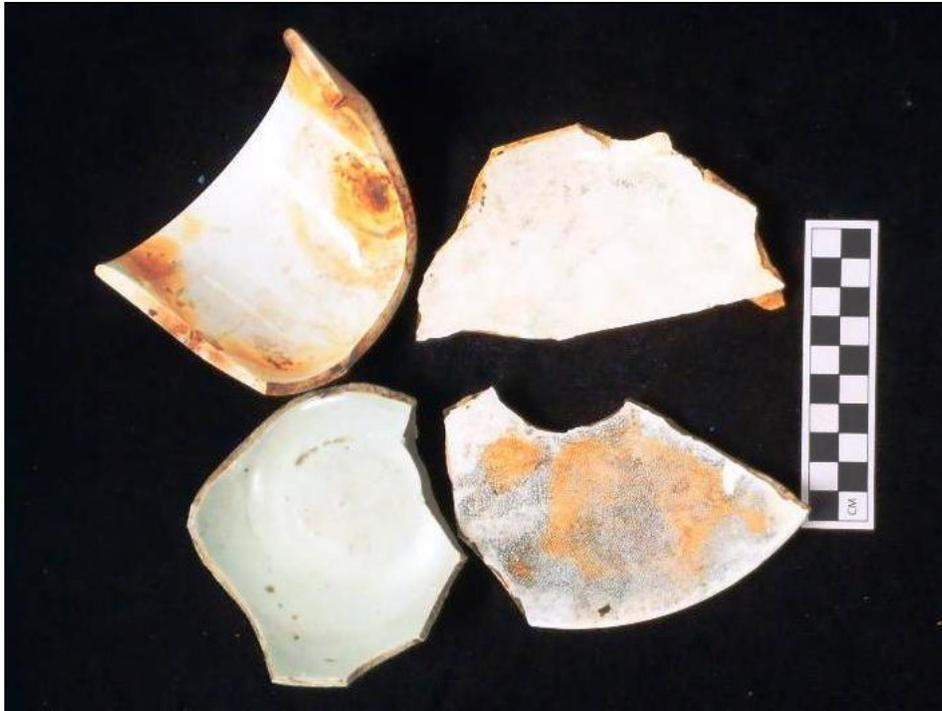
T-116 northeast profile wall

## 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; non-plastic; terrigenous origin; abrupt, smooth lower boundary; gravel base course
Ic	23-50	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, glass; contained few crushed coral gravel, fill
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 deposited
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, 2-6mm 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	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, leather, wood, metal, nails, wire, faunal bone

## T-116 Artifacts Analysis Table

Acc.# 116- A-	Provenience	Ceramic Vessel Type	Portion	No.	Paste; Decoration	Origin; Age	Comments
1	T-116, St. Ij	Hollowware - bowl	Body to rim	1	Earthenware, Refined (Ironstone)		9.8 (D)
2	T-116, St. Ij	Dinnerware	Base to body	1	Earthenware, Refined (Ironstone)	Asian	High foot
3	T-116, St. Ij	Hollowware	Base to body	1	Porcelain; Painted underglaze	Asian	Sweet Pea motif; high foot
4	T-116, St. Ij	Flatware - plate	Base to rim	1	Earthenware, Refined (Ironstone)		
5	T-116, St. Ij	Bottle	Complete	1	Stoneware	Anglo/ American 1835- 1900	Bristol-glaze
6	T-116, St. Ij	Bottle	Complete	1	Stoneware	Anglo/ American 1835- 1900	Bristol-glaze
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– 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	Blue, Light	1820 – 1890	
13	T-116, St Ij	Bottle, Sauce	Complete	1	Green, Light	American; 1877- 1890	Lea & Perrins; JDS American distributor



T-116 ceramic artifact fragments (Acc. # 116-A-1 to A-4) – interior - from Stratum Ij



T-116 ceramic artifact fragments (Acc. # 116-A-1 to A-4) – exterior - from Stratum Ij



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



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



T-116 glass bottles (Acc. # 116-A-7 to A-10) collected from Stratum Ij



T-116 glass bottle (Acc. # 116-A-11 to A-13) 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 Honolulu 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 Honolulu map indicates that T-117 was 20 m inland from the shoreline while the 1887 Wall Honolulu 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 Honolulu War Maps (1919, 1933, and 1943) and 1953 Army Mapping Service map depict increased industrialization throughout the surrounding area. 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.

Previous archaeological investigations in the Waterfront included a 2001 monitoring report for the Nimitz Highway Reconstructed Sewer by Winieski and Hammatt approximately 140 m east of T-117. The survey determined one historic property and a remnant of a light-gauge rail associated with the historic Honolulu Rapid Transit trolley system. An archaeological monitoring report was completed in 2008 (Hazlett et al.) in which thick fill and reclamation layers were encountered, but no historic properties or archaeological features were documented. T-116 was located 30 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. 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, and beneath the water table at 1.73 mbs. A concrete utility jacket spanned approximately half the test excavation. 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. Another utility jacket was encountered in the southeast corner of T-117 below Stratum Ia., as well as a copper water line approximately 0.60 mbs 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 included 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 31 artifacts (Acc. # 117-A-1 to A-31, see following table and photographs) were collected from Stratum Ic at 0.20-1.33 mbs. The artifacts included 37 ceramic fragments (from at least seven items) consisting of a crock piece, three dinnerware, one flatware, and two hollowware. Fragments of one hollowware bowl had a high foot suggesting Asian origin. The 24 glass bottle fragments (from at least 15 items) included three bottles made in a turn mold, dated ca. 1860-1920s and four clear bottle fragments post-dating the 1870s based on the color of the glass. The bottles may all date from the mid-nineteenth century and to early twentieth century. Miscellaneous historic artifacts consisted primarily of building materials, including brick fragments, nails, a sewer pipe, and window glass, all of which lacked datable attributes. The majority of artifacts collected from Stratum Ic are consistent with late nineteenth century to early twentieth century fill deposits.

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

**Terrestrial Faunal Remains Collected During Excavation:** *Bos taurus* fragments were collected individually during excavation throughout Stratum Ic (0.2-1.33 mbs) and a concentration of *Bos taurus*, *Sus scrofa*, and *Canis lupus familiaris* skeletal elements was collected from Stratum Ic at 1 mbs. Most of the *Bos taurus* fragments had been butchered with a metal blade (indicating an historic origin, not traditional Hawaiian), while the rest of the bones showed 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.

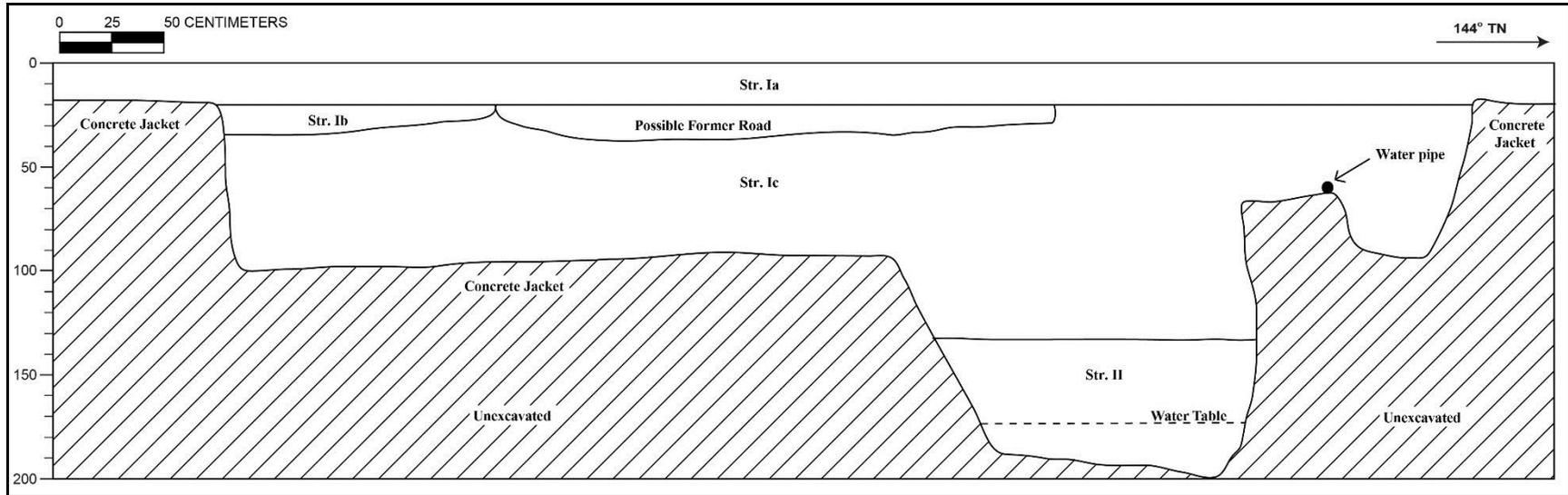
**Summary:** T-117 was excavated to a depth of 2.0 mbs, and beneath the water table at 1.73 mbs. The stratigraphy of T-117 consisted of fill (Ia-Ic) overlying natural sediment (II) to the base of excavation. The stratigraphy conformed to the USDA soil survey designation of Fill land. The majority of artifacts collected from Stratum Ic are consistent with late nineteenth century to early twentieth century fill deposits. 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. In addition to historic cultural refuse, shells and sand were also found in Stratum Ic, suggestive of hydraulic fill deposits and fluvial sediments. T-117 was heavily disturbed, with remnants of a possible former concrete road surface below Stratum Ia. The former concrete road surface was considered to be less the 50 years old. The road appears to have been cut and partially removed during the construction and installation of the utility jacket that spans most of lowermost reaches of T-117.



T-117 general location, view to south



T-117 east wall profile, view to northeast



T-117 northeast profile wall

## T-117 Stratigraphic Description

Stratum	Depth (cmbs)	Description
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; 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

Table 5. Artifacts Analysis Table

Acc. # 117-A-	Provenience	Ceramic Vessel Type	Portion	No.	Paste; Decoration	Age; Origin	Comments
1	T-117, St. Ic	Crock	Base	1	Stoneware		Base unglazed
2	T-117, St. Ic	Dinnerware	Body	1	Porcelain		
3	T-117, St. Ic	Dinnerware	Body	1	Stoneware		
4	T-117, St. Ic	Hollowware - bowl	Base to rim	2	Porcelain; Painted overglaze	Asian	High foot; 10.0 (D); blue bands on exterior
5	T-117, St. Ic	Hollowware - bowl or wash basin	Body & rim	27	Porcelain		
6	T-117, St. Ic	Flatware	Body to rim	4	Porcelain		
7	T-117, St. Ic	Dinnerware	Rim	1	Porcelain		
Acc. # 117-A-	Provenience	Glass Bottle Type	Portion	No.	Color	Age; Origin	Comments
8	T-117, St Ic	Bottle	Base	1	Aqua		Flat corners
9	T-117, St Ic	Bottle	Body	2	Amber		
10	T-117, St Ic	Bottle, Spirits	Base- body	1	Amber	1860- 1920s	Push-up
11	T-117, St Ic	Bottle, Medicine	Neck-lip	1	Blue, Cobalt		
12	T-117, St Ic	Bottle, Medicine	Base- body	2	Brown- Light	1870s- post	
13	T-117, St Ic	Bottle, Medicine	Lip	1	Clear	1870s- post	
14	T-117, St Ic	Vial, Medicine	Complete	1	Clear	1870s- post	
15	T-117, St Ic	Bottle, Beverage	Body	2	Clear	1870s- post	
16	T-117, St Ic	Bottle	Base- body	1	Green	1800- post	Kick-up base
17	T-117, St Ic	Bottle	Body	2	Green, Light		
18	T-117, St Ic	Bottle, Spirits	Shoulder- lip	1	Green, Light		
19	T-117, St Ic	Bottle, Gin	Base	1	Green, Dark		Case gin; rounded corners
20	T-117, St Ic	Bottle	Body	6	Olive		
21	T-117, St Ic	Bottle, Spirits	Base- body	1	Olive	1860- 1920s	
22	T-117, St Ic	Bottle, Spirits	Complete	1	Olive, Dark	1860- 1920s	Push-up base
Acc. # 117-A-	Provenience	Miscellaneous Type	Portion	No.	Material	Age; Origin	Comments
23	T-117, St. Ic	Brick	Complete	1	Composite		Composite material brick; textured surface with glazed face, dark brown
24	T-117, St. Ic	Brick	Fragment	4	Brick		3 fragments light brown in color; 1 frag dark brown

Acc. # 117-A-	Provenience	Miscellaneous Type	Portion	No.	Material	Age; Origin	Comments
25	T-117, St. Ic	Nails and rusted chunks	Fragment	7	Metal		Nails and rusted chunks; 7 pieces
26	T-117, St. Ic	Pebble, rounded	Complete	1	Stone		Dark gray color
27	T-117, St. Ic	Pipe stem	Complete	1	Wood		Pipe stem
28	T-117, St. Ic	Plastic item	Fragment	1	Plastic		
29	T-117, St. Ic	Rubber type	Fragment	1	Rubber		
30	T-117, St. Ic	Sewer Pipe?	Fragment	1	Ceramic		Thick ceramic salt- glazed tubular fragment
31	T-117, St. Ic	Window glass	Fragment	2	Glass		



T-117 glass bottle artifacts and glass bottle fragments from Stratum Ic



T-117 glass bottle artifact fragments from Stratum Ic



T-117 ceramic artifact fragments from Stratum Ic



T-117 ceramic artifact fragments from Stratum Ic



T-117 ceramic artifact fragments from Stratum Ic



T-117 ceramic artifact fragments 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 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 Honolulu 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 Honolulu map indicates that T-118 was 70 m inland from the shore. The 1887 Wall Honolulu 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 Honolulu War Maps (1919, 1933, and 1943) and 1953 Army Mapping Service map depict increased industrialization throughout the surrounding area. 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 Namaau. 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.

Several archaeological studies were conducted in the vicinity of T-118 and a historic property was located near T-118. 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. Human skeletal remains (SIHP #50-80-14-4605) were found 85 northeast of T-118, and 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 stratigraphy included 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. # 118-A-1 to A-10, see following table and photographs) was collected, three from Stratum Ib and seven from Stratum Ie. Artifacts collected from Stratum Ib consisted of a ceramic flatware fragment and two glass bottles, each of which lacked datable attributes. Seven glass bottles (four complete) were collected from Stratum Ie. Three bottles are 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 Ib lack datable attributes. Artifacts collected from Stratum Ie likely date from the 1870s to the early twentieth century.

**Feature Discussion:** No features were observed

**Terrestrial Faunal Remains Collected During Excavation:** No terrestrial faunal remains were individually collected 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), naturally-deposited shell (1.15 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), and midden (11.2 g). Midden collected included Neritidae *Nerita picea* (5.3 g), Turbinidae *Turbo sandwicensis* (3.2 g), Mytilidae *Brachidontes crebristriatus* (1.9 g), Isognomidae *Isognomon* sp. (0.8 g), Echinodermata *diadema* sp. and *mathaei* sp. (0.1 g).

**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.

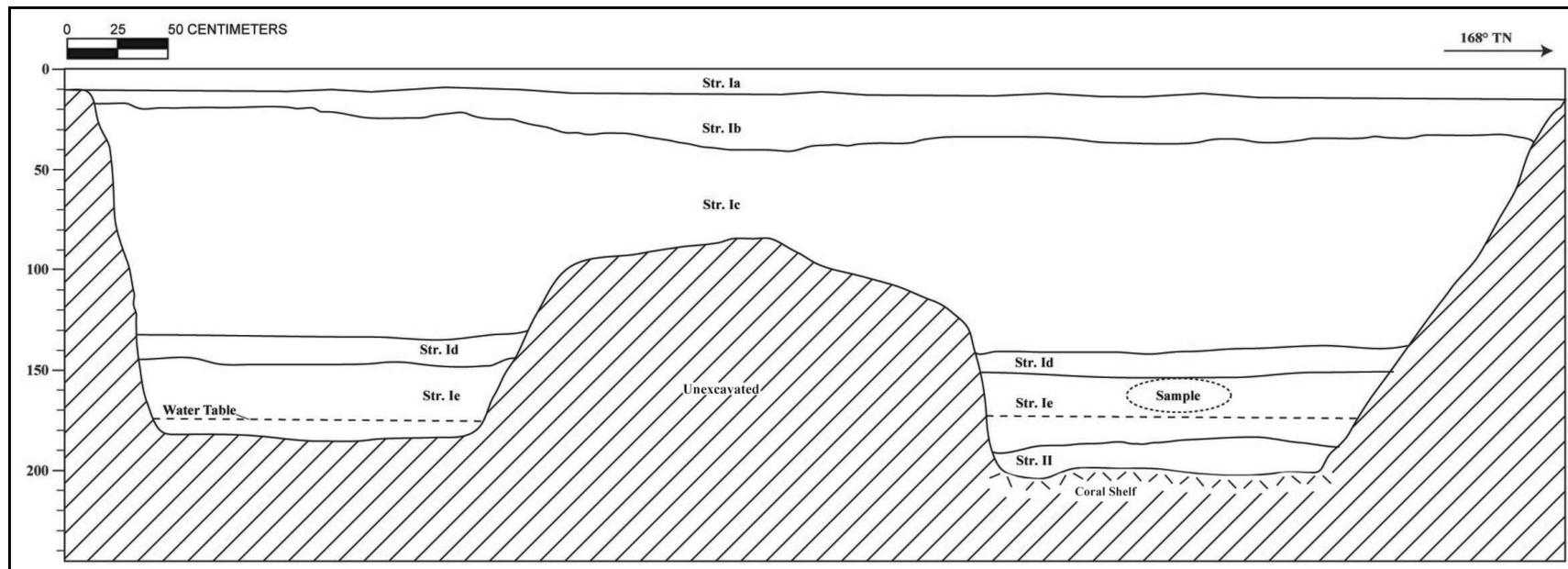
**Summary:** T-118 was excavated to 1.85 mbs where the coral shelf was encountered. The stratigraphy of T-118 consisted of multiple layers of fill overlaying natural sediments and conformed to the USGS soil survey designation of Fill land. The presence of historic artifacts, midden, and faunal remains supports the identification of Stratum Ie as a part of a culturally enriched layer.



T-118 general location (view to southwest).



T-118 northeast wall profile



T-118 northeast wall profile

## T-118 Stratigraphic Description

Stratum	Depth (cmbs)	Description
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 bottles and a ceramic plate piece; gravel base course
Ic	12-138	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	152-175	Fill; 7.5 YR 2.5/1 (black); sandy clay loam; weak, medium, crumb structure; wet, slightly sticky consistency; non-plastic; mixed origin; lower boundary not visible; few, medium-very coarse roots; contained ink bottle and broken bottle fragment; a bulk sample was collected from bucket
II	173-185	Natural; coral shelf

## T-118 Artifacts Analysis

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



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



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



T-118 ink glass bottle (Acc. # 118-A-2) collected from Stratum Ie



T-118 glass bottle/ bottle fragments (Acc. # 118-A-3 to A-7) collected 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 Hawaii. A storm drain was located 5.6 m and electric lane was 8 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 Honolulu 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-119 190 m east of Ala Moana Boulevard. The 1919 War map shows increased development, and the 1933 War map shows massive urbanization. 1943-1953 War maps and the University of Hawaii SOEST Aerial photos (1939-1941 and 1952) show continued development; however, the current structures are not depicted. 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'oa for Lot Kamehameha. LCA 129 (awarded to Kinimaka) was located 38 m southeast of T-119.

Previous archaeology for the surrounding area includes several studies. 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 pre-Contact artifacts, which were removed to Bernice Pauahi Bishop Museum (Pfeffer, Borthwick, and Hammatt 1993). Approximately 88 m southeast of T-119 for the Makai Parking Garage on the corner of Punchbowl Street and Halekauwila Street, archaeological monitoring was conducted where one historic property was identified (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 included 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. Natural sediments observed are consistent with and should be considered a component of SIHP # 50-809-14-7428.

**Artifacts Discussion:** Seven brick fragments from at least two bricks (Acc. # 119-A-1 to A-2) were collected from Stratum Ic at 0.55-0.96 mbs. One of the brick fragments is machine made with datable attributes indicating the brick may have been manufactured from 1807-1860.

**Features Discussion:** A historic wall (SIHP # 50-809-14-7428 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. Feature 1 measured 0.6 m tall, 0.5 m wide, and 1 m long, extending into both 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 Collected During Excavation:** Faunal remains of *Bos taurus* were collected during excavation from Stratum Ic at a measured depth of 0.8 mbs. Faunal fragments included a cervical vertebra portion (which was cut with a metal blade indicating an historic origin, not traditional Hawaiian) and irregular bones that mend (fit together). This test excavation is associated with SIHP# 50-80-14-7428, but the faunal remains originated from a non-feature, fill layer.

**Sample Results:** One bulk sediment sample was collected from Stratum II at 1.15-1.55 mbs, which contained various shell midden (37.2g). The midden collected included Cypraeidae *Cypraea Tigris* (9.9 g), Conidae *Conus* sp. (8.5 g), Cypraeidae *Cypraea caputserpentis* (7.3 g), Tellinidae *Tellina palatum* (6.8 g), Nassariidae *Nassarius gaudiosus* (2.2 g), Mytilidae *Brachidontes crebristriatus* (1.1 g), Strombidae *Strombus* sp. (0.9 g), Isognomidae *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 of T-119 was composed predominately of fill (Ia-Ic) material overlaying a reworked cultural layer (II) and natural sand (III). Stratigraphy observed was consistent with the USDA Fill land soil

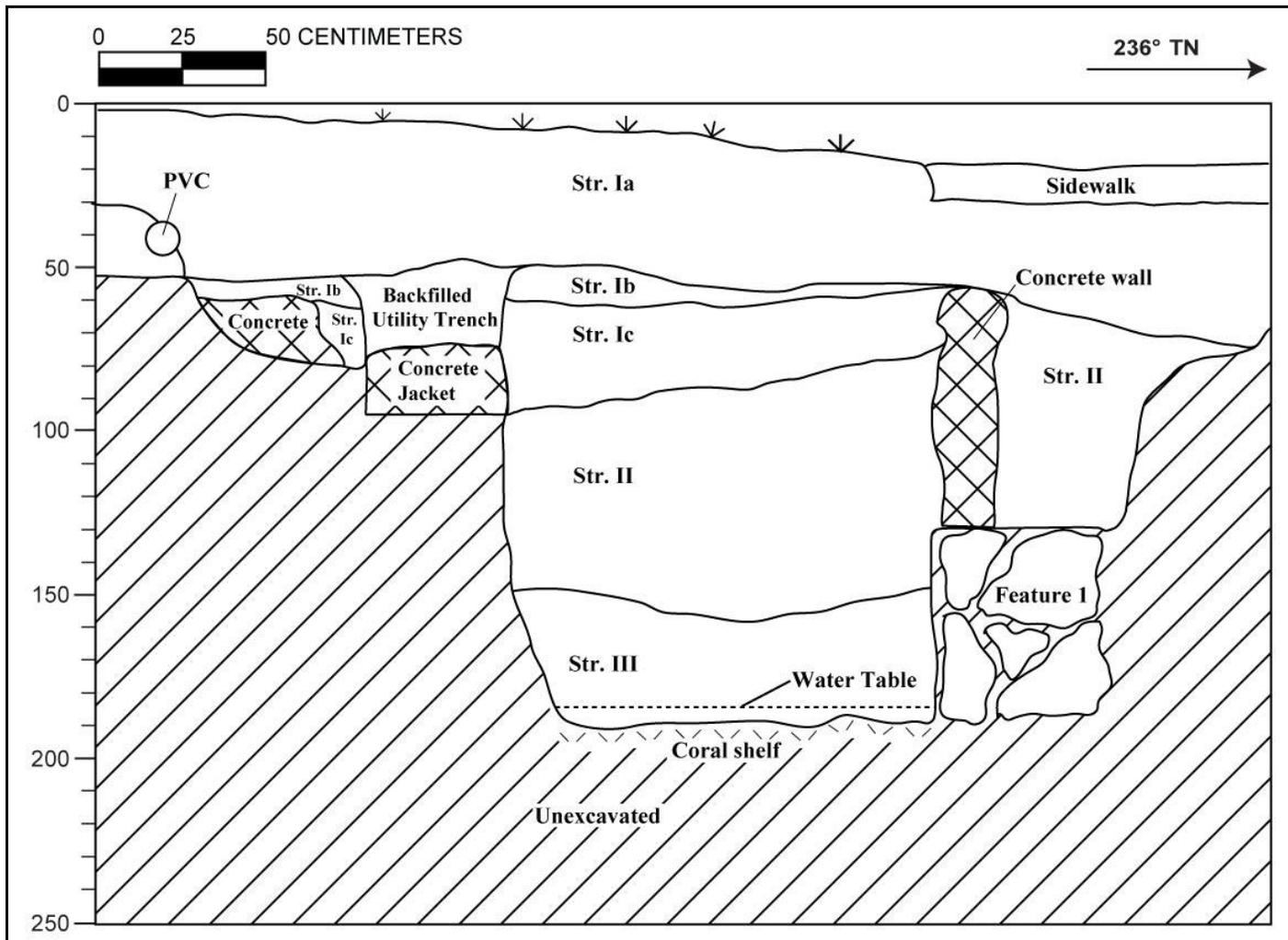
designation for the area. A total of seven brick fragments were collected from Stratum Ic at 0.55-0.96 mbs. One of the brick fragments is machine made, and its attributes date its manufacture to 1807-1860. Faunal remains of *Bos taurus* were observed within Stratum Ic at a depth of 0.8mbs. A historic wall (Feature 1), constructed of basalt stone and mortar, was observed in the south portion of T-119. Sample results indicate possible cultural activity within Stratum II. Stratum II was considered a component of SIHP # 50-80-14-7428 (see Volume I for further discussion on all historic properties).



T-119 general location (view to southwest)



T-119 northwest profile wall (view to west)



T-119 northwest 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
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; fore-cracked rock, charcoal staining, cane slag, shell midden; re-worked cultural layer, considered a component of SIHP #50-80-14-7428
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

### 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 (part of SIHP #50-80-14-7428). 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 Honolulu 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 War map illustrates increased development, and the 1933 War map shows massive urbanization. 1943-1953 War maps and the University of Hawaii SOEST Aerial photos (1939-1941 and 1952) show continued development. 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 Kekūanā'oa for Lot Kamehameha. LCA 129 (awarded to Kinimaka) was located 38 m southeast of T-119A.

There were several historic properties and historical studies conducted in the vicinity of T-119A. 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 pre-Contact 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 where one historic property was identified (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.

**Stratigraphic Summary:** The stratigraphy of T-119A was comprised of fill and natural sediments. Observed strata for the northeast wall included asphalt (Ia), loam fill (Ib), gravelly medium grained sand fill (Ic), and a sandy loam fill (Id). Observed strata for the southwest wall included concrete (Ia), loamy sand fill (Ib), very gravelly sand fill (Ic), previously disturbed sandy loam (IIa), natural jaucus sand (IIb). Stratigraphy generally conforms to the USDA designation of fill land (FL). The natural sediment (IIa) was part of a culturally enriched buried A-horizon above natural Jaucas sand (IIb). Stratum IIa is considered 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, see following table), was collected from Stratum IIa, 0.96 mbs.

A total of eleven fragments were collected from at least ten artifacts (Acc. # 119A-A-1 to A-10, see following table and photographs); one each from Strata Ib and Ic; four (minimum three artifacts) from Stratum Id, and five from Stratum IIa. Artifacts collected from Strata Ib and Ic consisted of building materials including a rectangular stone block (Ib) and brick fragments (Ic) dating from 1807-1860. Artifacts collected from Stratum Id included a minimum of two ceramic dinnerware fragments, both of which reflect Asian designs and origin, and a metal tag with a “Body by Fisher” logo, possibly dating to the 1960’s. The Fisher brothers began building horse drawn cars in the late nineteenth century. Early in the twentieth century, the brothers incorporated and formed the Fisher Body Company, producing 100,000 cars per year for many of the large car companies, including Cadillac and Ford. Their logo appeared on the car’s door sill made car bodies for General Motors. Stratum IIa artifacts included another ceramic fragment with an Asian design and origin, and miscellaneous items, including two water-worn pebbles and a cobble, as well as a stone marble mass.

**Feature Discussion:** One post-Contact feature (Feature 1) was recorded within T-119A. Feature 1 was interpreted to be a large column of mixed sediment containing post-Contact historic material and faunal remains surrounding a large stacked stone structure. The northern portion was originally recorded within T-119. This feature originates at 0.47 mbs within Stratum Ic and terminates at 1.68 mbs at the coral shelf. This feature is approximately 3 m wide and extends beyond the width of the northeast profile wall. Approximately 19.0-liters of sediment from Stratum Id was screened (see below for sample analysis results).

**Terrestrial Faunal Remains Collected During Excavation:** *Canis lupus familiaris* remains (molar fragments that mend) were recovered from the spoil bin (Diaphysis sections) as well as collected individually in context during excavation from Stratum IIa between 0.45 and 1.3 mbs. There was no indication of cultural modification on the remains, and *Canis lupus familiaris* is a Polynesian introduction common in both pre- and post-Contact contexts, and is therefore inconclusive. Stratum IIa of this test excavation is associated with the 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.

Two 19.0-liter screened samples were also collected. One sample collected from Stratum Id at 1.25-1.5 mbs contained various species shell midden (36.7 g, see Midden Results tables at the end of the section), naturally deposited shell (2.2 g), roots (7.1 g), possible bone pipe stem (1.3 g), slag (5.0 g), glass (1.7 g) and Monacanthidae *Pervagor spilosoma* (0.3 g, Fantail file fish). The second sample was collected from Stratum IIa at 0.8-1.03 mbs and contained midden (28.2 g, see Midden Results tables at the end of the section), naturally deposited shell (0.1 g), and possible coal fragments (6.5 g).

A 3.8-liter bulk sample was collected from Stratum IIa at 0.80-0.93 mbs. The sample contained charcoal (8 g), various species of shell midden (43.3 g, see Midden Results tables at the end of the section), naturally deposited 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, and Monacanthidae *Pervagor spilosoma* (1.4 g, Fantail file fish).

A 3.0-liter bulk sample was collected from the transition of Stratum IIa/IIb at 1.25-1.55 mbs. The sample contained charcoal (2.8 g), shell midden (11.6 g), naturally deposited shell (0.3 g) and medium mammal remains (0.1 g).

All charcoal from Stratum IIa (0.80-0.93 mbs) and Stratum IIa/IIb (1.25-1.55 mbs) was sent for taxa identification analysis. The charcoal sample from Stratum IIa at 0.80-0.93 mbs contained *Kolomona* (cf. *Senna* sp.), 'Ōhi'a lehua (cf. *Metrosideros polymorpha*), *Kukui* (*Aleurites moluccana*), *Kōpiko* (cf. *Psychotria* sp.), *Ipu* (cf. *Lagenaria siceraria*), 'Āheahea; 'āweoweo (*Chenopodium oahuense*), and 'ōhi'a ai (cf. *Syzygium* sp.). The charcoal identified as *kukui* nutshell (0.08g) was submitted for radiocarbon dating analysis and yielded a calibrated 2-sigma date with AD 1660 to AD 1890 (78.2%) as the most probable. The charcoal sample from Stratum IIa/IIb at 1.25-1.55 mbs was found to contain *Kolomona* (cf. *Senna* sp.), *Akoko* (*Chamaesyce* sp.), *Kukui* (*Aleurites moluccana*), and 'Ōhi'a lehua (cf. *Metrosideros polymorpha*). The charcoal identified as *kukui* nutshell (0.03g) was submitted for radiocarbon dating analysis and yielded 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 indicated the moderate use of this coastal environment during the late pre- to early post-Contact era. The presence of shell midden materials within the buried A-horizon suggests temporary habitation and/or food consumption activities. The presence of post-Contact materials found within Id and IIa suggest previous impacts to the buried A-horizon. Natural Strata observed are remnants of a subsurface, culturally enriched A-horizon overlaying Jaucas sand and should be considered a component of SIHP #50-80-14-7428.

**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 Excavation 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 of T-119A was comprised of fill (Ia-Id) and natural sediments (IIa-IIb). Stratigraphy generally conforms to the USDA designation of Fill land (FL). A single traditional Hawaiian artifact, a fire-affected vesicular basalt sling stone and eleven fragments from at least ten whole artifacts were collected from T-119A. One post-Contact feature (Feature 1) was previously recorded within adjacent T-119. Feature 1 was interpreted to be a large column of mixed sediment containing post-Contact historic material and faunal remains surrounding a large stacked stone structure. Scattered faunal remains were encountered within Stratum Id (Feature 1). A single *Canis lupus familiaris* molar was found in Stratum IIa. Results of sample analysis indicate moderate use of this coastal environment during the late pre- to early post-Contact time period. The presence of shell midden materials within the buried A-horizon suggests temporary habitation and/or food consumption activities. The presence of post-Contact materials found within Id and IIa suggest previous impacts to the buried A-horizon. Natural sediments observed are remnants of a subsurface culturally enriched A-horizon overlaying Jaucas sand and should be considered a component of SIHP #50-80-14-7428 (see Volume I for further discussion on all historic properties).



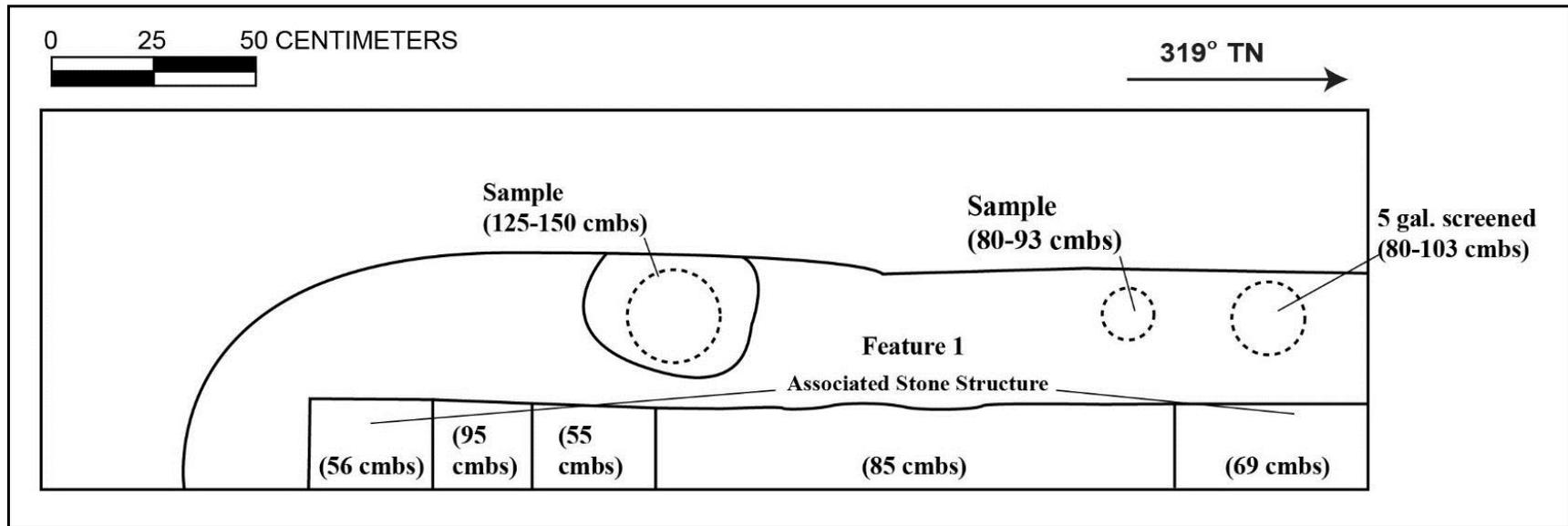
T-119A general location (view to north).



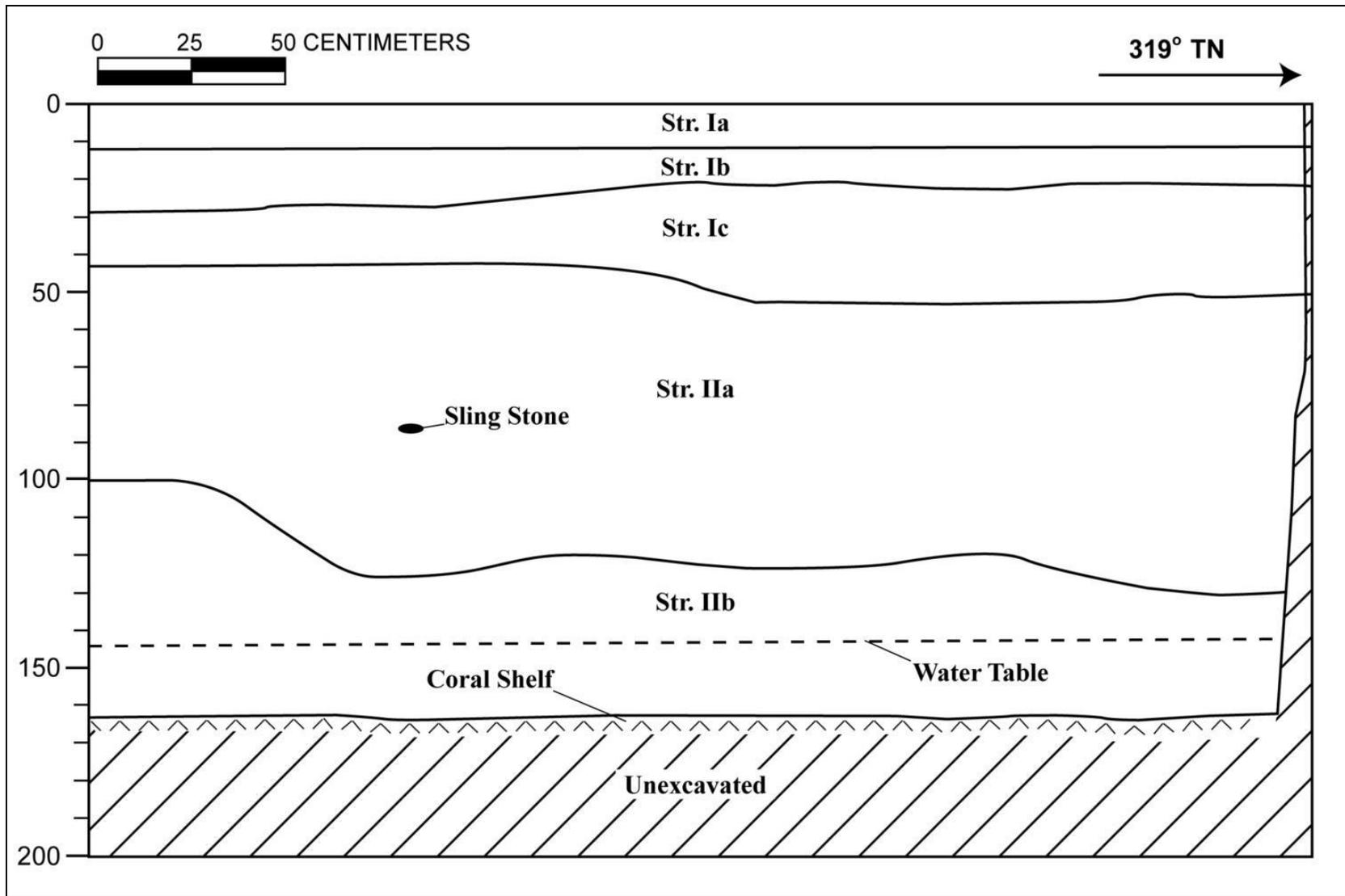
T-119A northeast profile wall (view to east)



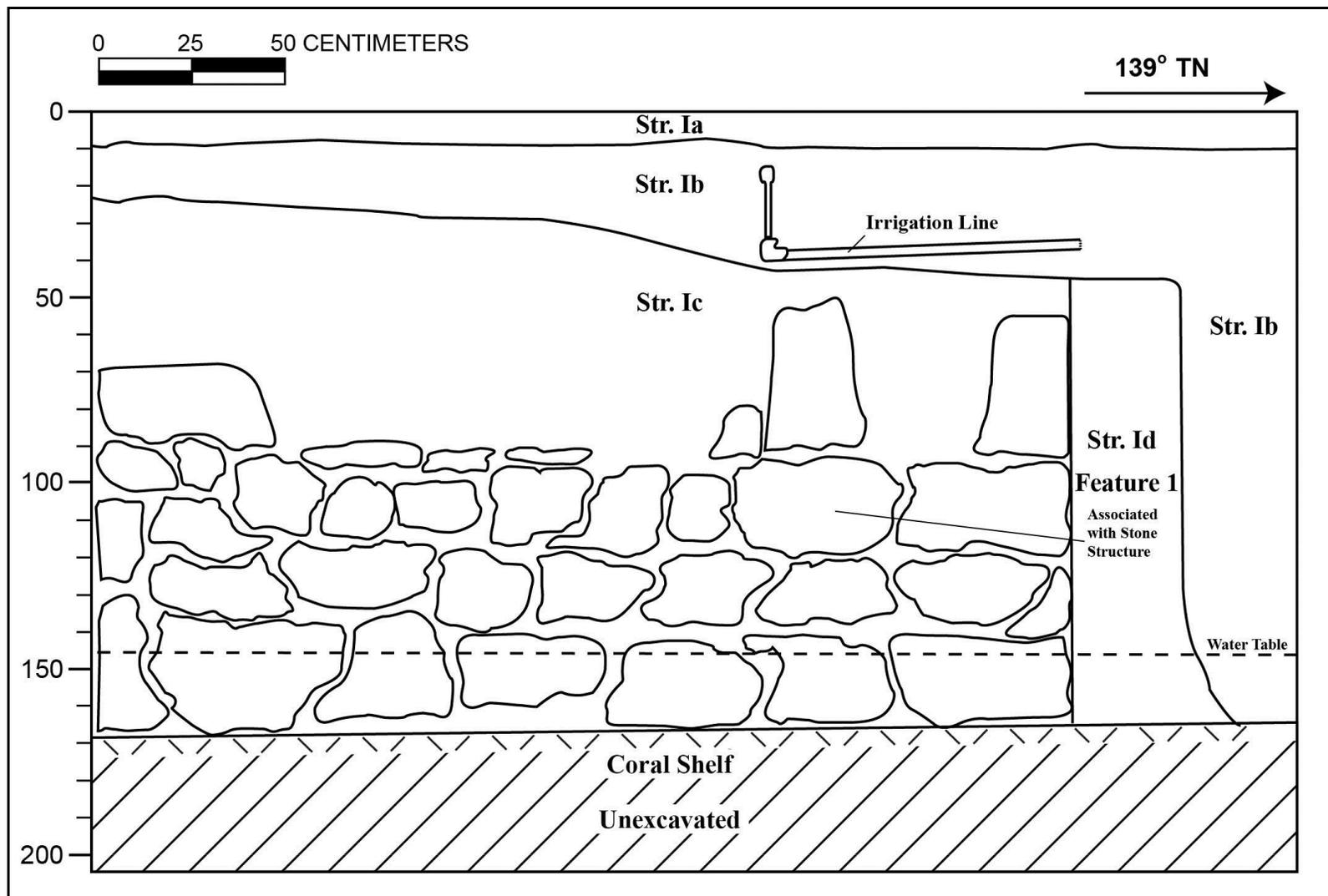
T-119A southwest profile wall (view to west)



T-119A plan view



T-119A southwest profile wall



T-119A northeast profile wall

## 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
Id	45-165	Fill; 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, red brick; imported fill, bulk sample taken, screened 19 liters

## 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
IIa	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 shell midden scatter, lithic; natural A-horizon; bulk sample collected, screened 19 liters
IIb	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 faunal fragments; natural Jaucas sand

## T-119A traditional Hawaiian artifact analysis table

Acc. # 119A-H-	Exc. #	SIHP #50- 80-14-	Stratum	Depth (cmbs)	Category	Weight (g)	Description
1	T-119A	-7428	Ila	96	Traditional artifacts		Sling stone, vesicular basalt (fire affected)

## T-119A Artifact Analysis Table

Acc. # 119A-A-	Prov.	Ceramic Vessel Type	Portion	No.	Paste; Decor.	Origin; Age	Comments
1	T-119A, St. Id	Dinnerware	Body and rim	2	Porcelain; Painted underglaze	Asian	Asian design, possible blue bamboo; Two blue bands int.
2	T-119A, St. Id	Dinnerware	Body	1	Porcelain; Painted underglaze	Asian	Sweet Pea motif, possibly; Asian design, possibly blue chrysanthemum flower
3	T-119A, St. Ila	Hollowware	Body	1	Porcelain; Painted underglaze	Asian	Asian style blue floral exterior design
	Prov.	Misc. Type	Portion	No.	Material	Age; Origin	Description
4	T-119A, St. Ib	Stone Block	Fragment	1	Stone		Rectangular block; smooth outer surface
5	T-119A, St. Ic	Brick	Fragment	2	Ceramic	1807-1860	Brick 8 1/4 x 3 3/4 x 1 3/4; reddish brown
6	T-119A, St. Id	Tag	Complete	1	Metal		Thin rectangular metal plate with two holes
7	T-119A, St. Ila	Cobble	Complete	1	Stone		Waterworn cobble, tabular, polished; possible cobblestone or ballast stone?
8	T-119A, St. Ila	Pebble, rounded	Complete	1	Stone		Waterworn pebble, unpolished, round
9	T-119A, St. Ila	Pebble, rounded	Complete	1	Stone		Waterworn pebble, slightly polished, oblate
10	T-119A, St. Ila	Stone/Marble mass	Fragment	1	Stone		



T-119a ceramic fragments (Acc. # 119a-A-1) – interior - from Stratum Id



T-119a ceramic artifact fragments (Acc. # 119a-A-1) –exterior - from Stratum Id



T-119a ceramic fragment (Acc. # 119a-A-2) from Stratum Id



T-119a ceramic (Acc. # 119a-A-2) –obverse- fragment from Stratum Id

## T-119A Stratum Id (1.25-1.5 mbs) screened sample Midden Results

Exc. #	SIHP #	Stratum	Feature	Depth (cmbs)	Midden Type	Weight (g)
T-119A	-7428	Id	1	125-150	Neritidae <i>Nerita picea</i>	22.5
					Conidae <i>Conus</i> sp.	4.2
					Mytilidae <i>Brachidontes crebristriatus</i>	2.9
					Tellinidae <i>Tellina palatum</i>	2.3
					Shell (burned)	2.0
					Echinodermata <i>Diadema</i> sp.	0.4
					Crustacean	0.3
					Isognomidae <i>Isognomon</i> sp.	0.1

## T-119A Stratum IIa (0.80-1.03 mbs) screened sample Midden Results

Exc. #	SIHP #	Stratum	Depth (cmbs)	Midden Type	Weight (g)
T-119A	-7428	IIa	80-103	Neritidae <i>Nerita picea</i>	10.7
				Mytilidae <i>Brachidontes crebristriatus</i>	8.5
				Conidae	2.7
				Strombidae <i>Strombus</i> sp.	1.2
				Echinodermata	1.1
				Cymatiidae	1.0
				Turbinidae operculum	1.0
				Pteriidae <i>Pinctada radiata</i>	0.8
				Turbinidae <i>Turbo sandwicensis</i>	0.8
				Naticidae	0.4

## T-119A Stratum IIa/IIb (1.25-1.5 mbs) Midden Results

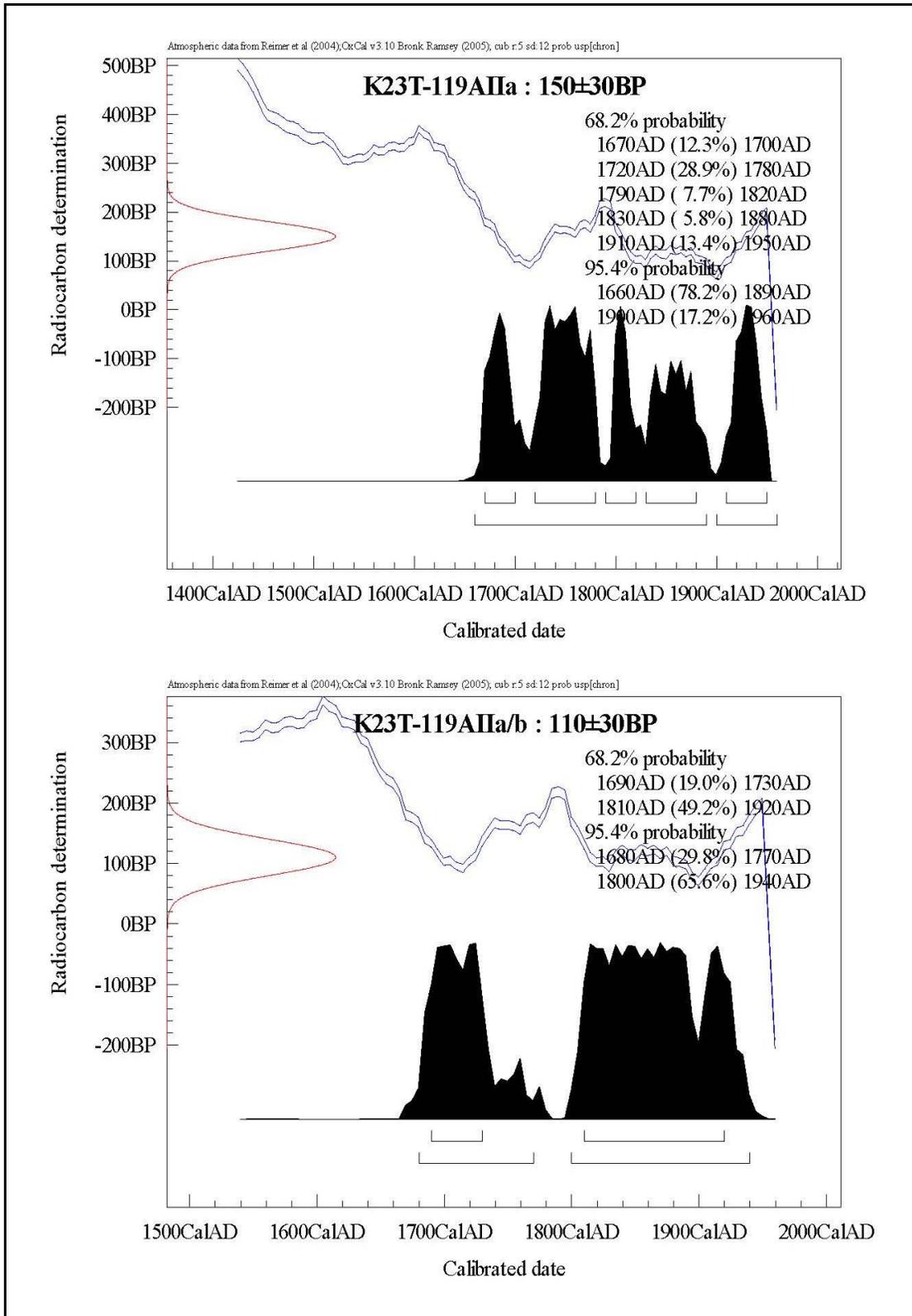
Exc. #	SIHP #	Stratum	Depth (cmbs)	Midden Type	Weight (g)
T-119A	-7428	IIa-IIb	125-150	Neritidae <i>Nerita picea</i>	5.5
				Tellinidae <i>Tellina</i> spp.	2.4
				Mytilidae <i>Brachidontes crebristriatus</i>	1.8
				Strombidae <i>Strombus</i> sp.	1.6
				Crustacean	0.1
				Echinodermata <i>diadema</i> sp./ <i>mathaei</i> sp.	0.1
				Isognomidae <i>Isognomon</i> sp.	0.1

## T-119A Stratum IIa (0.8-0.93 mbs) Midden Results

Exc. #	SIHP #	Stratum	Depth (cmbs)	Midden Type	Weight (g)
T-119A	-7428	IIa	80-93	Neritidae <i>Nerita picea</i>	20.5
				Mytilidae <i>Brachidontes crebristriatus</i>	5.7
				Tellinidae <i>Tellina palatum</i>	5.1
				Tellinidae cf. <i>Tellina elizabethae</i>	2.9
				Nassariidae <i>Nassarius hirtus</i>	2.3
				Thaididae <i>Morula granulata</i>	2.0
				Conidae <i>Conus</i> sp.	1.4
				Cypraeidae <i>Cypraea caputserpentis</i>	0.9
				Cymatiidae	0.7
				Crustacean	0.5
				Gastropod fragment	0.5
				Cypraeidae <i>Cypraea</i> sp.	0.4
				Trochidae <i>Trochus</i> sp.	0.3
				Echinodermata <i>mathaei</i> sp.	0.1

T-119A Taxa ID Table

Province	WIDL No.	Taxa	Common/Hawaiian name	Origin/ Habitat	Part	Count	Weight (g)
<b>T-119A</b> ; Halekauwila Street, between Punchbowl and Mililani Streets, Sample 4: 80-93 cmbs, Stratum IIa	1302-12	cf. <i>Senna</i> sp.	<i>Kolomona</i>	Native+Historic Introductions	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> ; Halekauwila Street, between Punchbowl and Mililani Streets, Sample 5: 125-150 cmbs, Stratum IIa/IIb	1302-16	Unknown 1			Wood	1	0.05
	1302-17	cf. <i>Senna</i> sp.	<i>Kolomona</i>	Native+Historic Introductions	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>	Native + Historic Introductions/Tree	Wood	1	0.02



T-119A Radiocarbon analysis results

### 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 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 Honolulu maps by Baldwin and Bishop, respectively, but there were several house lots near T-120. The 1887 Wall Honolulu 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 War map indicates that T-120 was located within an undeveloped portion of a city block with several structures present in the vicinity. By 1933, there was increased development in the area (1933 U.S. War Department Map). The 1943 U.S. War Department map and 1953 Army Mapping Service map show similar structures.

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 8m west of LCA 180, which comprised one house lot awarded to Mataio Kekūānāo'a for Lot Kamehameha. LCA 129 (awarded to Kinimaka) was located 48 m southeast of T-120. A burial (SIHP# 50-80-14-02963) was found 63 m southeast of T-120, within LCA 129 (Ota and Kam 1982).

There were several historic properties and historical studies conducted in the vicinity of T-120. A burial was identified in 1982 by Ota and Kam on the corner of Halekauwila Street and Punchbowl and Street. A monitoring study report 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 0.7 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 included 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 included 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).

**Artifacts Discussion:** Two traditional Hawaiian artifacts (Acc. # 120-H-1 to H-2) consisting of volcanic glass debitage were collected from Stratum II. Three red brick fragments from at least two bricks (Acc. # 120-A-1 to A-2) were collected from Stratum Id from 0.30-0.70 cmbs. One machine-made fragment had datable attributes indicating a date range from 1886 to 1918. Artifacts collected from Stratum Id indicate that the stratum dates from the late nineteenth to early twentieth century.

**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 (Stratum II).

SIHP # -7428 Feature 2 originated at approximately 1.12 mbs and terminated at 1.29 mbs. Feature 2 was circular in shape and approximately Feature 2 was visible in plan view and extended into the northeast sidewall. Feature 2 was interpreted as a possible post mold.

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

SIHP # -7428 Feature 4 originated at 1.12 mbs and terminated at 1.26 mbs. Feature 4 was irregular in shape and was 0.95 m long by 0.22 m wide. Feature 4 was visible in plan view and extended into the northeast sidewall. 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. Feature 5 was irregular in shape and was 0.65 m in length and extended into the northeast and southwest sidewalls. 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. Feature 6 was irregular in shape and was 0.85 m in length and extended into the northeast and southwest sidewalls. Feature 6 contained abundant charcoal and a circular sub-feature was observed extending into the northeast wall between 1.17-1.37 mbs. Feature 6 was interpreted as a pit of indeterminate function.

SIHP # -7428 Feature 7 originated at 1.04 mbs and terminated at 1.07 mbs. Feature 7 was irregular in shape and was 0.5 m long by 0.53 m wide. Feature 7 was a light stain visible in plan view and extended into the southwest sidewall. Feature 7 was interpreted as a pit of indeterminate function.

SIHP # -7428 Feature 8 was adjacent to Feature 7 and originated at 1.04 mbs and terminated at 1.17 mbs. Feature 7 was irregular in shape and was 0.45 m long and extended into the northeast and southwest sidewalls. Feature 8 contained faunal remains at 1.04 mbs and was interpreted as a pit of indeterminate function that affected by heavy root disturbance.

**Terrestrial Faunal Remains Collected During Excavation:** 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, not traditional Hawaiian. Stratum II of this test excavation is associated with the culturally enriched A-horizon of SIHP# 50-80-14-7428.

**Sample Results:** A total of nine screened samples were collected from Stratum II of T-120. Seven of the samples were collected from Features 2-8 and two were general screens of the stratum. The samples were collected and screened in the field. The samples from Features 4-8 were also wet-screened.

Two screened samples were collected from Stratum II between 0.80-0.85 mbs (30.0 L) and 1.0-1.05 mbs (11.4 L). The sample collected from Stratum II at 0.80-0.85 mbs contained charcoal (2.5 g), ceramics (24.8 g), porcelain fragment (4.1 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 at 1.0-1.05 mbs contained charcoal (6.0 g), naturally deposited shell (0.5 g), burned *kukui* nut shell (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), Chaetodontidae *Chaetodon miliaris* and Diodontidae *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 Feature 2 at 1.12-1.29 mbs. The sample contained charcoal (1.9 g), naturally deposited 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 Feature 3 at 1.12-1.16 mbs. The sample contained charcoal (6.9 g), naturally deposited shells (1.8 g), fish remains (0.1 g), medium mammal remains (0.1 g), and midden (6.4 g). Midden collected included Mytilidae *Brachidontes*

*crebristriatus* (3.6 g), Neritidae *Nerita picea* (1.8 g), crustacean (0.7 g), and Echinodermata fragments (0.3 g).

An 11.4-liter screened sample was collected from Feature 4 at 1.12-1.26 mbs. The sample contained charcoal (7.2 g), naturally deposited shell (18.3 g), small roots (0.1 g), possible volcanic glass flake (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), Monacanthidae *Pervagor spilosoma* (0.1 g, Fantail file fish), and midden (50.6 g, see Midden Results tables at the end of the section).

An 18.9-liter screened sample was collected from Feature 5 at 1.10-1.18 mbs. The sample contained charcoal (66.2 g), naturally deposited 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), *Rattus* sp. remains (0.1 g), Scaridae *Scarus perspicillatus* and Monacanthidae *Pervagor spilosoma* (0.3 g, Parrot fish and Fantail file fish), 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 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, *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), Monacanthidae *Pervagor spilosoma* (5.5 g, Fantail file fish), and midden (236.5 g, see Midden Results tables at the end of the section).

An 18.9-liter screened sample was collected from Feature 7 at 1.04-1.07 mbs. The sample contained charcoal (8.6 g), naturally deposited 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), Labridae *Bilunulatus albotaeniatus* and Monacanthidae *Pervagor spilosoma* (0.6 g, Hawaiian Hogfish and Fantail file fish), and midden (129.5 g, see Midden Results tables at the end of the section).

An 18.9-liter screened sample was collected from Feature 8 at 0.74-1.17 mbs. The sample contained charcoal (15.1 g), naturally deposited 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), Monacanthidae *Pervagor spilosoma* and Scaridae *Scarus* sp. (0.3 g, Fantail file fish and Parrot fish), and midden (38.0 g, see Midden Results tables at the end of the section).

All charcoal collected from Feature 4 (1.12-1.26 mbs), Feature 5 (1.10-1.18 mbs), and Feature 7 (1.04-1.07 mbs) were submitted for wood taxa analysis and radiocarbon dating. The sample 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 a calibrated 2-sigma date of AD 1790 to AD 1940 (62.7%) as being the most probable. The wood taxa identified *kukui* nut shell (2.28 g) from Feature 5 yielded a calibrated 2-sigma date of AD 1810 to AD 1920 (67.1%) as being the most probable. The wood taxa identified *kukui* nut shell (1.04 g) from Feature 7 yielded a calibrated 2-sigma date of AD 1800 to AD 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 Feature 4, Feature 5, and Feature 7 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 Feature 4 and 5 were from “Group 2” and the sample from Feature 7 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 the moderate use of this coastal environment during the late pre-Contact to post-Contact time period. The presence of 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 suggested previous impacts to the buried A-horizon. Stratum II was part of a culturally enriched, buried A-horizon overtop of 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). Artifacts collected from Stratum Id indicated that the stratum dates from the late nineteenth to early twentieth century. Faunal remains collected individually during excavation from Stratum II (0.65-1.35 mbs) consisted of one butchered *Bos taurus* fragment that was considered to be of historic origin and not traditional Hawaiian. 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 results of sample analysis indicated the moderate use of this coastal environment during the late pre-Contact to post-Contact time period. The presence of 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 suggested previous impacts to the buried A-horizon. Stratum II was part of a culturally enriched, buried A-horizon overtop of Jaucas sand. The buried A-horizon (II) and Features 2-8 were considered components of SIHP #50-80-14-7428 (see Volume I for a full description).



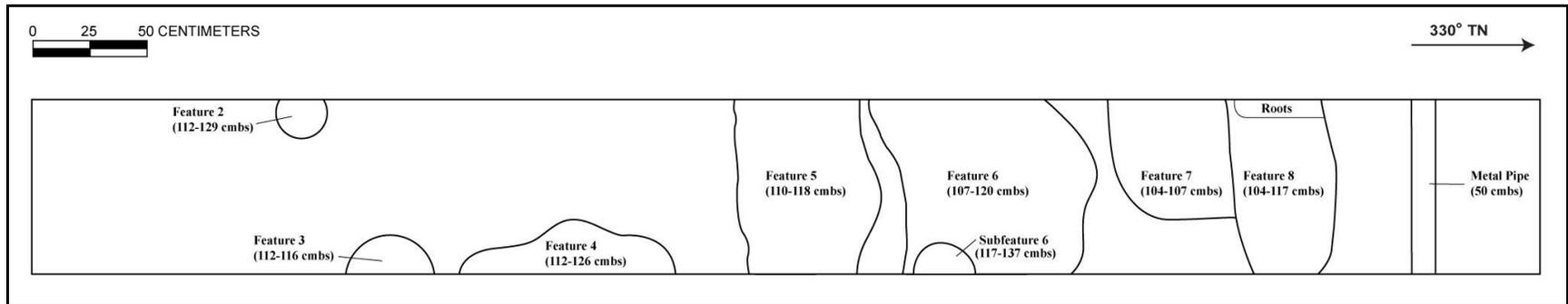
T-120 general location (view to east)



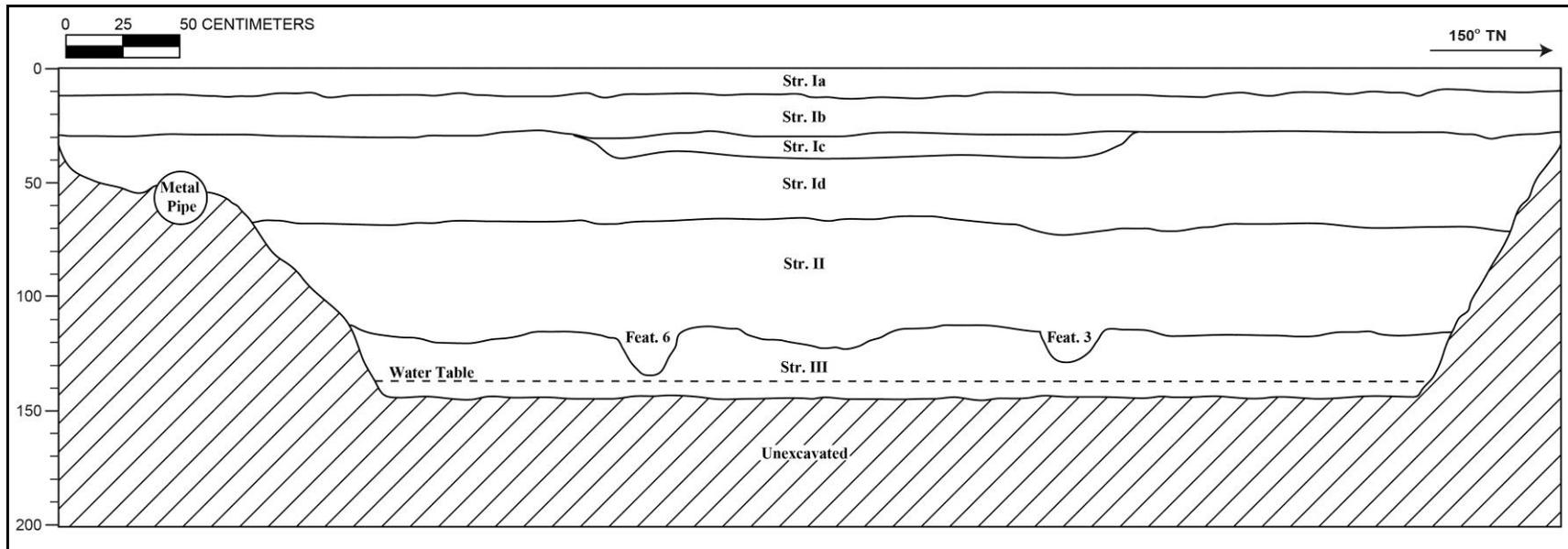
T-120 southwest profile wall (view to south)



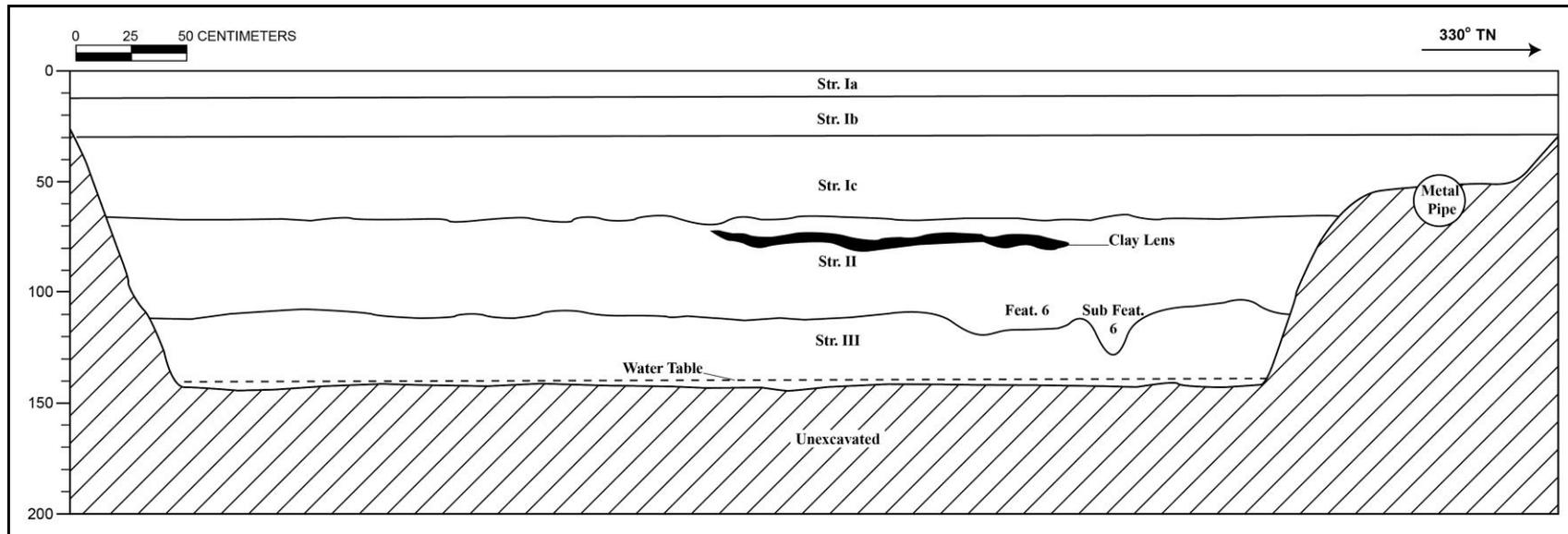
T-120 northeast profile wall (view to east)



T-120 plan view of excavation floor at Stratum II



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, 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, Features 2-8; buried A-horizon; with (< 5.0 cm) brown clay lens near upper boundary; part of SIHP # -7428
III	130-145	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; buried A-horizon part of SIHP # -7428
III	113-145	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 (0.80-0.85 mbs) Midden Results

Exc. #	SIHP #	Stratum	Feature	Depth (cmts)	Midden Type	Weight (g)
T-120	-7428	II		80-85	Neritidae <i>Theodoxus neglectus/Nerita picea</i>	215.5
					Gastropod fragment, large	29.7
					Tellinidae <i>Tellina palatam</i>	13.8
					Mytilidae <i>Brachidontes crebristriatus</i>	5.5
					Conidae <i>Conus</i> sp.	4.3
					Turbinidae <i>Turbo sandwicensis</i> , operculum	3.3
					Gastropod fragment, very large	2.1
					Pteriidae <i>Pinctada radiata</i>	1.3
					Naticidae <i>Natica</i> sp.	1.2
					Trochidae <i>Trochus</i> sp.	1.2
					Fascioliariidae	1.0
					Nassariidae	1.0
					Strombidae <i>Strombus</i> sp.	0.5
					Echinodermata <i>diadema</i> sp.	0.1
					Planaxidae <i>Planaxis labiosa</i>	0.1

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

Exc. #	SIHP #	Stratum	Feature	Depth (cmbs)	Midden Type	Weight (g)
T-120	-7428	II		100-105	Neritidae <i>Nerita picea</i> , operculum	100.5
					Mytilidae <i>Brachidontes crebristriatus</i>	8.5
					Cymatiidae <i>Cymatium maricium</i>	3.3
					Shell fragments	3.1
					Cypraeidae <i>Cypraea teres</i>	1.2
					Tellinidae <i>Tellina palatam</i>	1.2
					Strombidae <i>Strombus</i> sp.	0.6
					Cypraeidae <i>Cypraea caputserpentis</i>	0.4
					Echinodermata <i>diadema</i> sp.	0.2

## T-120 Feature 2 (1.12-1.29 mbs) screened sample Midden Results

Exc. #	SIHP #	Stratum	Feature	Depth (cmbs)	Midden Type	Weight (g)
T-120	-7428	II	2	112-129	Mytilidae: <i>Brachidontes crebristriatus</i>	3.2
					Neritidae: <i>Nerita picea</i>	2.7
					Crustacean	1.3
					Cypraeidae: <i>Cypraea</i> sp.	0.4
					Shell (burned)	0.2
					Tellinidae: <i>Tellina palatam</i>	0.2
					Echinodermata: <i>Echinometra mathaei</i> sp.	0.1
					Isognomidae: <i>Isognomon</i> sp.	0.1

## T-120 Feature 4 (1.12-1.26 mbs) screened sample Midden Results

Exc. #	SIHP #	Stratum	Feature	Depth (cmbs)	Midden Type	Weight (g)
T-120	-7428	II	4	112-126	Mytilidae: <i>Brachidontes crebristriatus</i>	13.4
					Neritidae: <i>Nerita picea</i>	13.0
					Shell (burned)	8.3
					Crustacean	7.4
					Echinodermata: <i>Diadema</i> sp./ <i>Echinometra mathaei</i>	5.0
					Tellinidae: <i>Tellina palatam</i>	1.8
					Trochidae <i>Trochus intextus</i>	1.1
					Isognomidae: <i>Isognomon</i> sp.	0.6

## T-120 Feature 5 (1.10-1.18 mbs) screened sample Midden Results

Exc. #	SIHP #	Stratum	Feature	Depth (cmbs)	Midden Type	Weight (g)
T-120	-7428	II	5	110-118	Neritidae: <i>Nerita picea</i>	21.2
					Mytilidae: <i>Brachidontes crebristriatus</i>	19.1
					Tellinidae: <i>Tellina palatam</i>	7.6
					Crustacean	4.6
					Echinodermata: <i>Diadema</i> sp./ <i>Echinometra mathaei</i>	3.8
					Burned shell fragments	3.0
					Naticidae: <i>Natica gualteriana</i>	2.2
					Strombidae: <i>Strombus</i> sp.	1.7
					Conidae: <i>Conus</i> sp.	0.6
					Lucinidae: <i>Ctena bella</i>	0.5
					Pteriidae: <i>Pinctada radiata</i>	0.1

## T-120 Feature 6 (1.07-1.20 mbs) screened sample Midden Results

Exc. #	SIHP #	Stratum	Feature	Depth (cmbs)	Midden Type	Weight (g)
T-120	-7428	II	6	107-120	Neritidae: <i>Nerita picea</i>	66.9
					Mytilidae: <i>Brachidontes crebristriatus</i>	62.0
					Conidae: <i>Conus quercinus</i>	35.4
					Tellinidae: <i>Tellina palatam</i>	17.9
					Echinodermata: <i>Diadema</i> sp./ <i>Echinometra mathaei</i> – spines, beak, shell	11.5
					Cymatiidae	9.1
					Crustacean	4.0
					Trochidae: <i>Trochus</i> sp.	2.9
					Isognomidae: <i>Isognomon</i> sp.	2.5
					Cypraeidae: <i>Cypraea caputserpentis</i> (4) and <i>Cypraea</i> sp. (3) fragments (burned)	2.4
					Ostreidae	2.4
					Turbinidae: <i>Turbo sandwicensis</i>	1.8
					Nassariidae: <i>Nassarius hirtus</i>	1.7
					Hipponicidae: <i>Hipponix</i> sp.	0.5

## T-120 Feature 7 (1.04-1.07 mbs) screened sample Midden Results

Exc. #	SIHP #	Stratum	Feature	Depth (cmbs)	Midden Type	Weight (g)
T-120	-7428	II	7	104-107	Mytilidae <i>Brachidontes crebristriatus</i>	62.7
					Neritidae <i>Nerita picea</i> (some juvenile)	43.0
					Tellinidae <i>Tellina palatam</i>	5.5
					Echinodermata <i>diadema</i> sp./ <i>mathaei</i> sp.	5.0
					Crustacean	3.8
					Naticidae <i>Natica gualteriana</i>	2.6
					Isognomidae <i>Isognomon</i> spp.	2.1
					Shell fragments (burned)	1.6
					Trochidae <i>Trochus</i> sp.	1.3
					Strombidae <i>Strombus</i> sp.	1.0
					Cypraeidae <i>Cypraea</i> sp.	0.9

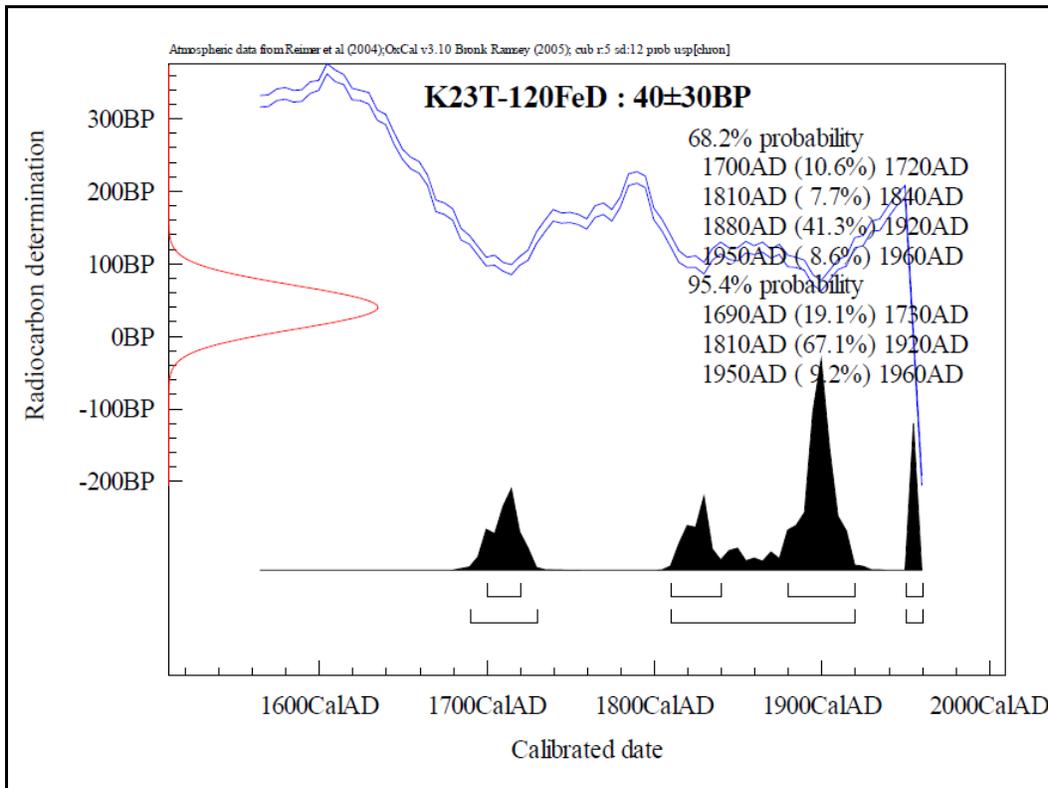
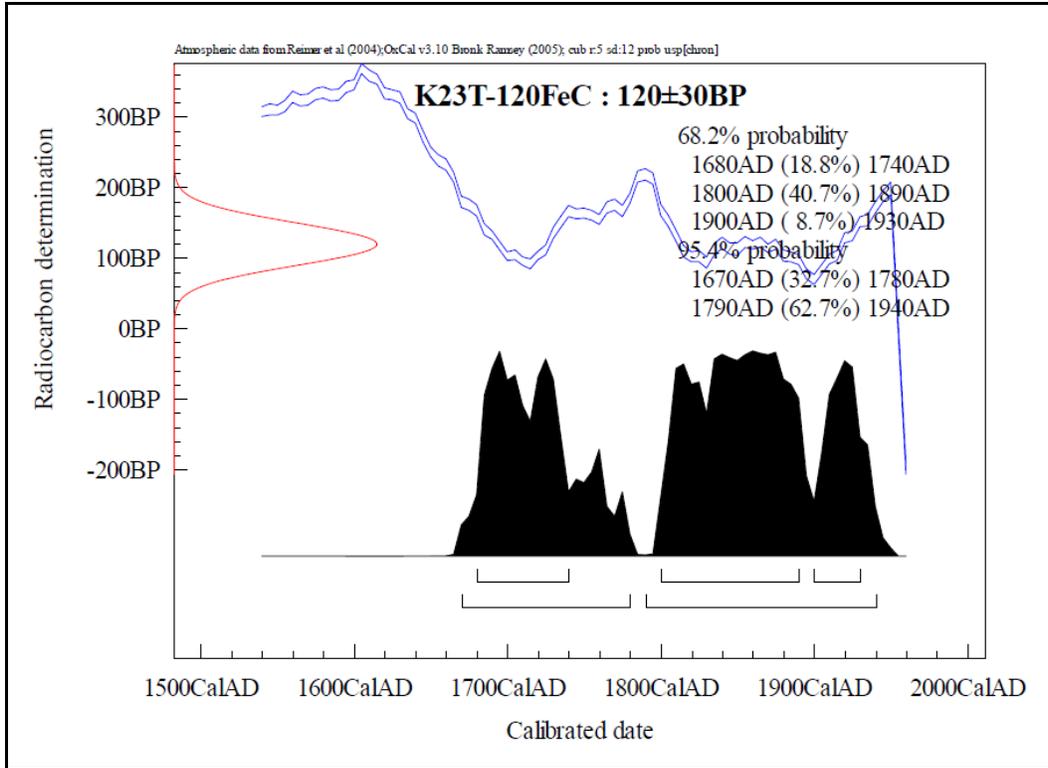
## T-120 Feature 8 (0.74-1.17 mbs) screened sample Midden Results

Exc. #	SIHP #	Stratum	Feature	Depth (cmbs)	Midden Type	Weight (g)
T-120	-7428	II	8	0.74-1.17	Mytilidae: <i>Brachidontes crebristriatus</i>	13.9
					Neritidae: <i>Nerita picea</i> , operculum (juveniles)	9.4
					Shell fragments (burned)	5.5
					Echinodermata	2.4
					Cymatiidae: <i>Cymatium</i> sp.	2.3
					Tellinidae: <i>Tellina palatam</i>	1.7
					Crustacean	1.39
					Isognomidae: <i>Isognomon</i> sp.	1.0
					Cassididae: <i>Casmaria ponderosa</i>	0.5

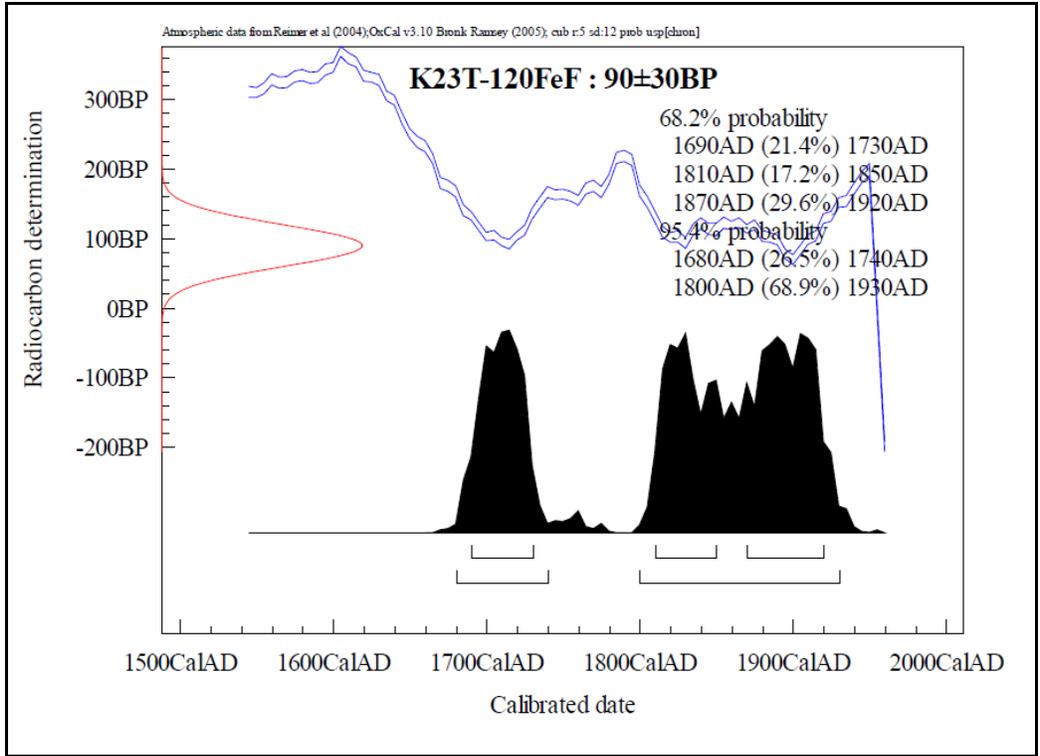
Provenience	WIDL No.	Taxa	Common/Hawaiian Name	Origin/Habit	Part	Count	Weight (g)
T-120; Halekauwila Street, west of Punchbowl Street intersection, Sample 1: Feature 4, 112-126 cmbs, Stratum II	1228-1	<i>Aleurites moluccana</i>			Nut-shell	11	0.32
	1228-2	<i>Hibiscus tiliaceus</i>	<i>Hau</i>	Native/Shrub-Tree	Wood	2	
	1228-3	Monocot			Stem ?	9	
	1228-4	cf. <i>Wikstroemia</i> sp.	<i>'Ākia</i>	Native/Shrub	Wood	3	
	1228-5				Wood	13	
	1228-6				Wood	10	
	1228-7				Wood	2	
	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	
	1228-10	cf. <i>Pritchardia</i> sp.	<i>Loulu</i>	Native/Tree	Wood	8	
	1228-11	<i>Chenopodium oahuense</i>	<i>'Aheahea, '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	
	1228-14	<i>Chamaesyce</i> sp.	<i>Akoko</i>	Native/Shrub	Wood	2	
	1228-15	cf. <i>Bobea</i> sp.	<i>'Ahakea</i>	Native/Tree	Wood	3	
	1228-16				Wood	15	
	1228-17				Wood	3	
	1228-18				Wood	4	

Provenience	WIDL No.	Taxa	Common/Hawaiian Name	Origin/Habit	Part	Count	Weight (g)
T-120; Halekauwila Street, west of Punchbowl Street intersection, Sample 2: Feature 5, 110-118 cmbs, Stratum II	1228-19	[interesting stem]			Stem		
	1228-20	<i>Aleurites moluccana</i>	<i>Kukui</i>	Polynesian Intro/Tree	Nutshell	20	2.28
	1228-21				Wood		
	1228-22				Wood		
	1228-23	Not identified			Bark		
	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		
	1228-26				Wood		
	1228-27	<i>Hibiscus tiliaceus</i>	<i>Hau</i>	Native/Shrub-Tree	Wood		
	1228-28				Wood		
	1228-29	cf. <i>Sida fallax</i>	<i>'Ilima</i>	Native/Shrub	Wood	5	0.21
	1228-30				Wood		
	1228-31	cf. <i>Coprosma sp.</i>	<i>Pilo</i>	Native/Shrub-Tree	Wood		

Provenience	WIDL No.	Taxa	Common/Hawaiian Name	Origin/Habit	Part	Count	Weight (g)
T-120; Halekauwila Street, west of Punchbowl Street intersection, Sample 3: Feature 7, 104-107 cmbs, Stratum II	1228-101	cf. <i>Sida fallax</i>	<i>'Ilima</i>	Native/Shrub	Wood	4	0.44
	1228-102				Wood		
	1228-103	<i>Aleurites moluccana</i>	<i>Kukui</i>	Polynesian Intro./ Tree	Nut-shell	17	1.04
	1228-104	<i>Chenopodium oahuensis</i>	<i>Āheahea, 'āweoweo</i>	Native/Shrub	Wood	1	0.04
	1228-105	cf. <i>Dodonaea viscosa</i>	<i>'A'ali'i</i>	Native/Shrub	Wood	11	1.03
	1228-106				Wood		
	1228-107	cf. <i>Pteridophyta</i>	Fern		Stem		
	1228-108				Wood		
	1228-109				Wood		
	1228-110				Wood		
	1228-111				Wood		
	1228-112				Wood		
	1228-113				Wood		



T-120 Radiocarbon results for Feature 4 (above) and Feature 5 (below)



T-120 Radiocarbon Results for Feature 7