Section 3 Zone 10 Kālia (Test Excavations 198 to 225)

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 Kālia Geographic Zone runs along Kona Street, extending east from Pi‘ikoi Street to the HHCTCP terminus, *mauka* of the Ala Moana Shopping Center, just west of the Ala Moana Building (Figure 14). The Kālia Zone is located within the westernmost portion of Waikīkī Ahupua‘a, in a physiographic division known as the Honolulu Plain (Armstrong 1983:36). Pi‘ikoi Street serves as the approximate boundary between Waikīkī Ahupua’a and Honolulu Ahupua’a.

The Kālia Zone includes 28 test excavations numbered T-198 through T-225 (T-215, T-216, and T-223 through T-225 were abandoned). Test excavation numbering generally proceeds from northwest to southeast. All Kālia test excavations were conducted on private lands. T-198 through T-205, T-207, T-208, T-212, T-217, T-218, and T-220 through T-222 were located along a section of Kona Street owned by General Growth Properties (GGP), within TMK 2-3-038:001. T-219 was within TMK 2-3-039:004, owned by Izuo Brothers, Ltd. T-223 through T-225 were located in the Ala Mona Center parking structure, also owned by GGP, within TMK 2-3-038:006. T-215 and T-216 were within TMK 2-3-039:006, owned by P. H. Hawaii Corp. T-206 was within TMK 2-3-039:013, owned by Kaanapali Kai, Inc./Sanno USA, Inc. T-209 through T-211, T-213, and T-214 were within TMK 2-3-039:011, owned by Sam House Development, LLC. These five test excavations were originally part of a previous investigation (Burke and Hammatt 2012).

3.2 Transit Infrastructure

The HHCTCP corridor follows Kona Street. The raised structure switches from single columns to straddle-bent supports shortly after crossing to the eastern side of Pi’ikoi Street. Guideway column foundations were tested with excavations T-198, T-201, and T-203 (see Volume I). The Ala Moana Center Station is the eastern terminus of the HHCTCP corridor, located on the north side of the Ala Moana Shopping Center parking structure, just west of the Ala Moana Building. The station will be elevated over Kona Street, with a Station Entrance Building *makai* of the Ala Moana Building and an adjacent Station Ancillary Building on the north side of Kona Street. The station column positions were tested with excavations T-205 through T-209, T-212, T-213, and T-217 through T-219, while test excavations T-210, T-211, T-214, and T-220 investigated the station buildings footprints (see Volume I). Utility relocation areas were tested by excavations T-199, T-200, T-202, T-204, T-221, and T-222 (see Volume I).

3.3 Geography, Geology, and Land Forms

The Kālia Zone is situated along the low-lying coastal flats immediately inland of present-day Ala Moana Beach Park and lies slightly less than 600 m from the modern shoreline. Present-day elevations in the zone range from approximately 1.4 to 2.4 m amsl, with an average elevation of approximately 1.6 m along the corridor. The Kālia Zone is on a portion of the broad elevated

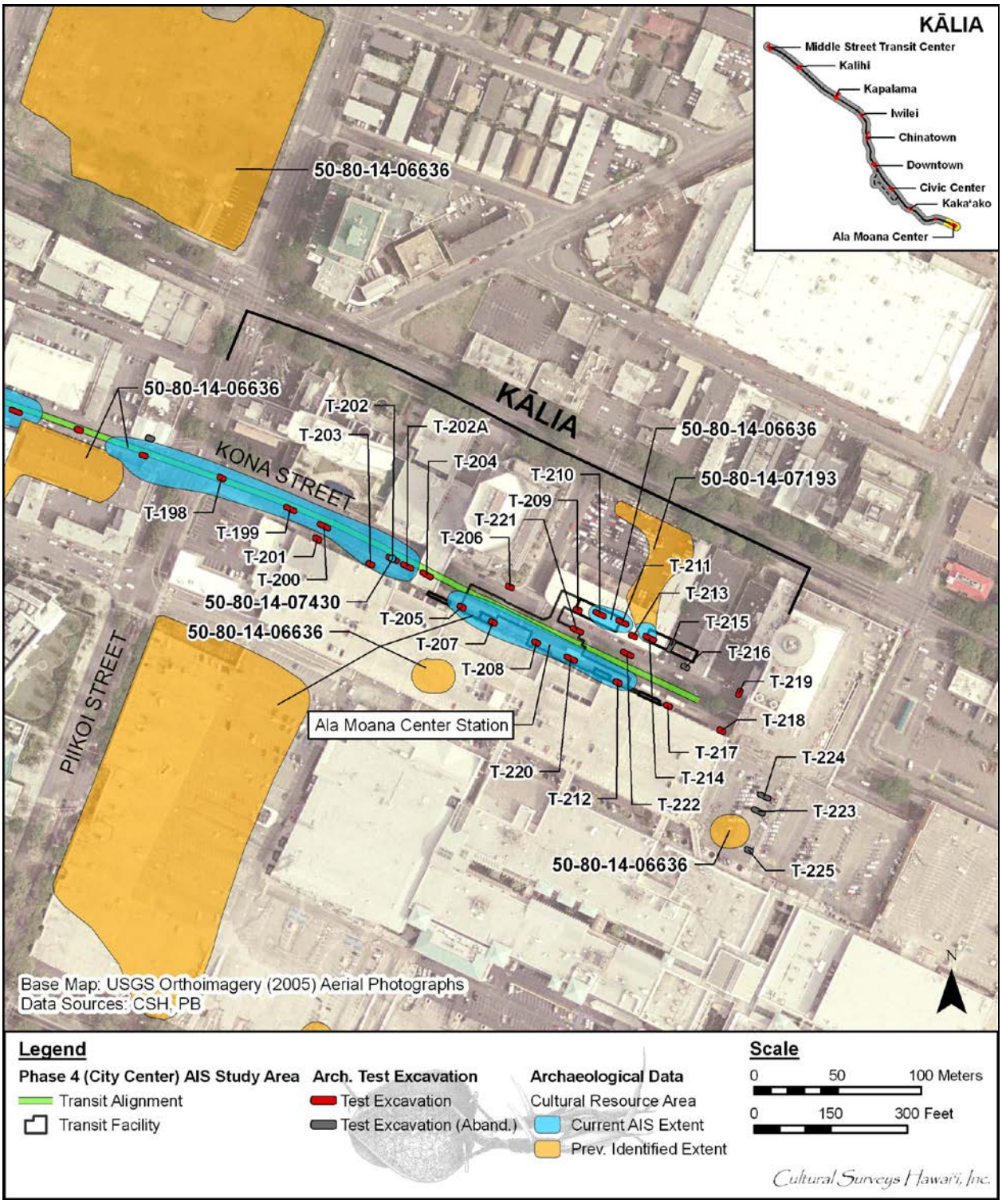


Figure 14. Aerial photograph (source: U.S. Geological Survey Orthoimagery 2005) showing the location of the Kālia Zone AIS test excavations (T-198 through T-225) along the HHCTCP corridor and at the Ala Moana Center Station

coral reef in southern O‘ahu that probably formed during the 7.5 m (Waimanalo) stand (Macdonald et al. 1983:420–421).

According to S. E. Bishop’s map of the Kewalo area of Honolulu (1884) (Figure 15), the Kālia Zone corridor lies some 330 m from the nineteenth-century coastline. During this period, the surrounding region was marshy and it seems probable that a low coastal dune contributed to the creation of the shallow wetlands. Formerly, the Pi‘inaio Stream served as the major water source in the vicinity, sustaining the irrigated field in the region. The average annual rainfall ranges from 684 to 710 mm (26 to 28 in) (Giambelluca et al. 2011), which would be marginal at best for non-irrigated agriculture.

Native vegetation in this area is not well documented, but just prior to development in the early twentieth century, vegetation included *naupaka* (*Scaevola taccada*), *kiawe* (*Prosopis pallida*), and coconut (*Cocos nucifera*). Today, virtually all vegetation results from landscaping efforts that favor ornamental introduced trees, shrubs, and ground cover.

According to the U.S. Department of Agriculture Soil Survey Geographic (SSURGO) Database (2001) and soil survey data gathered by Foote et al. (1972), soils within the Kālia Zone consist entirely of Fill land (Figure 16). Fill land soils are 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].

3.4 Traditional and Historic Land Use

3.4.1 Traditional Accounts of the Kālia Zone

Kālia was traditionally the name of the westernmost of the lands of Waikīkī extending as far west as the *makai* end of old Sheridan Street (present-day Pi‘ikoi Street). Kālia was relatively well-watered by Pi‘inaio Stream (at the present *mauka/makai* eastern portion of Ala Moana Boulevard) and was a land of *lo`i kalo*, fishponds, and denser habitations than the bleaker lands of Kewalo and Kukuluāe‘o to the west. By the time of the arrival of Europeans to the Hawaiian Islands during the late eighteenth century, Waikīkī had long been a center of population and political power on O‘ahu. According to Martha Beckwith (1970), by the end of the fourteenth century, Waikīkī had become “the ruling seat of the chiefs of O‘ahu.”

Chiefly residences, however, were only one element of a complex of features able to sustain a large population that characterized Waikīkī up to pre-Contact times. Beginning in the fifteenth century, a vast system of irrigated taro fields was constructed, extending across the littoral plain from Waikīkī to lower Mānoa and Pālolo Valleys. This field system—an impressive feat of engineering, the design of which is traditionally attributed to the chief Kalamakua—took advantage of streams descending from Makiki, Mānoa, and Pālolo Valleys, which also provided ample fresh water for the Hawaiians living in the *ahupua‘a*. Water was also available from springs in nearby Mō‘ili‘ili and Punahou. Closer to the Waikīkī shoreline, coconut groves and fishponds dotted the landscape. A sizeable population developed amidst this Hawaiian-engineered abundance.

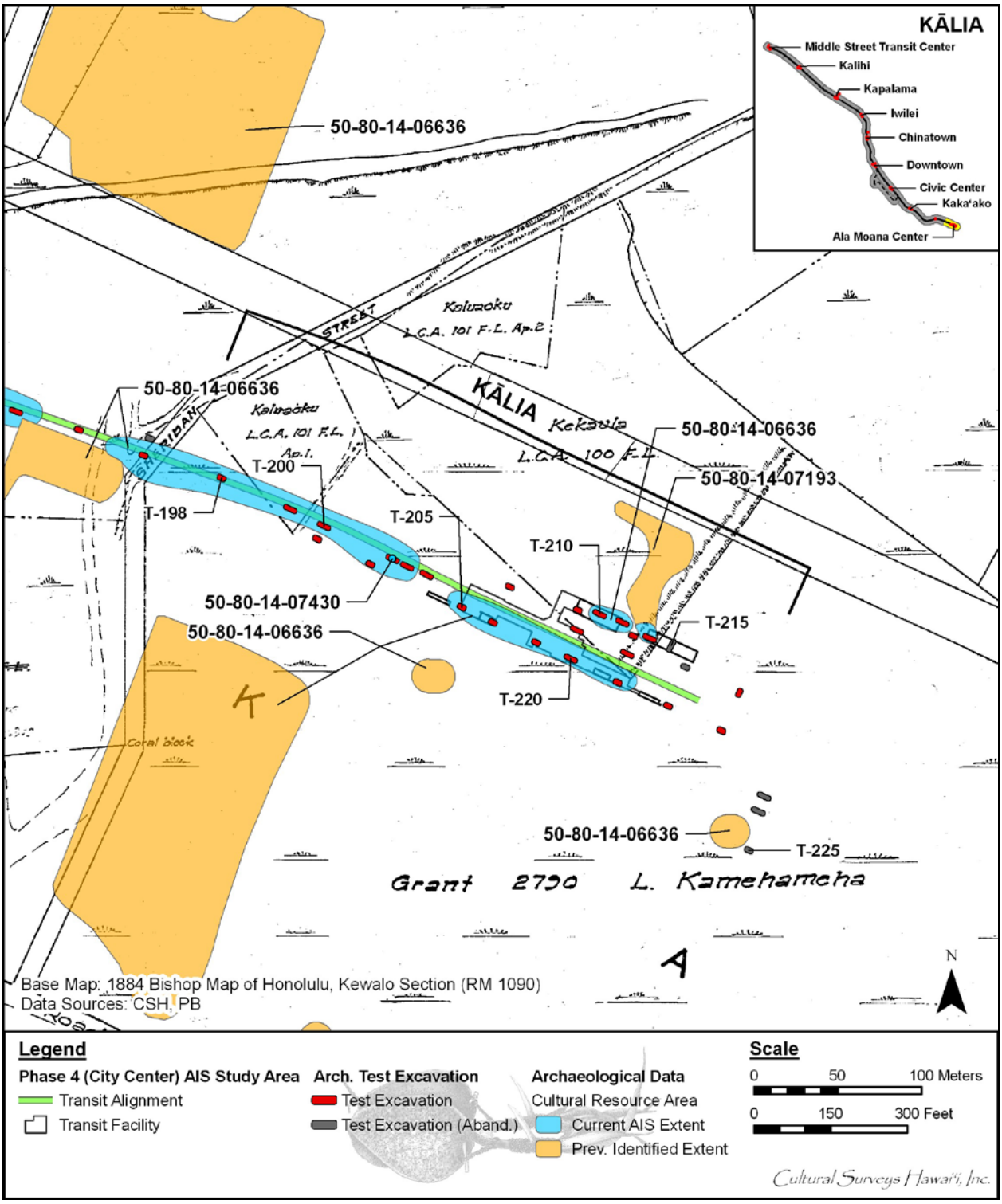


Figure 15. 1884 Map of Honolulu, Kewalo Section, by S. E. Bishop (Reg. Map 1090), showing the Kālia Zone amidst marshland

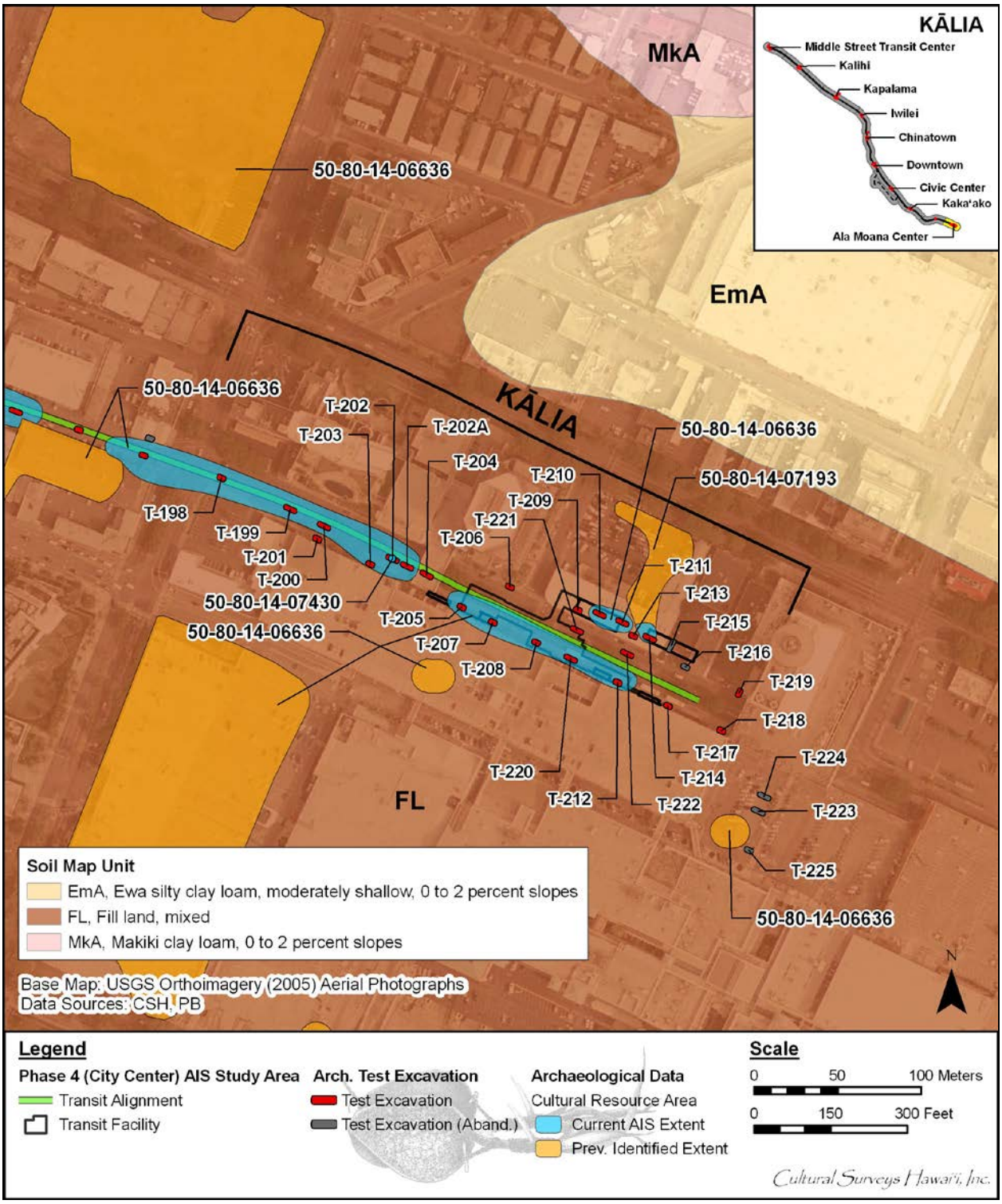


Figure 16. Aerial photograph (source: U.S. Geological Survey Orthoimagery 2005) with overlay of the Soil Survey of Hawai‘i (Foote et al. 1972) showing sediment types within and in the vicinity of the Kālia Zone

3.4.2 LCA Documentation

The *‘ili* of Kālia in Waikīkī was awarded to Victoria Kamāmalu, but she returned the land to the government. The land then became “Fort Land,” set aside for soldiers manning fort positions on O‘ahu to plant their own crops and provide for their own subsistence. The plan proved impractical, and many of these lands were later awarded to other *ali‘i* or commoners, or were assigned as Government or Crown Lands. Following the Kuleana Act, 38 of 47 *kuleana* claims made in Kālia were awarded (see Figure 15, Table 3, and Figure 17). Several LCAs in the vicinity of the Kālia Zone were awarded as “Fort Lands,” and most of the remaining lands in Kālia were government lands. Data from LCA records document the presence of fry ponds (*ki‘o pua*), taro patches (*lo‘i kalo*), house lots, and pasture (*kula* land).

Table 3. LCAs in Kālia, in the vicinity of the Kālia Zone (in numerical order)

LCA Number	Contents of Award
97	Lands to Kapapa
100 FL:2	Fort Lands: two ponds, five *ki‘o pua*, one taro *lo‘i*, one house lot, and one *kula* pasture to Kekaula
101 FL:1 and 101 FL:2	Fort Lands: two ponds and three *ki‘o pua* to Kaluaoku
10605	Lands to Iona Pi‘ikoi and Kamake‘e

3.4.3 Historic Land Use

Focus shifted from the *ahupua‘a* of Waikīkī to Honolulu during the historic period. Honolulu had the only sheltered harbor on O‘ahu, and soon became the preeminent trading center. Kamehameha I moved his residence from Waikīkī to Honolulu as the population drained from the region. Levi Chamberlain (1957:26) observed that by 1828, much of the cultivated land had become overgrown and neglected. By the end of the nineteenth century, most of the fishponds were abandoned and allowed to deteriorate. The remaining taro fields were planted with rice for export to the United States and to supply the growing number of immigrant laborers from China and Japan (Coulter and Chun 1937).

The demographics of pre-Contact Waikīkī remain uncertain (see Kanahele 1995:32–33). The missionary census of 1831/1832 lists a relatively large population for “Waikiki” of 2,571 (Schmitt 1973:19), but this designation appears to include all land between Honolulu and Waimanalo. Although the specific population in Kālia is unknown, Kālia appears to have been relatively under-populated. During the second half of the nineteenth century, infrastructure improvements within the Kālia region made rapid development possible. The road connecting Waikīkī to Honolulu (the route of present-day Kalākaua Avenue) was improved and a tram line was built between the two areas.

Beginning around the turn of the twentieth century, the landscape surrounding Kālia was transformed as the remaining ponds, irrigated fields, and marshland of Honolulu and Waikīkī were filled in. An 1897 map of Honolulu by M. D. Monsarrat shows the Kālia Zone in an undeveloped area, with Sheridan Street at the west end of the zone, Beach Road (modern-day

Ala Moana Boulevard) to the south along the coastline, and the settlement of Little Britain north of the zone (Figure 18). A 1919 U.S. Army War Department map shows little development within the Kālia Zone with ponds and few structures (Figure 19). These structures can be seen throughout the zone, with additional buildings along the *mauka* side of Beach Road.

The Kālia area was slow to develop because of its marshy ground. Reclamation projects in the 1930s (including the Kewalo Reclamation Project and the Waikīkī Reclamation Project, which involved the Ala Wai Canal and the Kewalo Basin Dredging Projects) ultimately moved millions of tons of sediment. Nakamura (1979:113) notes that the land reclamation programs brought an end to Waikīkī as a viable and important agricultural and aquacultural center. A 1931 aerial photograph (Figure 20) shows large white areas, which represent dredged material and crushed coral used in the construction of Kapi‘olani Boulevard and to reclaim the marshy areas of Kālia. The largest white section to the east of the project area on the 1931 photograph shows the future site of McKinley High School.

Extensive fill activities made urbanization possible in Kālia. On the 1933 and 1943 U.S. Army War Department maps, the ponds in the Kālia area are gone, and a proposed street grid system is in place (Figure 21 and Figure 22). Kālia became increasingly industrialized, and by this period, all vegetation surrounding the Kālia Zone had been cleared. By 1950, the Sanborn Fire Insurance maps show that the area between Kapi‘olani Boulevard and Kona Street were occupied by used auto sales lots (Figure 23).

The Ala Moana Center Project was initiated in 1948 by Dillingham, and ground was broken in 1957. By the time of its completion in 1959, it was the largest shopping center in the United States. Ala Moana Center is currently the largest open-air mall (shopping center) in the world.

3.4.4 Settlement Pattern Summary

With substantial clusters of inland houses, Waikīkī was generally a densely populated region, compared at least to the coastal lands of Kewalo and Kukuluāe‘o. However, settlement in Kālia itself was more limited, in part due to the high water table and marshy landscape. An exception appears to have been a hamlet (in the vicinity of modern Sheridan Street) that may have been built on a strip of higher ground. This area is also associated with burials.

There were a number of small fishponds in the region but none close to the Kālia Zone corridor. In addition to fishponds, LCA records document taro patches, house lots, and pasture land. It is unclear how developed these areas were. By the end of the nineteenth century, the fishponds were largely abandoned and taro was replaced with rice. Kālia’s agricultural role came to an end as Honolulu expanded. The wetlands were drained and filled during the 1920s and 1930s, making way for urbanization in the 1940 and 1950s. The Kālia area now serves as the heart of a vibrant commercial district.

3.5 Previous Archaeology

Several archaeological studies have been conducted in the vicinity of the Kālia Zone corridor, including 11 conducted within or directly adjacent to the zone (Figure 24). Table 4 lists and summarizes the 11 studies conducted in the immediate vicinity of the zone, and they are described in more detail below. The discussion of previous archaeological investigations proceeds generally from west to east.

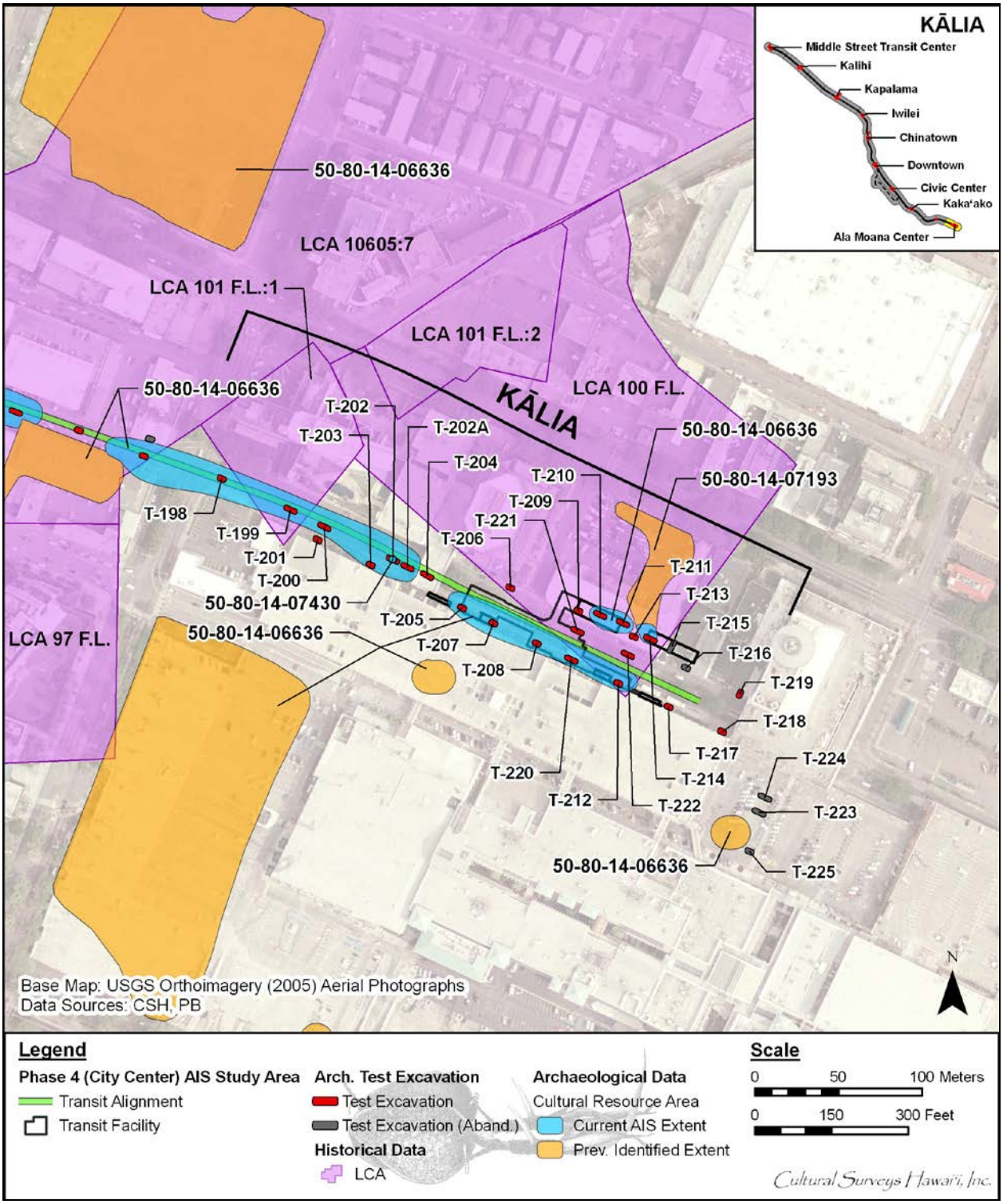


Figure 17. Aerial photograph (source: U.S. Geological Survey Orthoimagery 2005) showing the location of the Kālia Zone LCAs in relation to the AIS test excavations T-198 through T-225

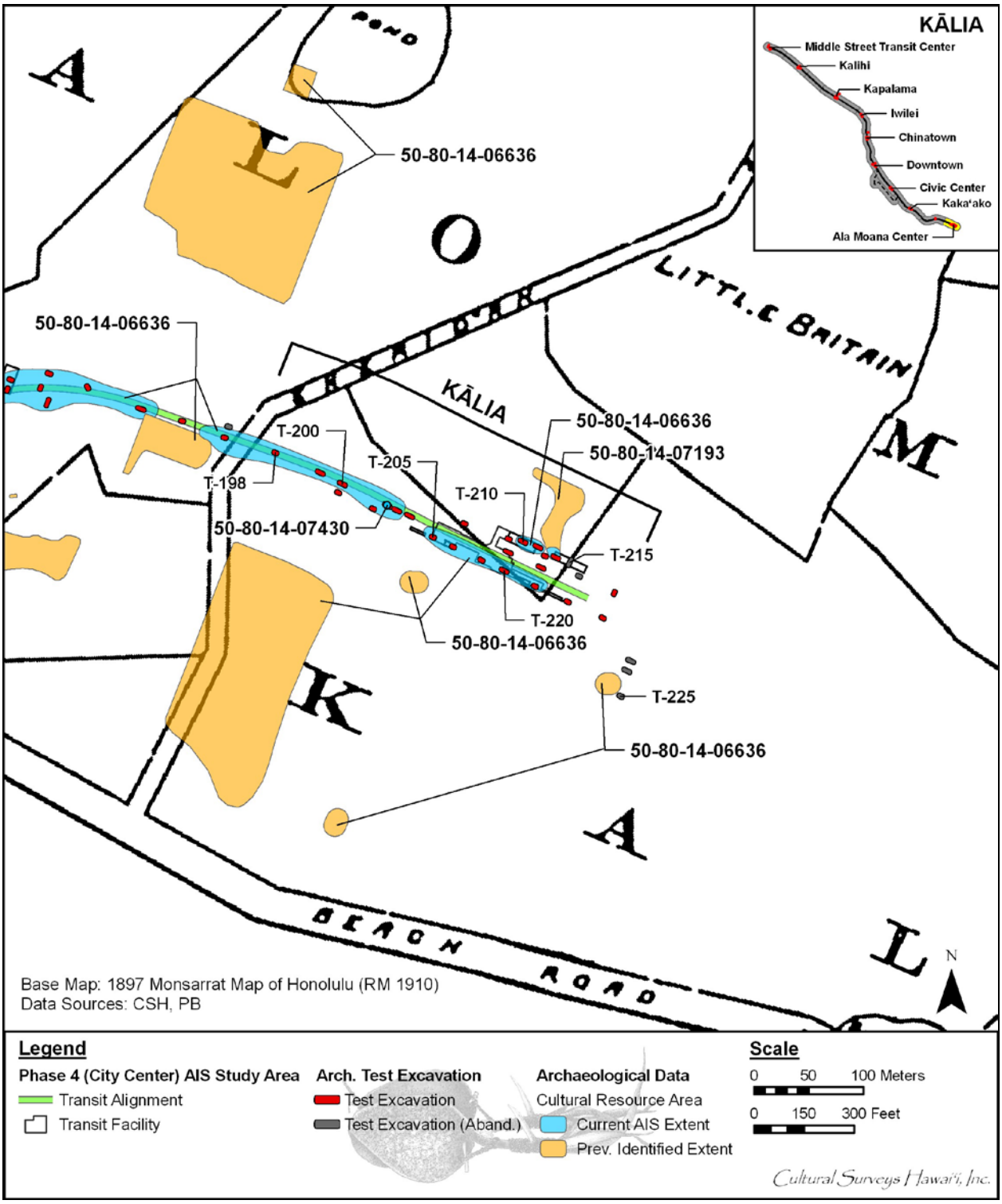


Figure 18. 1897 Map of Honolulu by M. D. Monsarrat (Reg. Map 1910) showing little development within and around the Kālia Zone

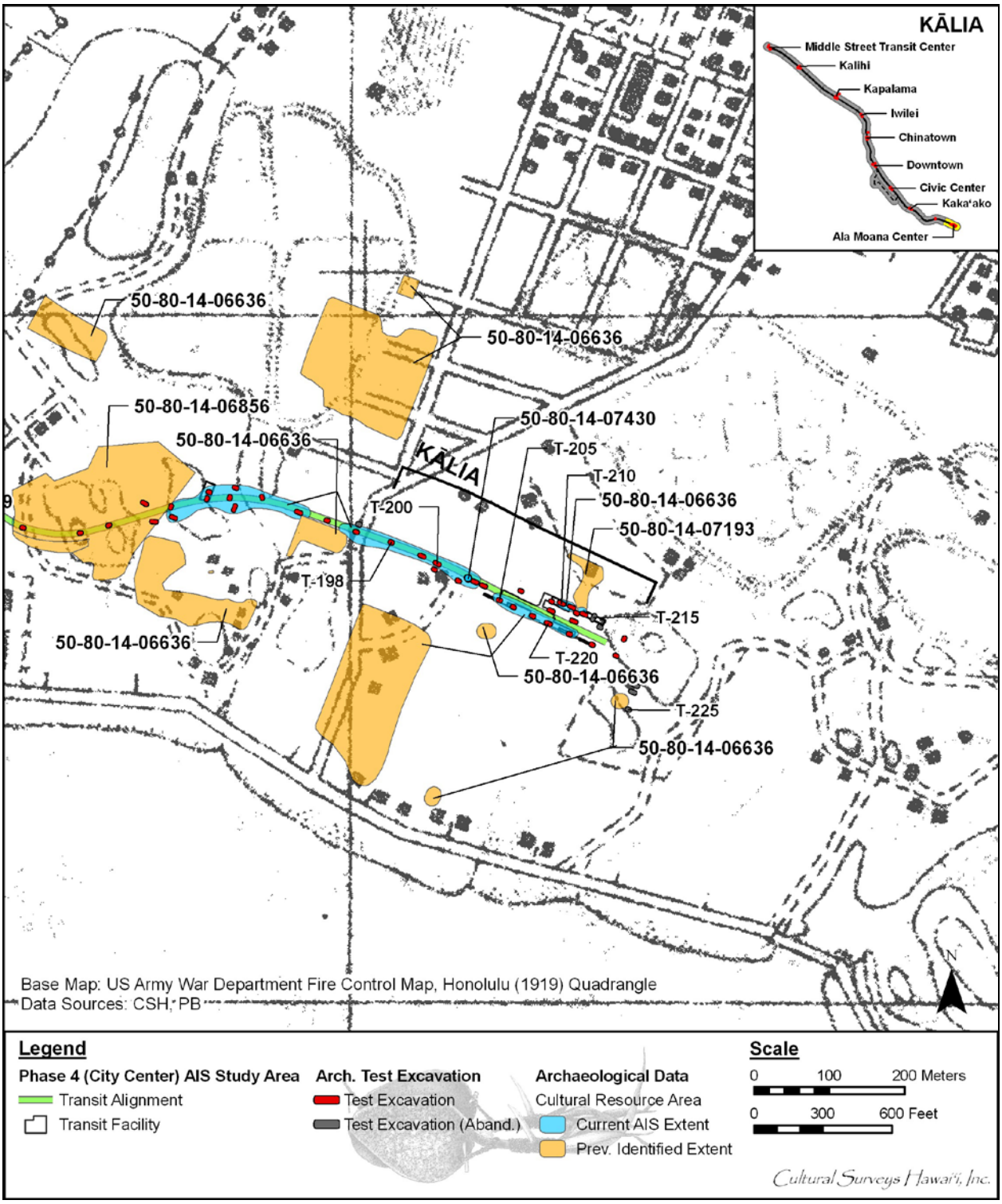


Figure 19. 1919 U.S. Army War Department Fire Control Map, Honolulu Quadrangle, showing limited development within the Kālia Zone

Figure 20. 1931 aerial photograph showing dredged materials (white crushed coral) used in the construction of Kapi‘olani Boulevard and used for fill in marshy areas of Honolulu and Waikīkī; as extending into the Kona Street “Kālia Zone” (Hawai‘i State Archives)

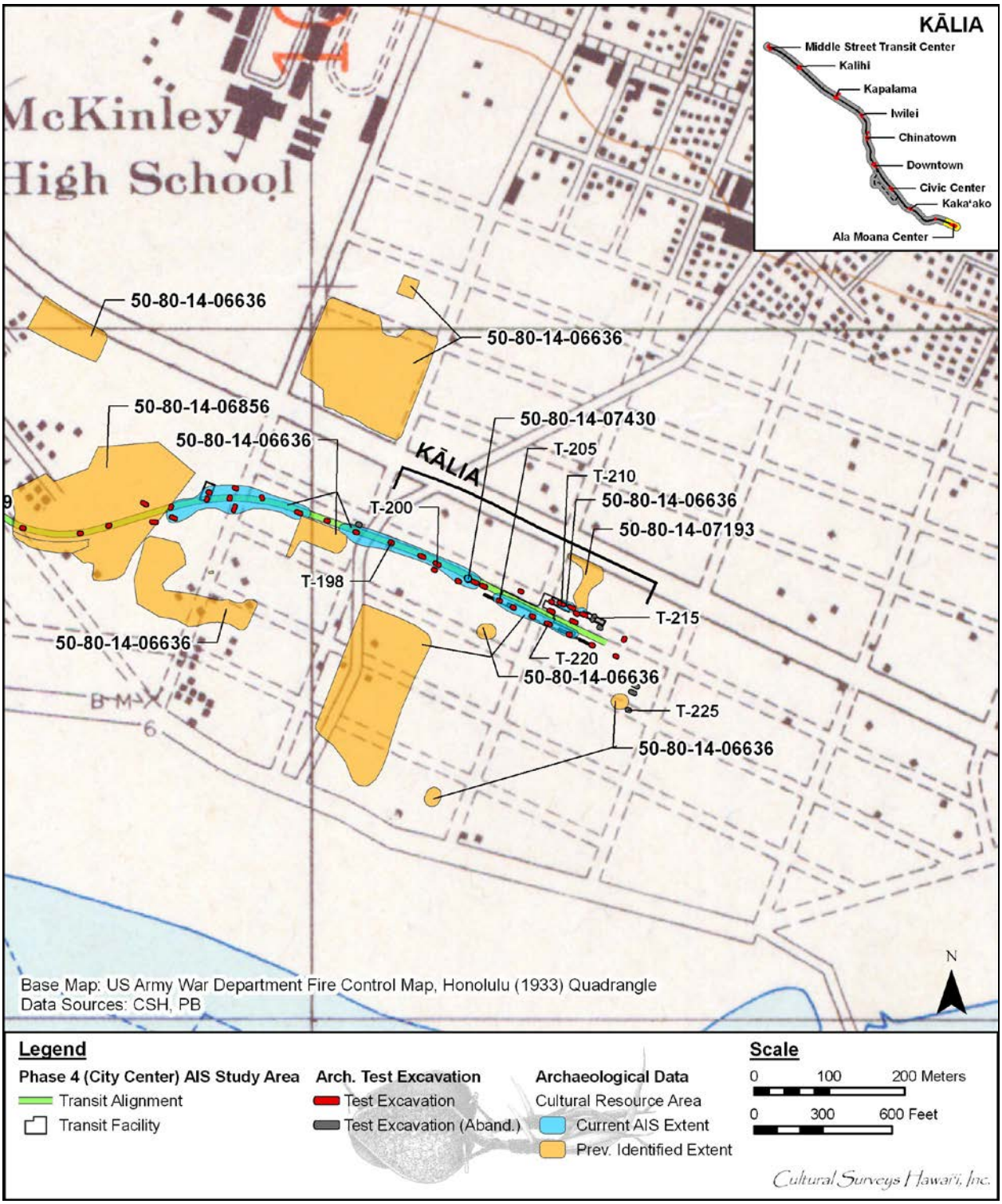


Figure 21. 1933 U.S. Army War Department map, Honolulu Quadrangle, showing the proposed street grid system in the vicinity of the Kālia Zone

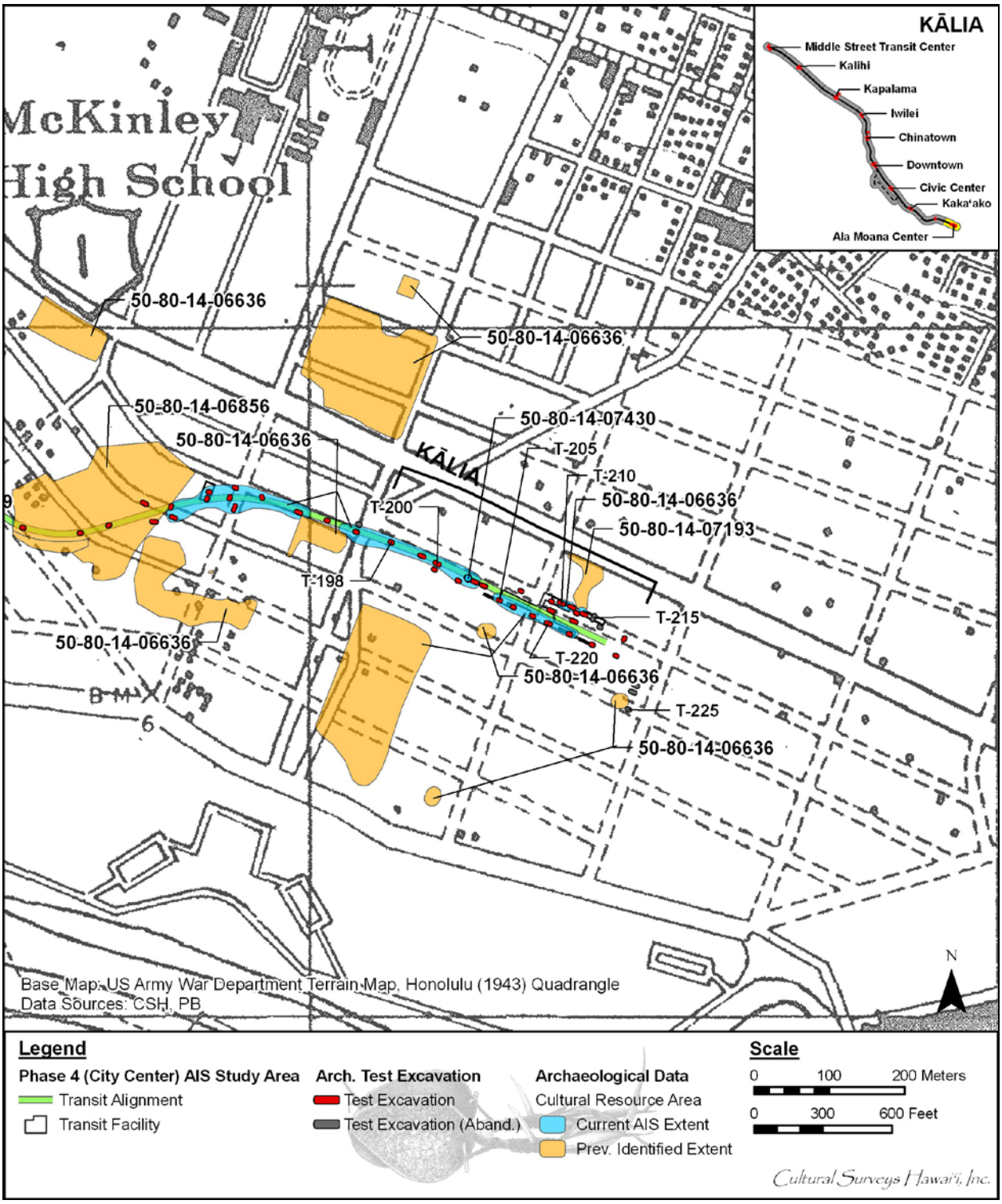


Figure 22. 1943 U.S. Army War Department map, Honolulu Quadrangle, showing the proposed street grid system in the vicinity of the Kālia Zone

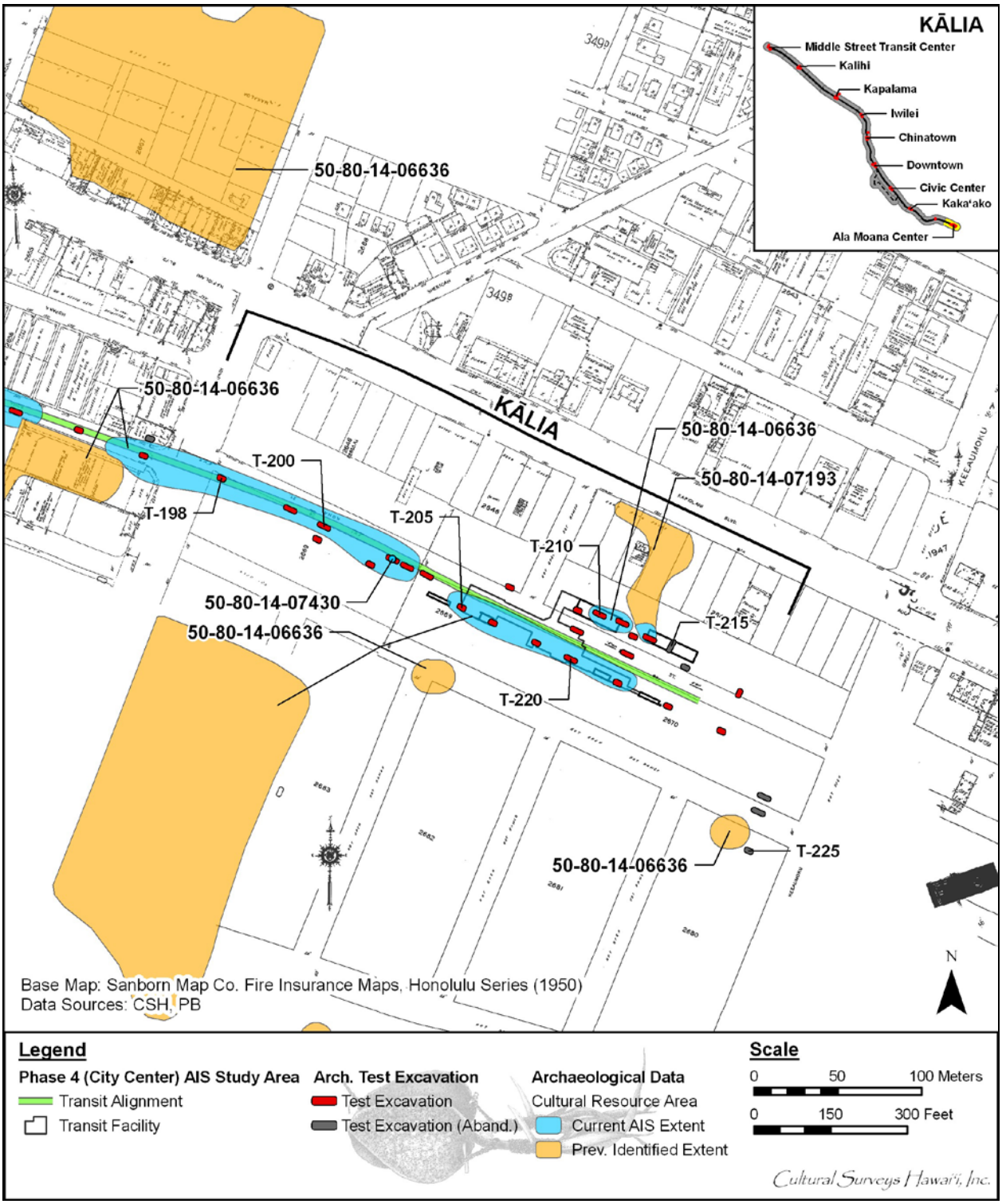


Figure 23. 1950 Sanborn Fire Insurance Maps showing used car lots between Kapi‘olani Boulevard and Kona Street (Sanborn Map Company 1950)

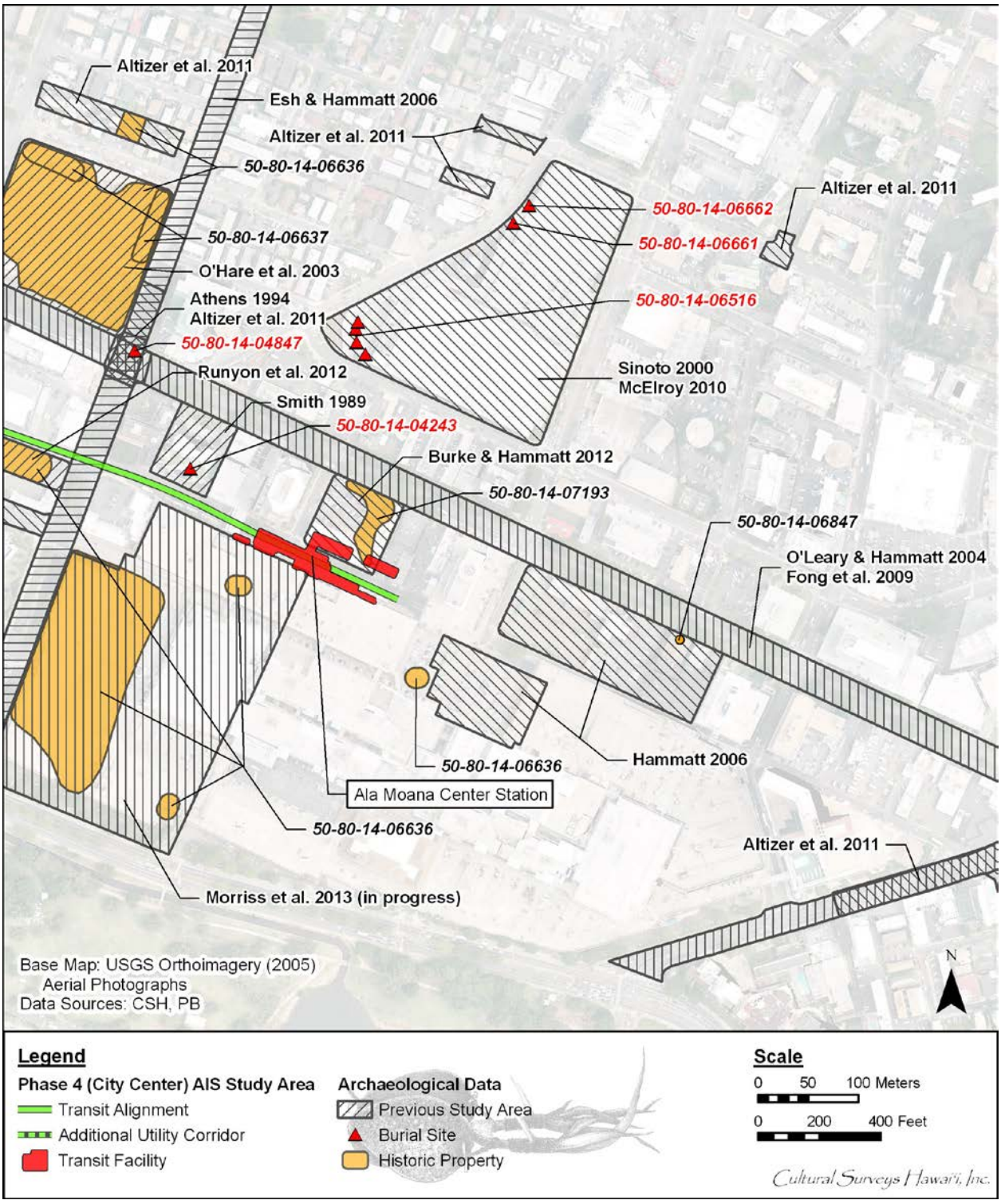


Figure 24. Previous archaeological studies in the vicinity of the Kālia Zone AIS test excavations (T-198 through T-225) along the HHCTCP corridor and at the Ala Moana Center Station

Table 4. Previous archaeological studies in the vicinity of the Kālia Zone (arranged chronologically)

Author	SIHP #50-80-14	Report Description and Findings
Smith 1989	-4243	Inadvertent burial find (bone fragment) *makai* of Kapi‘olani Boulevard, southeast of Pi‘ikoi Street
Athens et al. 1994	-4847	Single set of human remains that might not have been an intentional burial
O’Leary and Hammatt 2004	N/A	Archaeological monitoring report for Kapi‘olani Boulevard, from Kalākaua Avenue to Kamake‘e Street; no significant finds documented
Esh and Hammatt 2006	N/A	Monitoring for the Rehabilitation of Streets Unit 5B on Pi‘ikoi Street between Ala Moana Boulevard and Matlock Street; no historic properties documented
Hammatt 2006	-6847	Inventory survey for Ala Moana Mauka Expansion; documented a post-Contact trash deposit
Hazlett et al. 2008	N/A	Monitoring of the Ala Moana Expansion Project; no historic properties documented
Fong et al. 2009	N/A	Archaeological monitoring report for Kapi‘olani Boulevard from Atkinson Drive to Kamake‘e Street; no significant finds documented
Burke and Hammatt 2012	-7193	Archaeological inventory survey of 1391 Kapi‘olani Boulevard; documented a historic trash layer dating from the 1930s to the 1950s
Runyon et al. 2012	-6636	Archaeological Inventory Survey Report for the Senior Residence at Pi‘ikoi. Documented portions of the previously identified former wetland surface of the Kewalo area (SIHP #50-80-14-6636)
Morriss et al. 2013 (draft)	-6636	Archaeological inventory survey; documented wetland sediments

Senior Residence at Pi‘ikoi (Runyon et al. 2012)

In 2012, Cultural Surveys Hawai‘i, Inc. completed an Archaeological Inventory Survey Report for the Senior Residence at Pi‘ikoi (see Figure 11). The project area is located at the corner of Pi‘ikoi Street and Kona Street, southwest of the west end of the Kalia Zone corridor. Subsurface Kewalo wetland sediments (SIHP #50-80-14-6636) were observed in all 13 of the test excavations during the project. In general, the wetland deposits consist of very dark brown silty clay loam containing abundant decomposing organic materials (peat), snail shells, rootlets and charcoal flecking. These sediments were usually overlying gleyed sandy clay sediments over the coral shelf. Historic documentation suggests the site was capped with imported fill during early twentieth century Land Reclamation fill events. The site has been previously documented in nearby areas in Kalia (Morriss et al. 2013; in progress) and Kaka‘ako (O’Hare et al. 2003, O’Hare et al. 2004, Tulchin and Hammatt 2005, and Runyon et al. 2011).

A sediment sample collected from SIHP #50-80-14-6636 was analyzed by Dr. Carl Christensen, professional malacologist. In general, the analysis found that the wetland site, SIHP #50-80-14-6636, contains fauna typical of other similar wetland environmental sites in Hawai‘i. The analysis also noted that the snail species represented in the samples were “little changed from those present there and in similar environments in pre-Contact times” (Christensen 2011:9). Of three snail species commonly found in these wetland environments (*T. porrecta*, *M. tuberculata*, and *T. granifera*), one species (*T. porrecta*) found within SIHP #50-80-14-6636 is now virtually extinct.

Pi‘ikoi Street (Esh and Hammatt 2006)

In August 2004, CSH conducted archaeological monitoring for the Rehabilitation of Streets Unit 5B Project on Pi‘ikoi Street between Ala Moana Boulevard and Matlock Street (Esh and Hammatt 2006). Only one excavation reached a depth greater than 30 cmbs, and this was several blocks from the Kālia Zone corridor. No historic properties were observed.

Pi‘ikoi Street and Kapi‘olani Boulevard (Athens et al. 1994)

During the 1994 excavation of a trench for an underground telephone line near the northeast corner of Pi‘ikoi Street and Kapi‘olani Boulevard, the remains of a single individual were inadvertently discovered and later disinterred (Athens et al. 1994). Osteological analysis revealed that the skeletal remains were of a 12- to 15-year-old female. Radiocarbon analysis of a sample of bone collagen yielded a date of death between AD 1295 and AD 1473, supporting the osteological determination of Hawaiian/Polynesian ancestry. The remains were interred within a brackish water marsh environment (based on malacological findings) at a shallow depth of 50 to 80 cmbs. A lack of burial goods and the presence of the remains within an unusual wetlands context strongly suggested that the location of the remains did not reflect an intentional burial. Osteological analysis revealed a severe bone infection of the right pubis as the probable cause of death. The individual may have died at the place of interment and remained undiscovered. Alternatively, the individual may have been interred in an elevated sand berm. Several burials in Kaka‘ako have been found in similar sand berms located around fishponds.

Kapi‘olani Boulevard Monitoring (Fong et al. 2009; O’Leary and Hammatt 2004)

O’Leary and Hammatt (2004) and Fong et al. (2009) conducted archaeological monitoring along Kapi‘olani Boulevard. Subsurface impacts of the two projects were relatively light, and no historic properties were documented.

Kona Street (Smith 1989)

In 1989, construction workers discovered four bone fragments in a property located on the southeast corner of Kapi‘olani Boulevard and Pi‘ikoi Street. The remains were examined and it was determined that only one of them was human (a right tibia shaft fragment); the remaining bone fragments were pig. The human bone was designated SIHP #50-80-14-4243.

Ala Moana Center ‘Ewa Mall Expansion Project (Morriss et al. 2013, Draft)

Cultural Surveys Hawai‘i carried out an AIS in the western portion of the Ala Moana Center (AMC), excavating 26 test units. The project area included the Sears Department Store footprint and the adjacent parking lot extending west/‘Ewa from the AMC to Pi‘ikoi Street. Excavations revealed a previously identified historic property (SIHP #50-80-14-6636) consisting of pre-Contact to early twentieth-century wetland deposits. The site reflects land use activities in the Honolulu Plain during the pre- and post-Contact period (i.e., wetland agriculture, fishpond aquaculture, and salt pans). Pollen and phytolith records from the study area confirm the presence of a sedge marshland. Local vegetation included sea grass, *‘ahea, kolokolo, ahakea lau li‘i* or *‘akupa, ulu, niu, loulu* palm, *‘a‘ali‘i*, legumes, kadua, *aulu*, *‘ihi*, and a variety of grasses and ferns. Multiple fill layers overlaid wetland sediments consisting primarily of greenish-gray sandy clays containing decomposing organics, charcoal, and snail shells. Peat was observed as distinct layers, usually directly above the sandy clays, and as inclusions within the sandy clays. No cultural materials were observed within the wetland sediments, except where they were disturbed in historic times.

Two test units in the AMC parking complex (T-5 and T-6) were in proximity to the Kālia Zone corridor. Upper layers of these two units consisted of asphalt and basalt gravel overlying crushed coral fill. Subsequent layers in T-5 consisted of disturbed, naturally-deposited sandy clay containing land snails and decomposing organics. The closest HHCTCP AIS test excavation, T-218, had very gravelly sandy loam below the fill layers. The stratigraphy of unit T-6 was disturbed by a utility pipe beneath the fill layers. Below this, there was a layer of dredged sandy clay overlying a peat later and wetland sediments. This matched the stratigraphy of nearby HHCTCP AIS test excavations T-205 and T-207, which had layers of gravelly sandy loam or silty sand overlying sandy clay and wetland sediments.

1391 Kapi‘olani Boulevard (Burke and Hammatt 2012)

Cultural Surveys Hawai‘i conducted an archaeological inventory survey for the 1391 Kapi‘olani Boulevard parcel involving 22 test trenches. The subsurface deposits were heavily disturbed. The large volume of imported fill correlated to land reclamation activities. A distribution of historic trash deposits were identified beneath the layers of fill and a ground surface of asphalt, concrete, or grading material. Where present, the trash deposits consisted of whole and fragmented glass bottles and jars, unidentified metal fragments, wires, ceramic fragments, red brick and ceramic tiles, red bricks, cinder blocks, lumber, nails, metal barrel

remnants, and tire remnants. The deposits accumulated between the 1930s and 1950s and correspond to trash disposal and known historic land reclamation activities. An old A-horizon and natural gley and sandy clay layers were identified beneath the trash layers. No cultural material was identified within the former A-horizon. The trash deposits were designated SIHP #50-80-14-07193 and determined to be ineligible for the Hawai‘i Register of Historic Places.

Five test trenches from the Burke and Hammatt (2012) study have been included as part of the current AIS test excavations. Trenches 1, 2, 3, 4, and 5 from the Burke and Hammatt (2012) study correspond to HHCTCP AIS test excavations T-214, T-213, T-211, T-210, and T-209, respectively. Upper levels of these units consisted of subsequent layers of concrete, grading fill, asphalt, and crushed coral fill above varying fill deposits of silty loam. Excavation 2/T-213 was unique and included a layer of basalt cobbles and boulders beneath the upper layers. All the other units had descending layers of naturally deposited silty loam, peat, and natural gleys. Excavations reached the natural coral shelf. The historic trash layer (SIHP #50-80-14-07193) was documented in Excavation 1/T-214.

Ala Moana Mauka Expansion (Hammatt 2006 and Hazlett et al. 2008)

In late 2005 and early 2006, an AIS for the Ala Moana Expansion Project was conducted by Cultural Surveys Hawai‘i (Hammatt 2006). The investigation’s 30 backhoe trenches revealed no Jaucas sand deposits within the property. The natural land surface, prior to historic/modern fill episodes, was either sandy clay or a highly organically enriched peaty layer. Within large portions of the parcel, the natural “pre-fill” land surface had been completely removed by prior construction-related disturbances. One historic resource (SIHP #50-80-14-06847) was found, consisting only of a wooden box placed in a pit cut down into the sandy-clay former land surface. The box contained a mix of historic artifacts including, among other things, printed material, wooden chopsticks, pig bone, and a horse brush. It was dated to the late nineteenth or early twentieth century.

Between 2006 and 2007, Cultural Surveys Hawai‘i (Hazlettet al. 2008) conducted archaeological monitoring for the Ala Moana Expansion Project. Within the *mauka* parcel of the project area (adjacent to Kapi‘olani Boulevard), natural stratigraphy was observed beneath imported construction fill, consisting of a discontinuous sandy loam A-horizon overlying varying layers of naturally deposited sediments consisting of loams and clays, indicative of the marsh environment that preceded the land reclamation and subsequent development of the area. Within the *makai* parcel of that project area, imported fill extended to an undetermined depth below the water table. No historic properties were observed.

3.6 Modern Land Use and Built Environment

The Kālia Zone traverses a commercial urban environment, following Kona Street. Parcels *mauka* of Kona Street contain various businesses and high-rise buildings. The Ala Moana Center parking complex is located *makai* of the corridor. The HHCTCP terminates just west of the Ala Moana Building. A massive utility corridor is present throughout the Kālia Zone containing electrical, gas, water, sewer, and storm lines. The number and distribution of these existing utilities indicate that this Kālia Zone portion of Kona Street has been heavily disturbed in the past.

3.7 Test Excavation 198 (T-198)

***Ahupua‘a*:**	Waikīkī
LCA:	N/A
TMK #:	2-3-038: 006
Elevation Above Sea Level:	1.58 m
UTM:	619661 mE, 2355099 mN
Max Length, Width, Depth:	2.8 m / 1.0 m / 1.95 mbs
Orientation:	276 / 96° TN
Targeted Project Component:	Guideway Column
USDA Soil Survey Soil	Fill land (FL)

Setting: Test Excavation 198 (T-198) was located on private property within the Kona Street median immediately east of the Pi‘ikoi Street intersection. T-198 was in the vicinity of one storm drain (3.22 m to northeast), one electric line (1.95 m to west), one irrigation valve (1.5 m to east), and one water line (0.2 m to east). T-198 was slightly elevated from the surrounding land surface.

Summary of Background Research and Land Use: Baldwin’s 1883 Honolulu Water Works map located T-198 approximately 360 m north of the coastline. S. E. Bishop’s map of the Kewalo area of Honolulu (1884) indicated that T-198 was located within Lot Kamehameha’s Grant 2790, which was comprised of marshlands, and immediately south of LCA 101:1, which was comprised of fort lands, two ponds, and three *ki‘o pua*. Sheridan Street was located approximately 30 m west of T-198, according to S.E. Bishop’s 1884 map of Honolulu. W. A. Wall’s 1887 map of Honolulu indicated agricultural development to the north and east of T-198, while the immediate surrounding area remained marshlands. According to the 1919 U.S. Army War Department map, the vicinity of T-198 had undergone moderate urban development since 1887. The 1933 U.S. Army War Department map of Honolulu indicated that the entire area that surrounded T-198 had been marked with a grid pattern for planned urban development and the shoreline had been extended to approximately 580 m south of T-198. The 1939–41 U.S. Army Air Corps aerials and the 1943 U.S. Army War Department map of Honolulu indicated continued urban development in the area. The 1952 University of Hawai‘i SOEST aerials from Kaka‘ako to Waikīkī indicated, along with heavy urban development, what appeared to be the initial construction phase of the Ala Moana Shopping Center to the south of T-198. According to the 1953 U.S. Army Mapping Service map of Honolulu, the entire area had undergone heavy urban development by that time.

Previous archaeology of the area surrounding T-198 included several studies. In 1989, 40 m northeast of T-198, a human bone fragment (SIHP #50-80-14-04243) was found inadvertently in a construction site on the southeast corner of Kapi‘olani Boulevard and Pi‘ikoi Street (Smith 1989). A 2006 archaeological monitoring project of road resurfacing on Pi‘ikoi Street yielded no cultural materials, but continued monitoring in the area was recommended due to the high potential for encountering archaeological material and human burials in the general vicinity (Esh

and Hammatt 2006). In 2012, an archaeological inventory survey was conducted to the west of T-198 along Kona Street and documented one historic property (SIHP #50-80-14-6636) that consisted of buried Kewalo wetland deposits (Runyon et al. 2012). This same historic property was also located south of T-198. At the time of this report, an archaeological inventory study documented one historic property (SIHP #50-80-14-6636) that consisted of buried Kewalo wetland deposits (Morriss et al. 2013; *Draft*).

Documentation Limitations: T-198 was excavated to a depth 1.95 mbs, below the water table which was at a depth of 1.86 mbs.

Stratigraphic Summary: The stratigraphy of T-198 consisted of fill strata overlying natural sediments to the base of excavation. Observed strata included silty loam (Ia), silty loam (Ib), gravel (Ic), gravelly crushed coralline sand (Id), and very gravelly crushed coralline sand (Ie) overlying natural sediments of clay loam (II) and sandy clay (III). Modern historic debris was present in Stratum II that was interpreted as re-worked natural sediment. Stratum III was interpreted as a natural sediment layer consistent with wetlands and marsh environments previously recorded in this area (SIHP #50-80-14-6636). The stratigraphy generally conformed to the USDA soil survey designation of Fill land.

Artifact Discussion: One artifact, a milled 2 x 4 wood plank (Acc. #198-A-1), was collected from Stratum II at 1.5–1.6 mbs. The artifact collected from Stratum II was consistent with cultural materials present within a historical A-horizon.

Feature Discussion: No features were observed.

Terrestrial Faunal Remains Collected During Excavation: No terrestrial faunal remains were collected individually during excavation.

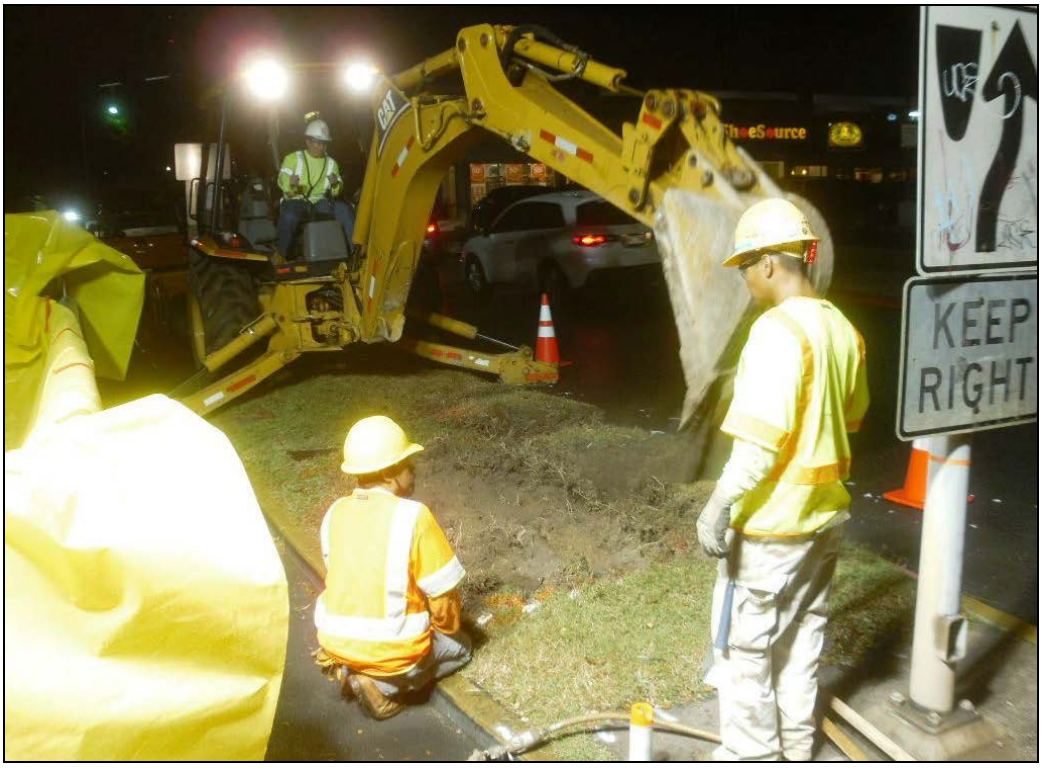
Sample Results: A total of 2 bulk samples were collected from Stratum II between 1.4–1.48 mbs (2.5 L) and from Stratum III 1.85–1.9 mbs (1.5 L). Both samples were wet-screened. The sample from Stratum II contained no material. The sample from Stratum III contained terrestrial snail shells (102.8 g), naturally-occurring, water-rounded marine shell (0.5 g), a wood fragment (0.3 g), *Ruppia maritima* seeds, and coral gravels. The results of the analysis of the bulk sediment sample from Stratum III document the mixed depositional origin of the sediment.

GPR Discussion: A review of amplitude slice maps indicated an anomaly that is a water utility box in the northeastern corner of the excavation. Reflectivity is relatively uniform throughout the grid and decreases with depth except the water utility box. A transition from higher reflectivity to lower reflectivity is observed at approximately 0.25 mbs.

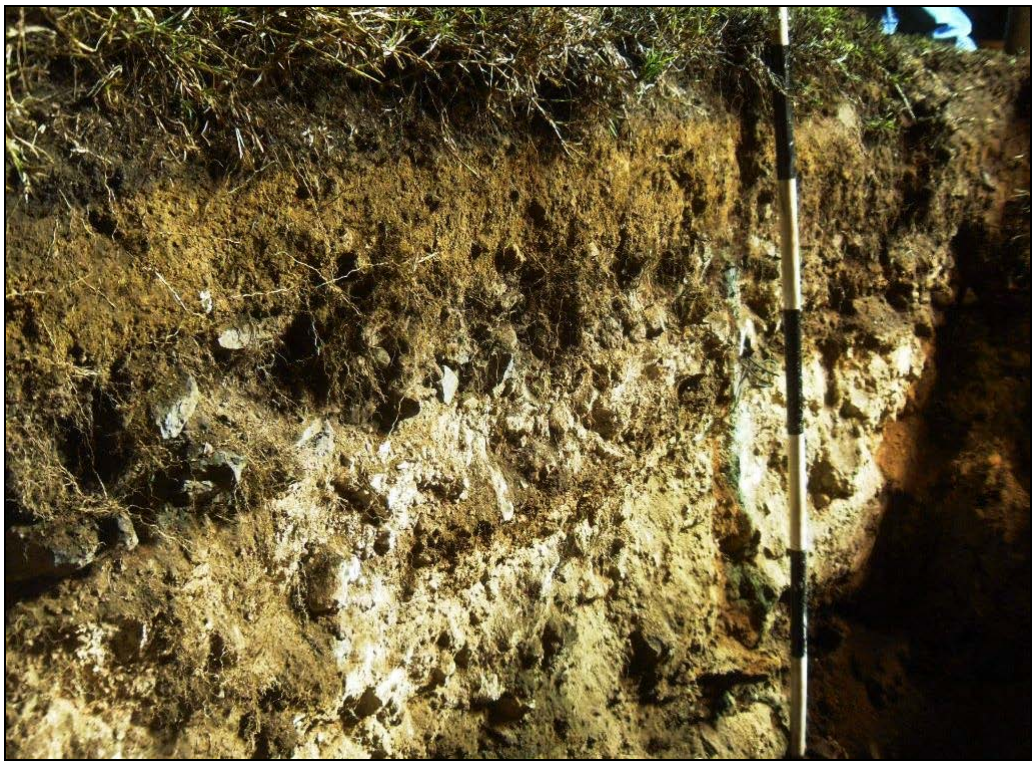
GPR depth profiles for T-198 identify horizontal banding, commonly associated with stratigraphic layering, throughout the survey area. This banding corresponds to variations of density and chemical composition within fill deposits. The profile also indicated a change in reflectivity occurring around 0.1 mbs. Aside from the water utility box, no utilities were observed in the profile. The maximum depth of clean signal return was approximately 1.0 mbs.

Summary: T-198 was excavated to a depth 1.95 mbs, below the water table which was at a depth of 1.86 mbs. The stratigraphy of T-198 consisted of fill strata (Ia–Ie) overlying natural sediments to (II–III) the water table. The stratigraphy generally conformed to the USDA soil survey designation of Fill land. The artifact collected from Stratum II was consistent with post-

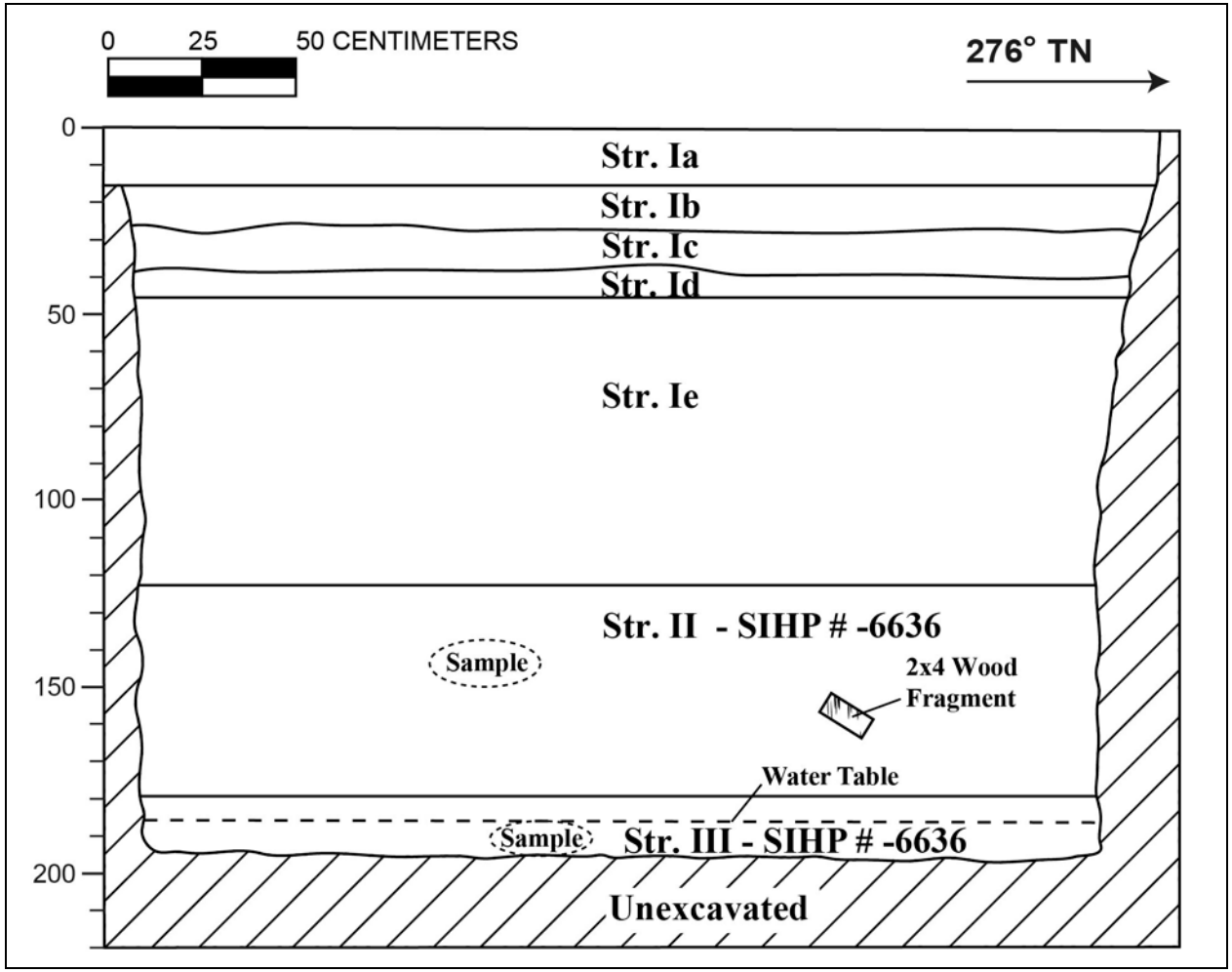
Contact cultural materials within the surrounding area. The results of the analysis of the bulk sediment sample from Stratum III document the mixed depositional origin of the sediment. The natural sediment (II and III) within T-198 was considered to be a component of SIHP #50-80-14-6636, Kewalo wetland sediment (see Volume I for further discussion).



T-198 general location, view to southeast



T-198 south profile wall



T-198 south wall profile

T-198 Stratigraphic Description

Stratum	Depth (cmbs)	Description
Ia	0–15	Fill; 10 YR 3/2 (very dark gray brown); silty loam; structureless, single-grain; dry, loose consistency; non-plastic; terrigenous; abrupt, smooth lower boundary; common, very fine to fine roots; modern sod
Ib	15–26	Fill; 10 YR 7/4 (very pale brown); silty loam; structureless, single-grain; dry, loose consistency; non-plastic, terrigenous; abrupt, wavy lower boundary; few, very fine roots; imported fill event
Ic	26–39	Fill; 5 YR 5/1 (gray); gravel; structureless, single-grain; dry, loose consistence; non-plastic; terrigenous; abrupt, wavy lower boundary; imported fill event
Id	34–45	Fill; 10 YR 8/6 (yellow); very gravelly sand; structureless, single-grain; dry, loose consistency; non-plastic; marine origin; abrupt, smooth lower boundary; crushed coral fill
Ie	45–124	Fill; 10 YR 6/6 (brownish yellow); very gravely sand; structureless, single-grain; dry, loose consistency; non-plastic; marine origin; abrupt lower boundary; crushed coral
II	124–180	Natural (A-horizon); 10 YR 3/3 (dark brown); clay loam; slightly plastic; terrigenous origin; abrupt, smooth lower boundary; contained 2 x 4 wood (milled), tile flooring fragment; component of SIHP # -6636
III	180–195	Natural, 10 YR 6/1 (gray); sandy clay; structureless, massive; wet, slightly sticky consistency; slightly plastic; mixed origin; lower boundary not visible; natural sediment; component of SIHP # -6636

3.8 Test Excavation 199 (T-199)

***Ahupua‘a*:**	Waikīkī
LCA:	101 FL: 1
TMK #:	2-3-038:006
Elevation Above Sea Level:	2.38 m
UTM:	619702 mE, 2355081 mN
Max Length/Width/Depth:	7.3 m / 0.76 m / 1.63 mbs
Orientation:	298 / 118° TN
Targeted Project Component:	Utility Relocation
USDA Soil Designation:	Fill land (FL)

Setting: Test Excavation 199 (T-199) was located in the middle of Kona Street, approximately 50 m southeast of the intersection of Kona and Pi‘ikoi Street. T-199 was located on property owned by General Growth Properties Ala Moana LLC, 5.5 m south of a water line and 2.4 m south of a storm drain. The surrounding topography was level.

Summary of Background Research and Land Use: Baldwin’s 1883 Honolulu Water Works map located T-199 approximately 400 m north of the coastline. S. E. Bishop’s map of the Kewalo area of Honolulu (1884) indicated that T-199 was located within the southern corner of LCA 101 F.L: 1, awarded to Kalua‘ōkū, which was comprised of fort lands, two ponds, and three *ki‘o pua*. The award was immediately north of Lot Kamehameha’s Grant 2790, comprised of marshlands. Sheridan Street was located approximately 70 m west of T-199, according to S.E. Bishop’s 1884 map of Honolulu. W. A. Wall’s 1887 map of Honolulu indicated agricultural development to the north and east of T-199, while the immediate surrounding area remained marshlands. According to the 1919 U.S. Army War Department map, the vicinity of T-199 had undergone moderate urban development since 1887. The 1933 U.S. Army War Department map of Honolulu indicated that the entire area that surrounded T-199 had been marked with a grid pattern for planned urban development and the shoreline had been extended to approximately 580 m south of T-199. The 1939–41 U.S. Army Air Corps aerials and the 1943 U.S. Army War Department map indicated continued urban development in the area. The 1952 University of Hawai‘i SOEST aerials from Kaka‘ako to Waikīkī indicated, along with heavy urban development, what appeared to be the initial construction phase of the Ala Moana Shopping Center to the south of T-199. According to the 1953 U.S. Army Mapping Service map of Honolulu, the entire area had undergone heavy urban development by that time.

Previous archaeology of the area surrounding T-199 included several studies. In 1989, directly north of T-199, a human bone fragment (SIHP #50-80-14-04243) was found inadvertently in a construction site on the southeast corner of Kapi‘olani Boulevard and Pi‘ikoi Street (Smith 1989). A 2006 archaeological monitoring project of road resurfacing on Pi‘ikoi Street (50 m west of T-199) yielded no cultural materials, but continued monitoring in the area was recommended due to the high potential for encountering archaeological material and human burials in the general vicinity (Esh and Hammatt 2006). In 2012, an archaeological inventory survey was conducted 85 m to the west of T-199 along Kona Street and documented one historic property

(SIHP #50-80-14-6636) that consisted of buried Kewalo wetland deposits (Runyon et al. 2012). This same historic property was also located south of T-199. At the time of this report, an archaeological inventory study documented one historic property (SIHP #50-80-14-6636) that consisted of buried Kewalo wetland deposits (Morriss et al. 2013; *Draft*).

Documentation Limitations: T-199 was excavated to the coral shelf at a depth of 1.63 mbs and beneath the water table at 1.60 mbs.

Stratigraphic Summary: The stratigraphy of T-199 was comprised of fill overlying natural sediment. Observed stratigraphy included asphalt (Ia), sandy clay loam (Ib), crushed coral fill (Ic), sandy clay loam (Id), crushed coral fill (Ie), extremely gravelly cobbly silty sand (If), natural pond sediment (II). Stratum II of T-199 contained organics and fresh water snail shells, and may be related to the subsurface Kewalo wetland sediments (SIHP #50-80-14-6636). The stratigraphy generally conformed to the USDA soil survey designation of Fill land.

Artifact Discussion: No artifacts were observed.

Feature Discussion: No features were observed.

Terrestrial Faunal Remains Collected During Excavation: No terrestrial faunal remains were collected individually during excavation.

Sample Results: One bulk sample was collected from Stratum II at 1.5–1.6 mbs. The bulk sample was wet-screened. The sample contained charcoal (0.1 g), terrestrial snail shells (168.5 g), bivalves and limpets (1.4 g), wood pieces (1.6 g), fish remains (0.1 g), medium mammal fragments (0.1 g), and coral gravel. The results of sample analysis documented the mixed depositional origin of Stratum II.

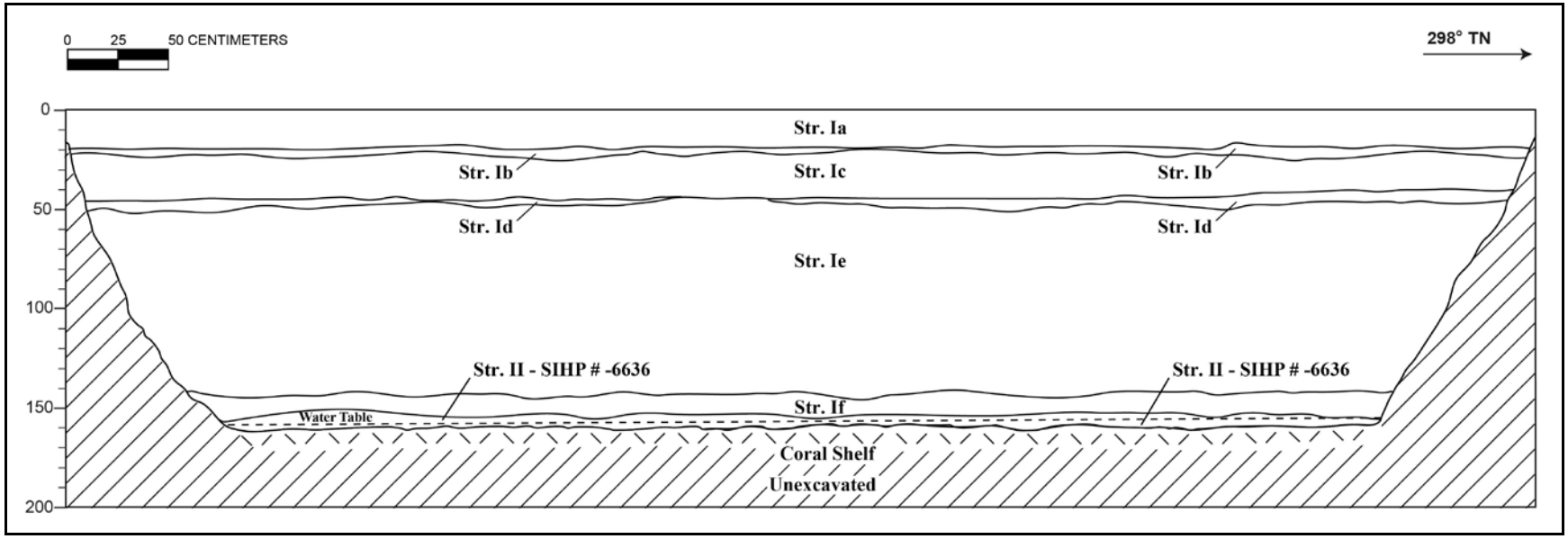
GPR Discussion: A review of amplitude slice maps indicated no linear features that might indicated the presence of utilities. Reflectivity is relatively uniform throughout the grid and decreases with depth. A transition from higher reflectivity to lower reflectivity is observed at approximately 0.75 mbs.

GPR depth profiles for T-199 identify horizontal banding, commonly associated with stratigraphic layering, throughout the survey area. This banding corresponds to variations of density and chemical composition within fill deposits. The profile also indicated a change in reflectivity occurring around 0.15 mbs. No utilities were observed in the profile. The maximum depth of clean signal return was approximately 1.25 mbs.

Summary: T-199 was excavated to the coral shelf at a depth of 1.63 mbs and beneath the water table at 1.60 mbs. The stratigraphy of T-199 was comprised of fill (Ia-If) overlying natural sediment (II). The stratigraphy generally conformed to the USDA soil survey designation of Fill land. One bulk sample was collected from Stratum II at 1.5–1.6 mbs. The results of sample analysis documented the mixed depositional origin of Stratum II. The natural sediment (II) within T-199 has been designated as a component of SIHP# 50-80-14-6636, Kewalo wetlands sediment (see Volume I).

T-199 general location (view to northeast)

T-199 southwest wall profile



T-199 southwest wall profile

T-199 Stratigraphic Description

Stratum	Depth (cmbs)	Description
Ia	0–20	Asphalt
Ib	20–25	Fill; 10 YR 3/4 (dark yellowish brown); sandy loam; weak, fine, crumb structure; moist, friable consistency; slightly plastic; mixed origin; abrupt, smooth lower boundary; asphalt cushion
Ic	22–45	Fill; 10 YR 8/1 (white); extremely gravelly sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; abrupt, smooth lower boundary; crushed coral fill
Id	43–50	Fill; 10 YR 3/4 (dark yellowish brown); sandy loam; weak, fine, crumb structure; moist, friable consistency; slightly plastic; mixed origin; abrupt, smooth lower boundary; same material as Ib
Ie	45–145	Fill; 10 YR 5/3 (brown); extremely gravelly sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; abrupt lower boundary; crushed coral fill
If	140–150	Fill; 10 YR 4/2 (dark grayish brown); extremely gravelly, cobbly, silty sand; structureless, structureless, single-grain; wet, non-sticky consistency; non-plastic; marine origin; abrupt, smooth lower boundary
II	150–163	Natural; 10 YR 3/2 (very dark grayish brown); silty clay; weak, fine, blocky structure; wet, sticky consistency; plastic; mixed origin; lower boundary not visible; component of SIHP # -6636 Kewalo wetland sediments

3.9 Test Excavation 200 (T-200)

***Ahupua‘a*:**	Waikīkī
LCA:	N/A
TMK #:	2-3-038:006
Elevation Above Sea Level:	2.0 m
UTM:	619702 mE 2355081 mN
Max Length, Width, Depth:	7.3 m / 0.72 m / 1.76 mbs
Orientation:	208 / 308° TN
Targeted Project Component:	Utility relocation
USDA Soil Designation:	Fill land (FL)

Setting: Test Excavation 200 (T-200) was located within Kona Street, in the northernmost lane of the eastbound lanes of Kona Street, on property owned by General Growth Properties Ala Moana LLC. T-200 was located 8.6 m northwest of a gas utility line, and 11 m northeast of an electrical utility. The Kona Street sidewalk was 0.14 m above T-200, but the road surface immediately surrounding T-200 was level.

Summary of Background Research and Land Use: Baldwin’s 1883 Honolulu Water Works map located T-200 approximately 380 m northeast of the coastline. S. E. Bishop’s map of the Kewalo area of Honolulu (1884) indicated that T-200 was located within Lot Kamehameha’s Grant 2790, which was comprised of marshlands, and immediately southeast of LCA 101:1, which was comprised of fort lands, two ponds, and three *ki‘o pua*. Sheridan Street was located approximately 80 m west of T-200, according to S.E. Bishop’s 1884 map of Honolulu. W. A. Wall’s 1887 map of Honolulu indicated agricultural development to the north and east of T-200, while the immediate surrounding area remained marshlands. According to the 1919 U.S. Army War Department map, the vicinity of T-200 had undergone moderate urban development since 1887. The 1933 U.S. Army War Department map of Honolulu indicated that the entire area that surrounded T-200 had been marked with a grid pattern for planned urban development and the shoreline had been extended to approximately 580 m south of T-200. The 1939–41 U.S. Army Air Corps aerials and the 1943 U.S. Army War Department map indicated continued urban development in the area including Ala Moana Beach Park, 375 m south of T-200. The 1952 University of Hawai‘i SOEST aerials from Kaka‘ako to Waikīkī indicated, along with heavy urban development, what appeared to be the initial construction phase of the Ala Moana Shopping Center to the south of T-200. According to the 1953 U.S. Army Mapping Service map, the entire area had undergone heavy urban development by that time and T-200 was located within present-day Kona Street.

Previous archaeology of the area surrounding T-200 included several studies. In 1989, directly north of T-200, a human bone fragment (SIHP #50-80-14-04243) was found inadvertently in a construction site on the southeast corner of Kapi‘olani Boulevard and Pi‘ikoi Street (Smith 1989). A 2006 archaeological monitoring project of road resurfacing on Pi‘ikoi Street (60 m west of T-200) yielded no cultural materials, but continued monitoring in the area was recommended

due to the high potential for encountering archaeological material and human burials in the general vicinity (Esh and Hammatt 2006). In 2012, an archaeological inventory survey was conducted 95 m to the west of T-200 along Kona Street and documented one historic property (SIHP #50-80-14-6636) that consisted of buried Kewalo wetland deposits (Runyon et al. 2012). This same historic property was also located south of T-200. At the time of this report, an archaeological inventory study documented one historic property (SIHP #50-80-14-6636) that consisted of buried Kewalo wetland deposits (Morriss et al. 2013; *Draft*).

Documentation Limitations: T-200 was excavated to the coral shelf to a depth of 1.76 mbs and beneath the water table at 1.49 mbs. There were no factors that limited documentation.

Stratigraphic Summary: The stratigraphy of T-200 consisted of fill deposits above natural sediments. The observed strata included asphalt (Ia), gravelly sandy loam fill (Ib), gravelly crushed coral fill (Ic), sandy loam fill (Id), gravelly crushed coral fill (Ie), gravelly crushed coral fill (If), natural clay (IIa), and natural sandy clay (IIb). Stratum II of T-200 contained organic materials and fresh water snail shells, and may be related to Kewalo wetland sediments (SIHP #50-80-14-6636). Stratigraphy of T-200 conformed to the USDA soil survey designation of Fill land.

Artifacts Discussion: A total of four artifacts were collected from Stratum IIb, comprised of one mold-blown glass bottle (Acc. #200-A-1, see following photograph), dated ca. 1870s to 1890s, and three milled wood fragments (Acc. #200-A-2). The artifacts collected from Stratum IIb were dated to the late nineteenth century.

Features Discussion: No features were observed.

Terrestrial Faunal Remains Collected During Excavation: Faunal remains collected from Stratum IIb (1.55 mbs) included one *Sus scrofa* (pig) phalanx. The faunal remains collected from Stratum IIb were considered to be food remnants.

Sample Results: A total of three bulk sediment samples were collected from the excavation floor of Stratum IIa at 1.45–1.55 mbs (2.0 L), Stratum IIa/IIb interface at 1.55–1.65 mbs (2.0 L), and Stratum IIb at 1.65–1.73 mbs (2.0 L). All of the bulk sediment samples were wet-screened. The sample from Stratum IIa contained charcoal (0.2 g), terrestrial snail shell (500.0 g), naturally-occurring, water-rounded marine shell (0.9 g), and wood fragments (0.5 g). The sample from the Stratum IIa/IIb interface contained charcoal (1.3 g), terrestrial snail shell (more than 500.0 g), naturally-occurring, water-rounded marine shell (6.0 g), a *kukui* nut shell (2.9 g), wood fragments (4.5 g), and an unidentified fish vertebra (0.1 g). The sample from Stratum IIb contained charcoal (0.1 g), terrestrial snail shell (14.1 g), naturally-occurring, water-rounded marine shell (39.5 g), wood fragments (3.4 g), and unidentified fish scales and spines (0.1 g).

The results of sample analysis documented the mixed depositional origin of the natural sediment within T-200. The presence of abundant terrestrial snail shells within Stratum IIa and near the upper boundary of Stratum IIb, and the presence of small amounts of organic material may represent deposition within a wetland environment.

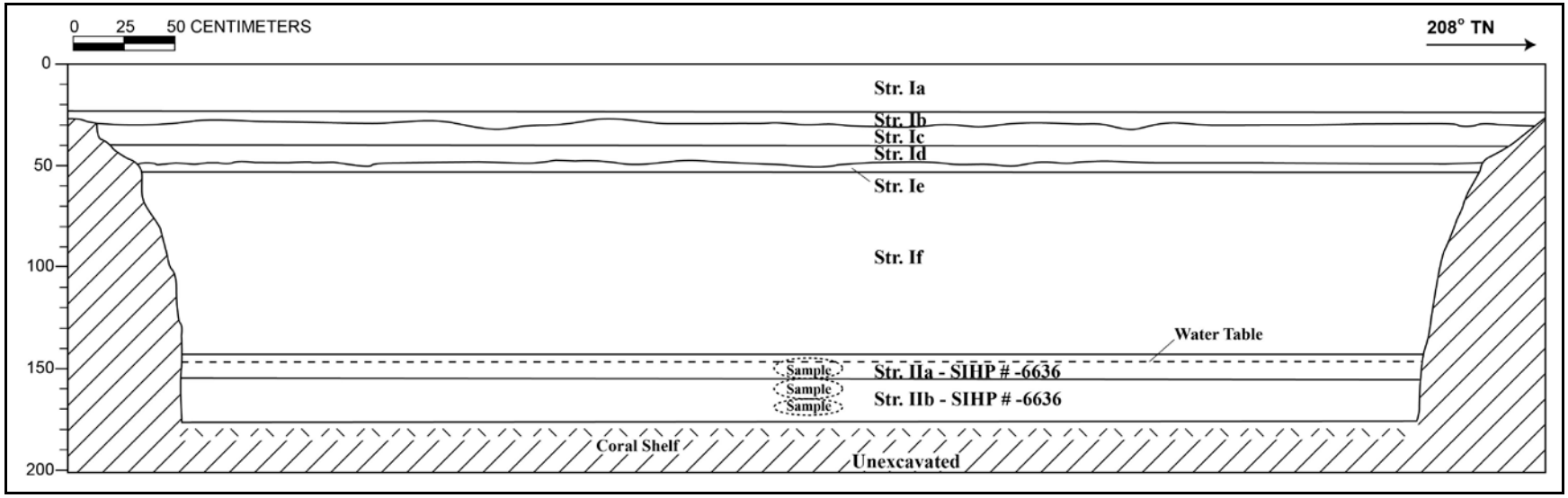
GPR Discussion: A review of amplitude slice maps indicated a linear feature but none were encountered during excavation. Reflectivity was relatively uniform throughout the grid and decreases with depth. A transition from higher reflectivity to lower reflectivity was observed at approximately 0.5 mbs.

GPR depth profiles for T-200 identify 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 0.4 mbs. No utilities were observed in the profile. The maximum depth of clean signal return was approximately 0.9 mbs

Summary: T-200 was excavated to the coral shelf to a depth of 1.76 mbs and beneath the water table at 1.49 mbs. The stratigraphy of T-200 consisted of fill deposits (Ia–If) above natural sediments (IIa-IIb). The stratigraphy conformed to the USDA soil survey designation of Fill land. The artifacts collected from Stratum IIb were consistent with the historic land use research. The faunal remains collected from Stratum IIb were considered to be possible food remnants. Results of sample analysis indicated samples contained material consistent with a former wetland environment. Stratum IIa and IIb of T-200 contained organic materials and fresh water snail shells, and was considered a component of the subsurface Kewalo wetland sediments SIHP #50-80-14-6636 (see Volume I for further discussion of historic properties).

T-200 general location, view to west

T-200 southwest profile wall, view to west



T-200 southwest wall profile.

T-200 Stratigraphic Description

Stratum	Depth (cmbs)	Description
Ia	0–22	Asphalt
Ib	22–30	Fill; 10 YR 3/4 (dark yellowish brown) with common, fine to coarse mottles of 10 YR 8/2 (very pale brown); gravelly sandy loam; structureless, single-grain; moist, very friable consistency; slightly plastic; mixed origin; abrupt, wavy lower boundary; imported fill, 25% coral gravel
Ic	26–39	Fill; 10 YR 8/2 (very pale brown); very gravelly sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; abrupt, smooth lower boundary; imported fill 70% crushed coral gravel
Id	39–50	Fill; 10 YR 3/3 (dark brown); sandy loam; structureless, single-grain; moist, friable consistency; slightly plastic, terrigenous origin, abrupt, wavy lower boundary; few, coarse to very coarse roots; imported fill
Ie	46–53	Fill; 10 YR 8/2 (very pale brown); extremely gravelly sand; structureless, single-grain; moist, loose consistency; non-plastic, marine origin; abrupt, smooth lower boundary; imported fill 80% crushed coral gravel
If	53–142	Fill; 10 YR 6/3 (pale brown); extremely gravelly sand; structureless, single grain; moist, loose consistency; non-plastic; marine origin; abrupt lower boundary; imported fill 85% crushed coral gravel
IIa	142–154	Natural; 10 YR 3/3 (dark brown); clay; structureless, massive; wet, slightly sticky consistency; slightly plastic; terrigenous origin; contained wood pieces, marine and freshwater shell; natural sediment related to marsh/wetlands; component of SIHP # -6636, Kewalo wetland sediments
IIb	154–176	Natural; 10 YR 4/1 (dark gray); sandy clay; structureless, massive; wet, sticky consistency; plastic, terrigenous origin; lower boundary not visible; contained wood pieces, marine and freshwater shell, charcoal, *kukui* nut shell, intact clear glass bottle; pig phalanx; natural sediment related to marsh/wetland; component of SIHP # -6636, Kewalo wetland sediments

T-200 aqua spirits bottle (Acc. #200-A-1) collected from Stratum IIb

3.10 Test Excavation 201 (T-201)

***Ahupua‘a*:**	Waikīkī
LCA:	N/A
TMK#:	2-3-038: 006
Elevation Above Sea Level:	2.10 m
UTM:	619719.91 mE, 2355069.66 mN
Max Length/Width/Depth:	4.10 m / 1.00 m / 1.95 mbs
Orientation:	124 / 304° TN
Targeted Project Component:	Guideway Column
USDA Soil Designation:	Fill land (FL)

Setting: Test Excavation 201 (T-201) was located on Kona Street on the south sidewalk approximately 1.5 m north of the Ala Moana parking structure, on property privately owned by General Growth Properties Ala Moana LLC. T-201 was located 12 m south of a drain utility line.

Summary of Background Research and Land Use: Baldwin's 1883 Honolulu Water Works map located T-201 approximately 370 m northeast of the coastline. S. E. Bishop's map of the Kewalo area of Honolulu (1884) indicated that T-201 was located within Lot Kamehameha's Grant 2790, which was comprised of marshlands, and immediately southeast of LCA 101:1, which was comprised of fort lands, two ponds, and three *ki‘o pua*. Sheridan Street was located approximately 80 m west of T-201, according to S.E. Bishop's 1884 map of Honolulu. W. A. Wall's 1887 map of Honolulu indicated agricultural development to the north and east of T-201, while the immediate surrounding area remained marshlands. According to the 1919 U.S. Army War Department map, the vicinity of T-201 had undergone moderate urban development since 1887. The 1933 U.S. Army War Department map of Honolulu indicated that the entire area that surrounded T-201 had been marked with a grid pattern for planned urban development and the shoreline had been extended to approximately 600 m south of T-201. The 1939–41 U.S. Army Air Corps aerials and the 1943 U.S. Army War Department map indicated continued urban development in the area including Ala Moana Beach Park, 475 m south of T-201. The 1952 University of Hawai‘i SOEST aerials from Kaka‘ako to Waikīkī indicated, along with heavy urban development, what appeared to be the initial construction phase of the Ala Moana Shopping Center to the south of T-201. According to the 1953 U.S. Army Mapping Service map, the entire area had undergone heavy urban development by that time and T-201 was located within present-day Kona Street.

Previous archaeology of the area surrounding T-201 included several studies. In 1989, directly north of T-201, a human bone fragment (SIHP #50-80-14-04243) was found inadvertently in a construction site on the southeast corner of Kapi‘olani Boulevard and Pi‘ikoi Street (Smith 1989). A 2006 archaeological monitoring project of road resurfacing on Pi‘ikoi Street (60 m west of T-201) yielded no cultural materials, but continued monitoring in the area was recommended due to the high potential for encountering archaeological material and human burials in the general vicinity (Esh and Hammatt 2006). In 2012, an archaeological inventory survey was

conducted 95 m to the west of T-201 along Kona Street and documented one historic property (SIHP #50-80-14-6636) that consisted of buried Kewalo wetland deposits (Runyon et al. 2012). This same historic property was also located south of T-201. At the time of this report, an archaeological inventory study documented one historic property (SIHP #50-80-14-6636) that consisted of buried Kewalo wetland deposits (Morriss et al. 2013; *Draft*).

Documentation Limitations: T-201 was excavated to a depth of 1.95 mbs and beneath the water table at 1.72 mbs.

Stratigraphic Summary: The stratigraphy of T-201 consisted of fill to beneath the water table. The observed strata included concrete (Ia), crushed coral sand (Ib), asphalt (Ic), cobbly base course (Id), sandy loam (Ie), cobbly crushed coral sand (If), sandy loam (Ig), gravelly crushed coral sand (Ih), and cobbly crushed coral sand (Ii). The stratigraphy conformed to the USDA soil survey designation of Fill land.

Artifacts Discussion: No artifacts were observed.

Features Discussion: No features were observed.

Terrestrial Faunal Remains Collected During Excavation: No terrestrial faunal remains were collected individually during excavation.

Sample Results: No sample analysis was conducted for this sample.

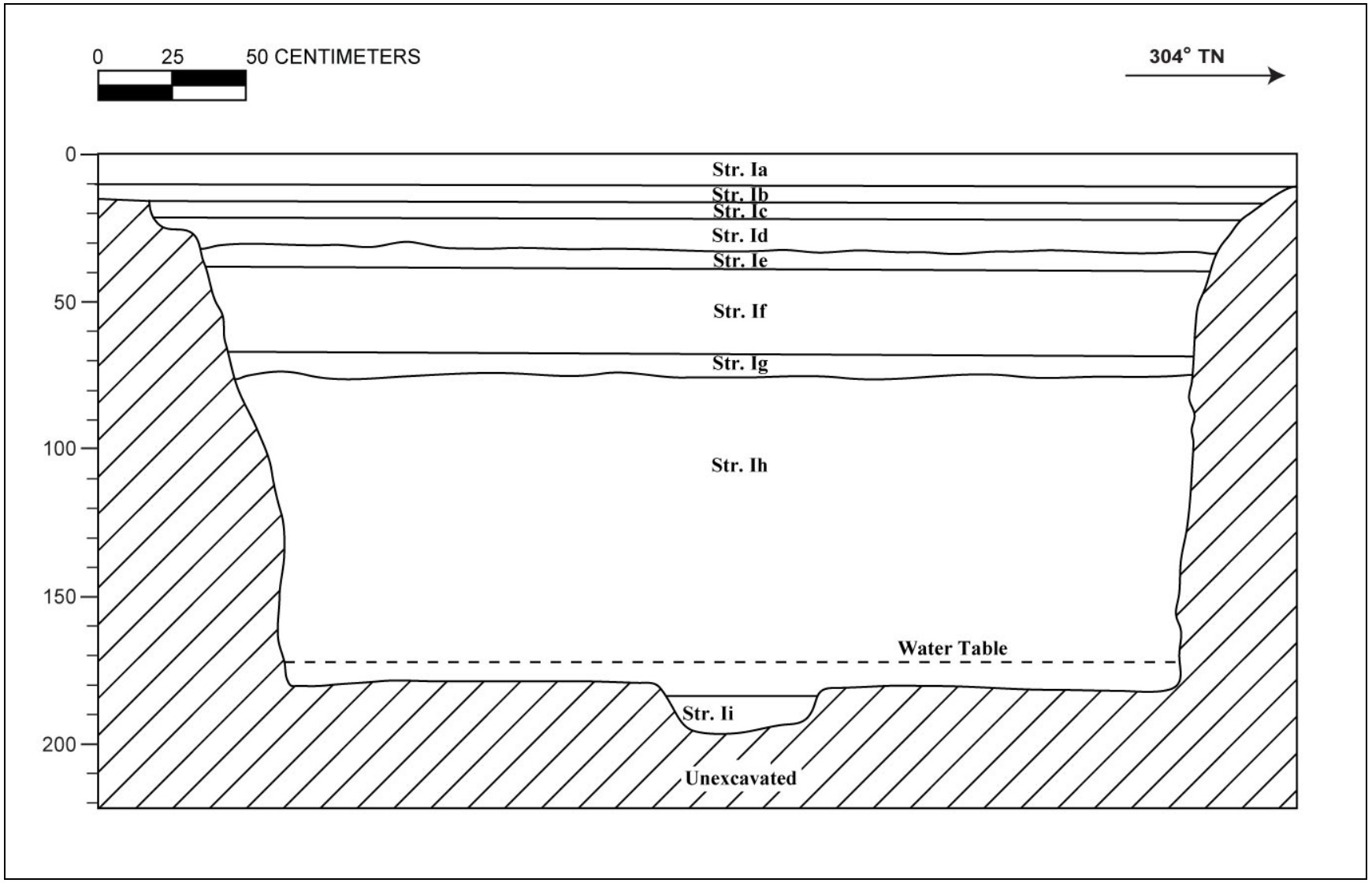
GPR Discussion: A review of amplitude slice maps indicated a linear feature but none were encountered during excavation. Reflectivity was relatively uniform throughout the grid and decreased with depth except for the linear feature. A transition from higher reflectivity to lower reflectivity was observed at approximately 0.5 mbs.

GPR depth profiled for T-201 identify 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 0.35 mbs. No utilities were observed in the profile. The maximum depth of clean signal return was approximately 1.0 mbs.

Summary: T-201 was excavated to a depth of 1.95 mbs and beneath the water table at 1.72 mbs. The stratigraphy of T-201 consisted of fill (Ia to Ii) to beneath the water table. The stratigraphy conformed to the USDA soil survey designation of Fill land. No cultural materials were identified within T-201.

T-201 general location, view to west

T-201 southwest profile wall, view to west



T-201 southwest profile wall

T-201 Stratigraphic Description

Stratum	Depth (cmbs)	Description
Ia	0–11	Concrete; sidewalk asphalt/concrete layer
Ib	11–15	Fill; 10 YR 7/6 (yellow); very gravelly sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; abrupt, smooth lower boundary; crushed coral
Ic	15–23	Fill; 10 YR 2/1 (black); asphalt; abrupt, smooth lower boundary; asphalt layer beneath sidewalk
Id	23–34	Fill; 10 YR 4/1 (dark gray); very cobbly loam; structureless, single-grain; moist, loose consistency; non-plastic; terrigenous origin; abrupt, wavy lower boundary; base course
Ie	34–39	Fill; 10 YR 4/4 (dark yellowish brown) with few mottles of 10 YR 7/6 (yellow); gravelly sandy loam; structureless, single-grain; moist, loose consistency; non-plastic; mixed origin; abrupt, smooth lower boundary; few, fine, medium roots; fill
If	39–67	Fill; 10 YR 8/3 (very pale brown); extremely cobbly sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; abrupt, smooth lower boundary; crushed coral fill
Ig	67–76	Fill; 7.5 YR 3/3 (dark brown) with few mottles of 10 YR 8/3 (very pale brown); sandy loam; fine; structureless, single-grain; moist, loose consistency; non-plastic; mixed origin; abrupt, wavy lower boundary; Imported fill
Ih	76–186	Fill; 10 YR 6/3 (pale brown); extremely gravelly sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; abrupt, smooth lower boundary; imported fill of crushed coral gravel
Ii	186–195	Fill; 10 YR 7/1 (light gray); very cobbly gravelly sand; structureless, single-grain; wet, non-sticky consistency; non-plastic; marine origin; lower boundary not visible; crushed coral sand

3.11 Test Excavation 202 (T-202)

***Ahupua‘a*:**	Waikīkī
LCA:	N/A
TMK#:	2-3-038: 006
Elevation Above Sea Level:	1.85 m
UTM:	619763.72263E 2355051.56739N
Max Length/Width/Depth:	6 m / 0.90 m / 2.1 mbs
Orientation:	108 / 288° TN
Targeted Project Component:	Utility relocation
USDA Soil Designation:	Fill land (FL)

Setting: Test Excavation 202 (T-202) was located in the eastbound lanes of Kona Street approximately 12.0 m north of Kona Street entrance to Ala Moana Shopping Center. T-202 was located on private property. A water line was located 6.7 m to the north. The surrounding topography was level.

Summary of Background Research and Land Use: Baldwin’s 1883 Honolulu Water Works map located T-202 approximately 350 m north of the coastline. S. E. Bishop’s map of the Kewalo area of Honolulu (1884) indicated that T-202 was located within Lot Kamehameha’s Grant 2790, which was comprised of marshlands, and south of LCA 100 FL:2 comprised of fort lands, two ponds, five *ki‘o pua*, one taro *lo‘i*, one house lot, and one kula pasture. Sheridan Street was located approximately 80 m west of T-202, according to S.E. Bishop’s 1884 map of Honolulu. W. A. Wall’s 1887 map of Honolulu indicated agricultural development to the north and east of T-202, while the immediate surrounding area remained marshlands. According to the 1919 U.S. Army War Department map, the vicinity of T-202 had undergone moderate urban development since 1887. The 1933 U.S. Army War Department map of Honolulu indicated that the entire area that surrounded T-202 had been marked with a grid pattern for planned urban development and the shoreline had been extended to approximately 600 m south of T-202. The 1939–41 U.S. Army Air Corps aerials and the 1943 U.S. Army War Department map indicated continued urban development in the area including Ala Moana Beach Park, 375 m south of T-202. The 1952 University of Hawai‘i SOEST aerials from Kaka‘ako to Waikīkī indicated, along with heavy urban development, what appeared to be the initial construction phase of the Ala Moana Shopping Center to the south of T-202. According to the 1953 U.S. Army Mapping Service map, the entire area had undergone heavy urban development by that time and T-202 was located adjacent to present-day Kona Street.

Previous archaeology of the area surrounding T-202 included several studies. In 1989, approximately 20 m north of T-202, a human bone fragment (SIHP #50-80-14-04243) was found inadvertently in a construction site on the southeast corner of Kapi‘olani Boulevard and Pi‘ikoi Street (Smith 1989). A 2006 archaeological monitoring project of road resurfacing on Pi‘ikoi Street (100 m west of T-202) yielded no cultural materials, but continued monitoring in the area was recommended due to the high potential for encountering archaeological material and human

burials in the general vicinity (Esh and Hammatt 2006). In 2012, an archaeological inventory survey was conducted 135 m to the west of T-202 along Kona Street and documented one historic property (SIHP #50-80-14-6636) that consisted of buried Kewalo wetland deposits (Runyon et al. 2012). This same historic property was also located south of T-202. At the time of this report, an archaeological inventory study documented one historic property (SIHP #50-80-14-6636) that consisted of buried Kewalo wetland deposits (Morriss et al. 2013; *Draft*).

Documentation Limitations: T-202 was excavated to the coral shelf at a depth of 2.10 mbs and beneath the water table at 1.67 mbs. There were no factors that limited the documentation of T-202.

Stratigraphic Summary: The stratigraphy of T-202 consisted of multiple layers of fill overlaying natural sediment. The observed strata included concrete (Ia), gravelly sandy clay loam fill (Ib), crushed coral fill (Ic), a second layer of crushed coral fill (Id), locally procured sandy clay fill material (Ie), extremely gravely silty sand fill associated with privy construction (If), and natural silty clay sediment (II). Stratum If was considered to be unconsolidated marine and coral reef material that was excavated from within the historic privy (SIHP# 50-80-14-7430) and redeposited around the exterior of the privy structure in an effort to stabilize the privy sidewalls. Stratum II was considered to be natural Kewalo wetlands sediment, which has been designated SIHP #50-80-14-6636. The stratigraphy generally conformed to the USDA soil survey designation of Fill land.

Artifacts Discussion: Thirty-two (32) historic artifacts (Acc. #202-A-1 to A-27, see following table and photographs) related to the privy site (SIHP #50-80-14-7430) were collected for relative dating information. Four (4) ceramic fragments from two vessels, one Asian and one English (1840–1910), were recovered. Eleven (11) bottle/bottle fragments from ten bottles, all mold-blown and dated to between the 1870s and 1920s, were collected. Seventeen (17) metal fragments and milled wood fragments were also collected. One machine-headed cut nail, dating from ca. 1835–1890 was extracted from one fragment of the privy wood. Artifacts collected from the privy are consistent with a mid-to late nineteenth century date.

Features Discussion: No features were observed.

Terrestrial Faunal Remains Collected During Excavation: No terrestrial faunal remains were individually collected during excavation.

Sample Results: Two bulk sediment samples were collected from Stratum If at 1.36 –1.50 mbs and Stratum II at 1.20–1.70 mbs (2 L). The bulk samples were wet-screened. The sample from Stratum If contained charcoal (0.1g), naturally-occurring, water-rounded marine shell (11.4g), wood (0.1g), *Ruppia maritima* seeds (0.1g), fish remains (0.1g), and unidentified medium mammal remains (0.2g). Sample analysis of the bulk sample from Stratum II identified charcoal (0.2g) and naturally deposited shell (6.2g). Sample analysis documented the mixed depositional origin of Stratum If and the sparse contents of Stratum II.

GPR Discussion: A review of amplitude slice maps indicated a linear but not within excavation boundaries. Reflectivity is relatively uniform throughout the grid and decreases with depth except the linear feature. A transition from higher reflectivity to lower reflectivity is observed at approximately 0.5 mbs.

GPR depth profiles for T-202 identify horizontal banding, commonly associated with stratigraphic layering, throughout the survey area. This banding corresponds 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 is observed in the profile but is not within excavation boundaries. The maximum depth of clean signal return was approximately 1.0 mbs.

Summary: T-202 was excavated to the coral shelf at a depth of 2.10 mbs and beneath the water table at 1.67 mbs. The stratigraphy of T-202 consisted of multiple layers of fill (Ia–If) overlaying natural sediment (II). The stratigraphy generally conformed to the USDA soil survey designation of Fill land. Two bulk sediment samples were collected from Stratum If at 1.36 –1.50 mbs and Stratum II at 1.20–1.70 mbs (2 L). Sample analysis documented the mixed depositional origin of Stratum If and the sparse contents of Stratum II. An historic privy (SIHP# -7430) was identified within T-202, which included an outer structure filled with numerous historic artifacts. Stratum If was considered to be unconsolidated marine and coral reef material that was excavated from within the historic privy (SIHP# -7430) and redeposited around the exterior of the privy structure in an effort to stabilize the privy sidewalls. Stratum II was considered to be natural Kewalo wetlands sediment, which has been designated SIHP #-6636. A complete description of the historic privy (SIHP# -7430) and the Kewalo wetlands sediment (SIHP# -6636) is provided in Volume I.

General view of T-202 with parking structure at Ala Moana Center in background, view to south

General view of T-202 with parking structure at Ala Moana Center in background, view to southwest

General view of CSH staff entering T-202 at approximately 90 cmbs to probe base of excavation for sediment transition, view to east

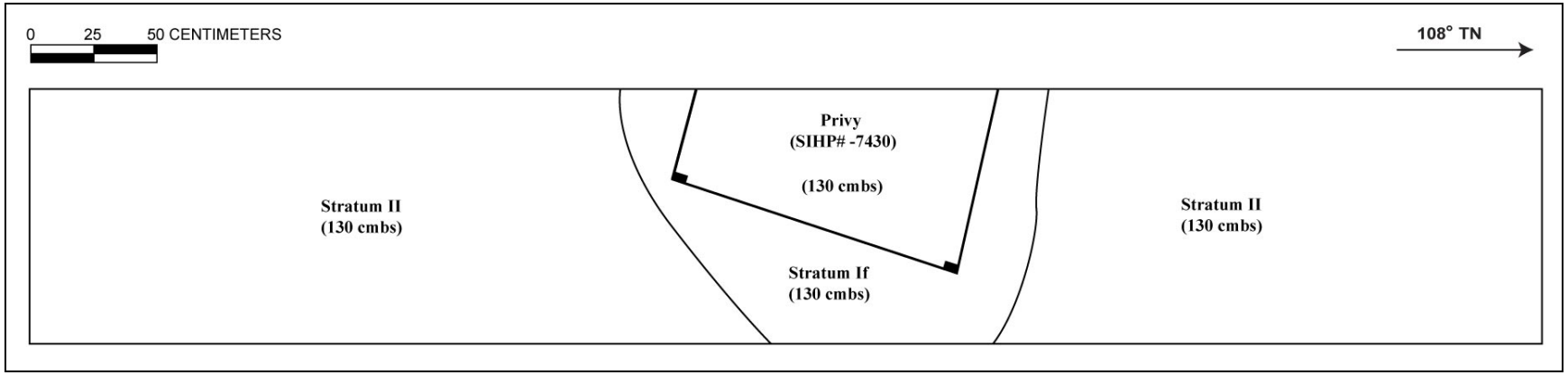
Plan view of (SIHP #50-80-14-7430) privy outline and coral gravel fill along its edges in T-202 (Stratum If)

Plan view of (SIHP #50-80-14-7430) post excavation in T-202

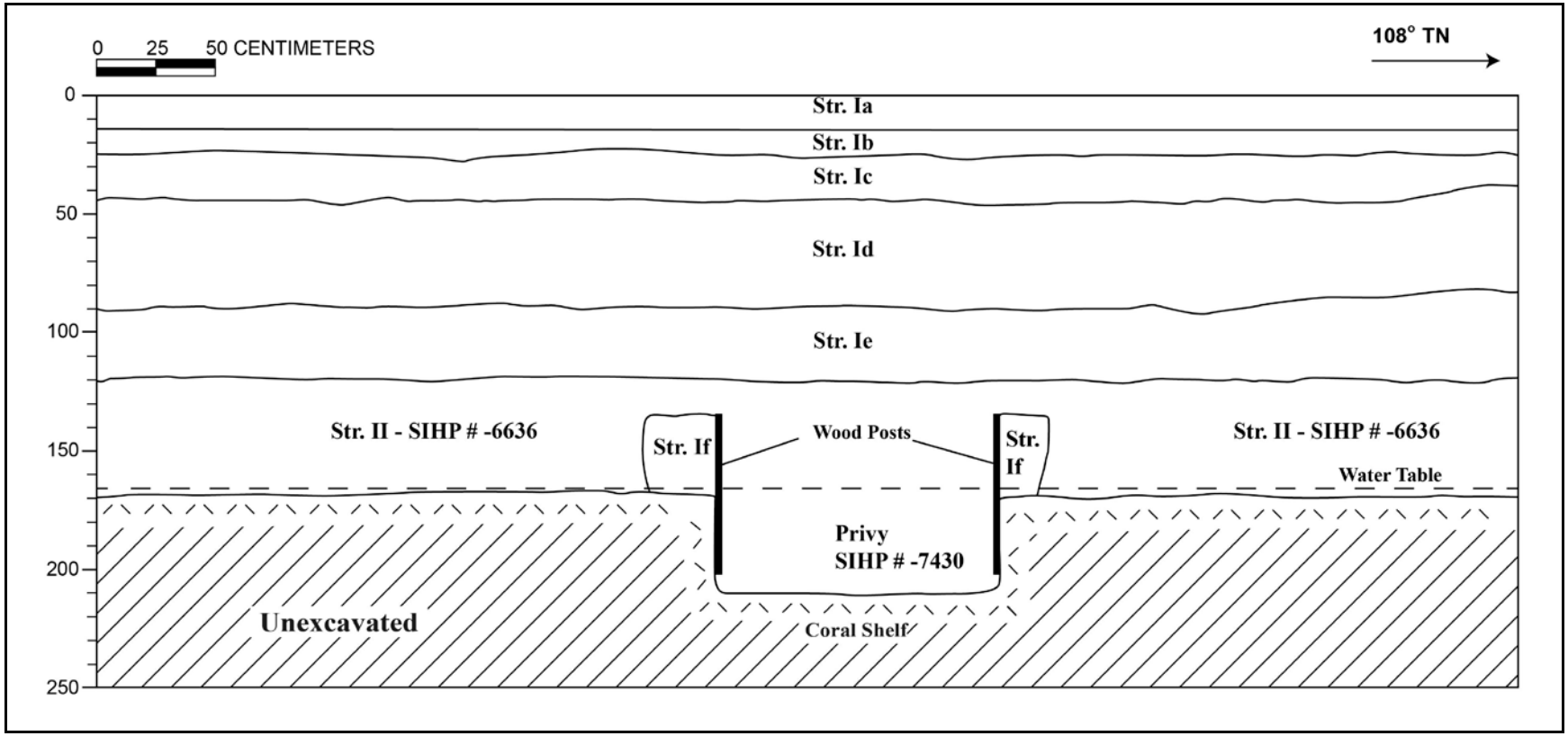
Profile view of T-202, post excavation, north wall, view to northwest

Profile view of T-202, post excavation, north wall, view to northeast

Profile view of T-202, post excavation, south wall, view to southeast



T-202 plan view showing SIHP# -7430, an historic privy



T-202 north wall profile

T-202 Stratigraphic Description

Stratum	Depth (cmbs)	Description
Ia	0 –15	Concrete curb and gutter
Ib	15–25	Fill; 10 YR 4/4 (dark yellowish brown) with 20%, fine to coarse mottles of 10YR 8/1 (white); gravelly sandy clay loam; weak, fine, crumb structure; moist, friable consistency; slightly plastic; mixed origin; abrupt, smooth lower boundary; few, fine roots; gravelly fill material deposited during curb and gutter installation
Ic	25–45	Fill; 10 YR 8/2 (very pale brown); extremely gravelly silty sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; abrupt, smooth lower boundary; crushed coral fill material
Id	45–90	Fill; extremely gravelly silty sand; structureless, single-grain; loose consistency; non-plastic; marine origin; very abrupt, smooth lower boundary; crushed coral fill material
Ie	90–120	Fill; 10 YR 5/4 (yellow brown); sandy clay; weak, medium, blocky structure; moist, friable consistency; plastic; mixed origin; abrupt, smooth lower boundary;
If	135–177	Fill; 10 YR 5/1 (gray); extremely gravelly clay; structureless, single-grain; wet, sticky consistency; plastic; mixed origin; lower boundary not visible; coral fill related to privy construction
II	120-210	Natural; 10 YR 5/1 (gray); silty clay; weak, medium, blocky structure; wet, very sticky consistency; plastic; mixed origin; lower boundary not visible; natural remnant marsh sediment; component of SIHP # -6636, Kewalo wetland sediments

T-202 Artifact Analysis Table (SIHP #50-80-14-7430)

Acc. #202-A-	Provenience	Ceramic Vessel Type	Portion	No.	Paste; Decor	Origin; Age	Comments
1	T-202, SIHP #-7430	Hollowware		2	Ironstone	English; 1840–1910	
2	T-202, SIHP #-7430	Hollowware		1	Porcelain		
3	T-202, SIHP #-7430	Hollowware		1	Porcelain; painted overglaze	Asian	Four Flowers motif
Acc. #202-A-	**Provenience**	**Glass Bottle Type**	**Portion**	**No.**	**Color**	**Origin; Age**	**Comments**
4	T-202, SIHP #-7430	Bottle	Body	2	Amber		
5	T-202, SIHP #-7430	Bottle	Shoulder-lip	1	Aqua	1880s–1920s	Tooled lip
6	T-202, SIHP #-7430	Bottle, Shoe Polish	Complete	1	Clear	American; 1870s–1900	Frank Miller’s Crown Dressing, New York
7	T-202, SIHP #-7430	Bottle, Teeth Cleanser	Complete	1	Clear	American; 1887–1920s	Rubifoam; E. W. Hoyt, Lowell, Mass.
8	T-202, SIHP #-7430	Bottle	Shoulder-lip	1	Clear	1880s–1920s	Tooled lip
9	T-202, SIHP #-7430	Bottle	Body	1	Clear		1870s-post
10	T-202, SIHP #-7430	Bottle, Spirits	Lip	1	Green	1880–1920s	Tooled lip
11	T-202, SIHP #-7430	Bottle, Beverage	Base-body	1	Olive	pre-1920	No seams, push-up base
12	T-202, SIHP #-7430	Bottle, Beverage	Base	1	Olive	pre-1920	No seams, push-up base
13	T-202, SIHP #-7430	Bottle, Spirits	Complete	1	Olive, Dark	1880s–1920s	No seams, push-up base
Acc. #202-A-	**Provenience**	**Miscellaneous Type**	**Portion**	**No.**	**Material**	**Origin; Age**	**Description**
14	T-202, SIHP #-7430	Milled block	Fragment	1	Wood		
15	T-202, SIHP #-7430	Insulation item?	Fragment	1	Leather		
16	T-202, SIHP #-7430	Building material	Fragment	1	Stone		Mortar on surface
17	T-202, SIHP #-7430	Machine part, ring	Fragment	1	Metal		Recessed interior
18	T-202, SIHP #-7430	Housing box?	Fragment	1	Metal		Thin plates bent into an open box-shape

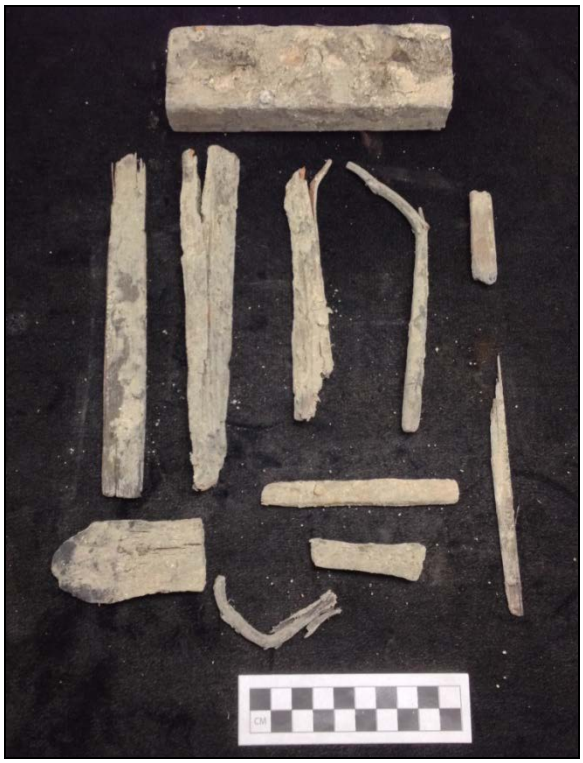
Acc. #202-A-	Provenience	Miscellaneous Type	Portion	No.	Material	Origin; Age	Description
19	T-202, SIHP #-7430	Machine part, rod and wheel	Fragment	1	Metal		Wood at base
20	T-202, SIHP #-7430	Machine part, ring	Fragment	3	Metal		Thin metal
21	T-202, SIHP #-7430	Housing Metal?	Fragment	4	Metal		Thin curved plates
22	T-202, SIHP #-7430	Machine part, wire	Fragment	1	Metal		
23	T-202, SIHP #-7430	Machine part, attachment	Fragment	1	Metal		
24	T-202, SIHP #-7430	Nail	Complete	1	Metal	1835–1890	Machine, headed cut nail from privy wood
25	T-202, SIHP #-7430	Milled planks	Fragment	1	Wood		

T-202 ceramic vessel fragments (Acc. #202-A-1 to A-3) from SIHP #50-80-14-7430

T-202 glass bottles (Acc. #202-A-4 to A-6) collected from SIHP #50-80-14-7430

T-202 glass boot polish bottle (Acc. #202-A-6) embossed “FRANK MILLER’S CROWN DRESSING NEW YORK USA” collected from SIHP #50-80-14-7430

T-202 glass bottle fragments (Acc. #202-A-7 to A-13, shown from left to right and top to bottom) collected from SIHP #50-80-14-7430



T-202 Sample of small metal and wood artifacts (Acc. #202-A-14 to A-17) collected from SIHP #50-80-14-7430

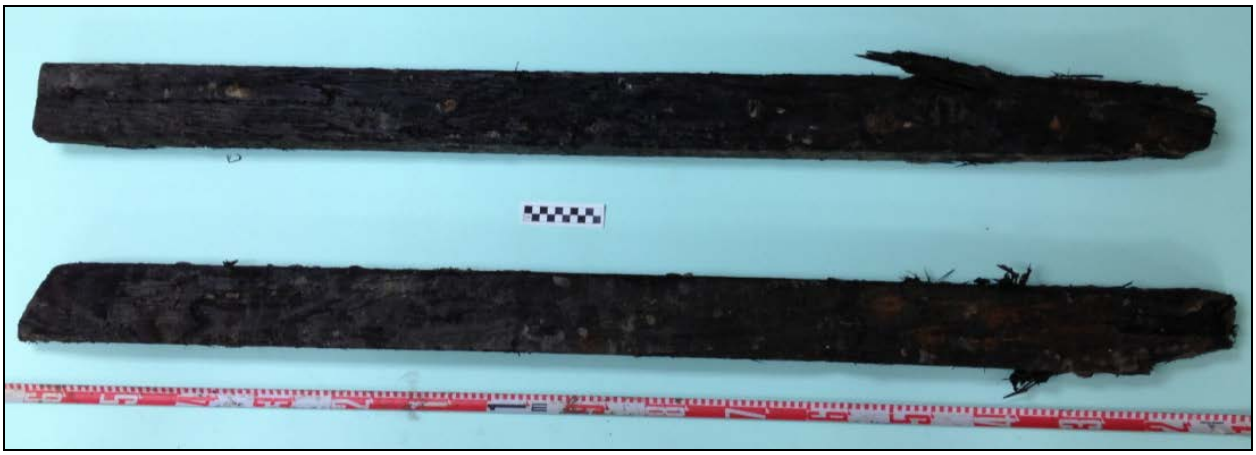
T-202 miscellaneous metal artifacts (Acc. #202-A-18 to A-19) collected from the SIHP #50-80-14-7430

T-202 miscellaneous metal artifacts (Acc. #202-A-19 to A-20) collected from SIHP #50-80-14-7430

T-202 miscellaneous metal artifacts (Acc. #202-A-21 to A-22) collected from SIHP #50-80-14-7430

T-202 metal artifact (Acc. #202-A-23) collected from SIHP #50-80-14-7430

T-202 machine-headed cut nail (Acc. #202-A-24) collected from privy wood



T-202 wood remnants (Acc. #202-A-25) of the privy collected from SIHP #50-80-14-7430

3.12 Test Excavation 202A

***Ahupua‘a*:**	Waikīkī
LCA:	N/A
TMK#:	2-3-038:006
Elevation Above Sea Level:	1.59 m
UTM:	619772.3979 mE, 2355047.285 mN
Max Length/Width/Depth:	6.5 m / 0.70 m / 1.62 mbs
Orientation:	113 / 293° TN
Targeted Project Component:	Utility Relocation
USDA Soil Designation:	Fill land (FL)

Setting: Test Excavation 202A (T-202A) was located in the eastbound lanes of Kona Street, 12 m north of the Ala Moana parking structure. T-202A was excavated on private property owned by General Growth Properties, Ala Moana LLC. T-202A was located 2.5 m south of a water line. The topography of the excavation area was level. T-202A was added to further investigate the vicinity of a historic privy located in T-202 (SIHP # 50-80-14-7430).

Summary of Background Research and Land Use: Baldwin's 1883 Honolulu Water Works map located T-202A approximately 350 m north of the coastline. S. E. Bishop's map of the Kewalo area of Honolulu (1884) indicated that T-202A was located within Lot Kamehameha's Grant 2790, which was comprised of marshlands, and south of LCA 100 FL:2 comprised of fort lands, two ponds, five *ki‘o pua*, one taro *lo‘i*, one house lot, and one kula pasture. Sheridan Street was located approximately 100 m west of T-202A, according to S.E. Bishop's 1884 map of Honolulu. W. A. Wall's 1887 map of Honolulu indicated agricultural development to the north and east of T-202A, while the immediate surrounding area remained marshlands. According to the 1919 U.S. Army War Department map, the vicinity of T-202A had undergone moderate urban development since 1887. The 1933 U.S. Army War Department map of Honolulu indicated that the entire area that surrounded T-202A had been marked with a grid pattern for planned urban development and the shoreline had been extended to approximately 600 m south of T-202A. The 1939–41 U.S. Army Air Corps aerials and the 1943 U.S. Army War Department map indicated continued urban development in the area including Ala Moana Beach Park, 375 m south of T-202A. The 1952 University of Hawai‘i SOEST aerials from Kaka‘ako to Waikīkī indicated, along with heavy urban development, what appeared to be the initial construction phase of the Ala Moana Shopping Center to the south of T-202A. According to the 1953 U.S. Army Mapping Service map, the entire area had undergone heavy urban development by that time and T-202A was located within present-day Kona Street.

Previous archaeology of the area surrounding T-202A included several studies. In 1989, approximately 20 m north of T-202A, a human bone fragment (SIHP #50-80-14-04243) was found inadvertently in a construction site on the southeast corner of Kapi‘olani Boulevard and Pi‘ikoi Street (Smith 1989). A 2006 archaeological monitoring project of road resurfacing on Pi‘ikoi Street (100 m west of T-202A) yielded no cultural materials, but continued monitoring in

the area was recommended due to the high potential for encountering archaeological material and human burials in the general vicinity (Esh and Hammatt 2006). In 2012, an archaeological inventory survey was conducted 135 m to the west of T-202A along Kona Street and documented one historic property (SIHP #50-80-14-6636) that consisted of buried Kewalo wetland deposits (Runyon et al. 2012). This same historic property was also located south of T-202A. At the time of this report, an archaeological inventory study documented one historic property (SIHP #50-80-14-6636) that consisted of buried Kewalo wetland deposits (Morriss et al. 2013; *Draft*).

Documentation Limitations: T-202A was excavated to the coral shelf at a depth of 1.62 mbs and beneath the water table as 1.40 mbs. There were no specific factors limiting the documentation of T-202A.

Stratigraphic Summary: The stratigraphy of T-202A consisted of both fill and natural sediments to the coral shelf. The natural surface (IIa) was observed at 1.2 mbs. The observed strata included asphalt (Ia), base course (Ib), crushed coral fill (Ic), crushed coral fill (Id), sandy loam fill (Ie), and natural sandy clay with marine shells and roots (IIa and IIb). Strata IIa and IIb appeared to be natural marsh sediments associated with the Kewalo wetland sediments (SIHP #50-80-14-6636). A detailed summary of SIHP #50-80-14-6336 is provided in Volume I. The stratigraphy conformed to the USDA soil survey designation of Fill land.

Artifacts Discussion: Twelve historic artifacts were collected from 120-150 cmbs within Stratum Ie (Acc. #202A-A-1 to A-11, see following table and photographs), including one Asian rice bowl, one glass jar fragment, and several miscellaneous items, including a spoon, a bone toothbrush, a glass marble fragment, and wood fragments. One brick (Acc. #202A-A-12, see following table), made between 1886-1918, was collected from Stratum IIa. Artifacts collected from strata Ie and II are consistent with late nineteenth/early twentieth century land use.

Features Discussion: No features were observed.

Terrestrial Faunal Remains Collected During Excavation: Faunal remains were collected from Stratum Ie at 1.20–1.50 mbs. Faunal remains included *Bos taurus* vertebra fragment, fish (large) vertebra, and a medium mammal diaphysis section. The faunal remains collected from Ie were considered to be food remnants.

Sample Results: No sample analysis was conducted.

GPR Discussion: A review of amplitude slice maps indicated linear features but none were encountered during excavation. Reflectivity was relatively uniform throughout the grid and decreases with depth except for the feature in the western corner. A transition from higher reflectivity to lower reflectivity is observed at approximately 0.50 mbs.

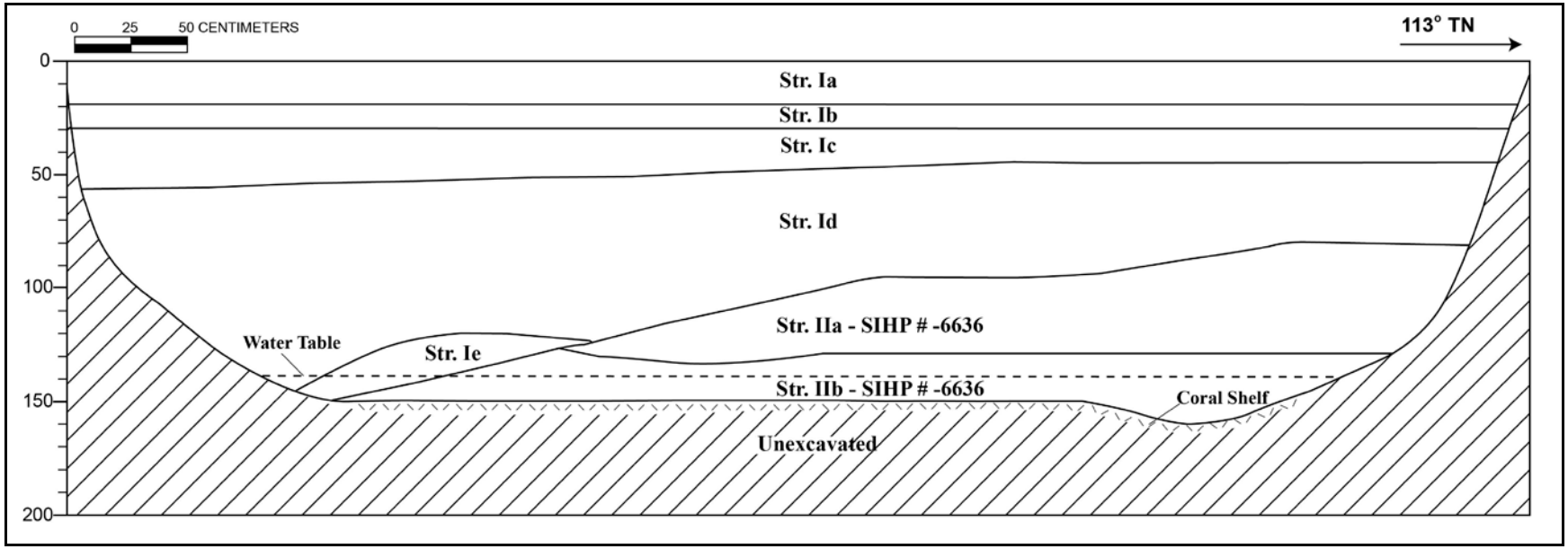
GPR depth profiles for T-202A identify horizontal banding, commonly associated with stratigraphic layering, throughout the survey area. This banding corresponded to variations of density and chemical composition within fill deposits. The profile also indicated a change in reflectivity occurring around 0.35 mbs. No utilities were observed in the profile. The maximum depth of clean signal return was approximately 1.25 mbs.

Summary: T-202A was excavated to the coral shelf at a depth of 1.62 mbs and beneath the water table at 1.40 mbs. The stratigraphy of T-202A consisted of both fill (Ia–Ie) overlying

natural sediments (IIa–IIb) to the coral shelf. The stratigraphy conformed to the USDA soil survey designation of Fill land. Artifacts collected from Stratum Ie are consistent with historic land use. The faunal remains collected from Ie were considered to be food remnants. Strata IIa and IIb was considered a component of the subsurface Kewalo wetland sediments SIHP #50-80-14-6636 (see Volume I for further discussion of historic properties).

T-202A general location, view to east

T-202A south profile wall, view to southwest



T-202A north wall profile

T-202A Stratigraphic Description

Stratum	Depth (cmbs)	Description
Ia	0–20	Asphalt
Ib	20–32	Fill; 5 YR 3/4 (dark reddish brown) with common, medium to coarse mottles of 10 YR 8/4 (very pale brown); gravelly sandy clay; moderate, fine, crumb structure; moist, very friable consistency; slightly plastic; mixed origin; abrupt lower boundary; base course
Ic	30–57	Fill; 5 Y 8/1 (white); extremely gravelly loamy sand; structureless, single-grain; dry, loose consistency; non-plastic; marine origin; clear lower boundary; crushed coral fill
Id	45–145	Fill; 2.5 Y 6/2 (light brownish gray) with few medium to coarse mottles of 10 YR 8/4 (very pale brown); extremely gravelly loamy sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; clear lower boundary
Ie	120–150	Fill; 2.5 Y 3/1 (very dark gray) with common fine mottles of 10 YR 8/4 (very pale brown); sandy loam; structureless, massive; wet, non-sticky consistency; slightly plastic; marine origin; clear, broken/discontinuous lower boundary; wood, marble fragment, tooth brush, ceramic, faunal; sandy loam fill
IIa	80–135	Natural; 10 YR 4/2 (dark grayish brown); sandy clay; structureless, massive; moist, firm consistency; plastic; marine origin; clear, broken/discontinuous lower boundary; few, fine/medium roots; 1 brick, 1 glass fragment; component of SIHP # -6636, Kewalo wetland sediments
IIb	130–162	Natural; 2.5 Y 3/1 (very dark gray); sandy clay, marsh sediment; massive structure; moist, very firm consistency; plastic; clear lower boundary; common, fine roots; sandy clay with shells, organics; component of SIHP # -6636, Kewalo wetland sediments

T-202A Artifact Analysis Table.

Acc. #202A-A-	Provenience	Ceramic Vessel Type	Portion	No.	Paste; Decor.	Origin; Age	Comments
1	T-202A, St. Ie	Hollowware, bowl	Base to rim	1	Porcelain; painted underglaze	Asian	Bamboo Pattern
Acc. #202A-A-	**Provenience**	**Glass Bottle Type**	**Portion**	**No.**	**Color**	**Origin; Age**	**Comments**
2	T-202A, St. Ie	Jar, food	Lip	1	Clear	1870s-post	Wide-mouthed jar
Acc. #202A-A-	**Provenience**	**Miscellaneous Type**	**Portion**	**No.**	**Material**	**Origin; Age**	**Description**
3	T-202A, St. Ie	Cobble	Complete	1	Basalt		No evidence of being worked
4	T-202A, St. Ie	Lumber	Fragment	5	Wood		Five pieces of lumber
5	T-202A, St. Ie	Metal slag	Fragment	1	Metal		
6	T-202A, St. Ie	Spoon	Complete	1	Metal		Rusty; possible copper?
7	T-202A, St. Ie	Toothbrush	Complete	1	Worked bone	Anglo/ American; pre-1930s	19 x 4 and 2 rows of bristles; holes not through
8	T-202A, St. IIa	Brick	Fragment	1		1886–1918	Black color, cinder, machine-made

T-202A porcelain Asian rice bowl-interior (Acc. #202A-A-1) collected from Stratum Ie

T-202A porcelain Asian rice bowl-exterior (Acc. #202A-A-1) collected from Stratum Ie.

3.13 Test Excavation 203 (T-203)

Ahupua‘a:	Waikīkī
LCA:	N/A
TMK #:	2-3-038: 006
Elevation Above Sea Level:	1.82 m
UTM:	619750.5012 mE, 2355048.536 mN
Max Length/Width/Depth:	3.75 m / 1.0 m / 2.0 mbs
Orientation:	119 / 298° TN
Targeted Project Component:	Guideway Column
USDA Soil Designation:	Fill land (FL)

Setting: Test Excavation 203 (T-203) was located in the north sidewalk of Kona Street, 100 m from the intersection of Pi‘ikoi and Kona Street. T-203 was 11 m southwest of a storm drain and 15 m southwest of a water line. T-203 was located on private property owned by General Growth Properties, Ala Moana LLC. The test excavation was level with the surrounding sidewalk surface.

Summary of Background Research and Land Use: Baldwin’s 1883 Honolulu Water Works map located T-203 approximately 350 m north of the coastline. S. E. Bishop’s map of the Kewalo area of Honolulu (1884) indicated that T-203 was located within Lot Kamehameha’s Grant 2790, which was comprised of marshlands, and south of LCA 100 FL:2, comprised of fort lands, two ponds, five *ki‘o pua*, one taro *lo‘i*, one house lot, and one kula pasture. Sheridan Street was located approximately 100 m west of T-203, according to S.E. Bishop’s 1884 map of Honolulu. W. A. Wall’s 1887 map of Honolulu indicated agricultural development to the north and east of T-203, while the immediate surrounding area remained marshlands. According to the 1919 U.S. Army War Department map, the vicinity of T-203 had undergone moderate urban development since 1887. The 1933 U.S. Army War Department map of Honolulu indicated that the entire area that surrounded T-203 had been marked with a grid pattern for planned urban development and the shoreline had been extended to approximately 600 m south of T-203. The 1939–41 U.S. Army Air Corps aerials and the 1943 U.S. Army War Department map indicated continued urban development in the area including Ala Moana Beach Park, 375 m south of T-203. The 1952 University of Hawai‘i SOEST aerials from Kaka‘ako to Waikīkī indicated, along with heavy urban development, what appeared to be the initial construction phase of the Ala Moana Shopping Center to the south of T-203. According to the 1953 U.S. Army Mapping Service map, the entire area had undergone heavy urban development by that time and T-203 was located within present-day Kona Street.

Previous archaeology of the area surrounding T-203 included several studies. In 1989, approximately 30 m north of T-203, a human bone fragment (SIHP #50-80-14-04243) was found inadvertently in a construction site on the southeast corner of Kapi‘olani Boulevard and Pi‘ikoi Street (Smith 1989). A 2006 archaeological monitoring project of road resurfacing on Pi‘ikoi Street (100 m west of T-203) yielded no cultural materials, but continued monitoring in the area

was recommended due to the high potential for encountering archaeological material and human burials in the general vicinity (Esh and Hammatt 2006). In 2012, an archaeological inventory survey was conducted 135 m to the west of T-203 along Kona Street and documented one historic property (SIHP #50-80-14-6636) that consisted of buried Kewalo wetland deposits (Runyon et al. 2012). This same historic property was also located south of T-203. At the time of this report, an archaeological inventory study documented one historic property (SIHP #50-80-14-6636) that consisted of buried Kewalo wetland deposits (Morriss et al. 2013; *Draft*).

Documentation Limitations: T-203 was excavated to the coral shelf at a depth of 2.0 mbs and beneath the water table at 1.86 mbs. There were no factors limiting documentation.

Stratigraphic Summary: The stratigraphy of T-203 consisted of various fill deposits overlaying natural sediment to the coral shelf. Observed strata included concrete (Ia), crushed coral fill (Ib), gravelly fill material (Ic), crushed coral fill (Id), gravelly sandy clay loam (Ie), crushed coral fill (If), and natural silty sand (II). Stratum II appeared to be natural marsh sediments associated with the Kewalo wetland sediments (SIHP #50-80-14-6636). Stratigraphy was consistent with the USDA soil designation of Fill land.

Artifacts Discussion: A glued shoe insole (Acc. #203-A-1), made after 1926, was collected from the backdirt pile associated with Stratum If. The artifact collected from If was consistent with the historic land use for the region in the early twentieth century.

Feature Discussion: No features were observed.

Terrestrial Faunal Remains Collected During Excavation: No terrestrial faunal remains were collected individually during excavation.

Sample Results: No sample analysis was conducted.

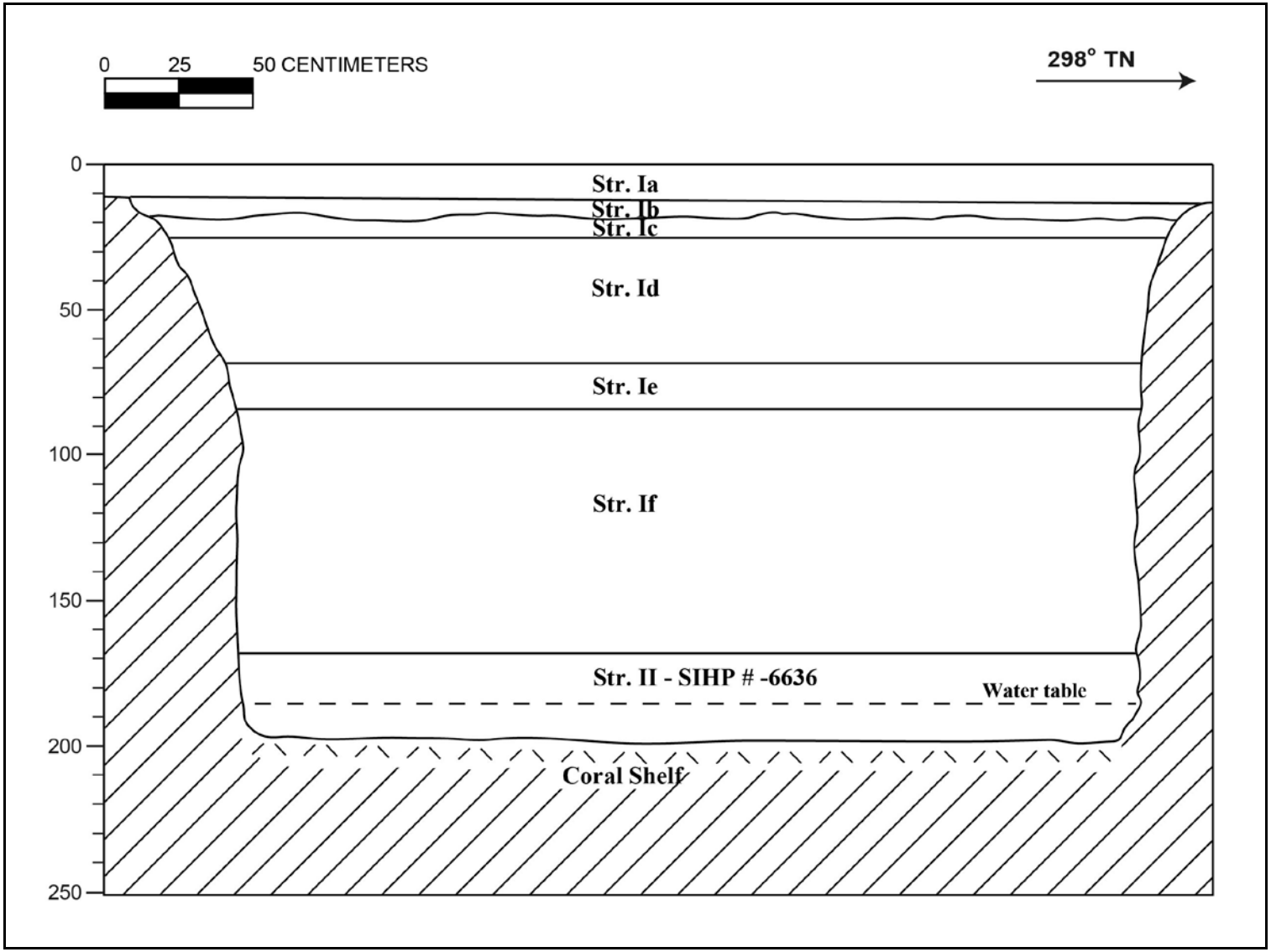
GPR Discussion: A review of amplitude slice maps indicated no linear features that might indicated the presence of utilities. Reflectivity is relatively uniform throughout the grid and decreases with depth. A transition from higher reflectivity to lower reflectivity is observed at approximately 0.5 mbs.

GPR depth profiles for T-203 identify horizontal banding, commonly associated with stratigraphic layering, throughout the survey area. This banding corresponds to variations of density and chemical composition within fill deposits. The profile also indicated a change in reflectivity occurring around 0.3 mbs. No utilities were observed in the profile. The maximum depth of clean signal return was approximately 1.0 mbs.

Summary: T-203 was excavated to the coral shelf at a depth of 2.0 mbs and beneath the water table at 1.86 mbs. The stratigraphy of T-203 consisted of various fill deposits above natural sediment to the coral shelf. Stratigraphy was consistent with the USDA soil designation of Fill land. The artifact collected from the backdirt associated with Stratum If was consistent with the historic land use for the region. Stratum II appeared to be natural marsh sediments associated with the Kewalo wetland sediments SIHP #50-80-14-6636 (see Volume I for further discussion of historic properties).

T-203 general location, view to west

T-203 southwest wall profile, view to west



T-203 southwest wall profile

T-203 Stratigraphic Description

Stratum	Depth (cmbs)	Description
Ia	0-10	Concrete sidewalk
Ib	10-20	Fill; 10 YR 8/2 (very pale brown); very gravelly silty sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; abrupt, smooth lower boundary; common, fine to medium roots; crushed coral subgrade
Ic	15-25	Fill; 10 YR 3/4 (dark yellow brown); very gravelly clay loam; weak, medium, crumb structure; moist, friable consistency; slightly plastic; terrigenous origin; abrupt, smooth lower boundary; many, medium roots; gravelly fill material
Id	25-68	Fill; 10 YR 8/1 (white); very gravelly silty sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; abrupt, smooth lower boundary; few, fine to medium roots; crushed coral fill material
Ie	68-84	Fill; 10 YR 5/3 (brown); gravelly sandy clay loam; weak, fine, crumb structure; moist, friable consistency; slightly plastic; mixed origin; abrupt, smooth lower boundary; few, medium roots; blend of Stratum Ic and Stratum Id
If	84-168	Fill; 10 YR 8/2 (very pale brown); very gravelly silty sand; single-grain structure; moist, loose consistency; non-plastic; marine origins; abrupt, smooth lower boundary; few, medium roots; crushed coral fill material; contained shoe
II	168-200	Natural; 10 YR 7/1 (light gray); very gravelly, cobbly, silty sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; lower boundary not visible; component of SIHP # -6636, Kewalo wetland sediments

3.14 Test Excavation 204 (T-204)

***Ahupua‘a*:**	Waikīkī
LCA:	N/A
TMK#:	2-3-038: 006
Elevation Above Sea Level:	1.53 m
UTM:	619784.071mE, 2355042.25mN
Max Length/Width/Depth:	7.30m / 0.72m / 1.42 mbs
Orientation:	114 / 294° TN
Targeted Project Component:	Utility relocation
USDA Soil Designation:	Fill land (FL)

Setting: Test Excavation 204 (T-204) was located within Kona Street in the east bound lane on privately owned property. The surface topography immediately surrounding T-204 was level.

Summary of Background Research and Land Use: Baldwin’s 1883 Honolulu Water Works map located T-204 approximately 370 m north of the coastline. S. E. Bishop’s map of the Kewalo area of Honolulu (1884) indicated that T-204 was located within Lot Kamehameha’s Grant 2790, which was comprised of marshlands, and south of LCA 100 FL:2, comprised of fort lands, two ponds, five *ki‘o pua*, one taro *lo‘i*, one house lot, and one kula pasture. Sheridan Street was located approximately 120 m west of T-204, according to S.E. Bishop’s 1884 map of Honolulu. W. A. Wall’s 1887 map of Honolulu indicated agricultural development to the north and east of T-204, while the immediate surrounding area remained marshlands. According to the 1919 U.S. Army War Department map, the vicinity of T-204 had undergone moderate urban development since 1887. The 1933 U.S. Army War Department map of Honolulu indicated that the entire area that surrounded T-204 had been marked with a grid pattern for planned urban development and the shoreline had been extended to approximately 600 m south of T-204. The 1939–41 U.S. Army Air Corps aerials and the 1943 U.S. Army War Department map indicated continued urban development in the area including Ala Moana Beach Park, 375 m south of T-204. The 1952 University of Hawai‘i SOEST aerials from Kaka‘ako to Waikīkī indicated, along with heavy urban development, what appeared to be the initial construction phase of the Ala Moana Shopping Center to the south of T-204. According to the 1953 U.S. Army Mapping Service map, the entire area had undergone heavy urban development by that time and T-204 was located within present-day Kona Street.

Previous archaeology of the area surrounding T-204 included several studies. In 1989, approximately 65 m northwest of T-204, a human bone fragment (SIHP #50-80-14-04243) was found inadvertently in a construction site on the southeast corner of Kapi‘olani Boulevard and Pi‘ikoi Street (Smith 1989). A 2006 archaeological monitoring project of road resurfacing on Pi‘ikoi Street (110 m west of T-204) yielded no cultural materials, but continued monitoring in the area was recommended due to the high potential for encountering archaeological material and human burials in the general vicinity (Esh and Hammatt 2006). In 2012, an archaeological inventory survey was conducted 150 m to the west of T-204 along Kona Street and documented

one historic property (SIHP #50-80-14-6636) that consisted of buried Kewalo wetland deposits (Runyon et al. 2012). This same historic property was also located south of T-204. At the time of this report, an archaeological inventory study documented one historic property (SIHP #50-80-14-6636) that consisted of buried Kewalo wetland deposits (Morriss et al. 2013; *Draft*).

Documentation Limitations: T-204 was excavated to below the water table at a depth of 1.42 mbs. The water table was elevated to 1.25 mbs within the east end of T-204, which appeared to be the result of disturbance to adjacent fill deposits causing percolation. A utility line, which extended perpendicular with and near the center of T-204, limited excavation.

Stratigraphic Summary: The stratigraphy of T-204 consisted of fill to beneath the water table. Observed strata included asphalt (Ia), gravelly sandy clay loam fill (Ib), and extremely gravelly silty sand (Ic). The stratigraphy conformed to the USDA soil survey designation of Fill land.

Artifacts Discussion: No artifacts were collected.

Features Discussion: No features were observed.

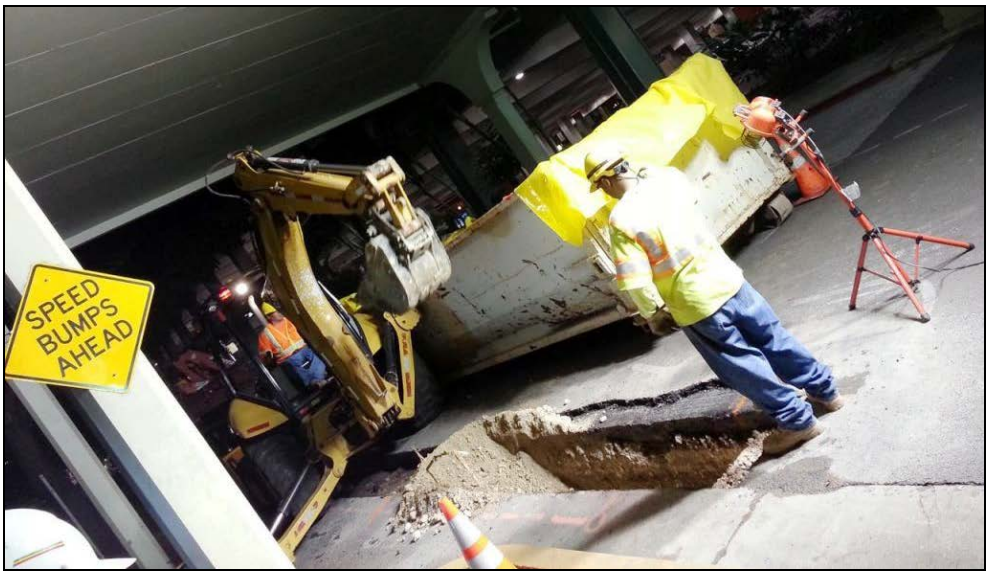
Terrestrial Faunal Remains Collected During Excavation: No terrestrial faunal remains were collected individually during excavation.

Sample Results: No sample analysis was conducted.

GPR Discussion: A review of amplitude slice maps indicated a linear feature which may have corresponded to the utility pipe 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.

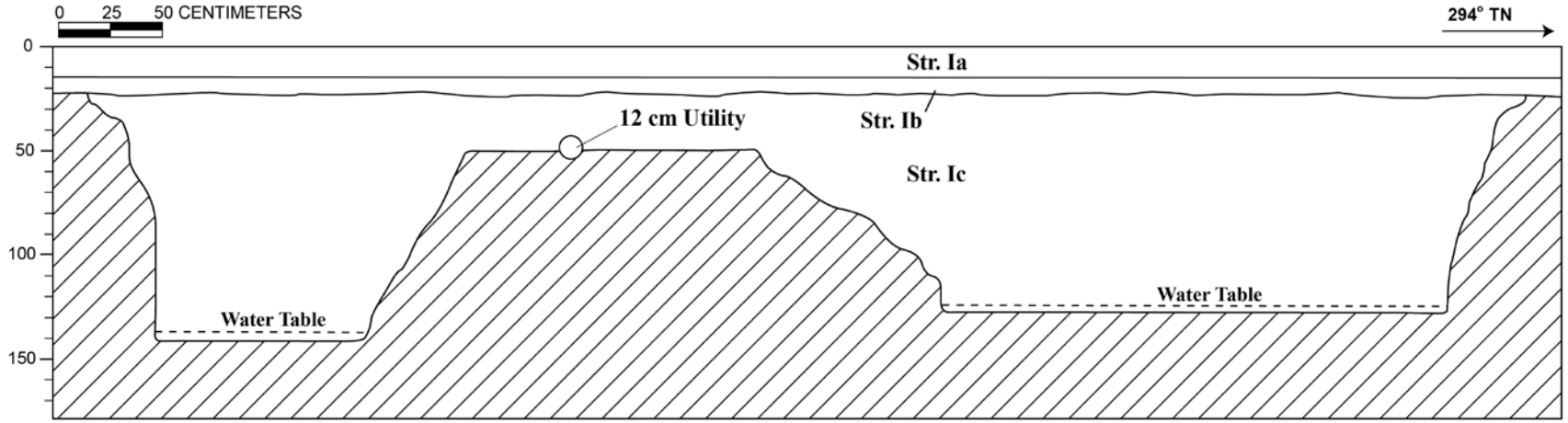
GPR depth profiled for T-204 identify horizontal banding, commonly associated with stratigraphic layering, throughout the survey area. This banding corresponded to variations of density and chemical composition within fill deposits. The profile also indicated a change in reflectivity occurring around 0.2 mbs and again at approximately 0.55 mbs. No utilities were observed in the profile although a utility was encountered during excavation. The maximum depth of clean signal return was approximately 1.0 mbs.

Summary: T-204 was excavated to below the water table at a depth of 1.42 mbs. The stratigraphy of T-204 consisted of fill (Ia to Ic) to beneath the water table. The stratigraphy conformed to the USDA soil survey designation of Fill land. No cultural materials were identified within T-204.



T-204 general location, view to east

T-204 north profile wall, view to northwest



T-204 south wall profile.

T-204 Stratigraphic Description

Stratum	Depth (cmbs)	Description
Ia	0–5	Asphalt
Ib	15–24	Fill; 10 YR 4/4 (dark yellow brown) with common, fine to coarse mottles of 10 YR 8/1 (white); gravelly sandy clay loam; weak, fine, crumb structure; moist, friable consistency; slightly plastic; mixed origin; very abrupt, smooth lower boundary; few, fine roots; gravelly fill material deposited during paving
Ic	24–142	Fill; 10 YR 8/2 (very pale brown); extremely gravelly silty sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; lower boundary not visible; crushed coral fill material

3.15 Test Excavation 205 (T-205)

***Ahupua‘a*:**	Waikīkī
LCA:	N/A
TMK#:	2-3-038:006
Elevation Above Sea Level:	1.6 m
UTM:	619805.2061 mE, 2355023.095 mN
Max Length/Width/Depth:	4.3 m / 1.03 m / 1.8 mbs
Orientation:	119 / 299° TN
Targeted Project Component:	Station Column
USDA Soil Designation:	Fill land (FL)

Setting: Test Excavation 205 (T-205) was located on Kona Street approximately 150 m east of Pi‘ikoi Street. There were no utilities near T-205. The test excavation was located on a sidewalk slightly raised above the road surface on privately owned property.

Summary of Background Research and Land Use: Baldwin’s 1883 Honolulu Water Works map located T-205 approximately 350 m north of the coastline. S. E. Bishop’s map of the Kewalo area of Honolulu (1884) indicated that T-205 was located within Lot Kamehameha’s Grant 2790, which was comprised of marshlands, and south of LCA 100 FL:2, comprised of fort lands, two ponds, five *ki‘o pua*, one taro *lo‘i*, one house lot, and one kula pasture. Sheridan Street was located approximately 150 m west of T-205, according to S.E. Bishop’s 1884 map of Honolulu. W. A. Wall’s 1887 map of Honolulu indicated agricultural development to the north and east of T-205, while the immediate surrounding area remained marshlands. According to the 1919 U.S. Army War Department map, the vicinity of T-205 had undergone moderate urban development since 1887. The 1933 U.S. Army War Department map of Honolulu indicated that the entire area that surrounded T-205 had been marked with a grid pattern for planned urban development and the shoreline had been extended to approximately 600 m south of T-205. The 1939–41 U.S. Army Air Corps aerials and the 1943 U.S. Army War Department map indicated continued urban development in the area including Ala Moana Beach Park, 385 m south of T-205. The 1952 University of Hawai‘i SOEST aerials from Kaka‘ako to Waikīkī indicated, along with heavy urban development, what appeared to be the initial construction phase of the Ala Moana Shopping Center to the south of T-205. According to the 1953 U.S. Army Mapping Service map, the entire area had undergone heavy urban development by that time and T-205 was located within present-day Kona Street.

Previous archaeology of the area surrounding T-205 included several studies. In 1989, approximately 50 m northwest of T-205, a human bone fragment (SIHP #50-80-14-04243) was found inadvertently in a construction site on the southeast corner of Kapi‘olani Boulevard and Pi‘ikoi Street (Smith 1989). A 2006 archaeological monitoring project of road resurfacing on Pi‘ikoi Street (150 m west of T-205) yielded no cultural materials, but continued monitoring in the area was recommended due to the high potential for encountering archaeological material and human burials in the general vicinity (Esh and Hammatt 2006). In 2012, an archaeological

inventory survey was conducted 135 m to the west of T-205 along Kona Street and documented one historic property (SIHP #50-80-14-6636) that consisted of buried Kewalo wetland deposits (Runyon et al. 2012). This same historic property was also located south of T-205. At the time of this report, an archaeological inventory study documented one historic property (SIHP #50-80-14-6636) that consisted of buried Kewalo wetland deposits (Morriss et al. 2013; *Draft*).

Documentation Limitations: T-205 was excavated to the coral shelf at a depth of 1.8 mbs and beneath the water table at 1.75 mbs. There were no factors limiting documentation.

Stratigraphic Summary: The stratigraphy of T-205 consisted of fill strata overlying natural sediments to the coral shelf. The observed strata included concrete (Ia), gravelly sandy clay (Ib), crushed coral fill (Ic), and very gravelly cobbly silty sand (Id) overlying natural silty clay (II) to the coral shelf. Stratum II was natural marsh sediments associated with the Kewalo wetland sediments (SIHP #50-80-14-6636). The stratigraphy conformed to the USDA soil survey designation of Fill land.

Artifact Discussion: See sample results below.

Feature Discussion: No features were observed.

Terrestrial Faunal Remains Collected During Excavation: Fish remains were collected from Stratum II at 1.25–1.30 mbs.

Sample Results: One bulk sediment sample (2 L) was collected from Stratum II at the base of excavation (1.8 mbs). The bulk sample was wet-screened and contained charcoal (0.4 g), non-midden limpets, gastropods and bivalves (2.5 g), crustacean (0.2 g), pressed wood (6.0 g), rusted metal (1.5 g), fish remains (2.3 g), and gravel. Freshwater and brackish snails comprised a large percentage (approximately 90%) of the matrix of the sample. Results of sample analysis indicated Stratum II contained material consistent with a former wetland environment.

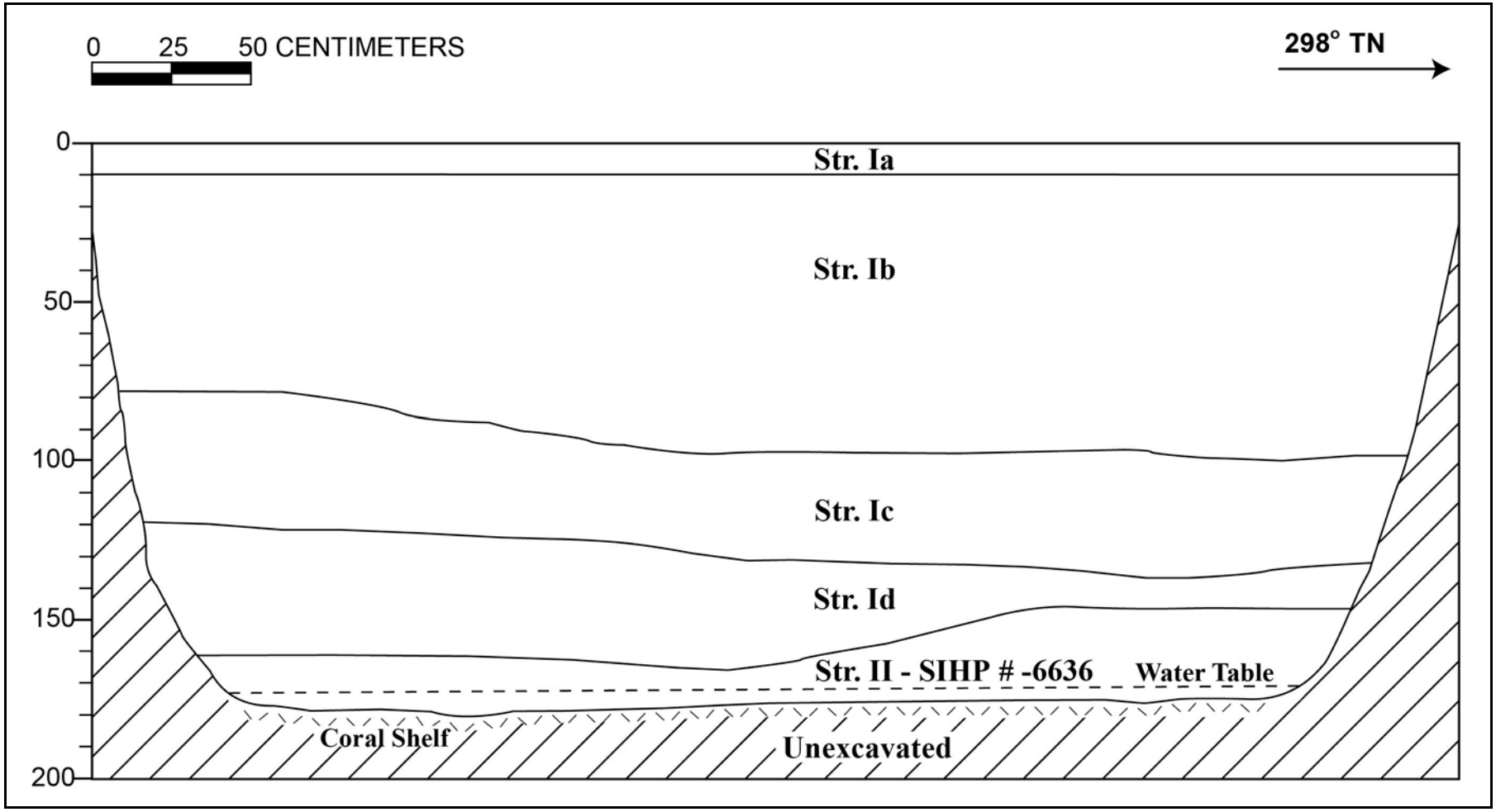
GPR Discussion: A review of amplitude slice maps indicated no linear features that might indicate the presence of utilities. Reflectivity was relatively uniform throughout the grid and decreases with depth. A transition from higher reflectivity to lower reflectivity was observed at approximately 0.25 mbs.

GPR depth profiled for T-205 identify 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. An anomaly was present; however did not lie within excavation boundaries. No utilities were observed in the excavation unit. The maximum depth of clean signal return was approximately 1.0 mbs.

Summary: T-205 was excavated to the coral shelf at a depth of 1.8 mbs and beneath the water table at 1.75 mbs. The stratigraphy of T-205 consisted of both fill (Ia–I d) and natural sediments (II) to the coral shelf. The stratigraphy was consistent with the USDA soil survey designation of Fill land. Results of sample analysis indicated Stratum II contained material consistent with a former wetland environment. Stratum II was considered a component of the Kewalo wetland sediments (SIHP #50-80-14-6636). A detailed summary of SIHP #50-80-14-6636 is provided in Volume I.

T-205 general location, view to southwest

T-205 southwest wall profile, view to west



T-205 southwest profile wall

T-205 Stratigraphic Description

Stratum	Depth (cmbs)	Description
Ia	0–10	Concrete; concrete sidewalk pavement
Ib	10–103	Fill; 10 YR 3/4 (dark yellow brown) with few fine mottles of 10 YR 8/1 (white); gravelly sandy clay loam; weak, fine, crumb structure; moist, friable consistency; slightly plastic; mixed origin; abrupt, smooth lower boundary; few, very coarse roots; blend of imported and locally procured fill material
Ic	80–140	Fill; 10 YR 8/3 (very pale brown); very gravelly silty sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; abrupt, smooth lower boundary; few, medium roots; crushed coral fill material
Id	120–170	Fill; 10 YR 7/1 (light gray); very gravelly cobbly silty sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; very abrupt, wavy lower boundary
II	150–180	Natural; 10 YR 2/1 (black); silty clay; weak, medium, coarse, blocky structure; wet, sticky consistency; plastic; terrigenous origin; lower boundary not visible; many, very fine roots; contained historic lumber debris; remnant marsh sediment with matted peat at surface containing abundant fresh water snail shells; component of SIHP # -6636, Kewalo wetland sediments