Draft
Archaeological Inventory Survey Report for the Block N East Project, Kakaʻako, Honolulu Ahupuaʻa, Honolulu (Kona) District, Oʻahu TMKs: [1] 2-3-002:001 (por.), 067, 086, 087
Volume I

Prepared for
Victoria Ward, Limited / Howard Hughes Corporation

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Management Summary

Reference	Archaeological Inventory Survey Report for the Block N East Project, Kaka‘ako, Honolulu Ahupua‘a, Honolulu (Kona) District, O‘ahu, TMKs: [1] 2-3-002:001 (por.), 067, 086, 087 (Sroat et al. 2016)
Date	March 2016
Project Number(s)	Cultural Surveys Hawai‘i, Inc. (CSH) job code: KAKAAKO 130
Investigation Permit Number	CSH completed the archaeological inventory survey (AIS) fieldwork under archaeological fieldwork permit numbers 14-04 and 15-03, issued by the Hawai‘i State Historic Preservation Division (SHPD) per Hawai‘i Administrative Rules (HAR) §13-282.
Agencies	SHPD
Land Jurisdiction	Private, Victoria Ward, Limited (VWL) / Howard Hughes Corporation (HHC)
Project Funding	Private, VWL/HHC
Project Location	The Block N East project is a discrete project within the larger Ward Neighborhood Land Block 1 area. The project area is located within Ward Industrial Center, along the *makai* (seaward) side of Queen Street between Ward Avenue and Kamake‘e Street.
Project Description	The proposed Block N East project is a discrete project of VWL/HHC’s 24.5-hectare (60.5-acre) Ward Neighborhood Master Plan, a long-range development plan of 20-plus years expected to evolve over time to fulfill the needs of the community. It follows guidelines set forth in the Mauka Area Plan of the Hawaii Community Development Authority (HCDA). The Block N East project design plans are currently being developed; however, minimally ground disturbance will include the demolition and removal of existing buildings and structures and excavation related to the project area’s development, including structural footings, utility installation, roadway and parking area installation, and landscaping.
Project Acreage	Approximately 0.63 hectares (1.55 acres)
Area of Potential Effect (APE)[1]	For the purposes of this AIS, the project’s APE is defined as the entire approximately 1.55-acre project area. The project area’s surrounding built environment is urban (paved streets and low-rise commercial buildings) and the proposed project construction is unlikely to impose additional auditory, visual, or other environmental impacts to any surrounding potential archaeological historic properties outside the project area. Accordingly, in consideration of the results of background research, the types of archaeological historic properties likely to be present, the surrounding built environment, and the project description, an AIS APE/project area definition beyond the actual project area is not warranted.
AIS Scope[2]	This AIS focused on archaeological historic properties and burial sites per the guidelines of HAR §13-276. The identification, documentation, and evaluation of in-use potential architectural historic properties such

	as historic buildings and structures was outside the scope of this AIS. Throughout this report the term "historic properties" is used and should be generally understood to refer to archaeological historic properties, unless otherwise stated.
Historic Preservation Regulatory Context[3]	This document is intended to support the proposed project's historic preservation review under Hawai‘i Revised Statutes (HRS) §6E-42 and HAR §13-284. As part of the historic preservation review process, a cultural impact assessment (CIA) (Cruz et al. 2012) and an archaeological literature review and predictive model study (O'Hare et al. 2012) for the entire Ward Neighborhood Master Plan project area were prepared and submitted to the SHPD on 20 July 2012. An AIS plan (AISP) (Sroat, O'Hare, and McDermott 2014) for this project was accepted in an SHPD §6E Historic Preservation Review letter dated 21 January 2014 (LOG NO.: 2014.00644; DOC. NO.: 1402SL12; see Appendix A). This AISR was prepared to address the Block N East component of the Ward Neighborhood Master Plan and was prepared in accordance with the requirements for an AISR as stated in HAR §13-276-5.
Fieldwork Effort	Fieldwork was accomplished between 5 May 2014 and 10 October 2015 under the general supervision of Matt McDermott, M.A. (principal investigator) by Ena Sroat, B.A. (project director), Megan Hawkins, M.A. (project supervisor), Abbey Mierzejewsky, B.A., Amanda Eggers, B.A., Andrew Soltz, B.A., Brittany Beauchan, M.A., Gina Farley, M.A., James Thain, B.A., Jessica Leger, M.Sc., Josie Yucha, M.S., Karl Van Ryzin, B.A., Laura Vollert, B.A., Malina Reveal, M.Sc., Mary Tardona, B.A., Nigel Kingsbury, B.A., Pua Guanzon, B.A., Scott Belluomini, B.A., Tara del Fierro, B.A., Tara Seaver, B.A., Tim Zapor, B.A., Tom Martel, B.A., and Tyler Turran, B.A . This work required approximately 137 person-days to complete.
Consultation	Consultation with the SHPD, the O‘ahu Island Burial Council (OIBC), and recognized cultural descendants to the area was conducted prior to the commencement of AIS fieldwork, during the course of AIS fieldwork, and following the completion of fieldwork. Consultation included presentation of proposed AIS testing strategies and preliminary AIS results, discussion with the SHPD and cultural descendants concerning testing results (including burial finds), and cultural descendants meetings following the completion of AIS fieldwork. A consultation letter was also forwarded to the Office of Hawaiian Affairs (OHA) presenting the results of the AIS testing program. Legal notice concerning discovery of human skeletal remains (*iwi kūpuna*) was posted within the *Star-Advertiser*, and notification of *iwi kūpuna* finds was printed within the OHA monthly newsletter *Ka Wai Ola*.
Historic Properties Identified and Historic Property	Two historic properties were documented within the Block N East project area: 1. State Inventory of Historic Places (SIHP) # 50-80-14-7429

Significance[4]	consists of pre- and post-Contact cultural deposits with associated features, including human burials. SIHP # -7429 was previously documented by Hammatt (2013), Hawkins et al. (2015), Humphrey et al. (2015), and Sroat et al. (2015) within adjacent project areas. Within Block N East, SIHP # -7429 consists of culturally enriched natural sand deposits, including an associated human burial ground, and culturally enriched fill deposits utilized as historic living surfaces. 2. SIHP # 50-80-14-7686 consists of subsurface historic infrastructure remnants. SIHP # -7686 was previously identified by Hawkins et al. (2015) within the adjacent Block M project area as consisting of warehouse building remnants and asphalt road surfaces associated with twentieth century commercial development. Within Block N East, SIHP # -7686 consists of buried asphalt and oil-rolled surfaces.
Effect Recommendation[5]	The project effect recommendation is “effect, with agreed upon mitigation commitments.” Project ground disturbance will affect SIHP # -7429, subsurface cultural deposits including human burial sites, and SIHP # -7686, subsurface historic infrastructure remnants.
Mitigation Recommendations[6]	Based on the AIS findings and in consultation with the SHPD, the recommended mitigation measures for SIHP # -7429 are burial treatment and an archaeological monitoring program. The recommended mitigation measures for SIHP # -7686 are an archaeological monitoring program.

[1] “Project Area” is defined (HAR §13-284-2) as “the area the proposed project may potentially affect, either directly or indirectly. It includes not only the area where the proposed project will take place, but also the proposed project’s area of potential effect.” “Effects include, but are not limited to, partial or total destruction or alteration of the historic property, detrimental alteration of the properties’ surrounding environment, detrimental visual, spatial, noise, or atmospheric impingement, increasing access with the chances of resulting damage, and neglect resulting in deterioration or destruction” (HAR §13-284-7[b]). Based on these definitions of “project area” and “effects” there is potential for project effects to historic properties to extend outside the footprint of project construction. Accordingly a definition and justification of the “project area” and “area of potential effect” employed in the AIS study is required.

[2] An “archaeological inventory survey” is defined as “the process of identifying and documenting the archaeological historic properties and burial sites in a delineated area, gathering sufficient information to evaluate significance of the historic properties and burials, and compiling the information into a written report for review and acceptance by the department [SHPD]” (HAR §13-276-2). An archaeological inventory survey report must contain documentation, arguments and reasoning, and mitigation commitments to support the completion of historic preservation review steps one through four (see footnote 3) for archaeological historic properties.

[3] The State of Hawai‘i historic preservation review process is designed to identify and mitigate a project’s impacts to significant historic properties. Historic properties are defined as “any building, structure, object, district, area, or site, including *heiau* [temple] and underwater site, which is over fifty years old” (HAR §13-284-2). The six potential historic preservation review steps include the following: 1) Identification and inventory, to determine if historic properties are present in the project’s area and, if so, to identify and document (inventory) them; 2) Evaluation of historic property significance; 3) Determination of project effect (impact) on significant historic properties; 4) Mitigation commitments that commit to acceptable forms of mitigation in order to properly handle or minimize impacts to significant historic properties; 5) Detailed mitigation plan, scope of work to properly carry-out the general mitigation commitments; and 6) Verification of completion of detailed mitigation plan (HAR §13-284-3). A project’s effect and potential mitigation measures are evaluated based on the project’s potential impact to “significant” historic properties (those historic properties determined significant following their evaluation of significance [HAR §13-284-6]—see footnote 5).

[4] Once a historic property is identified, then an assessment of significance shall occur pursuant to HAR §13-275-6 or §13-284-6. To be significant, a historic property shall possess integrity of location, design, setting, materials, workmanship, feeling, and/or association, and meet one or more of the following significance criteria: “a” be associated with events that have made an important contribution to the broad patterns of our history; “b” be associated with the lives of persons significant in our past; “c” embody the distinctive characteristics of a type, period, or method of construction; represent the work of a master, or possess high artistic value; “d” has yielded, or is likely to yield, information important for research on prehistory or history; or “e” have an important value to the native Hawaiian people or to another ethnic group of the state due to associations with cultural practices once carried out, or still carried out, at the property or due to associations being important to the group’s history and cultural identity. By convention, criterion “e” usually includes human skeletal remains and/or burials and religious sites.

[5] One of two effect determinations must be established: 1) “No historic properties affected,” the project will have no effect on significant historic properties; or 2) “Effect, with agreed upon mitigation commitments,” the project will affect one or more significant historic properties, and the effects will potentially be harmful. However, the agreed upon mitigation commitments involving one or more forms of mitigation will reasonably and acceptably mitigate the harmful effects (HAR §13-284-7).

[6] Under Hawai‘i State historic preservation review legislation, if a project will have an “effect” (impact) on significant historic properties, then a mitigation commitment proposing the form of mitigation to be undertaken for each significant historic property shall be submitted for SHPD review and approval. Mitigation may occur in the following five forms: A) Preservation, B) Architectural Recordation, C) Archaeological Data Recovery (which includes archaeological monitoring), D) Historical Data Recovery, and E) Ethnographic Documentation (HAR §13-284-8).

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Section 1 Introduction

1.1 Project Background

At the request of Victoria Ward, Limited (VWL) and the Howard Hughes Corporation (HHC), Cultural Surveys Hawai‘i, Inc. (CSH) has prepared this archaeological inventory survey report (AISR) for the Block N East project area, Kaka‘ako, Honolulu Ahupua‘a, Honolulu (Kona) District, O‘ahu, TMKs: [1] 2-3-002:001 (por.), 067, 086, 087. The Block N East project area is located within the *mauka* (inland) portion of the Ward Industrial Center. It is located on the *makai* (seaward) side of Queen Street between Ward Avenue and Kamake‘e Street. The project area is depicted on the 1998 Honolulu U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle (Figure 1), a tax map plat (Figure 2), and a 2013 aerial photograph (Figure 3).

The proposed project is a discrete project of VWL/HHC's approximately 24.5-hectare (60.5-acre) Ward Neighborhood Master Plan, described as "a long-range development plan of 20-plus years that would evolve over time to fulfill the needs of the community." The 60.5 acres encompass 58 tax map parcels, which the Ward Neighborhood Master Plan grouped into six "Land Blocks" (Figure 4). The Block N East project area is located within Land Block 1. The Ward Neighborhood Master Plan follows the guidelines set forth in the Mauka Area Plan of the Hawaii Community Development Authority (HCDA). This is a private development owned and funded by VWL/HHC.

The 0.63-hectare (1.55-acre) Block N East project area design plans are currently being developed; however, minimally ground disturbance will include the demolition and removal of existing buildings and structures and excavation related to the project area's development, including structural footings, utility installation, roadway and parking area installation, and landscaping.

1.2 Historic Preservation Regulatory Context and Document Purpose

The proposed project is subject to Hawai‘i State historic preservation review legislation, Hawai‘i Revised Statutes (HRS) §6E-42 and Hawai‘i Administrative Rules (HAR) §13-284. The State of Hawai‘i historic preservation review process is designed to identify and mitigate a project's impacts to significant historic properties. Historic properties are defined as "any building, structure, object, district, area, or site, including heiau [temple] and underwater site, which is over fifty years old" (HAR §13-284-2). The six potential historic preservation review steps include the following: 1) Identification and inventory, to determine if historic properties are present in the project's area and, if so, to identify and document (inventory) them; 2) Evaluation of historic property significance; 3) Determination of project effect (impact) on significant historic properties; 4) Mitigation commitments that commit to acceptable forms of mitigation in order to properly handle or minimize impacts to significant historic properties; 5) Detailed mitigation plan, scope of work to properly carry out the general mitigation commitments; and 6) Verification of completion of detailed mitigation plan (HAR §13-284-3). A project's effect and potential mitigation measures are evaluated based on the project's potential impact to "significant" historic properties (those historic properties determined significant following their evaluation of significance [HAR §13-284-6]).

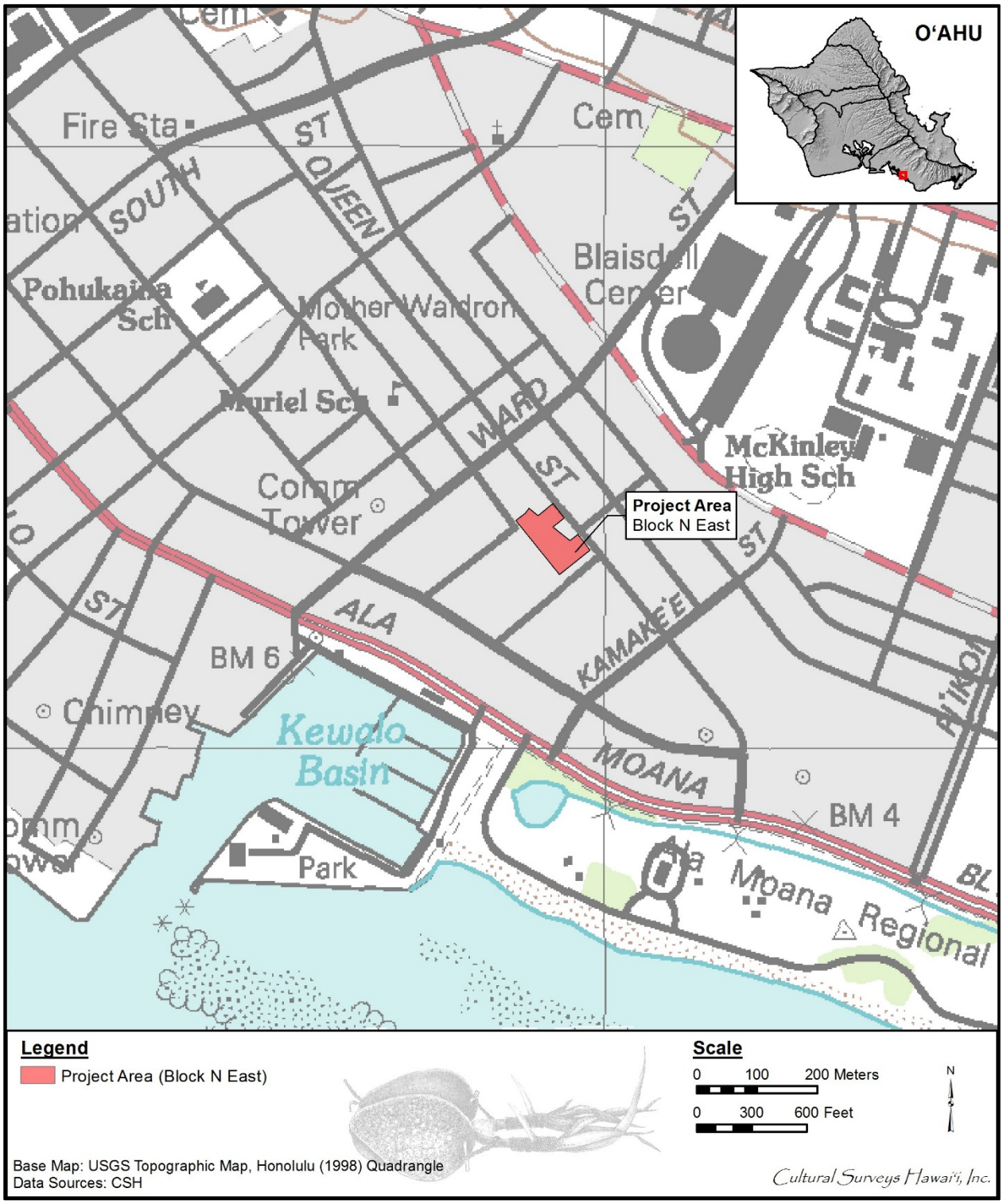

Figure 1. 1998 Honolulu USGS 7.5-minute topographic quadrangle showing the location of the Block N East project area, located on the *makai* side of Queen Street between Ward Avenue and Kamake‘e Street

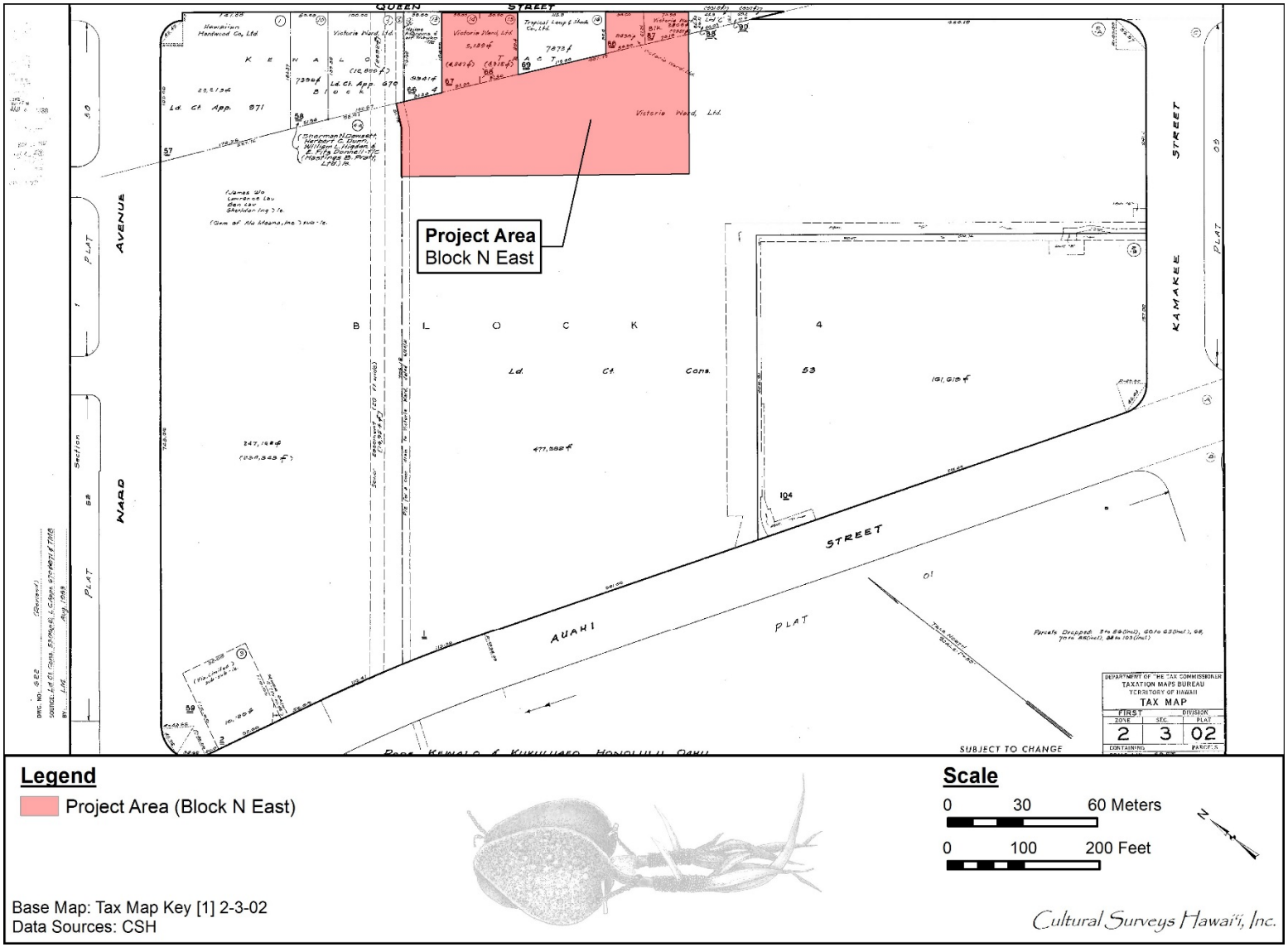

Figure 2. Tax Map Key (TMK): [1] 2-3-002, showing the location of the Block N East project area (Hawai‘i TMK Service 1953)

Figure 3. Aerial photograph showing the location of the Block N East project area (Google Earth Imagery 2013)

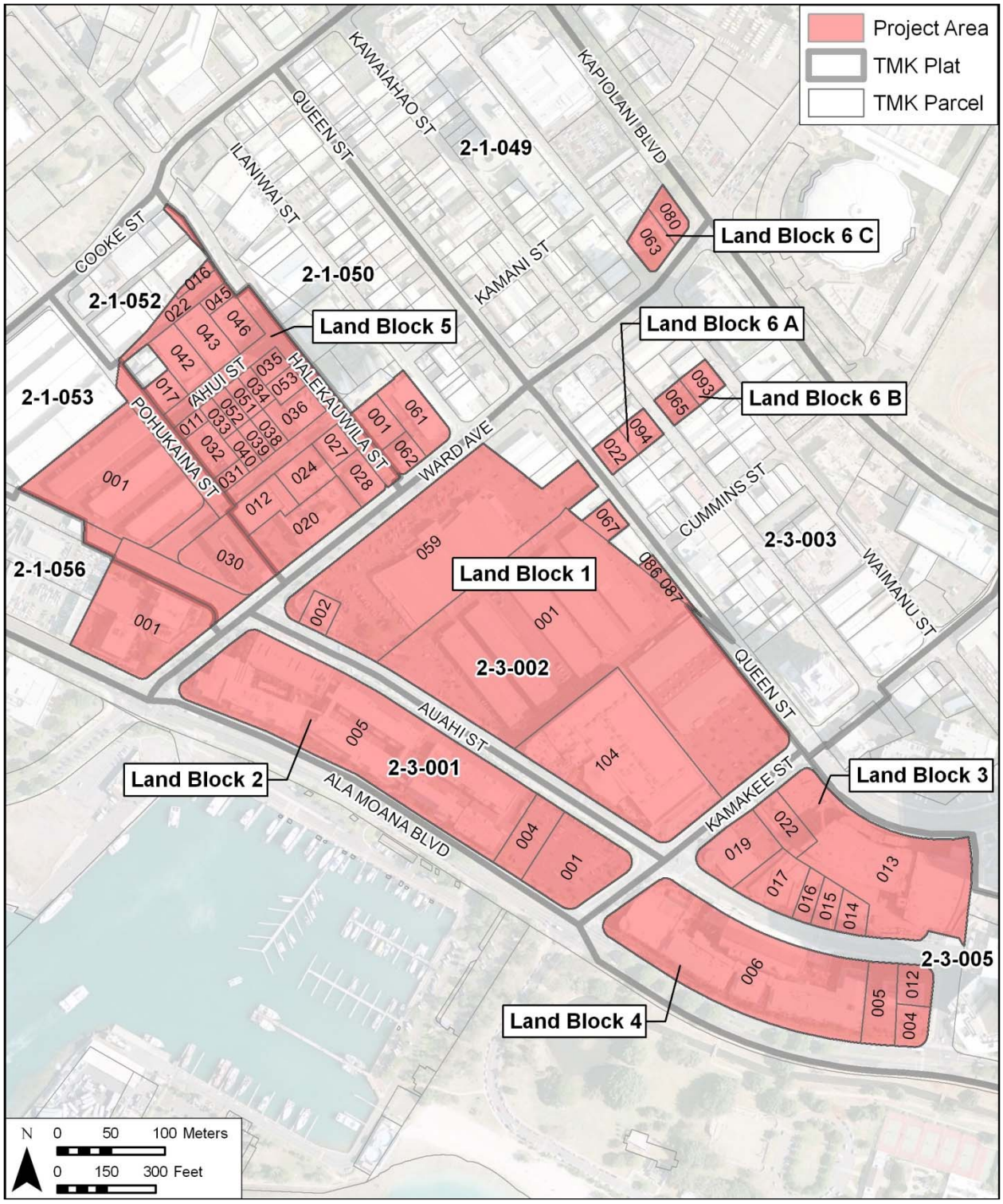

Figure 4. Ward Neighborhood Master Plan project area, divided into six “Land Blocks”; the Block N East project area is located within Land Block 1 (General Growth Properties Inc., 2008)

An “archaeological inventory survey” (AIS) is defined as “the process of identifying and documenting the archaeological historic properties and burial sites in a delineated area, gathering sufficient information to evaluate significance of the historic properties and burials, and compiling the information into a written report for review and acceptance by the department [State Historic Preservation Division (SHPD)]” (HAR §13-276-2). An archaeological inventory survey report must contain documentation, arguments and reasoning, and mitigation commitments to support the completion of historic preservation review steps one through four for archaeological historic properties.

This AIS focused on archaeological historic properties and burial sites per the guidelines of HAR §13-276. The identification, documentation, and evaluation of in-use potential architectural historic properties such as historic buildings and structures was outside the scope of this AIS. Throughout this report the term “historic properties” is used and should be generally understood to refer to archaeological historic properties, unless otherwise stated.

“Project Area” is defined (HAR §13-284-2) as “the area the proposed project may potentially affect, either directly or indirectly. It includes not only the area where the proposed project will take place, but also the proposed project’s area of potential effect” (APE). “Effects include, but are not limited to, partial or total destruction or alteration of the historic property, detrimental alteration of the properties’ surrounding environment, detrimental visual, spatial, noise or atmospheric impingement, increasing access with the chances of resulting damage, and neglect resulting in deterioration or destruction” (HAR §13-284-7[b]). Based on these definitions of “project area” and “effects” there is potential for project effects to historic properties to extend outside the footprint of project construction. Accordingly a definition and justification of the “project area” and “area of potential effect” employed in the AIS study is required.

For the purposes of this AIS, the project area/APE for archaeological historic properties is defined as the approximately 1.55-acre Block N East project area. The surrounding built environment is urban (paved streets and low- and high-rise buildings) and the proposed project construction is unlikely to impose additional auditory, visual, or other environmental impacts to any surrounding potential archaeological historic properties outside the project area. Accordingly, in consideration of the results of background research, the types of archaeological historic properties likely to be present, the surrounding built environment, and the project description, an AIS APE/project area definition beyond the actual project area is not warranted.

As precursors of the Block N East project’s historic preservation review process, a cultural impact assessment (CIA) (Cruz et al. 2012) and an archaeological literature review and predictive model study (O’Hare et al. 2012) of the entire Ward Neighborhood Master Plan project area were submitted to the SHPD on 20 July 2012. An archaeological inventory survey plan (AISP) (Sroat, O’Hare, and McDermott 2014) for this project was accepted by the SHPD in a letter dated 21 January 2014 (LOG NO.: 2014.00644, DOC. NO.: 1402SL12; see Appendix A). This AISR was prepared to address the Block N East component of the Ward Neighborhood Master Plan in accordance with the requirements for an AISR as stated in HAR §13-276-5. This report also details the methods of the inventory survey, per the requirements of HAR §13-276.

1.3 Environmental Setting

1.3.1 Natural Environment

The Block N East project area is within a portion of O‘ahu called the Honolulu Plain, an area generally less than 4.5 m, or 15 feet (ft), above sea level (Davis 1989:5). The Honolulu Plain is stratified with late Pleistocene coral reef substrate overlaid with calcareous marine sand or terrigenous sediments, and stream-fed alluvial deposits (Armstrong 1983:36). The top soil stratum consists of Fill land (FL), containing areas filled with material dredged from the ocean and hauled from nearby areas (Foote et al. 1972).

The modern Hawaiian shoreline configuration is primarily the result of 1) rising sea level following the end of the Pleistocene (Macdonald et al. 1983; Stearns 1978), 2) the mid- to late Holocene approximately 1.5 to 2.0 m highstand of the sea (see summary in Dye and Athens 2000:18–19), and 3) pre-Contact and post-Contact human landscape modification.

At the end of the Pleistocene, between approximately 20,000 and 5,000–6,000 years ago, water previously locked in glacial ice returned to the world’s oceans, and the sea level rose over 100 m to approximately its current level. In the vicinity of the Block N East project area, rising sea levels flooded the previously dry, earlier Pleistocene reef deposits, which had formed hundreds of thousands of years previously when sea level was comparable to modern levels. When sea levels reached approximately modern levels, the now coastal regions became depositional environments, where for tens of thousands of years previously, during the lower sea levels, they had been erosional environments.

A highstand of the sea for the Hawaiian Islands, approximately 1.5 to 2.0 m above present sea level, has been well documented between 4,500 and 2,000 years ago (Athens and Ward 1991; Fletcher and Jones 1996; Grossman and Fletcher 1998; Grossman et al. 1998; Harney et al. 2000; Stearns 1978). During this highstand, there appears to have been increased production of both coral reefs and detrital reef sediments. Littoral environments appear to have been augmented substantially by the deposition of marine sediments. “What this means is that the great shoreline sand berms must have developed around the islands at this time because this was when calcareous sand was being produced and delivered to the shorelines in large quantities” (Dye and Athens 2000:19).

The Honolulu coastline was likely greatly affected by the deposition of marine sediments during this elevated sea level. The subsequent drop in sea level to its present level, ca. 2,000 years ago, most likely created a slightly erosional regime that may have removed sediments deposited during the preceding period of deposition (Dye and Athens 2000:19). However, the net gain in sediments would have been substantial. In 1911, it was estimated that about one-third of the Honolulu Plain was a wetland (Nakamura 1979:65, citing a Hawaiian Territory Sanitary Commission report). Pre-Contact Hawaiians used the lagoonal/estuary environment of the Honolulu Plain to construct fishponds. Fishpond walls served as sediment anchors for the accumulation of detrital reef sediments. They also likely affected along-shore sedimentary transport, resulting in new littoral deposition and erosion patterns. Beginning in the late 1800s, when many fishponds were abandoned, they became obvious locations for the deposition of fill. These “reclaimed” areas provided valuable new land for expanding urban development near the heart of growing urban Honolulu.

Foote et al. (1972) show the study area as being fill (FL), as shown in Figure 5. They indicate "[t]his land type occurs mostly near Pearl Harbor and in Honolulu, adjacent to the ocean. It consists of areas filled with material dredged from the ocean or hauled from nearby areas, garbage, and general material from other sources" (Foote et al. 1972:31).

While fill materials were found throughout the project area, the underlying natural soils consist of calcareous Jaucas sand (JaC). Foote et al. (1972) describe Jaucas sand as follows:

> In a representative profile the soil is single grain, pale brown to very pale brown, sandy, and more than 60 inches deep. In many places the surface layer is dark brown as a result of accumulation of organic matter and alluvium. The soil is neutral to moderately alkaline throughout the profile. [Foote et al. 1972:48]

In this area of the Honolulu District, rainfall averages less than 30 inches per year (Armstrong 1983:62). Northeasterly trade winds prevail throughout the year, although their frequency varies from more than 90% during the summer months to 50% in January; the average annual wind velocity is approximately 10 miles per hour (Wilson Okamoto & Associates 1998:2-1). Vegetation within the project area is limited to a few ornamental trees and shrubs along the project area margins.

1.3.2 Built Environment

The project area is located within central Honolulu, surrounded by modern urban development including commercial buildings, paved streets, sidewalks, utility infrastructure, and landscaped margins.

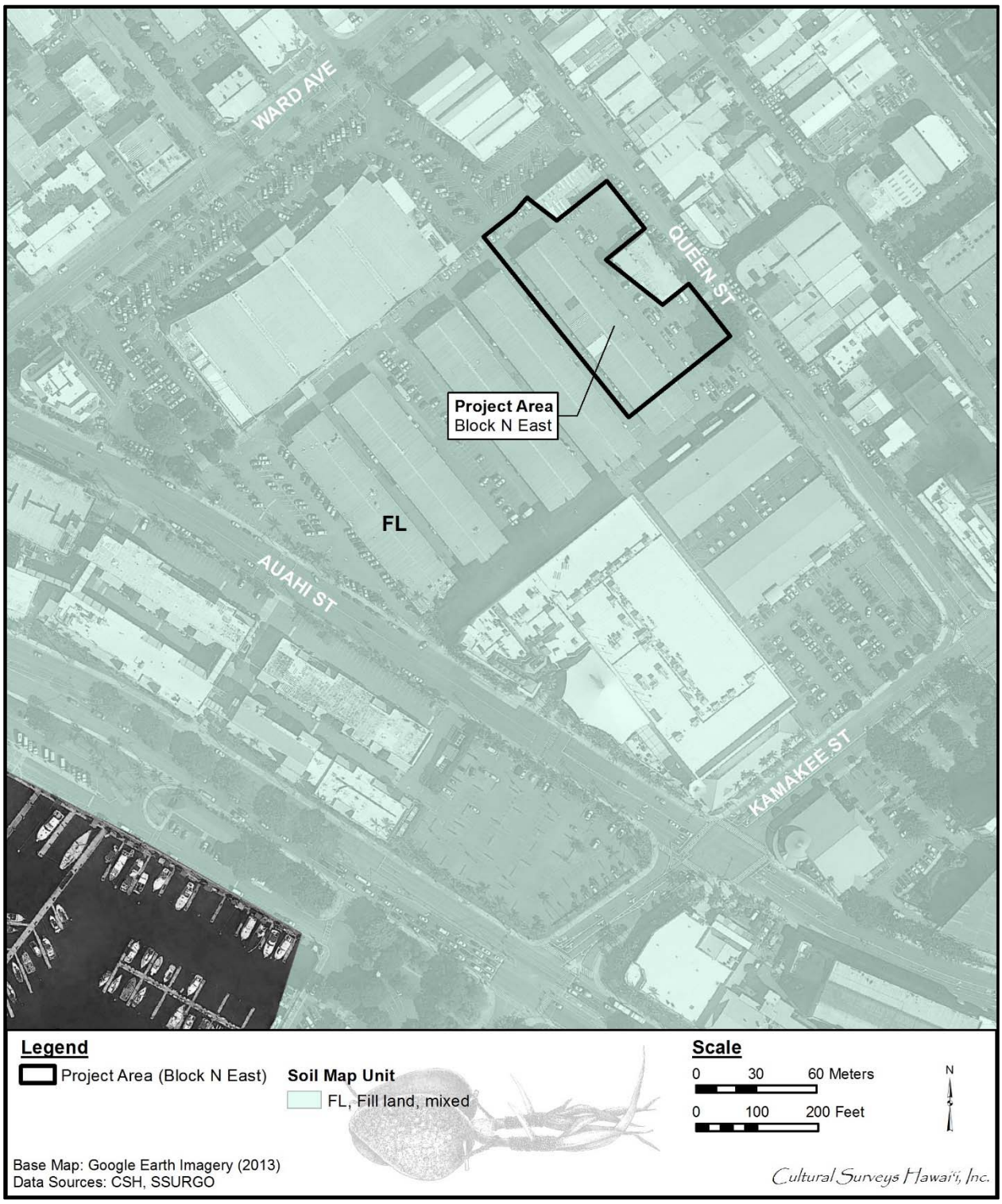

Figure 5. Overlay of information from a portion of *Soil Survey of the State of Hawaii* (Foote et al. 1972) on a 2013 aerial photograph, showing Fill lands (FL) within and surrounding the Block N East project area (Google Earth Imagery 2013)

Section 2 AIS Research Design and Methods

This section details the research design and methods used by CSH personnel during fieldwork, laboratory analysis, and the preparation of this AISR for the Block N East project. The research design, from the SHPD-accepted AISP for this project (Sroat, O'Hare, and McDermott 2014), meets specifications for an AISP as outlined in HAR §13-284-5.

2.1 Research Design

The research efforts described in the AISP (Sroat, O'Hare, and McDermott 2014) are archaeological research activities, and as such, should be governed by a research design. A research design is essentially a plan that clearly identifies

1) What is currently known about the research subject;
2) The research objective(s) and the methods that will be used to answer the research objective(s);
3) How the results of the investigation will be interpreted and evaluated.

The objective of this AISR is to identify, document, and assess for site significance any historic properties (non-burial and burial) encountered in the project area, and to make mitigation recommendations to address any project impacts on them.

2.2 Research Objectives

Based on historic background research and previous archaeological investigations (see Section 3), three specific research objectives were formulated within the AISP for the Block N East project area:

1) Previous archaeology within the Block N East project area (Hammatt 2013) documented a culturally enriched A horizon within the northern portion of the block (State Inventory of Historic Places [SIHP] # 50-80-14-7429) and a light cultural signature within an A horizon in the central portion; surrounding areas documented wetland sediments. The current archaeological investigation will focus on identifying the extent to which sand areas within this mosaic of wetlands were utilized for cultural activity and how the cultural signature provides information about the nature and intensity of cultural land use in this area during the pre-Contact to late nineteenth century time period.
2) 1914 and 1927 Sanborn Fire Insurance maps and early twentieth century photographs show small residential-type structures along the *makai* side of Queen Street within Block N East. To what extent are early twentieth century residential deposits extant beneath fill layers within the project area and what was the nature and intensity of the activities and land use?
3) What evidence exists of the various historic reclamation projects within the project area, and can deposits be dated to specific reclamation projects and/or time periods?

2.3 Pedestrian Survey

A 100% coverage pedestrian inspection was conducted within the project area in order to locate any surface archaeological historic properties. The pedestrian survey concluded that the entire project area has been mechanically modified as a result of modern development. No surface historic properties were identified within the project area. Accordingly, fieldwork within the project area focused on a program of subsurface testing to locate any possible buried cultural deposits extant beneath the modern land surface and to facilitate a thorough examination of stratigraphy within the project area.

2.4 Subsurface Survey

As the Block N East project area, consisting of a one-story warehouse and associated asphalt parking lots and roadways, had previously been entirely paved, no surface archaeological historic properties were anticipated. The inventory, documentation, and significance evaluation of extant potential architectural historic properties was not part of the scope of this AIS. Although fieldwork included a 100% pedestrian survey of the Block N East project area, investigations focused on a program of test excavations to locate subsurface archaeological deposits. According to the project's predictive model for archaeological potential, based on the Ward Neighborhood Master Plan's archaeological literature review and predictive model study (O'Hare et al. 2012) and updated by recent archaeological investigations, the majority of the project area lies within an area of high archaeological potential. According to background research, potential archaeological cultural resources located within the project area include pre- and post-Contact cultural deposits and/or burials, early twentieth century residential deposits, commercial infrastructure remnants, and remnants/artifacts from the Rifle Association firing range.

In order to locate and document these potential archaeological cultural resources, the AISP for Block N East proposed 33 test excavations, each measuring approximately 0.6 by 6.1 m (2 by 20 ft) (Figure 6). The testing strategy focused on general distribution of the test excavations throughout the project area, with targeted test excavations in areas surrounding cultural deposits previously documented by Hammatt (2013) (see Figure 6).

Subsequent to SHPD acceptance of the Block N East AISP, refinement of the Ward Neighborhood Master Plan project's engineering plans necessitated slight alterations to several VWL/HHC block project areas, including Block N East. A slight expansion to the northwest of the neighboring Block M project area included the appropriation of a small portion (approximately 0.25 acres) of the southeast end of the Block N East project area, resulting in the shifting of five test excavations previously located within Block N East (T-29 through T-33) to the Block M project area. The remaining 28 proposed test excavations (T-1 through T-28) were completed as part of the Block N East AIS.

During the course of the Block N East fieldwork, an additional seven test excavations were added to the Block N East AIS investigation, bringing the total number of AIS test excavations to 35 (Figure 7). In consultation with the SHPD, test excavations T-14A through T-14G were added to the AIS in order to define the boundaries of an identified human burial ground first identified within T-14.

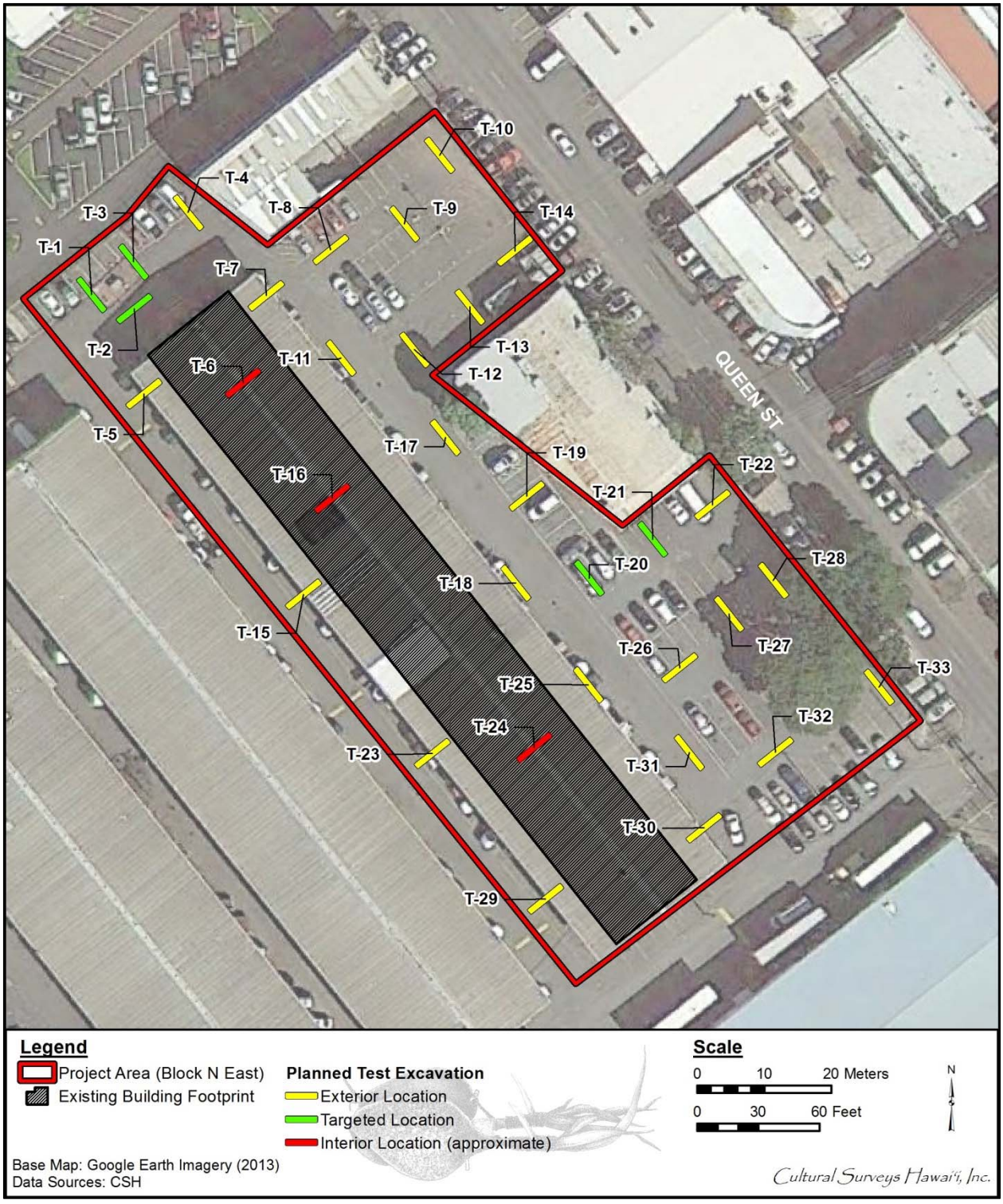

Figure 6. Aerial photograph showing the locations of 33 proposed test excavations within the original (1.8-acre) Block N East project area (Google Earth Imagery 2013). The green-shaded test excavations targeted areas documented by Hammatt (2013) as containing culturally enriched sand deposits.

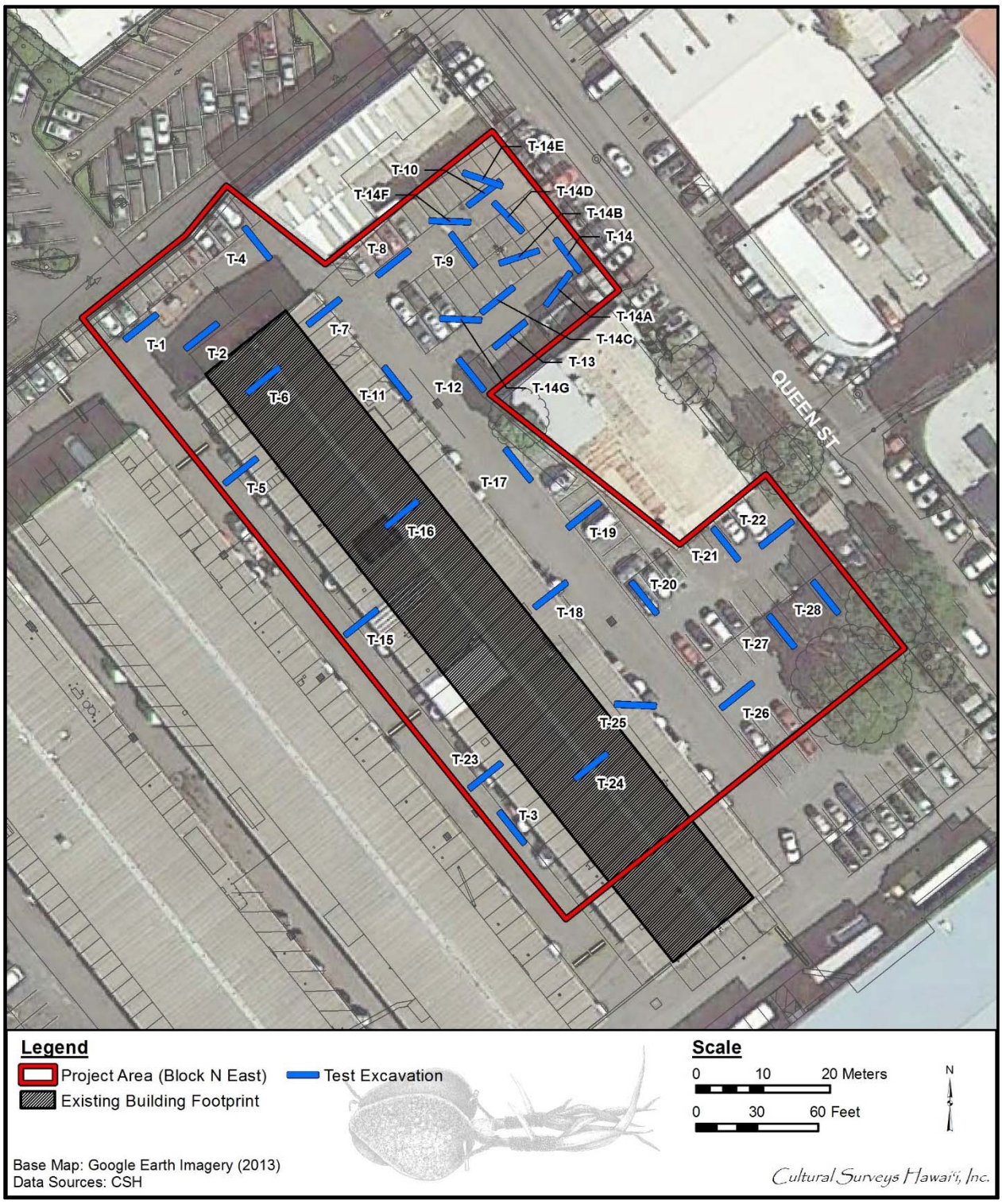

Figure 7. Aerial photograph showing the modified Block N East project area, reduced by approximately 0.25 acres along the southeast boundary, and the locations of actual test excavations completed within the project area (Google Earth Imagery 2013)

Subsurface testing included both exterior and interior test excavations. Due to the inherent difficulties of excavating within in-use interior commercial space, the locations of interior test excavations depended on several factors: the accessibility for mechanized machinery, sufficient interior space for maneuverability, the need to minimize disruption to commercial tenants, and the locations of interior structures and utilities. Based on the above conditions, the locations of the three interior test excavations were adjusted slightly (see Figure 6 versus Figure 7).

Determining factors in the locations of exterior test excavations within the project area included the locations of existing subsurface and surface utilities, surface obstacles such as structural features associated with the commercial complex, tenant access issues, and mature landscape trees. These factors required only minimal shifting of a few test excavations, primarily in order to accommodate tenant needs. Only one test excavation location, T-3, was significantly altered. Test excavation T-3 was relocated from the northwest corner of the project area (see Figure 6) to the southwest corner (see Figure 7), from a zone of light cultural enrichment (T-1, T-2, and T-4) to an area recently documented by the adjacent Block I AIS (Sroat et al. 2015) as containing disturbed and scattered human skeletal remains (Block I AIS test excavations T-7 and T-8 located just *makai* of the Block N East southwest boundary).

Initial excavation methods consisted of saw cutting of the asphalt parking lot surface (exterior excavations) or commercial concrete flooring (interior excavations). Removal of the underlying modern and historic fill deposits was undertaken via backhoe. Representative artifact assemblages in historic fill deposits and large in-filled historic pit features were minimally photographed and documented in the field, and generally collected for further analysis and curation. Photographs and analysis information pertaining to artifacts documented in the field are included in this report. If non-sand natural deposits (i.e., wetland deposits) were found beneath the fill layers, mechanized excavation was changed to slowly remove thin “shovel-scraped” layers of sediment in order to enhance the potential of identifying and documenting any in situ cultural deposits, artifacts, and/or pit features. Representative artifact samples and sediment (bulk and/or column) samples were collected, if applicable.

When natural sand deposits were encountered beneath overlying fill layers, excavation was conducted by hand. This hand excavation in sand deposits was specifically undertaken to identify in situ potential burials and/or cultural deposits. The sand was carefully scraped off in thin layers in order to minimize any possible burial disturbance. Only once the hand excavation through the sand deposit was completed was the backhoe’s bladed bucket used to continue excavation. Any additional excavation was conducted by slow scraping with the backhoe bucket, with archaeologists monitoring both the excavation activity and the backdirt pile. All excavations were made to depths just below the water table or to the coral shelf unless safety concerns prohibited otherwise.

The stratigraphy in each test excavation was drawn and photographed. The sediments were described for each of the trenches using USDA soil description observations and terminology. Sediment descriptions included Munsell color, texture, consistence, structure, plasticity, cementation, origin of sediments, descriptions of any inclusions such as cultural material and/or roots, lower boundary distinctiveness and topography, and other general observations. Feature documentation included plan views and/or profiles, screened and/or collected samples, stratigraphic descriptions, and photographs.

Photographs were taken of the general project area and in-progress work, recording on-the-job procedures, personnel, work conditions, and the area's natural and/or built environment. Additionally, all subsurface features, cultural layers, and profiles, as well as representative artifacts were photographed. A photographic scale and north arrow, as appropriate, were included in each photograph. Human skeletal remains were not photographed, as it is illegal to photograph these without permission of the SHPD.

Human skeletal remains (*iwi kūpuna*) encountered during subsurface testing were handled in compliance with HRS §6E-43 and HAR §13-300 in consultation with the O‘ahu Island Burial Council (OIBC) and the SHPD. All potential human skeletal remains were examined and identified by CSH osteologists (Malina Reveal, M.Sc., and/or Josie Yucha, M.S.) and the SHPD was notified immediately of all *iwi kūpuna* finds. An email summary of the find was provided to the SHPD and OIBC within 24 hours of the initial identification and documentation. Additional investigation within the vicinity of the *iwi kūpuna* was conducted only following the concurrence of the SHPD. ‘Ōiwi Cultural Resources LLC cultural monitors were on site during the AIS fieldwork and assisted in the treatment of all *iwi kūpuna* with appropriate cultural protocol.

The locations of each of the exterior test excavations were recorded using a Trimble Pro XH mapping grade GPS unit with real-time differential correction. This unit provides sub-meter horizontal accuracy in the field. GPS field data was post-processed, yielding horizontal accuracy between 0.5 and 0.3 m. GPS location information was converted into GIS shape files using Trimble's Pathfinder Office software, version 2.80, and graphically displayed using ESRI's ArcGIS 9.1. Interior trench locations were recorded using tape and compass and added to GIS data layers using geo-referenced project area maps and/or building footprint plans.

2.5 Sampling Methods

Sampling of subsurface A horizons and/or cultural layers was carried out whenever possible in order to characterize the cultural content and potential time frame or chronology of these deposits. Factors that hindered sampling of these deposits included the sometimes severe truncation of the buried sand A horizons by overlying fill deposits, the thinness of the sand A horizons, and the frequent presence of an overlying fill deposit composed of locally procured A horizon and sand material that made it difficult to distinguish in plan view, and hence isolate for sampling, the in situ A horizons. When subsurface pit features were identified, the feature matrix was screened through 1/8-inch screen mesh and/or carefully hand troweled and potential cultural material was collected for laboratory analysis. When possible, pit features were distinguished in trench profiles and plan views by their shape, content, distinctness, and their depth of protrusion below the lower boundary of the cultural layer into underlying strata.

Representative bulk and column sediment samples were also collected from wetland sediments within the project area. Bulk sediment samples were collected from the cleaned sidewall of the test excavation for potential further analysis in the laboratory and/or to serve as a sample databank for future research endeavors. Column samples were collected from cleaned test excavation sidewalls, and they include subsamples divided by stratigraphic layer in order to obtain the entire depositional sequence. All sediment sample collection locations were recorded on trench profiles, and the sediment samples were labeled with provenience information.

Background research also indicated the potential for encountering historic trash pits, privies, and other historic pit features in the Kaka‘ako area. These types of historic features typically contain substantial numbers of individual artifacts, including architectural remains (e.g., bricks, nails, window glass, concrete, and mortar fragments), household-related items (e.g., glass containers, ceramic vessels, personal items, food remains), and industrial items (e.g., metal, tools and equipment). Documentation of these historic features focused on recording stratigraphic context, morphology (size, shape), function (e.g., privy, trash-filled pit, builder's trench), and whether they were associated with residential, commercial, or reclamation activities. These features, as well as representative samples of the artifacts (including fragments and artifacts not readily identifiable as diagnostic) found within them, were photo-documented in the field, including plan views and/or profiles. Additional field documentation included written descriptions and quantitative data such as relative frequencies of highly redundant artifact classes (e.g., brick, bottles, nails, window glass, metal fragments). Samples of whole and fragmentary artifacts, including undecorated ceramic fragments, were collected for further analysis in the laboratory.

2.6 Laboratory Methods

Materials collected during AIS fieldwork were identified and catalogued at CSH's laboratory facilities on O‘ahu. Analysis of collected materials was undertaken using standard archaeological laboratory techniques. Artifacts were washed, sorted, measured, weighed, described, photographed, and catalogued. In general, artifact analysis focused on establishing, to the greatest extent possible, material type, function, cultural affiliation, and location and age of manufacture.

2.6.1 Traditional Hawaiian Artifacts

Traditional Hawaiian artifacts were identified, and forms and functions determined, using standard reference materials (e.g., Barrera and Kirch 1973; Brigham 1974; Buck 2003; and Emory et al. 1968).

2.6.2 Historic Artifacts

Historic artifacts were identified using standard reference materials (e.g., Elliott and Gould 1988; Fike 1987; Kovel and Kovel 1986; Lehner 1988; Lindsey 2010; Lockhart 2004–2010; Toulouse 1971; Whitten 2015; and Zumwalt 1980) and resources available on the internet. Analyzed materials were tabulated and a master catalogue is presented within Section 5.1 of this AISR. As noted above, the results of the historic and modern artifact analysis were used to better characterize the age, function, and potentially the cultural affiliation of the associated archaeological deposits and/or features. Photographs documenting the range of historic artifacts are included in this report.

2.6.3 Vertebrate Material

Non-human skeletal material was identified to the lowest possible taxa at the CSH laboratory using an in-house comparative collection and reference texts (e.g., Olsen 1964; Schmid 1972; and Sisson 1953).

2.6.4 Invertebrate Material

Invertebrate remains were identified to genus and species, weighed, and analyzed. Common marine shells were identified and analyzed at the CSH laboratory using an in-house comparative collection and reference texts (e.g., Abbott and Dance 1990; Eisenberg 1981; Kay 1979; and Titcomb 1979).

2.7 Disposition of Collections

The Hawai‘i State rules governing archaeological inventory survey investigations (HAR §13-276) state the following regarding archaeological inventory survey collections from private lands:

> Arrangements shall be made with private landowners on the disposition of collections from their lands. If private landowners request archiving of material, then the archive shall be determined in consultation with the SHPD. [HAR §13-276-6]

All materials collected during the current AIS, including samples and artifacts (but excluding human remains and grave goods), are the property of the landowner, the Howard Hughes Corporation/Victoria Ward, Limited. Upon conclusion of the AIS investigation, all collected materials (excluding human remains and grave goods), will be temporarily curated at the CSH office in Waimānalo, O‘ahu. Final disposition of the collection will be determined in consultation with the landowner and SHPD, per HAR §13-276-6. All data generated during the course of the AIS will be stored at the CSH offices.

2.8 Document Review

Background research included a review of previous archaeological studies on file at the SHPD; review of documents at Hamilton Library of the University of Hawai‘i, the Hawai‘i State Archives, the Mission Houses Museum Library, the Hawai‘i Public Library, and the Bishop Museum Archives; study of historic photographs at the Hawai‘i State Archives and the Bishop Museum Archives; and study of historic maps at the Survey Office of the Department of Land and Natural Resources. Historic maps and photographs from the CSH library were also consulted. In addition, Māhele records were examined from the Waihona ‘Aina database (Waihona ‘Aina 2000). This research provided the environmental, cultural, historic, and archaeological background for the project area. The sources studied were used to formulate a predictive model regarding the expected types and locations of historic properties in the project area.

2.9 Report Preparation

This AISR was prepared in conformance with HAR §13-276-5 and includes the following:

a) A project description;

b) A section of a USGS topographic map showing the project area boundaries and the location of all recorded historic properties;

c) Historical and archaeological background sections summarizing prehistoric and historic land use of the project area and its vicinity;

d) Descriptions of all historic properties, including selected photographs, scale drawings, and discussions of age, function, laboratory results, and significance, per the requirements of HAR §13-276. Each historic property will be assigned a Hawai‘i SIHP number;

e) A section concerning cultural consultations (per the requirements of HAR §13-276-5[g] and HAR §13-275/284-8[a][2]);

f) A summary of historic property categories, integrity, and significance based upon the Hawai‘i Register of Historic Places criteria;

g) A project effect recommendation; and

h) Treatment recommendations to mitigate the project's adverse effect on any historic properties identified in the project area recommended eligible to the Hawai‘i Register of Historic Places.

Section 3 Background Research

3.1 Traditional and Historical Background

3.1.1 Explanation of Place Names

As noted in the introduction, the project area is within the Kaka‘ako Community Development District. However, the boundary of this development district is not the same as the ancient boundary of Kaka‘ako. The development district is comprised of the *‘ili* (land section) of Kaka‘ako and lands once known as Ka‘ākaukukui, Kukuluāe‘o, and Kewalo, and even smaller areas—portions of *‘ili*—called Kawaiaha‘o, Honuakaha, Ka‘ala‘a, ‘Āpua, ‘Auwaiolimu, Pualoalo, Pu‘unui, and Kolowalu. The Block N East project area is within the *‘ili* of Kukuluāe‘o (Figure 8).

The land called Kukuluāe‘o was named for the Hawaiian stilt bird (*Himantopus himantopus*), also called *kukuluāe‘o,* which means “to walk on stilts.” The area was described as having contained “marshes, salt ponds, and small fishponds,” an environment well suited for this type of bird (Griffin et al. 1987:36). Kekahuna (1958:4) described it as “the land on the upland side of Ka‘ākaukukui. Salt was formerly made there.”

John Papa ‘Ī‘ī mentions some of these lands while discussing early nineteenth century trails in the Honolulu/Waikīkī area (Figure 9). The fact that the trail traversed this region—characterized by ponds, marshlands, and *lo‘i* (irrigated fields)—suggests the trail, especially as it neared the coastline at Kālia, must have run on a sand berm raised above surrounding wetlands and coral flats. On this inland trail (probably close to the current alignment of Queen Street), walking from Waikīkī to Honolulu, “The trail from Kalia led to Kukuluaeo, then along the graves of those who died in the smallpox epidemic of 1853, and into the center of the coconut grove of Honuakaha” (‘Ī‘ī 1959:89).

The smallpox epidemic graves referred to are within the Honuakaha Cemetery, designated SIHP # 50-80-14-3712, near the corner of Halekauwila and South streets, *makai* of Kawaiaha‘o Church. Honuakaha was a settlement located generally between Punchbowl and South streets, on the *makai* side of Queen Street (Pfeffer et al. 1993).

3.1.2 Legendary Accounts

The Block N East project area is located in an area called Kukuluāe‘o on historic maps. The place name Kaka‘ako is found in various legends and traditions, but Kukuluāe‘o does not appear in any sources referenced in the *Hawaiian Island Legends Index* (Gotanda 1989) or in the index to *Fornander’s Collection of Hawaiian Antiquities and Folklore* (Fornander 1916–1920).

However, a *heiau* (place of worship) called Pu‘ukea may have once been located in Kukuluāe‘o. This *heiau* is mentioned in a *mele* (chant) to the chief Huanuikalala‘ila‘i, who was born in Kewalo, the land section north and adjacent to Kukuluāe‘o.

‘O Hua-a-Kamapau ke ‘li‘i	Hua-a-Kamapau the chief
O Honolulu o Waikīkī	Of Honolulu, of Waikīkī
*I hanau no la i kahua la i **Kewalo**,*	Was born at **Kewalo**,
‘O Kālia la kahua	Kālia was the place [the site]
O Makiki la ke ēwe,	At Makiki the placenta,

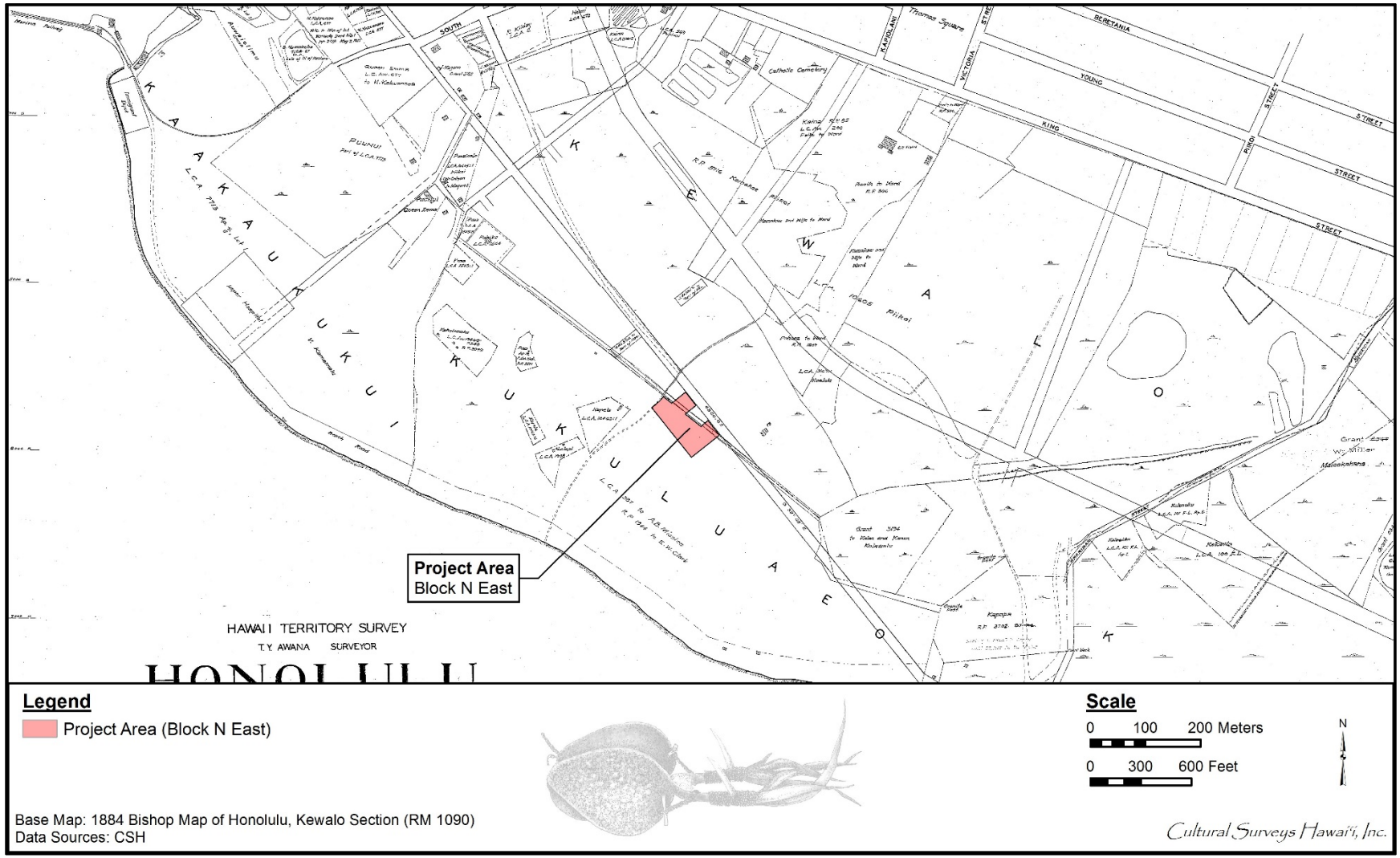

Figure 8. 1884 map of Honolulu, Kewalo Section (portion), by S.E. Bishop, showing place names and Land Commission Award (LCA) locations within and near the project area (Hawai‘i Land Survey Division, Registered Map 1090)

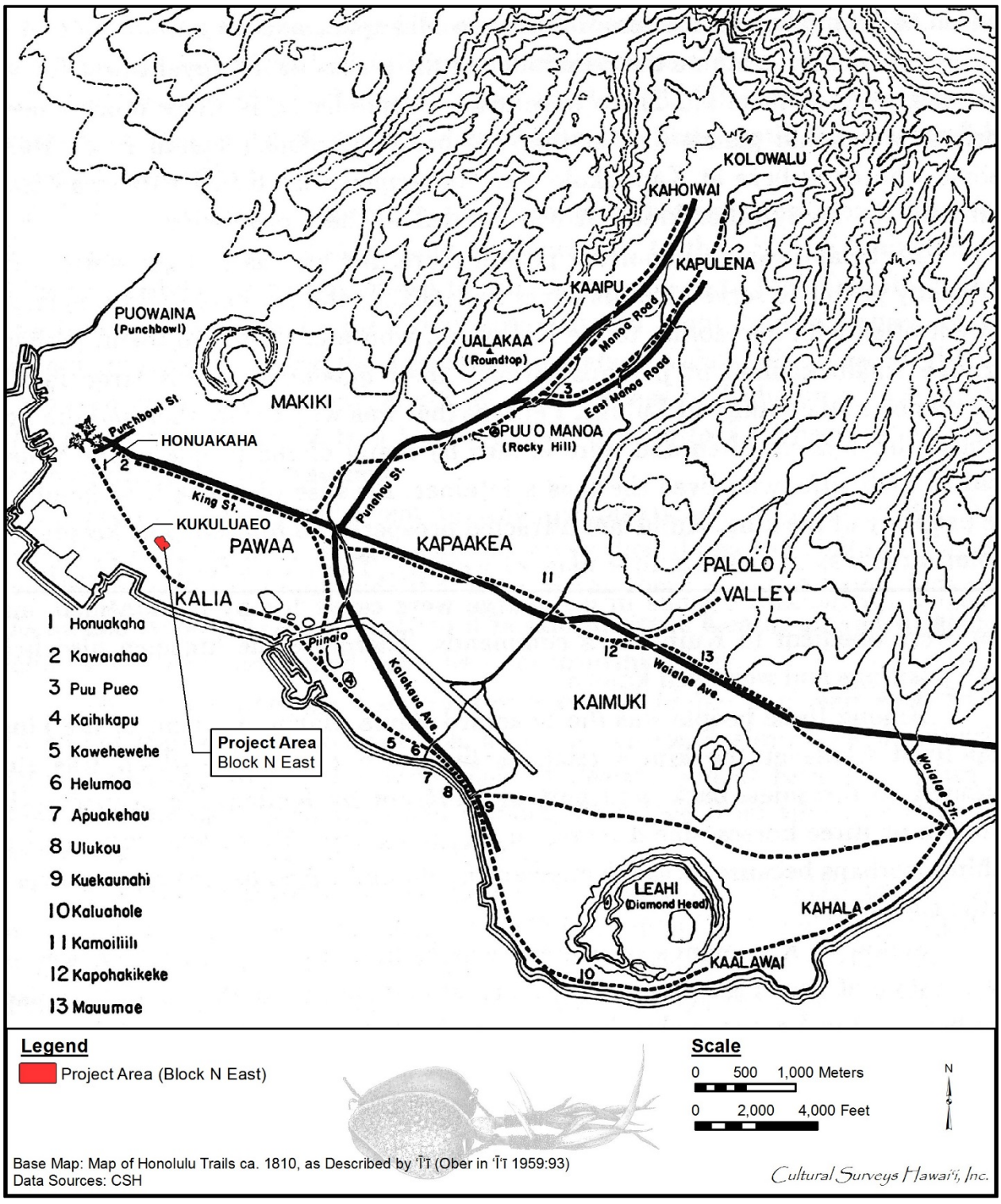

Figure 9. Early nineteenth century (ca. 1810) trails on the southwest coast of O‘ahu (illustration by Gerald Ober from ‘Ī‘ī 1959:93), showing the location of Honuakaha, Kukuluāe‘o, and Kālia

I Kānelā‘au i Kahehuna ke piko,	At Kānelā‘au at Kahehuna the navel cord,
I Kalo i Pauoa ka ‘a‘a;	At Kalo at Pauoa the caul;
I uka i Kaho‘iwai i	Upland at Kaho‘iwai, at
Kanaloaho‘okau . . .	Kanaloaho‘okau. . .
[Kamakau 1991:24]	

The chief Hua was famous for his love of cultivation and his care for the people. His *heiau,* Pu‘ukea, is mentioned in a traditional *wānana* (prophecy) recorded by Kamakau (1991:24–25) as follows:

[*Ka makaua ua kahi o ‘Ewa*]	[The increasing “first rain” of ‘Ewa]
Ua puni ka i‘a o Mokumoa,	Overcomes the fish of Mokumoa,
Ua kau i‘a ka nene;	Washes up fish to the nene plants;
Ua ha‘a kalo ha‘a nu;	Lays low the taro as it patters down;
Ha‘a ka i‘a o kewalo,	Lays low the fish of Kewalo,
Ha‘a na ‘ualu o Pahua,	Lays low the sweet potatoes of Pahua,
Ha‘a ka mahiki i ***Pu‘ukea****,*	Lays low the mahiki grass at **Pu‘ukea**,
Ha‘a ka unuunu i Pele‘ula,	Lays low the growing things at Pele‘ula
Ha‘a Makaaho i ke ala.	Lays low Makaaho [Makāho] in its path
E Kū e, ma ke kaha ka ua, e Kū,	O Kū, the rain goes along the edge [of the island], O Kū
[*I ‘ai ‘na ka i‘a o Maunalua*] . . .	[Eating the fish of Maunalua] . . .

The chant mentions the *mahiki* grass of Pu‘ukea Heiau. The Hawaiian term *mahiki* means “to peel off” (Andrews 2003:369). The word was also used to describe a rite to exorcise an evil spirit, as the skilled *kahuna* (priest) “peeled” the malicious spirit from the afflicted. Used in the ritual was a shrimp called *mahiki* or a native grass called *mahiki*. *Mahiki*, or *‘aki‘aki*, is a tufted rush (*Sporobolos* sp.) found near the seashore. The ethnologist Mary Kawena Pukui states that even during her youth parents put “*ti* leaves, or *hala*, or *‘aki‘aki* grass, in a little sea-salt water and [would] have the child drink it” (Pukui et al. 1972:163) to rid them of badly behaving spirits. The use of this grass in a ritual may explain its association with a ceremonial *heiau*, or it may simply be that the Kukuluāe‘o coast was a good habitat and thus a favored place for healers to collect this type of grass. The literal meaning of Pu‘ukea is “white hill” (Pukui et al. 1974:199), although it may have alternate meanings. Pu‘ukea is also the name of a small land division within the *‘ili* of Kukuluāe‘o, mentioned in at least two Land Commission Awards, LCAs 1502 (not awarded) and 1504. LCA 1504 was located near the junction of Halekauwila and Cooke streets.

It is fairly common for a *heiau* to have the same name as the *‘ili* it is located within, so it is possible Pu‘ukea Heiau was also near the junction of Halekauwila and Cooke streets. The majority of the house sites in the mid-nineteenth century in Kukuluāe‘o were located near Halekauwila and Queen streets, *mauka* of the low-lying coastal swamplands on higher, dry ground. It is possible the *heiau* platform or the area it was built on was one of the few “high spots” in the flat, low-lying swamp that surrounded it, and thus gained the name *pu‘u kea* (white hill).

From these legendary accounts it can be seen that Kukuluāe‘o was traditionally noted for its fishponds and salt pans, for the marsh lands where *pili* grass and other plants could be collected,

for ceremonial sites such as Pu‘ukea Heiau, and for the trails that allowed transport between the more populated areas of Waikīkī and Honolulu. Important chiefs were born in the area and conducted religious rites, and commoners traveled to the area to procure food and other resources; some commoners probably also lived in the area, possibly adjacent to the ponds and trails.

3.1.3 Early Post-Contact History and Population Centers

Kukuluāe‘o is between two centers of population, Kou and Waikīkī, on the southern shore of pre-Contact O‘ahu. In Waikīkī, a system of taro *lo‘i* (irrigated terraces) fed by streams descending from Makiki, Mānoa, and Pālolo valleys blanketed the plain, and networks of fishponds dotted the shoreline. Similarly, Kou—the area of downtown Honolulu surrounding the harbor—possessed shoreward fishponds and irrigated fields watered by ample streams descending from Nu‘uanu and Pauoa valleys. The pre-Contact population and land use patterns of Kukuluāe‘o may have derived from its relationship to these two densely populated areas; this population may have participated in some of the activities associated with them. Thus, any attempt to reconstruct the Kukuluāe‘o region (and the present project area) as it existed for the Hawaiians during the centuries before Western Contact and modern urbanization reconfigured the landscape must begin with accounts of Kou and Waikīkī.

Waikīkī is actually the name of a large *ahupua‘a* (traditional land division) encompassing lands stretching from Honolulu to Maunalua Bay. Within that *ahupua‘a*, by the time of the arrival of westerners during the late eighteenth century, the area today known as Waikīkī had long been a center of population and political power on O‘ahu. According to Martha Beckwith (1940:383), by the end of the fourteenth century, Waikīkī had become “the ruling seat of the chiefs of O‘ahu.” The preeminence of Waikīkī continued into the eighteenth century and is confirmed by the decision of Kamehameha, in the midst of unifying control of the islands, to reside there after winning control of O‘ahu by defeating the island’s chief, Kalanikūpule. The nineteenth century Hawaiian historian John Papa ‘Ī‘ī, himself a member of the *ali‘i* (chiefly class), described the king’s Waikīkī residence:

> Kamehameha’s houses were at Puaaliilii, makai [seaward] of the old road, and extended as far as the west side of the sands of Apuakehau. Within it was Helumoa where Kaahumanu ma went to while away the time. The king built a stone house there, enclosed by a fence. [‘Ī‘ī 1959:17]

‘Ī‘ī (1959:17) further noted that the “place had long been a residence of chiefs. It is said that it had been Kekuapoi’s home, through her husband Kahahana, since the time of Kahekili.”

Chiefly residences were only one element of a complex of features sustaining a large population that characterized Waikīkī up through the pre-Contact period. Beginning at least by 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 engineering design traditionally attributed to the chief Kalamakua, took advantage of streams descending from Makiki, Mānoa, and Pālolo valleys, which also provided ample fresh water for 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 continuous zone of population and cultivation from the shoreline of present day Waikīkī Beach extended north, well into Mānoa Valley. The western and eastern bounds of this zone are less

clear, and there are no specific references to Waikīkī's abundance reaching into the Kewalo region.

A basic description of Honolulu and Kou, up to the time of Western Contact, is given by E.S. Craighill Handy and Elizabeth Handy:

> What is now Honolulu was originally that flatland area between the lower ends of Nu‘uanu and Pauoa Valleys and the harbor. [W.D.] Westervelt . . . wrote that ‘Honolulu was probably a name given to a very rich district of farm land near what is now . . . the junction of Liliha and School Streets, because its chief was Honolulu, one of the high chiefs at the time of Kakuhihewa’. . . . It is probable that the chief referred to by Westervelt took his name from the harbor and adjoining land. The original name of the land where the town grew when the harbor became a haven for foreign ships was Kou. . . . The number of *heiau* in this area indicates that it was a place of first importance before the era of foreign contact. [Handy and Handy 1972:479]

Rev. Hiram Bingham, arriving in Honolulu in 1820, described a still predominantly Native Hawaiian environment—still a "village"—on the brink of Western-induced transformations:

> We can anchor in the roadstead abreast of Honolulu village, on the south side of the island, about 17 miles from the eastern extremity. . . . Passing through the irregular village of some thousands of inhabitants, whose grass thatched habitations were mostly small and mean, while some were more spacious, we walked about a mile northwardly to the opening of the valley of Pauoa, then turning southeasterly, ascending to the top of Punchbowl Hill, an extinguished crater, whose base bounds the northeast part of the village or town. . . . Below us, on the south and west, spread the plain of Honolulu, having its fishponds and salt making pools along the seashore, the village and fort between us and the harbor, and the valley stretching a few miles north into the interior, which presented its scattered habitations and numerous beds of kalo (arum esculentum) in its various stages of growth, with its large green leaves, beautifully embossed on the silvery water, in which it flourishes. [Bingham 1847:92–93]

The Kukuluāe‘o region would have been in Bingham's view as he stood atop "Punchbowl Hill" looking toward Waikīkī to the south; it would have comprised part of the area he describes as the "plain of Honolulu" with its "fishponds and salt making pools along the seashore."

Another visitor to Honolulu (which as a result of variations in pronunciation is also written as Honoruru, and on some maps, Honoonoono) in the 1820s, Captain Jacobus Boelen, hints at the possible pre-Contact character of Honolulu and its environs, including the Kukuluāe‘o area:

> It would be difficult to say much about Honoruru. On its southern side is the harbor or the basin of that name. The landlocked side in the northwest consists mostly of tarro [sic] fields. More to the north there are some sugar plantations and a sugar mill, worked by a team of mules. From the north toward the east, where the beach forms the bight of Whytetee [Waikīkī], the soil around the village is less fertile, or at least not greatly cultivated. [Boelen 1988:62]

Boelen’s description implies the Kukuluāe‘o region and the current project area are within a “not greatly cultivated” region of Honolulu perhaps extending from Pūowaina (Punchbowl Crater) at the north through Kaka‘ako to the Kālia portion of Waikīkī in the east.

An early, somewhat generalized depiction of pre-Contact Native Hawaiian shaping of Waikīkī, Honolulu, and the Kukuluāe‘o region is given on an 1817 map by Otto von Kotzebue (1821), commander of the Russian ship *Rurick*, who had visited O‘ahu the previous year. The map (Figure 10) shows taro *lo‘i* (the rectangles, representing irrigated fields) massed around the streams descending from Nu‘uanu and Mānoa valleys. The depicted areas of population and habitation concentration (illustrated by the trapezoids) probably reflect distortions caused by the post-Contact shift of Hawaiians to the area around Honolulu harbor—the only sheltered landing on O‘ahu and the center of increasing trade with visiting foreign vessels. Kamehameha himself had moved from Waikīkī to Honolulu in 1809.

Kotzebue’s map illustrates that the land between Pūowaina (Punchbowl Crater) and the shoreline—which would include the Kukuluāe‘o area—formed a “break” between the heavily populated and cultivated centers of Honolulu and Waikīkī; the area is only characterized by fishponds, salt ponds, trails connecting Honolulu and Waikīkī, and occasional taro *lo‘i* and habitation sites.

A clearer picture of Kukuluāe‘o and the current project area develops with accounts of other visitors to and settlers of Honolulu during the first half of the nineteenth century. Gorman D. Gilman, who arrived in Honolulu in 1841, recalled in a memoir the limits of Honolulu during the early 1840s:

> The boundaries of the old town may be said to have been, on the *makai* side, the waters of the harbor; on the *mauka* side, Beretania street; on the Waikīkī side [i.e., the area just beyond Punchbowl Street], the barren and dusty plain, and on the Ewa [west] side, the Nuuanu Stream. [Gilman 1903:97]

Gilman further describes the “barren and dusty plain” beyond (east of) Punchbowl Street:

> The next and last street running parallel [he had been describing the streets running *mauka-makai*, or from the mountains to the shore] was that known as Punchbowl Street. There was on the entire length of this street, from the *makai* side to the slopes of Punchbowl, but one residence, the two-story house of Mr. Henry Diamond, *mauka* of King Street. Beyond the street was the old Kawaiahao church and burying ground. A more forsaken, desolate looking place than the latter can scarcely be imagined. One, to see it in its present attractiveness of fences, trees and shrubbery, can hardly believe its former desolation, when without enclosure, horses and cattle had free access to the whole place. [Gilman 1903:89]

That the environs of the missionary enclave and Kawaiaha‘o Church were indeed “forsaken” and “desolate looking” in the 1820s when the missionaries first settled there is confirmed in the memoirs of the American missionary C.S. Stewart. Stewart arrived on Maui after living at the mission and declared Lahaina to be “like the delights of an Eden” after “four weeks residence on the dreary plain of Honoruru” (Stewart 1970:177). It is likely these descriptions of the Honolulu Plain also include—at least for western sensibilities—the Kukuluāe‘o region. The barrenness of

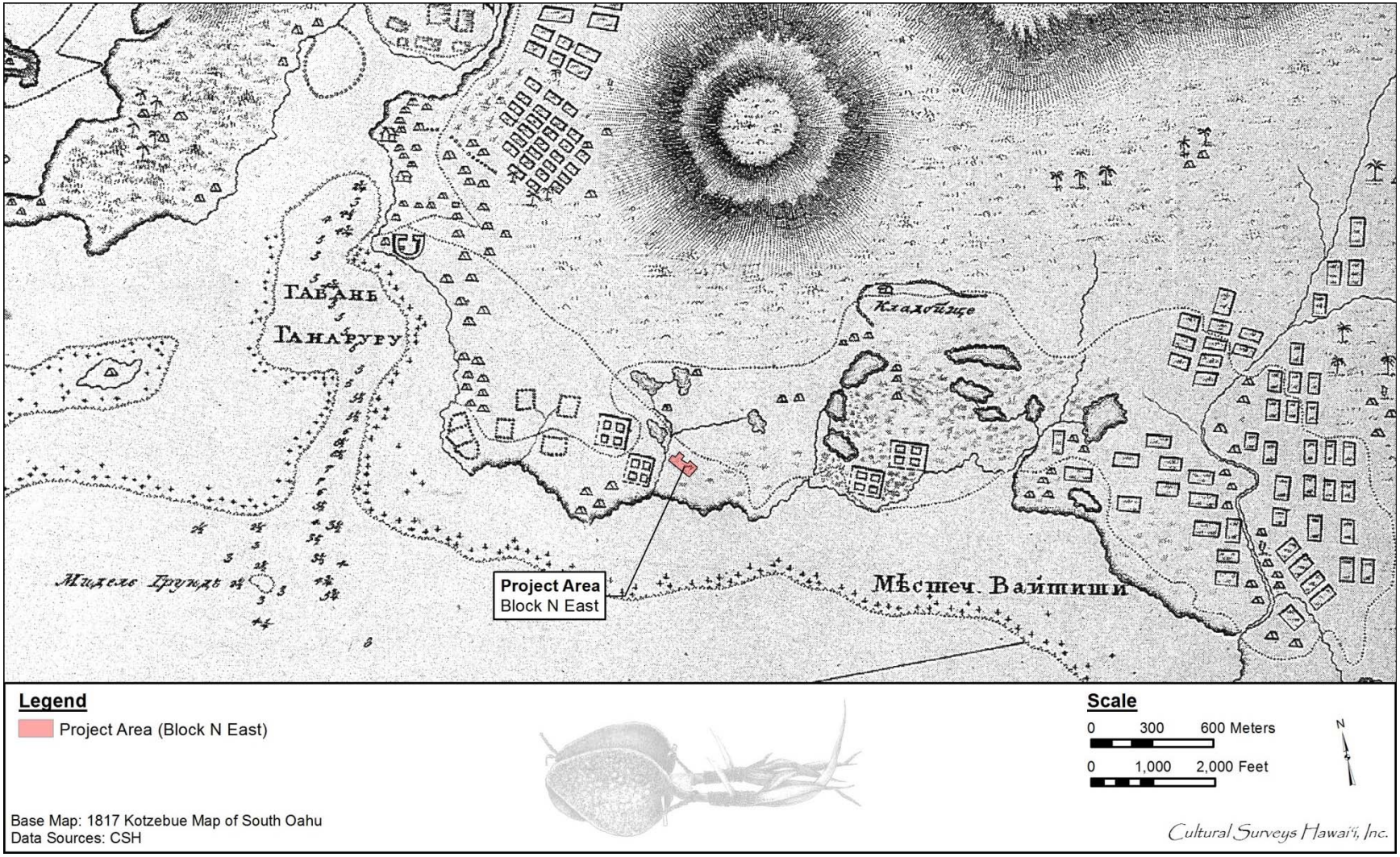

Figure 10. 1817 map by Otto von Kotzebue showing taro *lo‘i*, fishponds, and salt pans in Honolulu and Waikīkī; few habitations are depicted along much of the shoreline portions near the project area (map reprinted in Fitzpatrick 1986:48–49)

the Kukuluāe‘o area is illustrated in two sketches, one made in 1834 (Figure 11) when Kawaiaha‘o Church was still a long grass-thatched building and one made in 1853 (Figure 12) after the grass hut had been replaced by a large coral stone structure with a steeple. Between Kawaiaha‘o Church and the sea are only a few scattered huts along the shore and aligned with the inland trail (now covered by King Street). The project area would be *makai* and left (east) of the church along the shore. An 1887 photograph of the area (Figure 13 and Figure 14) also shows the marshy nature of the area, with only scattered houses near the ponds or near the shore *makai* of Kawaiaha‘o Church The missionary families grazed their cows in the lands *makai* of the mission houses (*Paradise of the Pacific* 1950:21).

3.1.4 Mid-Nineteenth Century and the Māhele

In 1845, the Board of Commissioners to Quiet Land Titles, also called the Land Commission, was established “for the investigation and final ascertainment or rejection of all claims of private individuals, whether natives or foreigners, to any landed property” (Chinen 1958:8). This led to the Māhele, the division of lands between the king of Hawai‘i, the *ali‘i* (chiefs), and the common people, which introduced the concept of private property into Hawaiian society. In 1848, Kamehameha III divided the land into four divisions: Crown Lands to be reserved for himself and the royal house; Government Lands set aside to generate revenue for the government; Konohiki Lands claimed by *ali‘i* and their *konohiki* (supervisors); *kuleana*, habitation and agricultural plots claimed by the common people (Chinen 1958:8–15). The common people presented their claim, several witnesses confirmed that the person lived on or used the land, the parcel was surveyed, and the claimant was presented with the award.

The *‘ili* of Kukuluāe‘o (LCA 387) was awarded to the American Board of Commissioners for Foreign Missions (ABCFM). The claim (in English) with witness testimony and the award (in Hawaiian) with a map of the surveyed lot are presented in Appendix B. Initially this land was associated with Punahou School in Makiki and Mānoa valleys, as Chief Boki gave the Punahou lands to Hiram Bingham, pastor of Kawaiaha‘o Church in 1829 (DeLeon 1978:3), as stated in the LCA testimony:

> The boundaries of that part which lies on the sea shore we cannot define so definitely, but presume there will be no difficulty in determining them as it is commonly known as pertaining to Punahou. This part embraces fishing grounds, coral flats & salt beds. [Land Commission Award 387; see Appendix B]

In the Māhele, however, this sea land became “detached” from the Mānoa award and was instead given to the pastor of the Kawaiaha‘o Church, as noted in Punahou School history:

> There belonged in former times, as an appurtenance to the land known as Kapunahou, a valuable tract of salt-ponds, on the sea-side to the east-ward of Honolulu harbor, called Kukuluaeo, and including an area of seventy-seven acres. At the time of the settlement of land claims before the Land Commission, application was made for it by the successor of Mr. Bingham in the pastorate of Kawaiahao Church—he believing it to be a glebe land for the support of that church. His claim was resisted by the then Principal of Punahou School, but

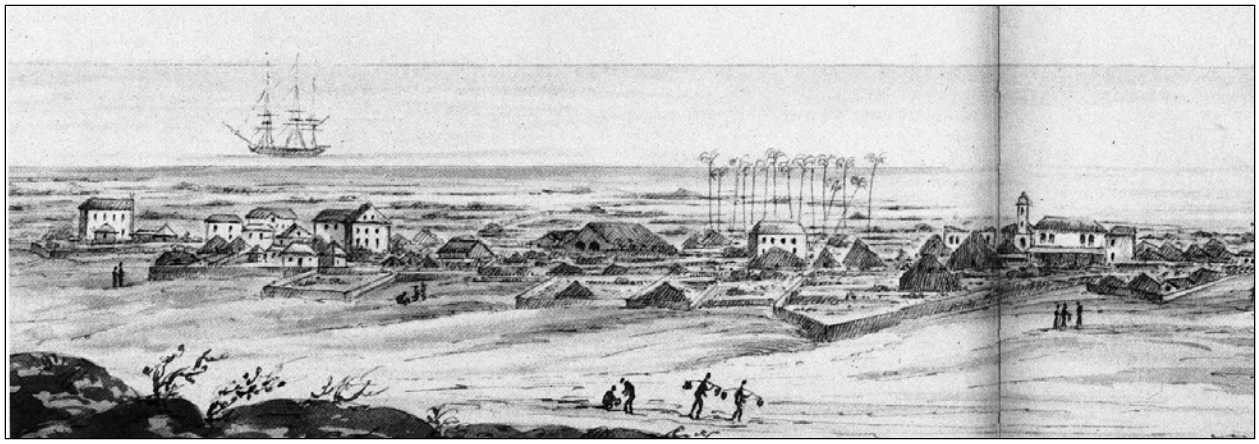

Figure 11. “Town of Honolulu: Island of Woahoo: Sandwich Islands,” portion of 1834 sketch by anonymous illustrator; the project area is east and south (left and back) of Kawaiaha‘o Church, the long thatched structure in the center of the sketch (original sketch at Bernice Pauahi Bishop Museum; reprinted in Grant 2000:64–65)

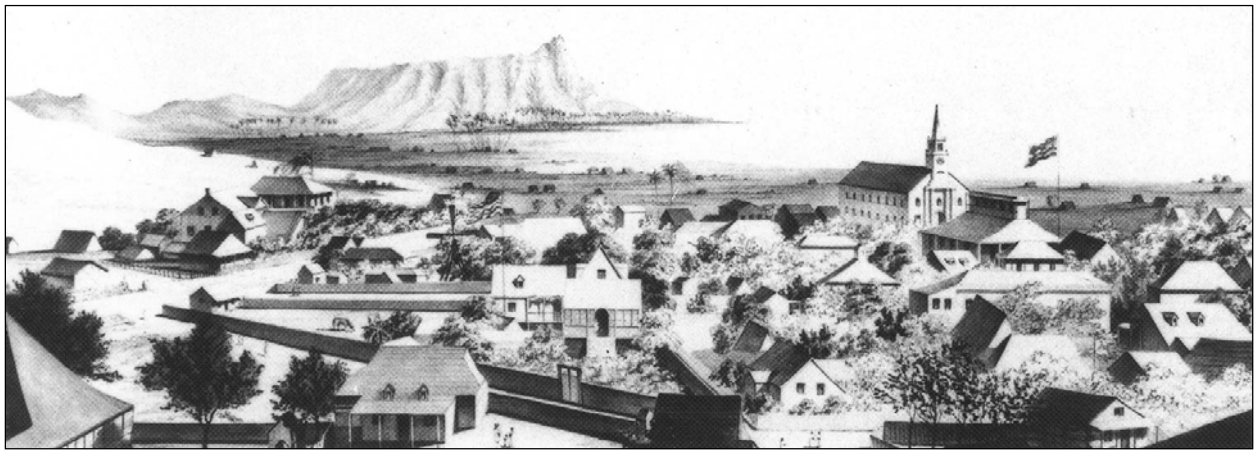

Figure 12. “View of Honolulu from the Catholic Church No. 2,” central panel of sketch by Paul Emmert ca. 1853; the project area is east and south (left and back) of the coral block Kawaiaha‘o Church (structure with steeple completed in 1842) (original sketch at Hawaiian Historical Society; reprinted in Grant 2000:5)

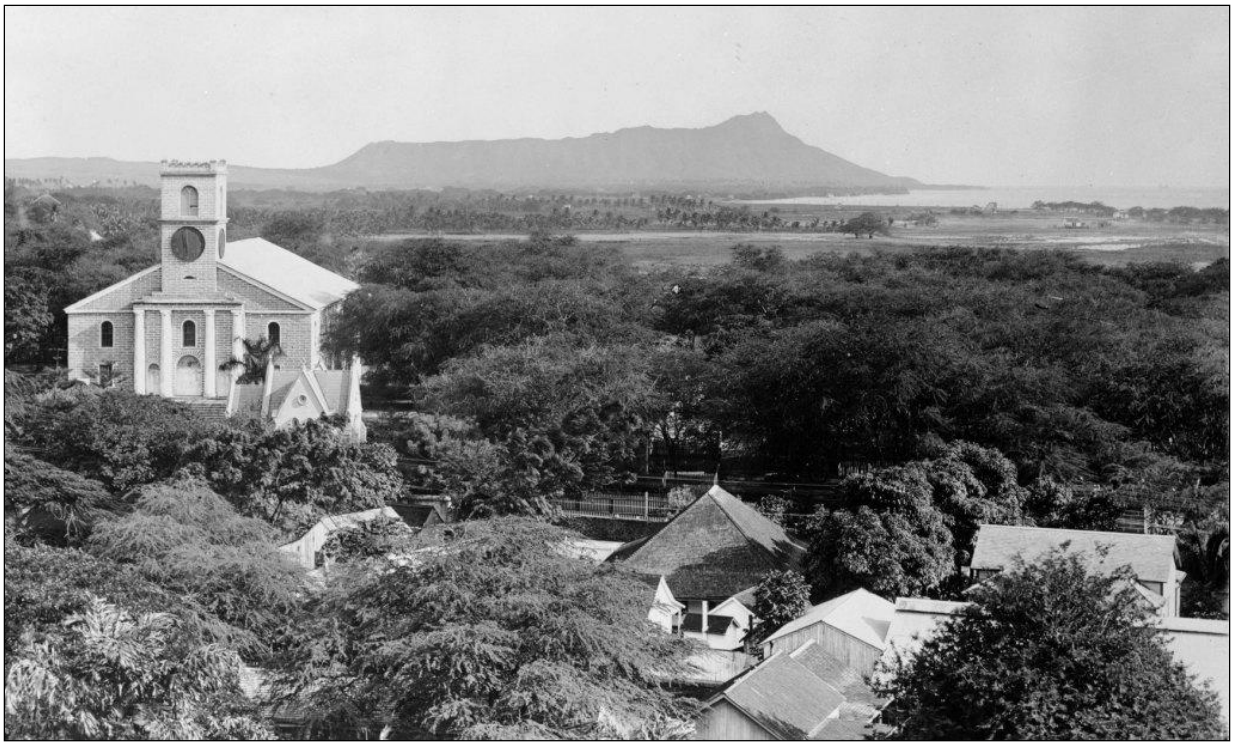

Figure 13. Kawaiaha‘o Church and Honuakaha Village, ca. 1887 photograph; the Ward’s House roof cupola, on the *mauka* end of Old Plantation, can be seen to the left of the church steeple; the project area is within the marshlands to the rear of the church (Hawai‘i State Archives, Henry L. Chase Collection; reprinted in Stone 1983:84–85)

Figure 14. Kaka‘ako area, portion of a ca. 1887 photograph (see Figure 13 above), close-up of right upper background area, showing marshlands and scattered huts along the coast

> without success, and a Royal Patent was issued, severing it from the Punahou estate, and awarding it to the applicant as his private property. [Punahou School and Oahu College 1866]

Within this larger award were eight *‘āpana* (lots) of five *kuleana* awards to commoners: LCA 1503 (*‘Āpana* 1, 2, and 3), LCA 1504, LCA 1903 (*‘Āpana* 2), LCA 9549, and LCA 10463 (*‘Āpana* 1 and 2). The 1884 map by Sereno Bishop shows the location of these LCA parcels, and other parcels outside the project area (Figure 15). This figure is color-coded to match the description of lands indicated in the LCA testimonies, blue for fishponds, yellow for salt ponds or salt lands, and orange for house lots. As can be seen, the salt lands are mainly along the coast, the fishponds are usually located *mauka* of Queen Street, and the house lots are clustered around established roads, especially Queen and King streets. No LCA *kuleana* lots are located within the project area.

3.1.5 Nineteenth Century Land Use in Kukuluāe‘o

3.1.5.1 Salt Making

In the testimony for LCA 10463 (located just west of the current project area), salt lands, ditches, and deposits (probably related to salt) were mentioned. In the testimony for LCA 1903 (located southwest of the current project area), two *ālia* (salt beds), 15 *ho‘oliu*, two *poho kai*, and one salt *kula* were claimed. Four separate types of salt features are mentioned—the ponds near the shore that fill with salt water at high tide (*ālia*), the drains (*ho‘oliu*) where salt water is transferred to smaller clay-lined or leaf-lined channels, the natural depressions (or modified depressions) in the rocks along the shore where salt formed naturally (*poho kai*), and the salt *kula*, which was waste land, land that could probably not be used for agriculture as it was impregnated with salt. The claimant of LCA 1504 (located northwest of the current project area), Pahiha, had a house near his fishpond and salt bed. The house was probably a simple grass hut, similar to those shown on an 1838 sketch entitled “Honolulu Salt Pans, Near Kakaako” and the one shown on an 1845 sketch of Kawaiaha‘o Church viewed from the “Old Salt Pans” (Figure 16 and Figure 17).

As indicated by the description of various salt features, traditional Hawaiian salt production was accomplished by diverse methods. The Native Hawaiian historian, David Malo, described one salt making method:

> Salt was manufactured in certain places. The women brought sea-water in calabashes, or conducted it in ditches to natural holes, hollows, and shallow ponds (kekaha) on the sea-coast, where it soon became strong brine from evaporation. Thence it was transferred to another hollow or shallow vat, where crystallization into salt was completed. [Malo 1951:123]

Captain Cook was the first to note the method of making salt in prepared salt pans:

> Their salt pans are made of earth, lined with clay; being generally six or eight feet square, and about eight inches deep. They are raised upon a bank of stones near the high-water mark, from whence the salt water is conducted to the foot of them, in small trenches, out of which they are filled, and the sun quickly performs the necessary process of evaporation. . . . Besides the quantity we used in salting

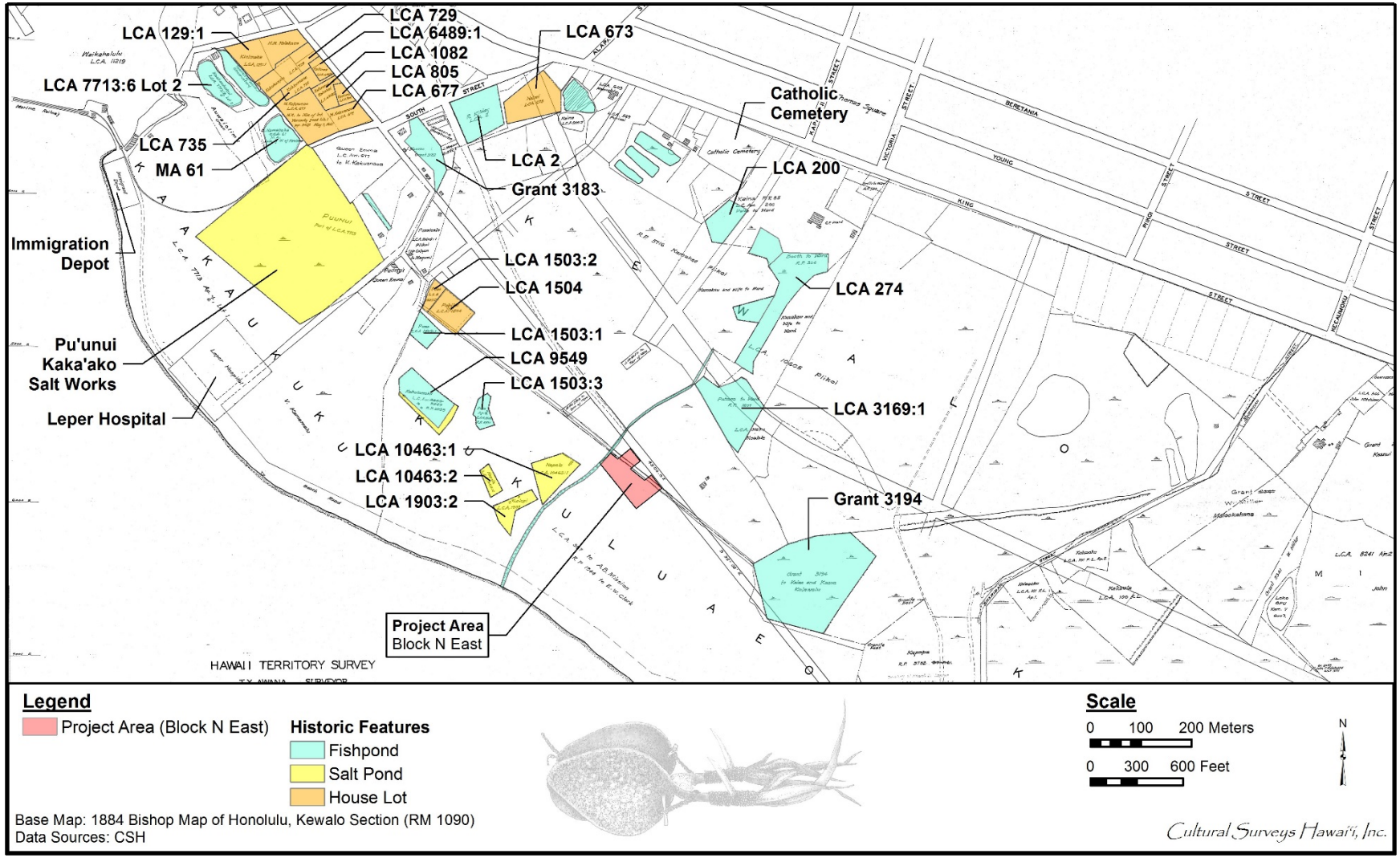

Figure 15. 1884 map of Honolulu, Kewalo Section (portion), by Sereno Bishop (Hawai‘i Land Survey Division, Registered Map 1090), showing the locations of LCA parcels, fishponds, salt lands, and house lots surrounding the project area; there are no LCAs parcels located within the project area

> pork, we filled our empty casks, amounting to sixteen puncheons, in the Resolution only. [Cook 1784:151]

The missionary William Ellis, on a tour of the Hawaiian Islands in 1822 and 1823, also noted these salt pans and recorded the final step of crystallization.

> The natives of this district (Kawaihae) manufacture large quantities of salt, by evaporating sea water. We saw a number of their pans, in the disposition of which they display great ingenuity. They have generally one large pond near the sea, into which the water flows by a channel cut through the rocks, or is carried thither by the natives in large calabashes. After remaining there for some time, it is conducted into a number of smaller pans about six or eight inches in depth, which are made with great care, and frequently lined with large evergreen leaves, in order to prevent absorption. Along the narrow banks or partitions between the different pans, we saw a number of large evergreen leaves placed. They were tied up at each end, so as to resemble a narrow dish, and filled with salt water, in which the crystals of salt were abundant. [Ellis 1827:403–404]

Following Western Contact in 1778, commercial trading vessels began to frequent Hawaiian waters at an increasing rate; one important reason for their visit was to trade for salt. Kotzebue noted during his visit in 1816 and 1817 that "Salt and sandalwood were the chief items of export" (Thrum 1905:50).

> The journals of none mention the object of call other than for refreshments, though [*Turnbull's Voyage 1800–1804*] records the scarcity and high price of salt at the several points touched at, with which to serve them in the curing of furs obtained on the coast. In all probability salt was the first article of export trade of the islands and an object, if not the object, of these pioneer fur-traders' call. [Thrum 1905:45]

In order to supply this demand, commercial salt production works began to multiply throughout the early to late 1800s, including within the Kaka‘ako area. Figure 18 (1883 Baldwin map) shows a large grid-like area of historic salt pans that extends across a large portion of Kaka‘ako. The current Block N East project area appears to be just outside (at the northeastern fringe) this salt works zone.

In an article on Hawaiian salt works, Thomas Thrum (1924:116) mentions a salt works in Kaka‘ako, likely the Kaka‘ako Salt Works, in the vicinity of the present Ala Moana Shopping Center.

> Honolulu had another salt-making section in early days, known as the Kakaako salt works, the property of Kamehameha IV, but leased to and conducted by E.O. Hall, and subsequently E.O. Hall & Son, until comparatively recent years. This enterprise was carried on very much after the ancient method of earth saltpans as described by Cook and Ellis. [Thrum 1924:116]

A description of these salt works within the January 1892 *Planters' Monthly* illustrates the complexity of this commercial industry.

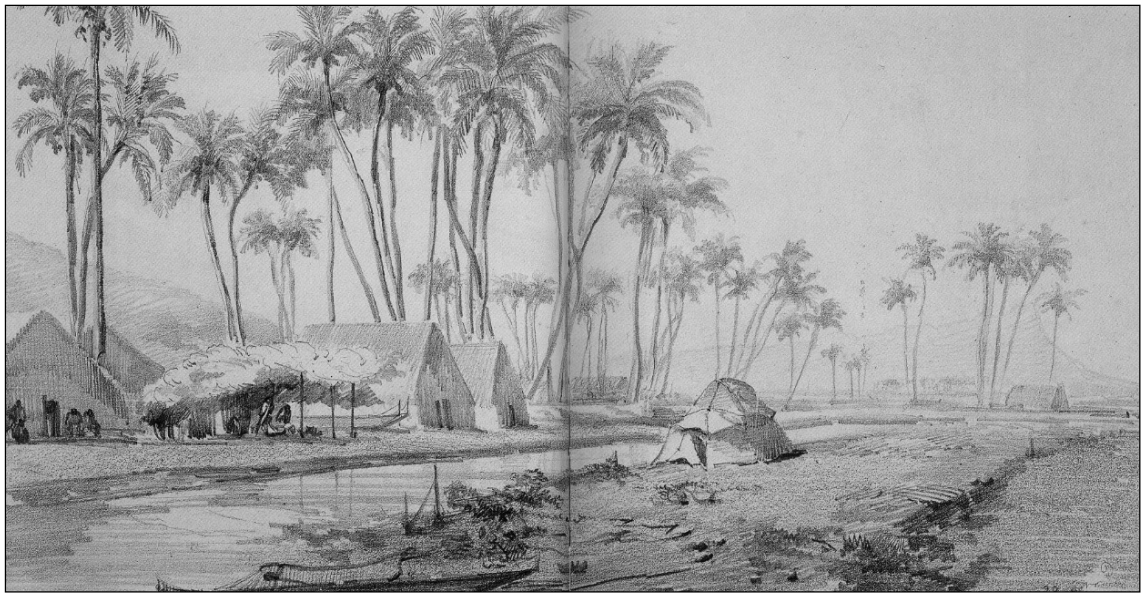

Figure 16. “Honolulu Salt Pan, near Kaka‘ako,” 1838 sketch drawn by a French visitor, Auguste Borget (original sketch at Peabody Essex Museum, Salem, Massachusetts; reprinted in Grant 2000:64–65)

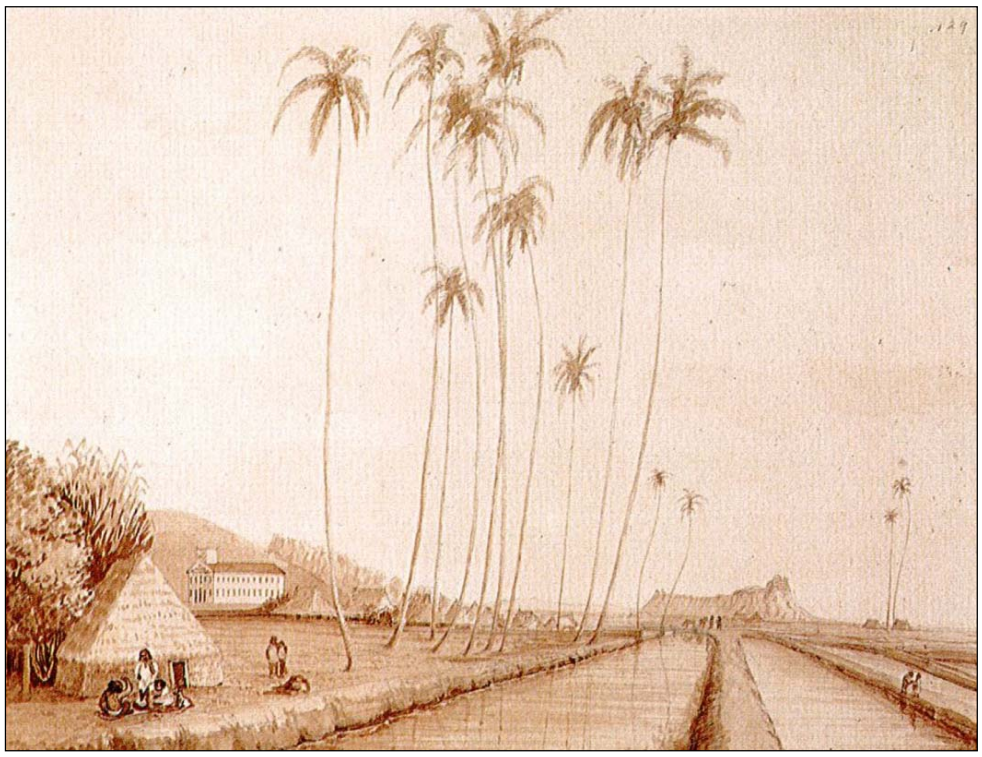

Figure 17. “Native Church [Kawaiaha‘o Church], Oahu, from the Old Salt Pans,” 1845 sketch drawn by John B. Dale, from the U.S. Exploring Expedition led by Lt. Charles Wilkes (J. Welles Henderson Collection, reprinted in Forbes 1992:126); the sketch is probably from the salt pans in Ka‘ākaukukui, west of the project area

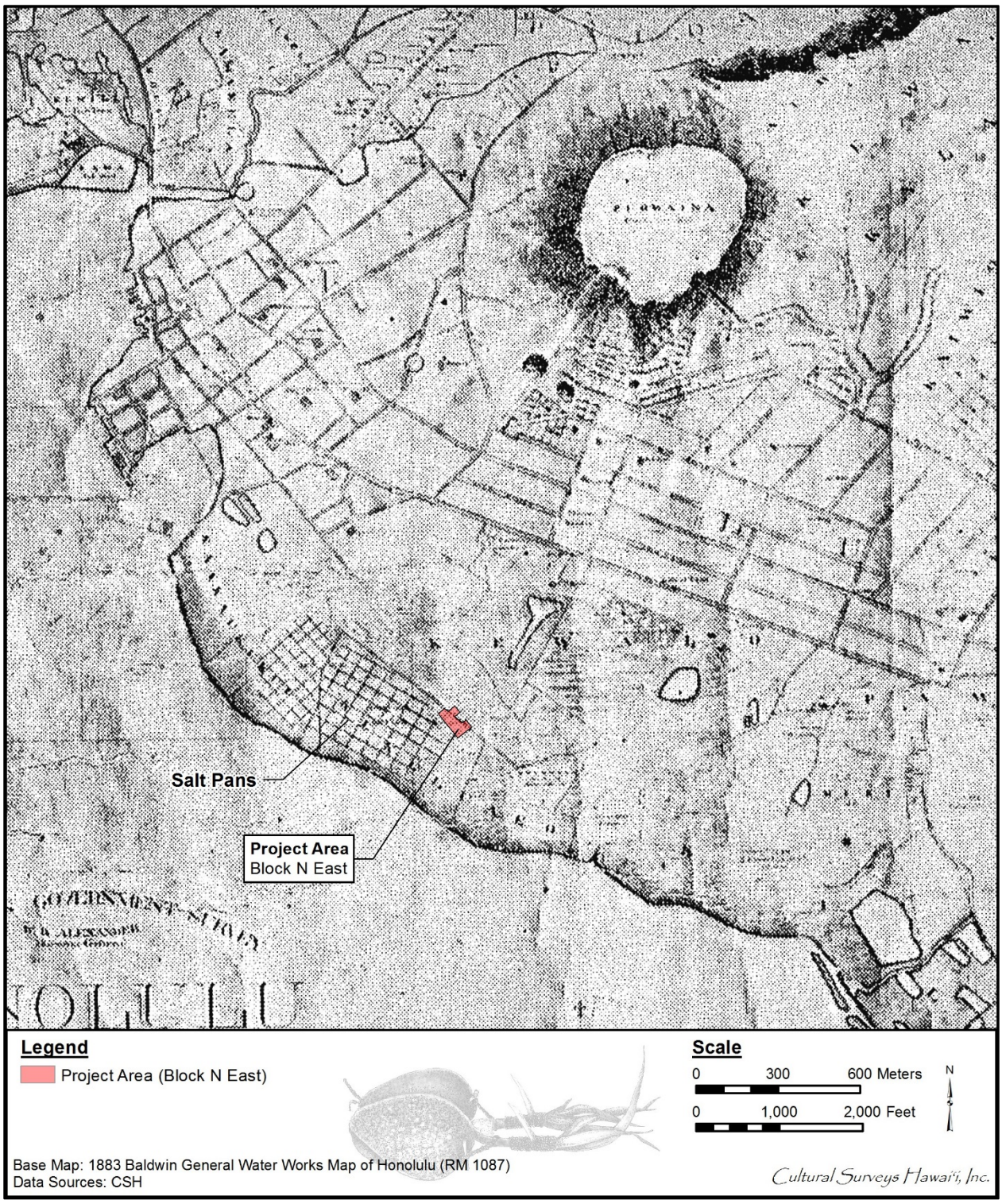

Figure 18. 1883 map of the Honolulu Water Works System (portion), by E.D. Baldwin (1883) (Hawai‘i Land Survey Division, Registered Map 1087); the grid symbol represents salt pans

These salt works are laid out systematically and beautifully and one is surprised with the regularity and evident perfection of every arrangement and of every process in connection with it. One would suppose that a skilled mason with a trowel, stones and cement, had been used in constructing these works, and still nothing of the kind was used. The soil here is of a clay or loamy substance, and can be worked into any shape or form, and seems to be formed by nature for this very purpose. These works are quite extensive covering about eight acres, and comprising at present fifty-six sets of ponds, seven ponds to a set.

On each side of the works there are canals which extend to the ocean. These canals supply the storage ponds, which latter again supply the evaporating ponds, which the water runs into the strike ponds, where the crystals are formed. The salt water passes along gradually from pond to pond, and takes usually a week to reach the strike pond. In this way the water gets denser and denser until it is saturated with a very dense of solution of salt, when it crystalizes rapidly. The water in the strike ponds is not more than 1½ inches deep, the two adjoining ponds, a little deeper the next a little deeper and so on.

These ponds are connected with each other by troughs and wooden pipes. These troughs are well made and twice tarred before being put in place. The strike ponds are also protected from the wind with good substantial fences, the object of this is to keep the water as still as possible.

In the process of crystallization the sun does all the work, the water however has to be agitated at intervals to settle the crystals which have formed on the top of the water, like a thin crust of ice.

There are nearly sixty strike ponds and they each take off a strike every seven to fourteen days, according to the weather, the amount of salt per strike is on an average 850 pounds for each pond. The strike ponds are arranged parallel with each other with their tributary or auxiliary ponds between. These are convenient roads, paths, etc., for the transportation of the salt, and good substantial store-houses for storing the same.

The water used is pure and clean and comes always from the direction of Waikiki. The salt manufactured here is fine grain, white and clean, and looks as good as any of the best salt imported.

The salt is handled with care, and thoroughly dried before being put on the market. The only piece of machinery noticed here is a genuine Chinese pump, made by hand, and is very simple in construction, but at the same time will throw more water than any other pump devised by white men.

The labor on the Salt Farm is all done by Chinese, as no other class of labor has ever given satisfaction, though Hawaiians and Portuguese have been employed. The evaporating season commences about April of each year, and lasts six or seven months. No salt can be made in rainy weather. [*Planters' Monthly* 1892:446–448]

Figure 19 shows these types of large scale historic salt works, comprised of grid-like salt pans separated by man-made berms, wide transport causeways, and water transport channels.

Thrum (1924:116) states that the apex of the salt export trade in the Hawaiian Islands was in 1870, and that by 1883 “pulu, salt, and oil have disappeared entirely” from the list of yearly exports (Thrum 1884:68). However, salt continued to be manufactured for local use, as evidenced by the continued existence of the Kaka‘ako Salt Works until at least 1891. Thrum (1924:116) noted that the only salt producer on O‘ahu in 1916 was the Honolulu Salt Company. This is substantiated by a 1916 Commerce Report that in its discussion regarding salt production only mentioned the Honolulu Salt Company, which operated “salt beds at Puuloa, Kalihi, and Waikiki” (Taylor 1916:723).

3.1.5.2 The Ward Estate

The *mauka* portion of the Ward Estate (north of Queen Street) is within the *‘ili* of Kewalo, and was part of LCA 272 to Joseph Booth. Joseph Booth was an early English resident of the Hawaiian Islands who operated a saloon and hotel in Honolulu, known at the time of the Māhele as the Eagle Tavern (Greer 1994:54). He was granted lands in downtown Honolulu (where the tavern was located), in Kewalo Uka (Pacific Heights area), in the *‘ili* of Kapuni, and in an area with “Three fish ponds, and a part of the plain near the road leading to Waikiki.” Little information on these three fishponds is given in the LCA testimony, but the Royal Patent No. 306 for these lands, mentions one known as “the large fishpond” or “long fishpond” (*loko ia nui*), which had two huts beside it. This pond would later be modified into the “lagoon” on the Ward estate.

Curtis Perry Ward, a native of Kentucky, came to the Hawaiian Islands in 1853, and soon established a livery and draying business, moving goods from the harbor to Honolulu town and loading goods at the docks for the whaling and shipping industries. In 1865, he married Victoria Robinson, who was descended from the Hawaiian *ali‘i* and early French and British residents (Hustace 2000:21–29). For his new family, Ward purchased at auction the 12-acre estate of Joseph Booth, Royal Patent 306, and additional contiguous lands in the Kō‘ula area in 1870. This constituted the *mauka* portion of the “Old Plantation,” from Thomas Square on King Street to the *makai* border at Waimanu Street. A few years later (before 1875), Ward added to his property with the purchase of 77 acres and 3,000 ft of ocean frontage in the *‘ili* of Kukuluāe‘o, *makai* of Queen Street (Hustace 2000:37–38) (Figure 20). The Wards had a permanent easement for the *‘auwai* (ditch) that extended from the long fishpond to the sea through the Kukuluāe‘o section (Figure 21). *Makaloa* grass (*Cyperus laevigatus*; Wagner et al. 1990), used to make mats and hats, grew along this *‘auwai* and was one source of income for the family (Hustace 2000:7–55). The alignment of this ditch is shown on Figure 22; today it is between the alignments of Ward Avenue and Cummins Street.

Workers were hired to clear the fishponds and ditches, plant taro in the fishponds, fence in pastures for the horses, plant 6,000 coconut trees, plant *kiawe* trees (*Prosopis pallida*; Wagner et al. 1990) for firewood, and restore the *kāhaka* (salt pans) near the shore (Hustace 2000:41). A house in the southern style was built at the *mauka* end of the property near King Street, and the fishponds were modified into a long “lagoon.” An article in the *Pacific Commercial Advertiser* reported:

Figure 19. Historic salt works within Kaka‘ako, 1902 photograph (Bishop Museum Archives, reprinted in Scott 1968:579)

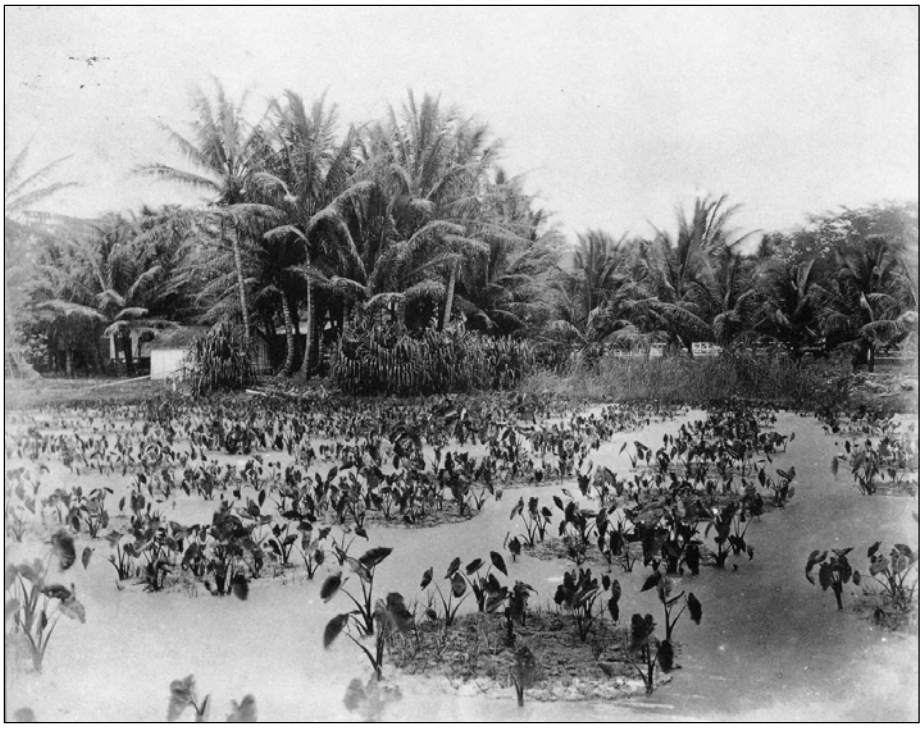

Figure 20. The Kukuluāe‘o portion of the Ward Estate, nineteenth century photograph (reprinted in Hustace 2000:49)

Figure 21. The Old Plantation *‘auwai*, extending from the sea to the *mauka* “lagoon” of the Ward Estate, nineteenth century photograph, view north toward Punchbowl (Hustace 2000:51)

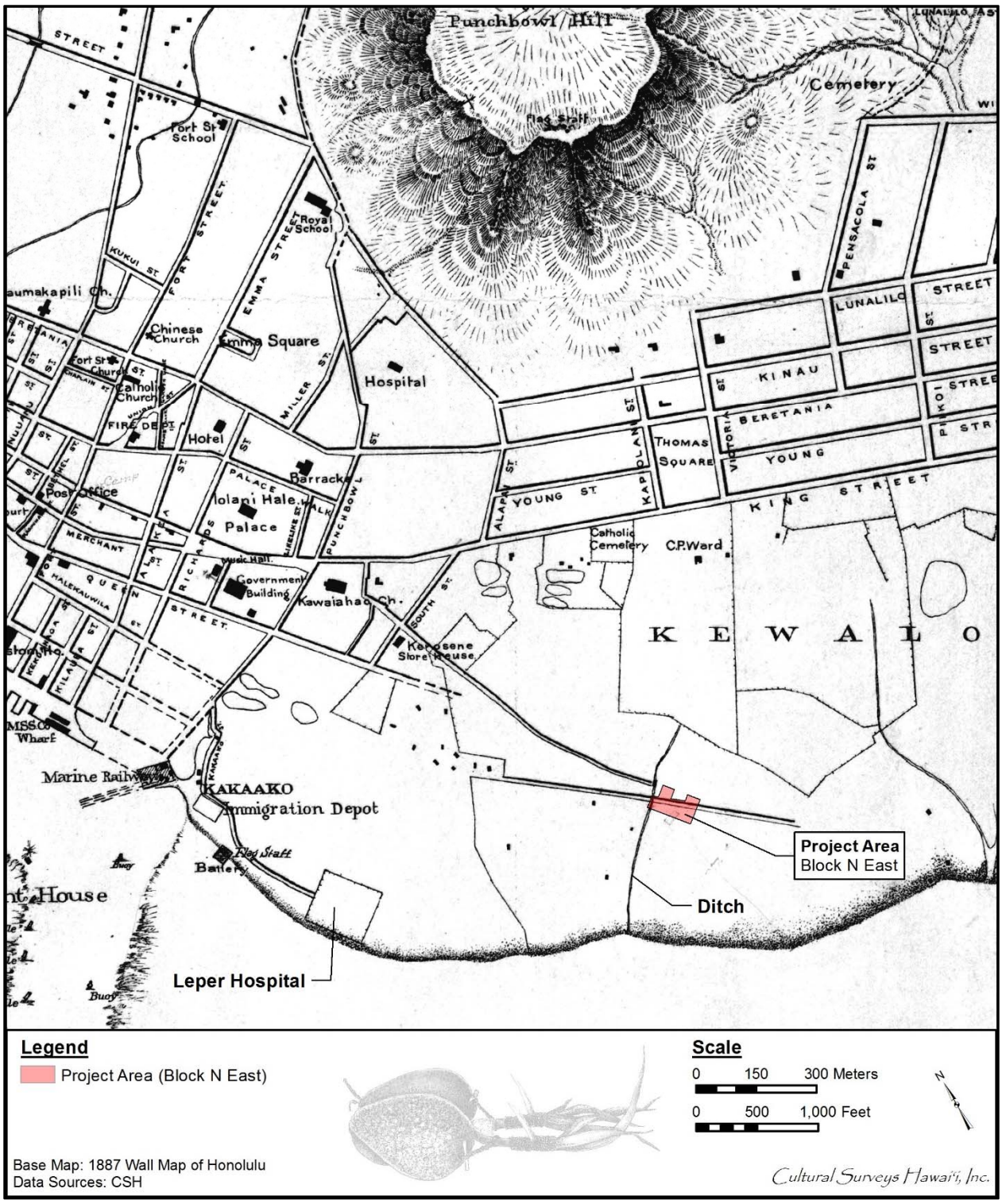

Figure 22. 1887 map of Honolulu (portion), by W.A. Wall (copy at Library of Congress, Geography and Map Division), showing the project area location and the Ward Estate *‘auwai* (labeled ditch)

> In taking a drive out on the Kulaokahua continuation of King street, attention is attracted to the premises just beyond the Catholic cemetery, the property of Mr. C. P. Ward. The lot consists of some thirty acres, and is thickly planted with algaroba and, in rows, there are some seven thousand thrifty young cocoanut trees. . . . The algarobas will certainly be valuable as firewood, and the cocoanuts alone will in a few years produce a handsome income. The property is well watered by means of pumps driven by windmills, there being an inexhaustible supply of water a few feet below the surface of the plains. [*Pacific Commercial Advertiser*, 4 September 1875:3]

Income from the 111-acre estate was also generated by leasing the rights to the Kukuluāe‘o fishery, which was part of the Kukuluāe‘o LCA 387 award. After the death of her husband in 1882, Victoria Ward derived much of her income from “eggs, bananas, firewood, *‘awa*, taro leaf, *makaloa* grass, chickens, fish, hay, pigs, salt, white sand, *mānienie* grass [*Cynodon dactylon*; Wagner et al. 1990], hides, butter, squid, and horses” (Hustace 2000:47) collected from the estate. On this estate, Victoria Ward raised her seven daughters, Mary (Mrs. Ernest Hay Wodehouse), Keakealani (Mrs. Robert Booth), Annie (Mrs. Wade Armstrong), Mele Elizabeth (Mrs. Frank Hustace, Sr.), and three unmarried daughters, Kathleen, Lucy, and Kulumanu Ward.

By 1901, most of the fishponds and salt pans *makai* of Queen Street were reported as abandoned. In that year, the Hawaii First Legislature Assembly (1901:185) proposed to build a ditch to drain away the “foul and filthy water that overflows that district at the present time.”

> The district makai of King St. and the Catholic Cemetery, Ewa of Mrs. Ward’s (the Old Plantation), mauka of Clayton St., and Waikiki of the land from King St., leading to the Hoomananaauao Church, consists of six large abandoned fish ponds and a large number of smaller ones, all in filthy condition, fed by springs and flowing into Peck’s ditches. Just makai of these ponds, at the end of Clayton street, next to Mr. Ward’s, is Peck’s place. An artesian well flushing the wash houses flows into two foul ditches, thence to the big pond which is Waikiki of what used to be Cyclomere and next to Mrs. Ward’s line [ditch] extending down to Waimanu St.
>
> The rear portion of Mrs. Ward’s property down to Waimanu St. used to be fish ponds all connecting to the sea by a ditch which is fed by an artesian well. These ponds, with the exception of three, are abandoned. [Hawaii First Legislature Assembly 1901:185]

In 1930, Victoria Ward incorporated Victoria Ward, Limited to manage the estate. In 1957, the City and County of Honolulu purchased the *mauka* portion of the estate to construct the new Blaisdell Civic Center (Hustace 2000:67, 77).

3.1.6 Twentieth Century Land Use

3.1.6.1 Trash Burning and the Kaka‘ako and Kewalo Incinerators

In the early years of garbage disposal, all trash was dumped into low-lying ground or landfills, or burned in an open area. To reduce the volume of waste, plans were made to build incinerators, where “putrescible” trash (mainly animal and fish waste) could be burned, while non-animal

material, called “combustible” waste, was still disposed of in the earlier method (Young 2005). Thomas Thrum reported on the first incinerator in the Kaka‘ako area in 1905 and 1906:

> Early in the year was completed the long projected garbage crematory for the disposal, daily, of the city’s refuse by a patent and sanitary process. It is located on the shore of Kakaako, adjoining the sewer pumping station; is two stories in height and built of brick. [Thrum 1905:177]

> The dredging of Honolulu harbor and its channel is completed as far as planned for the present, and excavations for the *Alakea* and *Kinau* slips finished, the material therefrom being used to fill in a large area of Kakaako and the flats in the vicinity of the sewer pumping station and garbage crematory. The amount of material removed by the Federal dredging was a million and a half cubic yards. [Thrum 1906:148–149]

For the incinerator, Thrum noted,

> The new station is built on piles on reclaimed land that is being filled in from the coral dredgings that is going on, and is gradually taking on a tropical appearance. . . . Adjoining its premises on the mauka side is the new building designed for the Planters’s Association for their labor bureau. [Thrum 1906:148–149]

In the early 1920s, trash was burned in the open at the Ala Moana Dump (landfill area *makai* of Ala Moana Boulevard) (Figure 23). The Hawaii Public Works recommended that an incinerator should be built for the burning of “putrescible” waste. The Kewalo Incinerator (Incinerator Number 1) was built in the Italianate-style, at the intersection of Ahui and Olomehana streets in 1930 by the City and County of Honolulu. The facility was built to dispose of waste from the Ala Moana dump and in the late 1940s, the ash was used to fill the seawall in Ka‘ākaukukui to create 29 additional acres of land, adjacent to Fort Armstrong (Figure 24). It ceased operations in 1945 when a new incinerator was built. The second incinerator, built on Ohe Street from 1946–1948, was used for waste burning until 1997 (Mason Architects 2002).

3.1.6.2 Kaka‘ako Reclamation

The first efforts to deepen Honolulu Harbor were made in the 1840s. The idea to use the dredged material, composed of sand and crushed coral, to fill in low-lying lands, was quickly adopted. Between 1857 and 1870, the “Esplanade” between Fort and Alakea streets was created on 22 acres of filled-in former reef and tideland. By 1874, Sand (Quarantine) Island, site of the first immigration station, had been created as “reclaimed” land atop the reefs (Hawaii Department of Transportation, Harbors Division 2007:3).

By the 1880s, filling-in of the mud flats, marshes, and salt ponds in the Kaka‘ako and Kewalo areas had begun. This filling was pushed by three separate but overlapping improvement justifications. The first directive or justification was for the construction of new roads and raising the grade of older roads so improvements would not be washed away by flooding during heavy rains. A report by the Hawaii Board of Health (1908) noted the following:

> I beg to call attention to the built-up section of Kewalo, ‘Kaka‘ako,’ where extensive street improvements, filling and grading have been done. This, no doubt, is greatly appreciated and desirable to the property owners of that locality,

Figure 23. Open-air burning of trash in area between Kewalo Basin and Ala Moana Park, 1921 photograph (Hill 1921, reprinted in Scott 1968:578)

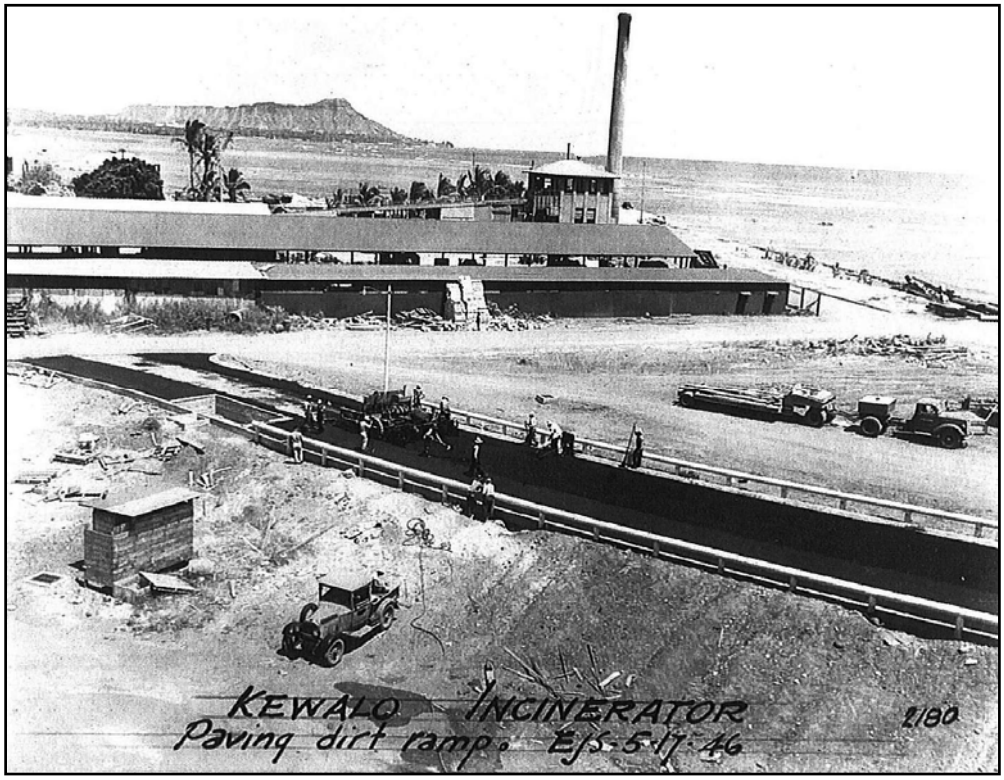

Figure 24. 1946 photograph of Kewalo Incinerator No. 1, west side of Kewalo Harbor (Mason Architects 2002)

> but from a sanitary point of view is dangerous, inasmuch as no provision has been made to drain the improved section, on which have been erected neat cottages occupied for the greater part by Hawaiian and Portuguese families, now being from one to three feet below the street surface, and which will be entirely flooded during the rainy season. Unless this is remedied this locality will be susceptible to an outbreak [of cholera] such as we experienced in the past. [Hawaii Board of Health 1908:80]

As mentioned in the above section, the justification most frequently cited was public health and sanitation, the desire to clean up rivers and ponds that were reservoirs for diseases such as cholera and that acted as breeding places for rats and mosquitoes. Thus, as early as 1902, it is reported that

> The Board [of Health] has paid a great deal of attention to low-lying stagnant ponds in different parts of the city, and has condemned a number of them. The Superintendent of Public Works has given great assistance to seeing that the ponds condemned by the Board are filled. In September a pond on South Street was condemned as deleterious to the public health. [Hawaii Board of Health 1902:80]

The first areas to be filled were those closest to Honolulu town, then areas moving outwards to Kaka‘ako (Griffin et al. 1987:13). The first fill material may have been set down for the Kaka‘ako Leper Branch Hospital (between Coral and Keawe streets), which had been built on a salt marsh. Laborers were hired to “haul in wagonloads of rubble and earth to fill up that end of the marsh” (Hanley and Bushnell 1980:113). In 1903, five more lots in Kewalo, on Laniwai, Queen, and Cooke streets, were condemned and ordered to be filled (Hawaii Board of Health 1903:6).

A main concern in this area was the Kaka‘ako Ditch, which originated from the large fishponds in the *mauka* portion of the Ward Estate and extended to the sea (see Figure 22). A Hawaii legislature report of 1901 asked for an appropriation to build a new drainage ditch through the Kewalo district to address problems with older ditches:

> The district makai of King St. and the Catholic Cemetery, Ewa of Mrs. Ward’s (the Old Plantation) . . . consists of six large abandoned fish ponds and a large number of smaller ones, all in filthy condition, fed by springs and flowing into Peck’s ditches. . . . The rear portion of Mrs. Ward’s property down to Waimanu St. used to be fish ponds all connecting to the sea by a ditch which is fed by an artesian well. These ponds, with the exception of three, are abandoned.
>
> When Desky opened Kewalo for settlement he dug a ditch from the pond on Peck’s place along Waimanu St. to Mrs. Ward’s ditch, and drained all the above described property. A law suit ensued, as the foul water drove away the fish, and the connecting ditch was torn out . . . and a dyke wall was built between Mr. Ward’s and Peck’s.
>
> The result was that as the Kakaako ditch, at the point of juncture with Peck’s ditch, was too high, the water in Peck’s ditch rose and backed up . . . and as it must necessarily go somewhere, it overflowed its banks and at present Ward

> avenue from end to end is a big pond with no footing for pedestrians, and a carriage driven through the other day sank to the body of the same in water and mud. [Hawaii First Legislative Assembly 1901:186]

Although public health and safety were prominently cited, according to Nakamura (1979), the main desire (and third justification) to fill in Honolulu, Kewalo, and then Waikīkī lands was to provide more room for residential subdivisions, industrial areas, and finally tourist resorts. In the early part of the twentieth century, Kaka‘ako was becoming a prime spot for large industrial complexes such as iron works, lumber yards, and draying companies, which needed large spaces for their stables, feed lots, and wagon sheds. In 1900 (Thrum 1901:172), the Honolulu Iron Works, which produced most of the large equipment for the Hawaiian plantation sugar mills, moved from their old location at Queen and Merchant streets near downtown Honolulu to the shore at Kaka‘ako, on land that had been filled from dredged material during the deepening of Honolulu Harbor. Other businesses soon followed. Thrum (1901) noted,

> The Union Feed Co. is another concern whose business has outgrown the limits of its old location, corner of Queen and Edinburgh streets. Like the Iron Works Co. they have secured spacious premises at Kakaako, erecting buildings specially adapted to the needs of their extensive business at the corner of Ala Moana (Ocean Road) and South Street. [Thrum 1901:168]

Private enterprises were not the only new occupants of Kaka‘ako. A sewer pumping station, an immigrant station, and a garbage incinerator were also built on “reclaimed land.” The new immigration station had seven large rooms for dormitories, surrounded by a breezy, open, *lanai*, where immigrant workers would stay while waiting for clearance to go to their new work places on the sugar plantations. Adjacent to the dormitory was a hospital, which was used to check the new immigrants for any “loathsome or dangerous contagious disease” (Hawaii Governor 1905:77). The hospital was also used during epidemics to isolate contagious patients, suffering from diseases such as smallpox, cholera, or plague.

In 1900, a pond surrounded by a bicycle racing track, called the Cyclomere (built in 1897), in the Kewalo area was filled in. This was located on the *makai* side of Kapi‘olani Avenue between Cooke Street and Ward Avenue. In 1904, the area around South Street from King to Queen streets was filled in. The Hawaii Department of Public Works (1904:7) reported “considerable filling [was] required” for the extension of Queen Street, from South Street to Ward Avenue, which would “greatly relieve the district of Kewalo in the wet season.”

3.1.6.3 Kewalo Reclamation Project

Although the Board of Health could condemn a property and the Department of Public Works could then fill in the land, the process was rather arbitrary and piecemeal. In 1910, after an epidemic of bubonic plague, the Board of Health condemned a large section of Kewalo, consisting of 140 land parcels, (including the areas once known as Kukuluāe‘o and Ka‘ākaukukui), which had numerous ponds (Hawaii Department of Public Works 1914:196). In 1914, the entire

> Locality bounded by King street, Ward avenue, Ala Moana and South street, comprising a total area of about two hundred acres, had been found by the board of health of the Territory to be deleterious to the public health in consequence of

> being low and below ‘the established grades of the street nearest thereto’ and at times covered or partly covered by water and improperly drained and incapable by reasonable expenditure of effectual drainage, and that said lands were in an insanitary and dangerous condition. [Hawaii Reports 1915:329]

The superintendent then sent a letter to all the property owners, informing them that they must fill in the lands to the grade of the street level within 60 days. Only a few of the landowners complied, filling their land with a variety of materials. Most of the landowners did not comply with this notice, and in 1912 the bid to fill in the land was given to Lord-Young Engineering Company to fill in the land with “sand, coral and material dredged from the harbor or reef and the depositing of the same upon the land by the hydraulic method” (Hawaii Reports 1915:331). The recalcitrant landowners sued to stop the work, and in the suit, the method of hydraulic filling is described as follows:

> By this [hydraulic] method the material dredged is carried in suspension or by the influence of water which is forced through large pipes and laid upon the lands and intervening streets, and afterwards is distributed and leveled, the water having drained off through ditches provided for the purpose. The work is done in large sections around which bulkheads have been constructed. A section can be filled in about thirty days, the dredger working about fifteen hours per day. And in about two months after a section has been filled the ground will have dried out so as to be fit for use as before. . . . The character of the material varies from very fine sand to coarse bits of coral. . . .
>
> It appears in evidence that through the method employed the finest of the material which is carried upon the land settles when the water which transports it becomes quiet and as the water runs off a sludge or mud remains which forms a strata more or less impervious to water. This strata, however, is covered by the coarser and more porous material. . . . it appears that by mixing in to a depth of a few inches ordinary soil small plants will grow without difficulty. . . . The character of the locality must be considered. It is not adapted to agriculture, but is suited more particularly to such business purposes as it is now partly used for, such as stables, laundries, warehouses, mills, etc., and for cottages with small yards for the accommodation of laborers engaged in connection therewith. Upon the whole, we are of the opinion that the material proposed to be used in the fill-in of the lands of the complainants is not of a character as should be held to be improper for any of the reasons urged. [Hawaii Reports 1914:351]

The first land to be filled in was the portion of the Ward Estate Kukuluāe‘o property west of Ward Avenue, which was completely filled in by June 1913. In July,

> 25,000 cubic yards of sand and ground-up coral were deposited on the Bishop Estate in the vicinity of Ala Moana and Keawe street, the reason for shifting operations to this part of the district being that the Hawaiian Sugar Planter’s Association had erected a reinforced concrete building there and wished to have the lot brought to grade. [Hawaii Department of Public Works 1914:198]

By August, the rest of the Ward Kukuluāe‘o lands west of Ward Avenue had been completely filled, and by February 1914, all of the land from South Street to Ward Avenue, and from Ala Moana Boulevard to Queen Street had been filled.

Legal proceedings in 1914 did manage to shut down operations planned for the area from Ward Avenue to Waikīkī but the filling in was eventually completed (Thrum 1916:159–160). This land was mainly owned by the Bishop Estate, which leased the land to small farmers growing taro and rice and raising ducks in the ponds. In 1916, the Bishop Estate announced that as soon as their present tenant leases expired, they planned to fill the lands and divide them into residence and business lots (Larrison 1916:148–149). In 1919, a portion of the coastal section of the Bishop Estate lands was secured by the government in order to expand Kewalo Basin (Thrum 1920:148).

3.1.6.4 Kewalo Basin Dredging

Prior to dredging, Kewalo Basin was a natural deep pocket in the reef seaward of Ala Moana Boulevard between Ward Avenue and Kamake‘e Street. It had been used as a canoe landing in pre-Contact times. In 1919, the Hawaii Government appropriated $130,000 to improve the small harbor of Kewalo for the aim of "harbor extension in that it will be made to serve the fishing and other small craft, to the relief of Honolulu harbor proper" (Thrum 1920:147). As the area chosen for the harbor area was adjacent to several lumber yards, the basin was initially made to provide docking for lumber schooners, but by the time the wharf was completed in 1926, this import business had faded, so the harbor was used mainly by commercial fishermen. The dredged material from the basin was used to fill a portion of the Bishop Estate on the western edge of Waikīkī and some of the Ward Estate in the coastal area east of Ward Avenue (U.S. Department of Interior 1920:52). The new basin and the coral fill, used to fill inland areas and make new land offshore, can be seen in a 1933 oblique aerial photograph of Kaka‘ako and Waikīkī (Figure 25). In 1941, the basin was dredged and expanded to its current 55 acres. In 1955, dredged material was placed along the *makai* side to form an 8-acre land section protected by a revetment, now part of Kewalo Basin Park (Kewalo Basin Harbor 2013).

3.1.6.5 Waikīkī Reclamation Project

It was during the 1920s that southeast O‘ahu was transformed when construction of the Ala Wai Drainage Canal—begun in 1921 and completed eight years later—resulted in the draining and filling in of the remaining ponds and irrigated fields of Honolulu and Waikīkī. The canal was one element of a plan to urbanize Waikīkī and the surrounding districts, first conceived in 1906. The final result was a "canal three miles long, with an average depth of twenty-five feet and a breadth of two hundred fifty feet" (*Honolulu Advertiser*, 17 October 1928:2:16).

The land surface of modern Honolulu and Waikīkī is situated on the result of this decade-long dredging and fill project of which the creation of the Ala Wai Canal was a part. In Nakamura's (1979:113) *The Story of Waikīkī and the Reclamation Project*, he writes that this land "reclamation" program, under the subterfuge of "drainage" and "sanitation," changed the ecology of Waikīkī from a once viable and important agriculture and aquaculture center. Many of the original property owners lost their land or had serious damage to their property as a result of the reclamation activities and/or the costly expense for the mandatory filling in of their properties.

Figure 25. Honolulu and Waikīkī from Fort Armstrong (lower right) to Diamond Head, 1933 oblique aerial photograph (Hawai‘i State Archives); new lands of coral fill are shown as white patches in inland areas, along Kapi‘olani Boulevard, and offshore for the new Ala Moana Park; Kewalo Basin is at the western (lower) end of the offshore fill area

3.1.6.6 Commercial and Residential Development

Subsequent maps show the future development of the Kukuluāe‘o area in a grid of streets extending from Honolulu town toward Waikīkī. Other maps and documents generated during the last decades of the nineteenth century and first decades of the twentieth century reveal the disappearance of the traditional Hawaiian landscape of Kukuluāe‘o, including the conversion of taro *lo‘i* to rice fields. The urban development of the area is shown on a series of late nineteenth and twentieth century maps and aerial photographs from 1897 through 1982 (Figure 26 through Figure 38).

The 1884 Bishop map (see Figure 8) shows the nascent traces of future development in the grid of roads stretching *mauka* of the project area. Kaka‘ako was considered to be outside the Honolulu town boundary and was used in the mid- to late nineteenth century as a place for cemeteries, burial grounds, and for the quarantine of contagious patients. Then in the beginning of the twentieth century, the area was used as a place for sewage treatment and garbage burning, finally becoming an area for cheap housing, and commercial industries (Griffin et al. 1987:13). Other maps, photographs, and documents generated from the last decades of the nineteenth century up to the present reveal further details of the original character of the Kewalo lands and the disappearance of that landscape.

An 1897 map (see Figure 26) by M.D. Monsarrat shows Thomas Square and the Old Plantation, and makes evident the urbanization of the landscape of Honolulu that had taken place near the end of the nineteenth century. The map clearly displays the development occurring *mauka* and ‘Ewa of the project area, and the “arm” of streets projecting from downtown Honolulu into Kaka‘ako and Kewalo. It is on this map that Kamake‘e Street first appears, running from Queen Street and dead-ending *mauka* of Waimanu Street toward where Kapi‘olani Boulevard would eventually be constructed. A large portion of Kaka‘ako, however, remains open and the map reveals that the area adjacent to (east of) the Old Plantation and *mauka* of the project area has become “Rice Fields.” This 1897 map also shows the Cyclomere, a pond surrounded by a bicycle racing track in Kewalo area. This was located on the *makai* side of Kapi‘olani Avenue between Cooke Street and Ward Avenue.

A 1903-1909 U.S. Engineer’s map (see Figure 27) depicts houses clustered around the few paved roads, including along the *makai* side of Queen Street within the Block N East project area and a scatter of houses also along the Ward Estate *‘auwai* and along the shore. There is no indication on this map of the deep water channel, east of Fort Armstrong, which will later be dredged to create Kewalo Basin. Numerous ponds are shown to the east of the project area, in particular Kolowalu Pond at the eastern terminus of Queen Street, and the “Long Lagoon” of the Ward Estate, north of the Queen Street terminus.

A 1914 Sanborn Fire Insurance map (see Figure 28) also shows four single-story residential structures within Block N East along the *makai* side of Queen Street (denoted by the abbreviation “D.” for dwelling).

The 1919 U.S. Army War Department Fire Control map (see Figure 29) shows residences clustered around Queen Street and Ward Avenue. The project area is now located within a grid of largely unpaved or proposed roads. There are still many ponds east of the project area, in the area northeast later to be part of McKinley High School, and the area east along the coast, which

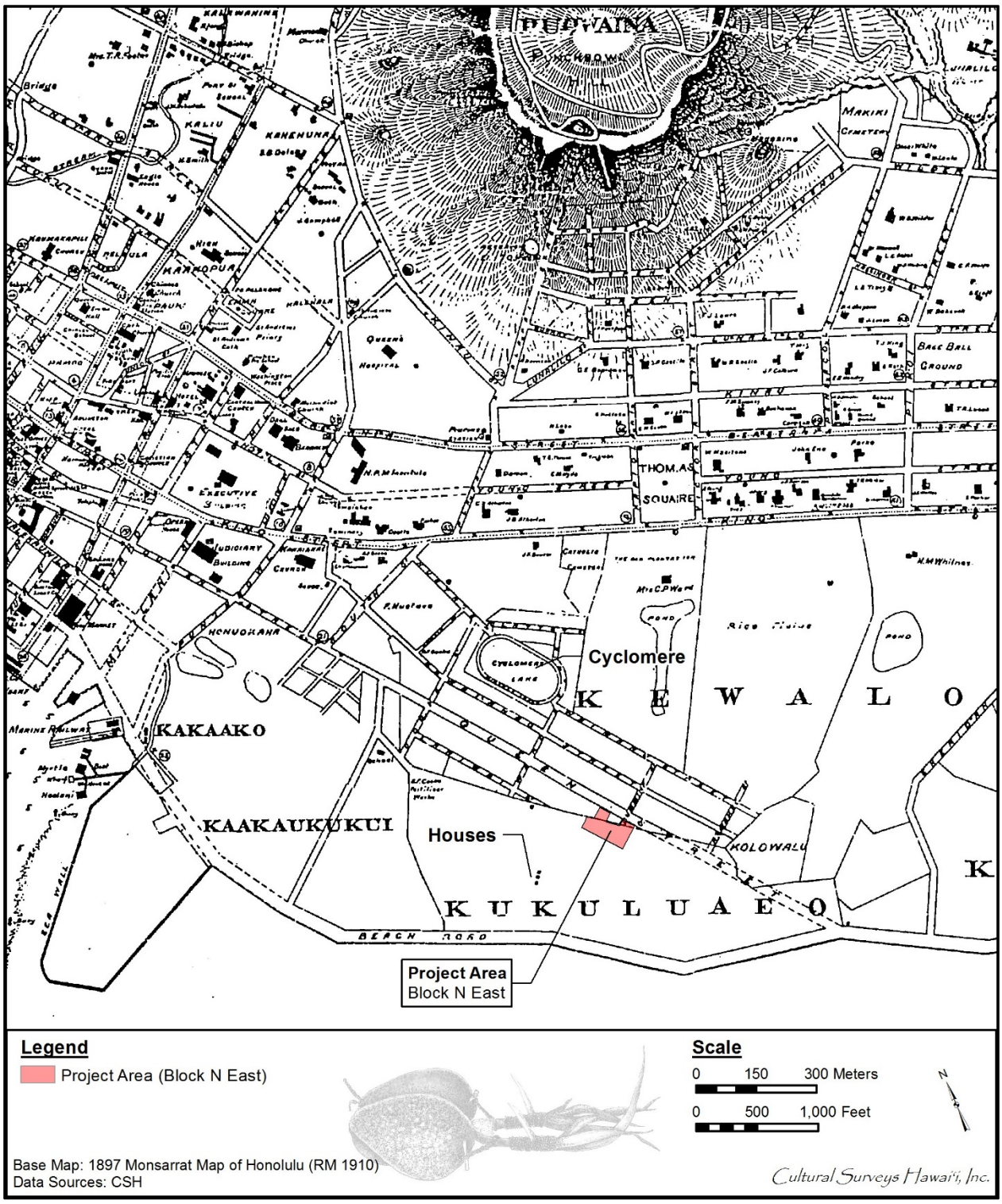

Figure 26. Portion of 1897 map of Honolulu by M.D. Monsarrat (Hawai‘i Land Survey Division, Registered Map 1910) showing the location of the project area; the map also shows the location of the “Cyclomere”

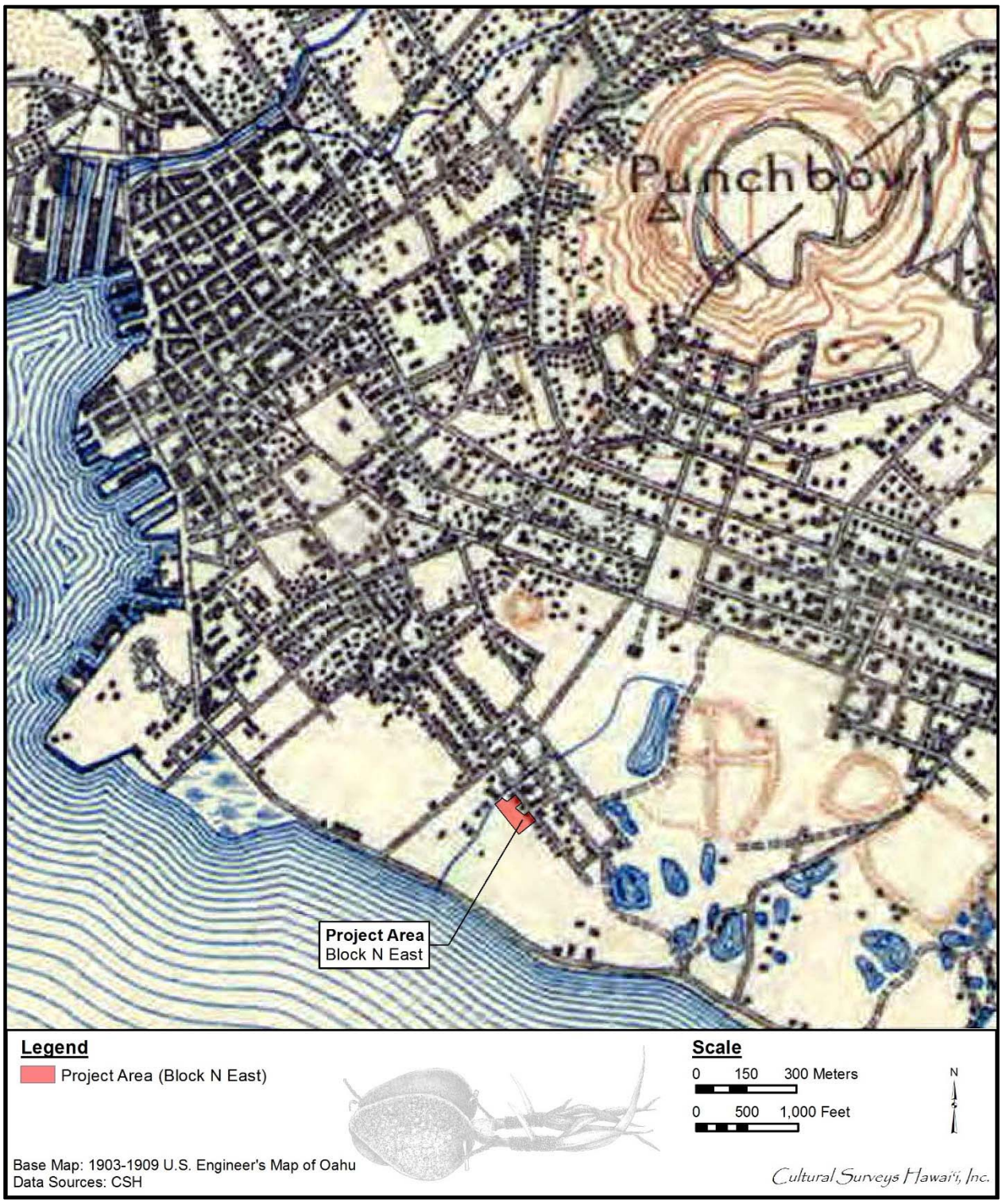

Figure 27. Portion of 1903-1909 (published 1917) U.S. Engineer’s map of O‘ahu depicting Kaka‘ako; many ponds, including Kolowalu and the Ward Estate “Long Lagoon,” are still open and unfilled east of Ward Avenue

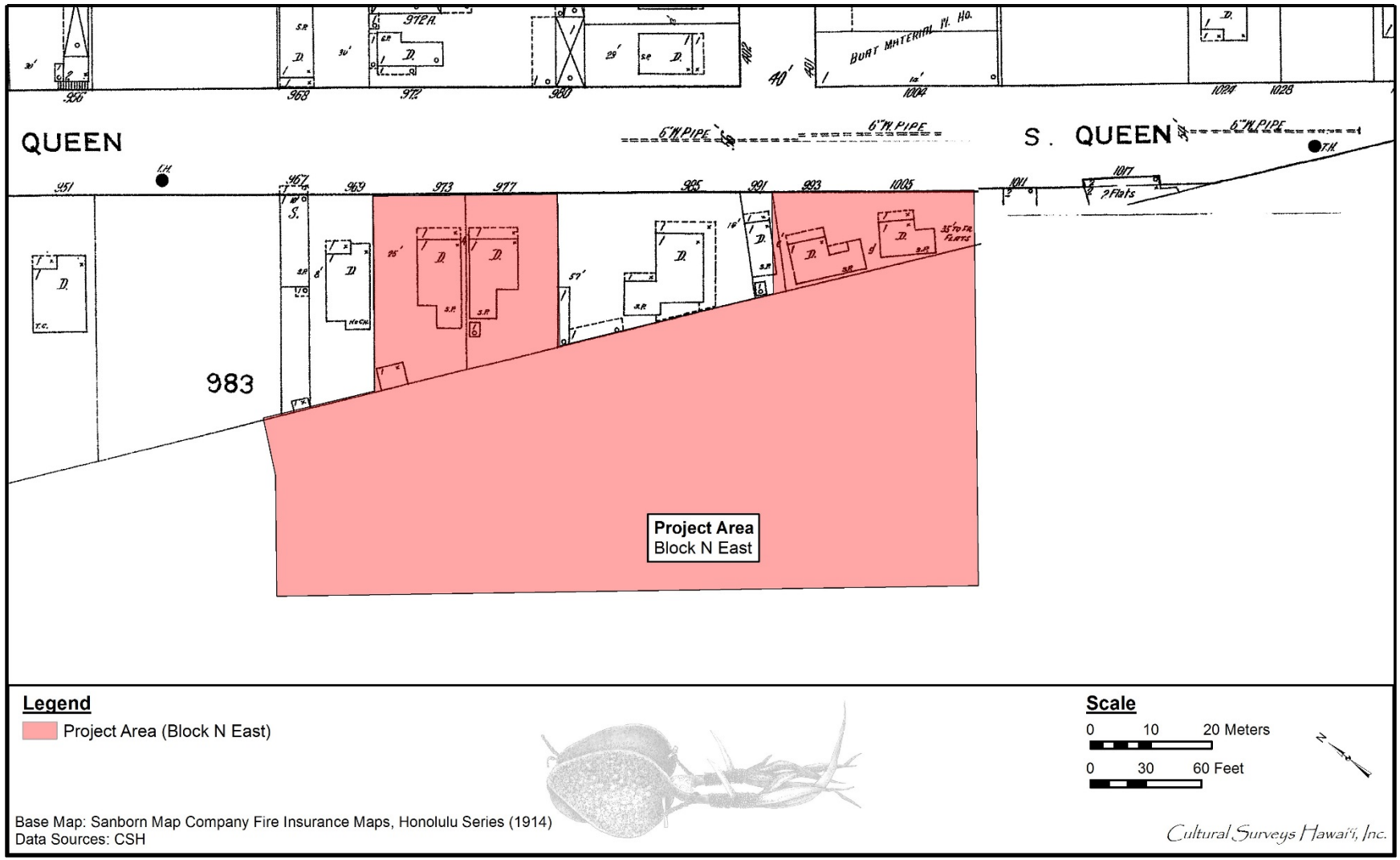

Figure 28. Portion of 1914 Sanborn Fire Insurance map, showing single-story residential structures (denoted by the abbreviation “D.”) along Queen Street

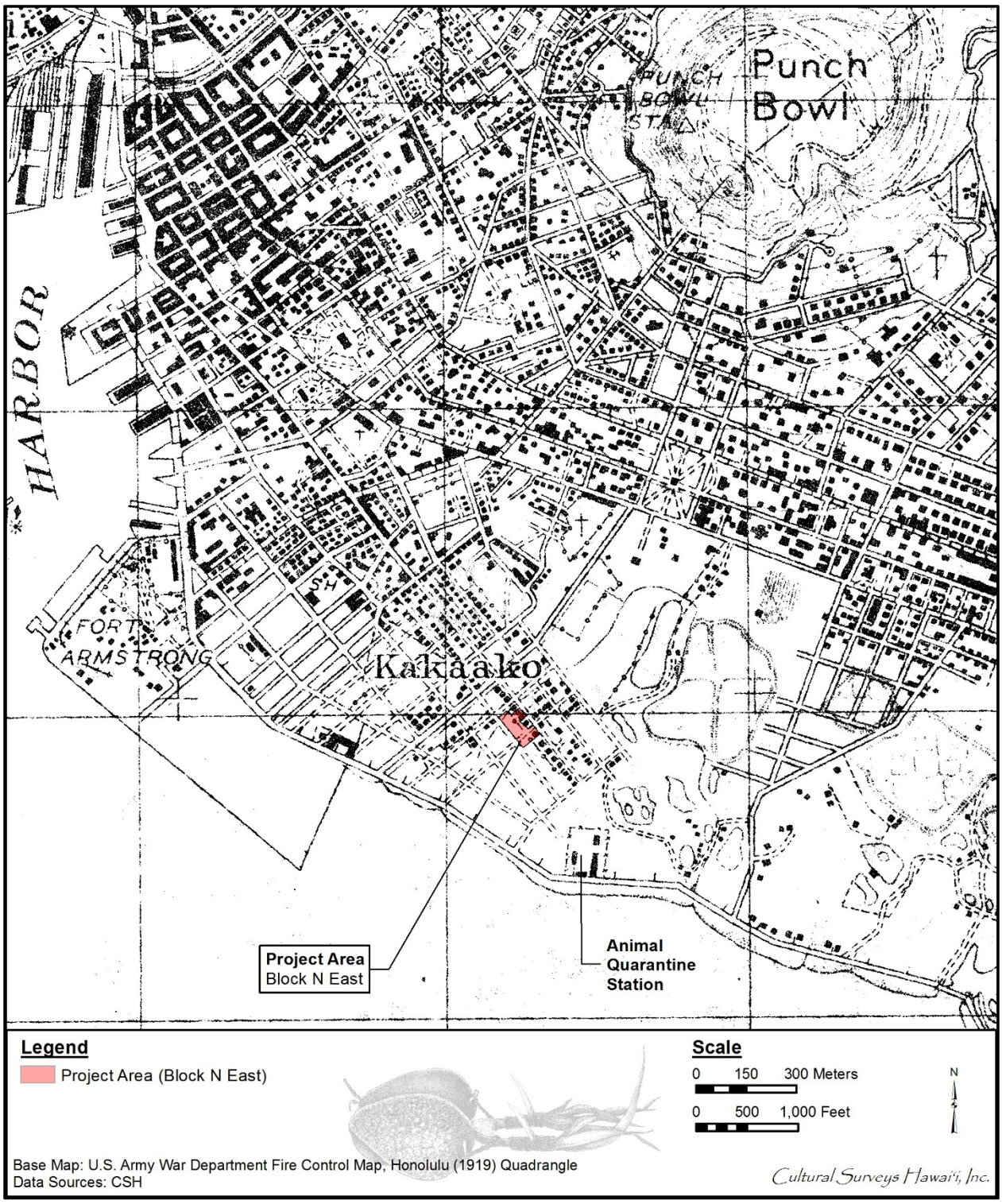

Figure 29. Portion of 1919 U.S. Army War Department Fire Control map of O‘ahu, Honolulu Quadrangle, showing the location of the project area within a grid of streets; solid lines denote paved streets, while dotted lines represent unpaved or proposed streets

Figure 30. 1927 aerial photograph of the Kaka‘ako area showing small residential structures within the project area along Queen Street (UH SOEST)

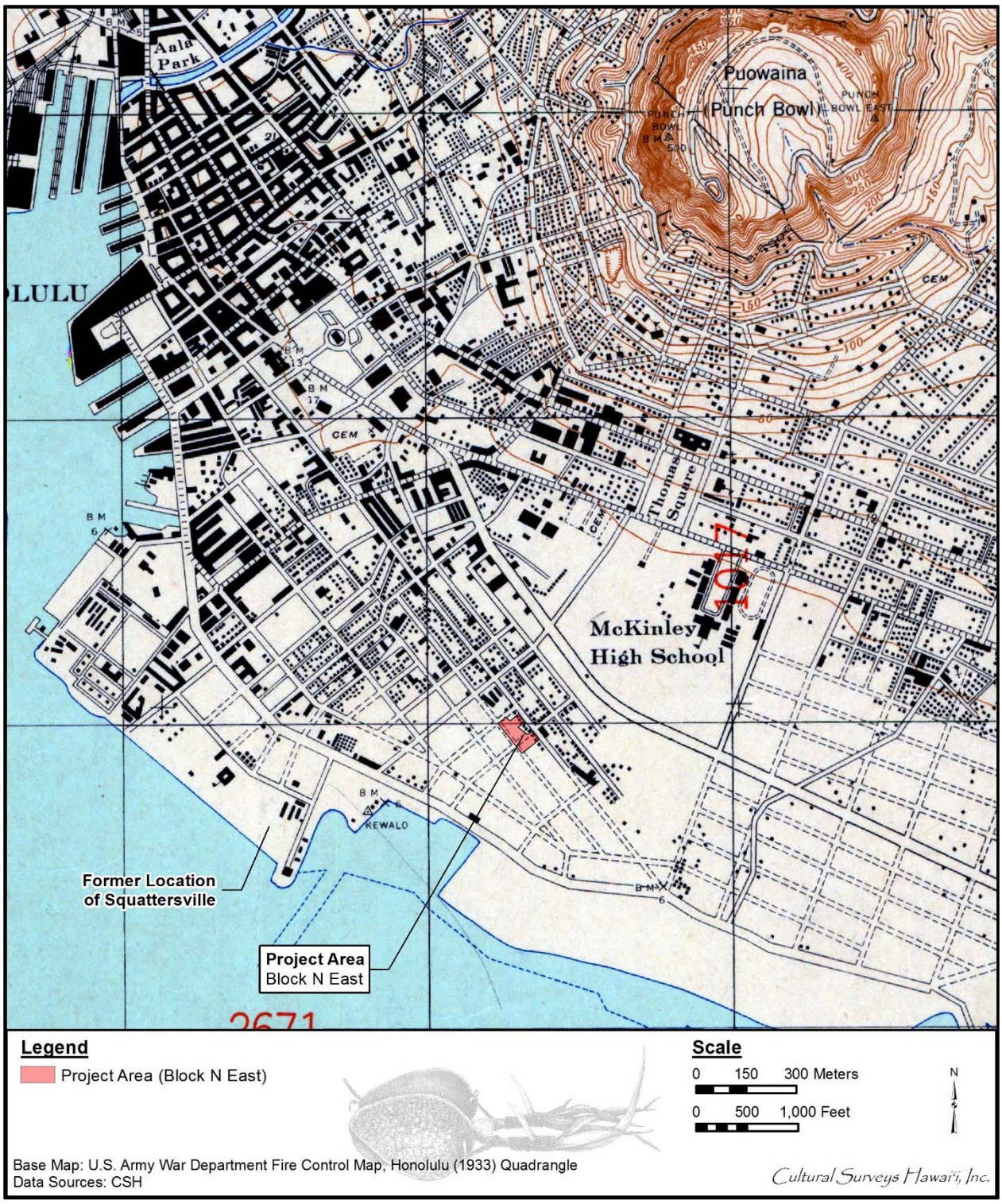

Figure 31. Portion of 1927–1928 (published 1933) U.S. Army War Department Fire Control map of O‘ahu, Honolulu Quadrangle, showing the project area within a grid of unpaved/proposed streets; note the former location of Squattersville, adjacent to Kewalo Basin and east of Fort Armstrong

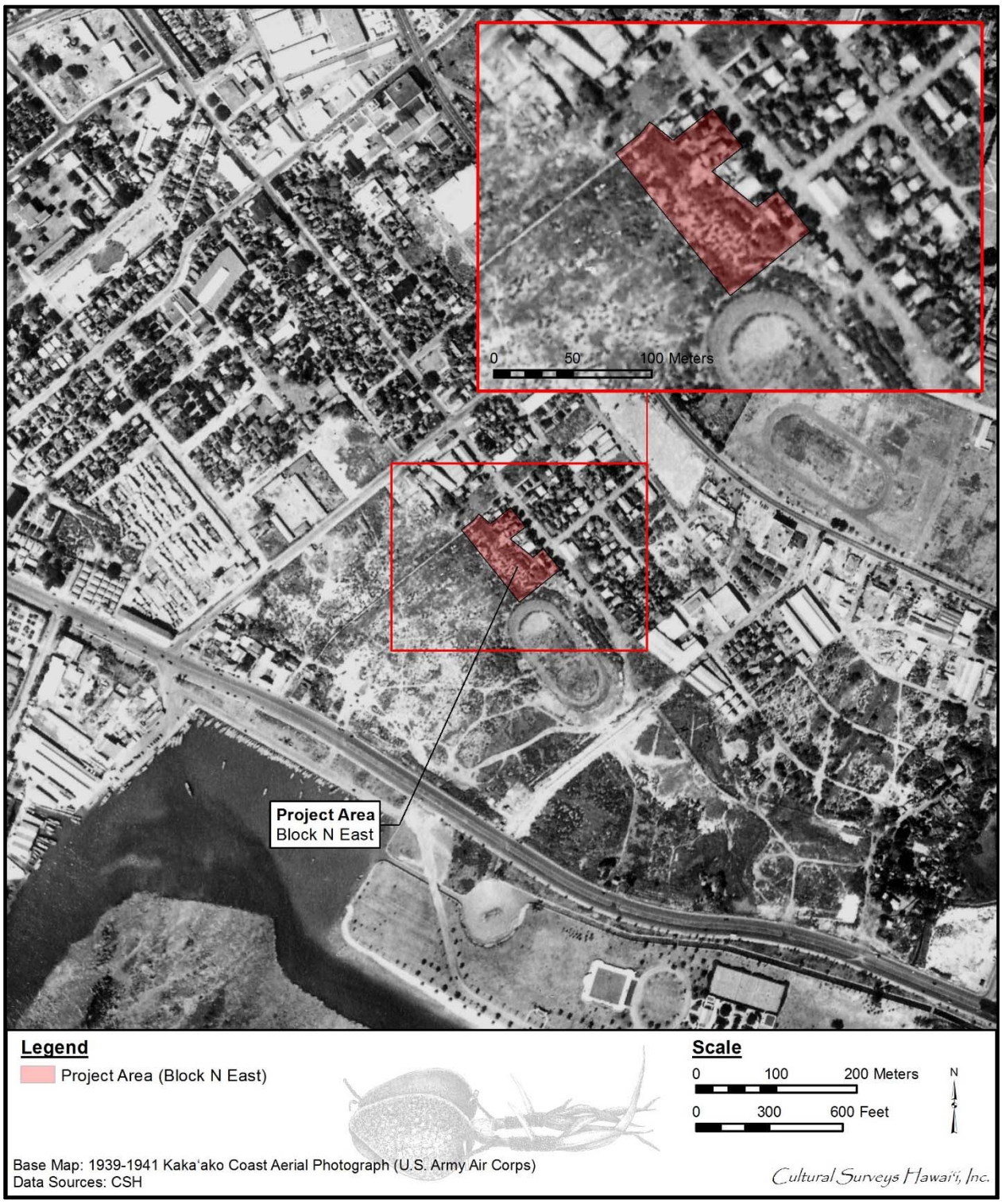

Figure 32. Portion of 1939–1941 aerial photograph (U.S. Army Air Corps) of Kaka‘ako, showing small residential structures within the project area along Queen Street; note the completion of Kewalo Harbor to the west and the construction of Ala Moana Park to the east along the shore

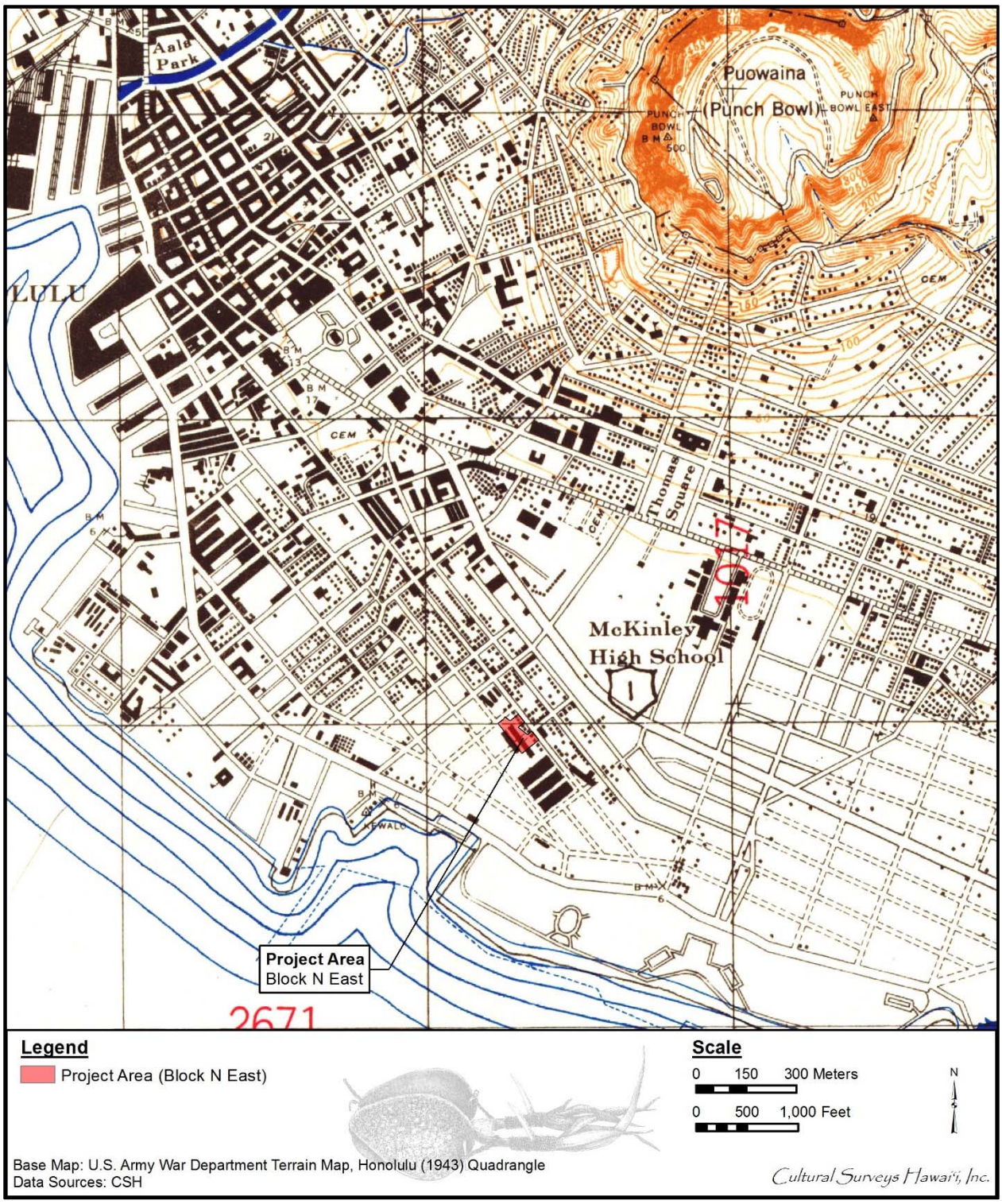

Figure 33. Portion of 1943 U.S. Army War Department Terrain Map of O‘ahu, Honolulu Quadrangle; note the addition of a large warehouse within the *makai* portion of Block N East

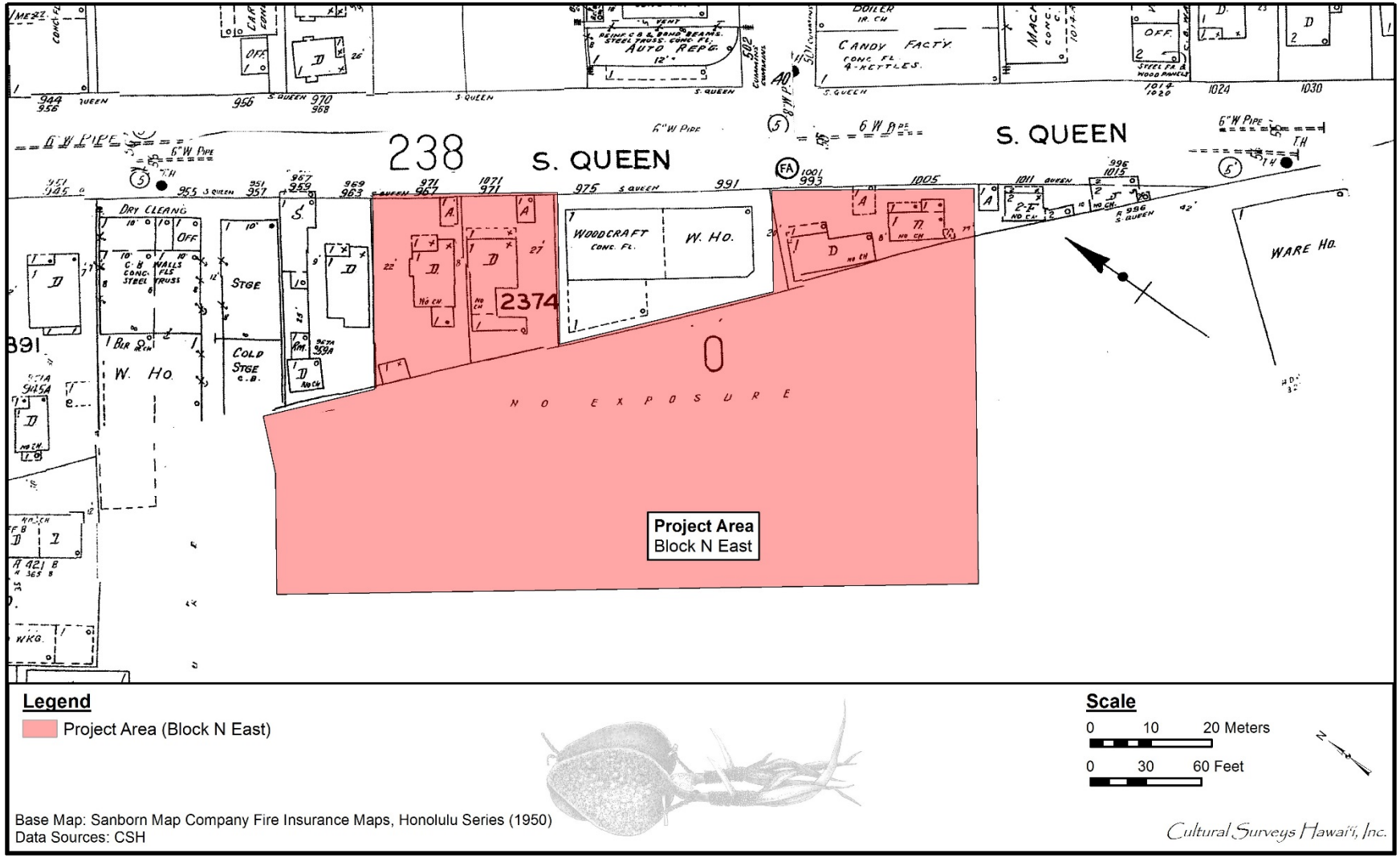

Figure 34. Portion of 1950 Sanborn Fire Insurance map showing the development of commercial industry along Queen Street; domestic residences are still visible within the Block N East project area

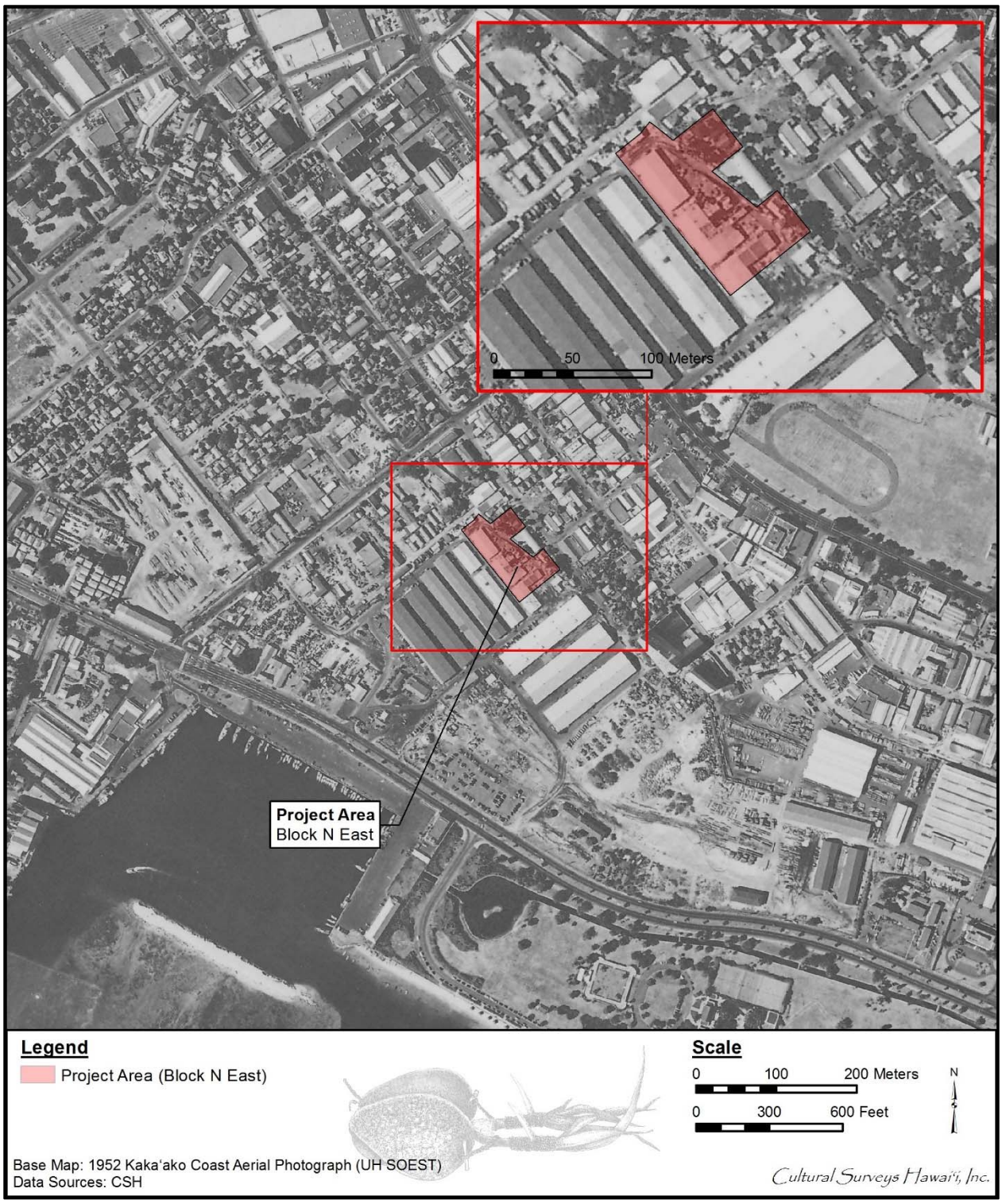

Figure 35. Portion of 1952 aerial photograph showing a large warehouse within the *makai* portion of the project area (UH SOEST)

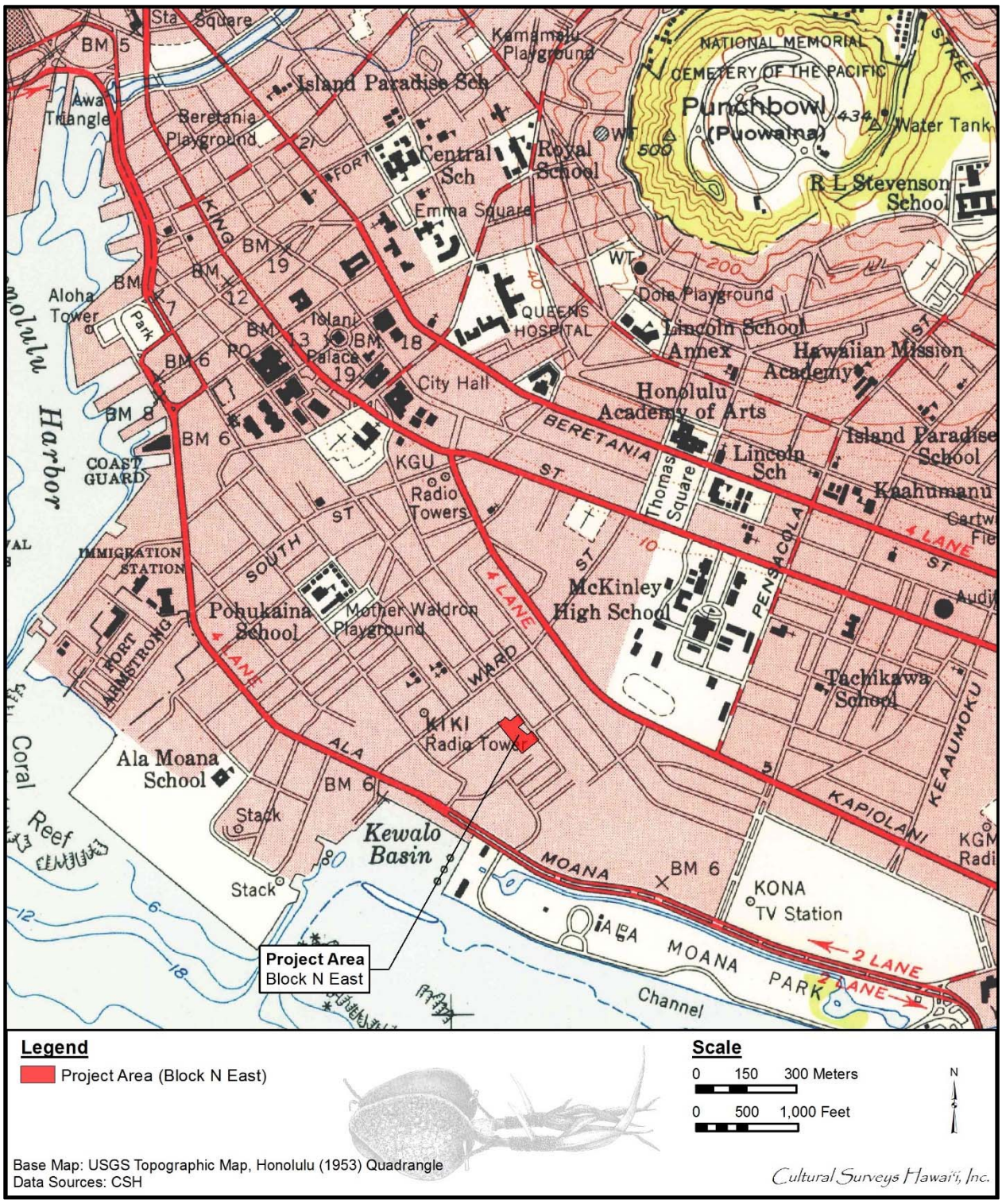

Figure 36. Portion of 1953 Honolulu USGS topographic quadrangle, showing Block N East within an improved street grid

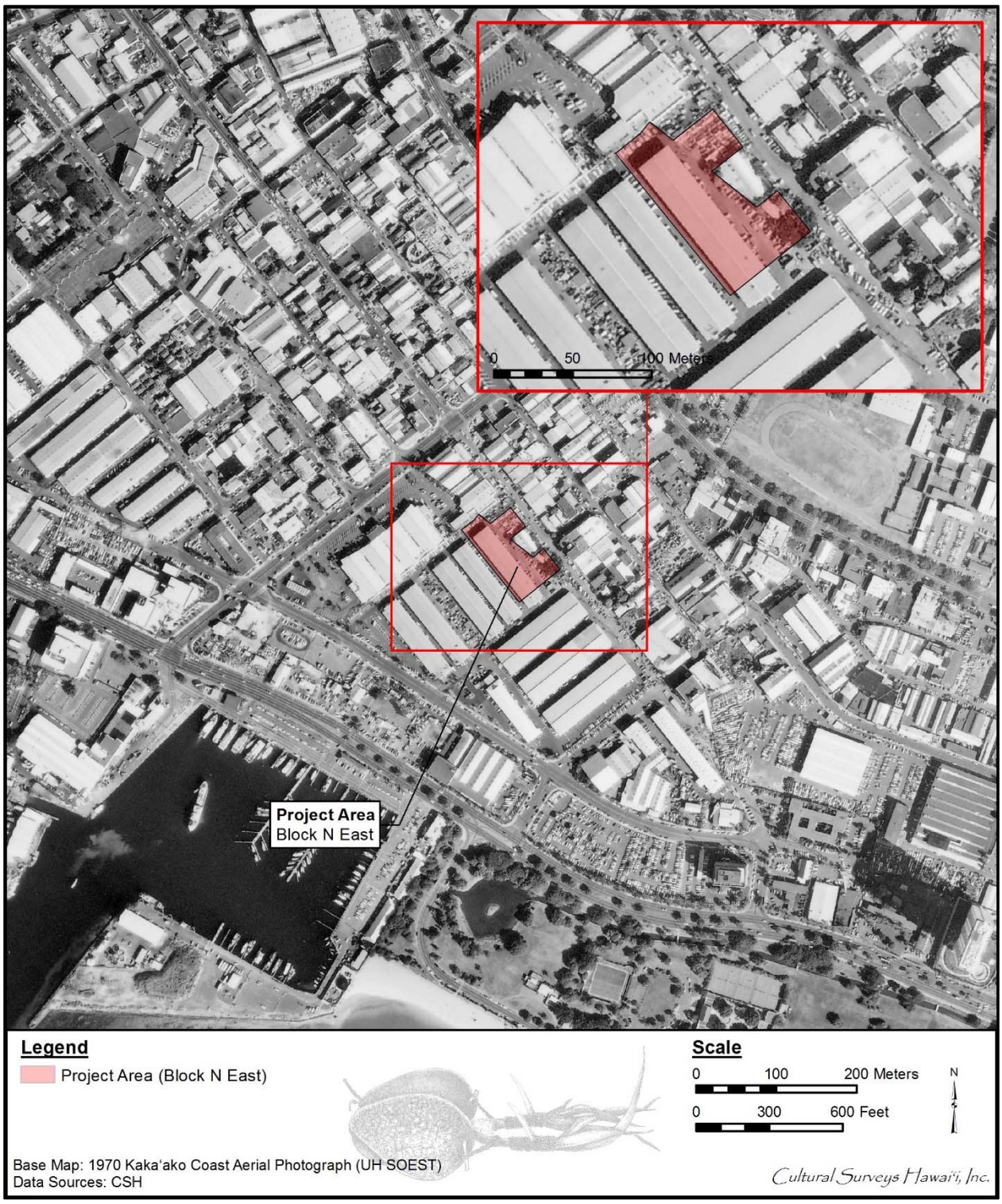

Figure 37. Portion of 1970 aerial photograph (UH SOEST) showing the project area

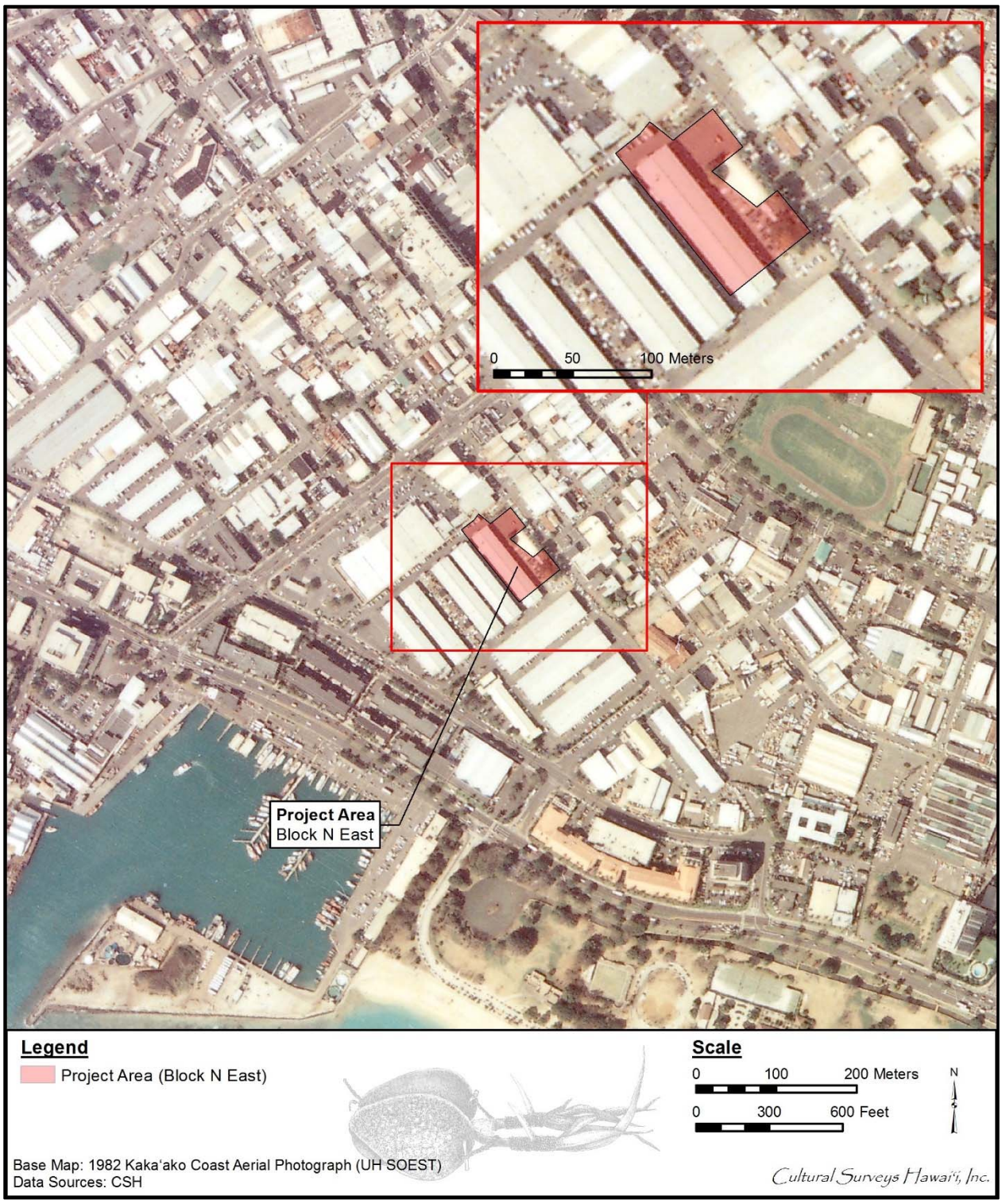

Figure 38. 1982 aerial photograph (UH SOEST) depicting large warehouses throughout Kaka‘ako and within the Block N East project area

will be developed into Ala Moana Shopping Center and Park. Poor people, mainly Native Hawaiians, inhabited the area. In the 1920s, on the east side of Kewalo Basin, they congregated at a camp named “Blue Pond,” named after a large and deep pond near the shore. On the west side of the basin, in the Ka‘ākaukukui area (shortened to ‘Ākaukukui), they lived in shacks and sturdy houses in an area called “Squattersville,” named because they lived without authorization on government land. This camp was generally around Olomehani Street near the shore, protected from the waves by a long sea wall. There were around 700 Hawaiians and part-Hawaiians living in these two camps in the mid-1920s, but by 1926 they were all gone. The government evicted the families and razed the houses (Clark 1977:64).

A 1927 aerial photograph (see Figure 30) shows the development of dredging and filling projects in Kaka‘ako. Areas west of Ward Avenue and *makai* of Ala Moana Boulevard are filled and developed, while the areas *mauka* and east, including Block N East, have only been recently filled (indicated by bare white coral fill areas) or are still open marsh/rice lands, such as *makai* of the new McKinley High School, the long lagoon of the Ward Estate, and Kolowalu Pond, shown to the east of the project area. Kewalo Basin is an ill-defined dredged area of deep water east of Fort Armstrong. Several small structures (residences) are still visible along Queen Street within the Block N East project area.

A 1933 U.S. Army War Department Fire Control map (see Figure 31) shows the first buildings of the new McKinley High School campus and also illustrates that the eastern portion of Kaka‘ako is still undeveloped, with dotted lines showing unimproved or proposed streets, including within the majority of Block N East. However, the land was more inhabited than is evident from this map. The Ward family leased land to the Japanese for camps, schools, playgrounds, temples, and shrines (University of Hawai‘i 1978:847). Kaka‘ako was one of the first residential areas for working class families, housing people working at the laundries, the harbor, the Honolulu Iron Works, the Honolulu Brewery, and truck drivers, seamen, and fishermen. In 1940, Kaka‘ako had over 5,000 residents. Hawaiians, Portuguese, Chinese, and Japanese settled in camps based on their ethnic origins. The residents all came together for social and community functions.

On a 1939–1941 aerial photograph (see Figure 32), Ala Moana Park, on new land created with dredged fill, is depicted with a deep-water channel meant to allow boats to sail from Kewalo Basin to the Ala Moana Yacht Harbor. Kewalo Harbor has been completed and ships line the shoreline. The former white coral areas east of Ward Avenue, including the Block N East project area, now have some vegetation, but they are still not greatly developed past the stage shown on the 1927 aerial photograph. One exception is the McKinley High School grounds, which have been completely filled in, leveled, and covered with several new campus buildings. The long lagoon of the Ward Estate is still unfilled.

On a 1943 U.S. Army War Department terrain map (see Figure 33), this eastern section of Kaka‘ako is an area of open lumber yards and large warehouses. A large warehouse is now located within the *makai* portion of the Block N East project area. After World War II, Kaka‘ako became increasingly industrialized, and residents moved out to the newer subdivisions away from the central Honolulu area. The 1943 map depicts the docks for Kewalo Basin. The McFarlane Tuna Company (now Hawaiian Tuna Packers) built a shipyard at the basin in 1929 for their fishermen’s “sampan fleet.” A new tuna cannery was built at the basin in 1933 and

operated successfully. However, the entire cannery was taken over by the military in 1941 after the attack on Pearl Harbor. The cannery was converted to military use and used to make airplane gas tanks (Schug 2001:29). Land in Kaka‘ako taken by the military was not returned until 1946 (Clark 1977:64; Gessler 1938:182–185).

A 1950 Sanborn Fire Insurance map shows the development of commercial activity along Queen Street in the immediate vicinity of Block N East (see Figure 34). Four residential structures, denoted as “D” on the map, are still present, however, within the Block N East project area.

A 1952 aerial photograph (see Figure 35) also shows major development in the eastern section of Kaka‘ako, with a large warehouse building covering the *makai* portion of Block N East. Coral fill has been placed to create the substrate for the new Ala Moana Shopping Center to the east of the project area, and new land has been created on the *makai* side of the former Fort Armstrong, west of Kewalo Basin. The dredged strip along the coast still extends from Kewalo Basin to Ala Moana Yacht Harbor and the western end of the Ala Wai Canal.

A 1953 USGS topographic map (see Figure 36), less detailed than earlier maps, indicates many of the improved or proposed roads in the eastern section of Kaka‘ako are now paved and improved.

In 1964, new land along the western boundary of the Ala Wai Yacht Club was created to make a peninsula called “Magic Island,” later renamed ‘Āina Moana State Recreation Area. The construction of this peninsula cut off access for boats between the Kewalo and Ala Moana boat docks, and the function of the channel along Ala Moana Beach Park was changed into a safe swimming area (Clark 1977:60–63).

On a 1970 aerial photograph of the eastern section of Kaka‘ako (see Figure 37), the new Ala Moana Shopping Center is completed and the Blaisdell Civic Center has replaced the grounds, house, and lagoon of the Ward Estate. The residential structures within the northern portion of Block N East have been replaced by an asphalt parking lot, while a single indeterminate structure is visible within the southern portion along Queen Street.

In 1975, it was estimated there were 990 firms operating in Kaka‘ako and approximately 30% of the neighborhood residents also worked in the area (University of Hawai‘i 1978:A-116–117). In the 1970s through 1990s, portions of eastern Kaka‘ako were used for various small businesses that existed in warehouses, along with parking lots, as shown on a 1982 aerial photograph (ssee Figure 38). Many of these warehouses were roofed, open-sided storage sheds for large lumber yards. Ward Warehouse was built in 1975 (Daysong 1997) and the shopping center can be seen as several adjacent structures on the 1982 aerial photograph.

In summary, the Block N East project area was apparently outside the two most intensely populated and cultivated areas—Waikīkī and Honolulu (or Kou)—along this portion of O‘ahu’s southern shore during the pre-Contact period. The area of Kaka‘ako was nonetheless well utilized by Hawaiians for activities appropriate to the specific environment, salt making and farming of fishponds, along with some wetland agriculture. The eastern portion of Kaka‘ako, including the project area, was among the last areas of urban Honolulu to be built on and developed, with many of the roads in the area not being constructed until World War II.

3.2 Previous Archaeological Research

Most traditional Hawaiian surface structures had been demolished in the Kaka‘ako area by the time of the first scientific archaeological surveys (e.g., Griffin et al. 1987). In his report on the survey of O‘ahu sites conducted in 1930, McAllister (1933:80) says of Honolulu, “Information regarding former sites within the present limits of Honolulu must come entirely from literary sources.” He mentions Pākākā Heiau, once the main royal temple in Honolulu. This *heiau* would have been located around the foot (*makai* end) of Fort Street. He does not list Pu‘ukea Heiau (discussed in Section 3.1.2), which Kamakau (1991:24–25) placed in Kukuluāe‘o, but he does note that Peter Corney, a visitor to the island in 1819, saw several *heiau* (*morai*) along the Honolulu shore:

> There are several morais, or churches in the village, and at new moon the priests, chiefs and hikanees (aikane) [counselors] enter them with offerings of hogs, plantains, and cocoanuts, which they set before the wooden images. The place is fenced in, and have pieces of white flags flying on the fences. [Corney 1896:101]

Two archaeological studies have been previously conducted within the Block N East project area—the Honolulu Rapid Transit Project (HRTP) City Center AIS and supplemental AIS (Hammatt 2013; Humphrey et al. 2015). Several additional archaeological investigations have been conducted immediately adjacent to or within the vicinity of the project area. Figure 39 shows the locations of previous archaeological investigations. Figure 40 shows the locations of documented historic properties and burials. The results of these archaeological investigations are summarized in Table 1 and the following text.

3.2.1 Ward Village Phase II (Ward Theaters)

In 2000, CSH performed archaeological monitoring for Victoria Ward Ltd. at the site of the Ward Village Phase II (Ward Theaters) construction project in Kaka‘ako (Winieski and Hammatt 2001). This project area is bound by Auahi Street on the southwest and Kamake‘e Street to the southeast. The commercial building on the grounds does not have extensive footings nor any subsurface structural components (e.g., underground parking, businesses, storage, etc.); instead, the structure is supported by numerous drive piles. The open cut component of the pile installation involved excavation of typically 4 by 4 m trenches, 130 cm deep, to accommodate pile caps. Open cut trenching was also required for installation of underground utilities. These were typically less than a meter in depth. No pre-Contact materials, historic cultural materials, or human burials were encountered.

Approximately 90% of the pile cap excavations exhibited nearly identical stratigraphic sequences. Beneath what had previously been asphalt parking surfaces or building slabs is a 40-cm thick crushed coral fill layer, overlying hydraulic (i.e., pumped dredged material) clay fill, overlying the decomposing coral shelf.

At the northwest corner of the building’s footprint, a few of the pile cap excavations exposed an in situ A horizon beneath fill materials. The silty sand A horizon overlies a light brownish gray sandy clay, which was interpreted as as pond sediments. An in situ sand A horizon was also present above a sterile calcareous sand layer in a 50-m long shallow trench dug for associated telephone cable conduits behind Nordstrom Rack, along the southeastern boundary of

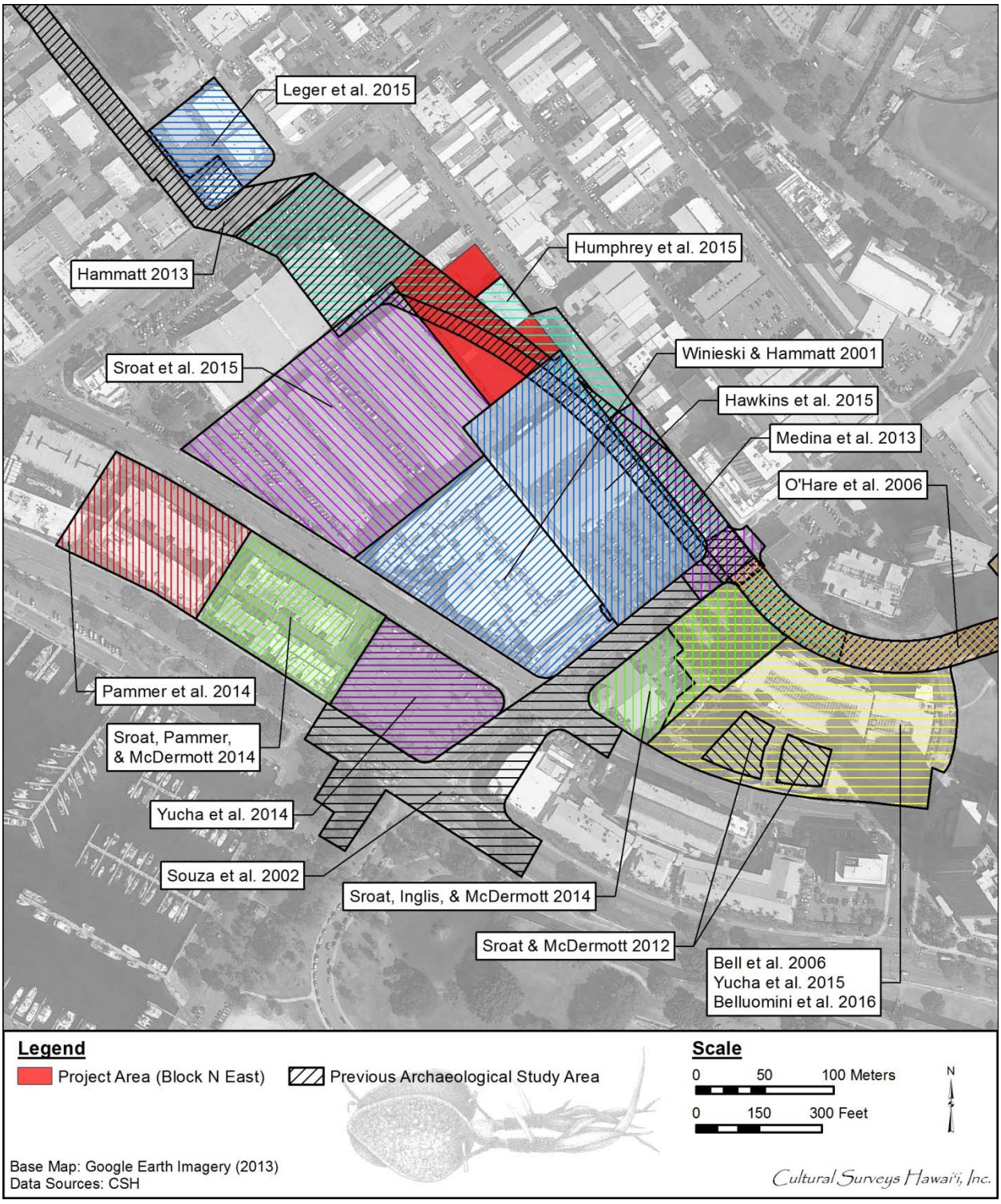

Figure 39. Previous archaeological studies within and in the immediate vicinity of the Block N East project area (Google Earth Imagery 2013)

Figure 40. Previously identified archaeological sites and burials within the vicinity of the project area (Google Earth Imagery 2013)

Table 1. Previous Archaeological Studies within or in the Immediate Vicinity of the Block N East Project Area

Reference	Project Name	Type of Study	Results (SIHP # 50-80-14)
Winieski and Hammatt 2001	Ward Theaters	Archaeological monitoring	No burials or cultural deposits found; buried A horizon documented within pile caps in the northwest and southeast corners of the project area
Souza et al. 2002	Kaka‘ako ID-7	Archaeological monitoring	Three disturbed pre-Contact burials recorded (SIHP #s -6376, -6377, -6378); buried sand A horizon documented in seven of ten profiles
Bell et al. 2006	Victoria Ward Village Shops project	Archaeological inventory survey	86 test trenches identified three historic properties: 1) SIHP # -6854, subsurface cultural layer/activity area remnant with five human burials; 2) SIHP # -6855, activity area remnant comprised of pronounced subsurface traditional Hawaiian cultural layer and six human burials; and 3) SIHP # -6856, Kolowalu Fishpond remnant; three stratigraphic zones identified: 1) natural low-lying salt flats, marsh, or pond sediments, 2) natural Jaucas sand beach deposits, and 3) areas where modern/historic fill episodes have removed former natural land surface, leaving only low-energy lagoonal deposits
O’Hare et al. 2006	Kaka‘ako ID-10	Archaeological monitoring	Three historic properties documented: 1) SIHP # -6658, a cemetery comprised of 28 historic burials; 2) SIHP # -6659, two isolated disturbed burials; and 3) SIHP # -6660, a historic trash pit
Sroat and McDermott 2012	Victoria Ward Village Shops	Supplemental archaeological inventory survey	Five test excavations within or adjacent to SIHP # -6855 substantiated the Bell et al. (2006) extrapolated boundaries of this cultural layer; no additional finds identified
Hammatt 2013	Honolulu Rapid Transit Project—City Center (Section 4)	Archaeological inventory survey	One historic property documented adjacent to current project area, SIHP # -7429, consisting of a culturally enriched A horizon developed within Jaucas sand and containing associated features, including an isolated human skeletal element within the A horizon
Medina et al. 2013	Queen and Kamake‘e St traffic signal	Archaeological monitoring	No historic properties noted within existing utility trenches; isolated in situ pockets of natural calcareous sand observed below fill layers

Reference	Project Name	Type of Study	Results (SIHP # 50-80-14)
Pammer et al. 2014	Ward Block B East (Ward Village Gateway)	Archaeological inventory survey	38 test excavations identified five historic properties: 1) SIHP # -7655, subsurface historic salt pan remnants; 2) SIHP # -7656, human skeletal remains; 3) SIHP # -7658, historic buried surfaces; 4) SIHP # -7659, a historic water channel; and 5) SIHP # -7660, a historic, culturally enriched fill deposit
Sroat, Inglis, and McDermott 2014	Ward Block K	Archaeological inventory survey	35 test excavations identified portions of two previously identified historic properties: 1) SIHP # -6855, subsurface cultural deposits; and 2) SIHP # -7422, a burned trash layer; the majority of the project area contained the modern developed land surface, fill layers, and hydraulic (dredged) fill overlying remnant buried A horizon or organic-rich peat material, Jaucas sand, and gleyed marine sandy clay
Sroat, Pammer, and McDermott 2014	Ward Block C West (Ward Village Gateway)	Archaeological inventory survey	36 test excavations identified two historic properties: 1) SIHP # -7655, subsurface historic salt pan remnants; and 2) SIHP # -7658, historic buried surfaces
Yucha et al. 2014	Ward Block C	Archaeological inventory survey	Identified a burnt trash layer (SIHP # -7422); majority of project area contained a sand or peat A horizon and Jaucas sand beneath reclamation fill layers; no cultural material or features observed
Hawkins et al. 2015	Ward Block M	Archaeological inventory survey	68 test excavations identified portions of two historic properties: 1) SIHP # -7429, subsurface cultural deposits, consisting of two discrete cultural deposits, and associated features; and 2) SIHP # -7686, twentieth century commercial infrastructure remnants
Humphrey et al. 2015	HRTP—City Center	Supplemental archaeological inventory survey	15 test excavations identified additional components of SIHP # -7429, including three pit features and a human burial

Reference	Project Name	Type of Study	Results (SIHP # 50-80-14)
Leger et al. 2015	Ward Block O	Archaeological inventory survey	27 test excavations identified one historic property: SIHP # -7717, pre- to post-Contact subsurface residential and commercial surfaces; project area contained the modern developed land surface and fill layers overlying two sequences of natural layers: 1) loamy sand A horizon, Jaucas sand, and natural wetland or marine deposits; and 2) wetland A horizon over natural wetland or marine deposits
Sroat et al. 2015	Ward Block I	Archaeological inventory survey	88 test excavations identified portions of three historic properties: 1) SIHP # -7429, previously identified subsurface cultural deposits, consisting of culturally enriched historic fill layers and an in situ sand A horizon, and 60 associated features, including human burials; 2) SIHP # -7655, subsurface historic salt pan remnants and associated cultural deposits, including a human burial; and 3) SIHP # -7659, the concretized Ward Estate water channel (*‘auwai*)
Yucha et al. 2015; Belluomini et al. 2016	Victoria Ward Village Shops project	Archaeological monitoring	Further documented four previously identified historic properties: SIHP #s -6854 and -6855, subsurface cultural deposits/activity area remnants; SIHP # -6856, Kolowalu Fishpond sediments; and SIHP # -7422, a burnt trash fill layer; within SIHP # -6854, documented an additional 23 human burials and 31 features; within SIHP # -6855, documented an additional 31 human burials and 8 features

the Block N East project area. In this trench the A horizon and sand layer were continuous, apparently not disturbed by previous construction.

At the southeast corner of the project area, near the intersection of Auahi and Kamake‘e streets, an A horizon and sand layer are also present, however, they are discontinuous, having been disturbed by previous construction activities and replaced with backfill. It is near this area that a human burial was encountered within the sand matrix during the adjacent Kaka‘ako Improvement District 7 project (SIHP # -6377) (see Figure 40).

3.2.2 Kaka‘ako Improvement District 7 (ID-7)

The ID-7 project constructed improvements to drainage, water, sewer, and utility systems on Kamake‘e Street between Queen Street and Ala Moana Boulevard, and extended the drain system from Ala Moana Boulevard to Kewalo Basin (Souza et al. 2002). The project also

included the realignment of the existing Kamake‘e Street between Auahi Street and Ala Moana Boulevard.

During project excavations, three human burials were encountered (see Figure 40). Burial 1 (SIHP # -6376), a single cranium, was inadvertently discovered by construction personnel on 13 October 2000 in the base yard backdirt pile. The backdirt pile derived from a trench on Ala Moana Boulevard and Kamake‘e Street. Burial 2 (SIHP # -6377), an adult individual, was encountered by an archaeologist during backhoe excavations for a box drain on Kamake‘e Street. The burial was within an undisturbed sand deposit. Burial 3 (SIHP # -6378), consisting of a femur and several rib fragments, was recovered from backdirt transported to the construction base yard. The original location of the burial could not be determined. All three inadvertent burial discoveries were transferred to the SHPD for temporary curation.

Ten profiles were described and drawn along Kamake‘e Street between Queen Street and Ala Moana Boulevard. Most of the excavations occurred in previously disturbed fill material. As expected, the land comprising Ala Moana Beach Park and the Kewalo Basin consists totally of fill material, since the areas were seaward of the shoreline in the pre-Contact and early historic periods. Natural discontinuous deposits were exposed most frequently along the ‘Ewa (west) and Diamond Head (southeast) sides of Kamake‘e Street extending down to Ala Moana Boulevard. A buried A horizon was observed in seven profiles.

3.2.3 Kaka‘ako Improvement District 10 (ID-10)

Between 2003 and 2004, CSH conducted archaeological monitoring for ID-10, Queen Street Extension project, which extended Queen Street from its former ending point at the intersection with Kamake‘e Street to its new intersection with Pi‘ikoi Street (O’Hare et al. 2006). During monitoring of the construction, 30 human burials were found and disinterred. Twenty-eight of the burials, constituting a discrete cemetery (SIHP # -6658), were located at the lip of Kolowalu Pond (SIHP # -6856) and contained associated grave goods indicating cemetery dates between the 1840s and the 1880s. All 28 burials were found at the base of a stratum of undisturbed beach sand, which was stratigraphically below several modern fill layers. The two other burials consisted of isolated, disturbed human burials (SIHP # -6659). All 30 human burials, from both SIHP # -6658 and SIHP # -6659, were disinterred and reinterred within a concrete vault on the project area. In addition, a historic trash pit with historic artifacts including metal, ceramics, glass bottles, and other materials was found adjacent to the north side of the cemetery (SIHP # -6660). Bottle dating analysis indicated a date range from the 1920s to the 1930s.

3.2.4 Ward Village Shops Project

In 2006, CSH performed an archaeological inventory survey for the Victoria Ward Village Shops project (Bell et al. 2006). A total of 86 trenches were excavated in the Ward Village Shops project area. Three historic properties were identified. SIHP # -6854 consists of a subsurface cultural layer/activity area remnant comprised of a culturally enriched A horizon (containing both pre-Contact and historic cultural material). Five human burials were documented in association with SIHP # -6854 as well as 11 non-burial features (one historic privy, three animal interments, and seven pits of indeterminate function). SIHP # -6855 similarly consists of a subsurface cultural layer/activity remnant comprised of a pronounced subsurface traditional Hawaiian cultural layer, six human burials, and 43 non-burial features (seven possible *imu*, one animal interment, and 35 pits of indeterminate function). SIHP # -6856 consists of Kolowalu

Fishpond remnants. Burial treatment of the 11 previously identified human burials consisted of relocation within the project area: the five burials associated with SIHP # -6854 were reinterred within Reburial Site D at the ‘Ewa end of the project area, fronting Auahi Street; and the six burials associated with SIHP # -6855 were reinterred within Reburial Site C alongside Queen Lane. The study also identified three stratigraphic zones: 1) natural low-lying salt flats, marsh, or pond sediments, 2) natural Jaucas sand deposits, and 3) areas where modern/historic fill episodes have removed the former natural land surface, leaving only low-energy lagoonal deposits (Figure 41).

Between March 2006 and August 2011, CSH monitored construction activity associated with the Ward Village Shops project (Belluomini et al. 2016 and Yucha et al. 2015). The monitoring program included SHPD-approved excavations associated with the disinterment and relocation of the 11 burial finds identified during the AIS. Archaeological monitoring further documented SIHP #s -6854, -6855, and -6856 (Figure 42). Within SIHP # -6854, an additional 23 human burials and 31 features were identified, bringing the total to 28 human burials and 42 non-burial features. The majority of the in situ human burials were in a flexed or semi-flexed position (none were associated within coffins), indicating traditional-type Native Hawaiian burials, and were encountered within the natural Jaucas sand, with a few burials located within a marine sandy clay layer beneath the Jaucas sand. The additional features consist of 12 post molds, three animal interments, three privies, three trash pits, one midden pit, one animal interment/trash pit, one fire pit, and six features of indeterminate function. Within SIHP # -6855, an additional 31 human burials and eight pit features of indeterminate function were identified, bringing the total to 37 human burials and 51 non-burial features. One burial consists of an outlying find of a single humerus shaft on the surface of the project area, likely caused during movement of fill material. SIHP # -6854 is considered to be primarily a post-Contact activity area with some pre-Contact activities evident. SIHP # -6855 is primarily a pre-Contact activity area with evidence of post-Contact use and intrusion.

In addition to the three historic properties previously identified by Bell et al. (2006), the monitoring program documented a historic burnt trash fill deposit, SIHP # -7422, within the project area (see Figure 42). This trash fill layer was first identified by Yucha et al. (2014) in the nearby Ward Block C project area (see Section 3.2.7) and subsequently by Sroat et al. (2015) within the Ward Block K project area, which contains of a portion of the Ward Village Shops project area. Bell et al. (2006) observed this fill layer but did not record it as a historic property. SIHP # -7422 is a post-1913–1930s land reclamation fill deposit containing abundant historic artifacts.

In 2012, CSH conducted a supplemental archaeological inventory survey of the Ward Village Shops Phase II project area (Sroat and McDermott 2012). Five test units were excavated within or adjacent to the extrapolated location of SIHP # -6855. The stratigraphy observed within the five test excavations substantiated the previously extrapolated boundaries of SIHP # -6855, including the sub-boundaries demarcating concentrated areas of traditional Hawaiian deposits.

3.2.5 Queen and Kamake‘e Traffic Signal Project

In 2010, CSH monitored utility relocation for the Queen and Kamake‘e Traffic Signal project (Medina et al. 2013). No historic properties were encountered. Four profiles were drawn for excavated utility trenches at the junction of Queen and Kamake‘e streets, all on the western side. In general, stratigraphy within the project area consisted of various fill materials overlying a

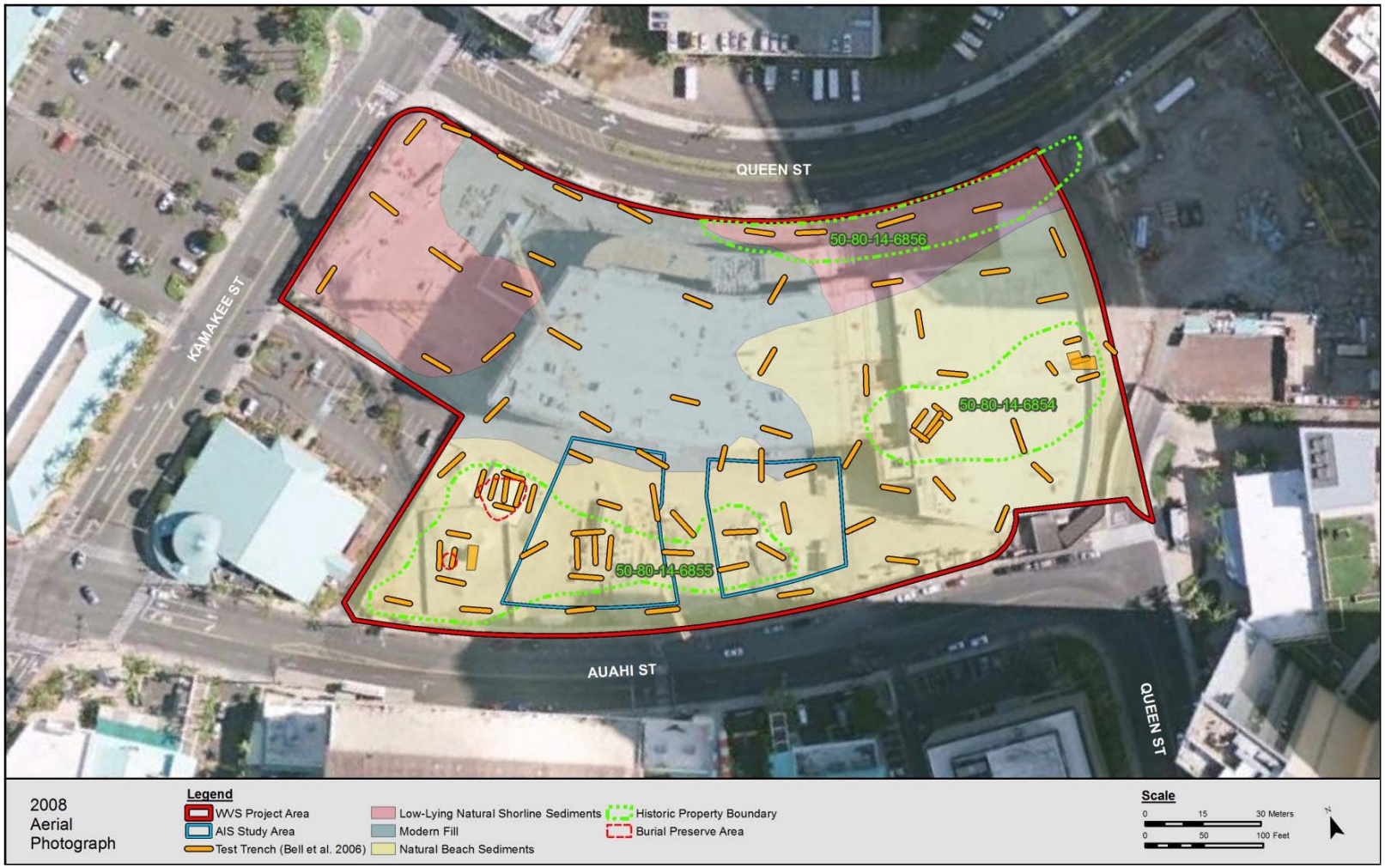

Figure 41. Aerial photograph summarizing the Bell et al. (2006) AIS investigation of the Ward Village Shops project, including the boundaries of subsurface deposit types; stratigraphic zones were divided into three categories: natural sand (yellow); areas where the natural sediments have been removed and replaced with fill deposits (gray); or low lying wetland—either salt pan, marsh, or pond (pink)

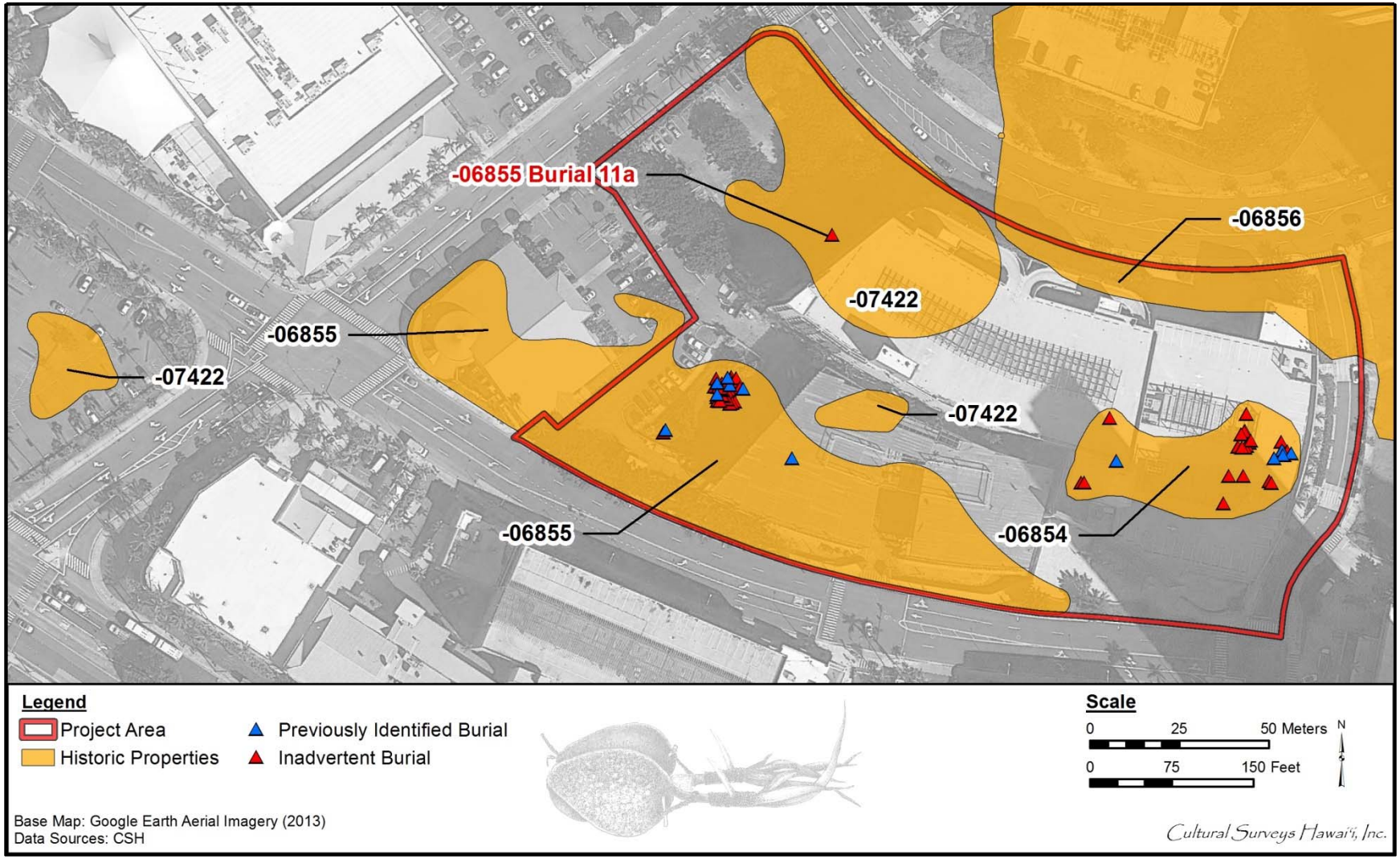

Figure 42. Figure from Yucha et al. (2015) showing the location of SIHP #s -6854, -6855, -6856, and -7422 (Google Earth Imagery 2013)

remnant or truncated sand A horizon, Jaucas sand, and the coral shelf. On average, the A horizon and lower sand layers began at 50–65 cmbs and the coral shelf at 75–120 cmbs.

3.2.6 Honolulu Rapid Transit Project

Between November 2011 and February 2013, CSH conducted an archaeological inventory survey of the Honolulu Rapid Transit Project (HRTP)—City Center (Section 4), which extended from Kalihi Stream in the west to Ala Moana Center in the east and transected a portion of the Block N East project area (Hammatt 2013). Two hundred-fifty test excavations were documented, including five within the current project area (Figure 43).

A total of 19 historic properties were identified along the length of the project corridor; however, only one historic property, SIHP # -7429, was documented within or near the current project area. SIHP # -7429 was documented in the northwest corner of the Block N East project area, within T-170 and T-170A (see Figure 43), and extended northwest into an adjacent parking lot. SIHP # -7429 was identified as a culturally enriched, buried A horizon overlying Jaucas sand, exhibiting both pre- and post-Contact land use. Seven archaeological features were identified, consisting of six pits (two identified as possible post molds) and one isolated human cranial fragment within T-170.

Stratigraphy documented by the HRTP AIS within the Block N East project area consists of sand deposits with intermittent wetland deposits. Figure 44 through Figure 46 show representative profiles from T-170A, T-171, and T-172. Both T-170A and T-172 contain buried natural sand deposits while the intervening T-171 contains buried wetland sediment. While T-170 and T-170A were designated part of SIHP # -7429, T-172 was spatially disconnected and contained only sparse cultural material, hence it was not designated part of SIHP # -7429; however, it was noted as an area that warranted close monitoring during construction ground disturbance. T-172 contained very small amounts of charcoal and *Nerita picea*, a single glass bead, and tiny fragments of burnt fish and mammal bone.

In 2014, a supplemental AIS investigation was conducted for the HRTP—City Center project area due to modifications to the Kaka‘ako Station footprint and rail corridor alignment in the immediate vicinity (from Ward Avenue to just east of Kamake‘e Street) (Humphrey et al. 2015). The supplemental AIS transected a portion of the Block N East project area and excavated two test excavations within the current project area (T-170B and T-171A) (see Figure 43). Humphrey et al. (2015) further identified SIHP # -7429 cultural deposits in the area just east of Block N East. The cultural deposits consist of an in situ loamy sand A horizon and an overlying historic fill deposit comprised of redeposited local sediments. These two cultural deposits are designated Component 1 (culturally enriched historic fill) and Component 2 (culturally enriched natural sand deposits). Four additional features of SIHP # -7429 were identified, including a fire pit feature within Component 2 and a flexed human burial within Jaucas sand. Within the Block N East project area, the supplemental AIS did not document the presence of SIHP # -7429. T-170B contained similar stratigraphy to T-170 and T-170A (see Figure 44), however, the buried sand A horizon did not contain cultural material or features. T-171A contained similar stratigraphy to T-171, consisting of buried wetland sediments (see Figure 45).

3.2.7 Ward Block C Project

Between December 2012 and January 2013, CSH conducted an archaeological inventory survey of the Ward Block C project, located south of the current project area within a parking lot

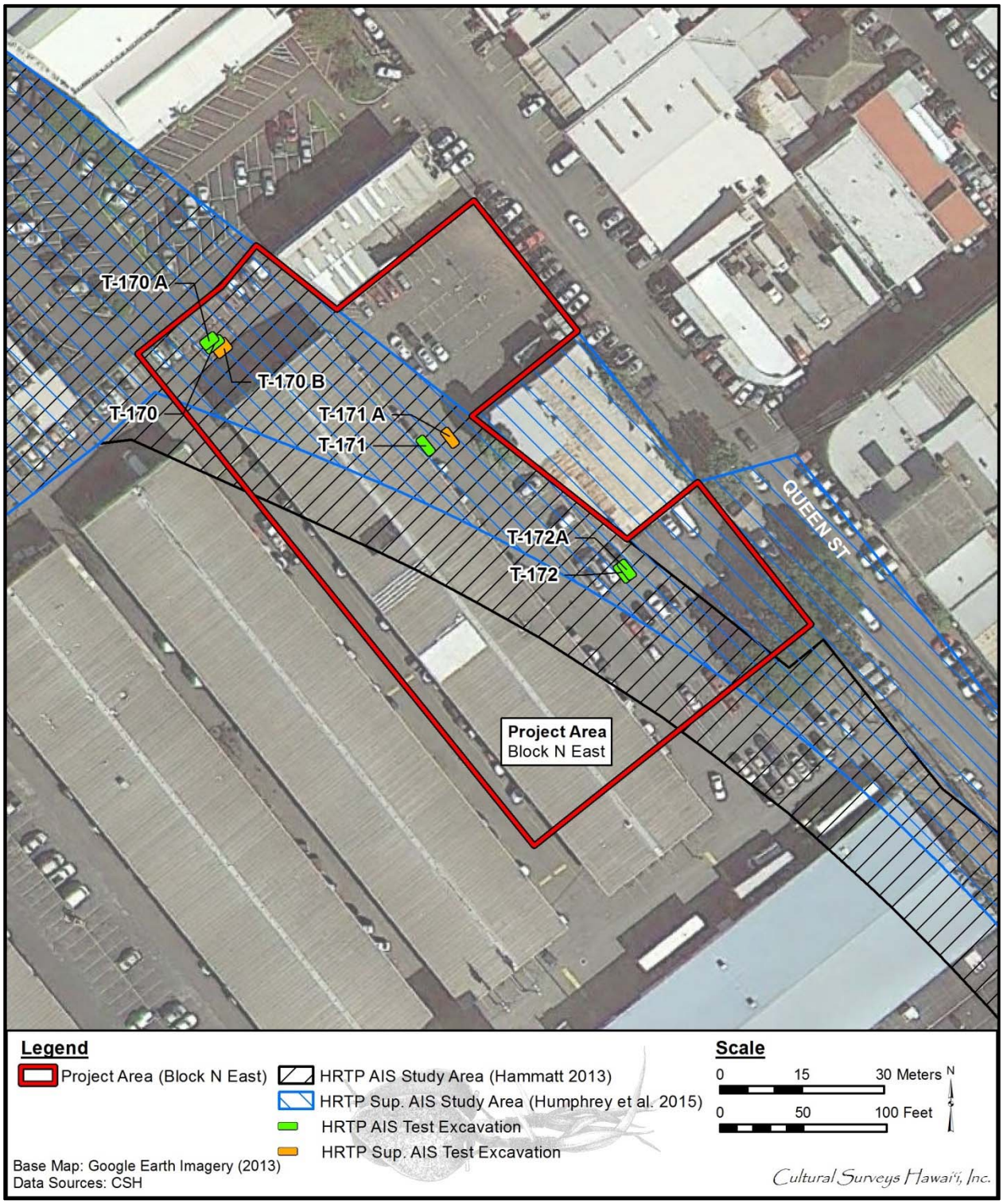

Figure 43. Aerial photograph showing the HRTP City Center AIS and Supplemental AIS project areas transecting the Block N East project area. Five AIS test excavations and two Supplemental AIS test excavations were located within the current project area (Google Earth Imagery 2013).

Figure 44. Profile wall of T-170A (HRTP City Center AIS), located in the northwest corner of the current project area, showing a culturally enriched sand A horizon (SIHP # -7429) overlying natural Jaucas sand and marine clay (from Hammatt 2013)

Stratigraphic Description

Ia Asphalt
Ib Fill; 10YR 3/3, dark brown; very gravelly loam; base course
Ic Fill; 10YR 8/2, very pale brown; extremely gravelly sand; crushed coral
Id Fill; 10YR 7/2, light gray; very fine sand; hydraulic fill
II Natural; 10YR 4/2, dark grayish brown; silty sand; A horizon (SIHP # -7429)
III Natural; 10YR 7/4, very pale brown; medium to coarse grain sand; natural Jaucas sand
IV Natural; 5GY 7/1, light greenish gray, coarse sand; marine sand

Figure 45. Profile wall of T-171 (HRTP City Center AIS), located in the central portion of the current project area, showing wetland deposits underlying reclamation fill (from Hammatt 2013)

Stratigraphic Description

Ia Asphalt
Ib Fill; 10 YR 3/2, very dark grayish brown; very gravelly sandy loam; base course
Ic Fill; 2.5 Y 5/2, dark grayish brown; extremely gravelly sand; crushed coral base course
Id Fill; 2.5 Y 3/2, very dark grayish brown; extremely gravelly sandy loam; basalt gravel in loam matrix
Ie Fill; 2.5 Y 7/2, light gray; extremely gravelly sand; crushed coral
If Fill; 2.5 Y 7/1, light gray; very fine sand; hydraulic fill
II Natural; 2.5 Y 4/1, dark gray; silty clay; marshland/wetland sediment/peat containing roots and organics
III Natural; 2.5 Y 6/1, gray; loamy sand

Figure 46. Profile wall of T-172 (HRTP City Center AIS), located in the central portion of the current project area, showing buried natural sand deposits (from Hammatt 2013)

Stratigraphic Description

Ia Asphalt
Ib Fill; 10 YR 5/4 (yellowish brown); slightly gravelly silt loam;
Ic Asphalt
Id Fill; 10 YR 5/3 (brown); silty loam
Ie Asphalt
If Fill; 10 YR 6/1 (gray); slightly gravelly silty sand
Ig Fill; 10 YR 8/2 (very pale brown); very gravelly sand; crushed coral
Ih Fill; 10 YR 7/1 (light gray); clay; hydraulic fill
II Natural; 10 YR 3/3 (dark brown); silty sand; A horizon
III Natural; 10 YR 6/4 (light yellowish brown); Jaucas sand
IV Natural; 10 YR 6/2 (gray); sand

at the intersection of Ala Moana Boulevard and Kamake‘e Street (Yucha et al. 2014). Forty-one test excavations were distributed across the project area. Only one historic property was identified, a burned trash layer located near the corner of Kamake‘e and Auahi streets (SIHP # -7422). Stratigraphy within the project area was largely consistent. A deposit of hydraulic fill material associated with the reclamation infilling of Kaka‘ako during the 1913–1930 period was found within the north, west, and south portions of the project area. Beneath the fill layers, a coarse sand A horizon was documented within 25 test excavations throughout the project area, while a peat A horizon was found within three excavations within the northern portion of the project area. A majority of the project area (35 test excavations) contained Jaucas sand. No cultural material or features were observed within the test excavations or within screened and bulk sediment samples.

3.2.8 Ward Block K Project

Between 14 January and 13 December 2013, CSH conducted an archaeological inventory survey of the Ward Block K project area, located southeast of Block N East (Sroat, Inglis, and McDermott 2014). Thirty-five test excavations were documented within the project area. The stratigraphy within the Block K project area consisted of the modern developed land surface and numerous and variable layers of fill, including hydraulic (dredged) fill, overlying two stratigraphic sequences of natural deposits, consisting of a remnant buried sand A horizon which developed atop Jaucas sand and an organic-rich, peat A horizon which developed atop wetland sediments. The natural sand deposits are located within the southwest (*makai*) half of the project area and contain a buried loamy sand A horizon with sparse pre-and/or early post-Contact cultural material. The wetland deposits are located within the northeastern (*mauka*) half of the project area, with an isolated pocket of Jaucas sand within the northern corner of the project area (Figure 47). Portions of two historic properties were identified within the Block K project area: 1) SIHP # -6855, a subsurface cultural layer; and 2) SIHP # -7422, a burned trash layer.

SIHP # -6855 was previously identified during the Ward Village Shops AIS (Bell et al. 2006,) and during subsequent monitoring at the Ward Village Shops (Yucha et al. 2015 and Belluomini et al. 2016). SIHP # -6855 consists of a culturally enriched A horizon associated with traditional Hawaiian and historic habitation-related land use, with evidence of historic and/or modern truncation and/or disturbance along its upper limits. The cultural layer consists of a natural sand A horizon formed atop Jaucas sand, with portions retaining the dark, charcoal-enriched, ash-stained, scalloped lower boundary characteristic of traditional Hawaiian cultural layers in sand deposits. The cultural material content consists of charcoal, fire-altered basalt rock, basalt flakes, volcanic glass, faunal remains, and midden material.

The Block K AIS expanded the boundaries of SIHP # -6855 and identified an additional 24 associated features (see Figure 47). The features include ten pit features of indeterminate function, one fire pit, four midden features, one historic food consumption feature, and eight post molds. In addition, one isolated artifact (an octopus stone lure) and four clusters of waterworn basalt cobbles (likely manuports) were documented within the Jaucas sand and included as part of SIHP # -6855.

SIHP # -7422 was previously identified during the Ward Block C AIS (Yucha et al. 2014), and its boundaries were expanded during the Block K AIS. SIHP # -7422 is comprised of a dispersed, discontinuous layer of burned trash deposits within layers of land reclamation and

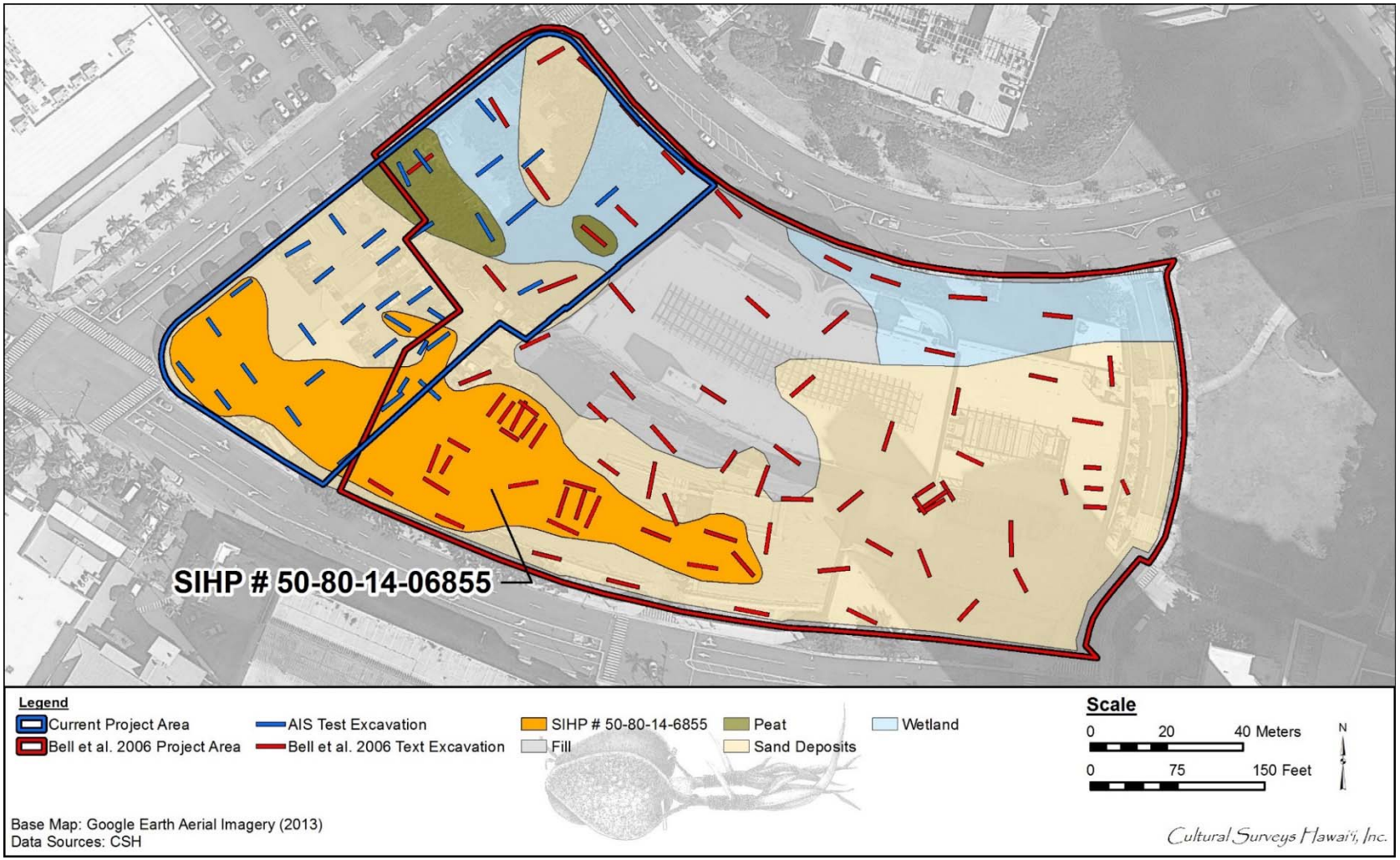

Figure 47. Figure from Sroat, Inglis, and McDermott (2014) showing the zones of different types of natural land surfaces (beach sand, peat, and wetland) within the Block K project area, modified from the Ward Village Shops AIS (Bell et al. 2006), and the expanded boundaries of the culturally enriched A horizon (SIHP # -6855)

grading fill. The integrity of the burned artifacts was consistent with open air burning (no extensive damage and melting associated with an incinerator) and they are likely associated with the dumping of Honolulu's urban rubbish prior to the 1930 construction of the Kewalo incinerator. The burned trash layer cultural deposit (SIHP # -7422) is considered to be a fill event. The Block K burned trash deposits were incorporated into SIHP # -7422 due to their proximity to the previously identified deposits (approximately 180 m northwest) and the similarity of the distinctive traits of trash burnt at low temperatures and repurposed as fill. The Block K AIS report also recommended that trash deposits identified during the Ward Village Shops AIS (Bell et al. 2006) be incorporated into SIHP # -7422.

3.2.9 Ward Gateway Project (Blocks B East and C West)

Between 14 April and 9 June 2014, CSH conducted archaeological inventory surveys of Block B East (Pammer et al. 2014) and Block C West (Sroat, Pammer, and McDermott 2014), contiguous project areas that together comprise the Ward Village Gateway project. A total of 38 test excavations were completed within Block B East, and 36 test excavations were completed within Block C West. Five historic properties were identified within the Block B East and Block C West (Ward Village Gateway) project areas (Figure 48).

SIHP # -7656 consists of a single human cranial fragment encountered within disturbed sand along the *makai* boundary of the project area along Ala Moana Boulevard. The *iwi kūpuna* have been preserved in place. SIHP # -7658 consists of buried historic surfaces and milled wood posts associated with twentieth century land development. The surfaces were documented beneath modern fill layers and consist of asphalt, concrete, coral and tar pavement, and oil-rolled surfaces. The remnant wood posts were documented along the edge of Ala Moana Boulevard and may represent a boundary fence. SIHP # -7659 consists of the concretized and rerouted Ward Estate *‘auwai*. SIHP # -7660 consists of a historic trash fill deposit located within an abandoned storm drain box along the *makai* boundary of the project area. The historic trash included bottles, ceramic, metal fragments, and boat trash likely related to the nearby fishing and tuna cannery industry.

SIHP # -7655 consists of historic salt pan remnants located throughout the majority of the Ward Village Gateway project area (see Figure 48). The historic salt pan remnants were located within areas of natural low-lying wetlands, which had been converted to salt pan basins enclosed by man-made berm structures. The berm structures were comprised of archaeosediments believed to be marine sandy clay deposits previously located within or in the immediate vicinity of the project area. The salt pan beds consisted of the natural underlying wetland sediments covered with very thin organic laminations, likely associated with salt production methods. Two features associated with the historic salt pans (SIHP # -7655 Features 1 and 2) were identified. Feature 1 consisted of naturally tabular limestone boulders, placed to create a relatively level surface over the natural marine sandy clay. The limestone boulders were determined to be associated with the land altering events connected to the historic salt pans. Feature 2 consisted of limestone boulders integrated into a man-made berm adjacent to a small section of peaty pond sediments.

3.2.10 Ward Block M Project

Between 13 January and 1 June 2014, CSH conducted an archaeological inventory survey of the Block M project area, located directly southeast of and adjoining Block N East (Hawkins et

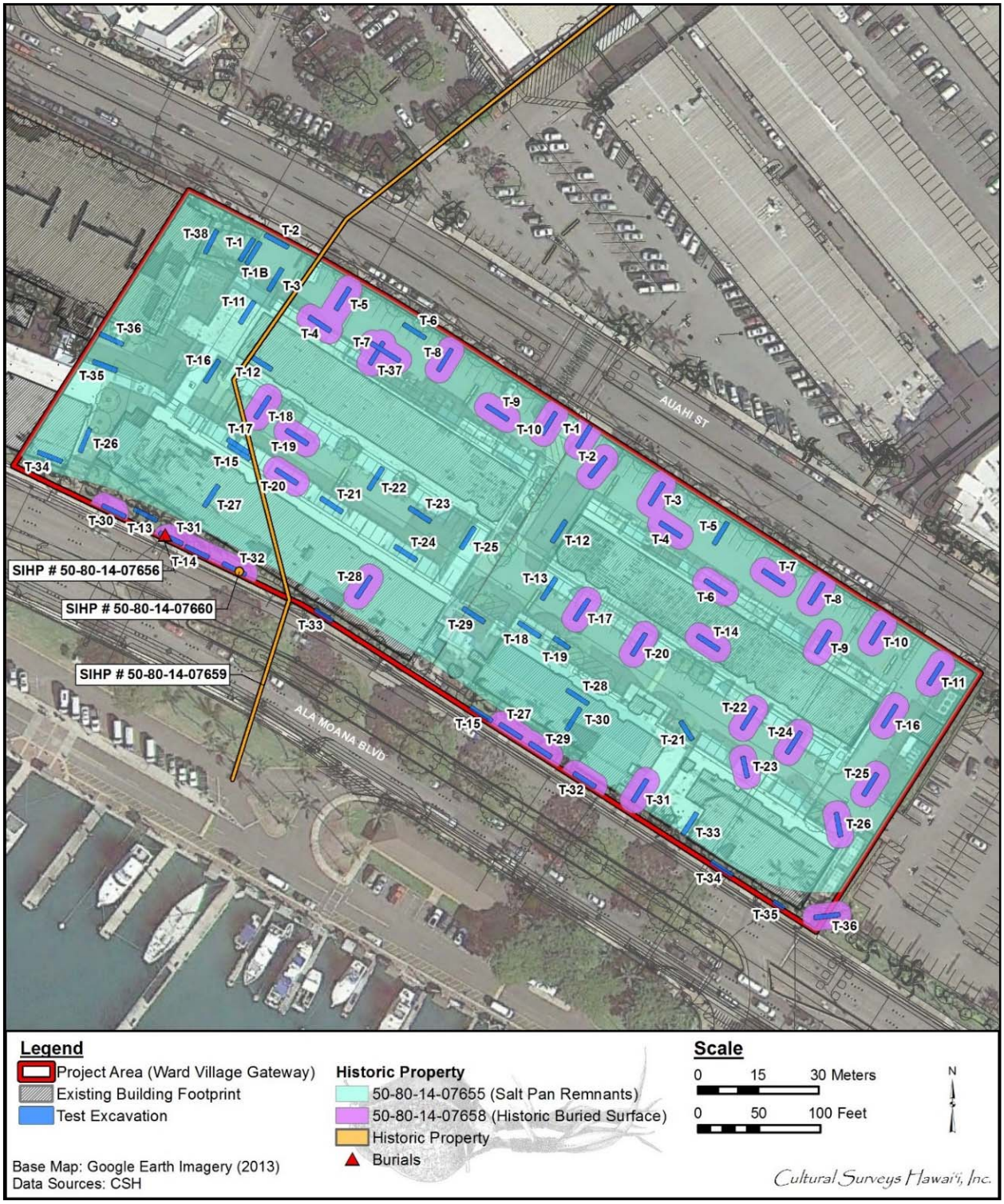

Figure 48. Aerial photograph showing the distribution of historic properties identified within the Ward Village Gateway (Blocks B East and C West) project area (Google Earth Imagery 2013)

al. 2015). Sixty-eight test excavations were documented. Portions of two historic properties were identified within the Block M project area: 1) SIHP # -7429, consisting of two cultural deposits and associated features; and 2) SIHP # -7686, consisting of subsurface twentieth century commercial infrastructure remnants.

SIHP # -7429 was previously identified during the HRTP (City Center) AIS (Hammatt 2013, see Section 3.2.6) and its boundaries expanded during the Block M AIS. While the subsurface cultural deposits within Block M are located approximately 150 m southeast of the SIHP # -7429 cultural deposits identified by Hammatt (2013), they were identified as part of the same historic property based on similarities in stratigraphic and geographic context and material content, as well as by the findings of the intervening Block I AIS which was then in progress. The SIHP # -7429 cultural deposits within the adjoining Block M, Block I, and the HRTP (City Center) project areas are geographicaly located within a buried sand dune that lies *mauka* of and abuts the Kaka‘ako coastal wetlands. The sand dune appears to extend roughly west–east along the area of Queen Street between Ward Avenue and Kamake‘e Street.

Within Block M, SIHP # -7429 was documented as consisting of two discrete cultural deposits, including a thin, locally procured historic fill deposit (Component 1) overlying a buried, in situ sandy loam A horizon (Component 2) (Figure 49). The Component 1 historic cultural deposit was not originally identified by Hammatt (2013); however, reinspection of field documents (i.e., photographs) from the previous AIS indicate this very thin layer was indeed present, represented as a slightly lighter colored loamy sand layer atop the in situ A horizon. An additional 12 features were documented within Block M (SIHP # -7429 Features 8–19), consisting of two post molds (Component 1), two *‘auwai* (water channels; Component 1), two fire pits (Component 2), an ash lens (Component 2), and five pits of indeterminate function (Component 2). Cultural content within the in situ A horizon (Component 2) and associated features indicates a prolonged period of usage, or at least periodic habitation, ranging from as early as the fourteenth to fifteenth centuries (based on radiocarbon dates from Feature 8, an *imu*) to the historic period. Cultural content within the overlying historic fill and associated features indicate this land modification layer served as a stable living surface for a period of time, as evidenced by an accumulation of historic debris and the presence of post molds and water channel features.

SIHP # -7686 was a newly identified historic property consisting of buried historic infrastructure remnants associated with commercial development during the mid- to late twentieth century. The subsurface commercial remnants, comprised of buried concrete surfaces, asphalt surfaces, associated base course layers, concrete footings and beams, and a cinder block structural remnant, are located within the central and northwest portions of the Block M project area (Figure 50). Based on aerial photographs and historic maps, three parallel warehouses were constructed within the project area sometime between 1939 and 1943 and remained in use until the 1990s when they were removed in order to build the current commercial buildings. The structural remnants documented during the Block M AIS correspond with the locations of the ‘Ewa and central warehouses, as well as asphalt roadways located immediately northwest of the ‘Ewa warehouse (Figure 51). No structural remnants of the Diamond Head (southern) warehouse were identified during the Block M AIS and were likely completely removed during the 1990s.

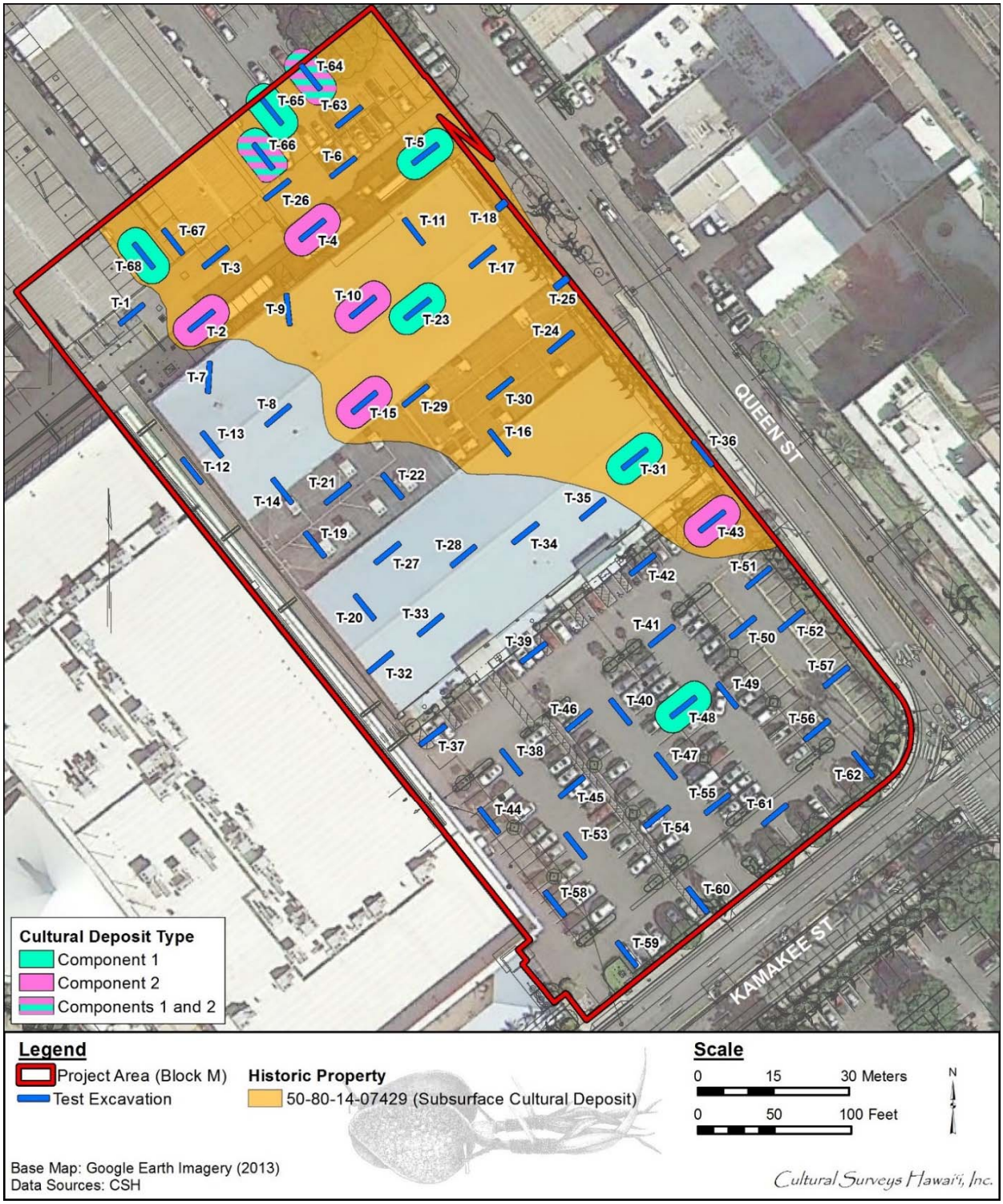

Figure 49. Figure from Hawkins et al. (2015) showing the location of SIHP # -7429 documented within the Block M project area (Google Earth Imagery 2013)

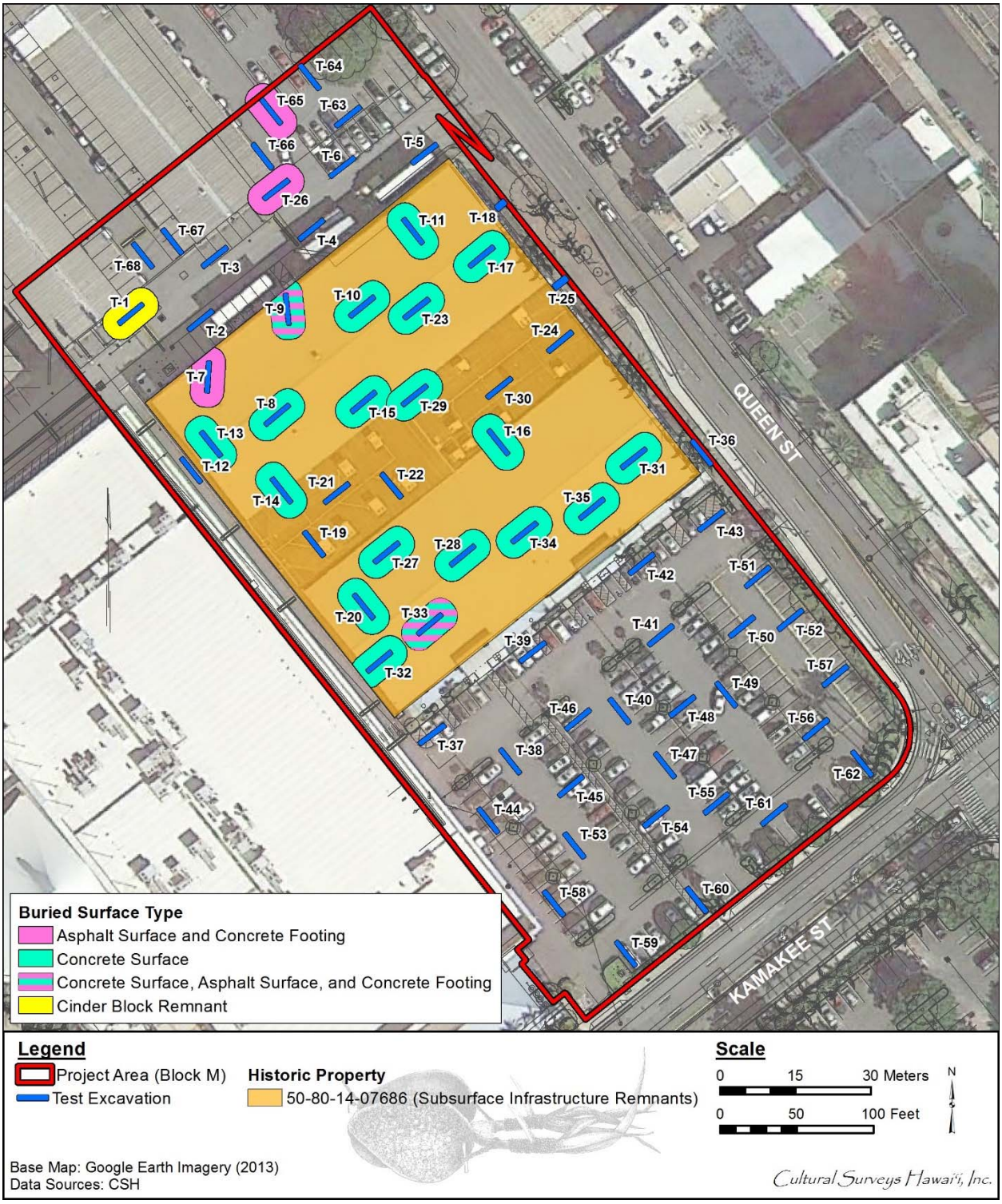

Figure 50. Figure from Hawkins et al. (2015) showing the location of SIHP # -7686 documented within the Block M project area (Google Earth Imagery 2013)

Figure 51. 1952 aerial photograph showing three parallel warehouse structures within the Block M project area, in relation to a GIS overlay of AIS test excavations that documented the SIHP # -7686 buried historic commercial structural remnants (UH SOEST)

3.2.11 Ward Block I Study Area

Between 17 March and 2 August 2014, CSH conducted an archaeological inventory survey of the Block I study area (Sroat et al. 2015), located directly *makai* of Block N East. A total of 88 test excavations were completed within Block I. Portions of three historic properties were identified: 1) SIHP # -7655, previously identified historic salt pan remnants; 2) SIHP # -7429, previously identified subsurface cultural deposits and human burial sites; and 3) SIHP # -7659, the previously identified concretized Ward Estate *‘auwai* (Figure 52).

Within Block I, SIHP # -7429 cultural deposits were documented within the *mauka* portion of the study area within a sand dune deposit that abuts a large area of coastal wetlands (see Figure 52 through Figure 54). Similar to Block M, the subsurface cultural deposits consist of two discrete strata and associated features. Component 1 is comprised of multiple culturally enriched, historic sandy fill deposits, composed of locally procured and redeposited sediment, including Jaucas sand, A horizon material, and sandy clay wetland sediment. These deposits were likely used to modify, or level, the natural topography, and based on the presence of associated pit features, these layers also served as land surfaces during the nineteenth to early twentieth centuries. Component 1 historic fill deposits contain historic artifacts, faunal material (including marine midden), charcoal, fire-altered rock, coconut and *kukui* nut shells, traditional Hawaiian artifacts, and human burial sites, including in situ burials and disturbed human skeletal remains. Component 2 is a culturally enriched, in situ A horizon that developed within natural calcareous Jaucas sand and served as a land surface for a period of time, as evidenced by the accumulation of organic and loamy material and the presence of associated pit features. The overlying layers often truncated the A horizon. Component 2 contains historic artifacts, faunal material (including marine midden), charcoal, fire-altered rock, traditional Hawaiian artifacts, and human burials.

Sixty-two features associated with SIHP # -7429 were identified in Block I. These features comprised 10 human burial sites (including isolated skeletal remains, in situ burials, and disinterred burials), two disinterment pits, a concentration of *‘ili‘ili* and isolated human skeletal remains, four midden pits, five post molds, a trash pit, seven fire pits, a cobble hearth, a grouping of manuports, a cat burial, and 29 pits of indeterminate function. Thirty-one of these features were associated with Component 1 historic fill layers and the remaining 31 were associated with the Component 2 natural A horizon.

SIHP # -7655 was previously identified within the Ward Village Gateway project area, located immediately *makai* of Block I (Pammer et al. 2014; Sroat, Pammer, and McDermott 2014) (Figure 55). Within Block I, SIHP # -7655 extends from the *makai* boundary along Auahi Street to the edge of the sand dune deposit containing SIHP # -7429 within the *mauka* portion of the study area, extending the previously documented boundary of SIHP # -7655 approximately 160–170 m *mauka*. SIHP # -7655 is a large complex of buried historic salt pan remnants, consisting of an extensive, interconnected system of man-made linear structural features (berms) and low-lying, level wetland sediments overlain by thin organic laminations (salt pan beds) (Figure 56). The historic salt pan complex also includes associated cultural deposits, water channel features (*‘auwai*), and a human burial site. SIHP # -7655 was documented within 67 of 88 test excavations in the Block I study area. Based on the magnitude of this structural complex, including multiple berm building episodes, and the significant earth-moving activity that would have been required to construct and/or modify its component features, the complex was interpreted to represent historic commercial salt production activity.

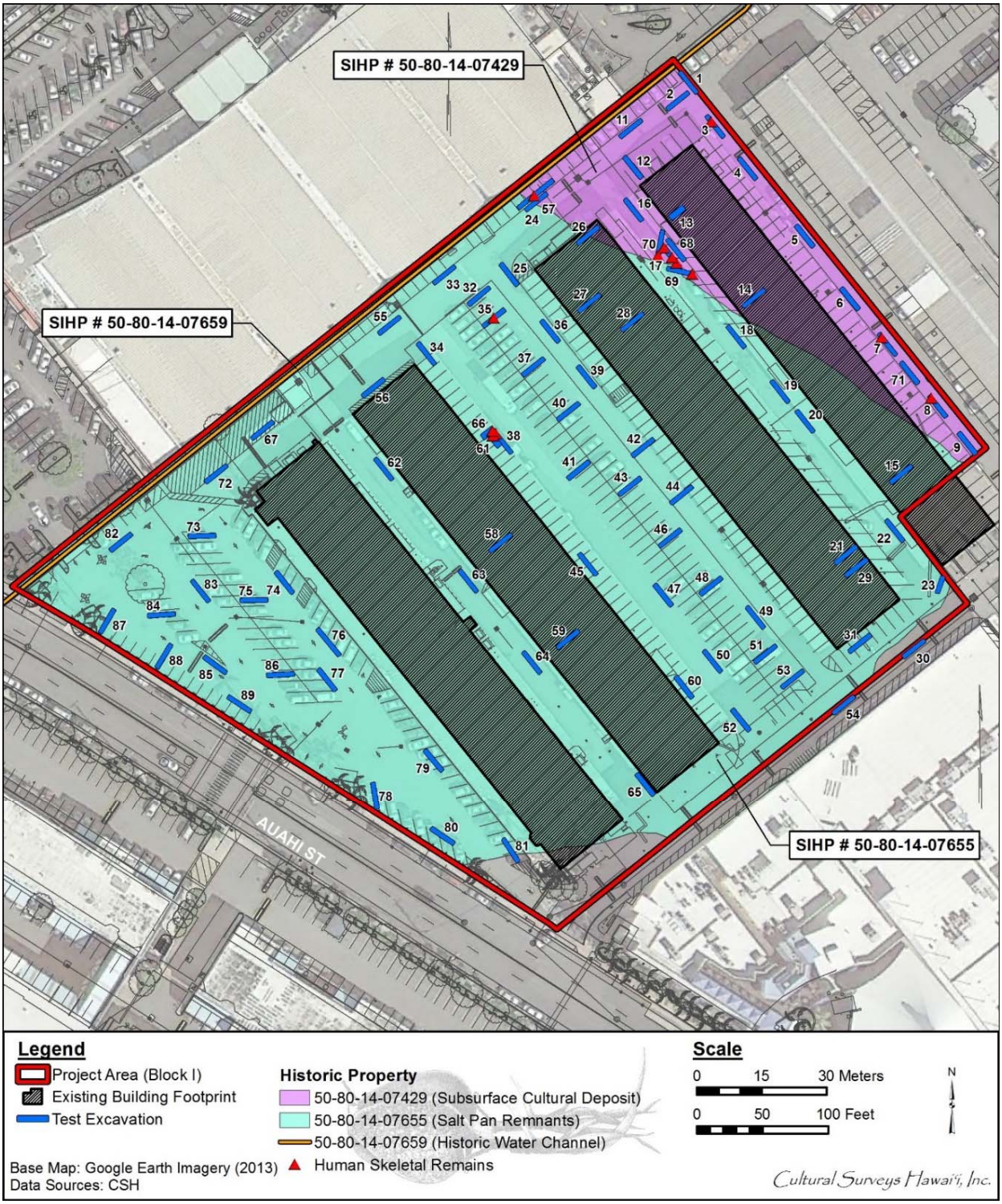

Figure 52. Figure from Sroat et al. (2015) AIS depicting the locations of the three historic properties identified during the Block I AIS: 1) SIHP # -7249 (subsurface cultural deposits; 2) SIHP # -7655 (historic salt pan remnants); and SHIP # -7659 (Ward Estate concretized *‘auwai*) (Google Earth Imagery 2013)

Figure 53. Figure from Sroat et al. (2015) showing the Block I project area with testing locations and the zones of natural deposits; note that the sand deposit along the *mauka* boundary of Block I corresponds with the area of SIHP # -7429 cultural deposits depicted in Figure 52 (Google Earth Imagery 2013)

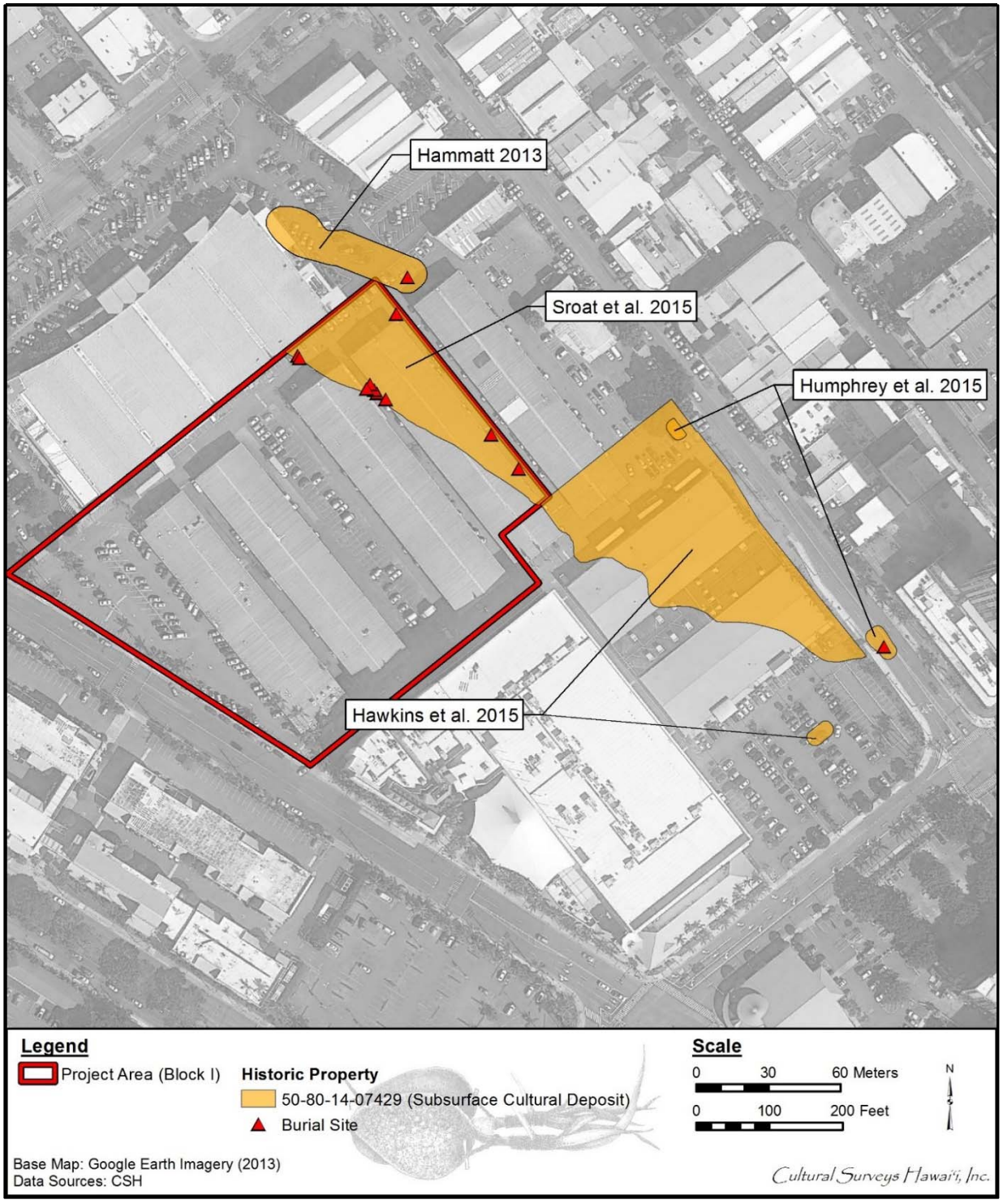

Figure 54. Figure from Sroat et al. (2015) showing the location of SIHP # -7429 within the Block I project area in relation to previous documentation of SIHP # -7429 by Hammatt (2013), Humphrey et al. (2015), and Hawkins et al. (2015) (Google Earth Imagery 2013)

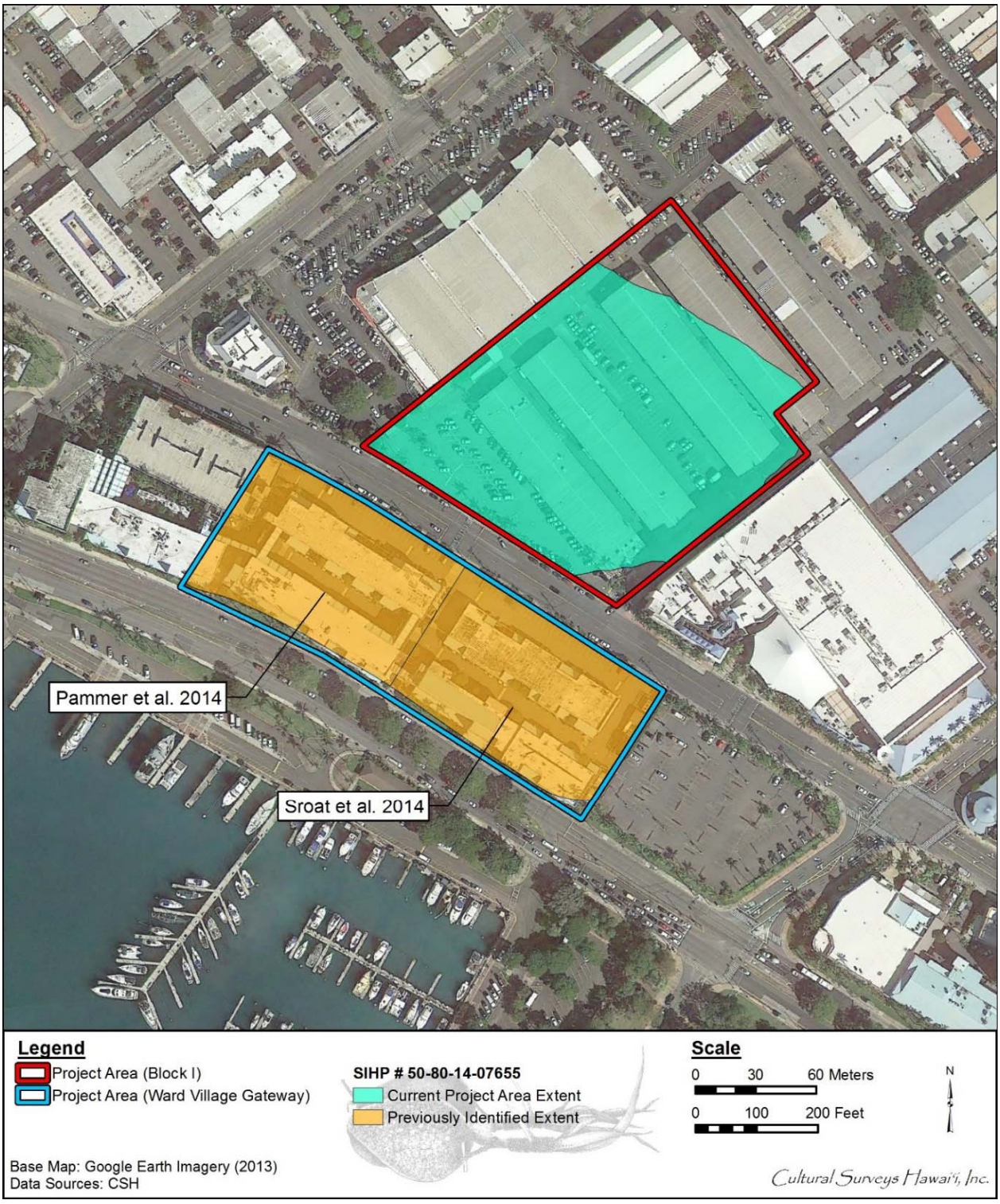

Figure 55. Figure from Sroat et al. (2015) showing the entire documented extent of SIHP # -7655, historic salt pan remnants, within the Block I study area and Ward Village Gateway project area (Google Earth Imagery 2013)

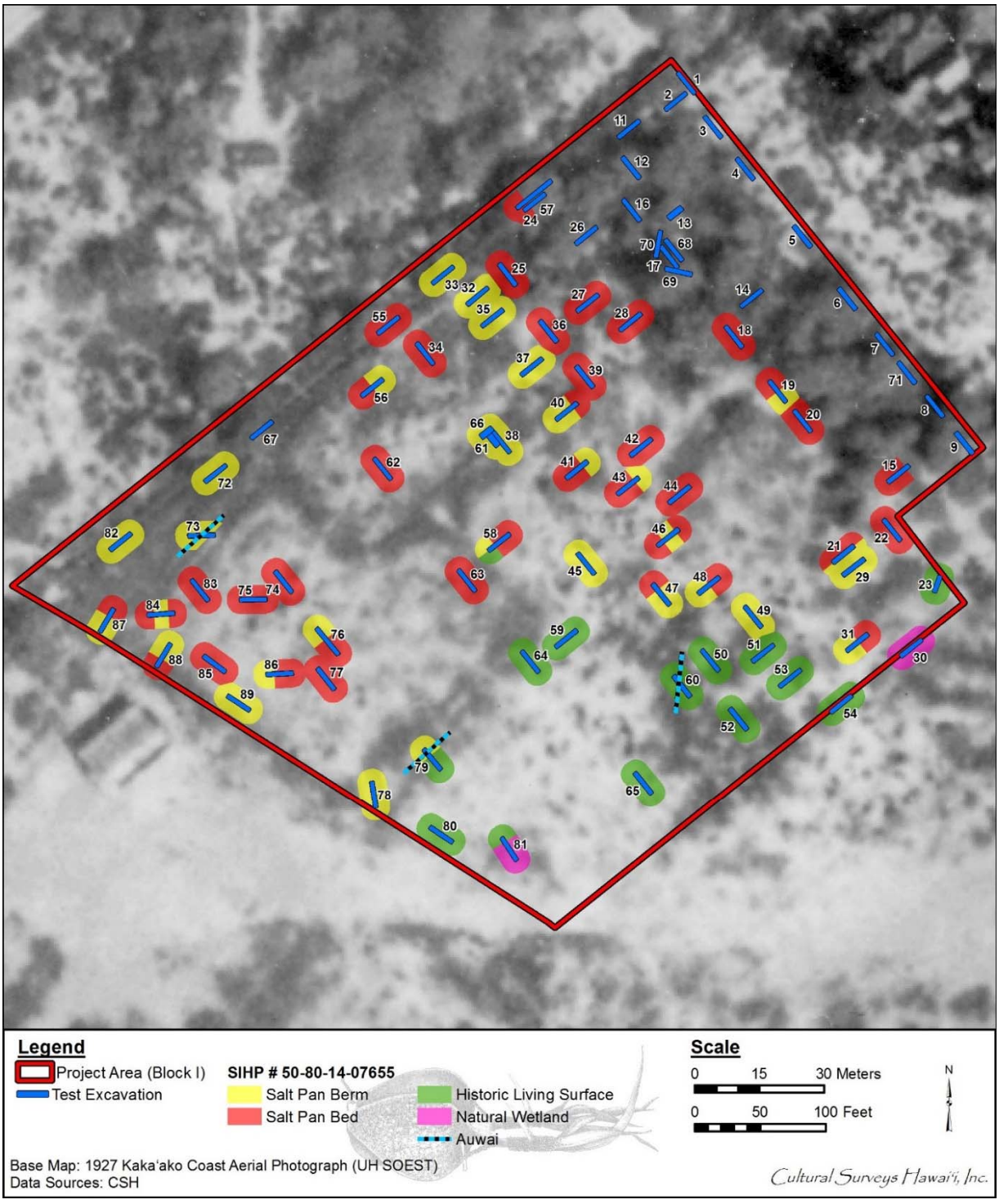

Figure 56. Figure from Sroat et al. (2015); 1927 aerial photograph showing the Block I AIS test excavation results for SIHP # -7655

The man-made salt pan berms within Block I are composed of relatively homogenous sediments. The majority of the documented berm structures rise a considerable height above the water table or coral shelf and are relatively wide and/or long in their dimensions; these large, wide structures are believed to represent major salt pan grid boundaries. Smaller, shorter berm structures are also present and possibly represent inner salt pan divisions. Several locations within Block I evidenced multiple berm building events, indicating extensive expansion and/or modification of the berm system.

The salt pan bed deposits associated with SIHP # -7655 consist of thinly to thickly bedded (1-8 cm thick), laminated organic deposits, with the laminated micro-layers observable as variations of color, sediments, and texture. The combined results of the Block I AIS and the Ward Village Gateway AIS indicate the presence of three types of salt pan liners. Type 1 was documented within the *makai* salt pan beds of the Ward Village Gateway project area. Type 2 salt pan bed lining deposits were encountered within the *makai* portion of the Block I study area. These deposits have an average thickness of 5-8 cm and consist of highly fibrous, laminated organic material. Type 3 salt pan bed lining deposits were encountered within the central and *mauka* portions of Block I, and consist of a dense layer of finely laminated, humic material with an average thickness of 5-7 cm. The laminations are comprised of intact leaf structures, clay, and decomposing organic material.

SIHP # -7659 is a buried concrete channel associated with the Ward Estate concretized *‘auwai* (see Figure 52). SIHP # -7659 was initially identified *makai* of Block I during the Ward Village Gateway AIS (Pammer et al. 2014). The Ward Estate *‘auwai* is a continuous feature running from Kapi‘olani Boulevard into Kewalo Basin (see Section 3.1.5.2). It travels from *mauka* to *makai* along the northwest boundary of the Block I study area, extending approximately 196 m through Block I. This historic property was observed on the ground surface during the pedestrian survey of the study area and was not documented in any of the Block I subsurface test excavations.

3.2.12 Ward Neighborhood Block O Project

Between 14 April 2013 and 16 October 2014, CSH conducted an archaeological inventory survey of the Block O project area located northwest of Block N East at the intersection of Ward Avenue and Halekauwila Street (Leger et al. 2015). Twenty-seven test excavations were documented within the project area. One historic property was identified, SIHP # -7717, consisting of subsurface pre- to post-Contact residential and commercial surfaces (Figure 57).

In general, the stratigraphy within Block O consists of the modern surface, over modern and historic fill deposits (including Kaka‘ako reclamation fill deposits of crushed coral and dredged marine clay), over in situ sand deposits. Localized wetland deposits were also encountered within two discrete areas within the *makai* portion of the project area (Figure 58).

SIHP # -7717 was documented within the majority of the project area. SIHP # -7717 is composed of multiple pre- to post-Contact buried residential and commercial surfaces and features located throughout the Block O project area. These buried surfaces and associated features evidence residential (living) and commercial land use within Block O over an extended period of time. The subsurface surfaces consist of 25 buried living/residential and/or commercial surfaces and ten associated historic features (SIHP # -7717 Features 1–9). The subsurface surfaces consist of the following: 1) in situ, natural land surfaces; 2) historic fill deposits utilized

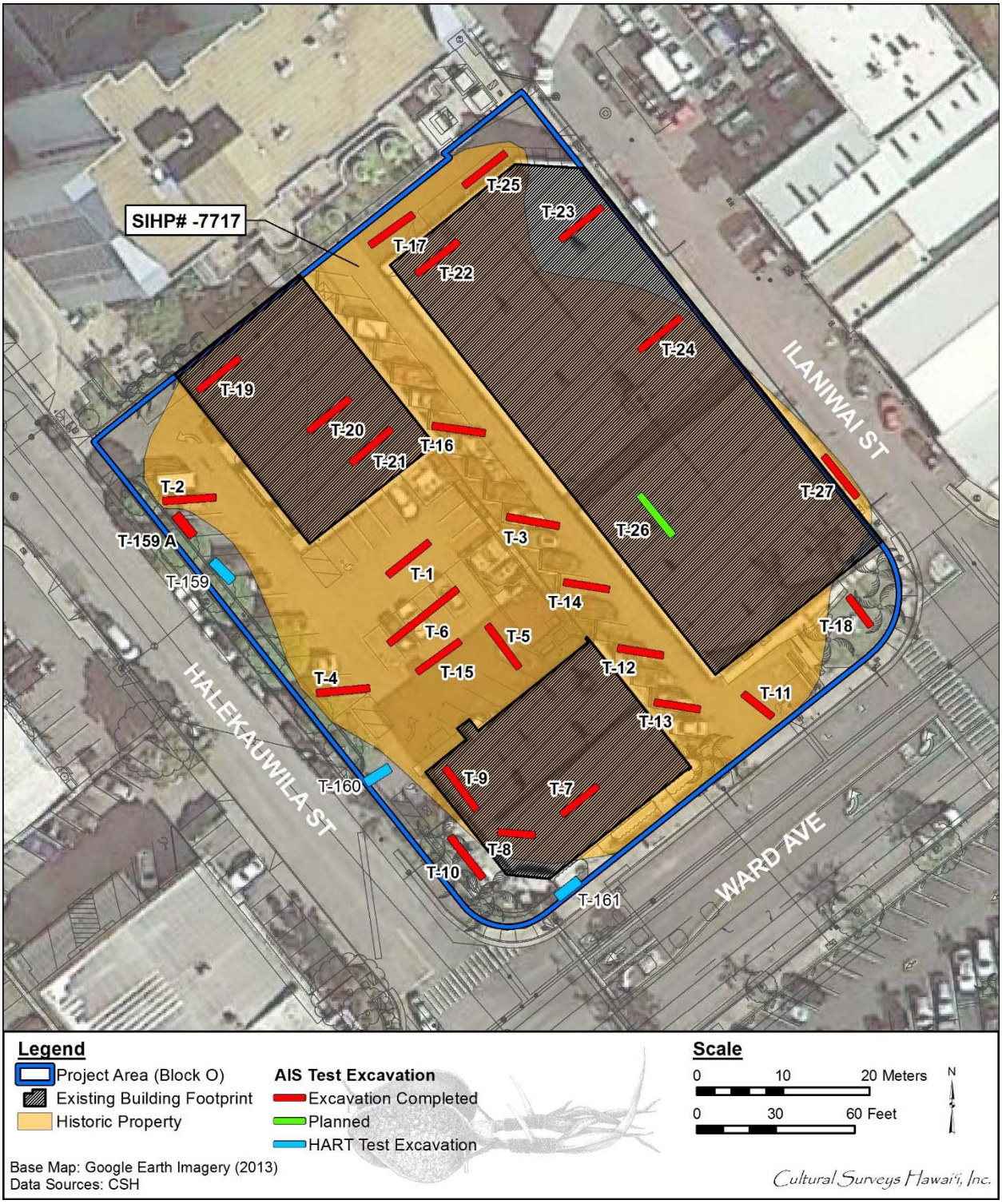

Figure 57. Figure from Leger et al. (2015) showing the extent of SIHP # -7717 within the Block O project area (Google Earth Imagery 2013)

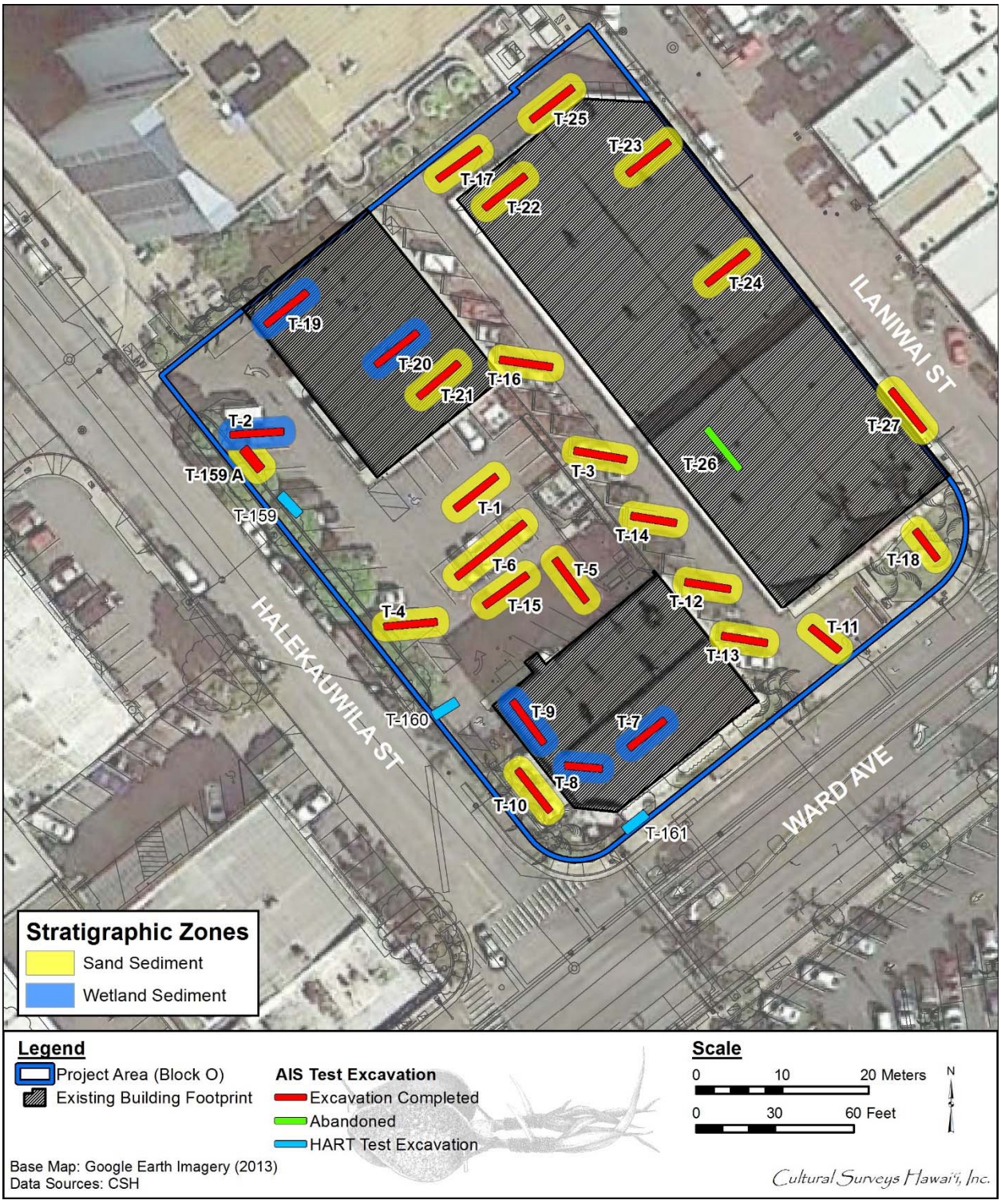

Figure 58. Figure from Leger et al. (2015) showing the location of sand deposits and wetland deposits within the Block O project area (Google Earth Imagery 2013)

as living surfaces for a period of time; and 3) twentieth century commercial surfaces and infrastructure remnants.

In situ living surfaces consist of portions of the natural sand A horizon and the underlying Jaucas sand. These in situ living surfaces contain historic artifacts, faunal material, charcoal, marine shell midden, and/or historic features such as a milled wood post and associated pit. One traditional type Hawaiian artifact was encountered within the Jaucas sand, consisting of a grooved basalt sinker stone or canoe anchor. Historic living surfaces consist of four fill deposits that contain historic features and one trash layer. In addition, two historic pit features of indeterminate provenience were identified. These historic deposits and features contain faunal material, historic artifacts, charcoal, and two dog burials. Historic commercial surfaces and infrastructure remnants consist of concrete slabs (10), oiled road surfaces (8), asphalt (3), and concrete infrastructure remnants (2). These buried commercial surfaces indicate a change in land use within the project area from residential to commercial sometime in the mid-twentieth century. The majority of the subsurface residential and commercial surfaces are a part of the numerous building events that took place following the infilling associated with the Kewalo Reclamation project (1910–1914) and prior to the construction of the current standing architecture, which is visible on aerial photographs by 1970.

Section 4 Consultation

On 10 July 2012, as part of the Ward Neighborhood Master Plan consultation effort, the Howard Hughes Corporation (HHC) coordinated an informational meeting with recognized cultural descendants for the Ward Village Shops project in order to introduce the Ward Neighborhood Master Plan, as well as present results of the recent supplemental archaeological inventory survey for the Ward Village Shops Phase II project. Attendees included Kaka‘ako cultural descendants (Ka‘anohi Kaleikini, Keala Norman, Kepo‘o Keli‘ipa‘akaua, and Kahili Norman), OIBC representative Hinaleimoana Wong-Kalu, HHC representatives (John Simon, David Striph, and Nick Vanderboom), CSH principal investigator Matt McDermott, and Ku‘iwalu cultural consultant Dawn Chang. Prior to this meeting, all cultural descendants were mailed a hard copy of the archaeological literature review and predictive model study (O’Hare et al. 2012) completed for the Ward Neighborhood Master Plan as part of its historic preservation review process and as a cultural and historical resource document. Cultural descendants were also mailed a copy of CSH’s cultural impact assessment for the subject project (Cruz et al. 2012). A summary of the Ward Neighborhood Master Plan was provided by HHC Vice President of Development, Nick Vanderboom, focusing on the upcoming initial portions of the project and development of archaeological inventory survey (AIS) plans for Blocks C, K, and O. Mr. Vanderboom also communicated HHC’s desire to coordinate with the Office of Hawaiian Affairs (OHA) and Kamehameha Schools (KS), given their ownership of large tracts of land within Kaka‘ako, and to develop cultural guidelines for the project. The cultural descendants were very supportive of the idea of incorporating *mo‘olelo* (stories) of the area into the Hawaiian architecture and the use of native plants within the landscaping designs. They further suggested that resource gardens where Native Hawaiians could gather native plants could be established. In terms of the project’s archaeological investigations, the cultural descendants were assured that AIS plans and AIS investigations would be prepared and conducted for each phase of the development and that the descendants would be kept informed of Master Plan developments and archaeological investigations.

Also invited to the 10 July 2012 meeting was Mr. Manny Kuloloio, a cultural descendant of the Honolulu and Kaka‘ako areas. Mr. Kuloloio called Ms. Chang the following day to express his regret at being unable to attend the meeting. As a follow-up, Mr. McDermott of CSH called Mr. Kuloloio to discuss any input he might have regarding development of the Ward Neighborhood Master Plan project and AIS plans. Mr. Kuloloio acknowledged receipt of the archaeological literature review and predictive model document, but did not have any specific comments at that time.

On 20 July 2012, Nick Vanderboom of HHC and Matt McDermott of CSH met with the then SHPD Administrator, Dr. Pua Aiu, and the SHPD O‘ahu Lead Archaeologist, Dr. Susan Lebo, to present an overview of the Ward Neighborhood Master Plan. Copies of the project’s background research studies, a draft cultural impact assessment (Cruz et al. 2012) and a draft archaeological literature review and predictive model study (O’Hare et al. 2012), were submitted to SHPD at the meeting. Mr. Vanderboom explained the documents’ requirement by the Hawai‘i Community Development Authority (HCDA) as part of the development approval process and their function as planning aides in the development of the project’s AIS plans. A brief presentation of the upcoming Blocks C, K, and O project areas was then followed by discussions regarding the

limitations of AIS testing within in-use buildings and the proposed sampling strategy, including both within and outside existing structures.

The SHPD agreed with the approach of using the predictive model study as the overarching background section for the Master Plan development, with individual AISPs for different construction phases/project areas which would focus on the specific footprint of each individual project area and refer to the predictive model for more general Kaka‘ako background information. Dr. Lebo stated that the individual AISPs should clearly describe in the methodology section how historic artifacts would be treated and should include a discussion regarding the assignation of historic property numbers to historic fill layers that can be linked to specific deposition activities and events, such as the Kaka‘ako incinerator fill layer.

On 6 November 2013, an informational meeting concerning proposed AIS testing strategies for Blocks B East, C West, I, and M of the Ward Neighborhood Master Plan project was held for recognized cultural descendants. Attendees included the Ward Village Shops project cultural descendants (Keala Norman, Ka‘anohi Kaleikini and *‘ohana* members), OIBC representative Hinaleimoana Wong-Kalu, HHC representatives (David Striph, Race Randle, and Nick Vanderboom), CSH principal investigator Matt McDermott, and Ku‘iwalu cultural consultant Dawn Chang. Mr. McDermott reviewed the Ward Neighborhood Master Plan project context, the historic background of the four project parcels, and previous archaeological studies within the vicinity. The archaeological testing strategy for each block was then presented, including the constraints imposed by testing within active commercial centers. The OIBC representative and cultural descendants expressed support for the proposed testing strategies and the extent of archaeological testing. Discussion also included the possibility of commencing limited AIS work within Blocks I and M prior to the SHPD approval of the AISPs. In that time period, a percentage of the interior commercial space within these blocks was unoccupied by tenants and thus more easily accessible for archaeological excavation. Given the difficulties of excavating within in-use commercial space, the cultural descendants and OIBC representative were amenable in this particular case to limited excavation prior to approval of the AISPs. It was resolved that the SHPD would be consulted regarding possible early testing within these blocks.

Prior to the cultural descendants’ meeting, Matt McDermott of CSH contacted Edward Halealoha Ayau and Kihei Nahalea of Hui Mālama I Nā Kūpuna O Hawai‘i Nei in order to provide notification of the upcoming projects and the scheduled consultation meeting as well as to inquire whether a representative of Hui Mālama would be interested in participating in upcoming consultation meetings. On 5 November 2013, Mr. Ayau responded that attendance at the consultation meetings would not be necessary and that alternative forms of communication would be sufficient (e.g., email, telephone, mail, Skype). On 15 November 2013, Mr. Nahalea confirmed that Mr. Ayau should continue to be the point of contact for Hui Mālama.

On 8 November 2013, consultation letters concerning the four upcoming projects (Blocks B East, C West, I, and M), as well as three additional upcoming projects (Blocks B West, G, and N East) and the proposed testing strategies were mailed to the Office of Hawaiian Affairs (OHA), Hui Mālama I Nā Kūpuna O Hawai‘i Nei, the OIBC, and the SHPD (History and Culture Branch) (see Appendix C).

AIS fieldwork for the Block N East project area commenced on 5 May 2014 and was completed on 10 October 2015. During the course of the AIS investigation, consultation with the

SHPD was ongoing, including notification of and consultation for all *iwi kūpuna* finds, discussions regarding the number and placement of additional test excavation to define the boundaries of an identified burial ground, and an SHPD site visit. Additionally, Ōiwi Cultural Resources LLC provided on-site cultural monitoring services for the AIS investigation. The project proceeded through ongoing consultation with these cultural monitors, and they assisted in the treatment of all *iwi kūpuna* and provided cultural protocol. The OIBC was also notified of all *iwi kūpuna* finds and updated via timely emails on the results of the additional test excavations investigating the boundaries of the human burial ground.

On 21 September 2015, an HHC cultural descendants' meeting was held to discuss several projects including the Block N East AIS (also the Block I BTP, Block A AIS, and Block B West BTP). Hinaleimoana Wong-Kalu, the OIBC Kona representative was present for this meeting, as well as Georgette (Hina's mother), Jonathan Scheuer (invited guest, former OIBC Vice Chair, and LUC board member), cultural descendants (Mike Lee, Ka‘anohi Kaleikini and her nephew Pono, and Mana Caceres and his oldest son), HHC representatives (Nick Vanderboom, Race Randle, and David Striph), CSH principal investigator Matt McDermott, and Ku‘iwalu cultural consultant Dawn Chang. The meeting began with a brief PowerPoint presentation by Mr. McDermott summarizing the current status of the four projects. For the Block N East AIS, Mr. McDermott described the results of recent excavations (T-14E, T-14F, and T-14G), which conclude the AIS fieldwork for Block N East, and indicated that they appeared to have found the boundaries of the burial cluster (at least on the ‘Ewa and *makai* sides). Mr. McDermott then discussed upcoming work for additional HHC projects: Blocks N West, F, and G.

On 11 November 2015, Matt McDermott met with Dr. Susan Lebo of the SHPD to provide updates on multiple CSH projects, including Block N East. Mr. McDermott gave a project overview and he and Dr. Lebo discussed placement of test excavations throughout the project area, the results of the additional test excavations placed around T-14 to define the burial cluster, and which historic property the burials would be a part of (SIHP # -7429).

At the 9 December 2015 monthly OIBC meeting, Mr. McDermott presented a project update, including the burial findings for the Block N East project.

Recognition of cultural descendants for the Block N East project area has been a continuing process. Michael Kumukaoha Lee was recognized as a cultural descendant to the Block N East project at the 11 March 2015 OIBC monthly meeting. Paulette (Ka‘anohi) Kaleikini and *‘ohana* were recognized as Block N East project cultural descendants by the OIBC on 9 December 2015. In addition, Mana and Brandy Caceres and *‘ohana* were recognized as cultural descendants with the broader category of "Ward Village Development Corporation" by the OIBC on 10 June 2014 (there has been some confusion within the OIBC agendas regarding the various designations for the HHC project areas).

A legal notice concerning the discovery of human skeletal remains within the Block N East project area was posted within the *Honolulu Star-Advertiser* state-wide newspaper on 4, 6, and 9 December 2015. In addition, OHA was notified of the Block N East findings, specifically the identification of a human burial ground within the project area, within a consultation letter and an email posted 11 January 2016 (Appendix C). Notification of the *iwi kūpuna* finds was printed within the OHA monthly newsletter, *Ka Wai Ola o OHA* in the January 2016 issue.

Section 5 Results of Laboratory Analysis

5.1 Historic Artifact Analysis

A total of 234 historic artifacts were collected from Block N East. The artifacts consist of 102 glass items, 69 ceramic items, 41 metal items, five brick fragments, one stone disc, one plastic food container, one plastic button, two shell buttons, two bone buttons, one bone toothbrush handle, four milled wood posts, and five miscellaneous artifacts. All of the artifacts were measured, described, and photographed, as summarized in Table 2, and the majority of the accessioned artifacts, in particular representative artifacts, are shown in Figure 59–Figure 163.

5.1.1 Bottle Glass Artifacts

Of the 102 glass artifacts identified within the Block N East project area, there are 72 bottles or bottle fragments, three jars, four vials, seven pressed glass fragments, six flat glass fragments, six household items (including lamp globes and insulators), and four marbles.

All terminology used to describe bottle traits and all bottle dating information in this report is based on information from the U.S. Department of Interior, Bureau of Land Management (BLM)/Society of Historic Archaeology (SHA) “Historic Glass Bottle Identification and Information Website” (BLM/SHA 2015), unless otherwise noted. Research on historic bottles focused on the function and manufacturing dates of the items, using reference texts (i.e., Elliott 1971, Elliott and Gould 1988; Fike 1987; Toulouse 1971; and Whitten 2015) and online resources to identify glass manufacturers’ marks on bottles and company histories of the brands.

5.1.1.1 Bottle Glass Color

The color of a bottle can sometimes be used to provide identification of contents and manufacturing date. Of the 79 bottles, bottle fragments, jars, and vials, 26 are colorless, 20 are amber, 20 are aqua, seven are olive green, two are cobalt blue, two are white milk glass, and two are light green.

Dark olive is one of the oldest colors found on bottles, especially an olive so dark it looks almost black. “Black” glass liquor and ale/beer bottles (collectively called “spirits”) were commonly made from the 1840s to the 1880s. None of the seven olive bottles in the collection (Acc. #s 51, 64, 102, 113, 128, 157, and 208) are dark olive.

Today, amber bottles are most often used for beer, but amber, like olive, was used for all types of spirits and other beverages into the nineteenth century in America. There are 20 amber bottles in this collection: two are beer bottles (Acc. #s 211 and 231), six are liquor bottles (Acc. #s 37, 215, 216, and 228–230), one is a medicine bottle (Acc. # 215), and 12 are unknown types (Acc. #s 1, 2, 26, 40, 72, 73, 93, 116, 127, 146, 180, and 225).

Aqua colored bottles were used for a variety of bottle types before 1920, but after that date were mostly used for sodas. There are 20 aqua fragments in the collection, three are soda bottles (Acc. #s 31, 154, and 188), one is an ink bottle (Acc. # 9), three are medicine vials (Acc. #s 3, 204, and 205), one is a medicine or extract bottle (Acc. # 6), one is a liquor bottle (Acc. # 181), and 10 are unknown bottle types (Acc. #s 11, 70, 103, 115, 118, 129, 168, 177, 189, 206).

Table 2. Historic Artifacts Collected from Block N East

Acc. #	Provenience	Material	Type	Description	L/H	W/D	No.	Age	Origin
001	T-04, Str. IIIa, Fea. 85, 64–173 cmbs	Glass	Bottle	Amber glass bottle, base to body fragment. round base, two-piece cup-bottom mold; embossing: “2 / IPGCO (in diamond)” on base; makers’ mark for Illinois Pacific Glass Co./Corp., California		7.5	1	1910–1926	American
002		Glass	Bottle	Amber glass bottle, base fragment, round base, machine-made, stippling on base; embossing: “2936 A 20 (O-I icon) 7.”; Owens-Illinois Glass Co. bottle made in 1947 at the Oakland, CA plant		7.5	1	1947	American
003		Glass	Vial	Aqua glass vial, complete, square with beveled sides, dipped as tube, broken lip	5.8	1.3	1	pre-1920	Chinese
004		Glass	Bottle	Green glass beverage bottle, neck to lip fragment, two side seams, machine-made, oil finish with beveled lip		3.1	1	1908-present	
005		Glass	Bottle	Colorless glass bottle, amethyst tint, neck to lip fragment, machine-made, collared ring finish		2.3	1	1908-1914	
006		Glass	Bottle	Aqua green glass medicine/extract bottle, neck to lip fragment, two side seams, machine-made, patent finish for narrow mouth, small bore		2.1	1	post-1908	
007		Ceramic	Tableware	Euro-American whiteware tableware, body fragment, transparent glaze; green stamp on one side “..FRANC…” Mark used for the “La Francaise” ware/pattern type by the French China Company of Sebring, Ohio (Lehner 1988:155)			1	1900-1932	American
008		Metal	Copper	Corroded copper teaspoon, no visible marks	17.0		1		
009	T-07, Str. IVa, 95 cmbs	Glass	Bottle	Aqua, round, glass inkwell, complete, round base, mold blown, two-piece cup bottom mold, tooled bead finish; embossing: “CARTER’S / MADE IN THE USA” on base; Carter’s established in 1858 (Faulkner 2003)	7.1	6.2		1858-1920	American
010		Glass	Bottle	Cobalt blue glass bottle, complete, round base, narrow, long neck, two-piece cup-bottom mold, mold-blown, double ring finish; cod liver oil shape	17.5	3.4	1	1850-1920	
011		Glass	Bottle	Aqua glass bottle, base to body fragment, octagonal base and body, two-piece cup-bottom mold		5.6 x 2.6	1		

Acc. #	Provenience	Material	Type	Description	L/H	W/D	No.	Age	Origin
012	T-07, Str. IVa, 95 cmbs	Glass	Pressed	Cobalt blue pressed glass fragment, flat, possible base of a vessel, sunburst design, 0.5 cm thick			1		
013		Glass	Pressed	Colorless pressed glass fragments (2), curved with fluted design			2		
014	T-08, Str. IIIa, Fea. 91,	Metal	Fragments	Rusted metal fragments					
015	50–105 cmbs	Metal	Nail	Nails, too corroded to tell manufacturing method					
016		Bone	Button	Flat bone button, two holes in well, machine-drilled holes		0.3	1	pre-1935	
017	T-08, Str. IIIa, Fea. 93,	Metal	Nail	Corroded nail, had a marine gastropod (*Nerita picea*) rusted on					
018	50–103 cmbs	Ceramic	Flatware	Euro-American, refined earthenware (whiteware) flatware, rim (2) and body (1) fragments, transparent glaze, green floral transfer print			3		Euro-American
019		Ceramic	Tableware	Chinese, porcelain, body fragment, wintergreen (celadon) glaze on exterior, transparent glaze on interior			1	post-1850	Asian
020		Ceramic	Tableware	Euro-American, refined earthenware (whiteware) tableware, body fragment, transparent glaze, sponge-cut pink and yellow floral (or sun) design underglaze			1	1845-20th cent	Euro-American
021		Other	Slate	Slate pencil fragment			1		
022		Glass	Household	Aqua glass threaded insulator fragment			1	1865-present	
023	T-08, Str. IIIa, Fea. 92, 50–100 cmbs	Metal	Nail	Corroded ferrous metal nails (4)			4		
024	T-09, Str. II, Fea. 94,	Metal	Fragments	Corroded ferrous metal debris					
025	60–95 cmbs	Glass	Vial	Colorless glass vial, complete, round base and body, two-piece cup-bottom mold, mold-blown, tooled patent finish	6.5	1.9	1	1860-1900	
026		Glass	Bottle	Amber glass bottle, rim fragment, no visible seams, straight brandy finish, mold-blown			1	pre-1920	
027		Ceramic	Marble	Marble, white, unglazed earthenware		1.9	1	pre-1910	
028		Ceramic	Tableware	Euro-American, refined earthenware (whiteware) tableware, body fragments (2), transparent glaze			1	post-1820	Euro-American

Acc. #	Provenience	Material	Type	Description	L/H	W/D	No.	Age	Origin
029	T-09, Str. II, Fea. 94, 60–95 cmbs	Ceramic	Hollow-ware	Euro-American, porcelain tableware, rim fragment; transparent glaze			1	1850-present	Euro-American
030	T-12, Str. II, 30–70 cmbs	Ceramic	Hollow-ware	Euro-American, porcelain cup, base to body fragment, vertical flutes near base, purple and yellow decal floral design on top half			1	1880-1950s	Euro-American
031		Glass	Bottle	Aqua green glass bottle, complete, round base and body, two-piece cup-bottom mold, mold-blown, tooled patent finish; embossing: “117 / A”; light aqua, tapered neck, English rim finish	17.2	4.1	1	1860-1900s	
032		Ceramic	Flatware	Euro-American, refined earthenware (whiteware) flatware, rim fragment; blue “Willow” transfer print pattern, *Chinoiserie* design			1	1820-1900+	Euro-American
033		Glass	Bottle	Aqua blue glass soda bottle, complete, octagonal base and body, two-piece cup-bottom mold, mold-blown, tooled blob finish, Hutchinson closure; embossing: “ARCTIC SODA WORKS / HONOLULU” vertically on body; “226” on base; No. 16 in Elliott and Gould (1988:77) dated 1902, metal cork semi-intact, originally a Hutchinson wire stopper. MM=226	20.4	5.5	1	1902	American
034		Ceramic	Bowl	Euro-American, refined earthenware (whiteware) bowl, rim fragment, sponge cut design in red and blue checkerboard on exterior and painted red bands on interior and exterior			1	1845-20th cent	Euro-American
035		Brick	Brick	Brick fragment (5YR 3/4)			1		
036	T-12, Str. II/III, 80 cmbs	Bone	Worked bone	Bone toothbrush handle, three circles at neck, hanging hole at end			1	1884-1920	Asian
037	T-12, Str. II, 30–70 cmbs	Glass	Bottle	Amber glass liquor bottle, complete, round base and body, mold-blown, turn mold, applied oil finish	28.8	7.3	1	1870-1885	

Acc. #	Provenience	Material	Type	Description	L/H	W/D	No.	Age	Origin
038	T-12, Str. II, 30–70 cmbs	Glass	Bottle	Colorless glass beer bottle, complete, round base and body, two-piece cup-bottom mold, machine-made, double-ring crown finish, stippling on shoulder, heel, and base; rim clear, cylindrical, stacked ring rim finish; embossing: “CONTENTS / 10 FL. OZ” twice around shoulder, “NO DEPOSIT” around heel, “NOT TO BE REFILLED/ 10520575-6K 20 (I in a circle) 67” on base; pebble pattern on shoulder and heel; MM= Owens Illinois Glass Co., code for bottle made in Oakland, CA	19.8	5.8	1	1967	American
039	T-12, Str. II, 30–70 cmbs	Glass	Bottle	Cobalt blue glass bottle, base to lip fragment, round base and body, long narrow neck, machine-made, finish broken; embossing: “3” on base	15.1	3.2	1	post-1905	
040		Glass	Bottle	Amber glass bottle, shoulder to lip fragment, two side seams on neck only, mold blown, tooled brandy finish			1	1860-1900s	
041		Glass	Bottle	Colorless glass bottle, complete, rectangular base and body, paneled body, two-piece cup-bottom mold, machine-made, ring on neck, improved tooled patent finish	4.0	3.0	1	1890-1910s	
042		Ceramic	Hollow-ware	Euro-American, refined earthenware (whiteware) hollowware, rim cavetto fragment, green sponge cut star pattern on exterior and hand-painted green bands on interior and exterior near rim		15.0	1	1845-20th cent	Euro-American
043	T-13, Str. II, Fea. 100, 96 cmbs	Metal	Nail	Corroded ferrous metal nails (2), with attached wood fragments			2		
044	T-13, Str. II, Fea 102,	Ceramic	Household	Doorknob, earthenware with a porcelain finish, transparent glaze (Cotton 1987:40)		5.5 x 2.8	1	1850-1900	
045	41–77 cmbs	Glass	Bottle	Colorless glass bottle, base fragment, round base, cup-bottom mold; embossing: “triangle/ 4” on base			1		
046		Glass	Pressed	Clear, pressed glass chandelier/lamp prism		1.3	1		
047		Glass	Pressed	Teal, 4 fragments of pressed glass, possible candlestick/lamp with fluted body and floral base			4		
048		Glass	Jar	Colorless glass bottle/jar, base, body, and lip fragments (7), rectangular base and body, two-piece post-bottom mold, machine-made, patent finish; embossing: “O” in a square; mark for Owens Bottle Co.			7	1919-1929	American

Acc. #	Provenience	Material	Type	Description	L/H	W/D	No.	Age	Origin
049	T-13, Str. II, Fea. 102,	Ceramic	Household	Stoneware toiletware toilet fragment, transparent glaze on interior and exterior			1	1840-20th cent	
050	41–77 cmbs	Metal	Copper	Battery component, cupreous cap	4.6		1	post-1880	
051		Glass	Bottle	Olive green glass bottle, neck to lip fragment, mold-blown, no seam marks evident on neck, applied champagne finish; rim: 3.0			1	1880-1920	
052		Glass	Bottle	Colorless, rectangular medicine bottle, base to body fragment, two-piece cup mold, “A” on base	5.3	3.7	1	1872-1893	
053		Glass	Pressed	Colorless pressed glass pedestal, broken on both ends, fluted body, possibly part of base for lamp or candlestick holder			1		
054	T-13, Str. II, Fea. 103, 62–95 cmbs	Bone	Button	Bone button, four machine-drilled holes in well		1.7	1	pre-1935	
055		Ceramic	Tableware	Euro-American, porcelain flatware, rim fragment, red floral decal, relief-molded, gold bank on rim			1	1800-1850s	Euro-American
056		Metal	Nail	Corroded ferrous nails (4), unknown type			4		
057	T-13, Str. II, Fea. 104,	Plastic	Button	Plastic (bakelite) button, two holes in fish-eye well (Maples 1998:110–111)		1.3	1	1907-1935	
058	45–70 cmbs	Metal	Nail	Corroded ferrous metal nail, round head	7.0		1		
059	T-14A, Str. II, 25–49 cmbs	Ceramic	Tableware	Euro-American, refined earthenware (whiteware) base fragment, transparent glaze, light blue floral transfer print underglaze design on interior			1		Euro-American
060		Glass	Bottle	Colorless glass bottle base fragment			1		
061		Ceramic	Bottle	Euro-American, stoneware bottle fragment, Bristol glaze on interior and Bristol/ferruginous two-tone glaze on exterior			1	1835-1900	Euro-American
062	T-14A, Str. II, Fea. 112, 43 cmbs	Metal	Nail	Corroded ferrous nail			1		
063	T-14A, Str. II,	Shell	Button	Two-hole shell button			1		
064	Fea. 113, 42–79 cmbs	Glass	Bottle	Olive glass bottle, body fragment			1		

Acc. #	Provenience	Material	Type	Description	L/H	W/D	No.	Age	Origin
065	T-14A, Str. II, Fea. 113, 42–79 cmbs	Ceramic	Tableware	Euro-American, refined earthenware (whiteware) body fragment, transparent glaze, blue transfer underglaze design on interior			1	1784-1859	Euro-American
066		Metal	Nail	Corroded metal nail			1		
067		Ceramic	Tableware	Euro-American, refined earthenware (whiteware) rim fragment, transparent glaze, sponge cut underglaze design stamped in blue and red on exterior, hand-painted underglaze blue band under rim			1	1845-20th cent	Euro-American
068		Ceramic	Tableware	Chinese, porcelain body fragment, orange “Attributes of the Eight Immortals” overglaze design, orange glaze			1	post-1850	Chinese
069		Metal	Nail	Corroded ferrous metal nails			3		
070	T-14B, Str. II, 17–55 cmbs	Glass	Bottle	Aqua glass bottle, neck to lip fragment, machine-made, patent finish			1	post-1908	
071		Glass	Bottle	Colorless glass bottle base, machine made, stippled base, “[Owens Illinois makers’ mark] 3 / 16” embossed on base; plant code not present on fragment			1	1943	American
072		Glass	Bottle	Amber glass bottle, base fragment, round base			1		
073		Glass	Bottle	Amber glass bottle, base (1) and body (2) fragments, two-piece cup-mold seam on base			3		
074		Ceramic	Tableware	Euro-American, refined earthenware (whiteware) rim fragment, transparent glaze			1	post-1820	Euro-American
075		Ceramic	Household	Stoneware bathroom/flooring tile, white glaze on one side			1		
076	T-14B, Str. III, 40–59 cmbs	Metal	Fragment	Metal fragment, possibly lead	2.2	5.5	1		
077	T-14B, Str. III, Fea. 120, 50 cmbs	Ceramic	Tableware	Euro-American, refined earthenware (whiteware) rim fragment, transparent glaze			1	post-1820	Euro-American
078		Metal	Nail	Corroded ferrous nail			1		
079		Glass	Flat	Colorless flat glass			1		
080		Glass	Bottle	Colorless thin glass fragments			4		
081	T-14B, Str. IVa, Fea. 121, 51–65 cmbs	Ceramic	Bottle	Euro-American, stoneware bottle (6 fragments), Bristol/ferruginous two-tone glaze on exterior, impressed maker’s mark of “POWELL / BRISTOL” in a circle on heel	12.5	8.6	6	1816-1906	Euro-American

Acc. #	Provenience	Material	Type	Description	L/H	W/D	No.	Age	Origin
082	T-14B, Str. III/IVa	Ceramic	Bottle	Euro-American, stoneware bottle, Bristol/ferruginous glaze, refits with Acc. # 081		8.8	3	1816-1906	Euro-American
083		Metal	Nail	Corroded ferrous nails			6		
084	T-14C, Str. III, Fea. 128,	Glass	Bottle	Colorless glass bottles, neck to lip fragments, mold-blown, tooled prescription finish			2	1860-1900s	
085	52–83 cmbs	Glass	Bottle	Colorless glass bottle, body fragments			10		
086		Metal	Nail	Corroded ferrous metal nails			3		
087		Metal	Fragments	Corroded ferrous metal fragments					
088		Metal	Hook	Corroded ferrous metal hook	8.4		1		
089		Metal	Nail	Corroded ferrous nails			5		
090		Metal	Nail	Corroded ferrous nails			5		
091		Metal	Fragments	Miscellaneous ferrous metal fragments			3		
092		Metal	Wire	Copper wire fragment			1		
093		Glass	Bottle	Amber glass bottle, body fragments			2		
094	T-14C, Str. III,	Glass	Bottle	Light green glass fragment, textured			1		
095	Fea. 128,	Glass	Flat	Aqua flat glass			1		
096	52–83 cmbs	Glass	Bottle	Colorless glass bottle, base fragment, oval base, machine-made, two-piece cup-bottom mold, Illinois Glass Co. maker’s mark “282” in diamond; Mold No. 282 matches a tablet bottle in 1920 Illinois Glass Co. catalog		3.8	1	1911-1929	American
097		Ceramic	Hollow-ware	Euro-American, porcelain hollowware body and base fragments, yellow and red floral decal on exterior, transparent glaze on interior			2	1880s-1950s	Euro-American
098		Ceramic	Vessel	Euro-American ironstone pitcher fragments with handle fragment, transparent glaze on interior and exterior, gilded rim and Grecian Key relief pattern on exterior, maker’s mark of Homer Laughlin on base in green, the maker’s mark dates from post-1900			22	post-1900	Euro-American
099		Glass	Marble	Fragment of swirl glass marble, machine-made		1.6	1	post-1901	
100	T-14D, Str. II/III interface	Glass	Bottle	Colorless glass bottle, neck to lip fragment, stacked ring finish		2.1	1		

Acc. #	Provenience	Material	Type	Description	L/H	W/D	No.	Age	Origin
101	T-14D, Str. II/III, spoils, 35–50 cmbs	Ceramic	Bottle	Euro-American stoneware bottle, body fragment, gray salt glaze on exterior, no glaze on interior			1	1846-1914	German
102		Glass	Bottle	Olive glass bottle, body fragment			1		
103		Glass	Bottle	Aqua glass bottle, body fragment, one visible seam, unknown mold type			1		
104		Glass	Flat	Aqua flat glass fragments			3		
105		Ceramic	Marble	Red clay marble		1.3	1	1818-1928	
106		Ceramic	Tableware	Euro-American, refined earthenware (whiteware), rim fragment, transparent glaze, relief molding on interior			1	1840-20th cent	Euro-American
107		Ceramic	Flatware	Euro-American, refined earthenware (whiteware) flatware, rim, body, and base fragments, transparent glaze, "..lcock / [E]ngland" printed on bottom, probable maker's mark of Henry Alcock, Staffordshire pottery			14	post-1891	British
108		Glass	Bottle	Colorless glass bottle, base fragment			1		
109		Metal	Nail	Corroded ferrous metal nails			2		
110	T-14D, Str. II,	Metal	Nail	Corroded ferrous metal nails			4		
111	Fea. 133, 40–62 cmbs	Ceramic	Tableware	Asian porcelain tableware, body fragment, blue design on exterior, transparent glaze on interior			1		Asian
112		Glass	Flat	Colorless flat glass fragments			2		
113		Glass	Bottle	Olive glass bottle, body fragment			1		
114		Glass	Bottle	Colorless glass bottle, body fragment			1		
115		Glass	Bottle	Aqua glass bottle, body fragment			1		
116		glass	Bottle	Amber glass bottle, body fragment			1		
117		Botanical	Wood	Wood fragment			1		
118	T-14D, Str. III,	Glass	Bottle	Aqua glass bottle, body fragments			2		
119	Fea. 134, 33–45 cmbs	Glass	Marble	Blue/white swirl glass marble, machine-made		1.5	1	post-1901	

Acc. #	Provenience	Material	Type	Description	L/H	W/D	No.	Age	Origin
120	T-14D, Str. III, Fea. 136, 42–53 cmbs	Metal	Fragments	Corroded ferrous metal fragments					
121		Metal	Nail	Corroded ferrous metal nails			2		
122	T-14D, Str. III, Fea. 137, 52 cmbs	Metal	Nail	Corroded ferrous nails			2		
123	T-14D, Str. III, Fea. 139, 50–69 cmbs	Glass	Flat	Colorless flat glass			2		
124		Metal	Fragments	Corroded ferrous metal fragments			5		
125		Metal	Nail	Corroded ferrous metal nails			3		
126		Glass	Bottle	Colorless glass bottle, body fragments			3		
127		Glass	Bottle	Amber glass bottle, body fragments			3		
128		Glass	Bottle	Olive glass bottle, body fragments			2		
129		Glass	Bottle	Aqua glass bottle, body fragments			2		
130		Ceramic	Tableware	Euro-American refined earthenware (whiteware) tableware, body fragments, transparent glaze			2	post-1820	Euro-American
131		Ceramic	Tableware	Asian porcelain fragments (2) blue design on front and back (1) and transparent glaze on exterior (1)			2		Asian
132		Brick	Fired clay	Red brick fragment, 2.5YR 5/4			1		
133		Glass	Bottle	Colorless glass bottle, body fragments			2		
134		Metal	Nail	Corroded ferrous metal nail			1		
135		Glass	Bottle	Colorless glass bottle, base to body fragment, unknown mold type			1		
136	T-14D, Str. III, Fea. 139, 50–69 cmbs	Ceramic	Hollow-ware	Euro-American whiteware hollowware, body fragment, annular ware, engine turned brown and green bands on exterior			1	1770-late 19th cent	Euro-American
137	T-14E, Str. Id, 15–35 cmbs	Glass	Marble	Swirl glass marble, machine-made			1	post-1901	
138	T-14E, Str. II, 37–57 cmb	Metal	Cap	Non-ferrous metal cap for wide-mouth jar/bottle		5.2	1		
139		Ceramic	Jar	Chinese, stoneware jar spout (broken off) from a round jar, dark brown slip glaze, unglazed on interior			1	post-1850	Chinese

Acc. #	Provenience	Material	Type	Description	L/H	W/D	No.	Age	Origin
140	T-14E, Str. II, 37–57 cmbs	Other	Strap	Woven strap, unknown fiber	3.3		1		
141		Metal	Bottle cap	Metal bottle cap for a crown finish bottle		2.8	1	1892-present	
142		Metal	Nail	Corroded ferrous metal nail, unknown shape	4.1		1		
143		Shell	Button	Two-hole shell button		1.2	1		
144		Ceramic	Button	Prosser button, four-hole	1.4		1	1840-1962	
145		Glass	Pressed	Cobalt blue pressed glass base		3.5	1		
146		Glass	Bottle	Amber glass bottle, body fragment			1		
147		Ceramic	Hollow-ware	Euro-American, porcelain cup, body to rim fragment, yellow, brown, and green decal floral print on exterior, gilded rim		9.5	1	1880-20th	Euro-American
148		Ceramic	Tableware	Asian, porcelain tableware, body to rim fragment of a spoon, hand-painted red carp and floral design on interior			1		Asian
149		Ceramic	Marble	Buff clay marble		1.4	1	1818-1928	
150		Glass	Marble	Glass marble, blue and white swirl, machine-made		1.7	1	post-1901	
151		Ceramic	Tableware	Chinese, porcelain tableware, body to rim fragment, “Four Seasons” overglaze pink/gold floral design on exterior		23.0	1		Chinese
152		Ceramic	Tableware	Euro-American, refined earthenware (whiteware) tableware, body to rim fragment, transparent glaze, hand-painted green underglaze pattern on body, blue hand painted band on rim			1		Euro-American
153		Ceramic	Tableware	Euro-American, refined earthenware (yellowware) tableware, body to rim fragment, transparent glaze, blue and white mocha dendritic pattern underglaze pattern on body exterior			1	1840-1915	Euro-American
154		Glass	Bottle	Aqua glass soda bottle, base to body fragment, round base, mold-blown, two-piece cup-bottom mold, missing finish, “H… / SODA…/ T. H.” embossed vertically on body, “BOTTLE IS NOT SOL…” embossed on heel, Maltese Cross on base; Honolulu Soda Water Co. bottle (Elliott and Gould 1988:114, No. 219 or 220)		6.0	2	1910	American
155		Ceramic	Tableware	Euro-American, refined earthenware (ironstone) tableware, body fragment, transparent glaze			1	1840-1930	Euro-American

Acc. #	Provenience	Material	Type	Description	L/H	W/D	No.	Age	Origin
156	T-14E, Str. II,	Brick	Fired clay	Brick fragment, 2.5YR 5/6			1		
157	Fea. 142	Glass	Bottle	Olive glass bottle, body fragments, cylindrical bottle			2		
158	53–60 cmbs	Glass	Flat	Colorless flat window glass fragment			1	1845-1910	
159		Ceramic	Tableware	Euro-American, refined earthenware (whiteware) tableware, body fragment, green slip glaze on one side, transparent glaze on reverse			1	post-1820	Euro-American
160		Ceramic	Tableware	Chinese, porcelain tableware (shallow dish), base, body, and rim fragments, Chinese Four Flowers hand-painted overglaze design on interior			6	1850-1950	Chinese
161		Ceramic	Jug	Chinese, stoneware jar, body fragment, dark brown slip glaze on exterior, unglazed interior			2	post-1850	Chinese
162		Ceramic	Tableware	Chinese, porcelain tableware, rim and body fragments, wintergreen (celadon) glaze on exterior and interior			2	post-1850	Asian
163		Ceramic	Jar	Chinese, stoneware jar, body fragment, dark brown slip glaze			1	post-1850	Chinese
164	T-14G, Str. II, 39–71 cmbs	Ceramic	Tableware	Euro-American, refined earthenware (whiteware), body fragment, transparent glaze			2	post-1820	Euro-American
165		Glass	Household	Colorless glass, unknown tube item			1		
166		Glass	Bottle	Milk glass (white) bottle/jar, body fragment			1	post-1870	
167		Metal	Nail	Non-ferrous machine wire nail (wire nails post-date 1880 [Maples 1998:112], and were first imported into Hawai‘i in 1894 [Hurst and Allen 1992:59])	3.9	0.3	1	post-1894	
168		Glass	Bottle	Aqua glass bottle, body fragments			5		
169	T-14G, Str. II, 45 cmbs	Glass	Household	Light blue decorative ball, possible castor or paperweight		4.1	2		
170	T-14G, Str. II, Fea. 148,	Ceramic	Tableware	Euro-American, porcelain tableware, rim fragment, transparent glaze		17.0	1	1850-present	Euro-American
171	50–110 cmbs	Ceramic	Tableware	Euro-American, refined earthenware (whiteware) tableware, rim fragment, transparent glaze		20.0	1	post-1820	Euro-American

Acc. #	Provenience	Material	Type	Description	L/H	W/D	No.	Age	Origin
172	T-14G, Str. II, Fea. 148, 50–110 cmbs	Ceramic	Tableware	Euro-American, porcelain tableware, body to rim and body to base fragments, transparent glaze, pink and green floral decal and gilded floral design on interior			3	1880-1950s	Euro-American
173		Glass	Household	Colorless glass lamp globe chimney, decorated (crimped) rim		7.4	1	1870 into 20th cent	
174		Metal	Fragments	Ferrous metal fragment, nail head and shaft with wire at end			1		
175		Ceramic	Flatware	Euro-American, refined earthenware (whiteware) flatware, base to rim fragment, transparent glaze	4.1	27.0	1	post-1820	Euro-American
176		Ceramic	Flatware	Euro-American, refined earthenware (whiteware) flatware, rim fragment, transparent glaze		25.0	1	post-1820	Euro-American
177		Glass	Bottle	Aqua glass bottle, neck to lip fragment, mold-blown, tooled patent finish			1	1870-1920	
178		Ceramic	Tableware	Euro-American, refined earthenware (whiteware) tableware, body fragment, transparent glaze			1	post-1820	Euro-American
179		Glass	Bottle	Colorless glass bottles, complete, square base, machine-made, continuous external thread finish, “I. P. G Co. 83 4” embossed on heel; makers’ mark for Illinois Pacific Glass Co.	12.7	4.5	3	1910-1926	American
180		Glass	Bottle	Amber glass bottle, complete, round base, machine-made, crown finish; embossing: “14 11” on heel	26.9	6.7	1	post-1908	
181		Glass	Bottle	Aqua liquor/spirits bottle, complete, rectangular/oval base, mold blown, two-piece cup-bottom mold, applied brandy finish, “GORDON’S DRY GIN // LONDON // ENGLAND // REGo610617” embossed on body, boar’s head embossed on base	22.3	7.6	1	1913	British
182		Metal	Screw-driver	Ferrous metal flathead screwdriver shaft	14.6	1.1 x 0.5	1		
183		Glass	Household	Blue tinted milk glass lamp globe fragment			1	post-1840	

Acc. #	Provenience	Material	Type	Description	L/H	W/D	No.	Age	Origin
184	T-14G, Str. II, Fea. 148, 50–110 cmbs	Ceramic	Tableware	British, refined earthenware (whiteware) tableware (probably pitcher) base, transparent glaze, maker's mark inside foot ring, "ESTAB / WM ADAMS & CO / 1657 // TUNSTALL / ENGLAND" interior diamond design register indicating the design was registered with the British Patent Office on 21 January 1881			1	1891-early 1900s	British
185		Ceramic	Flatware	British, refined earthenware (whiteware) saucer body to base fragment, blue floral transfer print on interior, transparent glaze on exterior, green stamped maker's mark on interior of foot ring on base, "ENGLAND / GJ [monogram over crescent] / ABERDEEN / Rd. No. 84746 / Rd. No / 59451 / ENGLAND"	2.4	16.0	1	1891-1924	British
186		Ceramic	Button	Prosser button, 4-hole	0.3	1.3	1	1840-1962	
187		Glass	Bottle	Colorless glass bottle, complete, with slight gray tint, square base, machine-made, continuous external thread finish	12.4	4.5	1	post-1908	
188		Glass	Bottle	Aqua green soda bottle, complete, round stippled base, machine made, hobble skirt, crown finish "REG US PAT OFF // CONTENTS 6 1/2 FL. OZS" embossed on body under where paper label would have been; "67 – 19" on skirt	19.7	5.9	1	1967	American
189		Glass	Bottle	Aqua glass bottle, complete, round base, two-piece post-bottom mold, machine-made, crown finish	24.7	6.6	1	post-1908	
190		Ceramic	Hollow-ware	Euro-American, refined earthenware (whiteware) hollowware, rim to body fragment, light blue slip glaze, negative printed stylized cross or flower on interior		15.0	1	1821-1840	Euro-American
191		Glass	Household	Colorless lamp globe fragment			1		
192		Glass	Pressed	Colorless pressed glass tumbler base, decorative fluting on heel		5.9	1		
193		Ceramic	Tableware	Euro-American, refined earthenware (ironstone) tableware, body fragment, transparent glaze, relief molding on exterior			1	1840-1870	Euro-American
194	T-21, Str. II/III, spoils	Ceramic	Tableware	Asian, porcelain tableware, rim fragment, clear glaze, small fragment of blue hand-painted floral decoration on exterior			1		Asian
195		Ceramic	Flatware	Euro-American, refined earthenware (whiteware) flatware, body fragment, "Willow" transfer print pattern, *Chinoiserie* design			1	1780-1814, 1900+	Euro-American

Acc. #	Provenience	Material	Type	Description	L/H	W/D	No.	Age	Origin
196	T-21, Str. II/III, spoils	Ceramic	Tableware	Euro-American, refined earthenware (whiteware) lid knob, cone-shaped, transparent glaze			1	post-1820	Euro-American
197		Ceramic	Tableware	Chinese, porcelain tableware, body fragment, transparent glaze, hand-painted floral blue design on one side			1	post-1850	Asian
198		Ceramic	Tableware	Asian, porcelain tableware, rim fragment, hand-painted blue design			1	post-1850	Asian
199		Ceramic	Hollow-ware	Asian, porcelain hollowware, base to body fragment, high footring, transparent glaze on all surfaces but footring base, one blue dot near rim on bottom			1	post-1850	Asian
200		Ceramic	Tableware	Euro-American, refined earthenware (whiteware), body fragment, unknown vessel, green/cream mottled slip exterior glaze, transparent interior glaze			1		Euro-American
201		Ceramic	Bottle	Chinese, porcelain hollowware, base to body fragment, blue hand-painted underglaze geometric pattern, possibly cylindrical teapot base			1	post-1850	Chinese
202		Other	Doorknob	Doorknob, earthenware with porcelain finish and with cast iron shank (Cotton 1987:40)	13.5	5.5 x 2.8	1	1850-1900	
203		Ceramic	Tableware	Euro-American, refined earthenware (whiteware) tableware, rim fragment, gilded edge; transparent glaze, red, blue, black, and yellow floral underglaze decal on exterior, with hand-painted red band underglaze near rim			1	1880-1950s	Euro-American
204	T-22, Str. Ic	Glass	Vial	Aqua glass medicine vial; body to base fragment; square with round bore hole, broken off lip	5.1	1.3	1	pre-1920	Chinese
205		Glass	Vial	Aqua glass medicine vial, base to body fragment, octagonal base and body	3.3+	1.2 x 1.3	1	pre-1920	Chinese
206	T-22, Str. II, spoils	Glass	Bottle	Aqua glass bottle, neck to lip fragment; mold blown, applied packer finish		2.3	1	1840-1885	
207		Brick	Fired clay	Cinderblock brick fragments (10YR 8/1) (2 fragments)			2		
208		Glass	Bottle	Olive green glass bottle, neck to lip fragment, mold-blown, tooled mineral finish			1	1840-1880	
209		Brick	Fired clay	Brick fragment (5YR 3/4), firebrick		10.0 x 5.2	1		

Acc. #	Provenience	Material	Type	Description	L/H	W/D	No.	Age	Origin
210	T-22, Str. II, 46 cmbs	Metal	Fork	Stainless steel fork, three long prongs; stamped on reverse, “ELITE STAINLESS … Nottingham” (Nottingham in cursive); Nottingham is a pattern produced by several English and American companies	20.8	2.1 x 0.3	1	1921-present	
211	T-27, Str. Ic–Ig/II, spoils	Glass	Bottle	Amber glass beer bottle, complete, round base and body, two-piece cup-bottom mold, stippling around shoulder, heel, and base rim, machine-made, bead finish; embossing: “NO DEPOSIT * NO RETURN” and “NOT TO BE REFILLED” around shoulder, “11 G-B 4QQ 21 (I in a circle) 6” in circle around base; “NO RETURN * NO DEPOSIT” on heel, “21 6 11-GB 4QQ6” in a circle around base, MM= Owens-Illinois Glass Co. mark for Portland, OR plant (active since 1960); #6 to right of OI icon may represent 1960 or the 1960s	14.5	6.0	1	1954-1964	American
212		Glass	Jar	Colorless glass food jar, complete, round base and body, two-piece cup-bottom mold, machine-made, external continuous thread finish on wide mouth; embossing: “19 (I in a circle) A”; Owens-Illinois glass mark for bottle made at unknown plant (not on plant list) post-1954	11.1	5.5	1	1954-present	American
213		Glass	Bottle	Colorless glass bottle, complete, square base and body, vertical flutes on shoulder and two sides and around heel, stippling on base, two-piece cup-bottom mold, machine made, external continuous thread finish on narrow mouth, square, screw top, ABM, vertical lines around body, MM=Owens Illinois, “14 [I in a circle] 1 / 14” Owens Illinois Glass Co. mark post-1954, 14 is the plant number, Bridgeton, NJ	18.8	6.5	1	1954-1984	American

Acc. #	Provenience	Material	Type	Description	L/H	W/D	No.	Age	Origin
214	T-27, Str. Ic–Ig/II, spoils	Glass	Bottle	Colorless glass liquor flask, complete, oval body and base, stippling on base, oval body, two piece cup-bottom mold, marks for panel on body front, machine-made, external continuous thread finish for narrow mouth, plastic cap; clear, flask, cap intact, ABM, 2 embossed lines bordering a label, Embossing: “HALF PINT” and “FEDERAL LAW FORBIDS / SALE OR RE-USE / OF THIS BOTTLE” around heel, MM= Owens Illinois, complicated number set on base: “(I in a circle)” “1 9 /62” over “18” oriented perpendicular to “/D-1” over “18,” in opposite direction to “58 (?) US”; the 1962 is probably the date, the 58 may be the liquor permit for the Clarion, PA plant; glass was made by the Owens Illinois Glass Co. after 1954	18.5	7.5 x 3.3	1	1962	American
215		Glass	Bottle	Amber glass medicine bottle, complete, square base and body, stippling on base, two-piece cup-bottom mold, machine-made, external contiguous screw finish for narrow mouth; possibly came with eye dropper cap; embossing: MM= Owens Illinois; embossing “(I in a circle) 7 10 8”; Owens Illinois mark; not clear which numbers are used for date and plant number	6.3	2.5 x 2.5	1	1954-1983	
216		Glass	Bottle	Amber glass liquor flask, complete, oval base and body, two-piece cup-bottom mold, machine made, metal cap on narrow mouth; amber flask, metal camp intact; embossing: “HALF PINT” on shoulder, “FEDERAL LAW FORBIDS / SALE OR RE-USE OF / THIS BOTTLE” near heel, ABM, MM= Owens Illinois, “L-8998 / D-126 / 55 – 63”; D-125 is # for Seagram’s Distillery	17.8	8.3 x 3.5	2	1963	
217	T-27, Str. II, 41 cmbs	Glass	Bottle	Colorless glass beer bottle, base to heel fragment, round base, stippling on base rim; embossed on base “16 67 2” and a B in a circle, which is the Brockway Glass Company; “NO DEPOSIT NO RETURN” and “NOT TO BE REFILLED,” on bottle heel; 2-piece cup-bottom mold, machine-made; tapered neck; double crown finish; remnants of paper label on neck and body, “Millers High Life”	19.4	6.0	1	1967	American

Acc. #	Provenience	Material	Type	Description	L/H	W/D	No.	Age	Origin
218	T-27, Str. II, 41 cmbs	Metal	Tin	Crushed tin cup			1		
219		Other	Styrofoam	Styrofoam fragment			1	post-1944	
220		Plastic	Food label	Label, “KONYAKU 33¢/INGREDIANTS: ILIS, ILIS FLOUR, WAT-OME, WATER/(JAPANESE TYPE ALIMENTARY PASTE/NET COUNT 2 PIECES” and “EXCELLENT FOR/HEKKA ODEN/NISHIME” and “MANUFACTUREED BY CHIKARA PRODUCTS/BLDG. 5, FARMER’S MARKET/1020 AUAHI STREET, HONOLULU, HAWAII/PHONE -565751”			1		Hawaiian
221	T-27, Str. III, Fea. 152,	Stone	Unknown	Round disc, unknown function	0.4	4.0	1		
222	110–145 cmbs	Wood	Wood	Milled wooden post					
223	T-27, Str. III, Fea. 153, 105–135 cmbs	Metal	Nail	Corroded ferrous nail, round head	10.5		1		
224		Wood	Wood	Milled wood fragments		11.0			
225	T-27, Str. III, Fea. 154, 108–156 cmbs	Glass	bottle	Amber glass bottle, body fragment, no visible seams			1		
226		Wood	Wood	Milled wooden post			1		
227	T-28, Str. II, 50 cmbs	Glass	Bottle	Colorless glass medicine bottle; oval base and body; two-piece cup bottom mold, machine-made; unknown finish, corroded cap/cork; embossing: “BAYER ASPIRIN” embossed on both sides of the body, “2 I (in a circle) / 20” on base, Owens-Illinois mark for Huntingdon, WV plant, post-1954	8.0	4.0 x 2.2	1	post-1954	American

Acc. #	Provenience	Material	Type	Description	L/H	W/D	No.	Age	Origin
228	T-28, Str. II, 50 cmbs	Glass	Bottle	Amber glass liquor flask, complete, oval base, stippling on base rim, two-piece cup-bottom mold, machine-made, external continuous thread finish with metal cap intact; whole flask; embossed: “HALF PINT” on shoulder, “FEDERAL LAW FORBIDS / SALE OR RE-USE OF THIS BOTTLE” near heel, “(I in a circle)” “L-8998 / D-126 / 55- 63”; D-126 used by Seagram’s Distillery; bottle made by Owens-Illinois Glass Co., Huntington, WV plant in 1963	17.6	8.5 x 3.5	1	1963	American
229	T-28, Str. II, 50 cmbs	Glass	Bottle	Amber glass miniature whiskey bottle, complete, round base, two-piece cup-bottom mold, machine-made, crown finish, stippling on bottom rim and base; embossing: “13 8 N” / “8 AAS (monogram) 4” on base; unknown maker	11.8	3.5	1	Post-1940	
230		Glass	Bottle	Amber glass flask, shoulder to lip fragment with plastic cap; oval body, two-piece mold, machine-made, external continuous thread finish; probably a Seagram’s whiskey bottle, similar to Acc. #s 220, 223, and 225			1	1934-1970	
231		Glass	Bottle	Amber glass beer bottle, complete, round base and body, stippling around heel and on base rim, two-piece cup-bottom mold, machine-made, bead finish; embossing: “NO DEPOSIT * NO RETURN” and “NOT TO BE REFILLED” around shoulder, “NW / 682 63 / A45” on base. Northwestern Glass Co.	14.8	6.0	1	1963	American
232		Other	Screen	Synthetic window screen			1		
233		Glass	Jar	White milk glass cold cream jar with plastic lid, complete, machine made, external continuous thread finish; embossing: “T” and the number 14 in a circle on the base	6.3	8.5	1	1870-1920	
234	T-14B, Str. II, 17–40 cmbs	Metal	Axe	Corroded ferrous axe head	9.1	20.6	1		

Figure 59. (1) Acc. # 1, amber glass bottle, base to body fragment; (2) Acc. # 2, amber glass bottle base made in 1947

Figure 60. (1) Acc. # 3, Chinese glass medicine vial; (2) Acc. # 4, green glass bottle, neck to rim fragment; (3) Acc. # 5, colorless (amethyst-tinted) glass bottle, neck to rim fragment; (4) Acc. # 6, aqua glass bottle, neck to finish fragment

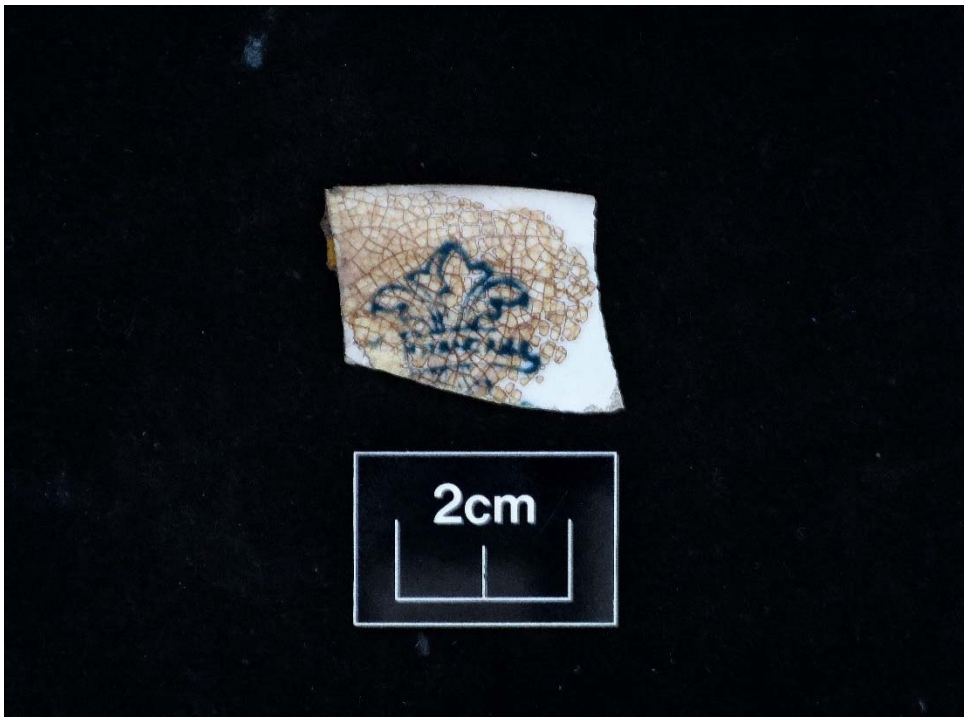

Figure 61. Acc. # 7, Euro-American ironstone fragment, made by the French China Co. of Sebring, Ohio between 1900 and 1932

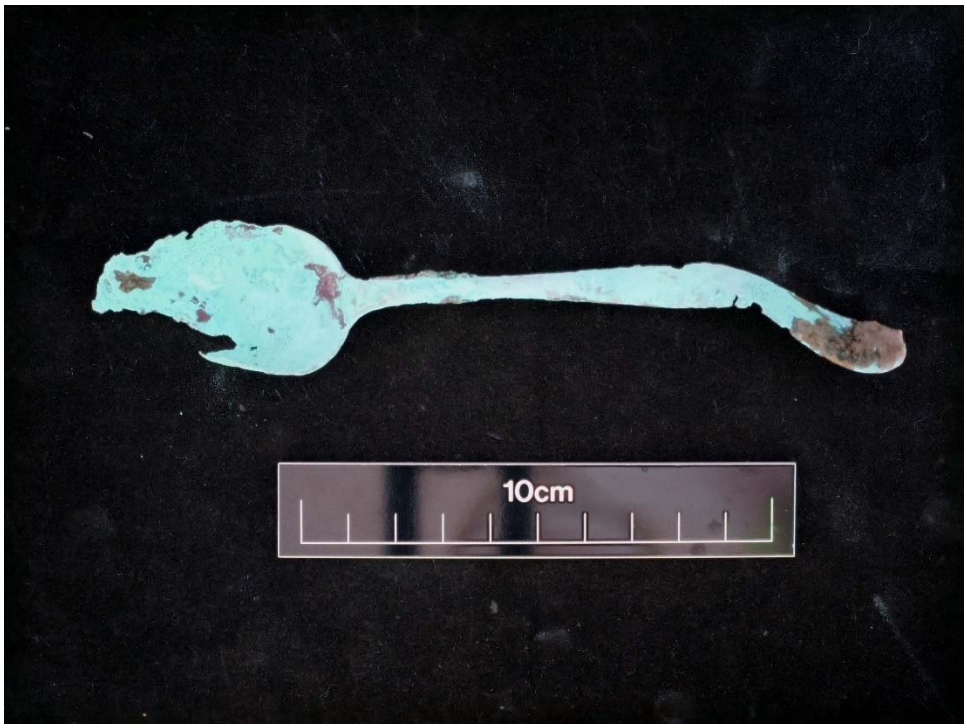

Figure 62. Acc. # 8, corroded copper spoon

Figure 63. (1) Acc. # 9, aqua mold-blown Carter’s Ink bottle; (2) Acc. # 11, aqua glass bottle, base to body fragment

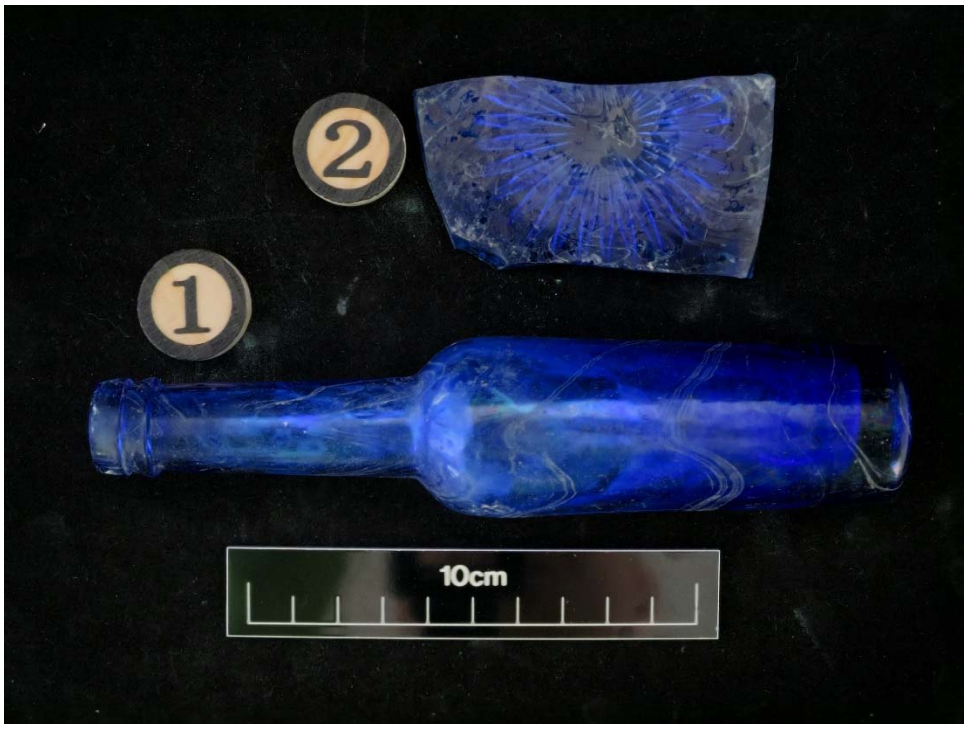

Figure 64. (1) Acc. # 10, cobalt blue bottle; (2) Acc. # 12, cobalt blue pressed glass

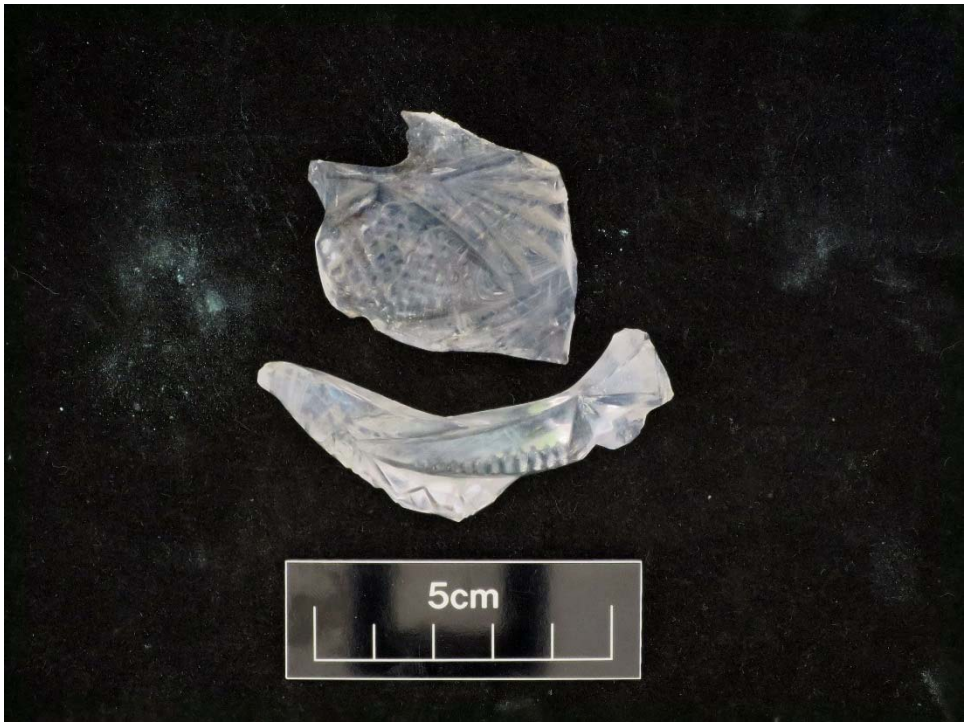

Figure 65. Acc. # 13, colorless pressed glass fragments

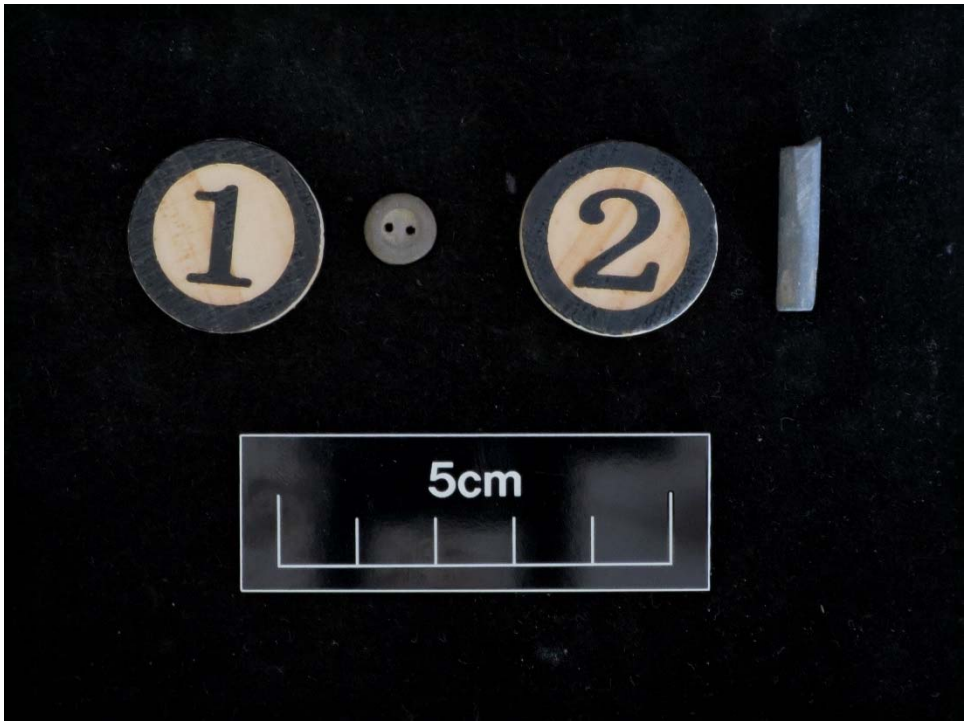

Figure 66. (1) Acc. # 16, two-hole bone button; (2) Acc. # 21, slate pencil fragment

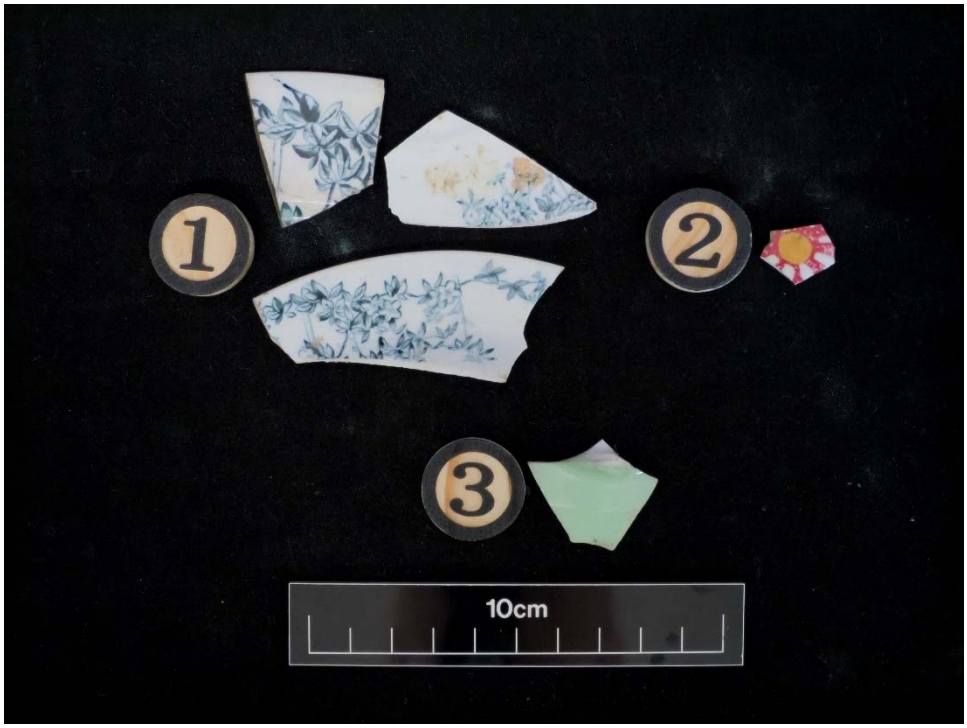

Figure 67. (1) Acc. # 18, Euro-American green transfer-printed whiteware; (2) Acc. # 20, Euro-American cut-sponge whiteware; (3) Acc. # 19, Asian wintergreen (celadon) porcelain

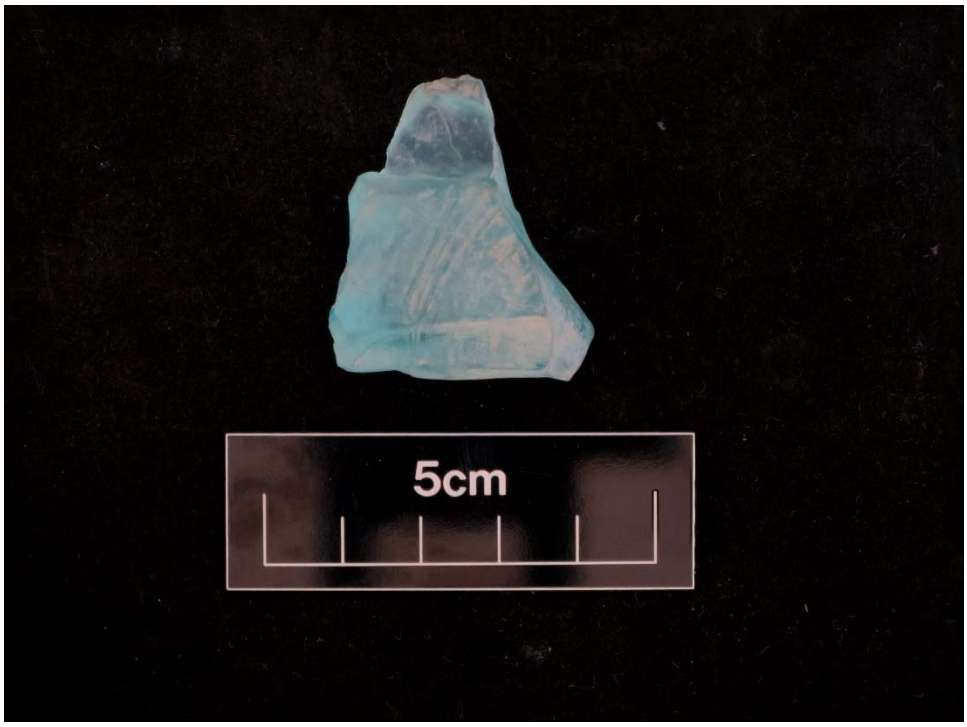

Figure 68. Acc. # 22, aqua threaded insulator fragment

Figure 69. (1) Acc. # 25, colorless mold-blown vial; (2) Acc. # 26, amber glass bottle, rim fragment

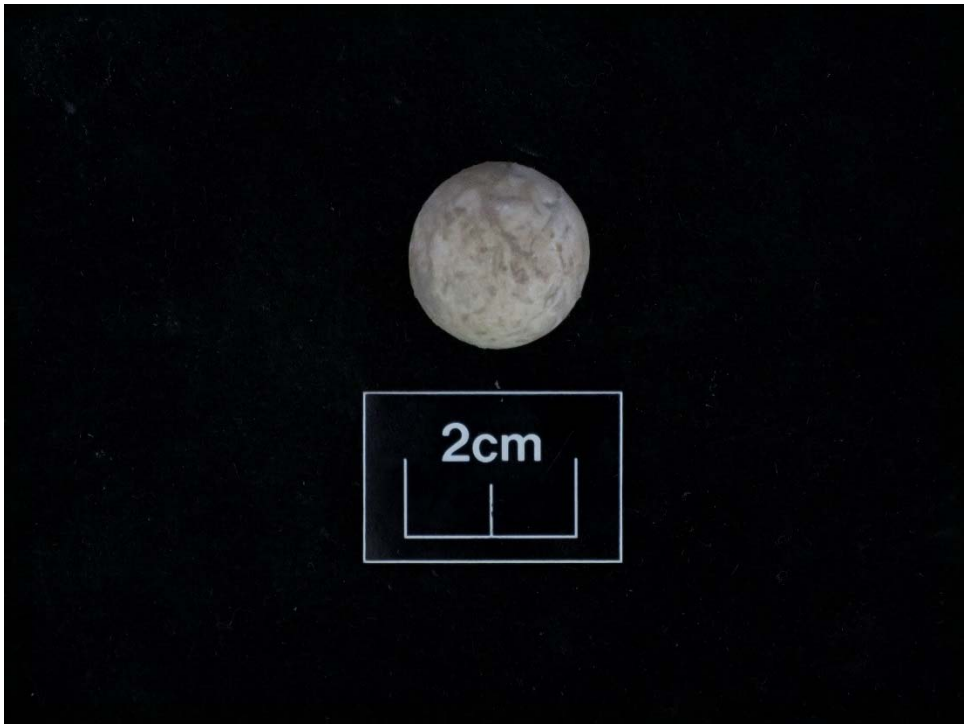

Figure 70. Acc. # 27, unglazed earthenware marble

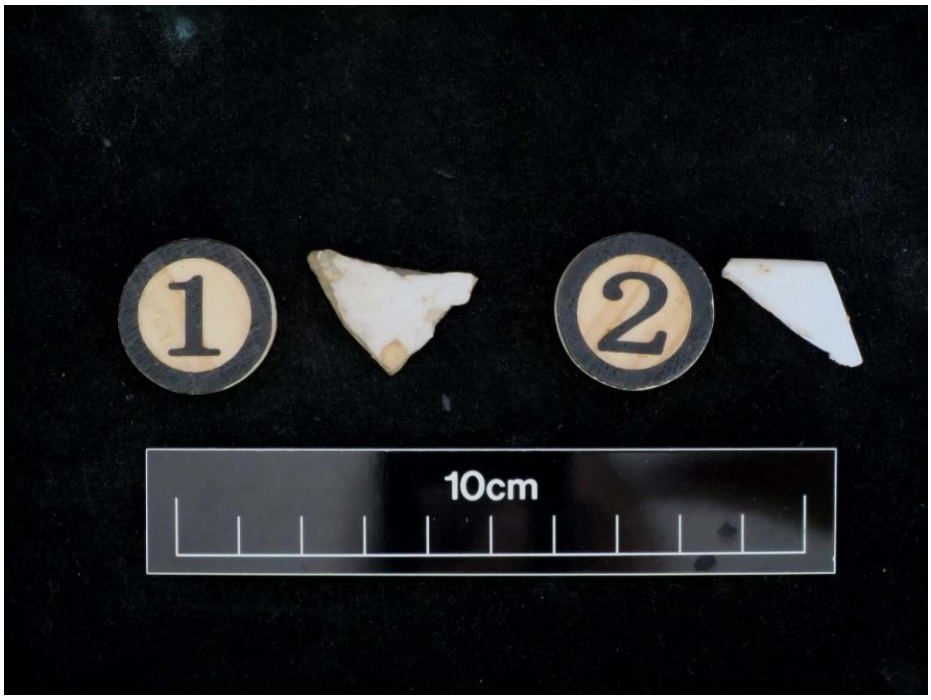

Figure 71. (1) Acc. # 28, Euro-American whiteware fragment; (2) Acc. # 29, Euro-American porcelain fragment

Figure 72. (1) Acc. # 30, decal Euro-American porcelain; (2) Acc. # 32, blue “Willow” transfer print Euro-American whiteware; (3) Acc. # 34, cut-sponge Euro-American whiteware; (4) Acc. # 42, cut-sponge Euro-American whiteware

Figure 73. (1) Acc. # 31, aqua glass mold-blown bottle; (2) Acc. # 33, aqua glass mold-blown soda bottle for Arctic Soda Works, Honolulu (1902)

Figure 74. Acc. # 35, brick fragment

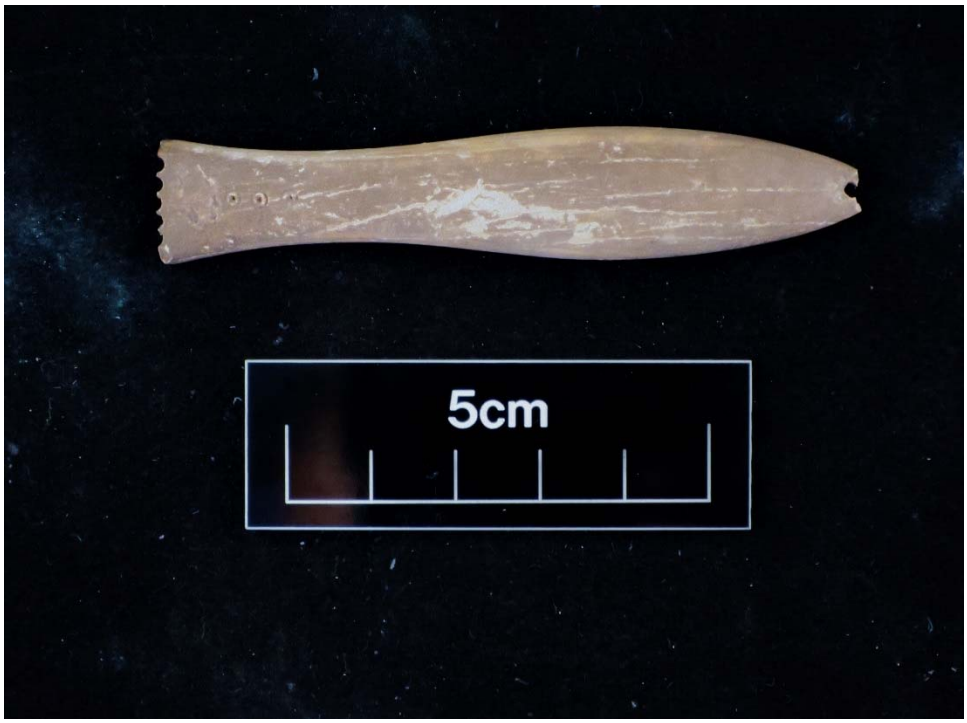

Figure 75. Acc. # 36, bone toothbrush handle, three circles near brush section at left (good luck symbol,) usually found on Chinese toothbrushes, hanging hole at end (1884–ca. 1920)

Figure 76. (1) Acc. # 37, amber glass mold-blown liquor bottle; (2) Acc. # 40, amber glass bottle, neck to rim mold-blown fragment

Figure 77. (1) Acc. # 38, colorless glass machine-made bottle, made in 1967; (2) Acc. # 41, colorless glass machine-made bottle

Figure 78. Acc. # 39, cobalt blue, glass, machine-made bottle

Figure 79. (1) Acc. # 44, porcelain finish doorknob; (2) Acc. # 49, stoneware toiletware fragment

Figure 80. (1) Acc. # 46, colorless pressed glass chandelier/lamp prism; (2) Acc. # 47, teal pressed glass candlestick/lamp base; (3) Acc. # 53, colorless pressed glass candlestick/ lamp base

Figure 81. (1) Acc. # 51, olive glass bottle, neck to finish fragment, champagne finish; (2) Acc. # 45, colorless machine-made bottle, base fragment

Figure 82. Acc. # 48, colorless, glass, machine-made bottle

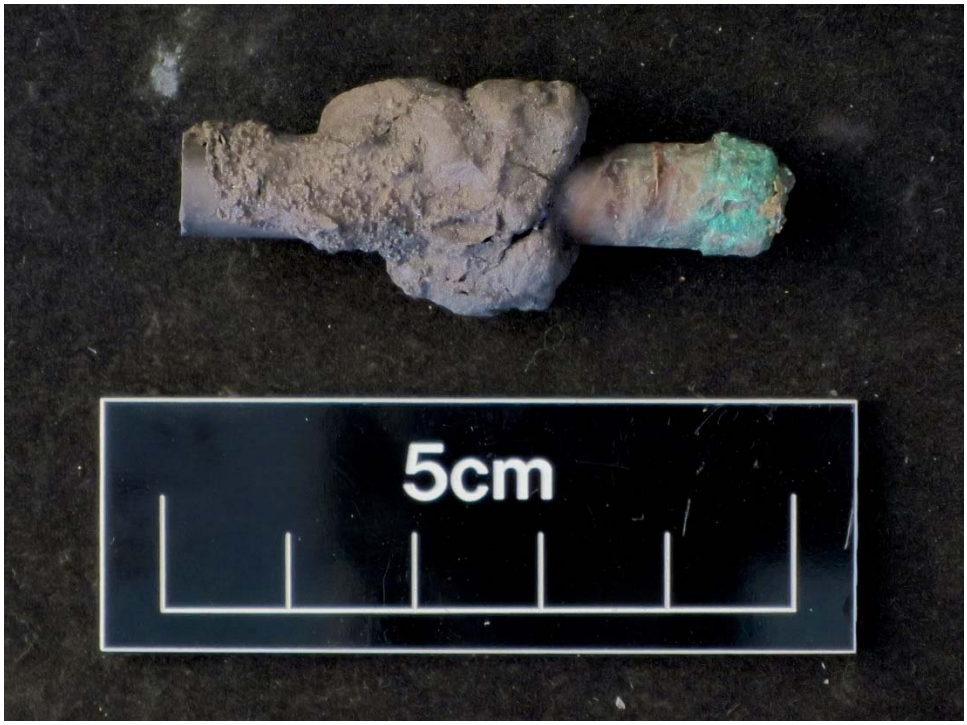

Figure 83. Acc. # 50, battery component with copper top

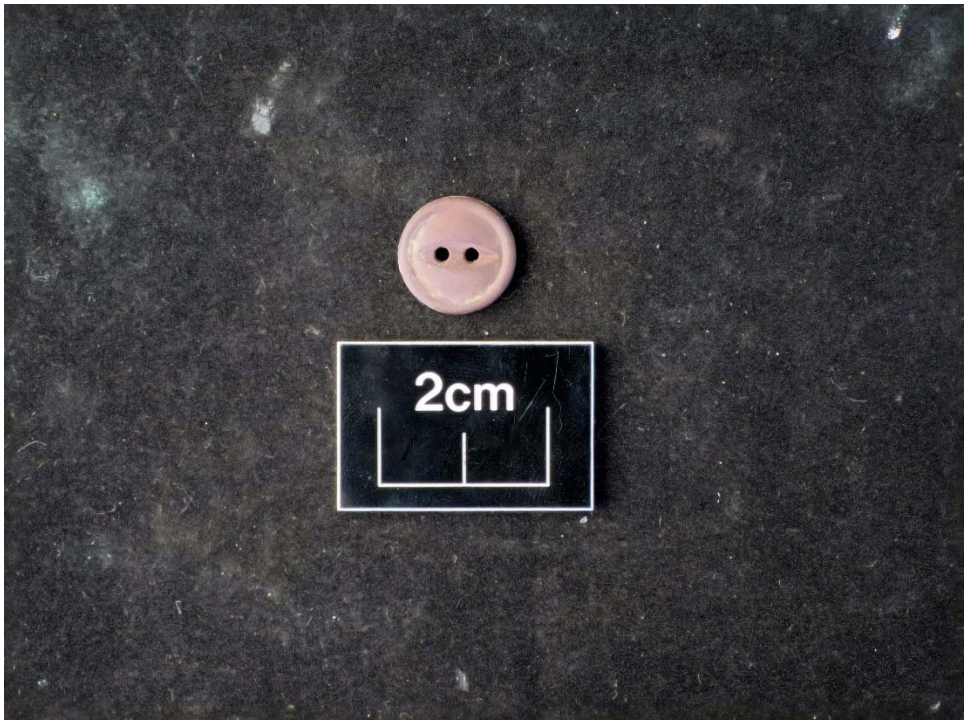

Figure 84. Acc. # 57, plastic two-hole button

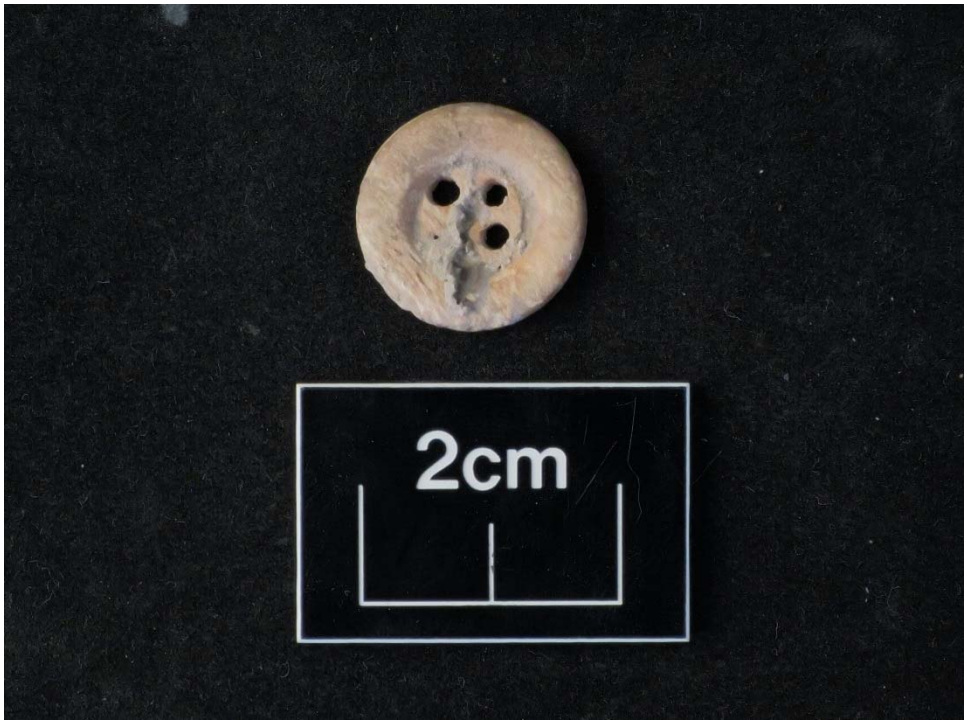

Figure 85. Acc. #54, four-holed bone button

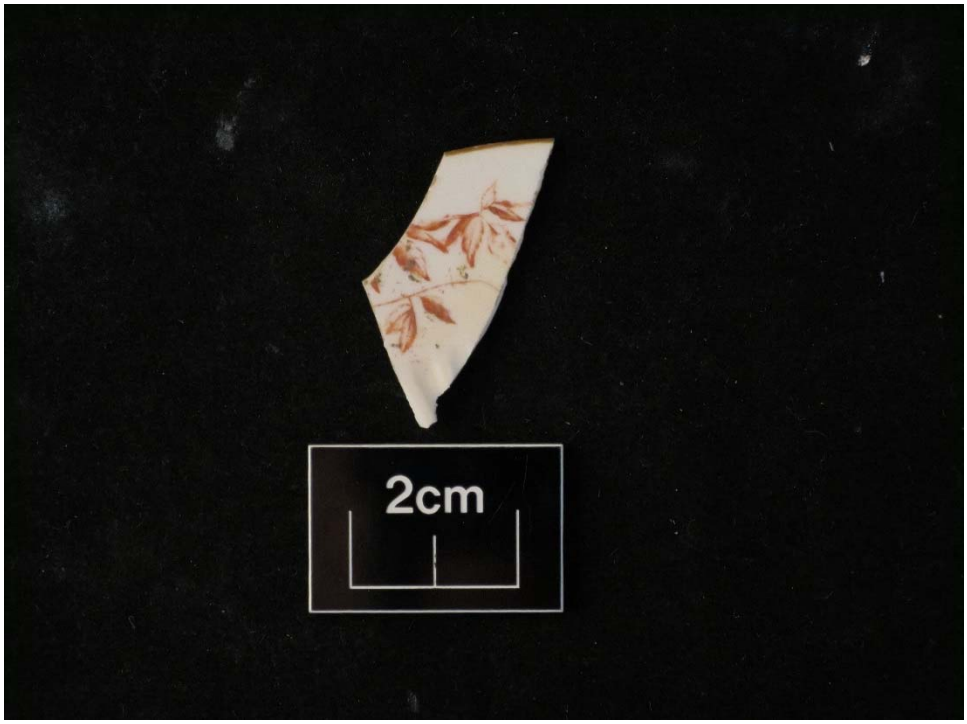

Figure 86. Acc. # 55, Euro-American porcelain with red floral transfer print

Figure 87. Acc. # 52, colorless glass bottle, base to body fragments

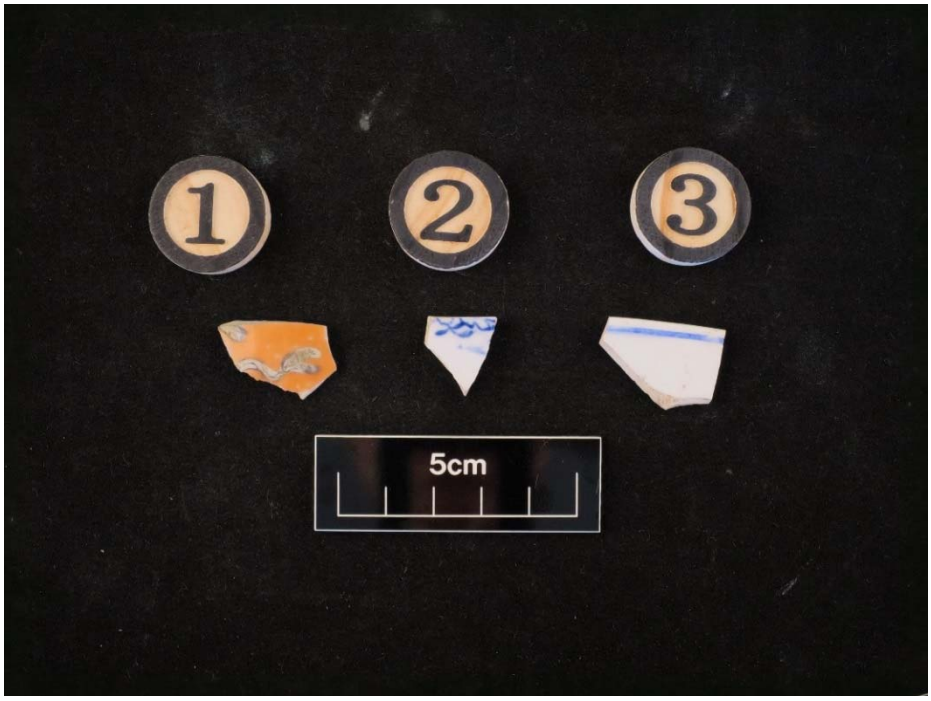

Figure 88. (1) Acc. # 68, “Attributes of the Eight Immortals” hand-painted Chinese porcelain tableware fragment; (2) Acc. # 65, blue transfer print Euro-American whiteware tableware fragment; (3) Acc. # 67, sponge-cut Euro-American whiteware tableware fragment

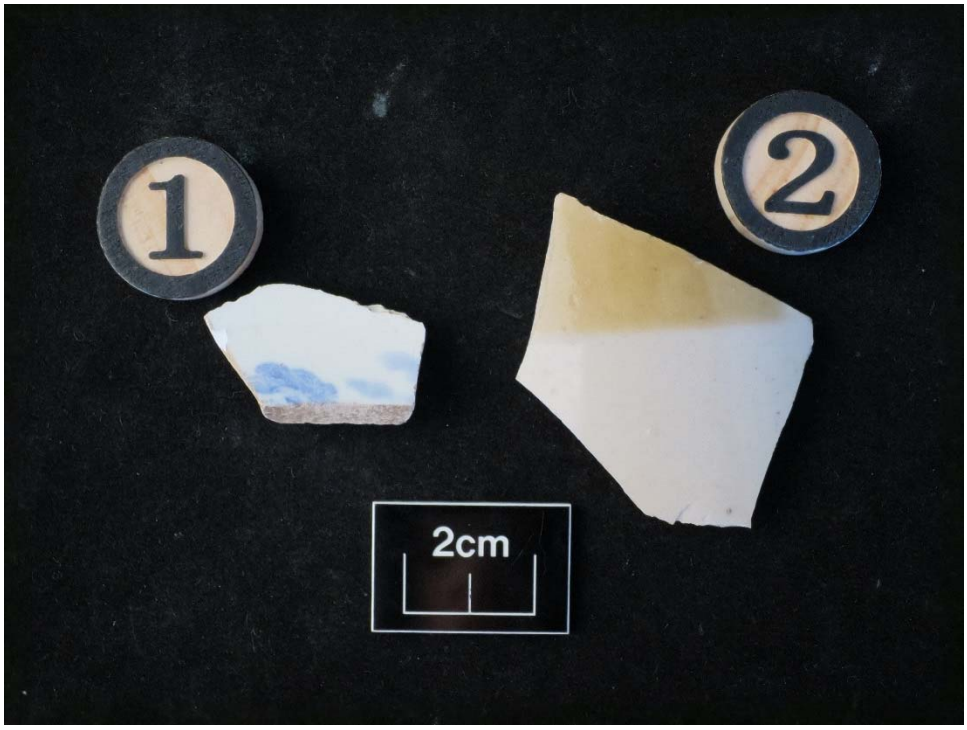

Figure 89. (1) Acc. # 59, blue hand-painted Euro-American whiteware tableware fragment; (2) Acc. # 61, British stoneware bottle fragment

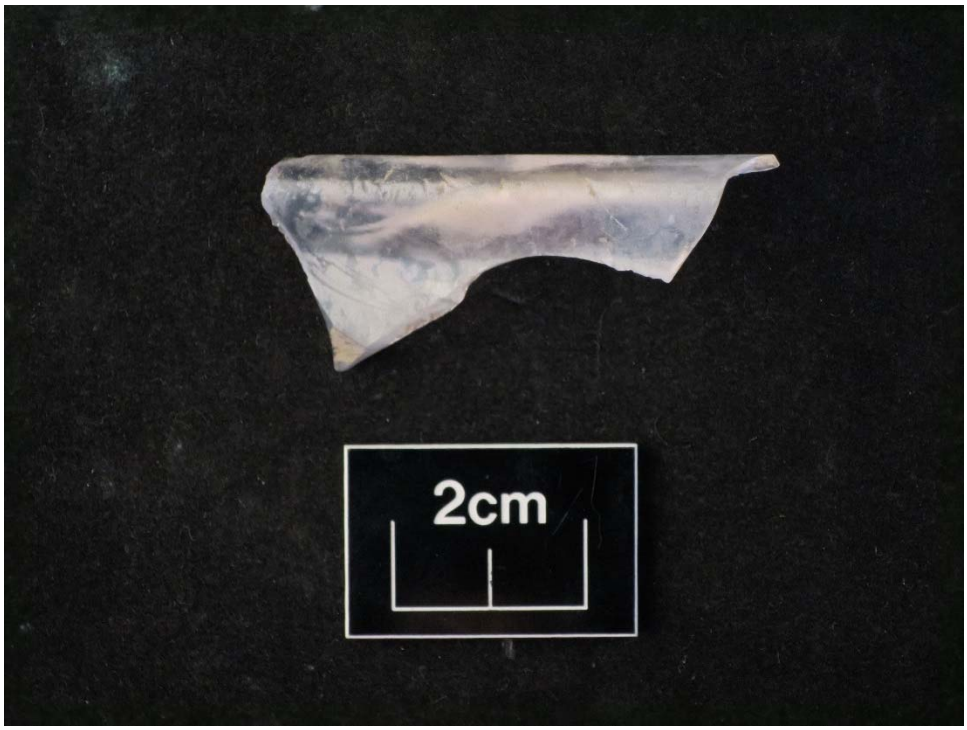

Figure 90. Acc. # 60, colorless glass bottle, base fragment

Figure 91. Acc. # 63, two-hole shell button

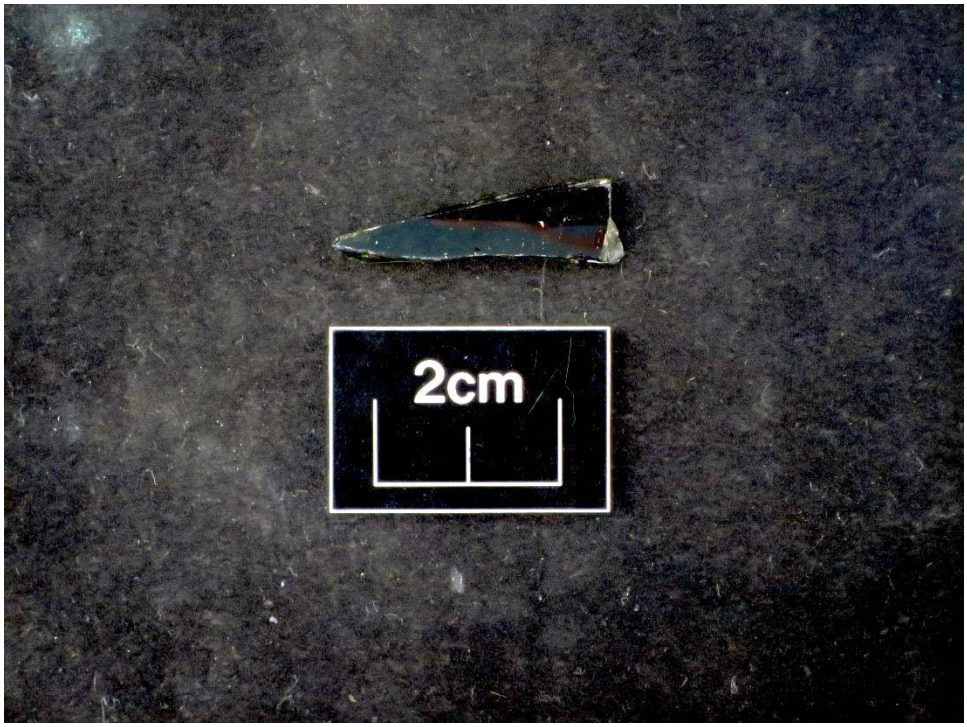

Figure 92. Acc. # 64, olive glass bottle, body fragment

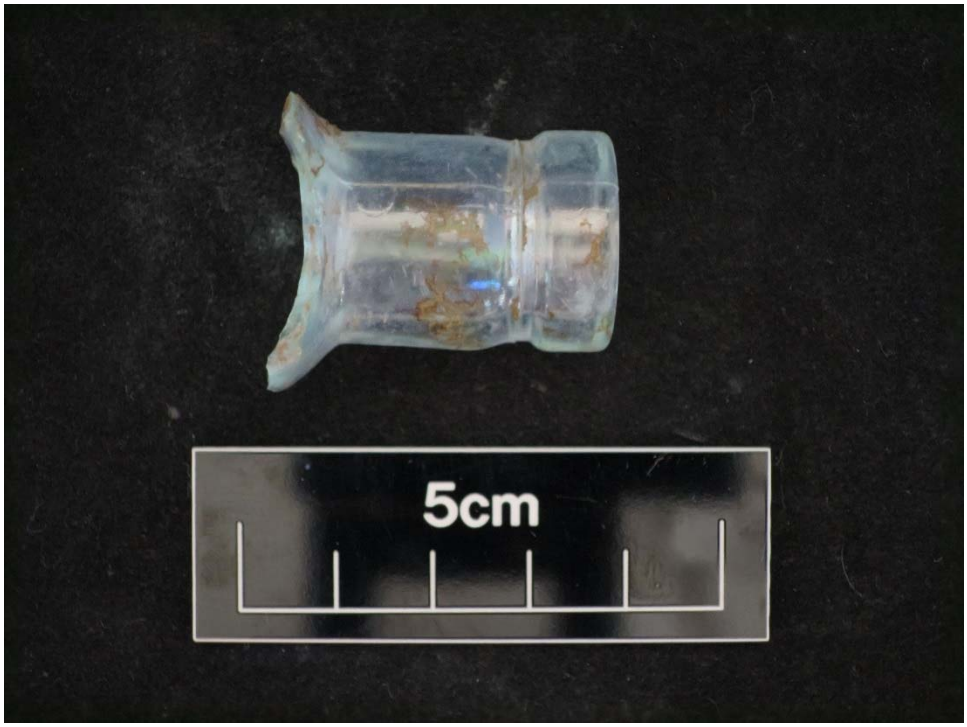

Figure 93. Acc. # 70, aqua glass bottle, neck to lip fragment

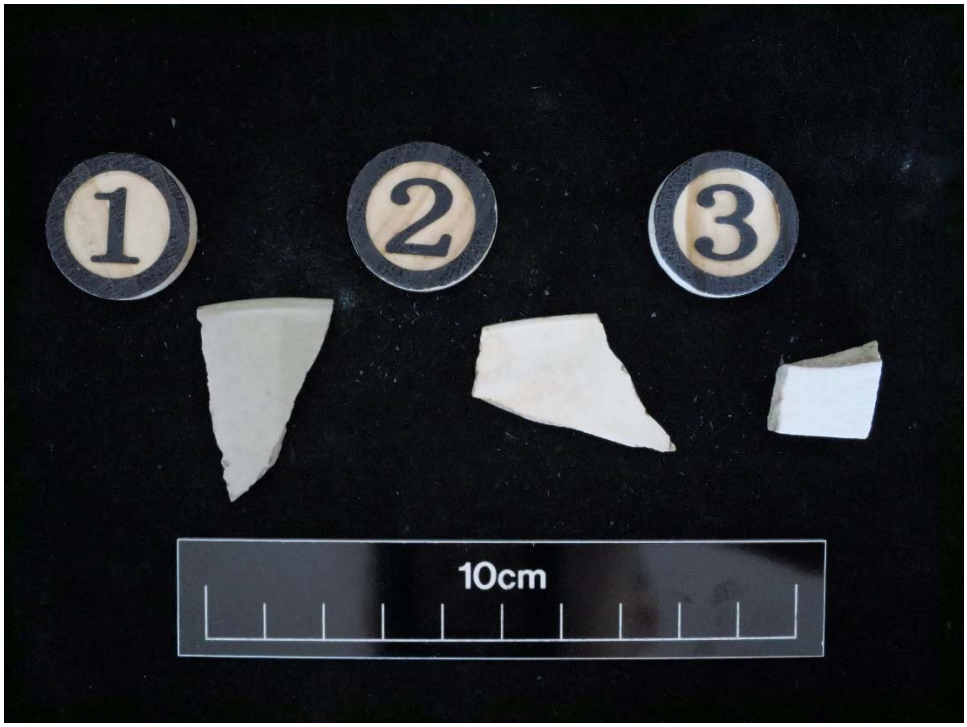

Figure 94. (1) Acc. # 74, whiteware Euro-American tableware rim; (2) Acc. # 77, whiteware Euro-American tableware base; (3) Acc. # 75, stoneware tile fragment

Figure 95. (1) Acc. # 79, colorless flat glass; (2) Acc. # 80, colorless flat glass; (3) Acc. # 71, colorless glass bottle, base fragment, machine-made

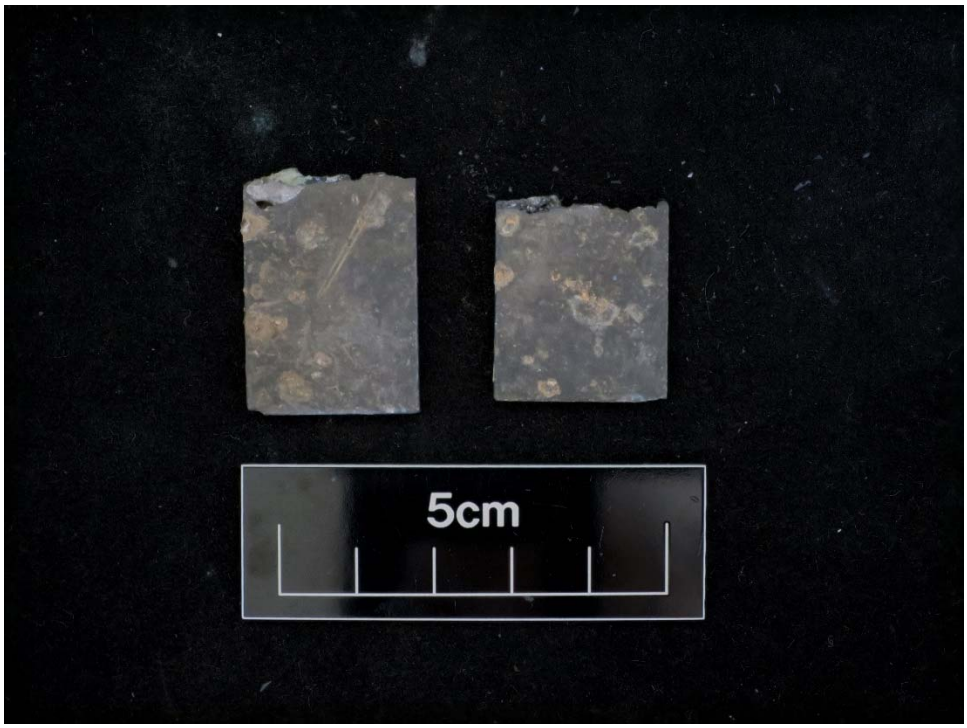

Figure 96. Acc. # 76, metal fragments

Figure 97. (1) Acc. # 72, amber glass bottle base; (2) Acc. # 73, amber glass bottle body and base fragments

Figure 98. Acc. #s 81 and 82, British stoneware bottle fragments

Figure 99. (1) Acc. # 84, colorless glass bottle, neck to rim fragments; (2) Acc. # 85, colorless glass bottle fragments; (3) Acc. # 96, colorless glass bottle base

Figure 100. Acc. # 88, corroded ferrous hook

Figure 101. (1) Acc. # 93, amber glass bottle body fragments; (2) Acc. # 94, light green glass bottle body fragment; (3) Acc. # 95, aqua flat glass

Figure 102. Acc. # 97, decal Euro-American porcelain

Figure 103. Acc. # 98, Euro-American ironstone fragments

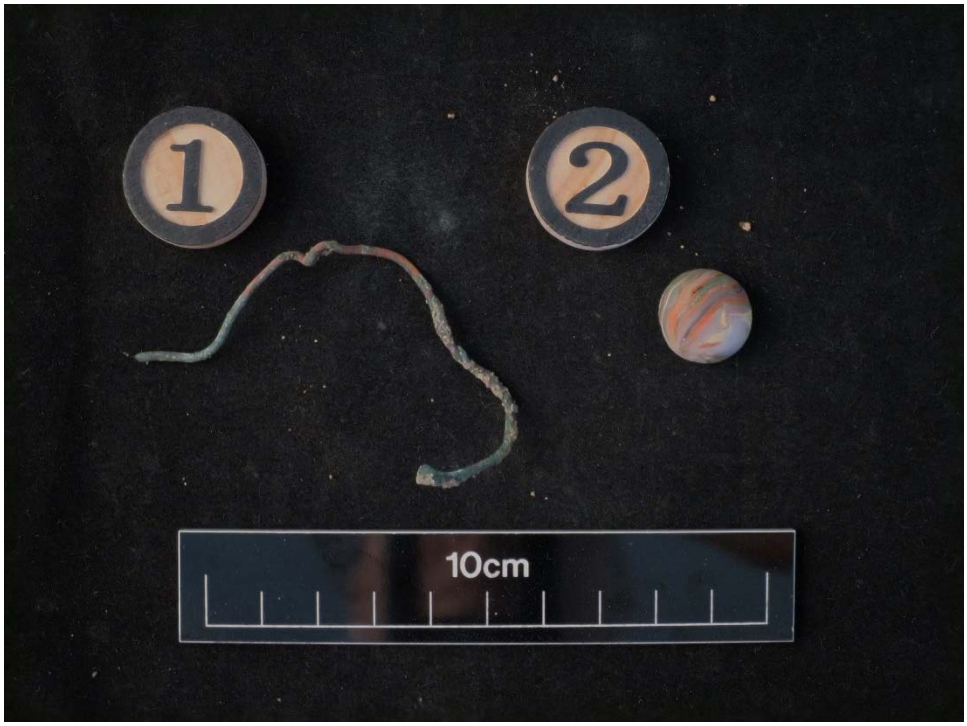

Figure 104. (1) Acc. # 92, corroded copper wire; (2) Acc. # 99, glass marble

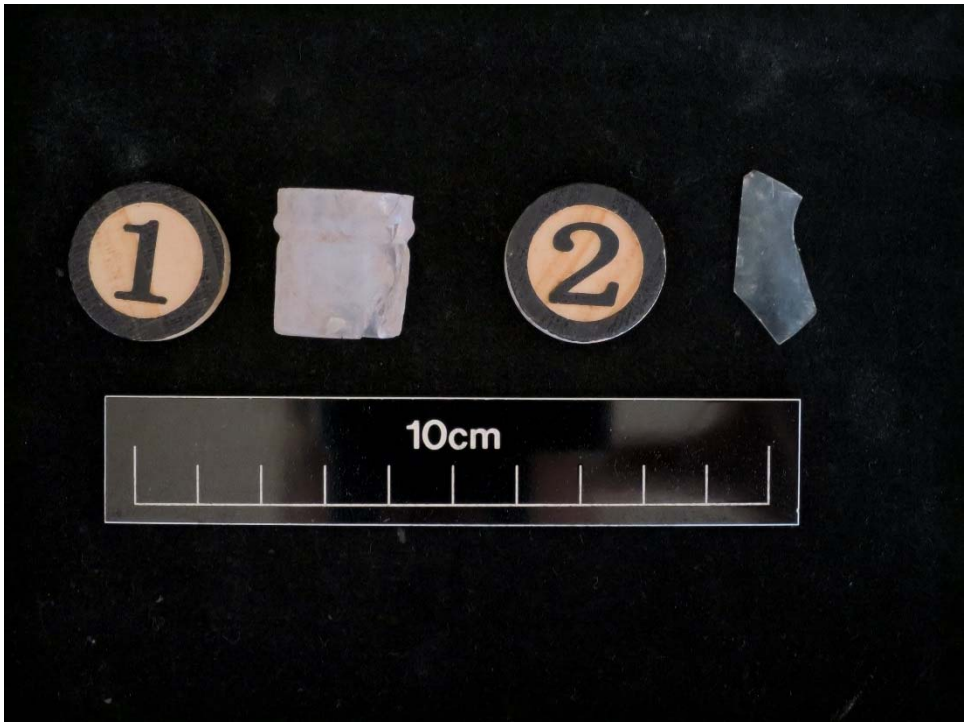

Figure 105. (1) Acc. # 100, colorless glass bottle, neck to rim fragment; (2) Acc. # 108, colorless glass bottle body fragment

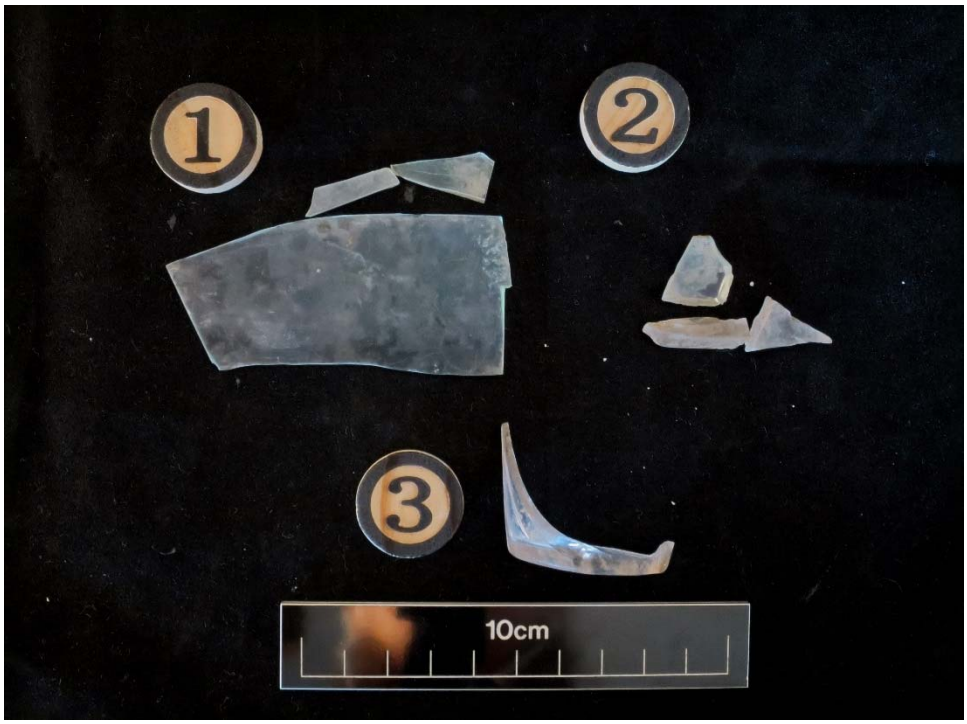

Figure 106. (1) Acc. # 123, colorless flat glass; (2) Acc. # 126, colorless glass bottle body fragments; (3) Acc. # 135, colorless glass bottle, base to body fragment

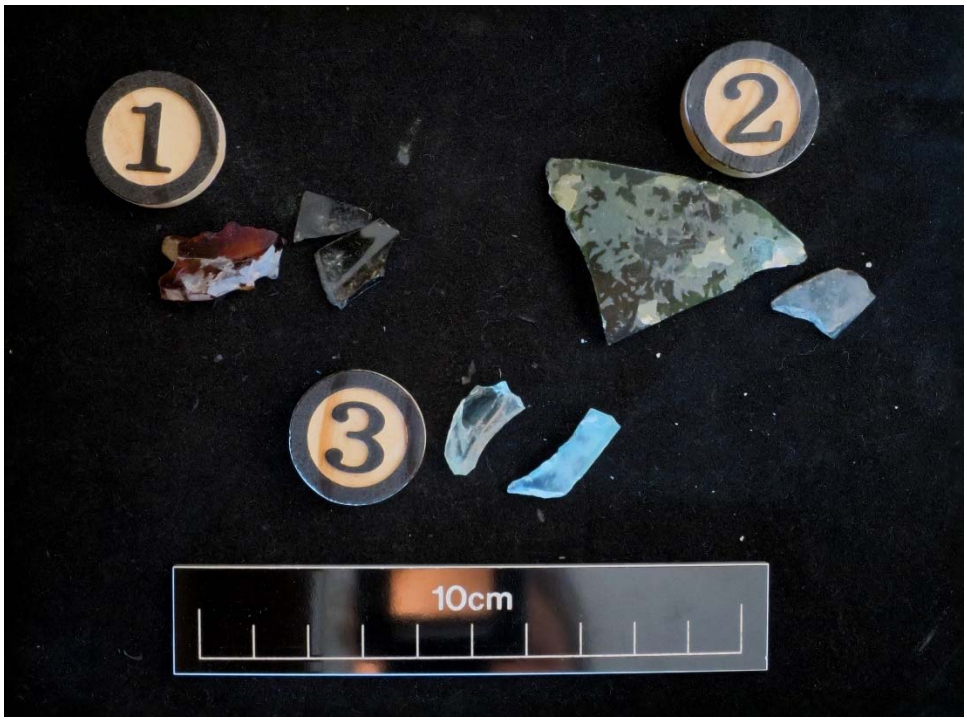

Figure 107. (1) Acc. # 127, amber glass bottle body fragment; (2) Acc. # 128, olive glass bottle body fragment; (3) Acc. # 129, aqua glass bottle body fragment

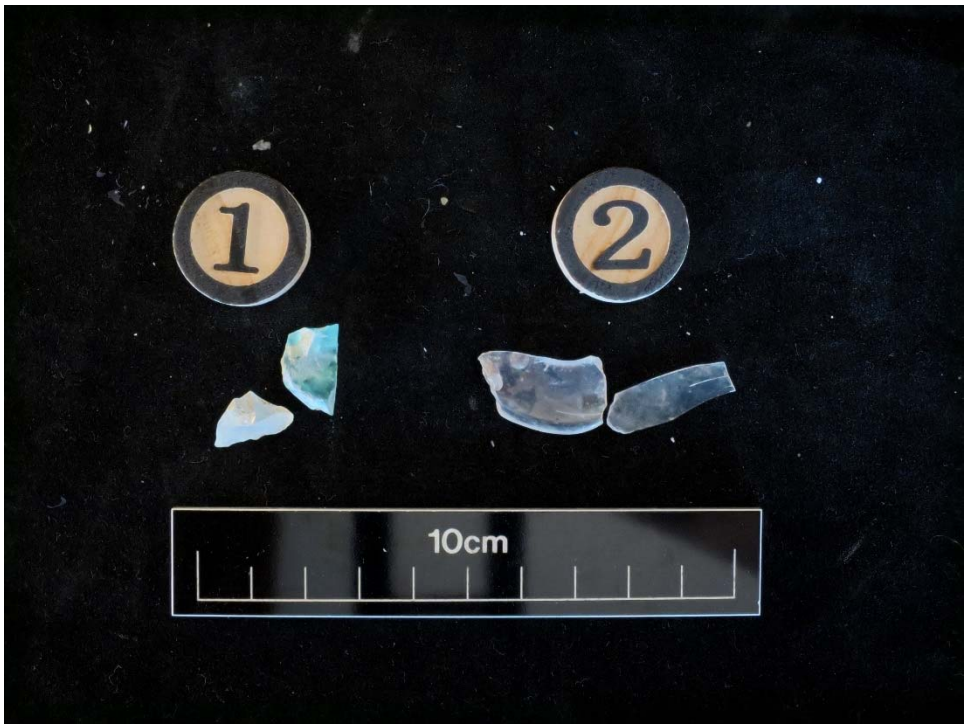

Figure 108. (1) Acc. # 118, aqua glass bottle body fragments; (2) Acc. # 133, colorless glass bottle body fragments

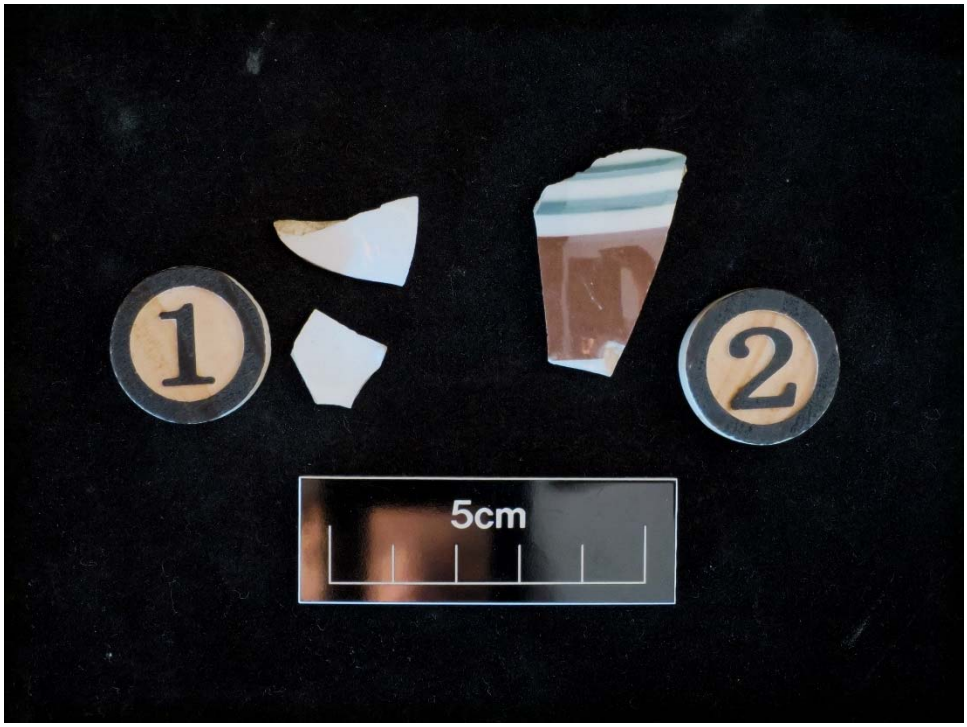

Figure 109. (1) Acc. # 130, Euro-American whiteware tableware fragments; (2) Acc. # 136, annular ware Euro-American whiteware fragment

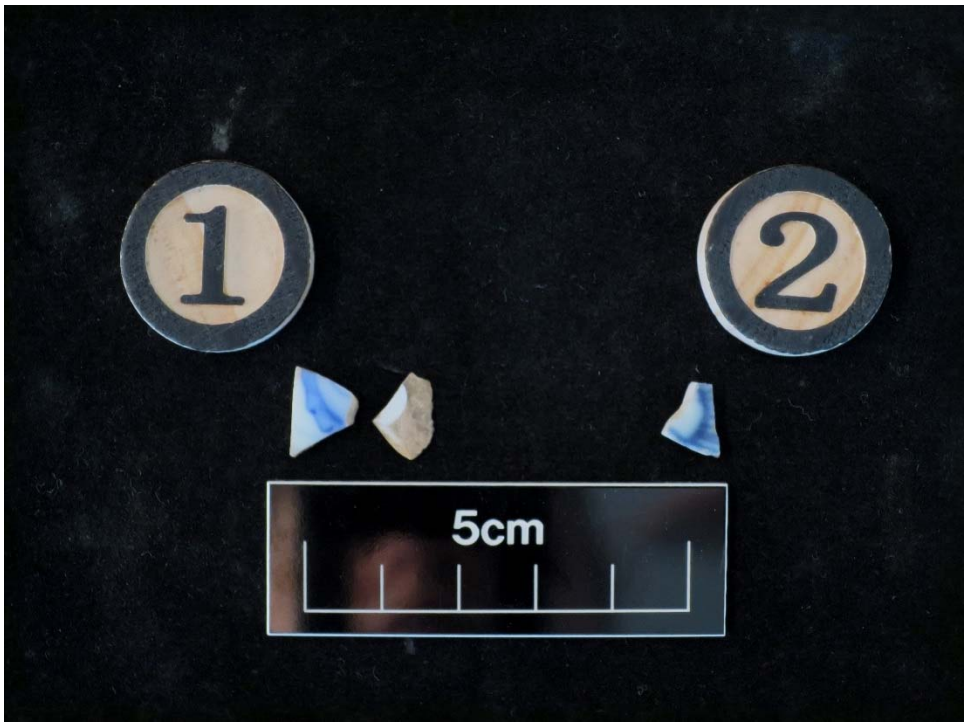

Figure 110. (1) Acc. # 131, blue hand-painted Asian porcelain; (2) Acc. # 111, blue hand-painted Asian porcelain

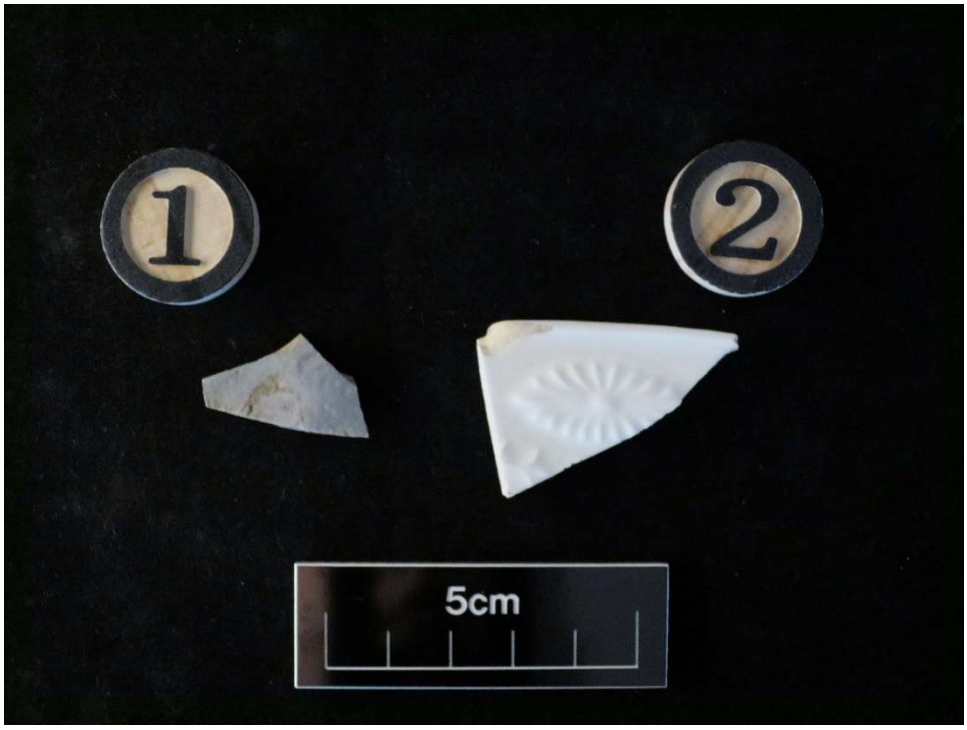

Figure 111. (1) Acc. # 101, salt glazed German stoneware; (2) Acc. # 106, relief molded Euro-American whiteware

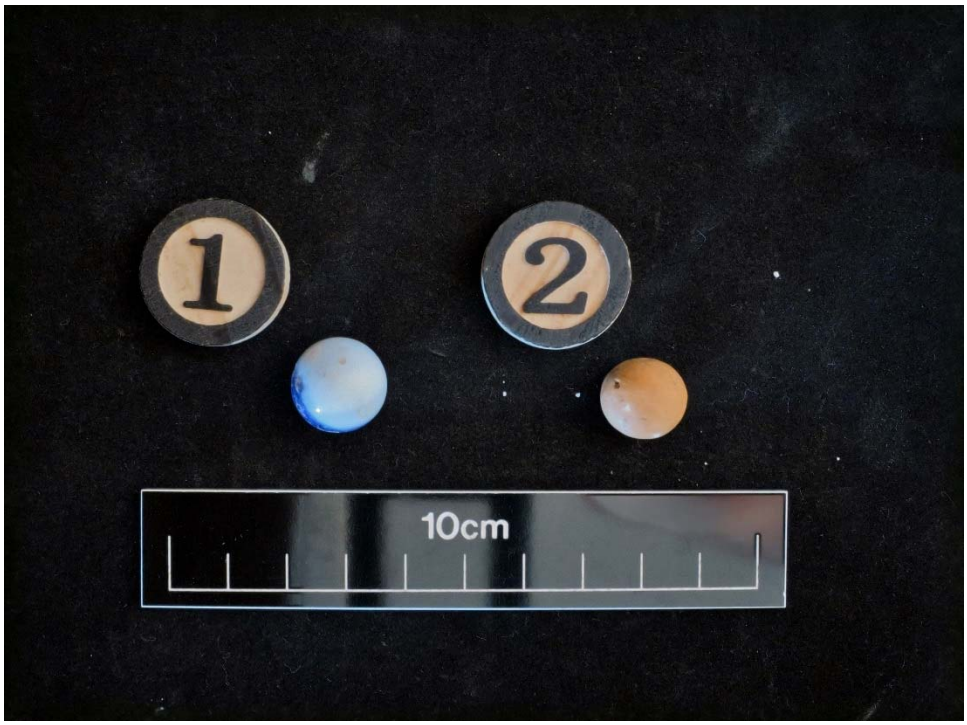

Figure 112. (1) Acc. # 119, blue swirl glass marble; (2) Acc. # 105, red clay marble

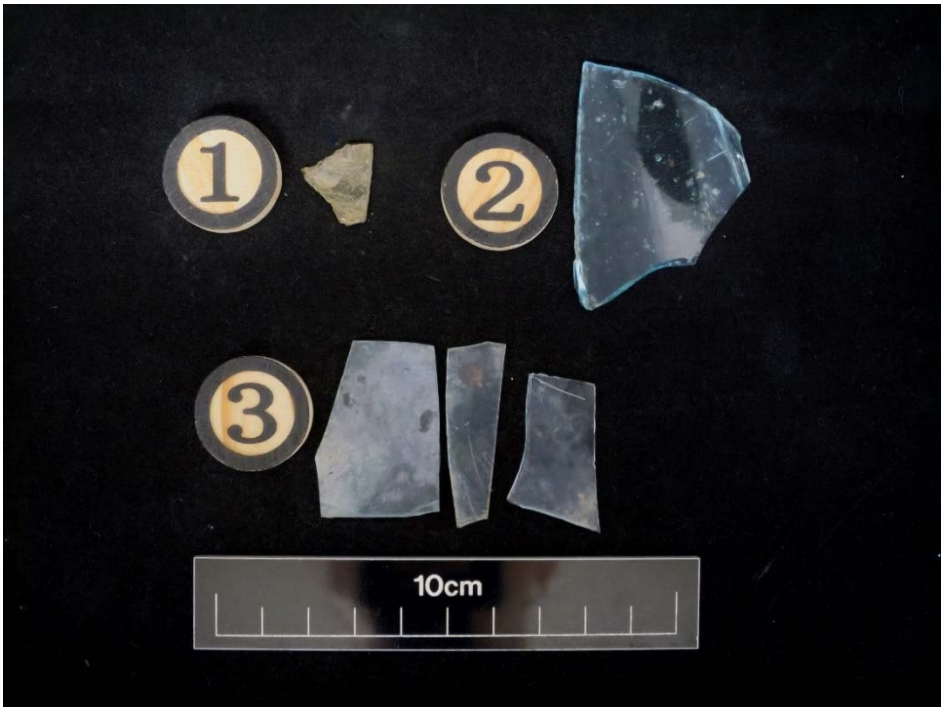

Figure 113. (1) Acc. # 102, olive glass bottle body fragment; (2) Acc. # 103, aqua glass bottle body fragment; (3) Acc. # 104, aqua flat glass fragments

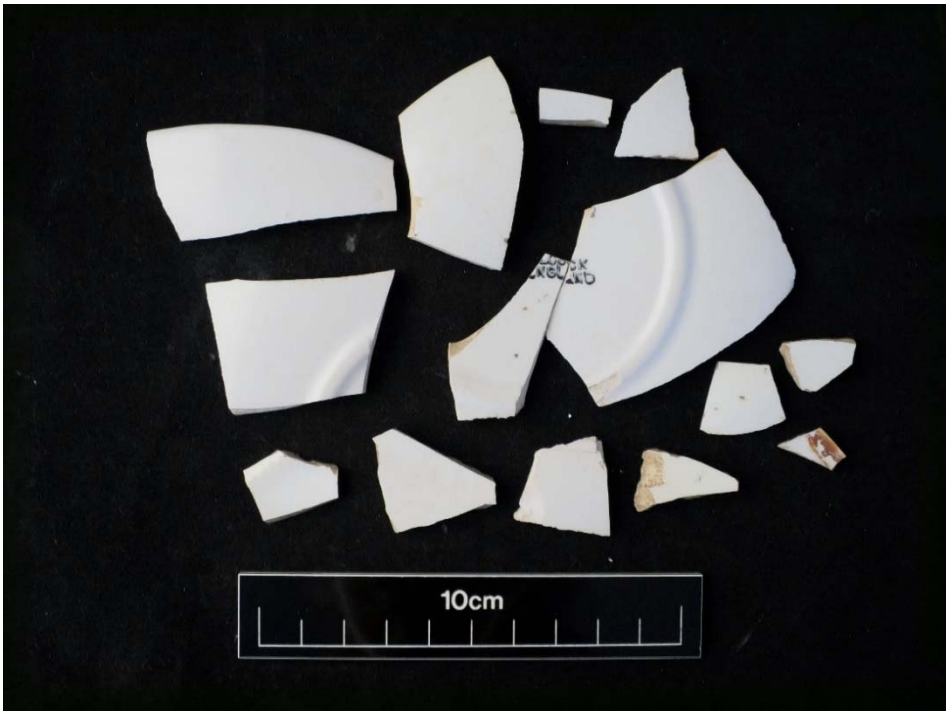

Figure 114. Acc. # 107, undecorated Euro-American whiteware fragments, probable maker's mark for Henry Alcock & Co. or Henry Alcock Pottery Staffordshire, England pottery mark, post-1891

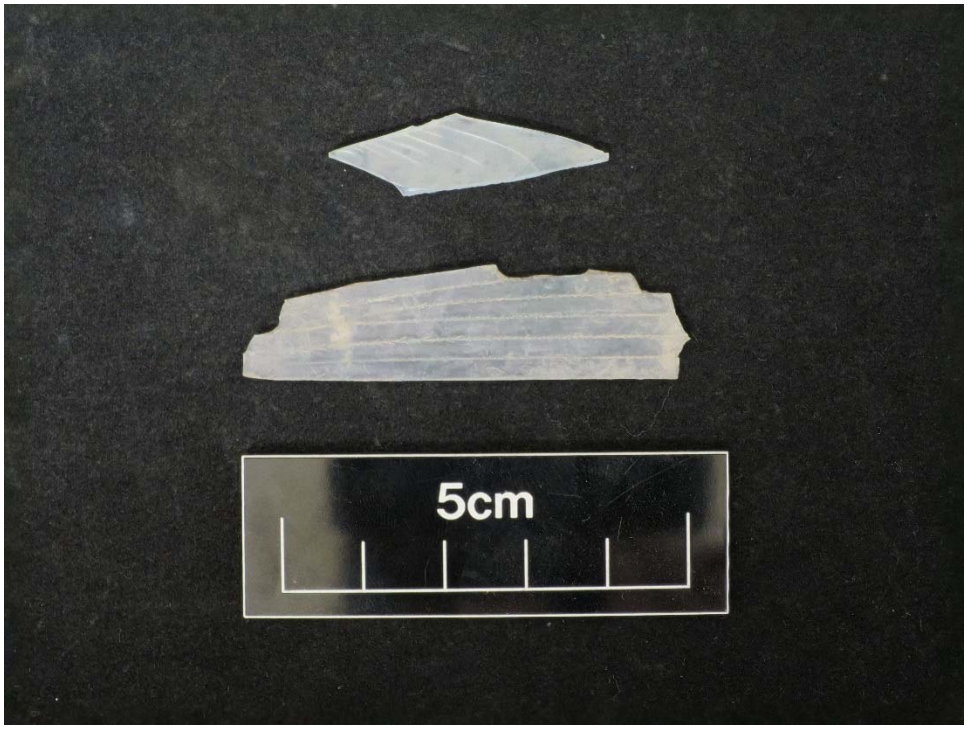

Figure 115. Acc. # 112, colorless flat glass fragments

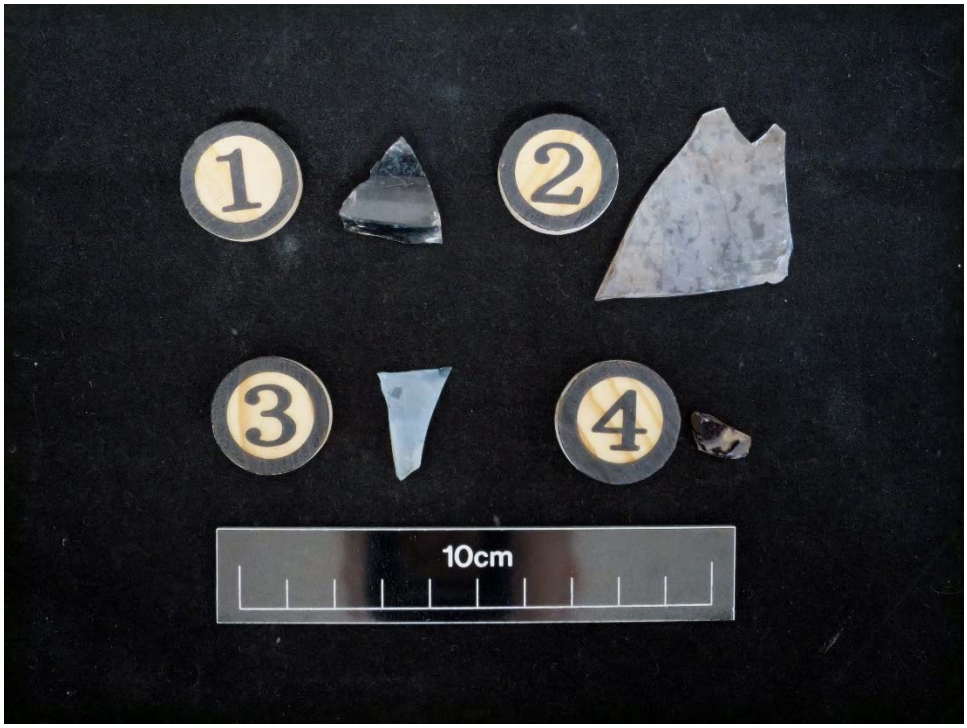

Figure 116. (1) Acc. # 113, olive glass bottle body fragment; (2) Acc. # 114, colorless glass bottle body fragment; (3) Acc. # 115, aqua glass bottle body fragment; (4) Acc. # 116, amber glass bottle body fragment

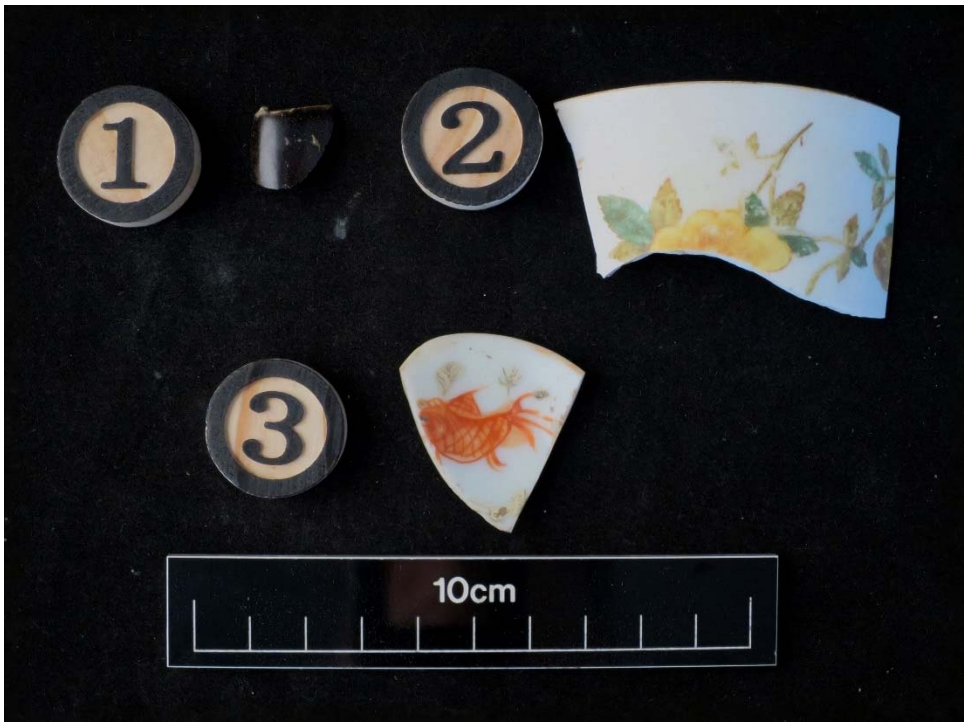

Figure 117. (1) Acc. # 139, Chinese stoneware spout; (2) Acc. # 147, decal Euro-American porcelain; (3) Acc. # 148, hand-painted Asian porcelain

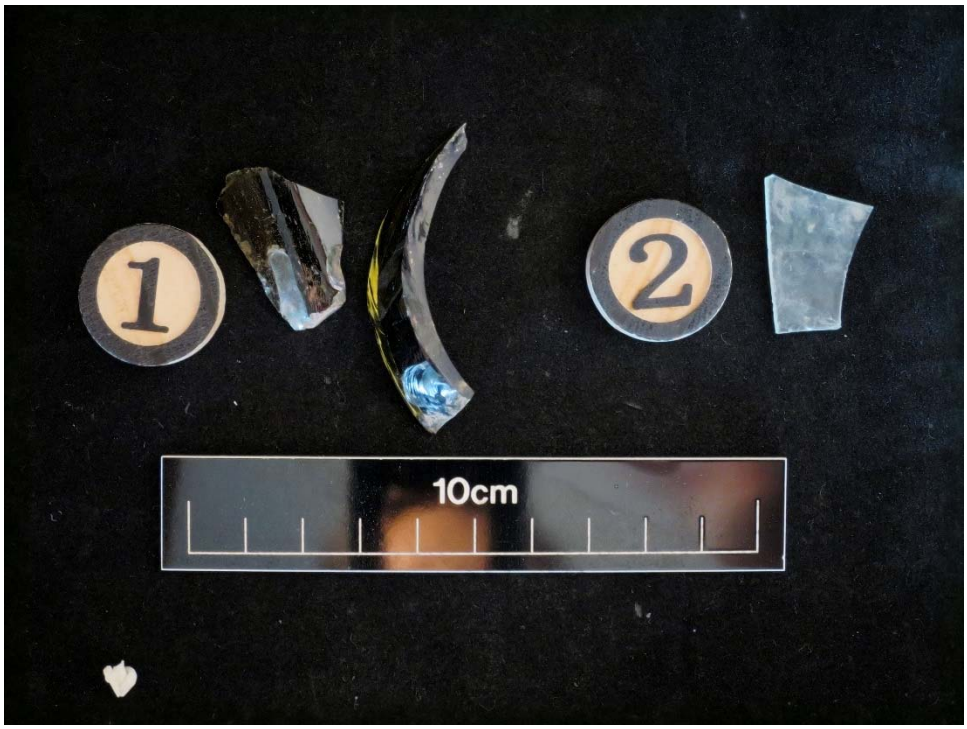

Figure 118. (1) Acc. # 157, olive glass bottle body fragments; (2) Acc. # 158, colorless flat glass fragment

Figure 119. (1) Acc. # 159, green slip glazed Euro-American whiteware; (2) Acc. # 160, hand-painted “Four Flowers” Chinese porcelain; (3) Acc. # 162, wintergreen (celadon) glazed Asian porcelain; (4) Acc. # 163, Chinese stoneware jar fragment

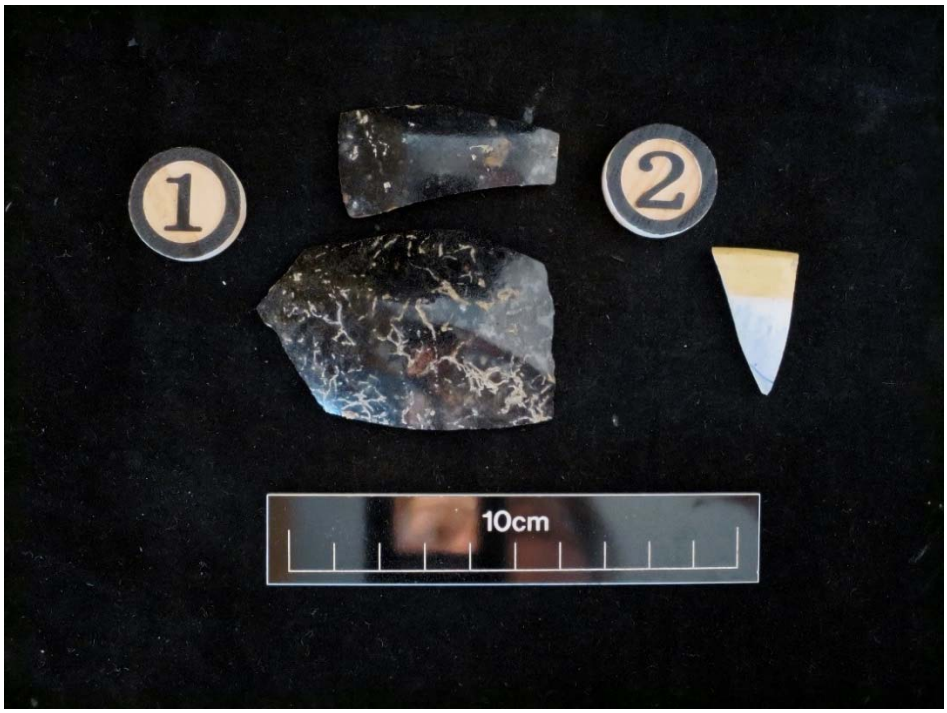

Figure 120. (1) Acc. # 161, Chinese stoneware jar fragments; (2) Acc. # 153, Euro-American yellowware with mocha dendritic design

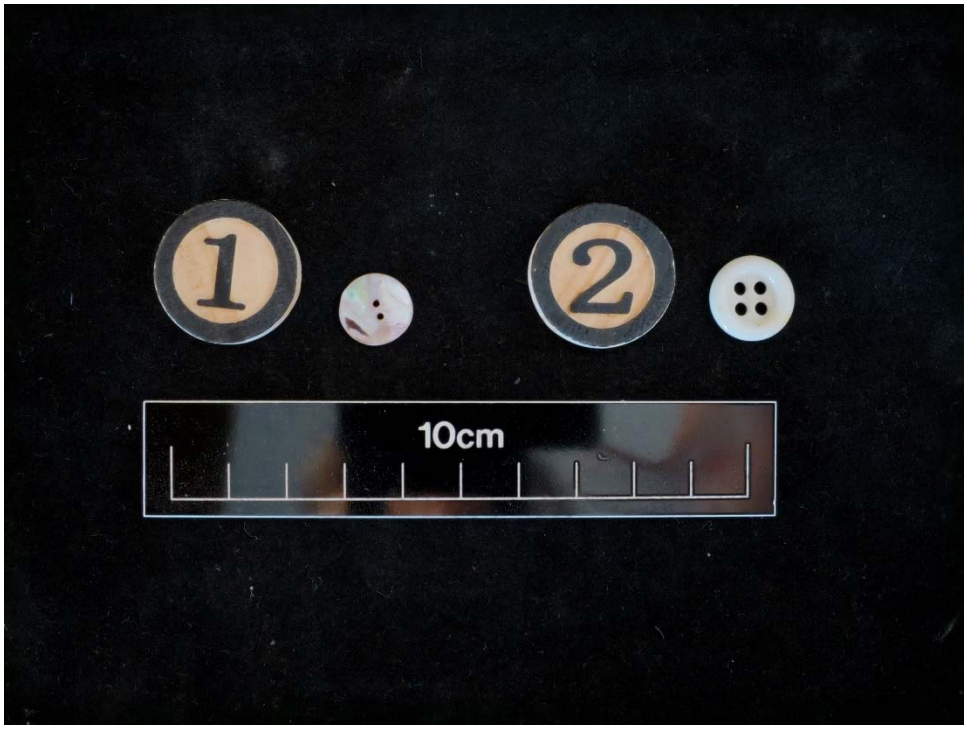

Figure 121. (1) Acc. # 143, two-hole shell button; (2) Acc. # 144, four-hole Prosser button

Figure 122. (1) Acc. # 145, cobalt pressed glass base; (2) Acc. # 146, amber glass bottle body fragment

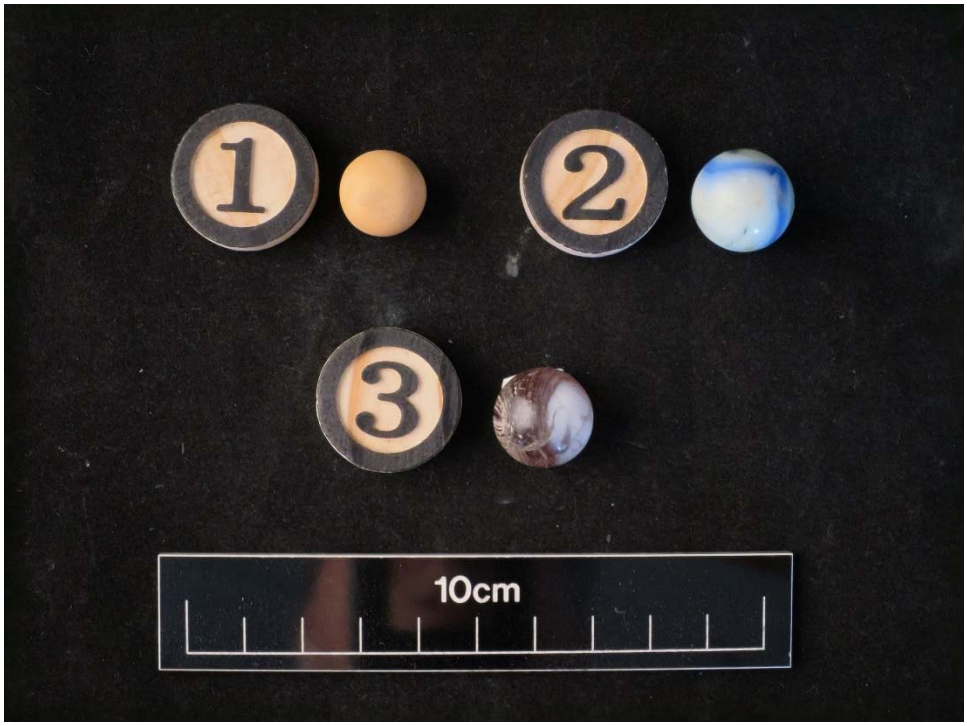

Figure 123. (1) Acc. # 149, buff clay marble; (2) Acc. # 150, blue swirl glass marble; (3) Acc. # 137, brown and white swirl glass marble

Figure 124. (1) Acc. # 151, pink floral hand-painted Asian porcelain; (2) Acc. # 152, cut-sponge Euro-American whiteware; (3) Acc. # 155, undecorated Euro-American ironstone

Figure 125. Acc. # 154, aqua glass mold-blown soda bottle, Honolulu Soda Water Co., ca. 1910

Figure 126. (1) Acc. # 164, undecorated Euro-American whiteware; (2) Acc. # 193, relief-molded Euro-American ironstone

Figure 127. (1) Acc. # 165, colorless glass object; (2) Acc. # 169, light blue glass objects

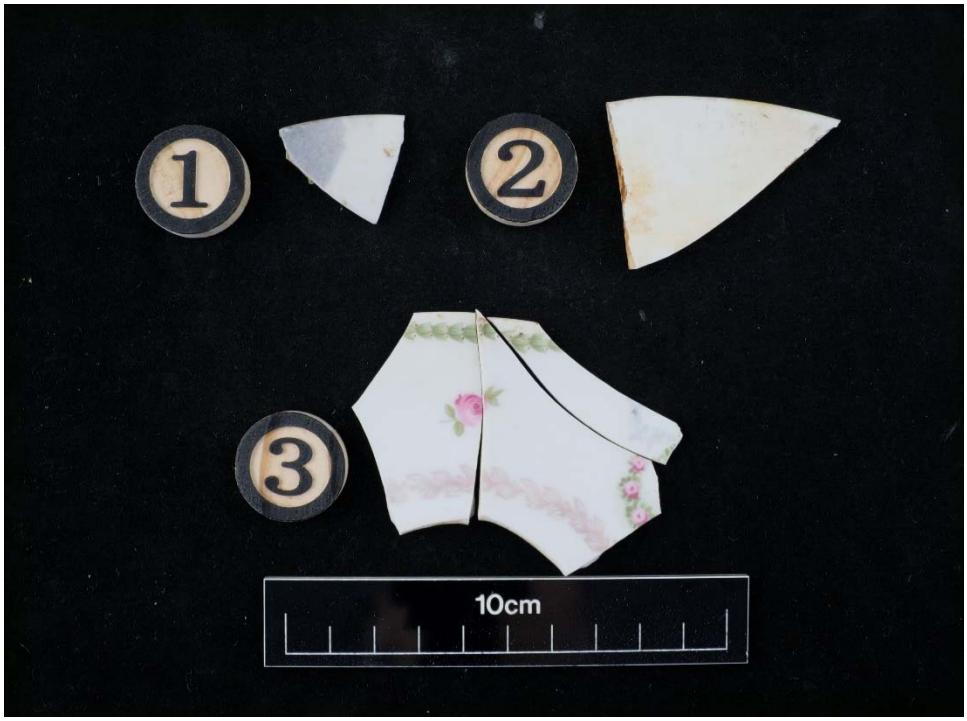

Figure 128. (1) Acc. # 170, undecorated Euro-American porcelain; (2) Acc. # 171, undecorated Euro-American whiteware; (3) Acc. # 172, decal Euro-American porcelain

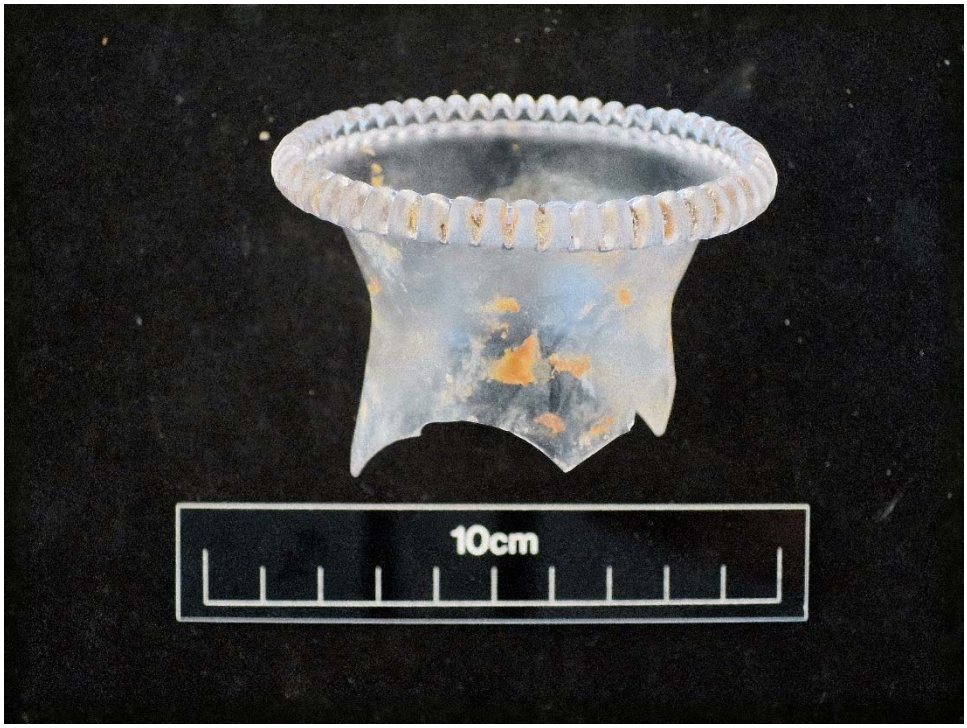

Figure 129. Acc. # 173, colorless lamp chimney section

Figure 130. Acc. # 175, undecorated Euro-American whiteware flatware

Figure 131. (1) Acc. # 166, milk glass bottle/jar body fragment; (2) Acc. # 177, aqua glass mold-blown bottle, shoulder to lip fragment; (3) Acc. # 168, aqua glass bottle body fragments

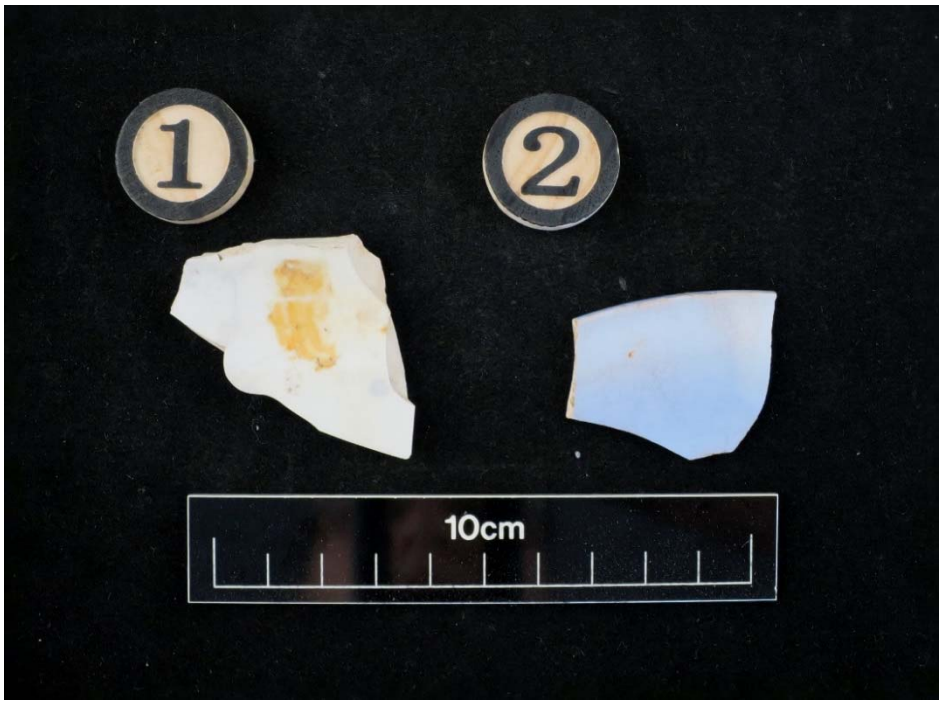

Figure 132. (1) Acc. # 178, undecorated Euro-American whiteware; (2) Acc. # 190, negative printed Euro-American whiteware

Figure 133. Acc. # 179, colorless machine-made medicine bottles, made 1910-1922

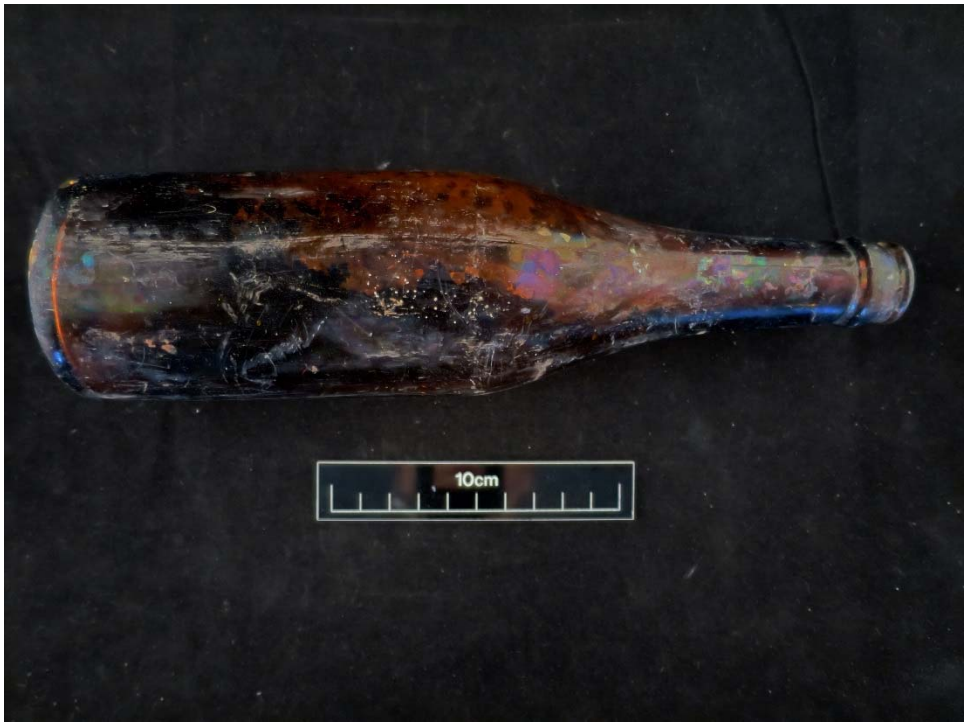

Figure 134. Acc. # 180, amber glass machine-made bottle

Figure 135. Acc. # 181, aqua glass mold-blown liquor bottle

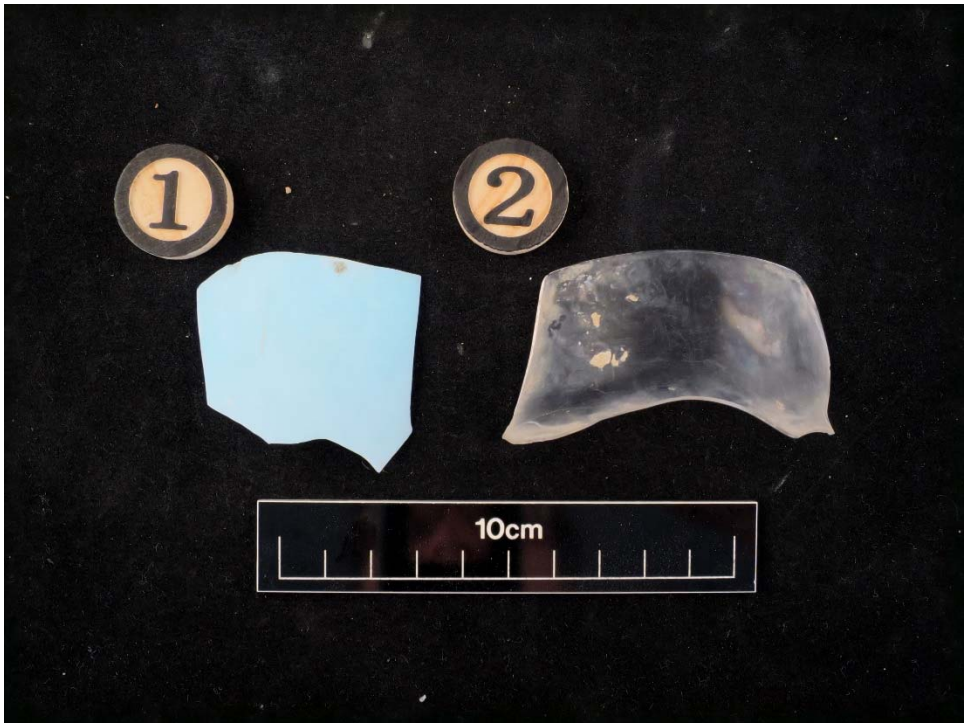

Figure 136. (1) Acc. # 183, blue tinted milk glass lamp globe fragment; (2) Acc. # 191, colorless lamp globe fragment

Figure 137. Acc. # 184, British whiteware tableware, base to body fragment, made by William Adams & Co., 1891-ca. early 1900s

Figure 138. Acc. # 185, British whiteware flatware, base to body fragment, made by George Jones & Sons, 1891-1924

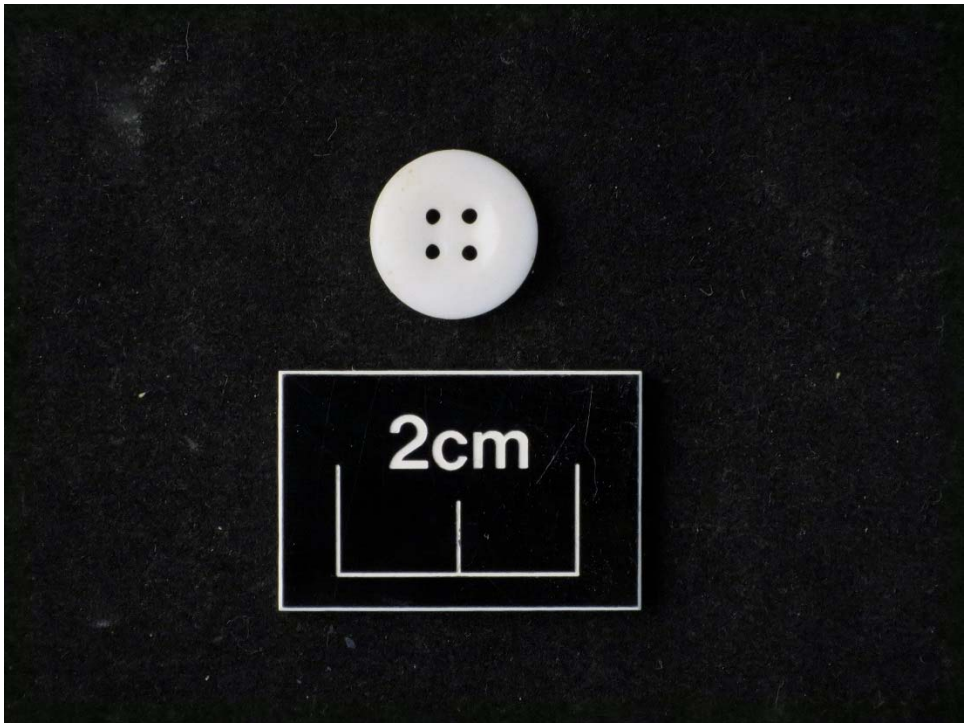

Figure 139. Acc. # 186, four-hole Prosser button

Figure 140. Acc. # 187, colorless glass machine-made medicine bottle

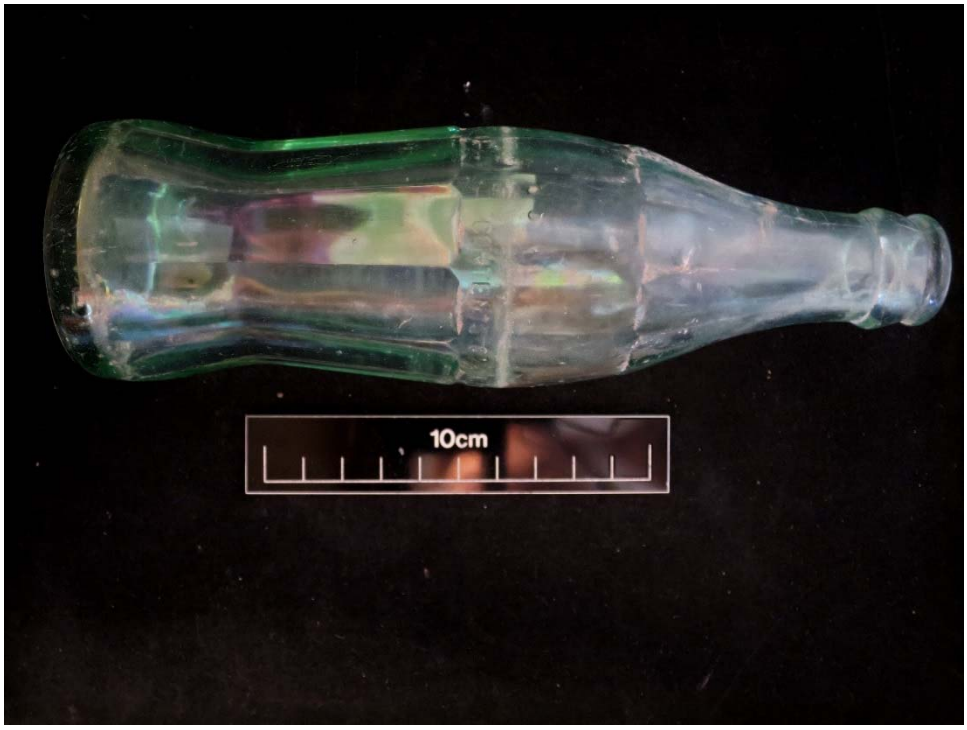

Figure 141. Acc. # 188, aqua glass machine-made soda bottle, made in 1967

Figure 142. Acc. # 189, aqua glass machine-made bottle

Figure 143. Acc. # 192, colorless pressed glass tumbler base

Figure 144. (1) Acc. # 194, hand-painted Asian porcelain; (2) Acc. # 195, “Willow” transfer printed Euro-American whiteware; (3) Acc. # 196, undecorated Euro-American whiteware lid handle; (4) Acc. # 197, hand-painted Asian porcelain

Figure 145. (1) Acc. # 198, blue hand-painted Asian porcelain; (2) Acc. # 199, undecorated Asian porcelain; (3) Acc. # 200, green slip glazed Euro-American whiteware; (4) Acc. # 201, Chinese vessel, possibly cylindrical teapot base; (5) Acc. # 203, decal Euro-American whiteware fragments

Figure 146. Acc. # 202, doorknob, porcelain finish

Figure 147. (1) Acc. # 206, aqua glass mold-blown bottle, neck to rim fragment; (2) Acc. # 208, olive glass bottle, mold-blown, neck to rim fragment

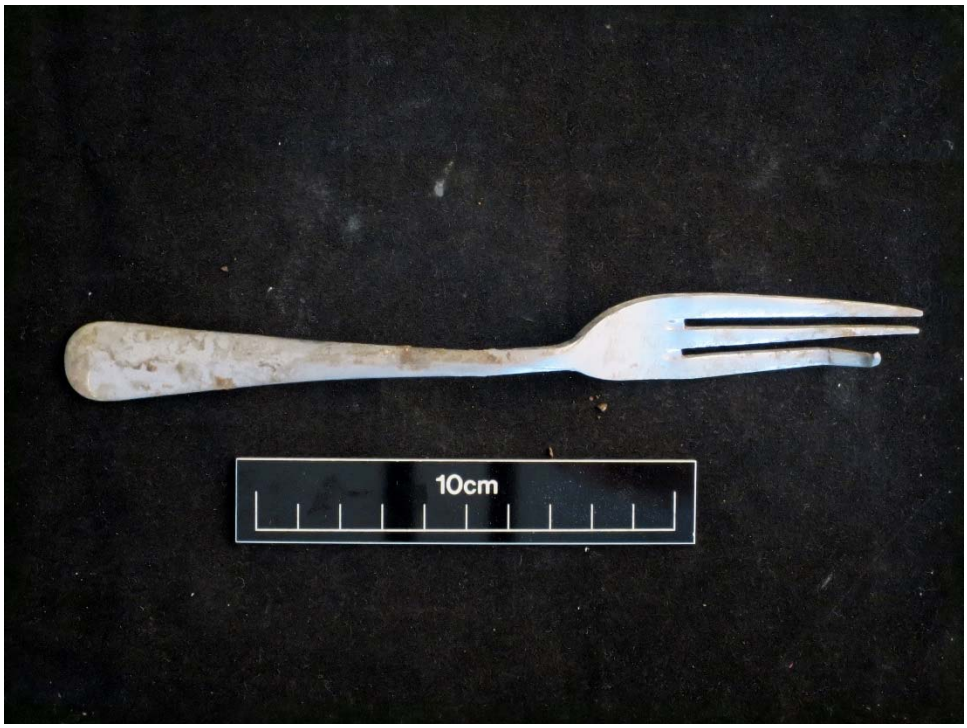

Figure 148. Acc. # 210, stainless steel fork

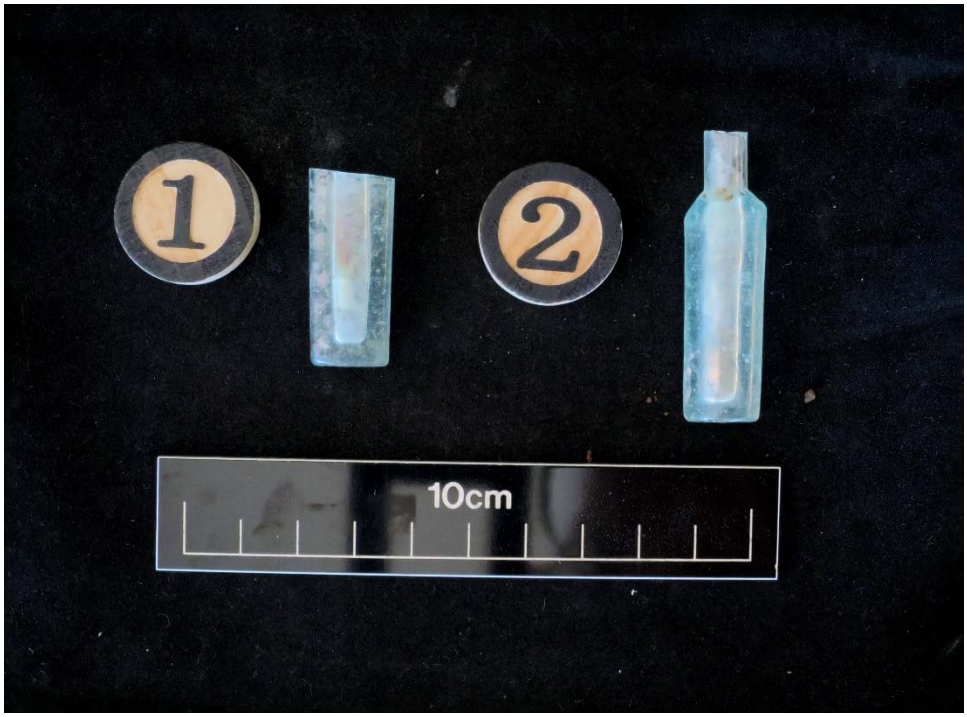

Figure 149. (1) Acc. # 204, aqua Chinese medicine vial; (2) Acc. # 205, aqua Chinese medicine vial

Figure 150. Acc. # 221, stone disc

Figure 151. Acc. # 225, amber glass bottle body fragment

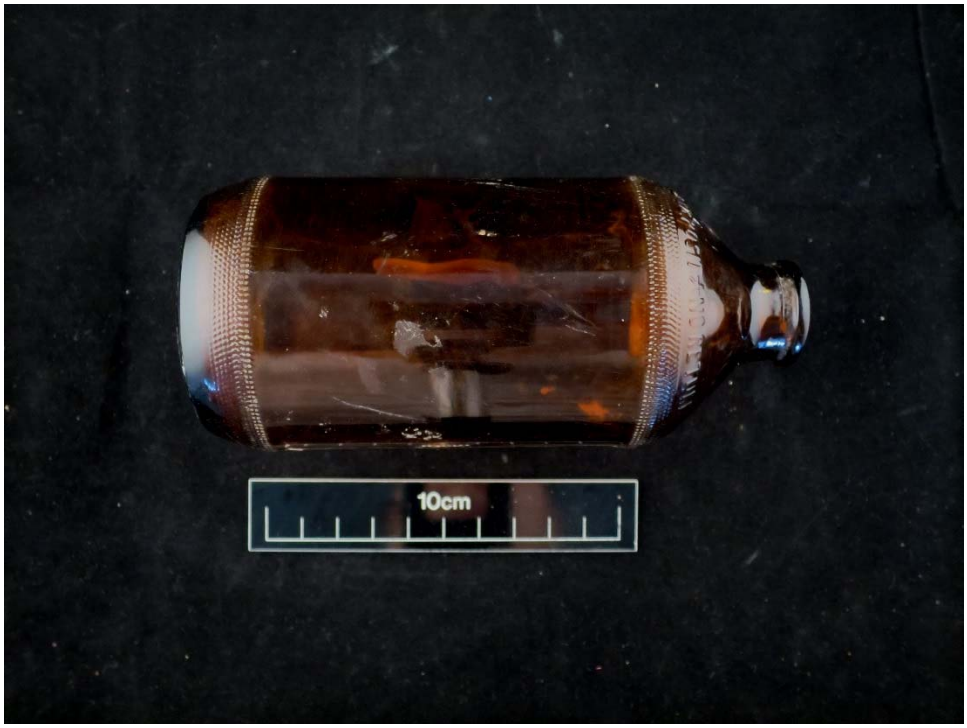

Figure 152. Acc. # 211, amber glass machine-made bottle, made 1954-1964

Figure 153. Acc. # 212, colorless glass machine-made food jar with metal lid, made after 1954

Figure 154. Acc. # 213, colorless glass machine-made liquor bottle, made after 1954

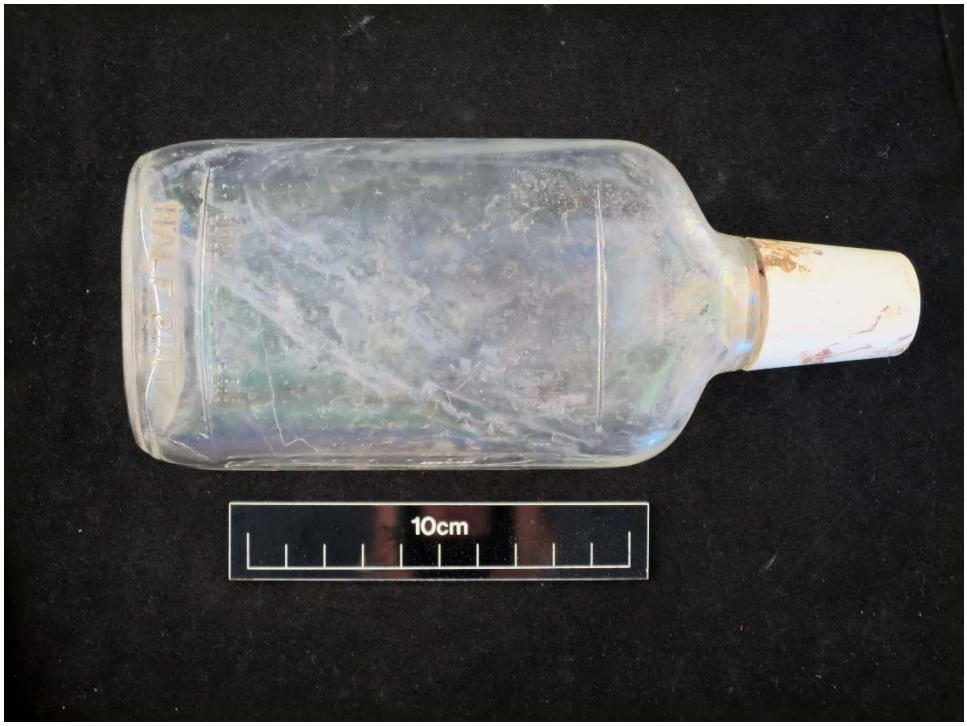

Figure 155. Acc. # 214, colorless glass machine-made liquor bottle with plastic lid, made in 1962

Figure 156. Acc. # 215, amber glass machine-made medicine bottle, made in 1958

Figure 157. Acc. # 216, amber glass machine-made liquor bottles with metal lids, made in 1963

Figure 158. Acc. # 227, colorless glass machine-made medicine bottle with metal cap, manufactured post-1954

Figure 159. Acc. # 228, amber glass machine-made liquor bottle with metal lid, made in 1963

Figure 160. Acc. # 229, amber glass machine-made liquor bottle, made post-1940

Figure 161. Acc. # 230, amber glass machine-made liquor bottle, shoulder to finish fragment with plastic lid

Figure 162. Acc. # 231, amber glass machine-made bottle, made in 1963

Figure 163. Acc. # 233, milk glass cosmetic jar

Colorless glass was made by glassmakers before the nineteenth century, but there is almost always a faint tint of other colors in the glass such as amethyst, gray, straw, or green. True colorless glass bottles were not common until the 1870s (BLM/SHA 2015_Colors). There is one fragment that is amethyst-tinted (1890-1920) in the collection (Acc. # 5). All of the remaining colorless glass fragments in the collection are true colorless (Acc. #s 25, 38, 41, 45, 48, 52, 60, 71, 80, 84, 85, 96, 100, 108, 114, 126, 133, 135, 179, 187, 212, 213, 214, 217, and 227).

Blue bottles have been used since antiquity, but from the nineteenth century to the present, cobalt blue bottles were most commonly used for poisons, cosmetics, and ink bottles. There are two cobalt bottles in the Block N East collection (Acc. #s 10 and 39).

There are two examples of milk glass in the collection (Acc. #s 166 and 233), which was common from the 1870s to the mid-twentieth century.

5.1.1.2 Bottle Mold Seams and Finishes

There are three stages in the evolution of glass bottle manufacture. Since antiquity, bottles have been free-blown with a blow-pipe. These types of bottles are usually asymmetrical, crudely made, and often have a pontil mark where a rod was used to hold the bottle during the last stages of manufacture, finishing the lip of the bottle by hand. In the United States, these types of bottles usually pre-date ca. 1865 (BLM/SHA 2015_Glassmaking). There are no free-blown bottles in the Block N East historic artifact collection.

Around ca. 1800, glassworkers began to blow bottles into some type of mold, usually a metal mold. The most common mold from the mid-nineteenth century into the twentieth century (post-1850) was a two-piece mold with a separate cup-bottom plate. These types of bottles have a mold seam around the base of the bottle, and two side seams that run vertically up the sides of the bottle. The side mold seams usually end on the neck, as the lip on mold-blown bottles was still finished by hand. Two-piece molds were the dominant form used in the post-1880 period. A four-piece cup-bottom mold was also used from 1880 into the 1910s. A four-piece mold has two side seams and a horizontal seam around the body. In the 1880–1915 period, bottles were also blown in a turn mold, in which the side seams were erased during the manufacturing process.

Semi-automatic machines were introduced in the 1890s and mainly used to make wide-mouth bottles/jars; glass still had to be manually fed into the machines by glass workers. In 1903, Michael Owens invented a machine that did away with most of the skilled glass workers. The machine was used to blow wide-mouth bottles as early as 1905 and narrow-necked bottles (such as beverage bottles) as early as 1908. This Automatic Bottle Machine (ABM) blew a bottle from base to lip, usually using a two-piece cup-bottom mold. The two side seams extend to and over the lip of the bottle, or to a horizontal seam at the bottom of the bottle finish. The base of a bottle made in early Owens machines often had a round scar with feathered edges on the base. There are few ways, other than the presence of the Owens suction scar on the base, to distinguish a bottle made by a semi- versus a fully automatic machine, so both types of bottles are described in this report simply as “machine-made.”

Of the 79 glass bottles in the Block N East collection, 15 are mold-blown (Acc. #s 9, 10, 25, 26, 31, 33, 37, 40, 51, 84, 154, 177, 181, 206, and 208), 29 are machine-made (Acc. #s 2, 4–6, 38, 39, 41, 48, 70, 71, 96, 179, 180, 187–189, 211–217, 227–231, and 233), three are free blown (Acc. #s 3, 204, and 205), and the manufacturing methods for 32 are unknown (Acc. #s 1, 11, 45,

52, 60, 64, 72, 73, 80, 85, 93, 94, 100, 102, 103, 108, 113–116, 118, 126–129, 133, 135, 146, 157, 166, 168, and 225).

The 15 mold-blown bottles, consisting of seven two-piece cup-bottom mold bottles (Acc. #s 9, 10, 25, 31, 33, 154, and 181), one turn-mold bottle (Acc. # 37), and seven unknown mold types (Acc. #s 26, 40, 51, 84, 177, 206, and 208) were all made within the ending decades of the mold-blown era, extending from 1870 to 1920. Three Chinese vials (Acc. #s 3, 204, and 205) were made in a special manner. These small bottles started out as tubes, which were dipped into molten glass. The medicine was sealed inside the bottle. To access the single dose liquid medicine or the small pills, the neck of the bottle was simply snapped off (Montana Historical Society 2010:7).

During the mold-blown era (1800–ca. 1920), the lip of the bottle continued to be finished by hand. Determining the method employed in finishing a mouth-blown bottle can be one of the more useful diagnostic tools in determining the approximate manufacturing date range. Early free-blown methods, such as simply bursting off the glass pontil from the bottle lip, were still used in the mold-blown period. Another early finish consisted of adding a band of glass to the outside of the neck. Known as a champagne finish, this finish consisted of a glass band and beveled lip, used mainly on wine and champagne bottles. Around 1880, the bevel on the lip became more pronounced. One wine/champagne bottle in the Block N East collection (Acc. # 51) has one of these later champagne finishes, dating from 1880 to 1920 (BLM/SHA 2015_Finishes).

An Applied Finish was used between the early and late 1800s—particularly between about 1840 and 1885. The technique entailed an application of additional glass on the bottle neck, which was then shaped with a specialized “lipping” tool. Some diagnostic features of the Applied Finish are side mold seams that end abruptly on the neck at the lower end of the finish, excess glass slopping over onto the upper neck below the finish, and a horizontal ridge inside the neck of the bottle that may be felt by inserting a little finger into the bottle bore (BLM/SHA 2015_Finishes). An applied lip was noted on four bottles (Acc. #s 37, 51, 181, and 206) in the collection.

The Standard Tooled Finish was first used as early as the 1860s on smaller bottles, although it did not became the dominant finishing method until 1890. The glass for the finish is not added, but the neck of the bottle is refired and formed into the finish by a lipping tool. Some diagnostic features of the Tooled Finish are side mold seams that fade out on the neck of the bottle below the finish, concentric horizontal tooling marks present on the finish and upper neck, an absence of glass slopping over onto the upper neck, and an absence of the interior ridge in the bore (BLM/SHA 2015_Finishes. Nine bottles in the collection (Acc. #s 9, 10, 25, 31, 33, 40, 84, 177, and 208) have a tooled finish (1885–1920).

5.1.1.3 Bottle Contents and Labels

Of the mold-blown bottles that can be dated to a single year, two are soda bottles and one is a liquor bottle. The soda bottles were made in mainland U.S. plants and shipped to Hawai‘i, where local companies bottled their own brand of carbonated sodas. The soda bottle fragments with embossed (raised) letters were carefully compared to photographs in Elliott and Gould’s (1988) comprehensive book on Hawaiian mold-blown bottles, *Hawaiian Bottles of Long Ago*, to identify the bottlers. The three bottles most closely match the embossing styles for the Honolulu Soda

Water Company (Acc. # 154), made ca. 1910, and Arctic Soda Works (Acc. # 33), made in 1902. Acc. # 181 is an aqua Gordon's Dry Gin bottle with an embossed boar's head. The embossing on this bottle correlates with the marking used by the company in 1913 (Petrich-Guy et al. 2010).

As previously noted, automatic machine-made bottles date from 1905 to the present. There are 29 machine-made bottles and three machine-made jars within the collection. Several of the bottles can be dated accurately due to labels or makers' marks. Owens Illinois Glass Company is one of the most common glass maker's marks seen on bottles. Eleven machine-made bottles have Owens Illinois maker's marks (Acc. #s 2, 38, 71, 211–216, 227, and 228). The Owens Illinois Glass Company was founded in 1929 when the Owens Glass Company and the Illinois Glass Company merged, and the company still produced glass (Lockhart and Hoenig 2015). The company has gone through several designs of maker's marks, and due to its large output of glass products, they usually can be dated accurately. The first maker's mark used by Owens Illinois was an overlain circle and diamond with an "I" in the center, used starting in 1929 until about 1954. This maker's mark indicated the last digit of the year of manufacture to the right of the mark, factory of manufacture to the left of the mark, and mold number below the mark. Two bottles (Acc. #s 2 and 71) have this older maker's mark indicating manufacture dates of 1947 and 1943, respectively.

In 1954, Owens Illinois adopted a new design for a maker's mark. This new design consisted of an "O" with and "I" in the center. The remaining ten bottles from the Block N East collection have this newer maker's mark. The code positions for this new maker's mark stayed the same in some instances, but depending on the bottle type (liquor, beverage, food, etc.), the codes altered (Lockhart and Hoenig 2015). The company used several codes to indicate date including a dot code, using the last two digits of the year of manufacture, or the last digit of the year of manufacture. Some of the bottles in the Block N East collection could be dated to a specific manufacture year, while others, due to the date codes changing periodically, could only be dated to post-1954 (Table 3).

Table 3. Dates for Post-1954 Owens Illinois Bottles within the Block N East Collection

Acc. #	Date	Evidence
38	1967	"67" stamped on base
211	1954–1964	Has newer maker's mark; had "NOT TO BE REFILLED" stamped on it, which was law until 1964 (Lockhart and Hoenig 2015)
212	Post-1954	Has newer maker's mark, but little other embossing
213	1954–1984	Newer maker's mark, but made in the Bridgeton, NJ plant, which closed in 1984
214	1962	"62" stamped on base
215	1954–1983	Alton, Il plant code, opened from 1930–1983
216	1963	"63" stamped on base
227	1954–1990	I in circle icon indicates post-1954 date; plant code (2) for Huntington, WV plant indicates pre-1900 date (when the plant closed)
228	1963	"63" stamped on base

Six other bottles have embossing or diagnostic traits that can accurately date them to a specific year or time period. Acc. # 96 is a colorless bottle base with “282” and the Illinois Glass Company maker’s mark that dates to 1920. Acc. # 1 is an amber bottle and Acc. # 179 is a colorless bottle; both have an embossed maker’s mark (I.P.G.Co.) on the heel, a mark used from ca. 1902 through the 1920s. Acc. # 197 is a Coca-Cola bottle with “REG US PAT OFF // CONTENTS 6 1/2 FL. OZS” embossed on the bottle. This variation of bottle embossing was used in 1967 (Essen 2004). Acc. # 217 is a colorless base fragment with a Brockway Glass Company maker’s mark that dates to 1967 (BLM/SHA 2015_MakersMarks). Acc. # 231 is an amber beer bottle with “63” embossed on the base, indicating it dates to 1963.

5.1.2 Other Glass Artifacts

Other historic glass artifacts include seven pressed glass fragments (Acc. #s 12, 13, 46, 47, 53, 145, and 192), six flat glass fragments (Acc. #s 79, 95, 104, 112, 123, and 158), four marbles (Acc. #s 9, 119, 137, and 150), and six household glass items (including lamp globes and insulators) (Acc. #s 22, 165, 169, 173, 183, and 191).

Pressed glass was invented in 1825 and pressed glass for tablewares and other items became common in the U.S. by 1845 (Welker and Welker 1985:3–4). The Block N East collection has seven pressed glass fragments, one colorless chandelier/lamp prism (Acc. # 46), teal candlestick/lamp shaft fragments (Acc. # 47), one colorless candlestick/lamp base (Acc. # 53), and one colorless glass tumbler (Acc. # 192). The remaining three pressed glass fragments are of unknown function.

Six flat glass fragments were collected from the project area. Four are colorless (Acc. #s 79, 112, 123, and 158) and two are aqua (Acc. #s 95 and 104). Flat window glass can be diagnostic depending on the thickness of the glass. Five of the six flat glass fragments collected from Block N East are thicker than window glass and likely represent fragments of a lighting fixture or other household object. Although it is unclear if Acc. # 158 is window glass, it is 0.235 cm thick, which would date it to 1845–1910 (Weiland 2009).

Four machine-made glass marbles were collected from the Block N East project area (Acc. #s 9, 119, 137, and 150). Glass marble-making machines were invented in 1901 (Randall 1971:105). The remaining household glass artifacts include two decorative lamp globe fragments (Acc. #s 183 and 191), a glass chimney fragment (Acc. # 173), and two unknown glass objects (Acc. #s 165 and 169). Acc. # 173 is a glass chimney with a decorated (crimped) top; these decorated tops were popular in the U.S. from the 1870s into the early part of the twentieth century. Lamp globes are usually of colorless glass, such as Acc. # 191, but colored glass was also used for lamp globes, such as in Acc. # 183, after 1840 (Woodhead et al. 1984:59, 62).

5.1.3 Ceramic Artifacts

Ceramic vessels were analyzed for basic descriptions such as shape, paste, color, and designs. Shapes were designated as “flatware” (e.g., plates, shallow saucers) or “hollowware” (e.g., bowls, cups) when the exact type was unknown. When the fragment was too small to determine the general shape, the item is listed as “tableware” or “unknown.” The Florida Museum of Natural History (2015) maintains an internet site with a visual guide to historic ceramics. This website was used as the basis for attribute descriptions for paste, ware, background color, glaze, decoration, design motif, and rim motif. Their ceramic identification site divides paste type into “earthenwares,” “stonewares,” and “porcelains.” The terminology and dates for manufacturing or

decoration techniques used in this section are from the Maryland Archaeological Conservation Lab (2012) internet site “Diagnostic Artifacts of Maryland,” or from Lebo (1997:Appendix G), unless otherwise noted.

One hundred and seventeen fragments of 61 ceramic vessels are included in the historic artifact collection. Most of the vessels are represented by one or two small fragments. The 61 vessels include 28 Euro-American whiteware vessels (hollowware, tableware, flatware), seven Euro-American porcelain vessels (hollowware, tableware), four Euro-American ironstone tableware vessels, two Euro-American stoneware tableware vessels, three Euro-American stoneware bottles, two British whiteware vessels (flatware, tableware), ten Asian porcelain vessels (hollowware, tableware, flatware), one Chinese porcelain tableware vessel, three Chinese stoneware jugs, and one Japanese stoneware bottle.

5.1.3.1 Euro-American Ceramics

Wares of Euro-American origin refer to ceramics made in Great Britain, Europe, the United States, and Canada. Forty-five of the ceramic vessels are Euro-American refined earthenwares, 30 whitewares, three ironstones, one yellowware, four Euro-American stoneware bottles, and seven porcelain tablewares.

Thirty ceramic vessels are whitewares (Acc. # 7, 18, 20, 28, 32, 34, 42, 61, 65, 67, 74, 77, 106, 107, 130, 136, 152, 159, 164, 171, 175, 176, 178, 184, 185, 190, 195, 196, 200, and 203), which are refined earthenwares, generally made after 1820 and still made today (Lebo 1997:Appendix G:5–6). One has a green transfer print (Acc. # 18; post-1820 or later), two have a blue “Willow” pattern transfer print (Acc. #s 32 and 195), two have a blue transfer print (Acc. #s 65 and 185; 1784–1895), four have sponge-cut designs (Acc. # 20, 34, 42, and 67; 1845–twentieth century), three are hand-painted (Acc. # 61, 152, and 197), one has a floral decal (Acc. # 203; 1880–1950s), one has relief molding (Acc. # 106), one has a mocha design (Acc. # 153; 1790s–1939), one has blue negative printing (Acc. # 190; 1821–1840), two have single color slip glazes (Acc. # 159 and 200), one has a slip glaze with engine-turned bands (Acc. # 136), and 12 are undecorated (Acc. #s 28, 74, 77, 107, 130, 164, 171, 175, 176, 178, 184, and 196; post-1820).

A whiteware plate fragment (Acc. # 107) has a partial maker’s mark “…LCOCK / …NGLAND” printed on the base. Although this exact mark could not be found in reference texts, it closely matches the mark “Alcock.” There were several related potteries in Staffordshire, England that used the name Alcock in their marks. The only Alcock pottery still in business in the late nineteenth century that also marked their pottery “England,” a mark used after 1891, was Henry Alcock & Company or the subsequent Henry Alcock Pottery (Stoke on Trent_Potteries 2015). Acc. # 185 has the maker’s mark, “ENGLAND / ABERDEEN / RA. NO 84746 / RA. NO / 59451 / ENGLAND.” This maker’s mark is a GJ monogram for George Jones & Sons, Stoke-on-Trent, England, used from ca. 1891–1924 (Stoke-on-Trent 2015). Acc. # 7 has a green stamp on the base with “…FRANC…” This mark was used to indicate the “La Francaise” ware/pattern type by the French China Company of Sebring, Ohio (Lehner 1988:155).

The Willow pattern is a Chinese-inspired (*Chinoiserie*) decoration with several variable elements, including a willow tree, a pagoda, a bridge over a stream, and two birds (D’Antonio 2014:5). The pattern was introduced by the pottery of Josiah Spode of England in 1790, and it was widely copied by many European and American companies (Samford 1997:8). The Willow

pattern was popular from the 1790s to 1814, became popular again after 1900, and is still made today (Samford 1997:8).

One ceramic fragment from the collection (Acc. # 153) is yellowware, a type of refined earthenware, with a mocha dendritic design, which was popular from 1840–1915.

There are three ironstone vessels in the collection. Ironstone (whiteware) is a type of refined earthenware introduced in 1840. These wares are sometimes molded but have little other decoration. (Lebo 1997:Appendix G:5). Ironstone is usually undecorated, with the exception of relief molding. One of the vessels in the collection has relief molding (Acc. # 193), one has relief molding and gilding (Acc. # 98), and one is undecorated (Acc. #155). Acc. # 98 has the maker's mark of Homer Laughlin on the base. The Homer Laughlin Company started using the monogram in the maker's mark around 1900 (Lehner 1988:48).

There are four stoneware bottles/bottle fragments in the Block N East collection (Acc. #s 61, 81, 82, and 101; 81 and 82 refit). These bottles are two-tone Bristol/ferruginous glaze and were usually British-made and used for beers, ales, and for household goods such as inks and shoe polish. Acc. # 61 is likely a beer or ale bottle based on the fragment shape. Acc. #s 81 and 82 refit to a small jar likely used for household goods such as shoe polish or ink. Acc. # 81 has a maker's mark stamp on the heel for the pottery of Powell Bristol. Powell Bristol was founded in the late 1700s and became the second largest stoneware bottle company by the turn of the twentieth century. The company merged with the Price Company in 1906 (Mechow 2013). The British stoneware bottles were exported to American from ca. 1835 to 1900 (Florida Museum of Natural History 2015). Acc. # 101 is a salt-glazed stoneware bottle body fragment. Stoneware bottles with a salt glaze were made in Germany and usually contained mineral water or ale (Lebo 1997:G-11). They were first exported to the United States around 1846 and continued until the start of World War I in 1914 (Lockhart 2010:98).

Five of the Euro-American vessels in the collection are porcelain, three are decorated with a floral decal (Acc. #s 30, 97, and 147), and two are undecorated (Acc. #s 29 and 170). Decal decoration consisted of decals that are printed designs made with specially prepared backing paper. Decal decorations, also called decalcomania, date from the 1880s in the United States and were popular into the 1950s (Maryland Archaeological Conservation Lab 2012).

5.1.3.2 Asian Ceramics

Sixteen Asian ceramics were collected during the Block N East project. These ceramics include six Chinese porcelain tableware vessels, three Chinese stoneware jugs, and seven Asian porcelain vessels (tableware, hollowware).

Acc. # 68 is a porcelain body fragment with the "Attributes of the Eight Immortals" motif on the exterior. This overglaze design on an orange glaze has eight objects that represent each immortal painted in an overglaze. The immortals are a group of mythical, semi-historical figures popular to Daoism. The eight attributes are a double-gourd (to symbolize *Li Tieguai*, dispenser of medicine), a peach and a fan (to symbolize *Zhongli Quan*, who revives the dead), a flower basket (to symbolize *Lan Ciahe*, patron of florists), a bamboo drum (to symbolize *Zhang Guo*, who represents old age), a lotus (to symbolize *He Ziangu*, representing housekeeping), a sword (to symbolize *Lu Dongbin*, patron of scholars), a flute (to symbolize *Han Xiangxi*, patron of music), and castanets (to symbolize *Cao Guojiu*, patron of actors) (Nilsson 2014).

Two porcelain ceramic vessels are decorated with the Chinese “Four Seasons” or “Four Flowers” motif (Acc. #s 151 and 160) and two are decorated with the Asian wintergreen or celadon glaze (Acc. #s 19 and 162). These are called “*tz‘u*” wares or “Kitchen Ch‘ing” wares, made from 1644 to 1911 (Lister and Lister 1989:48). They are found in mid-nineteenth to early twentieth century archaeological sites of overseas Chinese communities in the western United States (Costello and Maniery 1988:16) and in Hawai‘i (Lebo 1997:86). Lister and Lister (1989:48) note that the Four Seasons and celadon dishes are usually found in the latter part of the 1860–1900 period; however, they caution that Chinese ceramic styles are “notably long-lived” and that some styles, especially the Four Seasons and celadon types, may have been exported to America into the mid-twentieth century (Lister and Lister 1989:53).

One hand-painted base fragment (Acc. # 201) is probably part of a Chinese cylindrical teapot (see Lister and Lister 1989:54 for examples).

Seven vessels in the collection could not be attributed to Japanese or Chinese origin, and were thus categorized as “Asian.” Many of these were labeled as such due to the small size of the fragment. Acc. #s 111, 131, 194, 197, and 198 were all porcelain tableware fragments with blue transfer or hand-painted designs. Acc. # 148 is a small saucer or spoon fragment with a hand-painted orange carp and floral motif. Acc. # 199 is a base to body fragment with transparent glaze and a high footring.

Three Chinese stoneware vessel fragments were also noted in the collection. The Chinse stoneware vessels usually have a dark brown slip glaze and are wide-shouldered food jars and spouted jars for soy sauce and other liquids (Lebo 1997; Lister and Lister 1989). There is one spout for a jug (Acc. # 139) and two body fragments (Acc. #s 161 and 163) in the current collection.

Although the immigration of Chinese to work on the Hawaiian sugar plantations took place between 1852 and 1892 (Nordyke and Lee 1898:196, 198, 204), several Chinese entrepreneurs had established themselves in the Islands before 1852. In a study on three early Chinese stores in Hawai‘i, Char (1974:31) stated that, “Missionary and merchant families of the white population took to China goods, as did the New Englanders at home in America.” However, most of the domestic wares made for Chinese workers in Hawai‘i probably post-date 1850. Official Japanese emigration to Hawai‘i did not occur until 1868. The main immigration period for Japanese brought to Hawai‘i to work in the sugar plantations is from 1868 to 1907 (Nordyke and Matsumoto 1977:162). A recent study on Japanese immigration to Hawai‘i has stated that: “Before emigration to Hawaii began, no Japanese products were shipped there” (Moriyama 1985:109). Wares made for domestic use and exported to Hawai‘i probably post-date 1868 for Japanese wares. Although there were no specific wares in the collection that could be definitely identified as Japanese, some of the “Asian” wares may have been imported for the Japanese contract workers.

5.1.4 Other Historic Artifacts

There are 69 miscellaneous artifacts (non-glass artifacts and non-ceramic vessels) (each artifact may contain more than one fragment) in the Block N East collection, consisting of two bone buttons (Acc. #s 16 and 54), one bone toothbrush handle (Acc. # 36), two two-hole shell buttons (Acc. #s 63 and 143), two ceramic buttons (Acc. #s 144 and 186), two earthenware doorknobs with a porcelain finish (Acc. #s 44 and 202), one stoneware toiletware fragment (Acc.

49), one stoneware tile (Acc. # 75), two clay marbles (Acc. #s 105 and 149), one unglazed earthenware marble (Acc. # 27), one stone disc (Acc. # 221), one metal axe (Acc. # 234), one metal bottle cap (Acc. # 141), one metal jar lid (Acc. # 137), one copper spoon (Acc. # 8), one battery component (Acc. # 50), one stainless steel fork (Acc. # 210), eight corroded metal fragments (Acc. #s 14, 24, 76, 87, 91, 120, 124, and 174), one metal hook (Acc. # 88), 23 nail or nail fragments (Acc. #s 15, 17, 23, 43, 56, 58, 62, 66, 69, 78, 83, 86, 89, 90, 109, 110, 121, 122, 125, 134, 1142, 167, and 223), one screwdriver shaft (Acc. # 182), one tin cup (Acc. # 218), one copper wire fragment (Acc. # 92), brick fragments (Acc. #s 35, 132, 156, 207, and 209), wood post fragments (Acc. #s 117, 222, 224, and 226), one scrap of synthetic window screen (Acc. # 232), one slate pencil fragment (Acc. # 21), one woven fiber strap (Acc. # 140), one fragment of Styrofoam (Acc. # 219), one early plastic (Bakelite) 2-hole button (Acc. # 57), and one plastic food label (Acc. # 220).

Few of these historic artifacts could be dated to a narrow date range, but a few could be placed in wide date ranges. Shell has been used for buttons for centuries. The buttons in the collection have machine-drilled evenly spaced holes and a perfectly circular shape, indicating they are machine-made, and thus post-date 1850. Bone was used for buttons (Acc. #s 16 and 54) up to ca. 1935 (Nayton 1992:80). Two ceramic buttons (Acc. #s 144 and 186) were made by the Prosser method, where clay dust was pressed into an iron mold and then fired. These were made from 1840 up to 1962, although they were most popular from ca. 1848 to 1920 (Maples 1998:111; Sprague 2002:111). Acc. # 57 is a two-hole dark brown button made of an early plastic, Bakelite, which was most commonly used to make buttons from 1907 to 1935 (Maples 1998:110–111). Acc. # 36 is a bone toothbrush with three incised circles near the neck (brush end) and a hole through the handle at the other end. Bone was used to make toothbrushes from ca. 1780 up to the 1920s, when it was completely replaced by new sanitary plastics such as celluloid, and later Lucite. A hole at the end used to hang the toothbrush was first drilled in toothbrushes around ca. 1884 (Mattick 1993:165–166); therefore the bone toothbrush in the collection dates from ca. 1884–ca. 1920. The three incised circles near the neck are common decorations found on toothbrushes at Asian historic sites in the Western U.S.; the three circles probably are a symbol for good luck (Douglas 2007). Two mineral doorknobs, one with the metal shank still attached, were collected. The shank, of cast iron, was secured to the ridges in the knob with molten lead. The knobs were made of red clay (earthenware) and then glazed with a finish, usually white (porcelain), black (black porcelain), or a mineral finish of brown or multi-colored swirls. These types of knobs were popular from ca. 1850 to 1900 (Cotton 1987:40; Architectural Antiques 2012). Acc. # 141 is a metal bottle cap used to seal soda or beer bottles with a crown finish, which was invented in 1892 (BLM/SHA 2015_Closures). Acc. # 27 is an unglazed earthenware marble and Acc. #s 123 and 156 are clay marbles. Handmade glass marbles were more expensive than most marbles made of other materials until 1901, when a marble machine was invented that allowed mass production of machine-made marbles (Randall 1971:105). Machine-made toy glass marbles became predominant by ca. 1910 (Carskadden and Gartley 1990:58), at which time the use of other materials for toy marbles became rare. Acc. # 210 is a stainless steel fork with “ELITE STAINLESS-Nottingham” stamped on the handle back. Stainless steel flatware was introduced in 1921 (Miller et al. 2000:16). Acc. # 219 is a fragment of Styrofoam, which was invented in 1944 (Miller et al. 2000:16).

5.1.5 Summary of Historic Artifacts

The Block N East collection has material that could have been made as early as ca. 1800 (mold-blown bottles) and as late as the 1967 (beer bottles, Acc. #s 38, 188, and 217). There are early examples of ceramics that have long date ranges (whiteware) and items that can be dated due to makers' marks. The majority of glass in the collection can be dated from the mid-nineteenth century to the mid-twentieth century. There are very few pre-1860 bottles, with no free-blown bottles. The collection seems to represent household refuse.

Table 4 presents a summary of the historic artifacts by test excavation location, with the largest date range of the datable artifacts presented in the third column. Many of the test excavations' range of possible dates for the artifacts is wide. The only provenience with entirely post-1900 material is from T-4, where four post-1908 bottles and one post-1900 ironstone fragment were found, and T-27, where six post-1954 American-made bottles were found. The remaining test excavations have artifacts that date to the early to mid-nineteenth century and the mid-twentieth century.

Table 4. Date Ranges for Test Excavations

Test Excav.	Contents	Date Range
T-4	Amber bottle fragment; colorless (amethyst-tinted) machine-made bottle; green machine-made bottle, amber machine-made bottle, aqua machine-made bottle, Chinese aqua medicine vial, ironstone Euro-American tableware, copper teaspoon	1900-1947
T-7	Cobalt and colorless pressed glass fragments; cobalt mold-blown bottle; aqua mold-blown inkwell, aqua bottle fragment	1850-1920
T-8	Green transfer-print Euro-American whiteware; cut-sponge Euro-American whiteware; celadon Asian porcelain; bone button; aqua threaded insulator; rusted metal fragments; ferrous nails; slate pencil	1800-20th century
T-9	Undecorated Euro-American whiteware; undecorated Euro-American porcelain; amber rim fragment; colorless mold-blown vial; metal debris; white stone marble	1820-1915
T-12	Brick fragments, blue Euro-American transfer-print whiteware; cut-sponge Euro-American whiteware; decal Euro-American porcelain; bone toothbrush; aqua mold-blown bottles; amber mold-blown bottles; colorless machine-made bottles; cobalt machine-made bottle	1780-1967
T-13	White porcelain finish doorknob; red transfer-print Euro-American porcelain; stoneware Euro-American toiletware; bone button; colorless bottle base fragment; colorless and teal pressed glass; olive mold-blown bottle; colorless machine-made jar and bottles; corroded ferrous nails; battery component; plastic button	1800-1929
T-14A	Blue hand-painted Euro-American whiteware; blue transfer-print Euro-American whiteware; cut-sponge Euro-American whiteware; stoneware Euro-American bottle; hand-painted Chinese porcelain; colorless and olive glass bottle fragments; corroded ferrous nails; shell button	1784-1880

Test Excav.	Contents	Date Range
T-14B	Undecorated Euro-American whiteware; stoneware tile; stoneware Euro-American bottle; colorless flat glass; colorless and amber fragments; colorless machine-made bottle; aqua machine-made bottle; corroded ferrous nails; metal fragment	1816-1943
T-14C	Decal Euro-American porcelain; relief printed Euro-American ironstone; colorless, amber, light green, and aqua glass fragments; colorless machine-made bottle; glass marble; corroded ferrous nails, hook, and fragments; copper wire	1860-1920
T-14D	Wood fragment; brick fragment; undecorated whiteware; blue transfer-printed Asian porcelain; salt glaze Euro-American stoneware; engine-turned Euro-American stoneware; clay marble; relief-molded Euro-American whiteware; undecorated Euro-American whiteware; colorless, aqua, amber, olive bottle fragments; glass marble; corroded ferrous nails and fragments	1770-1955
T-14E	Brick fragment; green slip glazed Euro-American whiteware; hand-painted Euro-American whiteware; undecorated Euro-American ironstone; decal Euro-American porcelain; hand-painted Asian porcelain; hand-painted Chinese porcelain; Chinese stoneware jar; clay marble; Prosser button; olive, cobalt, amber bottle fragments; aqua mold-blown soda bottle; glass marble; metal lid; woven strap; shell button	1790-1950
T-14G	Undecorated Euro-American whiteware; negative printed Euro-American whiteware; relief molded Euro-American ironstone; undecorated Euro-American porcelain; decal Euro-American porcelain; colorless and blue milk glass lamp globe; colorless and aqua glass items; aqua, milk, colorless bottle fragments; colorless, aqua, and amber machine-made bottle; corroded ferrous mails and fragments	1821-1967
T-21	Hand-painted Asian porcelain; slip glaze Euro-American whiteware; undecorated Euro-American whiteware; blue transfer-printed Euro-American whiteware; blue transfer print Asian porcelain; decal Euro-American whiteware; white porcelain finish doorknob; blue dashed-line Japanese stoneware bottle	1780-1950
T-22	Aqua Chinese medicine vial; stainless steel fork; brick fragments; aqua mold-blown bottle; olive mold-blown bottle; aqua machine-made bottle	1840-1920
T-27	Wood fragments; corroded nail; stone gaming chip; colorless machine-made jar; amber bottle fragment; amber machine-made bottle; colorless machine-made bottle	1954-1964
T-28	Tin cup; Styrofoam; window screen; milk glass jar; plastic label; colorless machine made bottles; amber machine made bottles	1870-1967

The collection from Block N East shows a wide range of artifacts likely from domestic refuse deposited over a long span. Most test excavations have artifacts that also have a wide date range of use, making it difficult to determine exact date ranges for certain deposits. However, a few test excavations can yield information. Several of the test excavations show a heavy Asian influence in the number of artifacts. T-14E has seven examples of Chinese or Asian pottery, which post-1850. Additionally, T-21 has four examples of Japanese or Asian ceramics, which post-1870. Many of the test excavations have artifacts collected from one stratum or features. The date range given in Table 4 for T-8 is actually the date range from the artifacts from Feature 93 in T-8. Although there are artifacts from two other features, the only dateable ones come from Feature 93. T-27 has artifacts collected from Features #s 170, 171, and 172; however, none of these artifacts could be dated. The dates listed in Table 4 are from datable artifacts collected from the spoil pile. Because they are generally whole bottles, this is likely an example of selective sampling.

5.2 Traditional Hawaiian Artifact Analysis

Eight traditional-type artifacts were recovered from the Block N East project area, including one glass flake, two basalt flakes, one quartz core, and four water-rounded stones (Acc. #s 235–242) (Table 5).

Acc. # 235 is a uni-marginal flaked tool produced on a piece of historic glass by means of intentional marginal retouch via pressure flaking (Figure 164). Retouch is evident in three locations on what is considered the dorsal, or outer, surface of the bottle glass fragment (Figure 165 through Figure 167). At least three series (or tiers) of purposeful, linear removals (i.e., scalar detachments) extend from the lateral edge of the piece toward the center. This tool is denticulate, meaning it is a tool with a series of notches or multiple concavities along a given edge.

Acc. # 236 is an aphanitic basalt flake with pyroxene or olivine phenocrysts. It displays possible bipolar reduction based on what appears to be a crude bulb of percussion on the distal end. It is a secondary flake based on Andrefsky's Triple Cortex Typology (2005:115). A cortex is evident near the striking platform, which is plain and possibly cortical as well. There is stepped termination with a slight bulb on the ventral surface. In terms of technological strategies, it is difficult to place the flake within an adze reduction sequence if it was indeed removed via bipolar reduction; theoretically, raw material for formal tools are of an adequate size so that bipolar reduction is not necessary. Conversely, if the intended tool was a very small adze designed for fine detailed worked and the raw material package was unusually small, then it is possible bipolar reduction was used as a part of the *chaîne opératoire*.

Acc. # 237 is an expedient flake tool made of aphanitic basalt with pyroxene or olivine phenocrysts. The flake appears to have one previous removal on the dorsal surface; hence, it is a secondary flake based on Andrefsky's Triple Cortex Typology (2005:115) and a Stage 1–primary reduction flake based on Williams' reduction model of adze manufacture (1989:49−61). This flake has a plain striking platform and a stepped termination (Figure 168). Evidence of edge modification is present on the left margin of the dorsal side as a result of informal utilitarian use (Figure 169 and Figure 170).

Acc. # 238 is a chemical precipitate sedimentary rock, cryptocrystalline quartz (CCS). This rock appears to be an informal core (i.e., no preparation), uni-directional, with a single flat

Table 5. Traditional-Type Artifacts Collected from Block N East

Acc. #	Provenience	Material	Type	Description	L/H	W/D	Thickness	Weight (g)
235	T-14A, Str. II, Fea. 113, 42–79 cmbs	Stone	Manuport	Small waterworn basalt stone				1.4
236	T-14A, Str. Va, 44 cmbs	Stone	Manuport	Waterworn basalt stone with small grooves along one edge; this stone may have been used as a pendant with the grooves marking where a clasp held it in place.	2.2	1.8		8
237	T-14B, Str. IVa, Fea. 121, 51–65 cmbs	Stone	Manuport	Waterworn stone, possibly limestone or reef rock				7.1
239	T-14D, Str. III, Fea. 139, 60 cmbs	Glass	Flaked tool	Denticulate uni-marginal flaked glass tool; colorless bottle glass fragment worked to make a scraper; traditional artifact worked from a historic material	5.3	1.7	0.6	6.7
238	T-14D, Str. II, Fea. 133, 40–62 cmbs	Stone	Manuport	Waterworn basalt stone				1
240	T-14E, Str. II, 34–57 cmbs	Stone	Flake	Aphanitic basalt flake with pyroxene or olivine phenocrysts	6.9	5.8	1.2	82.7
241	T-14E, Str. II, 38 cmbs	Stone	Core	Informal micro core, chemical precipitate sedimentary rock, cryptocrystalline quartz (CCS)	1.8	1.4	1.3	3.9
242	T-14E, Str. III, 63 cmbs	Stone	Flake	Aphanitic basalt flake with pyroxene or olivine phenocrysts.	3.7	1.6	6.2	6.2

Figure 164. Acc. # 235, uni-marginal denticulate tool

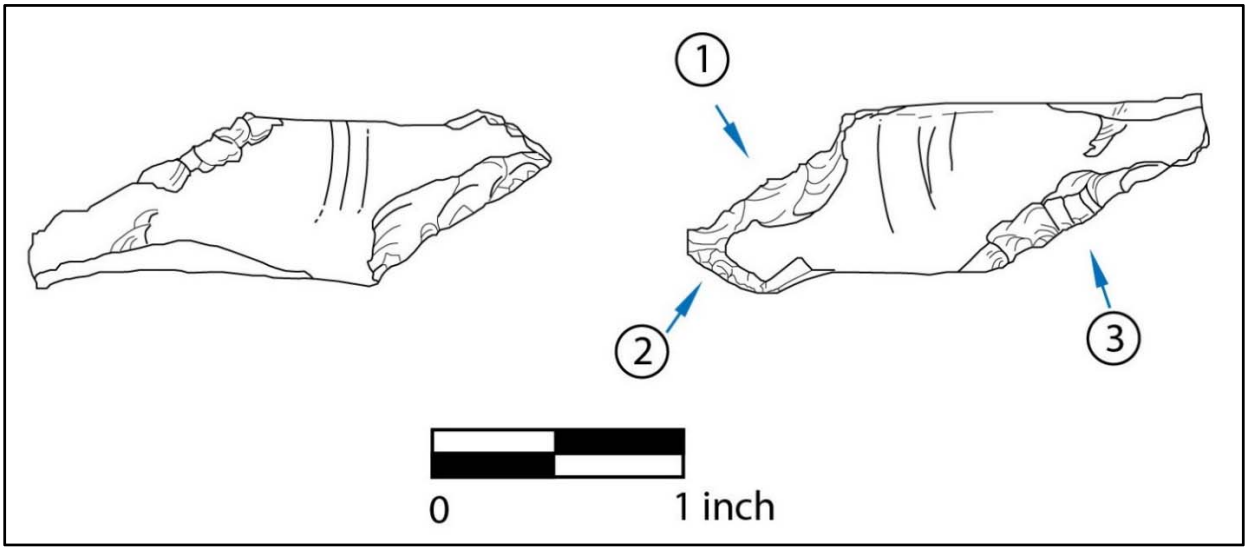

Figure 165. Acc. # 235 illustration, uni-marginal retouch in three locations on dorsal surface

Figure 166. Acc. # 235, uni-marginal retouch at location 3

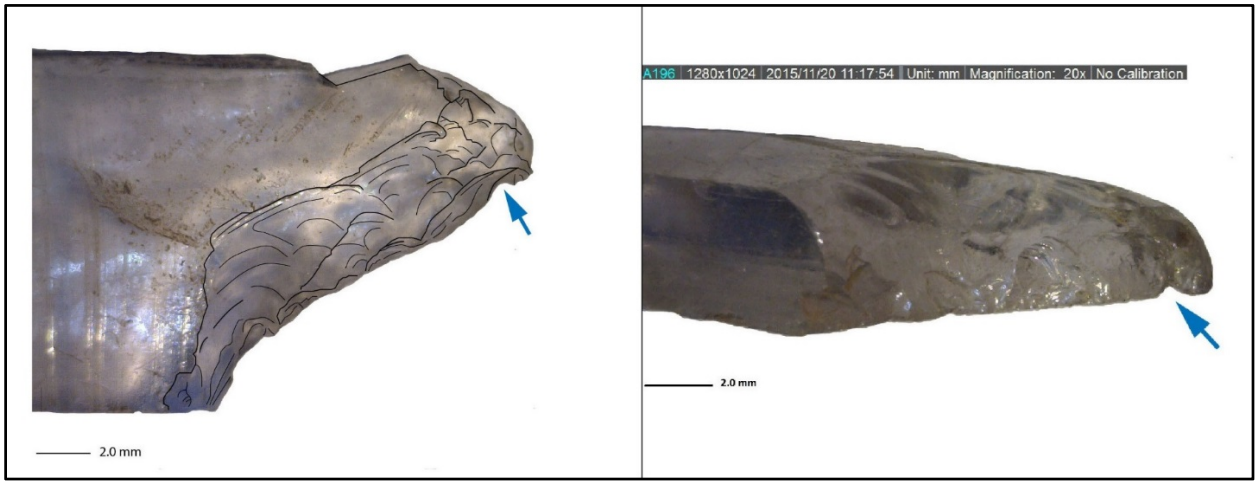

Figure 167. Acc. # 235, uni-marginal retouch at location 2: left, black lines illustrate scalar detatchments; right, unaltered image; blue arrows indicate notch

Figure 168. Acc. # 237, platform oriented at the top (left, ventral; right, dorsal)

Figure 169. Acc. # 237, use-wear modification on left margin of dorsal surface (left, unaltered; right, white lines illustrate modifications)

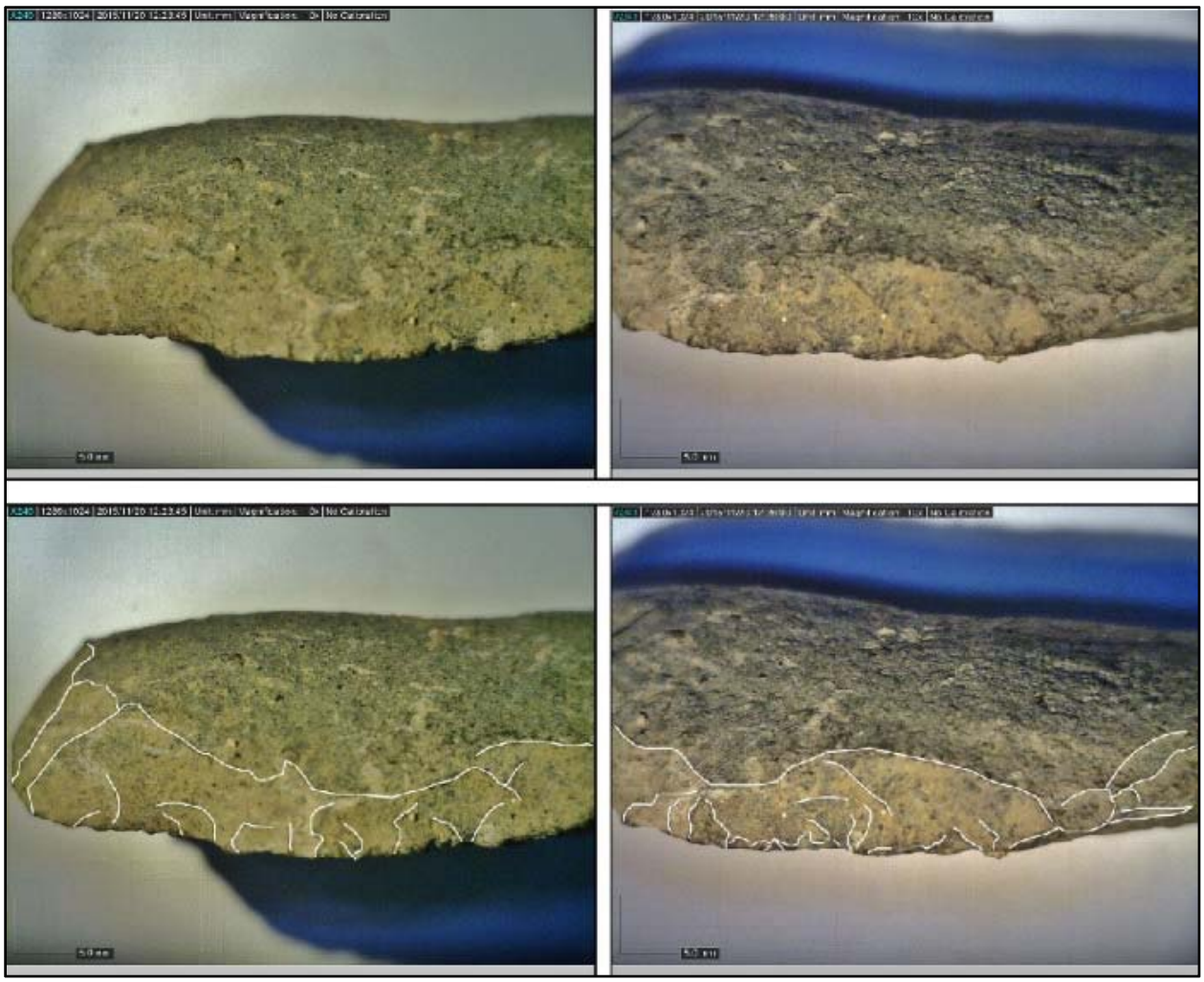

Figure 170. Acc. # 237, close-ups at 10x magnification; top, unaltered images; bottom, edge modification indicated by white lines

surface in which flakes were removed in one direction away from the striking platform (Figure 171). A cortex is still evident, and at least two flake removals were observed on this piece. While the exchange of volcanic glass and CCS may have functioned socially to maintain trade networks and social cohesion within the archipelago, it appears these materials were treated as utilitarian items that were used informally and discarded as necessary (Eckert and Welch 2009:59).

Acc. #s 239–242 are four waterworn stones found within T-14A, T-14B, and T-14D (Figure 175 through Figure 172). Small waterworn basaltic stones, referred to as *‘ili ‘ili* stones, were used as handheld castanets or as paving to create an even, level surface within a domestic or ceremonial structure. The Acc. #s 239–241 stones are not big enough in size to have been used as castanets, and in their singular, isolated contexts, they cannot be labeled as traditional paving stones either. The only thing that can be said is that they are waterworn rocks found within a concentrated area (among the burial cluster), and are most likely manuports, which reflect past human activity in the area. The Acc. # 242 stone has very small, visible grooves along the base that are triangular in shape. The orientation of the apex of these grooves alternates in an unorganized manner (see Figure 175). While the exact nature of these grooves is unclear, their location and appearance are suggestive of a clasp, in which the piece may have been used as a pendant.

5.3 Faunal Analysis

5.3.1 Vertebrate Remains

Vertebrate remains were documented within 25 test excavations (Table 6). The vertebrate remains are dominated by *Bos taurus* (cow) and *Sus scrofa* (pig), and to a lesser extent by *Canis lupus familiaris* (dog), *Rattus* sp./*Rattus exulans* (rat/Polynesian rat), and *Gallus gallus* (chicken). Also present are Mammalia (non-human medium mammal), *Felis catus* (cat), Aves (bird), Osteichthyes (fish), and cf. *Etelis carbunculus* (red snapper). Both *Bos taurus* and *Felis catus* are historically introduced species; the remaining terrestrial vertebrate species may be either Polynesian or historically introduced species.

The majority of the vertebrate faunal remains were found within historic fill deposits, many of which are interpreted as historic living surfaces (SIHP # -7429 Component 1 cultural layers). The faunal remains within these historic living surfaces may represent food consumption—for example, the majority of the *Bos taurus* remains and a large portion of the *Sus scrofa* remains evidence butcher marks (i.e., striations consistent with a metal saw blade), or domestic pets, such as the dog burial within T-12. The few in situ, natural sand A horizons in which faunal remains were encountered (T-1, T-4, and T-8) also show evidence of historic use such as historic cultural enrichment and/or historic pit features.

Within the northern, crenelation-shaped portion of the project area (T-10, T-14 through T-14E, and T-14G), abundant rat bones, in particular *Rattus exulans* (Polynesian rat), were encountered within natural Jaucas sand deposits as well as historic fill living surfaces. These appear to be naturally deposited remains.

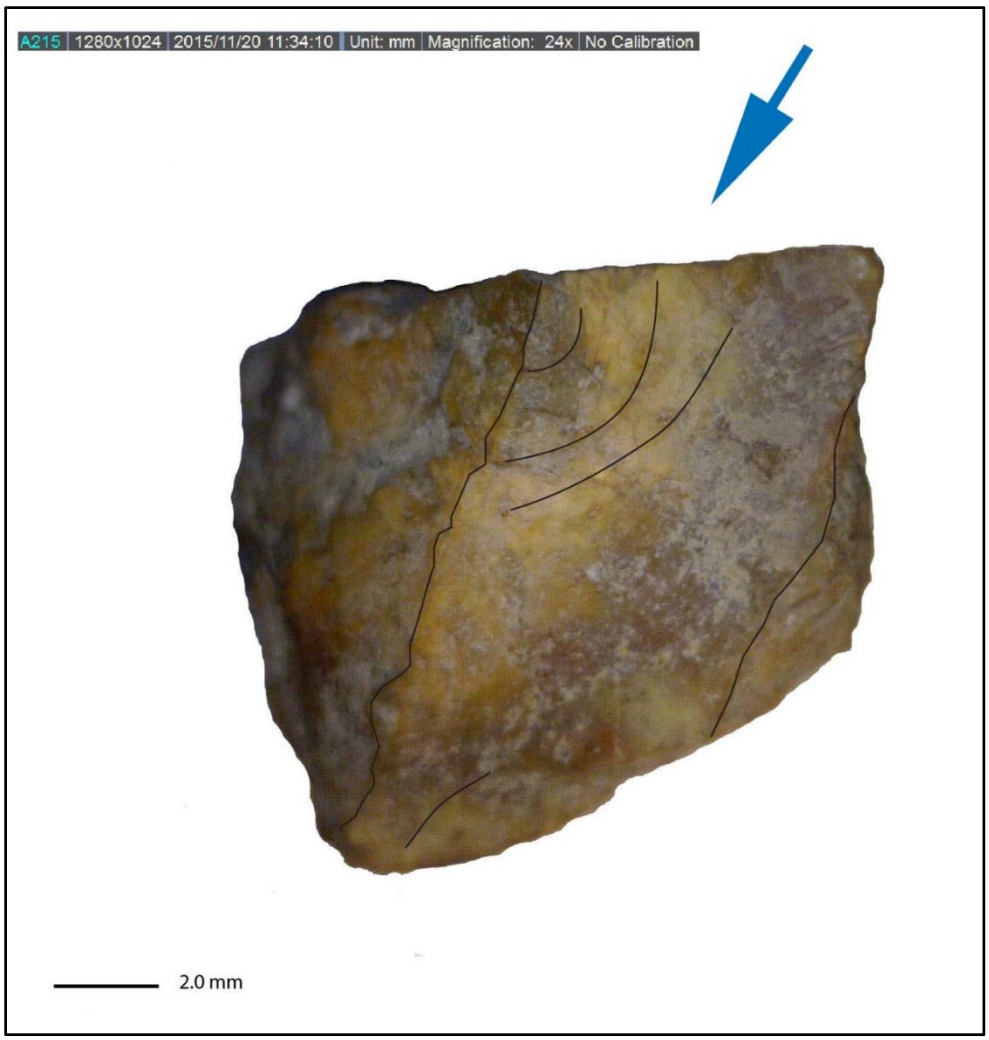

Figure 171. Acc. # 238, informal core tool, illustrated to show removal (blue arrow indicates striking platform)

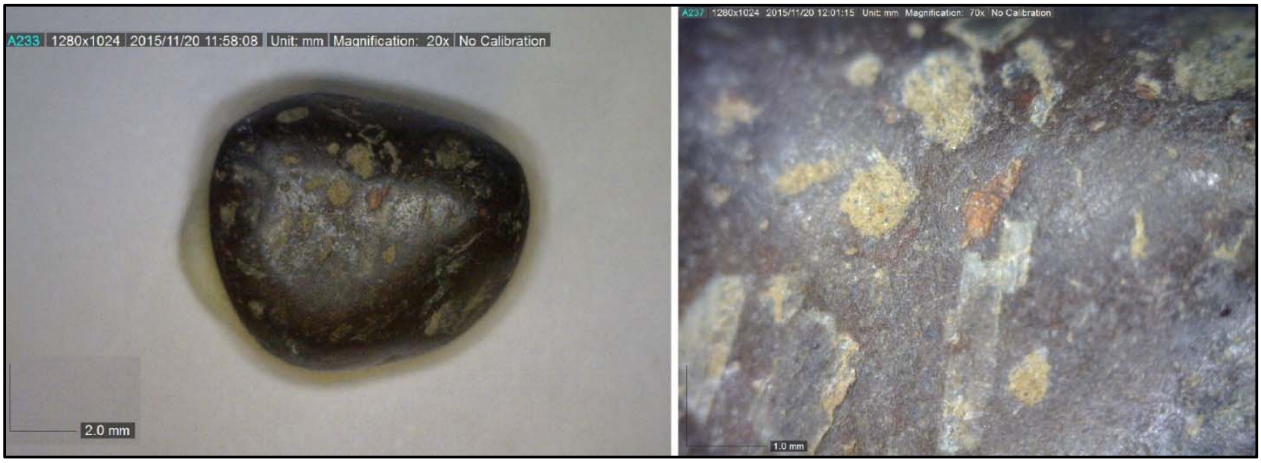

Figure 172. Acc. # 239, waterworn stone: left, dorsal surface; right, close-up of markings

Figure 173. Acc. # 240, waterworn stone: left, dorsal surface; right, close-up of markings

Figure 174. Acc. # 241, waterworn stone; dorsal and ventral surfaces

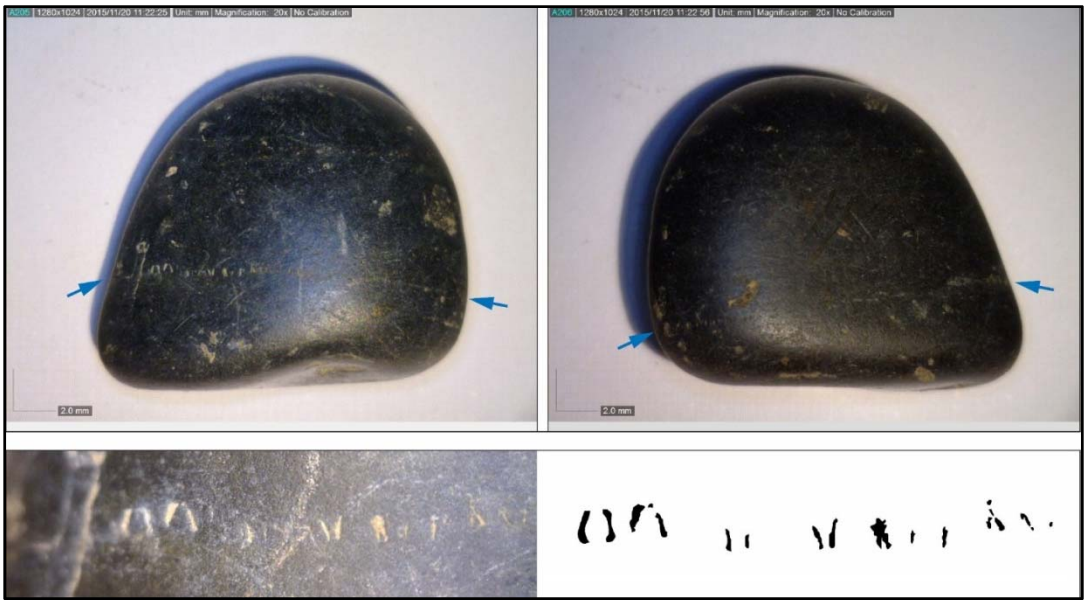

Figure 175. Acc. # 242, waterworn stone, possible pendant; top images, front and back surfaces, blue arrows indicate locations of indented grooves on lateral margins; bottom left, close-up of grooves at 55x magnification; bottom right, illustration of grooves

Table 6. Block N East Vertebrate Faunal Remains

Test Excav.	Stratum		Feature	Scientific Name	Common Name	Weight (g)	Description
T-1	IIIa	In situ A horizon (SIHP # -7429)	–	*Bos taurus*	Cow	25.0	Rib fragment cut with metal saw blade
				Sus scrofa	Pig	7.4	Atlas vertebra
				Canis lupus familiaris	Dog	21.9	Rt. humerus fragment
T-3	VIa	Jaucas sand (disturbed)	–	cf. *Canis lupus familiaris*	Dog	1.1	Long bone fragment
T-4	Ic	Fill	–	*Bos taurus*	Cow	32.2	Rib fragments cut with a metal saw blade
				Canis lupus familiaris	Dog	1.2	Axial skeleton fragments
				Aves (*Gallus gallus*)	Chicken	1.1	Appendicular skeleton fragments
	III	Locally procured fill (SIHP # -7429)	–	*Felis catus*	Cat	0.7	Axial skeleton fragments
				Sus scrofa	Pig	2.9	Axial skeleton fragments
			85	*Bos taurus*	Cow	82.7	Axial and appendicular skeleton fragments cut with metal saw blade
				Sus scrofa	Pig	20.4	Axial and appendicular skeleton fragments
	IVa	In situ A horizon	–	*Sus scrofa*	Pig	0.3	Rib fragment
T-5	III/IVa	Reworked/in situ A horizon	–	*Sus scrofa*	Pig	0.1	Incisor tooth
T-8	II	Mixed fill (SIHP # -7429)	–	*Bos taurus*	Cow	50.4	Axial and appendicular skeleton cut with a metal saw blade
				Sus scrofa	Pig	67.7	Axial and appendicular skeleton;
				Aves (*Gallus gallus*)	Chicken	3.0	Appendicular skeleton
	IIIa	In situ A horizon (SIHP # -7429)	91	*Bos taurus*	Cow	116.5	Axial and appendicular skeleton (glenoid fossa, vertebra, rib, long bone fragment) cut with a metal saw blade
				Sus scrofa	Pig	24.7	Burned long bone fragments
				Mammalia	Mammal	1.0	Burned medium mammal long bone
			92	*Bos taurus*	Cow	87.9	Foot bones, and rib and long bone fragments cut with a metal saw blade
			93	*Bos taurus*	Cow	214.5	Burned tibiotarsus fragments cut with a metal blade
				Sus scrofa	Pig	33.4	Distal humerus fragment, lumbar vertebra fragment cut with metal saw blade, proximal ulna fragment, phalanx, canine tooth fragment, long bone fragment
				Aves (*Gallus gallus*)	Chicken	0.1	Long bone fragment

Test Excav.	Stratum		Feature	Scientific Name	Common Name	Weight (g)	Description
T-9	II	Mixed fill (SIHP # -7429)	94	*Sus scrofa*	Pig	20.2	Vertebrae, long bone and rib fragments cut with metal saw blade
				Aves (*Gallus gallus*)	Chicken	9.1	Humeri fragments
T-10	II	Mixed fill (SIHP # -7429)	–	cf. *Sus scrofa*	Pig	0.1	Irregular bone fragment
				Sus scrofa	Pig	10.9	Vertebra and long bone fragments cut with metal saw blade
				Rattus exulans	Rat	0.1	Long bone fragment
				Osteichthyes	Fish (pelagic)	0.5	Irregular bone fragment
				Bos taurus	Cow	22.4	Rib fragment cut with metal saw blade
T-12	II	Mixed fill (SIHP # -7429)	–	*Bos taurus*	Cow	2442.2	Axial and appendicular skeleton cut with metal saw blade
				Canis lupus familiaris	Dog	127.2	Axial and appendicular skeleton
				Osteichthyes	Fish (pelagic)	16.2	Vertebra
			99	*Canis lupus familiaris*	Dog	583.5	Axial and appendicular skeleton: semi-articulated burial
T-13	Ib–Id	Fill		*Bos taurus*	Cow	204.0	Axial and appendicular skeleton cut with metal saw blade
	II	Mixed fill (SIHP # -7429)	103	*Canis lupus familiaris*	Dog	3.4	Navicular fragment, lunate, vertebra fragment
T-14	Ic	Fill		*Bos taurus*	Cow	4.8	vertebra fragment
	IIIa	Jaucas sand		*Rattus exulans*	Rat	1.0	MNI 7: (7 LT femurs); right femora, humeri, tibiae, innominate fragment, humeral head epiphysis
T-14A	Ib	Base course	–	*Sus scrofa*	Pig	10.7	Ulna fragment
				Bos taurus	Cow	14.1	Vertebra fragment cut w metal saw blade
	II	Volcanic cinder (SIHP # -7429)	112	*Rattus* sp.	Rat	0.1	Ulna fragments
			113	Osteichthyes	Fish	1.0	Vertebra
	III	Mixed fill (SIHP # -7429)	–	Aves	Bird	0.1	Long bone fragment
				Rattus sp.	Rat	0.1	Femur fragment
	Va	In situ A horizon (SIHP # -7429)	–	*Rattus* sp.	Rat	1.2	Axial and appendicular skeleton
T-14B	II	Mixed fill (SIHP # -7429)	–	*Bos taurus*	Cow	8.9	Long bone fragment cut with metal saw blade

Test Excav.	Stratum		Feature	Scientific Name	Common Name	Weight (g)	Description
T-14B	IVb	Jaucas sand	–	*Rattus* sp.	Rat	1.4	MNI = 2; axial and appendicular skeleton; left mandible
T-14C	III	Mixed fill (SIHP # -7429)	–	*Sus scrofa*	Pig	23.5	Long bone fragment cut with a metal saw blade
				Rattus exulans	Rat	6.1	Axial and appendicular skeleton
				Canis lupus familiaris	Dog	8.4	Distal fibula fragment
			128	*Bos taurus*	Cow	29.0	Rib fragments cut with a metal saw blade
				Sus scrofa	Pig	0.8	Rib fragment; proximal femur fragment (juvenile)
				Rattus exulans	Rat	0.4	Axial and appendicular skeleton, left mandible fragment
				Osteichthyes	Fish	0.6	Vertebrae, spine
T-14D	II	Mixed fill (SIHP # -7429)	133	*Sus scrofa*	Pig	7.0	Foot phalanx
	II/III	Mixed fill (SIHP # -7429)	–	*Bos taurus*	Cow	8.9	Rib fragment cut with a metal saw blade
				Sus scrofa	Pig	15.9	Humerus fragment cut with a metal saw blade; juvenile thoracic vertebra fragments, right mandibular incisor, long bone fragments
				Rattus exulans	Rat	5.7	Axial and appendicular skeleton, many individuals
	III	Mixed fill (SIHP # -7429)	136	*Gallus gallus*	Chicken	1.0	Long bone fragment
			139	*Sus scrofa*	Pig	0.1	Foot phalanx
				cf. *Etelis carbunculus*	Fish (red snapper)	0.2	Maxilla
				Osteichthyes	Fish	1.9	Vertebrae, ribs, irregular bone fragments
T-14E	II	Locally procured fill (SIHP # -7429)	–	*Sus scrofa*	Pig	6.5	Axial skeleton, cut with a metal saw blade
				Bos taurus	Cow	9.4	Axial skeleton cut with a metal saw blade
				Canis lupus familiaris	Dog	0.6	Axial skeletal fragment
				Rattus exulans	Rat	0.2	Axial and appendicular skeleton
				Osteichthyes	Fish	0.6	Axial skeletal fragment
			142	*Bos taurus*	Cow	9.9	Premolar fragment, vertebra fragment cut with a metal saw blade
				Sus scrofa	Pig	12.6	Long bone fragment, lumbar fragment cut with a metal saw blade
				Osteichthyes	Fish	1.6	Cranial and spine fragments

Test Excav.	Stratum		Feature	Scientific Name	Common Name	Weight (g)	Description
T-14E	III	Locally procured fill (SIHP # -7429)	–	Mammalia	Medium mammal	0.2	Appendicular skeletal fragment
T-14F	II	Mixed fill (SIHP # -7429)	–	*Bos taurus*	Cow	11.4	Axial skeleton cut with a metal saw blade
				Canis lupus familiaris	Dog	0.1	Axial fragment
				Sus scrofa	Pig	1.8	Axial skeleton
				Gallus gallus	Chicken	2.2	Appendicular skeleton
				Osteichthyes	Fish	0.1	Axial skeleton
T-14G	II	Locally procured fill (SIHP # -7429)	–	*Canis lupus familiaris*	Dog	3.2	Appendicular skeleton
			146	*Rattus exulans*	Rat	0.1	Axial and appendicular skeleton
			148	*Bos taurus*	Cow	387.3	Glenoid fossa, tibia fragment, rib and long bone fragments—all cut with a metal saw blade
T-15	IIb/III	Hydraulic dredge/ locally procured fill	–	*Bos taurus*	Cow	110.8	Irregular bone fragments and a humerus fragment cut with a metal saw blade
T-19	IV	Fill	–	*Bos taurus*	Cow	26.5	Axial and appendicular skeleton cut with a metal saw blade
				Gallus gallus	Chicken	1.3	Appendicular skeleton
T-21	III	Mixed fill (SIHP # -7429)	–	*Bos taurus*	Cow	145.9	Appendicular skeleton cut with a metal saw blade
T-23	IV	Burnt fill	–	*Bos taurus*	Cow	73.5	Axial and appendicular skeleton
				Sus scrofa	Pig	3.8	Appendicular skeleton
T-24	IIa	Crushed coral fill	–	*Bos taurus*	Cow	8.8	Rib fragment
T-26	IVa	Crushed coral fill	–	*Sus scrofa*	Pig	45.5	Cut with a metal saw blade
T-27	III	Locally procured fill (SIHP # -7429)	153	*Bos taurus*	Cow	4.0	Rib fragments
			154	*Bos taurus*	Cow	46.0	Femoral condyle fragments, rib fragments cut with metal saw blade
				Sus scrofa	Pig	2.1	Long bone fragment cut with a metal saw blade
				Gallus gallus	Chicken	1.4	Coracoid
T-28	Ic	Fill	–	*Bos taurus*	Cow	34.0	Axial and appendicular skeleton cut with a metal saw blade

5.3.2 Invertebrate Remains

Invertebrate remains were documented within six test excavations (Table 7). The invertebrate remains are dominated by Neritidae (*pipipi*) and Nacellidae (*opihi*), with Pteriidae (*Isognomon*) and Crustacean also present. Neritidae, Nacellidae, and Pteriidae are found on rocky shores, tidepools, and/or the sandy coastal edge.

The invertebrate remains were found within both culturally enriched natural sand deposits (T-2, T-8, and T-14) and mixed fill deposits interpreted as historic living surfaces (T-13, T-14C, and T-14D). Although the natural stratigraphy of the project area consists of buried Jaucas sand deposits, only the documented marine shell was observed (see Table 7), indicating the majority, if not all, of the marine invertebrate material represents midden (in either a primary or secondary context) rather than naturally deposited shell.

Table 7. Block N East Invertebrate Faunal Remains

Test Excav.	Stratum		Feature	Scientific Name	Hawaiian/ Common Name	Weight (g)	Count
T-2	IIIa	In situ A horizon (SIHP # -7429)	–	*Nerita picea*	*Pipipi*	Unkn.	–
T-8	IIIa	In situ A horizon (SIHP # -7429)	–	*Nerita picea*	*Pipipi*	25.6	80
				Nerita polita		2.0	2
			91	*Nerita picea*	*Pipipi*	19.5	63
				Nerita polita		2.2	3
				Theodoxus neglectus		2.8	4
				Cellana exarata	*‘Opihi*	2.2	1
T-13	II	Mixed fill (SIHP # -7429)	103	*Isognomon californicum*	Bivalve	Unkn.	–
T-14	IIIa	Jaucas sand (SIHP # -7429)	–	Crustacean	Crab	0.5	1
T-14C	III	Mixed fill (SIHP # -7429)	128	*Nerita picea*	*Pipipi*	1.9	3
				Cellana exarata	*‘Opihi*	30.0	6
				Cellana sandwicensis	*‘Opihi*	5.5	1
T-14D	II/III	Mixed fills (SIHP # -7429)	–	*Cellana exarata*	*‘Opihi*	2.0	1

Section 6 Historic Property Descriptions

Two archaeological sites were identified within the Block N East project area. The historic properties are summarized in Table 8, described in more detail in the following sections, and their distributions are depicted on Figure 176.

Table 8. Sites Identified within the Block N East Project Area

SIHP #	Formal Type	Function
50-80-14-7429	Subsurface cultural deposits and human burial sites	Habitation, agriculture/domestic, burial interment
50-80-14-7686	Subsurface historic infrastructure remnants	Urban/commercial infrastructure

6.1 SIHP # 50-80-14-7429

FORMAL TYPE:	Subsurface cultural deposits and human burial sites
FUNCTION:	Habitation, agriculture/domestic, burial
NUMBER OF FEATURES:	156 total: 71 newly identified and 85 previously documented
AGE:	Pre- and post-Contact
PREVIOUS DOCUMENTATION:	1. HRTP (City Center) AISR (Hammatt 2013); 2. HRTP (City Center) Supplemental AISR (Humphrey et al. 2015); 3. Block M AISR (Hawkins et al. 2015); and 4. Block I AISR (Sroat et al. 2015)
TEST EXCAVATIONS:	Current Block N East AIS: 25 test excavations (T-1, T-2, T-4, T-5, T-7 through T-14, T-14A through T-14G, T-17, T-21, T-22, T-24, T-27, and T-28); HRTP (City Center) AIS: 7 test excavations (T-167, T-168, T-168A, T-168B, T-169, T-170, and T-170A); HRTP (City Center) Supplemental AIS: 3 test excavations (T-172B, T-177A, and T-177B); Block M AIS: 13 test excavations (T-2, T-4, T-5, T-10, T-15, T-23, T-31, T-43, T-48, T-64 through T-66, and T-68); Block I AIS: 19 test excavations (T-1, T-2, T-3, T-6 through T-9, T-11 through T-14, T-16, T-17, T-24, T-26, T-57, T-68, T-69, and T-70)
TAX MAP KEY:	[1] 2-3-002:001 (por.), 067, 086, and 087 (current project)
LAND JURISDICTION:	Private; Victoria Ward, Limited (VWL) / Howard Hughes Corporation (HHC) (current project)

Figure 176. 2013 aerial photograph showing the location of SIHP # -7429 within the Block N East project area (shaded aqua), in relation to previous documentation of SIHP # -7429 by Hammatt (2013), Hawkins et al. (2015), Sroat et al. (2015), and Humphrey et al. (2015) (shaded orange)

SIHP # -7429 is a previously identified historic property consisting of subsurface cultural deposits with 156 associated features, including human burials and isolated human skeletal remains (collectively termed human burial sites). SIHP # -7429 extends along the *makai* side of Queen Street between Ward Avenue and Kamake‘e Street (see Figure 176).

This site was initially identified by Hammatt (2013) during the HRTP City Center (Section 4) AIS. SIHP # -7429 was subsequently documented in two concurrently conducted AIS investigations, the Block M AIS (Hawkins et al. 2015) and the Block I AIS (Sroat et al. 2015), as well as the HRTP supplemental City Center AIS investigation (Humphrey et al. 2015) (see Figure 176).

The cultural deposits identified in the current Block N East project area are similar in soil color, texture, and material content to the characteristics of the SIHP # -7429 cultural deposits documented by Hammatt (2013), Hawkins et al. (2015), Sroat et al. (2015), and Humphrey et al. (2015). The Block N East cultural deposits are also similarly located within a continuous sand dune deposit just *mauka* of and abutting the Kaka‘ako coastal wetlands. Based on cultural content, spatial contiguity, and geographical similarity, the Block N East cultural deposits are considered part of SIHP # -7429.

The SIHP # -7429 cultural deposits are comprised of two components. SIHP # -7429 Component 1 consists of historic fill layers which contain cultural material and/or associated features, indicating use as historic living surfaces. The Component 1 fill living surfaces are composed of locally procured sediment or a mix of both imported alluvial sediment and local sediment. SIHP # -7429 Component 2 consists of culturally enriched, natural, in situ sediments, including sandy A horizons and Jaucas sand.

The distinction between these cultural deposit components was initially identified by the concurrent AIS investigations in Block M (Hawkins et al. 2105) and Block I (Sroat et al. 2015), which identified in situ cultural deposits (Component 2) overlain by culturally enriched, locally procured fill deposits (Component 1). The distinction between components was not identified by Hammatt (2013) within the HRTP City Center AISR; however, reevaluation of photographic documentation indicates both component types were present. The HRTP City Center supplemental AISR, the fieldwork of which followed the fieldwork for Blocks I and M, also identified both components (Humphrey et al. 2015). Within Block N East, both Component 1 and Component 2 were documented; however, Component 1 cultural deposits include historic residential living surfaces composed of mixed local and non-local sediments that overlie and post-date the Component 1 locally procured fill deposits.

6.1.1 HRTP City Center AIS Documentation of SIHP # -7429 (Hammatt 2013)

During the HRTP City Center AIS, SIHP # -7429 was identified in the Ross Dress for Less store parking lot near the intersection of Ward Avenue and Queen Street. A culturally enriched loamy sand/silty sand A horizon that had developed within natural Jaucas sand was documented beneath historic fill deposits within seven test excavations (T-167, T-168, T-168A, T-168B, T-169, T-170, and T-170A). It contains both traditional Hawaiian and post-Contact cultural material, vertebrate and invertebrate faunal material, and charcoal. Historic cultural material identified within the culturally enriched A horizon included bottle glass, metal fragments, nails, glass and clay marbles, a glass bead, and earthenware fragments. Vertebrate faunal remains included both historically introduced species—cow and possibly sheep or cat—and Polynesian-

introduced species—pig, dog, and rat—as well as unidentified fish. Invertebrate faunal remains identified as marine midden included *Nerita picea* (the most prevalent species identified), *Tellina palatam*, *Turbo sandwicensis*, *Strombus* sp., *Isognomon* sp., *Trochus* sp., *Brachidontes crebristriatus*, *Cypraea caputserpentis*, *Cellana sandwicensis*, Crustacea, and Echinoidea.

Seven features, SIHP # -7429 Features 1–7, associated with the culturally enriched A horizon were identified in four test excavations (T-167, T-168B, T-170, and T-170A) (Table 9). The sediment matrix of each feature was similar to the A horizon. Features 1, 2, 3, 5, and 7 represented historic (post-Contact) land use; the ages of Features 4 and 6 were unknown. The seven features consist of four pit features of indeterminate function, two possible post molds, and one isolated, disturbed human skeletal fragment.

6.1.2 Block M AIS Documentation of SIHP # -7429 (Hawkins et al. 2015)

The Block M AIS documented SIHP # -7429 within 13 test excavations (T-2, T-4, T-5, T-10, T-15, T-23, T-31, T-43, T-48, T-64 through T-66, and T-68) (Figure 177). Within Block M, SIHP # -7429 was identified as two discrete cultural deposits consisting of a very thin, culturally enriched, historic sandy fill deposit (Component 1) and a culturally enriched, natural, in situ, sandy loam A horizon (Component 2). Of the 13 Block M test excavations containing SIHP # -7429, six exclusively contained Component 1 (culturally enriched historic fill), five exclusively contained Component 2 (culturally enriched natural A horizon), and two test excavations contained both components of SIHP # -7429 (see Figure 177 and Table 10). Seven test excavations contained 12 associated features, SIHP # -7429 Features 8–19 (Table 11).

SIHP # -7429 Component 1 consists of a layer of mixed sandy soil that contains historic artifacts, faunal material (including a modified dog bone), marine midden, and charcoal. Based on its location directly below Kaka‘ako land reclamation fill deposits (crushed coral and hydraulic clay), this layer was deposited prior to the 1919–1927 Kaka‘ako land reclamation efforts. Component 1 appears to be composed of locally procured sediment, including Jaucas sand and redistributed A horizon (generally sandy loam) material, and was most likely utilized to modify, or level, the natural topography. This sandy fill layer directly overlies, and in most cases, truncates (sometimes completely) the natural A horizon. The color and texture of the soil varies from dark grayish brown to olive brown and from sandy loam to loamy sand or silty sand. SIHP # -7429 Component 1 was recorded in eight test excavations (T-5, T-23, T-31, T-48, T-64, T-65, T-66, and T-68) with four associated features (SIHP # -7429 Features 15–17 and 19).

SIHP # -7429 Component 2 consists of a buried natural A horizon that developed within calcareous Jaucas sand. It contains both traditional Hawaiian and historic cultural material consisting of marine midden, charcoal, faunal material, and miscellaneous historic artifacts, including glass and ceramic fragments and a wooden die. The cultural signature within the general A horizon is very light, but notably present. The culturally enriched A horizon was consistently documented below reclamation fill, locally procured historic fill, or culturally enriched, locally procured historic fill (SIHP # -7429 Component 1). The color and texture of this soil varies from very dark brown to dark gray or dark yellowish brown and from sandy loam to loamy sand or silty sand. Component 2 was observed in seven test excavations (T-2, T-4, T-10, T-15, T-43, T-64, and T-66) with eight associated features (SIHP # -7429 Features 8–14 and 18).

Table 9. Archaeological Features of SIHP # -7429 Identified by Hammatt (2013)

Feature #	Test Excavation	Depth (cmbs)	Type	Function	Age	Contents
1	T-167	140–146	Pit	Indeterminate	Historic	*Nerita picea* marine shell midden, burnt crustacean, non-cultural shell, a metal fragment, and a single fragmentary medium mammal bone
2	T-167	140–152	Pit	Possible post mold	Historic	Burnt osseous fragments from an unidentified medium mammal, non-cultural marine shell, rusted metal fragments, and fish bone
3	T-167	140–149	Pit	Indeterminate	Historic	Drilled dog canine tooth, burnt osseous fragments from an unidentified medium mammal and a pig, a butchered pig rib, Bushwick/ Brookfield Glass Works glass insulator (1864–1921), charcoal (native *‘ōhi‘a lehua* and alien conifer), rusted metal fragments, an unidentified fish bone, and marine shell midden (*Nerita picea*, Isognomidae, *Isognomon* sp., burnt *Conus* sp., *Strombus* sp., Mitridae, *Brachidontes crebristriatus*, Crustacea, and Echinoidea)
4	T-167	154–166	Pit	Possible post mold	Unknown	No sediment samples collected or analyzed
5	T-168B	150–165	Pit	Indeterminate	Historic	Charcoal (native *‘ōhi‘a lehua* and alien conifer), a small amount of marine shell midden (*Nerita picea*, *Isognomon* sp., *Ctena bella*, *Strombus* sp., *Brachidontes crebristriatus*, Crustacea, and Echinoidea), non-cultural shell, rusted metal, rat bone, and fire-affected rock (FAR)
6	T-170	65–71	Isolated human remains	Burial	Unknown	Isolated human cranial fragment identified as a left temporal portion including the mastoid process and root of the zygomatic arch; gracile mastoid process indicates possible female or young adult; no pit outline
7	T-170A	56–60	Pit	Indeterminate	Historic	Marine shell midden (*Nerita picea*, *Isognomon* sp., *Strombus* sp., burnt *Natica* sp., and burnt Crustacea), bottle glass fragments, a fish spine, FAR, and dog, rat, and unknown medium mammal remains

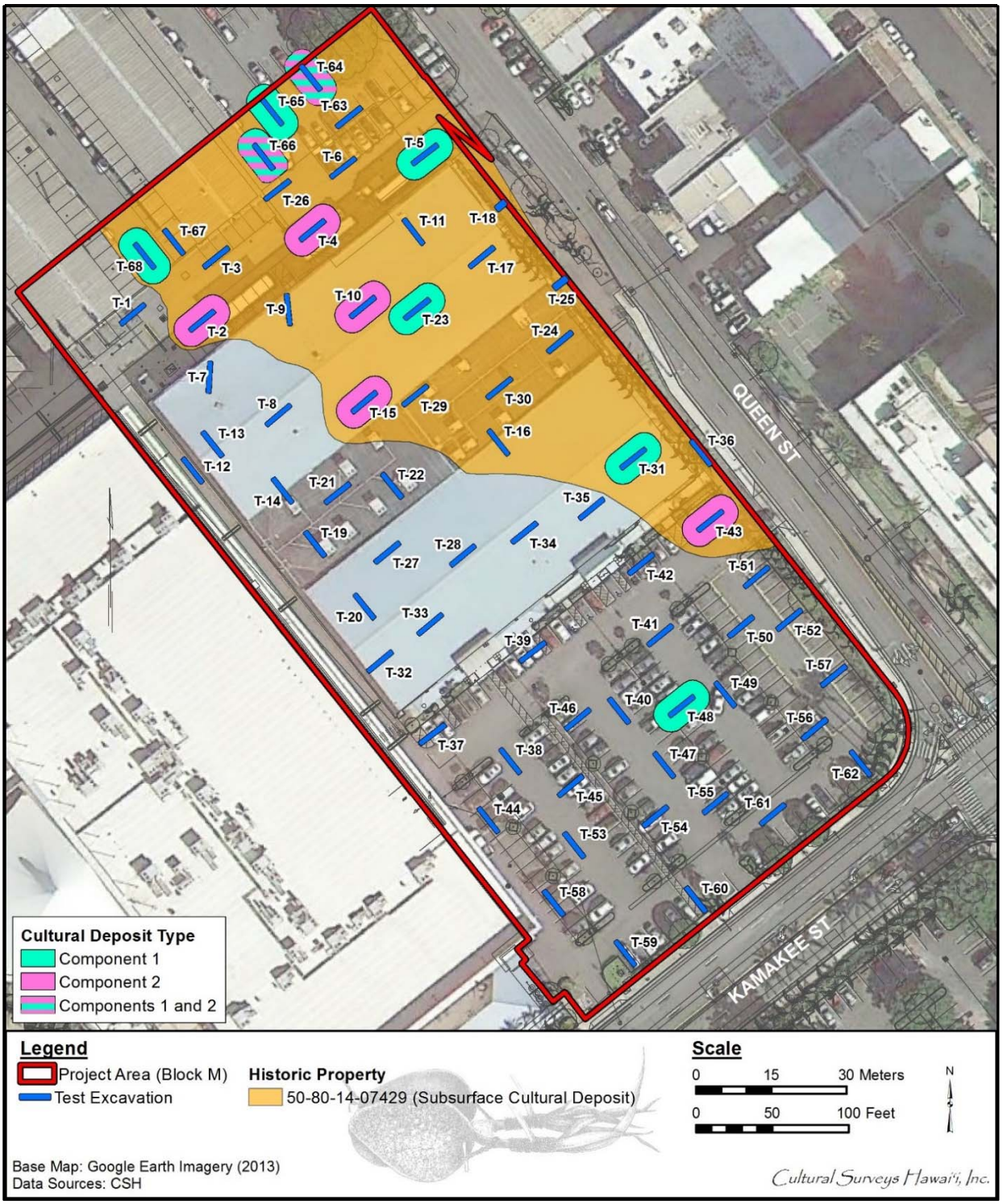

Figure 177. Figure from Hawkins et al. 2015 showing the extrapolated extent of SIHP # -7429 within the Block M project area, the 13 test excavations within which it was documented, and the locations of Component 1 and Component 2 cultural deposits (Google Earth Imagery 2013)

Table 10. SIHP # -7429 Culturally Enriched Strata Identified within Block M

Test Excavation	Component	Stratum	Depth (cmbs)	Content
T-2	2	IIIa	60–90	Fire-altered basalt cobbles and charcoal; Features 8–11
T-4	2	IVa	63−80	Charcoal flecks, faunal bone (dog), marine shell midden (*Tellina palatam*), and a glass fragment
T-5	1	IIIa	62−72	Glass and ceramic fragments and charcoal flecks
	1	IIIb	65–85	Glass fragments, rusted metal, and faunal remains (fish, dog, and cow)
T-10	2	IIIa	75–110	Feature 12
T-15	2	IIIa	100–118	Features 13 and 14
T-23	1	III	70–96	Charcoal, ceramic fragments, industrial slag, a six-sided wooden die, and faunal remains (fish and dog)
T-31	1	III	67–70	Feature 15
T-43	2	IIIa	47−56	Marine shell midden (*Nerita picea*), glass and ceramic fragments, rusted metal, a faunal bone fragment, and charcoal
T-48	1	III	80–100	Feature 16
T-64	1	III	80−101	Brick and slag
	2	IV	80–113	Modified, wedge-shaped, polished stone (possible metal sharpener)
T-65	1	III	64−72	Modified dog long bone
T-66	1	III, IV, V	51–145	Clay marble and ironstone vessel fragment (Str. IV); Feature 17 (*‘auwai* and embankments) (Str. III–V)
	2	VIa	55–111	Feature 18
T-68	1	IIIa	36–56	Feature 19

Table 11. Archaeological Features of SIHP # -7429 Identified within Block M (Hawkins et al. 2015)

Feature #	SIHP Component	Test Excav.	Depth (cmbs)	Type	Function	Age	Contents
8	2	T-2	67–95	Pit	Fire pit; food preparation and consumption	Pre-Contact: AD 1333–1337 (0.7% probability) AD 1398−1449 (94.7% probability)	Charcoal, fire-altered basalt and coral cobbles, and marine midden (*Echinothrix diadema* sp., *Tellina palatam*, *Turbo sandwicensis*)
9	2	T-2	65–110	Pit	Fire pit; food preparation and consumption	Likely pre- or early post-Contact	Charcoal, fire-altered basalt and coral cobbles, and marine midden (*Tellina palatam*, Crustacea)
10	2	T-2	80–96	Pit	Indeterminate	Likely pre- or early post-Contact	Isognomidae
11	2	T-2	75–90	Pit	Indeterminate	Likely pre- or early post-Contact	None
12	2	T-10	80−95	Pit	Indeterminate	Pre- to post-Contact	None
13	2	T-15	105−110	Lens	Indeterminate	Pre- to post-Contact	Ash residue
14	2	T-15	110−140	Pit	Indeterminate	Pre- to post-Contact	None
15	1	T-31	75–85	Pit	Infilled posthole; possible fence or structural component	Historic	Decomposing milled wood
16	1	T-48	80–133	Pit	Infilled posthole; possible fence or structural component	Historic	Decomposing milled wood
17	1	T-66	95–138	Trench	*‘Auwai*; possible agriculture/domestic function	Historic	Naturally occurring freshwater snails and a layer of humus at the upper boundary
18	2	T-66	58–70	Pit	Indeterminate	Likely pre- or early post-Contact	None
19	1	T-68	50–75	Trench	*‘Auwai*; possible agriculture/domestic function	Historic	None

The twelve SIHP # -7429 features documented within Block M (SIHP # -7429 Features 8–19) consist of two infilled postholes and two *‘auwai* associated with Component 1, and two fire pits and six indeterminate pits associated with Component 2 (Table 11). Charcoal from one of the fire pits (Feature 8) was submitted for taxa analysis and radiocarbon dating. The identified plant species consist of both native (*‘āheahea*, *kulu‘ī*, and *‘ūlei*) and Polynesian introduced (*kukui*–wood and nut shell) species. Radiocarbon dating of the *kukui* nut shell yielded a relatively early pre-Contact date range of AD 1333–1337 or AD 1398–1449.

Based on the results of the Block M AIS, the sand dune landform containing SIHP # -7429 has been utilized for cultural activity and/or as a living surface since at least the early fifteenth century.

6.1.3 Block I AIS Documentation of SIHP # -7429 (Sroat et al. 2015)

The Block I AIS investigation further documented SIHP # -7429 cultural deposits and features within 19 test excavations (T-1, T-2, T-3, T-6 through T-9, T-11 through T-14, T-16, T-17, T-24, T-26, T-57, and T-68) (Figure 178). Similar to the Block M AIS findings, SIHP # -7429 was identified as two discrete component deposits consisting of culturally enriched, locally procured historic fill (Component 1) and a culturally enriched, in situ, natural sand deposit (Component 2). Unlike Block M, Component 1 in Block I comprises multiple types of mixed sandy fill deposits. These fill deposits were often thick with sandy clay content as opposed to the thin sand deposits documented in Block M. Of the 19 Block I test excavations containing SIHP # -7429, eight exclusively contained Component 1 (T-6, T-13, T-14, T-24, T-26, T-57, T-68, and T-69), five exclusively contained Component 2 (T-2, T-8, T-9, T-11, and T-12), and six test excavations contained both components (T-1, T-3, T-7, T-16, T-17, and T-70) (see Figure 178 and Table 12). A total of 17 of these test excavations collectively contained 62 associated features, SIHP # -7429 Features 20–57, 58a, 58b, 59a, 59b, and 60–79 (Table 13).

Within Block I, SIHP # -7429 Component 1 consists of multiple layers of historic, mixed sandy fill deposits. These historic fill deposits appear to be composed of locally procured and redeposited sediment, including Jaucas sand, redistributed A horizon (generally loamy sand) material, and sometimes wetland clay or sandy clay sediment. The deposits were most likely utilized to raise, or level, the natural topography. These layers also often served as land surfaces for a period of time, as evidenced by the presence of associated pit features and/or A horizons. Based on their location, in most cases directly below Kaka‘ako land reclamation fill deposits (crushed) coral and hydraulic (dredged) clay, these layers were deposited prior to the 1919–1927 Kaka‘ako land reclamation efforts. These sandy fill layers generally directly overlie, and in most cases, truncate (sometimes completely) the natural A horizon. The color and texture of this soil ranges from light yellowish brown to very dark grayish brown and varies from sandy loam to loamy sand to clay sand.

The Component 1 historic fill deposits contain historic artifacts, vertebrate and invertebrate faunal material (including marine midden), charcoal, FAR, coconut and *kukui* nut shells, traditional Hawaiian artifacts, and human skeletal remains (both isolated, disturbed remains and in situ burials). The associated historic artifacts consist of fired red brick fragments, ceramic vessel fragments, glass bottle fragments, rusted metal fragments and nails, slag, milled wood fragments, a marble, buttons, leather shoe material, shale fragments, and rubber tubing. Traditional Hawaiian artifacts include two basalt adzes, a coral *‘ulu maika*, and volcanic glass debitage. The vertebrate faunal remains include both historically introduced species (cow) and Polynesian-introduced species (pig, dog, and chicken), as well as fish remains (*‘o‘opu okala*). The invertebrate faunal remains (marine midden) include *Nerita picea*, *Asperlla kinoshitai*, *Conus* sp., *Cypraea* sp.,

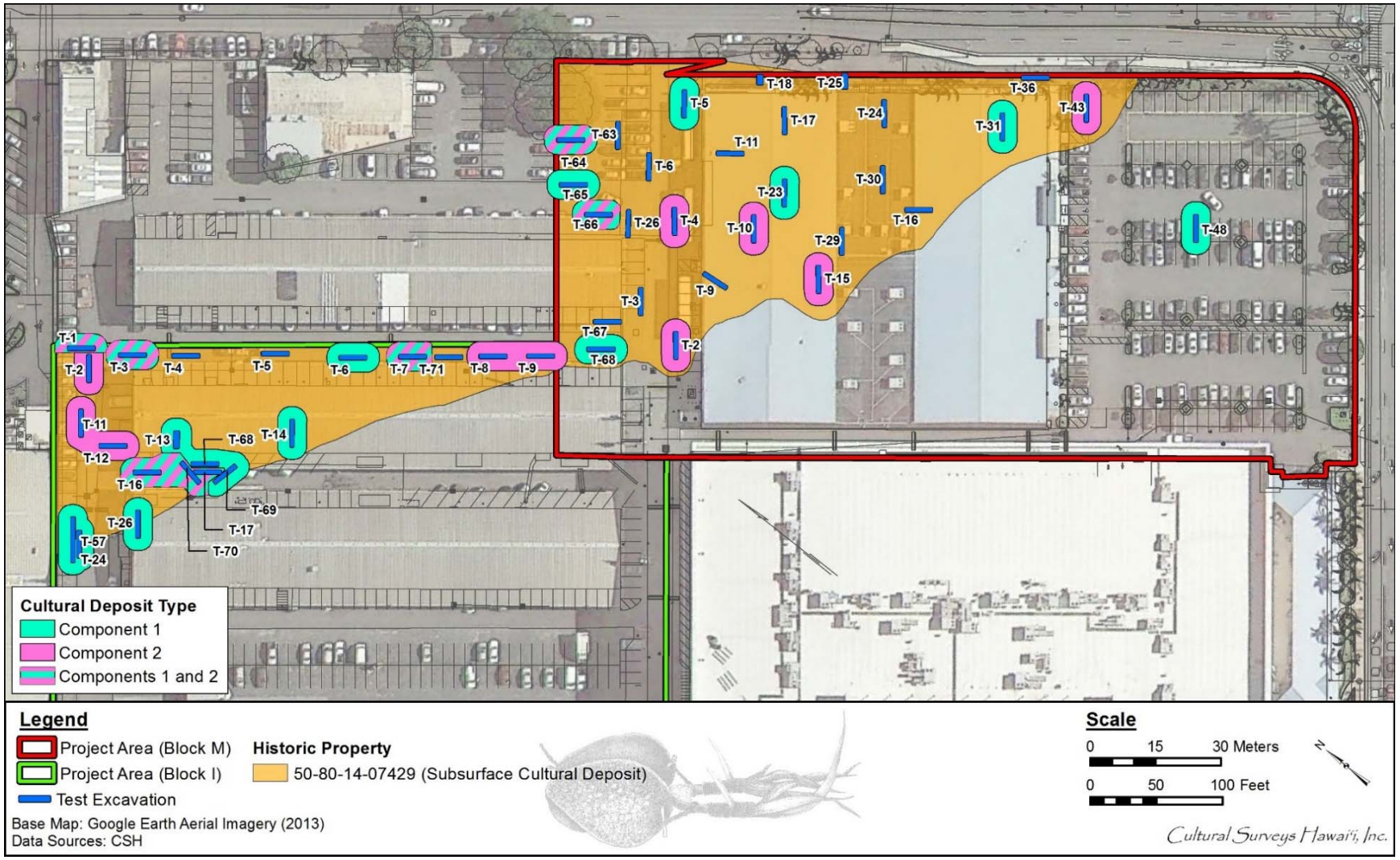

Figure 178. Aerial photograph showing the location of SIHP # -7429 within the *mauka* portion of the Block I study area (outlined in green) and within the adjacent Block M project area (outlined in red); test excavations containing SIHP # -7429 Component 1, Component 2, or both are color-coded

Table 12. SIHP # -7429 Culturally Enriched Strata Identified within Block I

Test Excav.	Component	Stratum	Depth (cmbs)	Cultural Content
T-1	1	III	42–50	Marine shell midden and fired red brick fragments
	2	IVa	49–65	Charcoal, faunal bone (pig), and marine shell midden (*Conus* sp., Cypraeidae, *Nerita picea*, *Strombus* sp.); contained Features 20 and 21
T-2	2	IVa	50–65	Charcoal and marine shell midden (*Theodoxus neglectus*); contained Feature 22
T-3	1	IIIa	53–65	Marine shell midden (*Nerita picea*) and rusted metal fragments
		IIIb	59–74	Ceramic and glass fragments, red brick fragments, rusted metal, charcoal, marine shell midden (*Nerita picea*), faunal bone (cow), and isolated human bone (Feature 23)
	2	IVa	65–80	Marine shell midden (Neritidae), faunal bone (Mammalia), charcoal, and fire-altered basalt cobbles
T-6	1	IV	50–90	Faunal remains (cow and dog); contained Feature 24
T-7	1	IV	40–76	Charcoal staining and probable human skeletal remains (Feature 25)
	2	Va	45–55	Volcanic glass, faunal bone (Mammalia, dog), and marine shell midden (*Theodoxus neglectus*)
T-8	2	VIa	47–55	No cultural material observed; contained Features 26 and 27
T-9	2	IVa	52–63	No cultural material observed; contained Features 28–30
T-11	2	IIIa	37–67	Bottle glass, rusted metal, ceramic, a worked dog bone fishhook preform, fish bone, and marine midden (*Conus* sp., Cypraeidae, *Isognomon californicum*, *Mauritia depressa*, *Strombus* sp., *Tellina palatam*, *Theodoxus neglectus*, *Tonna dolium*, Echinoidea, burnt Crustacea); contained Features 31–38
T-12	2	IIIa	40–70	Mammal bone and teeth (pig, cow), fish bone (including *‘a‘awa*), eel bone (*Conger cinereus marginatus*), a metal fragment, fragments of two glass vials, FAR, charcoal, bottle glass, ceramic, brick fragments, and marine midden (*Conus* sp., Cypraeidae, *Isognomon californicum*, *Mitra* sp., *Strombus* sp., *Theodoxus neglectus*, *Turbo sandwicensis*, Echinoidea); contained Features 39–51
T-13	1	IIIa	62–78	Marine shell midden, mammal bone and teeth (dog and pig), fish bone (*‘o‘opu okala*, or spiny puffer fish), FAR, charcoal, metal nails, and metal fragments
		IIIb	67–95	Marine shell midden, charcoal, FAR, wood fragments, metal nails, a marble, a basalt adze, and volcanic glass debitage; contained Features 52 and 53
T-14	1	IIIa	46–103	Glass bottle fragments, ceramic fragments, brick, metal, faunal bone, and *kukui* nut shells; contained Features 54 and 55
		IIIb	55–106	Glass bottle and ceramic fragments, slate, metal, faunal bone, and *kukui* nut shells; contained Feature 56

Test Excav.	Component	Stratum	Depth (cmbs)	Cultural Content
T-16	1	IIIa	20–40	Charcoal
		IIIb	32–80	Marine shell midden and faunal bone (cow)
	2	IVa	46–60	FAR, rusted metal, ceramic, burnt wood, leather, shale, rubber, *Strombus* sp. fused with metal, charcoal, faunal bone (pig, cat, and fish), and marine midden (*Conus* sp., Cypraeidae, *Isognomon californicum*, *Pinctada radiata*, *Strombus* sp., *Tellina palatum*, *Theodoxus neglectus*, *Tonna dolium*, *Turbo sandwicensis*, Echinoidea, burnt Crustacea)
T-17	1	II	20–70	Charcoal, oxidized metal, buttons, faunal bone fragments (dog); possible coffin wood, and a human burial (two individuals; Feature 57); contained Features 58b and 59b
	2	IIIa	65–75	No cultural material observed; contained Features 58a and 59a
T-24	1	IIIa	67−90	No cultural material observed
		IIIb	88−105	Charcoal and milled wood
		IIIc	70−105	Marine shell (*Theodoxus neglects*)
		IIId	68−113	Marine shell (*Theodoxus neglectus*), charcoal, glass, milled wood fragments, and a cat burial (Feature 61)
		IIIe	60−95	Charcoal
		IIIf	38−110	Marine shell and a human tooth (Feature 60)
		IIIh	45−117	Marine shell (*Theodoxus neglectus*)
		IIIi	80−103	*Kukui* nut shell and marine shell (*Theodoxus neglectus*)
		IIIj	95−115	Charcoal, glass, and milled wood
		IIIk	102−125	Charcoal and marine shell (*Theodoxus neglectus*)
		IIIm	100−130	Charcoal, *kukui* nut shell, bottle glass, faunal bone (pig), marine shell (*Asperlla kinoshitai*, *Conus* sp., Cypraea sp., *Eugeniconus nobilis f. cordiger*a, *Isognomon californicum*, *Strombus* sp., *Tellina palatum*, *Theodoxus neglectus*, *Turbo sandwicensis*, Echinoidea, burnt Crustacea); contained Feature 62
		IVa	20−88	Charcoal and marine shell (*Theodoxus neglectus*)
		IVb	32−82	No cultural material observed
T-26	1	IIIa	102–125	Slag, rusted metal, bottle glass, faunal bone (dog, pig), marine shell midden (*Isognomon californicum*, *Nerita picea*, Echinoidea), naturally occurring shell (*Strombus* sp.), and charcoal

Test Excav.	Component	Stratum	Depth (cmbs)	Cultural Content
T-26	1	IIIb	112–148	Faunal bone (chicken, dog, cow), charcoal, coconut shell, marine shell midden (*Cellana sandwicensis*), burnt milled wood, leather shoe material, shale, rubber tubing, shell fused with metal, ceramic vessels and fragments, glass, fired clay bricks, metal, slate, milled wood, and two traditional Hawaiian artifacts (basalt adze and coral *‘ulu maika*)
		IVa	110−158	Ceramic, glass, metal, marine shell midden
T-57	1	IIIi	40−120	Charcoal and Neritidae
		IVa	18−118	Neritidae, charcoal, fish bone, butchered cow bone; contained Features 63–67
T-68	1	II	20–85	No cultural material observed; contained Features 58b (portion) and 69
T-69	1	IIa	24–58	Faunal bone and charcoal
		IIb	30–121	Faunal bone, snail shells, ceramics, bricks, metal nails, and a human burial (Feature 70)
T-70	1	IIa	20–62	No cultural material observed; contained Features 71, 72, 74, 75, and 77
T-70		IIb	25–100	No cultural material observed; contained Features 73 and 76
	2	IIIa	55–100	No cultural material observed; contained Features 78 and 79

Table 13. SIHP # -7429 Features Identified within the Block I Study Area

Feature #	SIHP Component	Test Excav.	Depth (cmbs)	Type	Function	Age	Cultural Content
20	2	T-1	53–81	Pit	Indeterminate	Pre- to early post-Contact	Faunal bone (dog) and marine shell midden (*Nerita picea*, burnt Crustacea)
21	2	T-1	60–78	Pit	Indeterminate	Pre- to early post-Contact	None
22	2	T-2	55–59	Pit	Midden	Pre- to early post-Contact	Marine shell midden (*Morula* sp., *Nerita picea*, *Strombus* sp., *Theodoxus neglectus*, *Tonna dolium*, *Turbo sandwicensis*)
23	1	T-3	70	Isolated human remains	Human burial	Pre- to early post-Contact	Disarticulated human skeletal remains: humerus fragment and lunate
24	1	T-6	95–105	Pit	Post mold	Post-Contact	A single *Nerita picea*
25	1	T-7	70	Probable isolated human remains	Human burial	Pre- to early post-Contact	Disturbed long bone fragment
26	2	T-8	39–52	*‘Ili‘ili* and isolated human remains	Human burial	Pre- to early post-Contact	Ulna portion and tiny bone fragments, approximately 65 basalt *‘ili‘ili* (pebbles), and two pieces of charcoal
27	2	T-8	43–67	Pit	Indeterminate	Pre- to early post-Contact	None
28	2	T-9	64–86	Pit	Indeterminate	Pre- to early post-Contact	None
29	2	T-9	69–85	Pit	Indeterminate	Pre- to early post-Contact	None
30	2	T-9	62–75	Pit	Possible fire pit	Pre- to early post-Contact	Charcoal , FAR
31	2	T-11	62–64	Pit	Indeterminate	Pre- to early post-Contact	Faunal bone (pig) and marine shell midden (*Nerita picea*)
32	2	T-11	60–87	Pit	Midden	Post-Contact	Bottle glass, charcoal, FAR, faunal bone (pig, fish–*‘o‘opu okala*;), and marine shell midden (*Asperlla kinoshitai*, *Isognomon californicum*, *Strombus* sp., *Tellina palatam*, *Theodoxus neglectus*, Echinoidea, burnt Crustacea)

Feature #	SIHP Component	Test Excav.	Depth (cmbs)	Type	Function	Age	Cultural Content
33	2	T-11	69–87	Pit	Indeterminate	Pre- to early post-Contact	FAR, a piece of coral, faunal bone (Mammalia), and marine shell midden (*Tellina palatum*, *Theodoxus neglectus*, *Tonna dolium*, burnt Crustacea)
34	2	T-11	63–85	Pit	Indeterminate	Pre- to early post-Contact	Marine shell midden (*Nerita picea*)
35	2	T-11	62–84	Pit	Indeterminate	Pre- to early post-Contact	Marine shell midden (*Nerita picea*)
36	2	T-11	65–80	Pit	Indeterminate	Pre- to early post-Contact	Marine shell midden (*Nerita picea*, *Strombus* sp., burnt Crustacea)
37	2	T-11	52–74	Pit	Indeterminate	Pre- to early post-Contact	Marine shell midden (*Nerita picea*)
38	2	T-11	70–78	Manuports	Indeterminate	Pre- to early post-Contact	At least two waterworn basalt cobbles
39	2	T-12	50–110	Pit	Indeterminate	Post-Contact	A milled wood post fragment, rusted metal, charcoal , faunal bone (dog), and marine shell midden (*Nerita picea*)
40	2	T-12	54–59	Pit	Indeterminate	Pre- to early post-Contact	Marine shell midden (*Nerita picea*)
41	2	T-1	50–95	Pit	Indeterminate	Pre- to early post-Contact	None
42	2	T-12	50–62	Pit	Indeterminate	Pre- to early post-Contact	Faunal bone (pig) and marine shell midden (*Isognomon californicum*, *Nerita picea*, burnt Crustacea)
43	2	T-12	75–78	Pit	Indeterminate	Pre- to early post-Contact	None
44	2	T-12	70–81	Pit	Midden	Pre- to early post-Contact	Marine shell midden (*Nerita picea*)
45	2	T-12	60–140	Pit	Midden	Pre- to early post-Contact	Charcoal, *kukui* nut shell, faunal bone (pig, fish [*‘o‘opu okala*]), moray eel, and unidentified fish), and marine shell midden (*Isognomon californicum*, *Tellina palatum*, *Theodoxus neglectus*, burnt Crustacea)
46	2	T-1	60–76	Pit	Indeterminate	Pre- to early post-Contact	Marine shell midden (*Nerita picea*, *Pinctada radiata*)

Feature #	SIHP Component	Test Excav.	Depth (cmbs)	Type	Function	Age	Cultural Content
47	2	T-12	63–100	Pit	Indeterminate	Pre- to early post-Contact	*Kukui* nut shell and marine shell midden (*Strombus* sp., *Theodoxus neglectus*)
48	2	T-12	67–89	Pit	Indeterminate	Post-Contact	A small glass perfume bottle and marine shell midden (*Nerita picea*)
49	2	T-12	65–75	Pit	Possible post mold	Post-Contact	Charcoal, a wood post, and marine shell midden (*Theodoxus neglectus*)
50	2	T-12	64–110	Pit	Indeterminate	Pre- to early post-Contact	Marine shell midden (*Isognomon californicum*, *Strombus* sp., *Theodoxus neglectus*)
51	2	T-12	62–80	Pit	Indeterminate	Pre- to early post-Contact	Marine shell midden (*Theodoxus neglectus*)
52	1	T-13	80–87	Pit	Indeterminate	Post-Contact	Fish bone and FAR
53	1	T-13	79–83	Pit	Indeterminate	Post-Contact	Remnant wood box or coffin with metal hardware
54	1	T-14	60–75	Pit	Fire pit; food preparation and consumption	Post-Contact	Faunal bone, charcoal, FAR, bottle glass, ceramic fragments, rusted metal, and brick fragments
55	1	T-14	73–90	Pit	Fire pit; food preparation and consumption	Post-Contact	Faunal bone, charcoal, glass and ceramic fragments, and clay brick fragments
56	1	T-14	52–110	Pit	Trash disposal	Post-Contact	Glass bottle fragments, ceramic sherds, slate, *kukui* nut shells, rusted metal, marine shell midden, charcoal, and faunal bone (pig, dog, horse, fish, and chicken)
57	1	T-17	40–65	Pit	Human burials	Post-Contact	Adult and newborn burials, coffin remnants, and two buttons
58a	2	T-17	65	Pit	Human burial; dog burials	Post-Contact	Adult calcaneus, coffin remnants, historic grave goods, two articulated dog skeletons, fish bone, charcoal, whole *kukui* nut shells
58b	1	T-17	17–150	Pit	Disinterment	Post-Contact	None
59a	2	T-17	20–114	Pit	Human burial	Post-Contact	Coffin remnants, historic grave goods, red brick fragment, faunal bone fragment
59b	1	T-17	20–114	Pit	Disinterment	Post-Contact	None
60	1	T-24	72	Isolated human remains	Human burial	Pre- to early post-Contact	Deciduous tooth

Feature #	SIHP Component	Test Excav.	Depth (cmbs)	Type	Function	Age	Cultural Content
61	1	T-24	55–77	Cat remains	Animal burial	Post-Contact	Articulated cat remains
62	1	T-24	105–132	Hearth	Food preparation and consumption	Post-Contact	Thermally altered, well-rounded, basalt cobbles; glass fragments, charcoal, *kukui* nut shell, bottle glass, faunal bone (pig, cat, and cf. dog), and marine midden (210.4 g) (*Strombus* sp., *Eugeniconus nobilis f. cordigera*, *Turbo sandwicensis*, *Conus* sp., *Asperlla kinoshitai*, *Tellina palatam*, *Theodoxus neglectus*, *Isognomon californicum*, *Cypraea* sp., Echinoidea), burn Crustacea)
63	1	T-57	55–62	Pit	Post mold	Post-Contact	Charcoal and marine shell midden (*Nerita picea*)
64	1	T-57	75–82	Pit	Post mold	Post-Contact	Charcoal and marine shell midden (*Nerita picea*)
65	1	T-57	75–79	Pit	Post mold	Post-Contact	None
66	1	T-57	20–38	Pit	Indeterminate	Post-Contact	Fish bone
67	1	T-57	20–74	Pit	Indeterminate	Post-Contact	Faunal bone (cow)
68	1	T-57	110–120	Isolated human remains	Human burial	Pre- to early post-Contact	Disturbed cranial fragment
69	1	T-68	60–93	Pit	Indeterminate	Post-Contact	None
70	1	T-69	63–75	Human remains	Human burial	Post-Contact	In situ adult or adolescent burial—only cranium exposed
71	1	T-70	30–70	Pit	Indeterminate	Post-Contact	Charcoal and faunal bone (pig)
72	1	T-70	24–41	Pit	Fire pit	Post-Contact	FAR and charcoal
73	1	T-70	33–73	Pit	Fire pit	Post-Contact	Coral chunks, FAR, and charcoal
74	1	T-70	22–36	Pit	Indeterminate	Post-Contact	Coral and charcoal
75	1	T-70	35–63	Pit	Indeterminate	Post-Contact	None
76	1	T-70	37–67	Pit	Fire pit	Post-Contact	FAR, coral, charcoal, and marine shell midden
77	1	T-70	24–53	Pit	Indeterminate	Post-Contact	Coral and charcoal
78	2	T-70	69–89	Pit	Fire pit	Pre- to early post-Contact	FAR and charcoal
79	2	T-70	88–110	Human remains	Human burial	Pre- to early post-Contact	In situ adult or older adolescent burial

Eugeniconus nobilis f. cordigera, *Isognomon californicum*, *Strombus* sp., *Tellina palatum*, *Theodoxus neglectus*, *Turbo sandwicensis*, *Cellana sandwicensis*, Echinoidea, and Crustacea.

Component 1 contained 29 associated features. The features consisted of eight indeterminate pits, four post molds, five fire pits, a cobble hearth, a trash pit, a cat burial, four instances of isolated and disturbed human remains, two in situ human burials (three individuals), two disinterment pits, and one instance of possible disturbed coffin remnants (see Table 13).

The isolated human skeletal remains associated with Component 1 were documented along the *mauka* boundary of the Block I study area (T-3 and T-7) and near the northwest corner (T-24 and T-57). They consist of a humerus fragment and a lunate bone (Feature 23), a probable human long bone fragment (Feature 25), a deciduous tooth (Feature 60), and a cranial fragment (Feature 68). The original depositional age of the isolated, displaced human skeletal elements remains unknown.

The in situ burials associated with Component 1 were located within the area of a burial cluster (T-17, T-69, and T-70), which spans traditional Hawaiian to historic Christian burial practices. The Feature 57 in situ burial contains two individuals, an adult and a newborn, with no visible burial pit. The adult individual is in a flexed position, indicating traditional Hawaiian burial practices. Interestingly, probable wooden coffin remnants were noted within close proximity to the burial; this could indicate a transition from traditional Hawaiian burial practices to western-style Christian burial practices, incorporating a little of both practices. Only a small portion of the Feature 70 burial was exposed within the sidewall of T-69 (cranium portion); no burial pit was visible.

Within the burial cluster area, two disinterment pits (Features 58b and 59b) were also documented, extending from the upper boundary of the Component 1 cultural layer into the Component 2 cultural layer. Both disinterment pits are associated with underlying burial pits (Features 58a and 59a) originating from the Component 2 cultural layer and are nearly identical in morphology and composition, indicating a contemporary time frame.

Feature 53 is a pit feature located just *mauka* of the burial cluster within T-13 that contained a wooden plank fragment with copper hardware. Due to the absence of human remains and the small size of the wood fragment, the function of the feature was considered indeterminate; however, based on the identification of a nearby burial cluster as well as scattered disarticulated human remains, it is possible the feature represents a disturbed burial.

SIHP # -7429 Component 2 consists of natural sand A horizon deposits that developed within calcareous Jaucas sand. This layer served as a land surface for a period of time, as evidenced by the accumulation of organic and loamy material and the presence of cultural material and associated pit features. This culturally enriched A horizon was consistently documented below Component 1, below the culturally sterile historic fill deposits, or below reclamation fill. The overlying layers often truncated the A horizon.

The Component 2 A horizon contains historic material, vertebrate and invertebrate faunal material (including marine midden), charcoal, FAR, and traditional Hawaiian artifacts. The historic material consists of bottle glass, glass vial fragments, rusted metal, ceramic fragments, brick fragments, burnt wood, leather, shale, and rubber. Traditional Hawaiian artifacts include volcanic glass and a worked dog bone (possible fishhook preform). The vertebrate faunal remains include both historically introduced species (cow and cat) and Polynesian-introduced

species (pig, dog, and chicken), as well as fish (including *‘a‘awa*) and eel remains. The invertebrate faunal remains (marine midden) include *Conus* sp., Cypraeidae, Neritidae, *Nerita picea*, *Strombus* sp., *Theodoxus neglectus*, *Isognomon californicum*, *Mauritia depressa*, *Mitra* sp., *Tellina palatam*, *Tonna dolium*, *Turbo sandwicensis*, *Pinctada radiata*, Echinoidea, and Crustacean.

Component 2 contained 33 associated features. The features consisted of 21 indeterminate pits, four midden pits, two fire pits, one possible post mold, a cluster of waterworn manuports, isolated and disturbed human remains, one in situ human burial, and two disinterred burial pits (see Table 13). The majority of the non-burial related Component 2 features were concentrated within two test excavations, T-11 and T-12 (21 features).

The human burial features associated with Component 2 are located within the burial cluster documented within T-17, T-68, and T-70, which also contains Component 1 burials (Features 57 and 59). Feature 79 consists of an in situ adult individual in a flexed position located at the water table, indicating a traditional type, pre- to early post-Contact burial. Features 58a and 59a consist of historic coffin burials that were subsequently disinterred as evidenced by intrusive disinterment pits (Features 58b and 59b), disturbed coffin remnants, and the near absence of human skeletal remains, with only one skeletal element (two fragments of an adult calcaneus) recovered from Feature 58a. Feature 58a also contains two dog skeletons and burial goods, including porcelain buttons, a clay marble, a pearl shell, and a cowrie shell. Of particular note is the presence of what appeared to be a ring of *kukui* nut shells within the burial pit and a dense deposit of fish bone beneath the coffin, comprising at least 12 species from various habitats. Only a small portion of Feature 59a was located within test excavation T-17, therefore information on this feature is more limited. Historic artifacts observed within Feature 59a include a slate pencil, a clear glass fragment, and a red brick fragment.

Several very small isolated human skeletal elements (part of Feature 26) were also documented within the Component 2 cultural layer, located along the *mauka* boundary of the Block I study area, in the vicinity of the Component 1 isolated human remains. The human remains consist of an ulna portion and tiny bone fragments. The remains were found at the upper boundary of a disturbed A horizon in association with 65 disturbed *‘ili‘ili* manuports (waterworn pebbles).

6.1.4 HRTP City Center Supplemental AIS Documentation of SIHP # -7429 (Humphrey et al. 2015)

Subsequent to the Block M and Block I AIS investigations, a supplemental AIS was conducted for the HRTP City Center project area. The study further identified SIHP # -7429 within three of the 15 additional AIS test excavations (T-172B, T-177A, and T-177B) (Figure 179). The cultural deposits identified within these three test excavations were similar in soil color, texture, and material content to the characteristics of the SIHP # -7429 cultural deposits documented in the previous studies, and include both Component 1 and Component 2 cultural deposits and four associated features (SIHP # -7429 Features 80–83) (Figure 180, Table 14, and Table 15).

SIHP # -7429 Component 1 was documented within two test excavations (T-172B and T-177B). Within T-172B, Component 1 consists of a thick layer of locally procured sandy loam

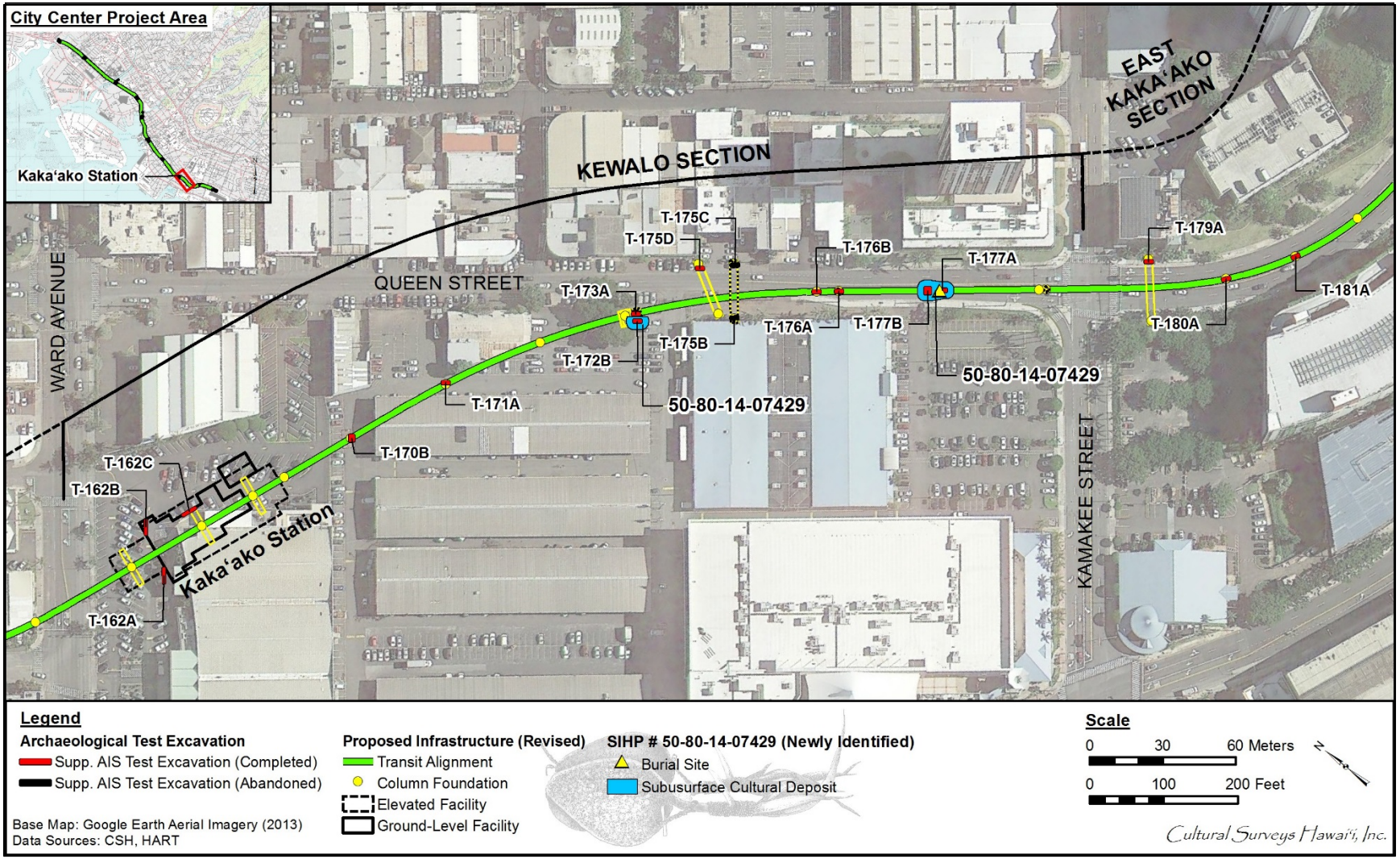

Figure 179. Figure from Humphrey et al. (2015) showing the location of SIHP # -7429 documented during the HRTP City Center supplemental AIS (Google Earth Imagery 2013)

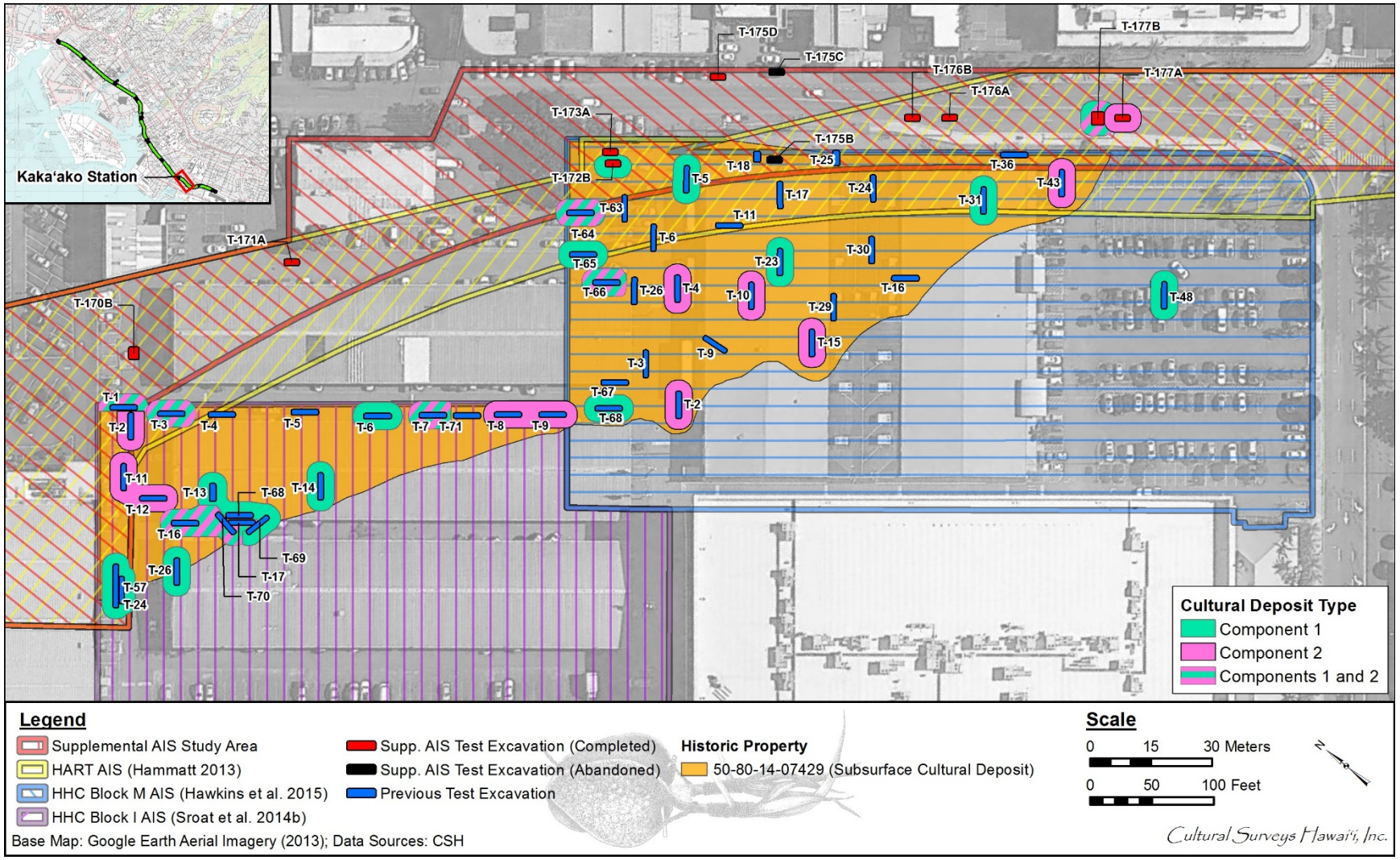

Figure 180. Aerial photograph showing the locations of SIHP # -7429 Component 1 and Component 2 cultural deposits within the City Center supplemental AIS study area (hatched in red), the Block I study area (hatched in purple), and the Block M study area (hatched in blue) (from Humphrey et al. 2015)

Table 14. SIHP # -7429 Culturally Enriched Strata Identified within the HRTP City Center Supplemental AIS (Humphrey et al. 2015)

Test Excavation	SIHP Component	Stratum	Depth (cmbs)	Contents
T-172B	1	II	62–80	Bottle and flat glass fragments, copper wire, a ceramic fragment, and butchered faunal remains (pig and cow ribs); Feature 80
T-177A	2	II	87–110	Glass, ceramic, and metal fragments
		III	100–150 (BOE)	Features 81 and 82
T-177B	1	II	81–91	Bottle glass fragments, ceramic fragments, a clay marble, FAR, marine midden, and butchered faunal remains (cow ribs)
	2	IIIa	86–97	Charcoal, marine midden, FAR, a traditional Hawaiian fishhook fragment, and faunal remains (indeterminate mammal bone fragments); Feature 83

Table 15. SIHP # -7429 Features Identified within the HRTP City Center Supplemental AIS (Humphrey et al. 2015)

Feature	SIHP Component	Test Excav.	Depth (cmbs)	Type	Function	Age	Contents
80	1	T-172B	84–110	Pit	Indeterminate	Historic	Glass fragments, slag, and charcoal
81	2	T-177A	120–150	Pit	Burial	Pre- to early post-Contact	Flexed adult human burial
82	2	T-177A	149–160	Pit	Indeterminate	Likely pre-Contact	An unidentified organic fragment
83	2	T-177B	97–105	Pit	Fire pit	Pre- to early post-Contact	Charcoal, FAR, *kukui* nut shell, and marine midden

directly overlying the natural Jaucas sand. It contains historic artifacts (glass and ceramic fragments), faunal remains (cow and pig), and an associated pit feature of indeterminate function (Feature 80). Within T-177B, Component 1 consists of a layer of sandy loam overlying an in situ A horizon (Component 2). It contains FAR, marine midden, historic artifacts (glass and ceramic fragments and a clay marble), and faunal bone (butchered cow).

SIHP # -7429 Component 2 was documented within two test excavations (T-177A and T-177B). Component 2 consists of culturally enriched, in situ natural A horizon soil and natural Jaucas sand. Within T-177A, the Component 2 A horizon contains historic artifacts consisting of bottle glass, ceramic, and metal fragments. T-177A also contains two features (Features 81 and 82) that originate in the underlying natural Jaucas sand, including an in situ human burial (Feature 81). Within T-177B, the A horizon contains traditional Hawaiian cultural material consisting of a shell fishhook fragment, FAR, charcoal, and marine midden, as well as an associated fire pit feature (Feature 83).

6.1.5 Block N East AIS Documentation of SIHP # -7429

The Block N East project area, centrally located between the Block M, Block I, and HRTP City Center study areas, further documented SIHP # -7429 cultural deposits and features within 25 test excavations (T-1, T-2, T-4, T-5, T-7 through T-14, T-14A through T-14G, T-17, T-21, T-22, T-24, T-27, and T-28) (Figure 181). Within Block N East, the SIHP # -7429 cultural deposits similarly consist of historic fill living surfaces (Component 1 cultural deposits) overlying culturally enriched, in situ natural sand deposits (Component 2 cultural deposits). In the case of Block N East, SIHP # -7429 Component 1 consists of two distinct types of cultural deposits: 1) locally procured fill layers, and 2) mixed (local and imported sediment) fill layers. The mixed fill living surfaces were not documented within the surrounding project areas containing SIHP # -7429 and appear to be specific to a row of historic houses which previously fronted Queen Street.

Of the 25 Block N East test excavations containing SIHP # -7429, seven exclusively contain Component 1 (T-4, T-9, T-12, T-21, T-22, T-27, and T-28), eight exclusively contain Component 2 (T-1, T-2, T-5, T-7, T-11, T-14, T-17, and T-24), and ten test excavations contain both components (T-8, T-10, T-13, and T-14A through T-14G) (see Figure 182 and Table 16). A total of 18 of these test excavations collectively contained 71 associated features, SIHP # -7429 Features 84–154 (Table 17).

6.1.5.1 SIHP # -7429 Component 1: Historic Fill Living Surfaces

SIHP # -7429 Component 1 consists of culturally enriched fill deposits which functioned as living surfaces during the historic period. Two types of Component 1 cultural deposits were documented within Block N East. The first type consists of locally procured sediment, comprised of mixed A horizon and sand material, which represents the first historic modification of the natural landsurface, possibly to raise/grade the natural topography. This fill type was documented throughout the project area within a total of 17 test excavations (T-3 through T-6, T-10, T-14A, T-14C through T-14E, T-14G, T-15, T-18 through T-20, T-23, T-25, and T-27); however, it was culturally enriched within only seven of these test excavations, all located within the central/*mauka* portion of the project area (T-4, T-14A, T-14C, T-14D, T-14E, T-14G, and T-27). Cultural material documented within the locally procured Component 1 deposits consists

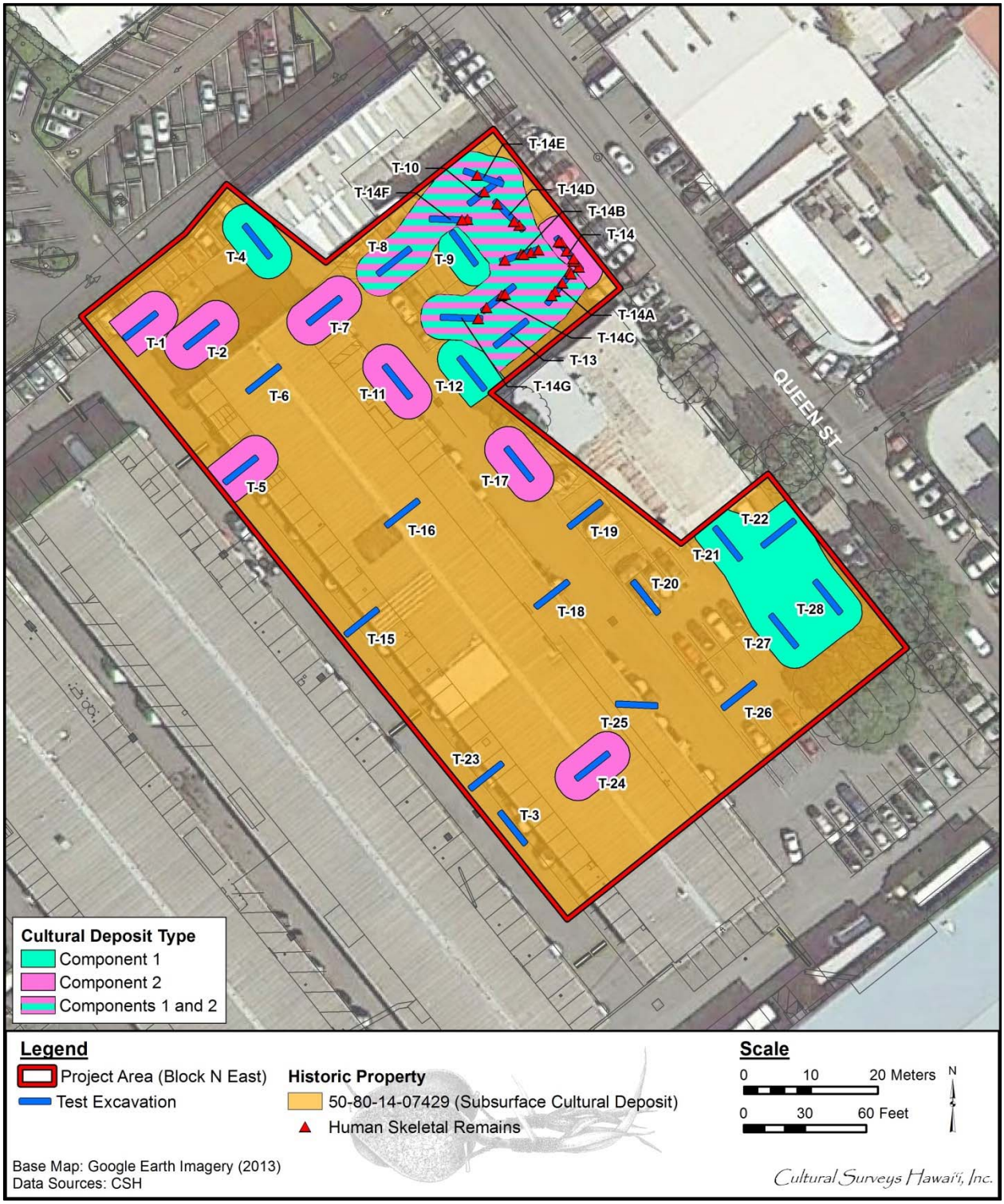

Figure 181. Aerial photograph showing the locations of the SIHP # -7429 Component 1 and Component 2 cultural deposits within the Block N East project area (Google Earth Imagery 2013)

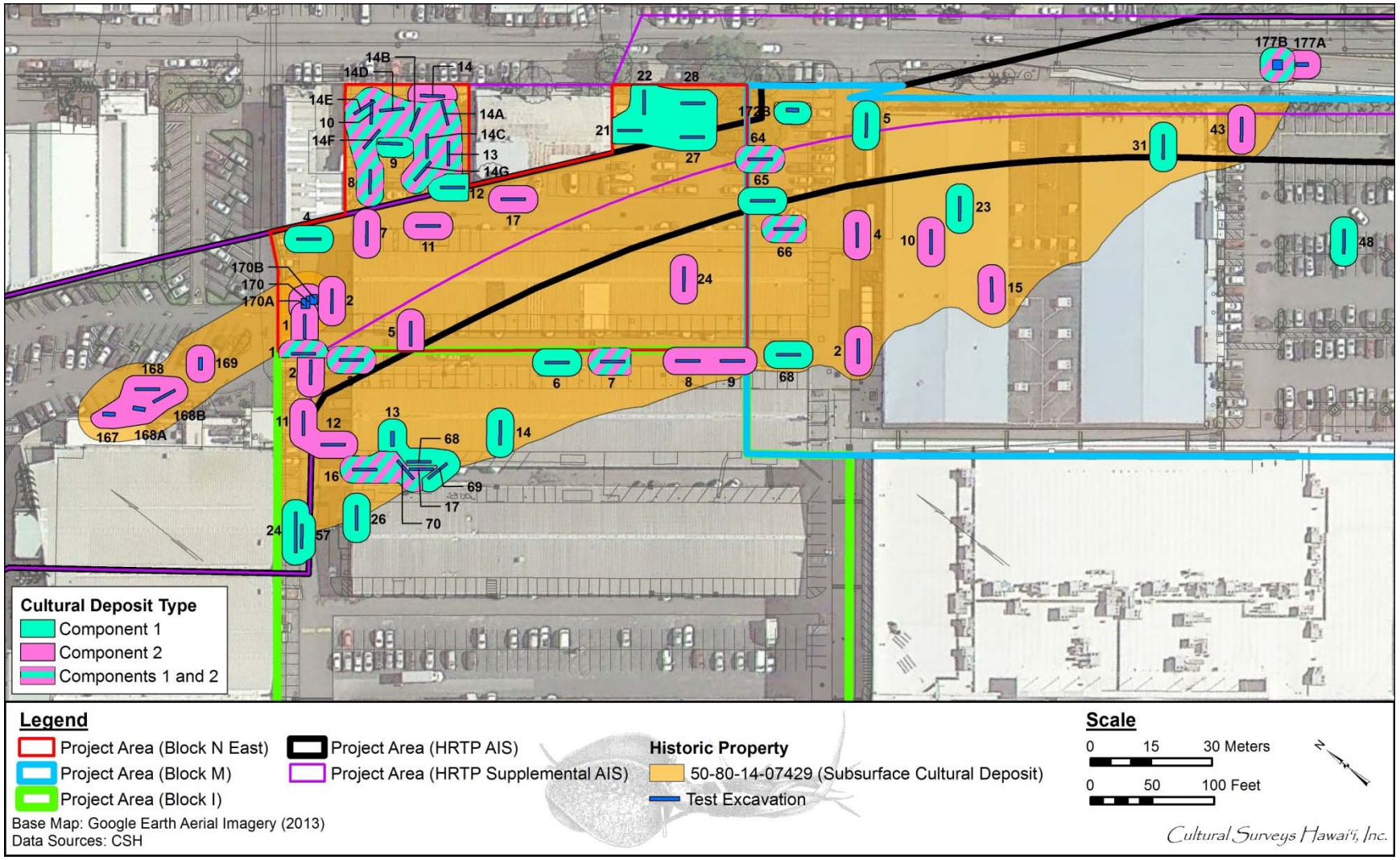

Figure 182. Aerial photograph showing the locations of the SIHP # -7429 Component 1 and Component 2 cultural deposits within the Block N East project area (outlined in red), the HRTP City Center study areas (outlined in black and purple), the Block I study area (outlined in green), and the Block M study area (outlined in blue) (Google Earth Imagery 2013)

Table 16. SIHP # -7429 Culturally Enriched Strata Identified within Block N East

Test Excav.	SIHP Component	Stratum	Sediment Type	Depth (cmbs)	Cultural Content
T-1	2	IIIa	In situ sand A horizon	68–83	Faunal remains (pig, dog, butchered cow), a small ceramic fragment, and a piece of rusted metal
		IIIb	Jaucas sand	78–93	Feature 84
T-2	2	IIIa	In situ sand A horizon	55–67	*Nerita picea* and fire-affected rock (FAR) (not collected)
T-4	1	III	Locally procured fill	60–80	*Nerita picea*, metal, ceramics, glass, wood, brick, faunal bone (cat, pig); Feature 85
T-5	2	IVa	In situ sand A horizon	61–75	Features 86–90
T-7	2	IVa	Wetland A horizon	100–110	A glass inkwell (Acc. # 9), a glass bottle (Acc. # 10), a glass bottle fragment (Acc. # 11), and pressed glass fragments (Acc. #s 12 and 13)
T-8	1	II	Mixed fill (local/non-local)	25–50	A partial door knob, nails, ceramic fragments, metal fragments, and faunal bone (pig, chicken, butchered cow)
	2	IIIa	In situ sand A horizon	50–85	Concentration of *Nerita picea* and *Nerita polita*; Features 91–93
T-9	1	II	Mixed fill (local/non-local)	35–84	Glass fragments, a ceramic insulator, and copper wire; Feature 94
T-10	1	II	Mixed fill (local/non-local)	17–57	Charcoal and faunal bone (butchered cow and pig, pelagic fish, Polynesian rat); Feature 95
	2	IVa	In situ sand A horizon	42–68	Features 96–98
T-11	2	IV	Wetland A horizon	80–103	Small fragments of glass, ceramic, and wood
T-12	1	II	Mixed fill (local/non-local)	41–145	Metal fragments, metal pipes, a porcelain cup fragment (Acc. # 30), a glass bottle (Acc. # 31), a whiteware flatware fragment (Acc. # 32), an Arctic Soda Works bottle (Acc. # 33), two whiteware hollowware fragments (Acc. #s 34 and 42), a brick fragment (Acc. # 35), a glass liquor bottle (Acc. # 37), a glass beer bottle (Acc. # 38), two glass bottle fragments (Acc. #s 39 and 40), a glass bottle (Acc. # 41), a bone toothbrush (Acc. # 36), and faunal bone (dog, pelagic fish, butchered cow); Feature 99
T-13	1	II	Mixed fill (local/non-local)	45–70	Features 100–104
	2	IIIb	Jaucas sand	56–110	Feature 105
T-14	2	IVa	Jaucas sand	40–105	Polynesian rat bones; Features 106–111
T-14A	1	II	Volcanic cinder	25–49	A whiteware tableware fragment (Acc. # 59), a glass bottle fragment (Acc. # 60), a stoneware bottle fragment (Acc. # 61); Features 112 and 113
		III	Locally procured fill	35–55	Charcoal, ceramics, metal nails, and faunal bone (chicken, rat); Feature 114
	2	Va	In situ sand A horizon	38–60	Charcoal, a basalt manuport (Acc. # 236), and faunal bone (rat); Features 115 and 116
		Vb	Jaucas sand	46–106	Features 117–119

Test Excav.	SIHP Component	Stratum	Sediment Type	Depth (cmbs)	Cultural Content
T-14B	1	II	Mixed fill (local/non-local)	17–55	Bottle and flat glass fragments (Acc. #s 70–73), a whiteware tableware fragment (Acc. # 74), a stoneware tile (Acc. # 75), a metal axe head (Acc. # 234), and faunal bone (butchered cow)
		III	Mixed fill (local/non-local)	40–59	A metal fragment (Acc. # 75), stoneware bottle fragments (Acc. #82), metal nails (Acc. # 83), and glass, ceramic, wood, faunal bone (not collected); Feature 120
	2	IVa	In situ sand A horizon	40–60	Glass, ceramic, wood, and faunal bone (not collected); Feature 121
		IVb	Jaucas sand	50–110	Features 122–127
T-14C	1	III	Locally procured fill	50–72	Faunal bone (dog, rat, butchered pig); Features 128 and 129
	2	IVa	In situ sand A horizon	57–80	Features 130–132
T-14D	1	II	Mixed fill (local/non-local)	15–50	Items from the Str. II/III spoils or interface: glass bottle fragments (Acc. #s 100, 102, 103, 108), flat glass fragments (Acc. # 104), a clay marble (Acc. # 105), whiteware tableware fragments (Acc. #s 106. 107), two metal nails (Acc. # 109), and faunal bone (pig, cow, Polynesian rat); Feature 133
		III	Locally procured fill	32–65	*See above; Features 134–139
	2	IVb	Jaucas sand	40–105	Features 140 and 141
T-14E	1	II	Locally procured fill	27–59	Basalt flake (Acc. # 240), a chert core (Acc. # 241), a metal cap for a wide-mouth jar or bottle (Acc. # 138), a stoneware spout from a round jug (Acc. # 139), a woven fiber strap (Acc. # 140), a metal bottle cap (Acc. # 141), a metal nail (Acc. # 142), a shell button (Acc. # 143), a Prosser button (Acc. # 144), a pressed glass base (Acc. # 145), glass bottle fragments (Acc. #s 146,154), a porcelain cup fragment (Acc. # 147), a porcelain spoon fragment (Acc. # 148), porcelain tableware fragments (Acc. # 151), a clay marble (Acc. # 149), a glass marble (Acc. # 150), whiteware tableware fragments (Acc. # 152), a yellowware tableware fragments (Acc. # 153), an ironstone tableware fragment (Acc. # 155), and faunal bone (pig, dog, butchered cow, rat, fish); Feature 142
		III	Locally procured fill	46–70	Charcoal, a basalt flake (Acc. # 242), and faunal bone (medium mammal); Feature 143
T-14F	1	II	Mixed fill (local/non-local)	44–76	Glass, ceramic, and metal fragments, metal nails (not collected), and faunal bone (pig, dog, chicken, fish, butchered cow)
	2	IIIb	Jaucas sand	56–160	Features 144 and 145
T-14G	1	II	Locally procured fill	39–71	Charcoal, whiteware tableware fragments (Acc. # 164), a glass tube (Acc. # 165), glass bottle fragments (Acc. #s 166, 168), a machine-cut metal nail (Acc. # 167), a decorative glass ball (possibly a paperweight; Acc. # 169), and faunal bone (dog); Features 146–149
	2	IVa	In situ sand A horizon	53–80	Feature 150

Test Excav.	SIHP Component	Stratum	Sediment Type	Depth (cmbs)	Cultural Content
T-17	2	Va	Wetland A horizon	90–96	Milled wood, ceramic and glass fragments (not collected)
T-21	1	II-III	Mixed fill (local/non-local)	35–98; 73–93	Glass, ceramic, marble, metal, and brick fragments (not collected), porcelain tableware fragments (Acc. #s 194, 197, 198), whiteware flatware fragments (Acc. #s 195 and 200), a whiteware lid knob (Acc. # 196), a whiteware tableware fragment (Acc. # 203), a porcelain hollowware fragment (Acc. # 199), a porcelain hollowware fragment (Acc. # 201), an earthenware doorknob (Acc. # 202), and faunal remains (butchered cow)
T-22	1	II	Mixed fill (local/non-local)	48–85	Charcoal lens, copper pipe, wire, wood, brick fragments, and ceramic fragments (not collected), glass bottle fragments (Acc. #s 206, 208), cinderblock brick fragments (Acc. # 207), a brick fragment (Acc. # 209), and a stainless steel fork (Acc. # 210)
		III	Mixed fill (local/non-local)	65–92	Ash lens, glass and ceramic fragments, wood, and metal pieces (not collected)
T-24	2	IIIa	In situ sand A horizon	65–110	Bottle glass fragments, rusted metal pieces, and ceramic dishware sherds (not collected); Feature 151
T-27	1	II	Mixed fill (local/non-local)		Miller’s glass beer bottle (Acc. # 217), a tin cup (Acc. # 218), Styrofoam (Acc. # 219), and a plastic food label (Acc. # 220)
T-27	2	III	Locally procured fill	93–140	Features 152–154
T-28	1	II	Mixed fill (local/non-local)	45–70	Glass bottles (Acc. #s 227–231, 233), synthetic window screen (Acc. # 232), a plastic comb/ brush, and a plastic circular canister (not collected)

Table 17. SIHP # -7429 Features Identified within the Block N East Project Area

Feature #	SIHP Component	Test Excav.	Depth (cmbs)	Type	Function	Age	Cultural Content
84	2	T-1	80–unkn.	Pit	Post mold	Pre- or post-Contact	None
85	1	T-4	64–173	Pit	Trash disposal	Post-Contact	Glass bottles and bottle fragments (Acc. #s 1, 2, 4, 5), a glass vial (Acc. # 3), a glass medicine/extract bottle fragment (Acc. # 6), a whiteware tableware fragment (Acc. # 7), a copper teaspoon (Acc. # 8), and faunal remains (pig, butchered cow)
86	2	T-5	75–83	Pit	Indeterminate	Pre- or post-Contact	Charcoal flecks
87	2	T-5	70–81	Pit	Indeterminate	Pre- or post-Contact	Charcoal flecks
88	2	T-5	75–86	Pit	Indeterminate	Pre- or post-Contact	Charcoal flecks
89	2	T-5	75–92	Pit	Possible post mold	Pre- or post-Contact	None
90	2	T-5	75–94	Pit	Possible post mold	Pre- or post-Contact	None
91	2	T-8	50–105	Pit	Indeterminate	Post-Contact	Metal vessel fragments (Acc. # 14), metal nails (Acc. # 15), a bone button (Acc. # 16), charcoal, marine shell midden (*Theodoxus neglectus*, *Nerita picea*, *Nerita polita*, *Cellana exarata*), and faunal bone (burnt pig and medium mammal, butchered cow)
92	2	T-8	50–100	Pit	Indeterminate	Post-Contact	Charcoal, metal nails, and faunal bone (butchered cow)
93	2	T-8	50–103	Pit	Indeterminate	Post-Contact	FAR, a metal nail (Acc. # 17), whiteware tableware fragments (Acc. #s 18 and 20), a porcelain tableware fragment (Acc. # 19), a slate pencil fragment (Acc. # 21), a glass insulator fragment (Acc. # 22), and faunal bone (burnt/butchered cow, butchered pig, chicken)

Feature #	SIHP Component	Test Excav.	Depth (cmbs)	Type	Function	Age	Cultural Content
94	1	T-9	60–95	Pit	Indeterminate	Post-Contact	Metal fragments (Acc. # 24), a glass vial (Acc. # 25), a glass bottle fragment (Acc. # 26), an earthenware marble (Acc. # 27), whiteware tableware fragments (Acc. # 28), a porcelain tableware fragment (Acc. # 29), and faunal bone (butchered pig, chicken)
95	1	T-10	45–65	Pit	Indeterminate	Post-Contact	None
96	2	T-10	47–67	Pit	Indeterminate	Pre- or post-Contact	Charcoal flecks and FAR
97	2	T-10	56–68	Pit	Indeterminate	Pre- or post-Contact	None
98	2	T-10	~55	Human skeletal remains	Human burial	Pre- or post-Contact	Concentration of isolated, disarticulated, and fragmented human skeletal remains (n=50–60)
99	1	T-12	66–77	Dog skeletal remains	Animal burial	Post-Contact	Semi-articulated dog skeleton and ceramic fragments (not collected)
100	1	T-13	60–96	Pit	Possible shored-up post mold	Post-Contact	Two metal nails with attached wood fragments (Acc. # 43)
101	1	T-13	75–92	Pit	Post mold	Post-Contact	None
102	1	T-13	41–77	Pit	Trash disposal	Post-Contact	Ceramic doorknob (Acc. # 44), glass bottle fragments (Acc. #s 45 and 51), a glass chandelier/lamp prism (Acc. # 46), pressed glass possible candlestick/lamp fragments (Acc. # 47), glass bottle/jar fragments (Acc. # 48), a ceramic toilet fragment (Acc. # 49), a copper battery component (Acc. # 50), a glass medicine bottle (Acc. # 52), and a pressed glass pedestal, possibly part of a lamp or candlestick holder (Acc. # 53)
103	1	T-13	62–95	Pit	Indeterminate	Post-Contact	A bone button (Acc. # 54), a porcelain flatware fragment (Acc. # 55), four metal nails (Acc. # 56), faunal bone (dog), and *Isognomon californicum*
104	1	T-13	69–86	Pit	Indeterminate	Post-Contact	Plastic (bakelite) button (Acc. # 57), a round-headed nail (Acc. # 58), and small bluestone cobbles

Feature #	SIHP Component	Test Excav.	Depth (cmbs)	Type	Function	Age	Cultural Content
105	2	T-13	89–119	Pit	Possible post mold	Pre- or post-Contact	Few FAR
106	2	T-14	57–71	Human skeletal remains	Human burial	Likely pre-Contact	Flexed burial; adolescent, indeterminate sex, likely Native Hawaiian
107	2	T-14	66	Human skeletal remains	Human burial	Likely pre-Contact	Probable flexed burial: adult, male, likely Native Hawaiian; also has a probable large rock grave marker
108	2	T-14	80–97	Human skeletal remains	Human burial	Likely pre-Contact	Partly flexed burial: adult, unknown sex, likely Native Hawaiian; also has a probable large rock burial marker
109	2	T-14	83–95	Human skeletal remains	Human burial	Likely pre-Contact	Flexed burial: adult, unknown sex, likely Native Hawaiian
110	2	T-14	67–79	Human skeletal remains	Human burial	Post-Contact	Coffin burial: adult, unknown sex, unknown ancestry
111	2	T-14	62–74	Human skeletal remains	Human burial	Post-Contact	Previously disturbed and scattered adult burial, unknown sex, unknown ancestry; has coffin staining
112	1	T-14A	43–67	Pit	Indeterminate	Post-Contact	Slag, a metal nail (Acc. # 62), and faunal bone (rat)
113	1	T-14A	42–79	Pit	Indeterminate	Post-Contact	A porcelain tableware fragment (Acc. # 68), four metal nails (Acc. #s 66 and 69), a shell button (Acc. # 63), a glass bottle fragment (Acc. # 64), whiteware tableware fragments (Acc. #s 65 and 67), fish bone, and a waterworn basalt stone
114	1	T-14A	39–72	Pit	Indeterminate	Post-Contact	None
115	2	T-14A	56–71	Human skeletal remains	Human burial	Likely pre- or early post-Contact	Flexed burial: adult, unknown sex, likely Native Hawaiian
116	2	T-14A	40–60	Human skeletal remains	Human burial	Likely pre- or early post-Contact	Adult or older adolescent burial, unknown sex, likely Native Hawaiian
117	2	T-14A	81–105	Human skeletal remains	Human burial	Likely pre-Contact	Flexed burial: adult, unknown sex, likely Native Hawaiian; also has a probable large rock grave marker

Feature #	SIHP Component	Test Excav.	Depth (cmbs)	Type	Function	Age	Cultural Content
118	2	T-14A	68	Human skeletal remains	Human burial	Likely pre-Contact	Flexed burial: adult, unknown sex, likely Native Hawaiian
119	2	T-14A	55–94	Human skeletal remains	Human burial	Likely pre-Contact	Flexed burial: adult, unknown sex, likely Native Hawaiian
120	1	T-14B	40–65	Pit	Indeterminate	Post-Contact	Glass fragments (Acc. #s 79–80), a whiteware fragment (Acc. # 77), and a metal nail (Acc. #78)
121	2	T-14B	51–65	Pit	Indeterminate	Post-Contact	Stoneware bottle fragments (Acc. # 81), a waterworn pebble manuport (Acc. # 237), and charcoal
122	2	T-14B	60–95	Cobble concentration	Possible grave marker	Post-Contact	Numerous coral cobbles and a single basalt cobble; possibly a grave marker associated with Fea. 125 or another burial
123	2	T-14B	52	Human skeletal remains	Human burial	Likely pre-Contact	Flexed burial: adult, unknown sex, likely Native Hawaiian
124	2	T-14B	64–84	Human skeletal remains	Human burial	Likely pre-Contact	Flexed burial: adult, unknown sex, likely Native Hawaiian
125	2	T-14B	84	Human skeletal remains	Human burial	Likely pre-Contact	Flexed burial: adult, unknown sex, likely Native Hawaiian; also contains a fire-altered basalt cobble and charcoal flecks
126	2	T-14B	70	Human skeletal remains	Human burial	Likely pre-Contact	Adult burial, unknown sex, likely Native Hawaiian
127	2	T-14B	95	Human skeletal remains	Human burial	Likely pre-Contact	Adult or adolescent burial, unknown sex, likely Native Hawaiian; also has a grouping of coral cobbles that may be a grave marker
128	2	T-14C	52–83	Pit	Indeterminate	Post-Contact	A large basalt rock, charcoal, marine shell midden (*Nerita picea*, *Cellana exarata*, *Cellana sandwicensis*), faunal bone (pig, butchered cow, rat, fish), glass bottle fragments (Acc. #s 84, 85, 93, 94, 96), a flat glass fragment (Acc. # 95), metal fragments (Acc. #s 87 and 91), metal nails (Acc. #s 86, 89, 90), a metal hook (Acc. # 88), a glass marble fragment (Acc. # 99), porcelain hollowware fragments (Acc. # 97), a copper wire fragment (Acc. # 92), and ironstone pitcher fragments (Acc. # 98)

Feature #	SIHP Component	Test Excav.	Depth (cmbs)	Type	Function	Age	Cultural Content
129	2	T-14C	56	Human skeletal remains	Human burial	Pre- or early post-Contact	Isolated and disarticulated skeletal remains, MNI=2, adults, unknown sex, likely Native Hawaiian; covered with a mound of coral cobbles that may be a grave marker
130	2	T-14C	67–108	Pit	Indeterminate	Post-Contact	Steel conduit with attached rebar
131	2	T-14C	70–110	Human skeletal remains	Human burial	Pre- or early post-Contact	Extended or slightly flexed burial; adult, unknown sex, likely Native Hawaiian; also contains charcoal
132	2	T-14C	60–107	Human skeletal remains	Human burial	Pre- or early post-Contact	Flexed burial: adult, unknown sex, likely Native Hawaiian
133	1	T-14D	40–62	Pit	Indeterminate	Post-Contact	Four metal nails (Acc. # 110), a porcelain tableware fragment (Acc. # 111), flat glass fragments (Acc. # 112), bottle glass fragments (Acc. #s 113–116), a wood fragment (Acc. # 117), a basalt manuport (Acc. # 238), a piece of coal, and faunal bone (pig)
134	1	T-14D	33–45	Pit	Indeterminate	Post-Contact	Slag, charcoal, a bottle glass fragment (Acc. # 118), and a glass marble (Acc. # 119)
135	1	T-14D	40–78	Pit	Possible post mold	Likely post-Contact	None
136	1	T-14D	42–53	Pit	Indeterminate	Post-Contact	Metal fragments (Acc. # 120), two metal nails (Acc. # 121), brick fragments, and faunal bone (chicken)
137	1	T-14D	50–66	Pit	Indeterminate	Post-Contact	A large, cut basalt block, two metal nails (Acc. # 122), and a brick fragment
138	1	T-14D	48–85	Pit	Possible post mold	Post-Contact	None
139	1	T-14D	50–69	Pit	Indeterminate	Post-Contact	Isolated and disarticulated human skeletal remains (probable male, adult, unknown ancestry), metal fragments (Acc. # 124), four metal nails (Acc. #s 125, 134), bottle glass fragments (Acc. #s 126–129, 133, 135), whiteware tableware fragments (Acc. # 130), porcelain tableware fragments (Acc. # 131), a brick fragment (Acc. # 132), a whiteware hollowware fragment (Acc. # 136), a flaked glass fragment (Acc. # 239), charcoal flecks, and faunal remains (pig, fish, red snapper fish)

Feature #	SIHP Component	Test Excav.	Depth (cmbs)	Type	Function	Age	Cultural Content
140	2	T-14D	70	Human skeletal remains	Human burial	Likely pre-Contact	Flexed burial: juvenile, unknown sex, likely Native Hawaiian
141	2	T-14D	66	Human skeletal remains	Human burial	Likely pre-Contact	Flexed or semi-flexed burial: juvenile, unknown sex, likely Native Hawaiian; also has three coral boulders that likely acted as a grave marker
142	1	T-14E	53–60	Pit	Indeterminate	Post-Contact	Brick fragment (Acc. # 156), bottle glass fragments (Acc. # 157), a window glass fragment (Acc. # 158), a whiteware tableware fragment (Acc. # 159), porcelain tableware fragments (Acc. #s 160, 162), stoneware jar fragments (Acc. # 161, 163), and faunal bone (fish, butchered cow and pig)
143	1	T-14E	49–57	Human skeletal remains	Human burial	Post-Contact	Isolated and disarticulated human skeletal remains
144	2	T-14F	129	Human skeletal remains	Human burial	Likely pre-Contact	Flexed burial: adult or older adolescent, unknown sex, likely Native Hawaiian; also has braided *tī* leaves and a gourd
145	2	T-14F	127	Human skeletal remains	Human burial	Likely pre-Contact	Adult or older adolescent burial, unknown sex, likely Native Hawaiian; has a braided *tī* leaf *lei*
146	1	T-14G	55–67	Pit	Indeterminate	Post-Contact	Coral cobbles and faunal bone (Polynesian rat)
147	1	T-14G	64–85	Pit	Indeterminate	Post-Contact	None
148	1	T-14G	40–150	Pit	Trash disposal	Post-Contact	Milled wood, faunal bone (butchered cow), porcelain tableware fragments (Acc. #s 170, 172), whiteware tableware fragments (Acc. #s 171, 175, 176, 178, 184, 190), a glass lamp globe base and chimney fragments (Acc. #s 173, 183, 191), a metal nail with attached wire (Acc. # 140), a glass bottle fragment (Acc. # 177), glass bottles (Acc. #s 179, 180, 181, 187, 188, 189), a metal flathead screwdriver shaft (Acc. # 182), a whiteware saucer fragment (Acc. # 185), a prosser button (Acc. # 186), a pressed glass tumbler base (Acc. # 192), and an ironstone tableware fragment (Acc. # 193)
149	1	T-14G	75–104	Pit	Possible post mold	Post-Contact	None

Feature #	SIHP Component	Test Excav.	Depth (cmbs)	Type	Function	Age	Cultural Content
150	2	T-14G	75	Human skeletal remains	Human burial	Likely pre-Contact	Flexed burial: adult, unknown sex, likely Native Hawaiian; also has organic material (possible *tī* leaves)
151	2	T-24	70–110	Pit	Indeterminate	Pre- to post-Contact	None
152	1	T-27	110–145	Pit	Post mold	Post-Contact	A round marble disc (Acc. # 221) and a 4 x 4 inch milled wood post remnant (Acc. # 222)
153	1	T-27	105–135	Pit	Post mold	Post-Contact	A metal nail (Acc. # 223), a 4 x 4 inch milled wood post remnant (Acc. # 224), a flat glass fragment (not collected), and faunal bone (cow)
154	1	T-27	108–156	Pit	Post mold	Post-Contact	A 4 x 4 inch milled wood post remnant (Acc. # 226), a glass bottle fragment (Acc. # 225), and faunal bone (cow, chicken, butchered cow)

largely of historic artifacts and faunal bone (cat, pig, chicken, rat, dog, cow, fish, and medium mammal), with some charcoal, marine shell midden (*Nerita picea*), and traditional-type artifacts (two basalt flakes and a chert core) (see Table 16). The historic artifacts include bottle and flat glass fragments, ceramic fragments, wood, brick, metal nails and fragments, buttons, and marbles.

These locally procured fill, Component 1 cultural deposits also contained 19 associated features (SIHP # -7429 Features 85, 114, 128, 129, 134–139, 142, 143, 146–149, and 152–154) (see Table 17). The features consisted of nine indeterminate pits, two trash pits, three post molds, three possible post molds, and two areas of disturbed and fragmented human skeletal remains. Both instances of human skeletal remains were encountered in the north portion of the project area (in T-14D and T-14E), within the confines of a large burial cluster (pre- and post-Contact burial ground). These human remains features were associated with Component 1 fill deposits that date to the post-Contact period but the original depositional age of the isolated, displaced human skeletal elements remains unknown.

The second type of Component 1 cultural deposit is composed of mixed fill sediment, including both locally procured (i.e., sand) sediments and imported (non-sand, typically alluvial) sediments. This fill type was documented exclusively within the *mauka* portion of the project area, or *mauka* of a historic boundary line running diagonally through Block N East from northwest to southeast (Figure 183 and Figure 184). Culturally enriched mixed fill deposits were encountered within 16 test excavations (T-8, T-9, T-10, T-12, T-13, T-14A through T-14G, T-21, T-22, T-27, and T-28). Cultural material documented within the mixed fill Component 1 deposits consists of abundant historic artifacts, faunal bone, and charcoal. The faunal bone consists of butchered cow and pig, dog, chicken, fish, and Polynesian rat. The historic artifacts consist of residential-type (domestic) material, including doorknobs, abundant ceramic tableware fragments, tiles, abundant bottle glass fragments (including medicine, food, liquor, beer, and soda bottles), flat glass fragments (from light fixtures), buttons, wood, metal pieces, nails, an axe head, a toiletware fragment, candlestick or lamp fragments, a possible paperweight, bricks, marbles, wire, a copper spoon, a stainless steel fork, a tin cup, Styrofoam, a plastic food label, a plastic comb/brush, a bone toothbrush, and synthetic window screen (see Table 16). The manufacture dates of the historic artifacts range from the early nineteenth century (ceramics) to 1967 (Acc. #s 38 and 217). Based on the material content of the mixed fill cultural deposits, as well as their locational and stratigraphic contexts, they are believed to be associated with a row of historic residences fronting Queen Street in this area from ca. 1900 to 1970. Historic maps indicate these residences were constructed sometime between 1893 and 1903–1909 (see Figure 27, Figure 183, and Figure 184). A newspaper article from 31 May 1902 that describes a domestic incident in one of the historic residences further pinpoints the construction of the houses to 1893–1902 (*Evening Bulletin*, May 1902:1).

It should be noted that it is likely some of the locally procured, Component 1 cultural deposits within the *mauka* portion of the project area are also associated with these historic residences. This is particularly likely in those test excavations in which mixed fill deposits were absent and which instead had thick deposits of locally procured fill with abundant residential-type historic artifacts (T-14A, T-14E, and T-14G). In addition, one Component 1 cultural deposit, located within T-14A, was comprised of imported volcanic cinder.

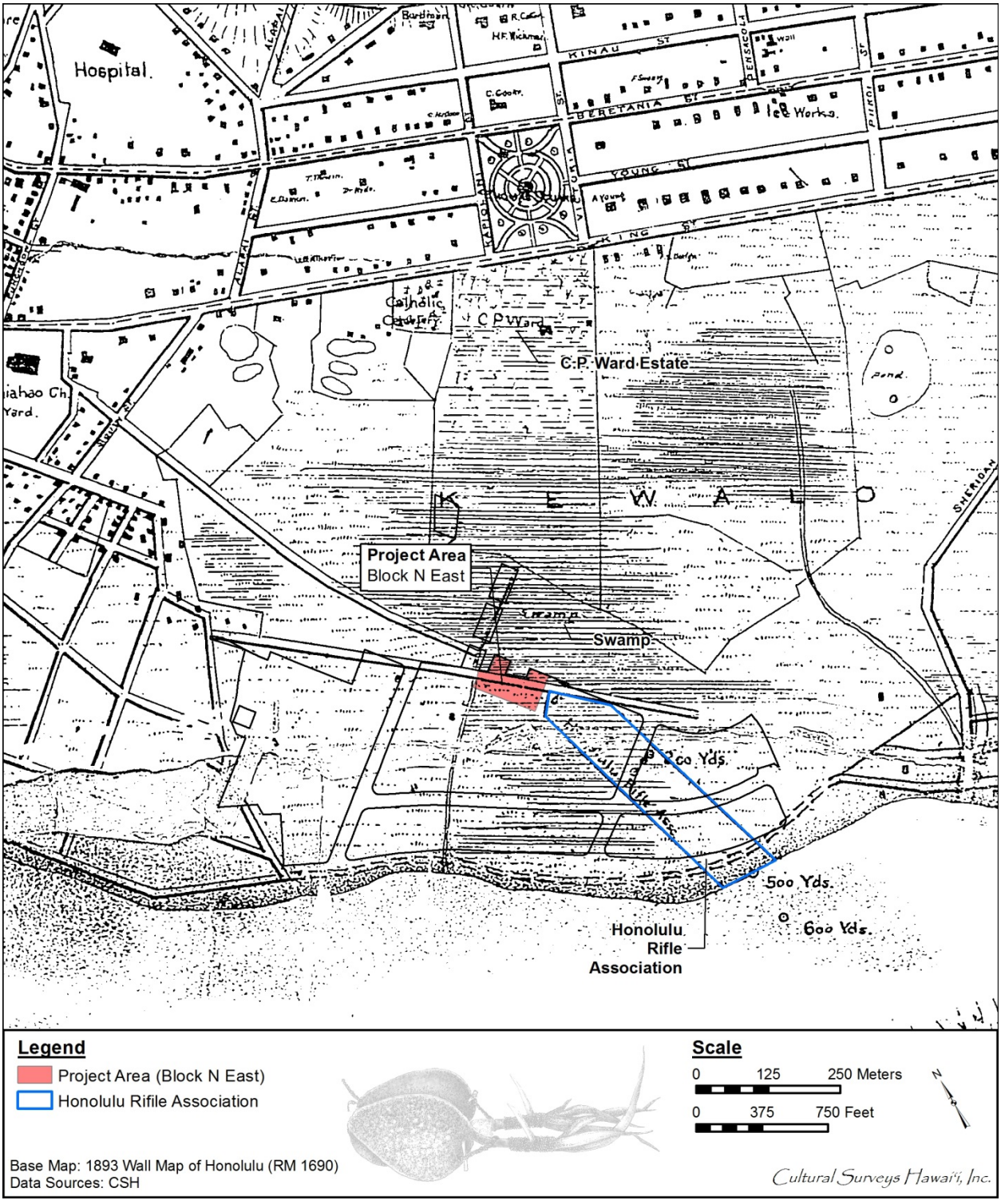

Figure 183. 1893 map of Honolulu (portion), by W.A. Wall (Hawai‘i Land Survey Division, Registered Map 1690), showing a roadway extending diagonally through the Block N East project area. The Queen Street extension has not yet been constructed along the *mauka* edge of the project area and residential structures are absent within the *mauka* portions of Block N East.

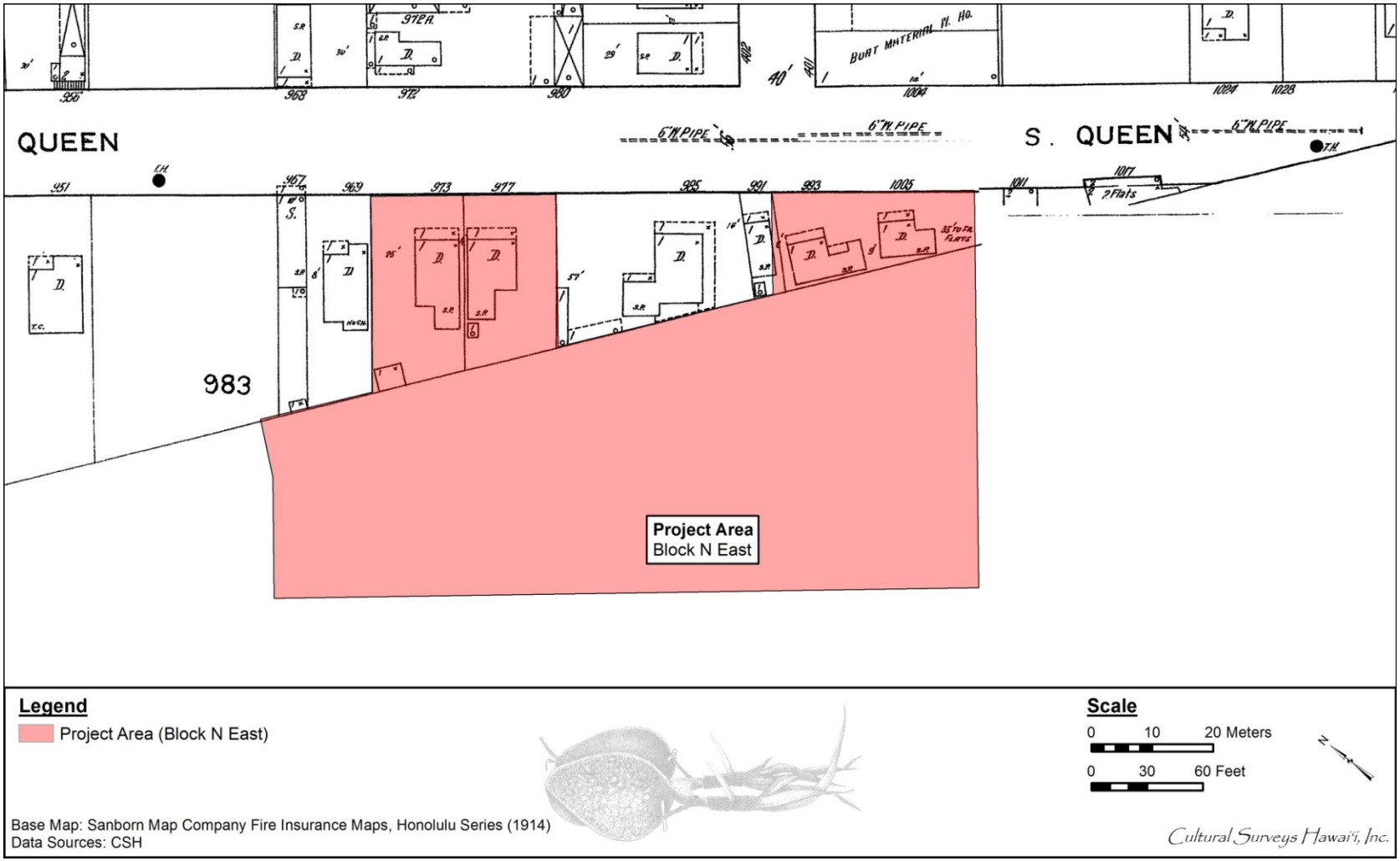

Figure 184. 1914 Sanborn Fire Insurance Map showing a boundary line (or road) extending diagonally through the Block N East project area, with historic residences on the *mauka* side of the line fronting Queen Street; the residential area *mauka* of the line contains SIHP # -7429 Component 1 cultural deposits comprised of mixed (local and non-local) fill sediments with abundant residential-type historic artifacts

The mixed fill, Component 1 cultural deposits contained ten associated features (SIHP # -7429 Features 94, 95, 99–104, 120, and 133) (see Table 17). The features consisted of six indeterminate pits, one trash pit, two post molds, and a dog burial. The dog burial may represent a domestic pet interment. The cultural material within the associated features is similar to that documented within the mixed fill Component 1 deposits, with a date range consisting of the early nineteenth century to the early twentieth century (ca. 1935). The volcanic cinder Component 1 deposit contained two additional features (SIHP # -7429 Features 112 and 113), consisting of two indeterminate pits.

6.1.5.2 SIHP # -7429 Component 2: Culturally Enriched, In Situ Natural Deposits

SIHP # -7429 Component 2 consists of culturally enriched, in situ natural deposits. These deposits comprise a buried sand dune which runs east-west through the Blocks N East, I, and M study/project areas, and consist of sandy loam A horizons, Jaucas sand, and wetland A horizons that formed in small pockets of low-lying areas within the sand dune.

The natural sandy loam or loamy sand A horizons within Block N East have been significantly truncated, and in many cases, partially or completely removed by later depositional events, particularly within the *mauka* portion of the project area. Much of this material was likely incorporated into the overlying Component 1 fill layers. Notwithstanding this disturbance, cultural enrichment of these A horizons was documented within ten test excavations (T-1, T-2, T-5, T-8, T-10, T-14A, T-14B, T-14C, T-14G, and T-24). The A horizons contain only very light cultural content (similar to Block M), including small amounts of marine shell midden (Neritidae), fire-affected rock, charcoal, a basalt manuport, faunal bone (pig, dog, cow, rat), and glass and ceramic fragments (T-1, T-2, T-8, T-14A, T-14B, and T-24). However, numerous features are also associated with the A horizons.

A total of 19 features originate from sand A horizons, including 11 indeterminate pits (Features 86–88, 91–93, 96–97, 121, 130, and 151), two possible post molds (Features 89 and 90), five in situ human burials (Features 115, 116, 131, 132, 150), and one area of disturbed human skeletal remains (Feature 98) (see Table 17). The majority of the indeterminate pits contain little or no cultural content (e.g., charcoal, manuports); however, based on their morphology and thickness, they are interpreted as indicative of cultural activity. Three pits within T-8 (Features 91–93) contain historic material, including a glass insulator fragment with a post-1865 manufacture date. This indicates the A horizon was still a living surface at least up through 1865 and that the overlying Component 1 mixed fill (historic residential layer) was deposited sometime after 1865.

The disturbed human skeletal remains and five in situ human burials are located within the north crenelation-shaped area of Block N East, within the area of a burial ground (T-14 through T-14G) (see Figure 181). The in situ burials consist of flexed burials (Features 115, 132, and 150), a semi-flexed or extended burial (Feature 116), and one which was not exposed enough to determine burial position (Feature 116). They are believed to be traditional Hawaiian burials. Within T-14G, the burial contains preserved organic material, likely *tī* leaf. The disturbed human skeletal remains within T-10 (Feature 98) are located within centimeters of a utility line and may have been disturbed by its installation.

The underlying natural Jaucas sand layer generally did not contain cultural material, with the exception of two post molds (Features 84 and 105). However, because the post molds were

encountered within the test exaction floors (T-1 and T-13), it is not completely certain that they originated from the Jaucas sand; it is certainly possible they originated from the overlying A horizons and were only first noted within the Jaucas sand. However, the Jaucas sand does contain a concentration of in situ human burials and is thus considered a component of SIHP # -7429.

A total of 18 in situ human burials were documented within Jaucas sands (SIHP # -7429 Features 106–111, 117–119, 123–127, 140–141, 144, and 145). In addition, a possible grave marker (Feature 122) consisting of a large concentration of coral cobbles and one waterworn basalt cobble was documented within the immediate vicinity of the Feature 125 burial. These burials were documented within a concentrated area within the north "crenelation" of the project area (T-14 through T-14G) (see Figure 181). Based on the density of the burials (including the burials associated with the overlying A horizon), this area represents an established burial ground.

The burials consist of one historic coffin burial (Feature 110), one disturbed possible coffin burial (Feature 111), and 16 non-coffin, or traditional-type, burials. Of the traditional-type burials, 12 appear to be in a flexed position, one is possibly extended, and three underlie other burials and were not exposed enough to determine burial position, but are likely flexed. Two flexed burials were encountered below the water table within T-14F (Features 127 and 129) and contain preserved burial goods consisting of braided *tī* leaf cordage. The majority consist of adult individuals.

The third type of Component 2 cultural deposits consists of culturally enriched wetland A horizons. Within the central portion of Block N East, a small area of wetlands was encountered within five adjacent test excavations (T-7, T-11, T-12, T-16, and T-17). This wetland area likely represents a low-lying area within the sand dune that remained saturated for long periods of time. Within three of these test excavation A horizons (T-7, T-11, and T-17), light cultural content was noted, consisting of milled wood and ceramic and glass artifacts, including a glass inkwell manufactured between 1858 and 1920 (Acc. # 9). The presence of these historic artifacts within this shallow wetland likely reflects cultural activity within the surrounding sand dune.

6.1.6 Summary

SIHP # -7429 consists of multiple buried, culturally enriched layers that evidence cultural activity spanning the pre-Contact to post-Contact periods. SIHP # -7429 extends generally from the *makai* corner of Ward Avenue and Queen Street to the corner of Queen and Kamake‘e streets, within the area of a buried sand dune deposit that extends along the *mauka* edge of the Kaka‘ako coastal wetlands (Figure 185). SIHP # -7429 was initially identified by Hammatt (2013) during the HRTP City Center AIS. SIHP # -7429 was subsequently documented during the Block M AIS (Hawkins et al. 2015), the Block I AIS (Sroat et al. 2015), the HRTP City Center supplemental AIS (Humphrey et al. 2015), and the current Block N East AIS (see Figure 176).

The cultural deposits comprising this historic property consist of two components, designated Component 1 and Component 2. SIHP # -7429 Component 1 consists of culturally enriched historic fill deposits which functioned as living surfaces for a period of time, as evidenced by cultural enrichment and associated features. The majority of these historic fill deposits/living

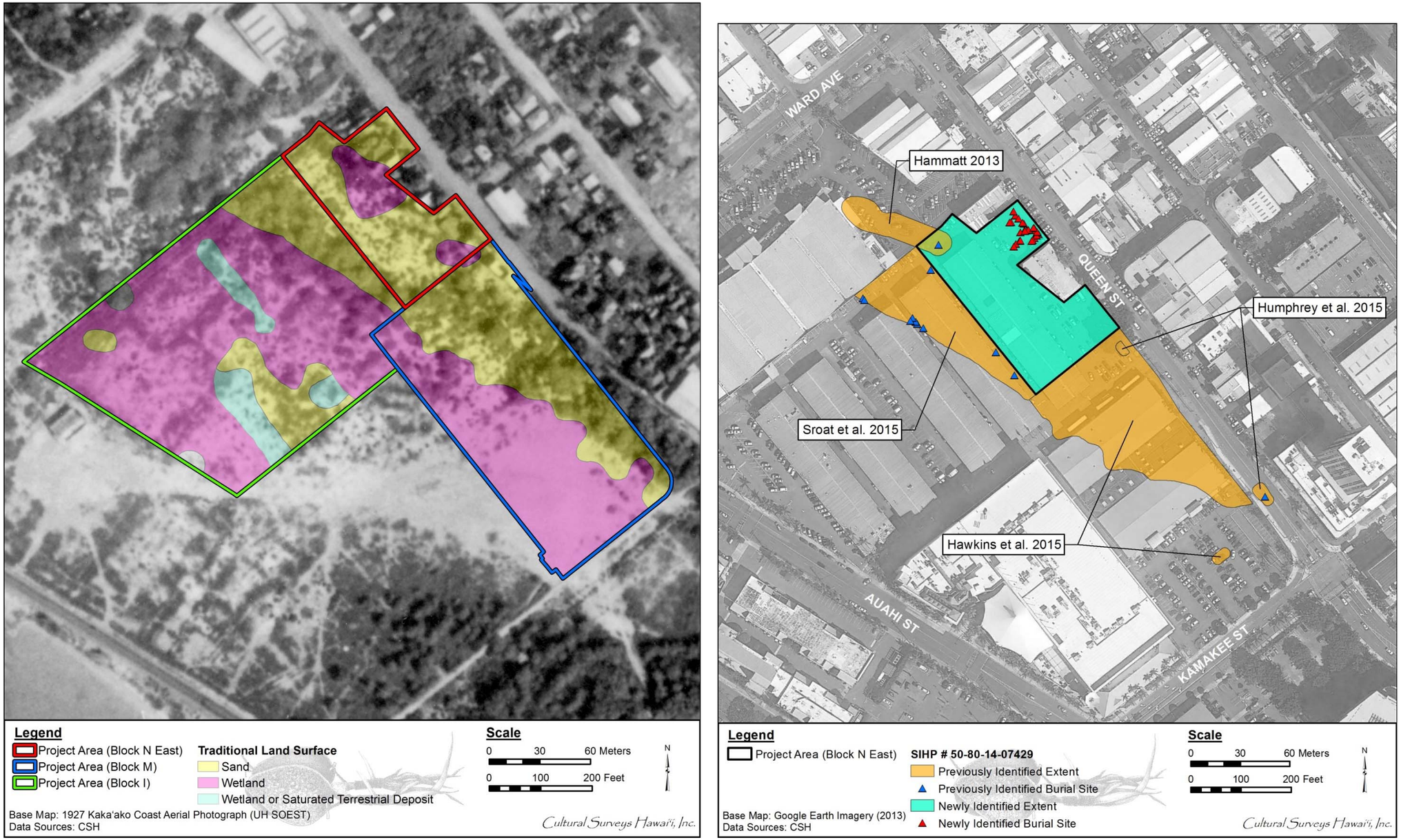

Figure 185. Aerial photographs showing the correlation between a buried natural sand dune (colored yellow) extending across Blocks M, I, and N East (left) and the documented location of SIHP # -7429 (right) (1927 UH SOEST aerial photograph; Google Earth Imagery 2013)

surfaces are composed of locally procured sediment (various mixtures of A horizon material, Jaucas sand, and wetland sediment) and are located directly atop the natural sandy soils. They represent the first historic modification of the natural landsurface, possibly to raise/grade the natural topography. As they are stratigraphically located beneath Kaka‘ako land reclamation fill deposits (hydraulic [dredged] marine clay and crushed coral), which were deposited between 1919 and the early 1930s in this area of Kaka‘ako, they pre-date the 1930s. These locally procured Component 1 cultural layers were identified within Block M (Hawkins et al. 2015), Block I (Sroat et al. 2015), and the HRTP City Center project corridor (Humphrey et al. 2015); they were not initially identified by Hammatt (2013), although subsequent evaluation of photodocumention indicated very thin, locally procured fill deposits were indeed present. Cultural material within these locally procured Component 1 fill deposits consists of historic artifacts, vertebrate and invertebrate faunal material (including both Polynesian and historically introduced species and marine midden), charcoal, fire-affected rock, coconut and *kukui* nut shells, a few traditional Hawaiian artifacts, and human skeletal remains (both in situ burials and disarticulated elements). It is possible some of the traditional-type cultural material represents a secondary context as a result of redeposition of the natural A horizon.

Within the *mauka* portion of Block N East, Component 1 cultural deposits also include heavily mixed fill, consisting of both imported (e.g., alluvial) fill materials and locally procured (sandy) sediments. This type of Component 1 cultural deposit contains abundant residential-type historic artifacts dating from the early nineteenth century (ceramics) to 1967 (various bottles) as well as vertebrate faunal material (including both Polynesian and historically introduced species). As these fills were only documented within the crenelation-shaped areas of Block N East, which previously contained a row of historic residences fronting Queen Street, they are believed to be associated with these historic residences. A clear boundary line defining the property edge of these residences can be seen on nineteenth and twentieth century maps and aerial photographs (see Figure 183 and Figure 184).

SIHP # -7429 Component 2 consists of culturally enriched natural layers, including sand and wetland A horizons and calcareous Jaucas sand. Both the sand and wetland A horizons served as land surfaces for a period of time, as evidenced by the accumulation of organic and loamy material and the presence of cultural material and associated pit features. The Jaucas sand deposit was not a living surface and generally did not contain cultural material, except for human burials. Cultural content within Component 2 includes both historic and traditional-type material, with a larger presence of traditional material than within Component 1. Cultural material documented within the Component 2 cultural layer consists of historic artifacts, vertebrate and invertebrate faunal material (including both Polynesian and historically introduced species and marine midden), traditional Hawaiian artifacts (volcanic glass and a possible fishhook preform), charcoal (including native and alien/historic species), FAR, and human skeletal remains (both in situ burials and disarticulated elements dating to both the pre- and post-Contact periods).

In addition to the presence of cultural material within the Component 1 and Component 2 deposits, both types of cultural layers contain many associated features. A total of 156 features have been documented within the SIHP # -7429 cultural layers, including 63 features associated with Component 1 and 93 features associated with Component 2 (including the seven features from the City Center AIS that were assigned to Component 2 but may belong to either Component 1 or Component 2) (Table 18). The SIHP # -7429 features consisted of indeterminate pits (68; including one pit that contained isolated human skeletal remains), human burials (29),

Table 18. SIHP # -7429 Feature Provenience and Function

Feature Function	Component 1						Component 2						SIHP TOTAL
	HRTP AIS*	HRTP Suppl. AIS	Block M AIS	Block I AIS	Block N East AIS	Total	HRTP AIS*	HRTP Suppl. AIS	Block M AIS	Block I AIS	Block N East AIS	Total	
Indeterminate pit		1		8	16**	25	4	1	5	21	12	43	68
Post mold			2	4	8	14	2			1	4	7	21
Fire pit				5		5		1	2	2		5	10
Trash pit				1	3	4						0	4
Hearth				1		1						0	1
Midden pit						0				4		4	4
Ash lens						0			1			1	1
‘Auwai			2			2						0	2
Manuport						0				1		1	2
Animal burial				1	1	2						0	2
Isolated human skeletal remains				4	1 (2**)	5	1			1	2	4	9 (10**)
Human burial				2		2		1		3	23	27	29
Exhumation pit				2		2						0	2
Possible coffin remnants				1		1						0	1
Possible grave marker						0					1	1	1
TOTAL	0	1	4	29	29	63	7	3	8	33	42	93	156

*The HRTP City Center AIS did not distinguish between Component 1 and Component 2 cultural layers—all features were considered as originating from the in situ A horizon (part of Component 2)

**One of the indeterminate pits contained isolated and disarticulated human skeletal remains

post molds (21), fire pits (10), isolated human remains (9), trash pits (4), midden pits (4), *‘auwai* (2), exhumation pits (2), a coral cobble collection (possible grave marker), possible coffin remnants, a cluster of manuports, a hearth, an ash lens, a cat burial, and a dog burial. Component 1 contained a greater relative percent of post molds, trash pits, animal burials, and *‘auwai*. Component 2 contained a greater relative percentage of midden pits and human burials.

Isolated human remains were documented within the HRTP City Center, Block N East, and Block I study areas only. The ten instances of isolated, disturbed burial finds were documented within three locations: 1) in a roughly linear line along the *mauka* boundary of the Block I study area and its intersection with the HRTP City Center AIS study area, just *mauka* of a modern commercial warehouse structure (Features 6, 23, 25, and 26); 2) within fill deposits overlying a hearth feature (Feature 62) near the northwest corner of Block I (Features 60 and 68); and 3) in the north portion of the Block N East project area within the confines of a large burial cluster (pre- and post-Contact burial ground) (Features 98, 111, 129, and 143). Due to the disturbed, secondary context of the isolated *iwi*, the original depositional ages are unknown.

In situ human burials were documented within the HRTP City Center project corridor and the Blocks N East and I study areas. They were documented within three locations: 1) the Block I study area within a burial cluster located near the margins of the Kaka‘ako wetlands (Features 57, 58a, 59a, 70, and 79); 2) within Queen Street within the HRTP supplemental AIS study area (Feature 81); and 3) the north portion of the Block N East project area within the confines of a large burial ground (Features 106–110, 115–119, 123–127, 131, 132, 139–141, 144, 145, and 150). The in situ burials span the pre- to post-Contact periods.

The one human burial (Feature 81) documented in the HRTP City Center Supplemental AIS study area was a traditional Hawaiian burial. It consists of a fully articulated, flexed, adult burial within a burial pit in natural, calcareous Jaucas sand.

The five burials in the Block I study area consist of both traditional Hawaiian burials and historic coffin burials, indicating this area was an established burial site for a period of time. Interestingly, the traditional burials were found both at the water table in natural soil (Feature 79) and within Component 1 historic fill (Feature 57). The presence of a flexed burial (adult and newborn) within Component 1, and its possible association with coffin remnants, may indicate the Component 1 fill layers were created relatively early in the nineteenth century before Christian burial practices replaced traditional Hawaiian burial practices, or that traditional burial practices continued much later into the post-Contact period than previously documented within Kaka‘ako, at least in isolated instances. Two of the burials (Features 58a and 59a), coffin burials that originated from the Component 2 A horizon, had been previously exhumed, as evidenced by two intrusive pits (Features 58b and 59b), disturbance of the coffin remains, and the near absence of human skeletal remains. While only a limited portion of Feature 59a was able to be investigated, Feature 58a evidenced a possible mix of traditional Hawaiian cultural practices and Christian burial practices. Of particular note was the presence of what appeared to be a ring of *kukui* nut shells within the burial pit and a dense deposit of a large number of fish species beneath the coffin.

The 23 in situ burials within the Block N East project area also consist of both traditional Hawaiian burials and historic coffin burials, indicating this area was an established burial site for a period of time. The majority of these in situ burials were located within natural Jaucas sand,

often lacking a burial pit. The burials span traditional Hawaiian to historic Christian burial practices, although the vast majority of burials (21) are traditional-type burials.

As indicated by the Component 1 (historic fill) and Component 2 (natural A horizons and Jaucas sands) cultural layers and the presence of both traditional type and historic cultural material and associated features, SIHP # -7429 functioned as an area of cultural activity and/or habitation from the pre-Contact to post-Contact periods. Radiocarbon dating of a Component 2 fire pit feature documented within Block M (Feature 8) yielded a relatively early pre-Contact date of AD 1333–1337 or AD 1398–1449. At least intermittent cultural use or temporary habitation occurred up through the early post-Contact period, after which historic transformation of the landscape commenced, including raising/grading of the topography, infilling of the wetlands, residential development, and commercial development.

SIHP # -7429 was previously assessed by Hammatt (2013) as significant under Hawai‘i State historic property significance criteria “d” (has yielded, or may be likely to yield, information important in prehistory or history) and “e” (has cultural significance to an ethnic group, including, but not limited to, religious structures, burials, and traditional cultural properties), pursuant to HAR §13-275-6 and 13-284-6. SIHP # -7429 was also evaluated as eligible for the National Register of Historic Places under Criterion D (information potential), pursuant to 36 CFR Part 60. Hawkins et al. (2015), Sroat et al. (2015), and Humphrey et al. (2015) all agreed with the assessment, and the results of this investigation also support the previous significance assessment. SIHP # -7429 has provided, and can potentially provide additional, information on pre- to early post-Contact habitation, historic land use, and pre- and post-Contact burial practices and burial distribution within Kaka‘ako.

6.2 SIHP # 50-80-14-7686

FORMAL TYPE:	Subsurface historic surfaces and structural remnants
FUNCTION:	Urban/commercial infrastructure
NUMBER OF FEATURES:	N/A
AGE:	Late nineteenth century to mid-twentieth century
PREVIOUS DOCUMENTATION:	Block M AISR (Hawkins et al. 2015)
TEST EXCAVATIONS:	Current Block N East AIS: 9 test excavations (T-6, T-7, T-11, T-16 through T-20, and T-26); Block M AIS: 23 test excavations (T-1, T-7 through T-11, T-13 through T-17, T-20, T-23, T-26 through T-29, T-31 through T-35, and T-65)
TAX MAP KEY:	[1] 2-3-002:001 (por.), 067, 086, 087
LAND JURISDICTION:	Private; Victoria Ward, Limited (VWL) / Howard Hughes Corporation (HHC)

SIHP # -7686 is a previously identified historic property consisting of subsurface historic infrastructure remnants associated with the development of Kaka‘ako during the late nineteenth to mid-twentieth centuries. SIHP # -7686 was previously identified by Hawkins et al. (2015) within the Block M project area, located immediately adjacent to the current Block N East project area. Within Block N East, subsurface historic infrastructure remnants were documented in a linear alignment extending through the central portion of the project area (Figure 186).

SIHP # -7686 consists primarily of buried surfaces, comprising concrete (24) and asphalt (14) surfaces, associated base course layers, and a single oil-rolled surface. Additional infrastructure components include concrete footings (4) and a cinder block structural remnant.

From the late nineteenth to the late twentieth centuries, the Block N East and Block M project areas underwent multiple landscape changes, including the modification and leveling of the area with locally procured sand and soil (see Section 6.1), the infilling of the wetlands and surrounding areas between 1919-1927 with material dredged from the nearby Kewalo Basin (i.e., Kaka‘ako land rec lamation) (see Section 7.3), and mid- to late twentieth century urban and commercial development. The majority of the identified historic infrastructure remnants post-date the Kaka‘ako land reclamation event and appear to be associated with mid-twentieth century urban and commercial development. The single exception consists of an oil-rolled surface within Block N East that predates the Kaka‘ako land reclamation fill layers. Aerial photographs and historic maps were used in order to aid in estimating a date range for the identified buried historic infrastructure remnants; however, due to the time span between the photographs and maps, the observed buried surfaces may have been associated with access roads and structures not shown.

6.2.1 Block M AIS Documentation of SIHP # -7686 (Hawkins et al. 2015)

Within Block M, SIHP # -7686 was documented within the central and western portions of the project area (see Figure 186). The majority of the infrastructure remnants consist of buried

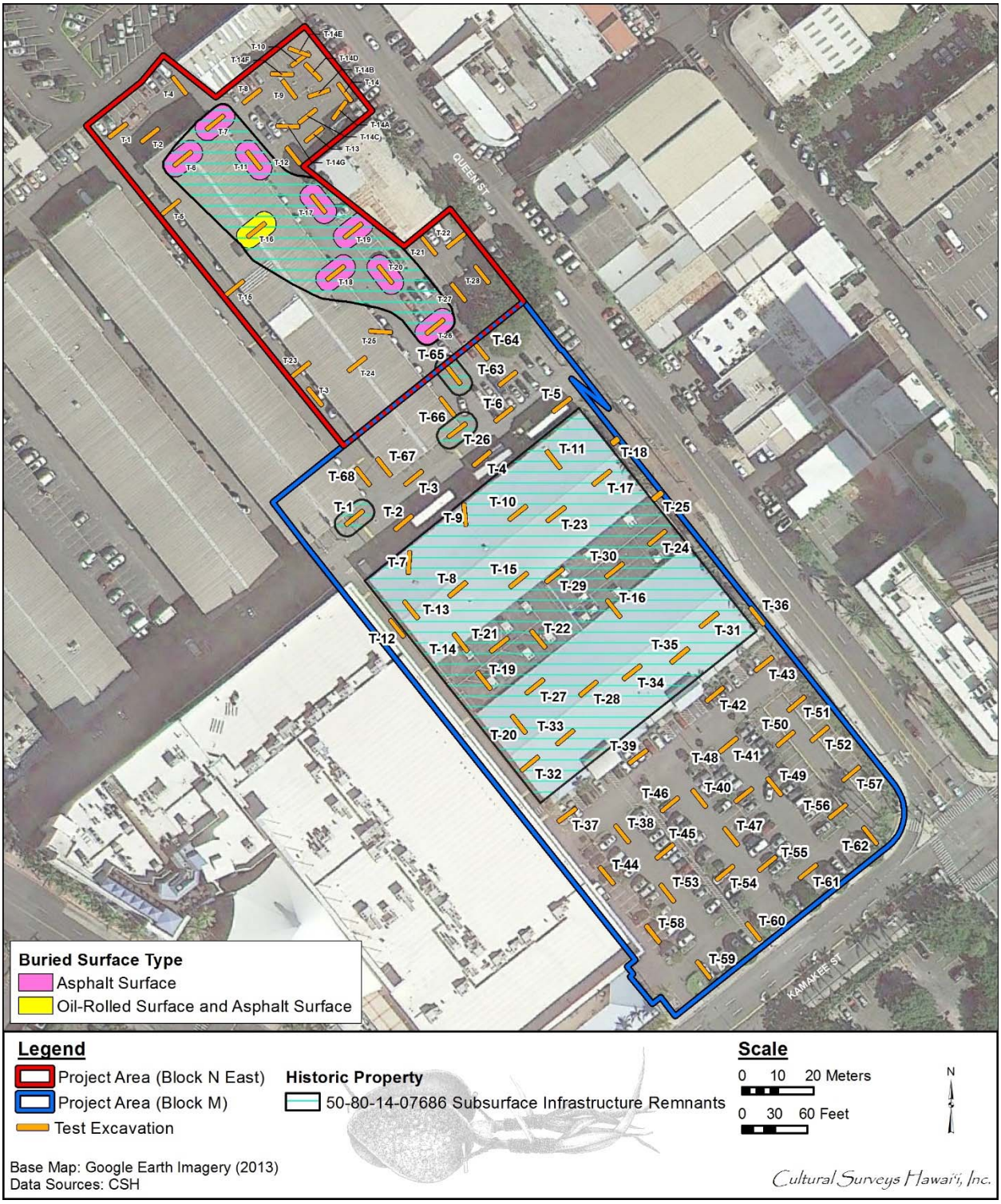

Figure 186. 2013 aerial photograph showing the location of SIHP # -7686 within the current Block N East project area (outlined in red), in relation to previous documentation of SIHP # -7686 within the Block M project area (outlined in blue) (Hawkins et al. 2015)

concrete surfaces (24) and associated base course layers (15). Additional infrastructure remnants consist of concrete footings (4), asphalt surfaces (5) and an associated base course layer (1), and a cinder block structural remnant (Figure 187 through Figure 190).

The buried concrete surfaces and concrete footings were all observed overlying the 1919–1927 Kaka‘ako reclamation fill deposits, therefore post-dating this time period. Analysis of 1927 and 1939–1941 aerial photographs shows an open, undeveloped area in the location of Block M immediately following the infilling; however, by 1943, a U.S. Army map shows three parallel warehouse commercial structures within the project area (Figure 191). A 1952 aerial photograph also shows warehouse structures and surrounding asphalt roadways/parking lots (Figure 192). The documented locations of the buried concrete surfaces and footings align with the footprints of the northwestern and central warehouse structures. The concrete surfaces and footings were interpreted as remnants of these warehouse structures.

The buried asphalt surfaces are primarily located within the northwestern portion of the Block M project area (T-7, T-9, T-26, and T-65). Two asphalt surfaces laterally interface with the concrete warehouse slabs (T-7 and T-9) and were interpreted as associated commercial surfaces, likely utilized for parking. Based on the 1952 aerial photograph, the asphalt surfaces within T-26 and T-65 were interpreted as likely representing commercial accessways (see Figure 192). The remaining asphalt surface was documented within the central portion of the project area underlying a buried concrete surface; it consists of a small, discontinuous slab of indeterminate function.

A single cinder block structural remnant was documented within the western corner of the project area (T-1). It consists of an alignment of mortared blocks and was observed at 15 cmbs. At least two courses of cinder blocks were exposed during excavation. It runs perpendicular to the adjacent warehouse building.

6.2.2 Block N East AIS Documentation of SIHP # -7686

The Block N East AIS identified additional components of SIHP # -7686 within the central portion of the project area (see Figure 186). The historic infrastructure remnants within Block N East consist of buried asphalt surfaces, documented within nine test excavations (T-6, T-7, T-11, T-16 through T-20, and T-26), and one oil-rolled surface (T-16).

The nine buried asphalt surfaces were encountered at depths ranging from 12 to 40 cmbs. The majority of these surfaces also have an associated sublayer of compacted base course. The asphalt surfaces are stratigraphically located beneath the modern surface and associated base course and grading layers and above the Kaka‘ako reclamation fill deposits (Figure 193 and Figure 194). Thus, similar to the infrastructure remnants within Block M, they postdate 1919–1927.

In contrast, the oil-rolled surface within T-16 was encountered below the Kaka‘ako land reclamation fill at a depth of 95 cmbs. The oil-rolled surface overlies natural wetland sediment and is discontinuous, observed only within the *makai* portion of the excavation (Figure 195 and Figure 196). It has a thickness of 16 cm.

Figure 187. Figure from Hawkins et al. (2015) showing a buried concrete surface associated with SIHP # -7686 (T-15)

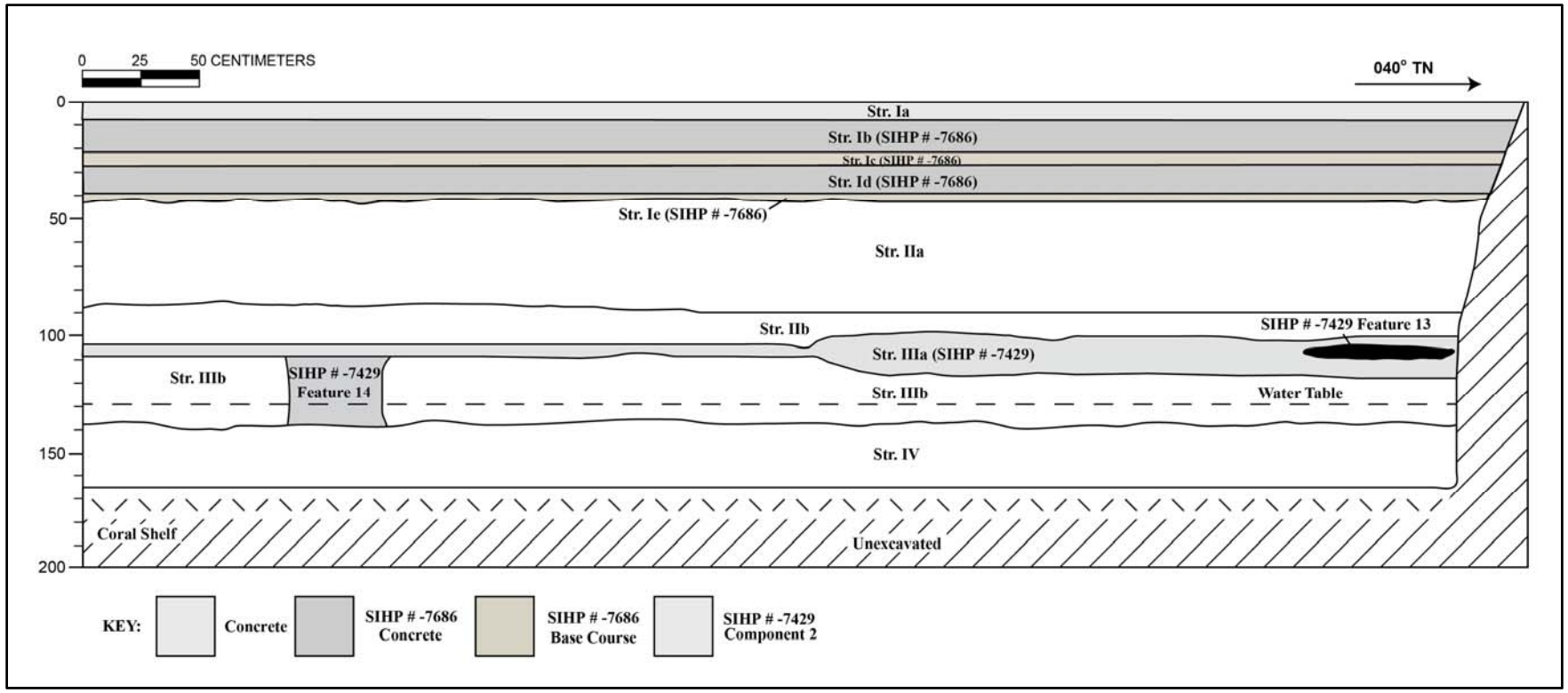

Figure 188. Figure from Hawkins et al. (2015) showing buried concrete surfaces and associate base course layers within T-15

Figure 189. Figure from Hawkins et al. (2015) showing a buried concrete footing and concrete surface associated with SIHP # -7686 (T-31)

Figure 190. Figure from Hawkins et al. (2015) showing the cinder block structural remnant associated with SIHP # -7686 (T-1)

Figure 191. Figure from Hawkins et al. (2015) showing the Block M project area in relation to three parallel commercial warehouse structures (1943 U.S. Army War Department terrain map)

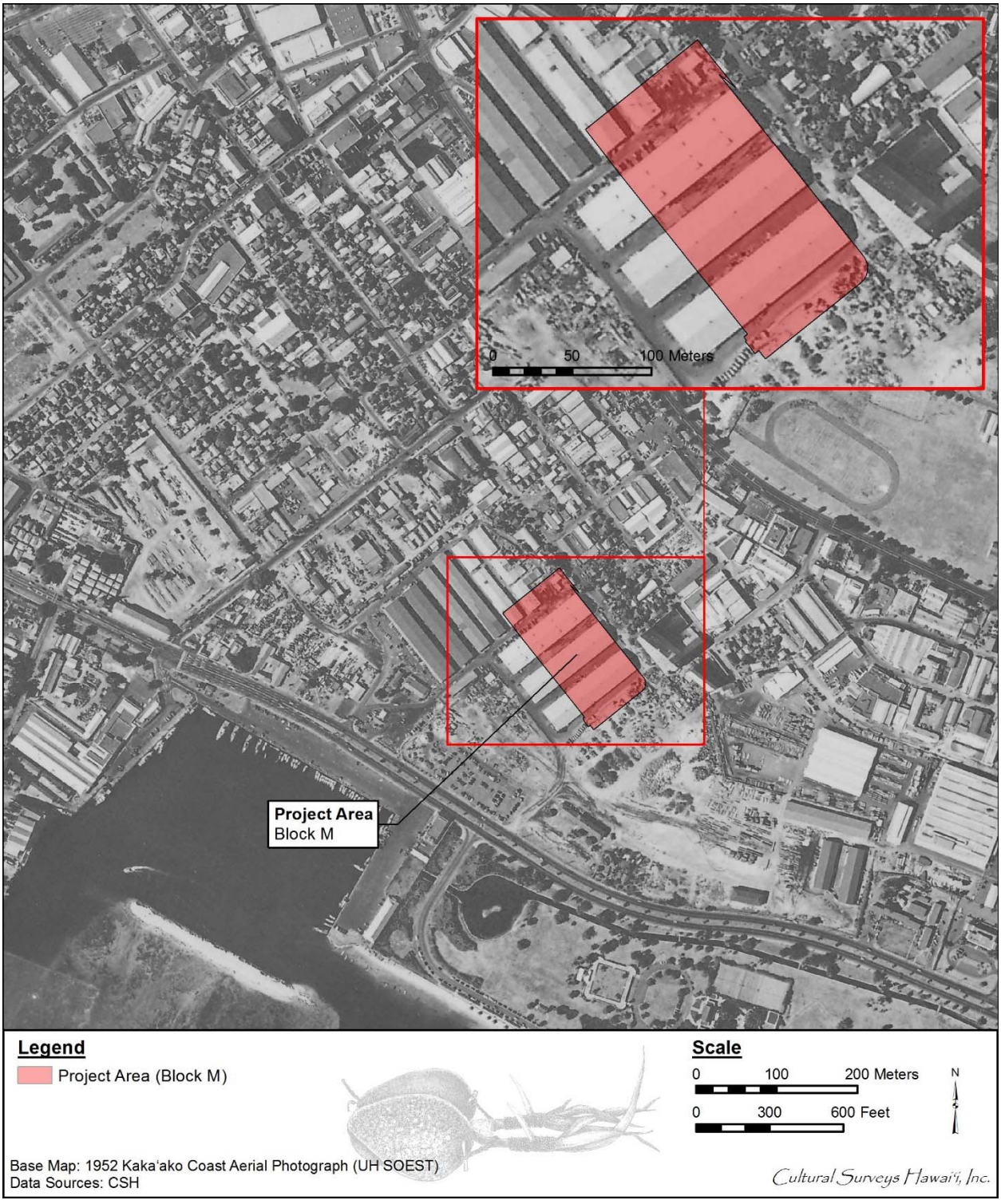

Figure 192. Figure from Hawkins et al. (2015) showing the Block M project area in relation to 1952 commercial infrastructure (UH SOEST)

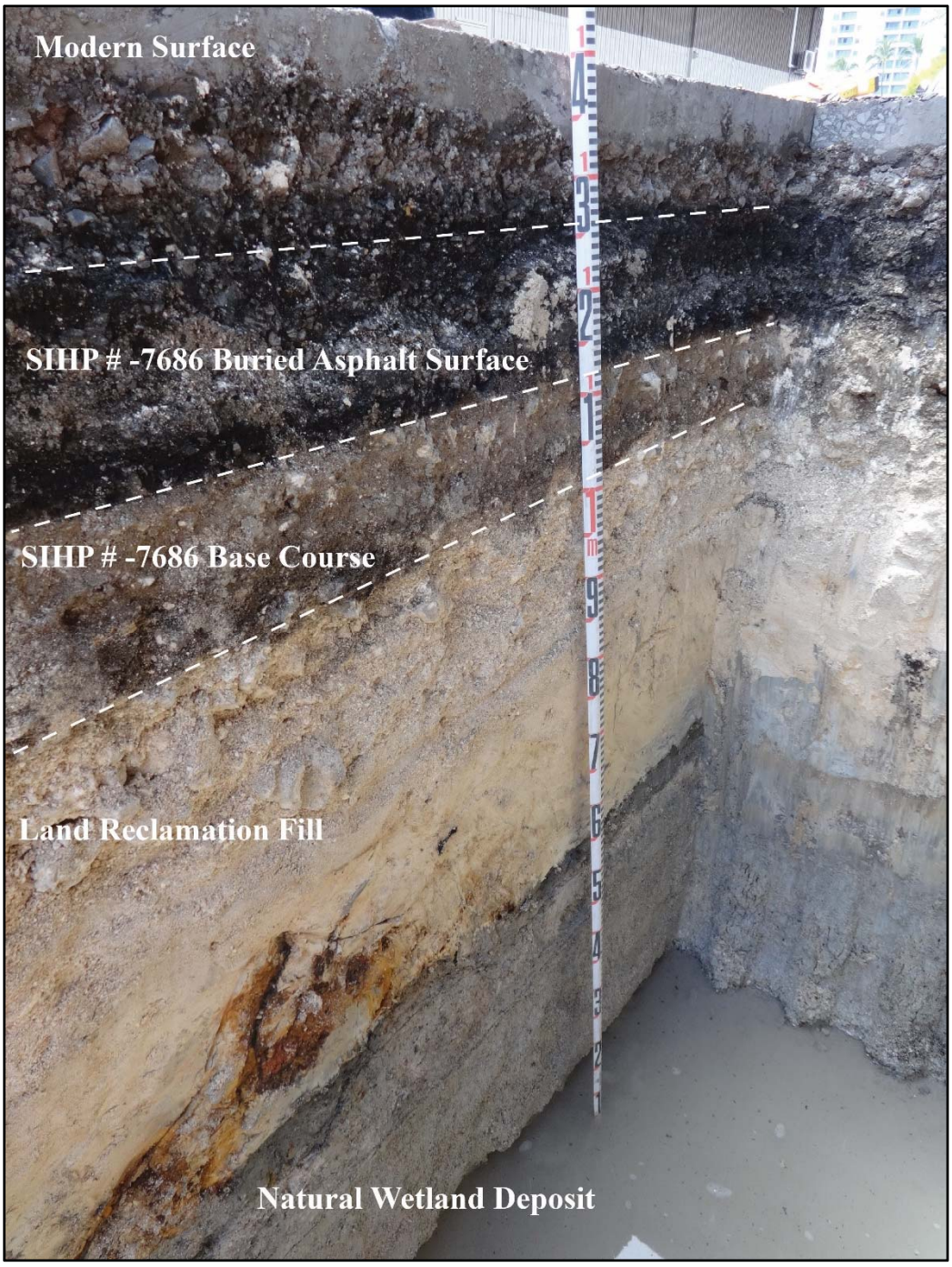

Figure 193. Photograph of T-17 showing an example of the SIHP # -7686 buried asphalt surfaces and base course layers overlying Kaka‘ako reclamation fill deposits within Block N East

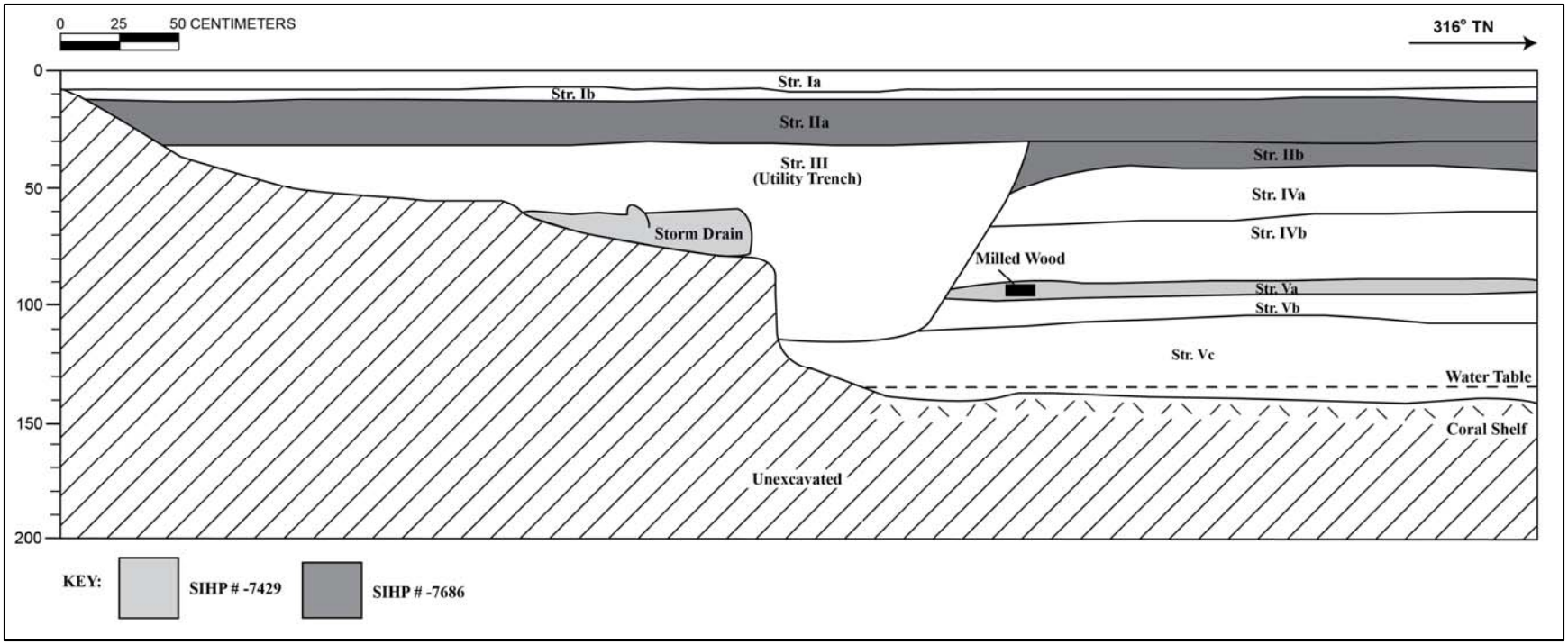

Figure 194. T-17 southwest profile, showing the SIHP # -7686 buried asphalt surface and base course overlying Kaka‘ako land reclamation fill (Strata IVa–IVb)

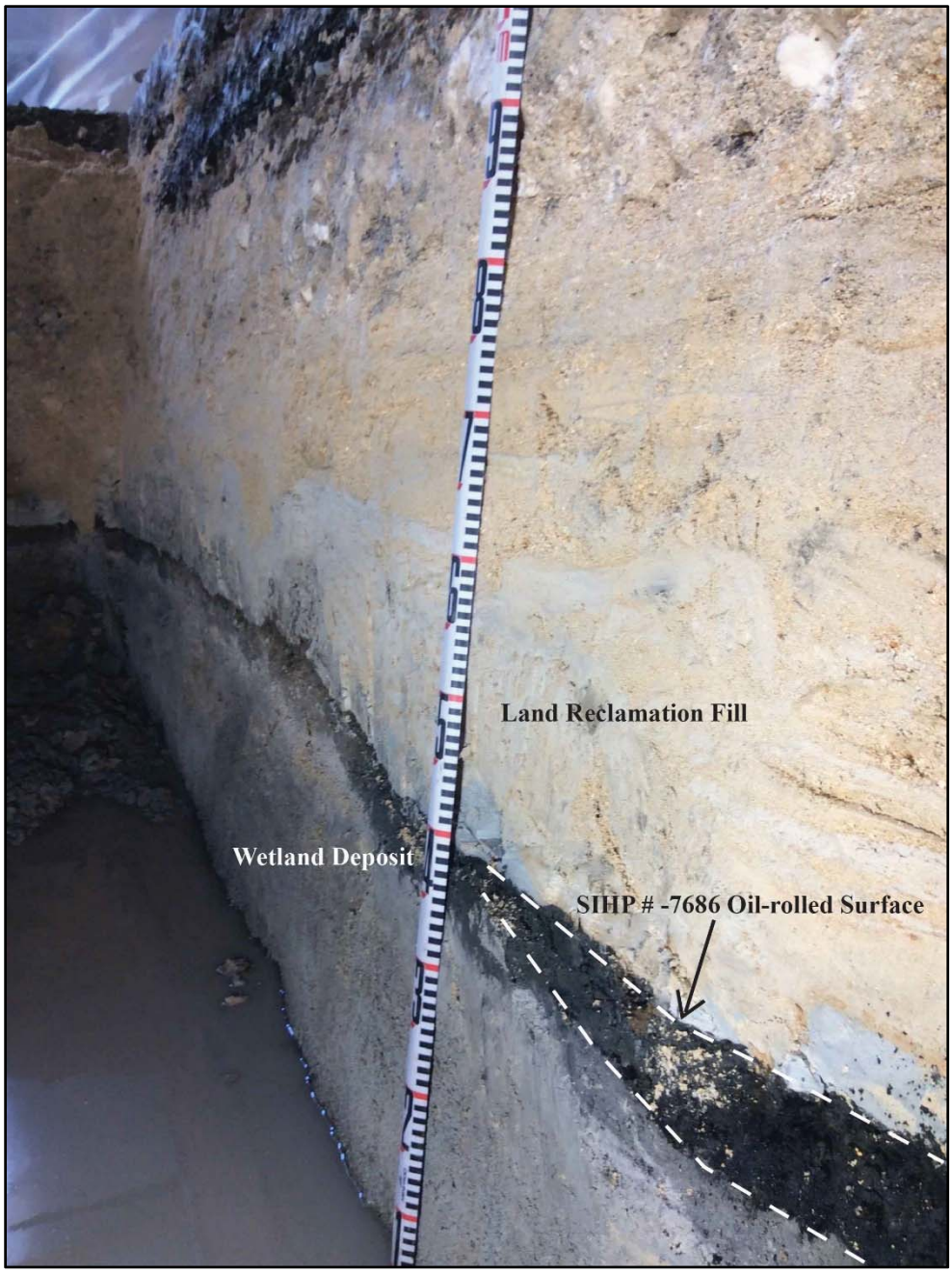

Figure 195. Photograph of T-16 showing the SIHP # -7686 oil-rolled surface underlying Kaka‘ako reclamation fill

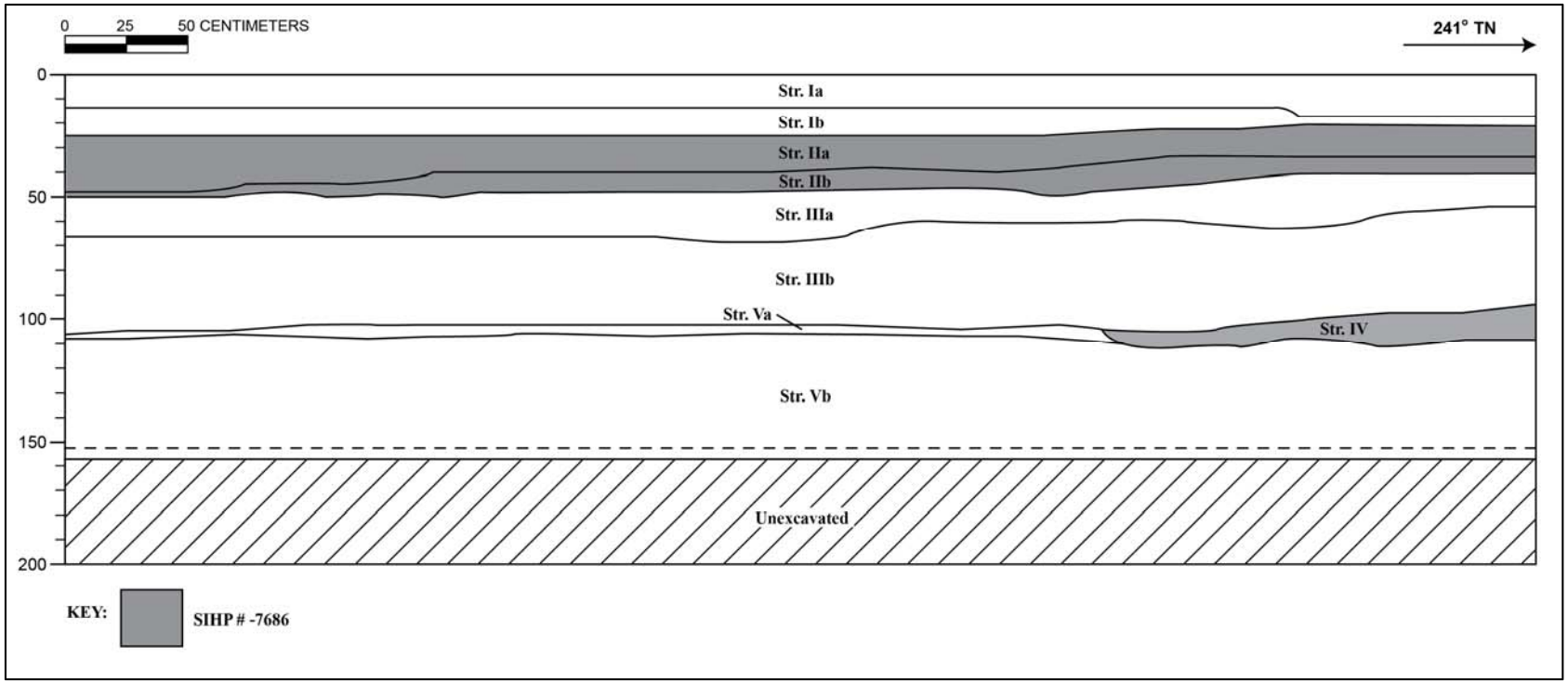

Figure 196. T-16 southeast profile, showing the SIHP # -7686 buried oil-rolled surface underlying Kaka‘ako land reclamation fill (Strata IIIa–IIIb) and overlying natural wetland deposits (Strata Va–Vb)

The SIHP # -7686 buried surfaces within Block N East form a linear alignment through the project area, extending northwest to southeast (see Figure 186). This suggests these burial surfaces may be associated with a former road surface that transected the project area. Historic maps between 1883 and 1897 indicate a road extending through this portion of the Block N East project area, terminating at Kolowalu Fishpond to the east (Figure 197 and Figure 198). This historic roadway appears to have also served as a property boundary line by the early twentieth century as depicted in the 1914–1950 Sanborn Fire Insurance maps (see Section 6.1, Figure 184). Twentieth century aerial photographs (1927 and 1939–1941), taken just after the Kaka‘ako land reclamation program, continue to show a diagonal line in this area that may be an informal roadway; if so, then the earlier nineteenth century roadway was rebuilt following reclamation activities (Figure 199 and Figure 200). Some of the buried asphalt surfaces may be associated with this potential reconstructed roadway.

However, it is also likely that some, if not all, of the asphalt surfaces are associated with mid-twentieth century commercial development. A 1952 photograph shows commercial development within the central and *makai* portions of the Block N East project area, including the construction of three warehouse structures (*makai*) surrounded by paved asphalt roadways and parking areas (Figure 201). Based on the distinct presence of asphalt surfaces within the 1952 aerial photograph and the stratigraphic location of the asphalt surfaces overlying the Kaka‘ako land reclamation fill, this scenario would seem most likely. However, the fact that two of the asphalt surfaces are located beneath the modern warehouse concrete floor and directly atop the Kaka‘ako reclamation fill (T-6 and T-16) indicates that at least some of the asphalt surfaces predate the commercial development visible within the 1952 photograph.

The oil-rolled surface, which is located below land reclamation fill, certainly predates twentieth century commercial development. This surface may represent the earlier nineteenth century road depicted on historic maps, or it may represent undocumented historic activity. Oil-rolled surfaces were first utilized within the U.S. ca. 1870 and were common by the early twentieth century (National Asphalt Pavement Association 2016). The application of bitumen, a form of petroleum, to road surfaces was used to alleviate excess dust (Claudy 1919:228).

6.2.3 Summary

SIHP # -7686 consists of subsurface historic infrastructure remnants associated with urban and commercial development within Kaka‘ako during the late nineteenth to mid-twentieth centuries. SIHP # -7686 was first identified by Hawkins et al. (2015) within the central and western portions of the Block M project area, and subsequently within the central portion of the current Block N East project area.

The historic infrastructure remnants consist of buried asphalt and concrete surfaces (and associated base course layers), an oil-rolled surface, concrete footings, and a cinder block structural remnant. With the exception of the oil-rolled surface identified in Block N East, all buried historic infrastructure remnants were observed overlying 1919-1927 Kaka‘ako reclamation fill deposits and therefore post-date this event.

Based on historic maps and aerial photographs, the concrete surfaces and footings documented within Block M are likely remnants of commercial warehouse structures constructed ca. 1943. The majority of the asphalt surfaces documented within Block N East and Block M are

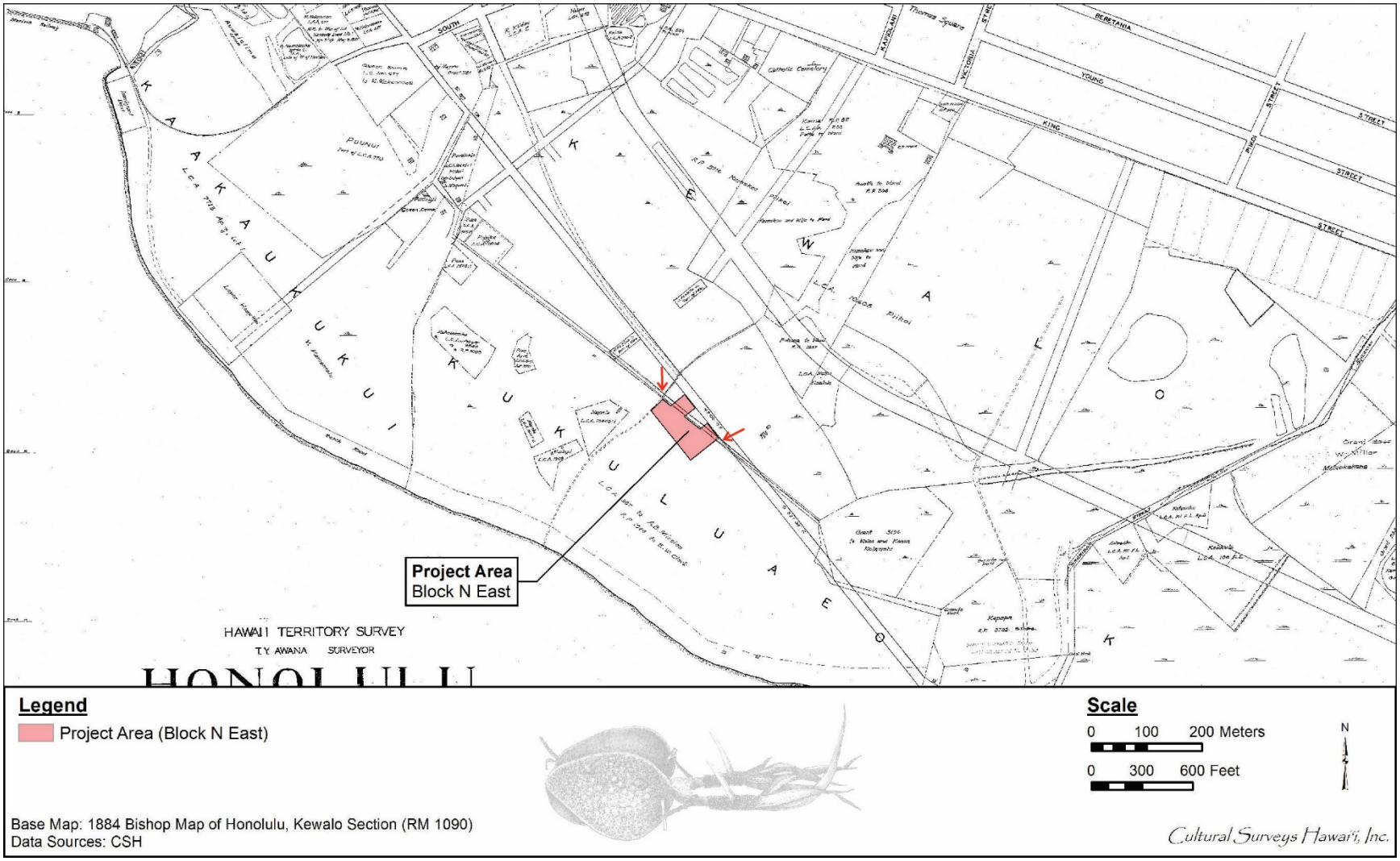

Figure 197. 1884 map of Honolulu, by Sereno Bishop, showing what appears to be a roadway (indicated by red arrows) extending diagonally through the Block N East project area

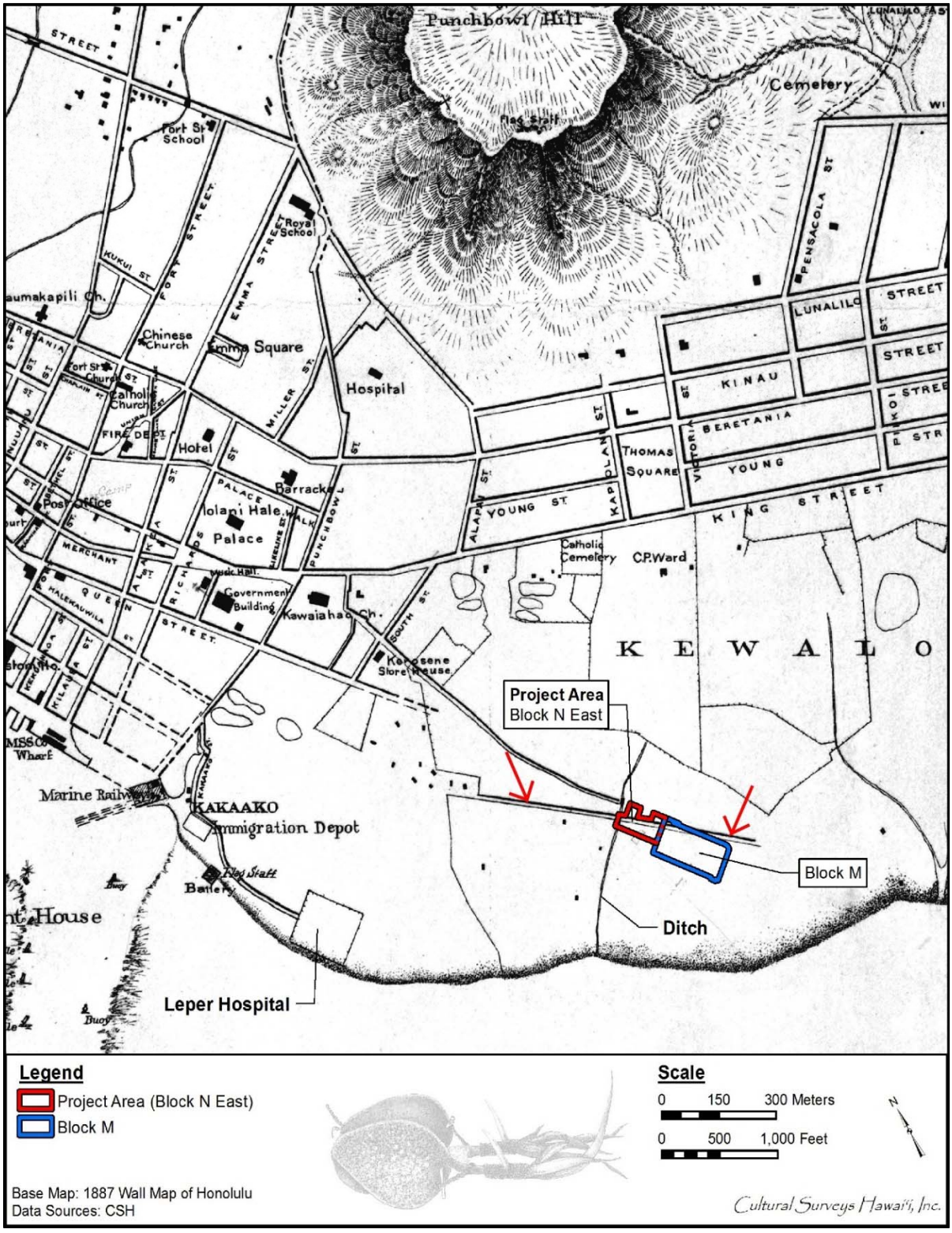

Figure 198. 1887 map of Honolulu, by W.A. Wall, showing what appears to be a roadway (indicated by red arrows) extending diagonally through the Block N East project area (outlined in red), and through the northern boundary of Block M (outlined in blue)

Figure 199. Close-up of a 1927 aerial photograph showing the in-filled Block N East project area. A possible roadway (indicated by red arrows) appears to extend partially into the eastern portion of the project area in the same alignment as an earlier nineteenth to twentieth century roadway (UH SOEST).

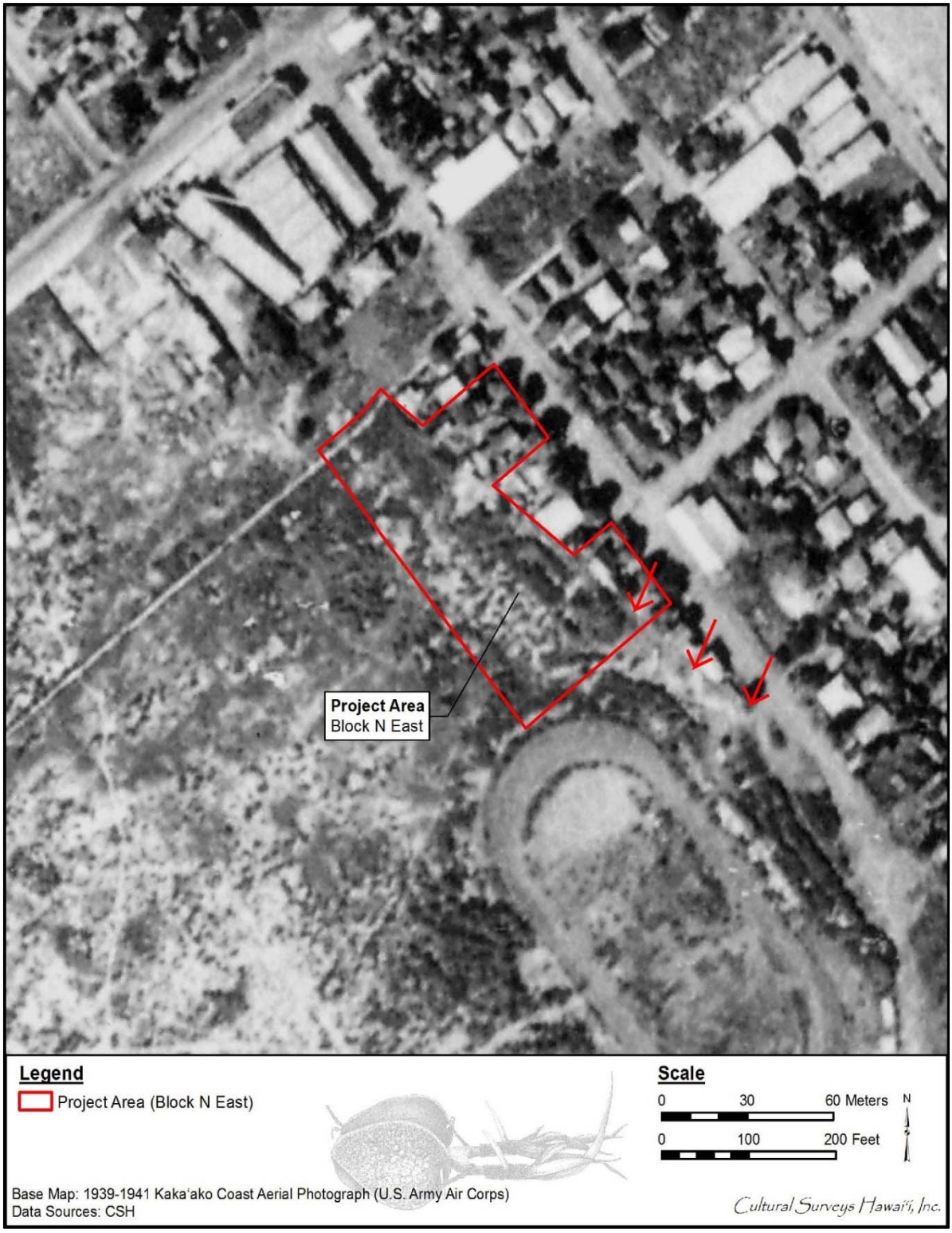

Figure 200. Close-up of a 1939-1941 aerial photograph showing the potential roadway (indicated by red arrows) continuing to extend through the eastern portion of Block N East (U.S. Army Air Corps)

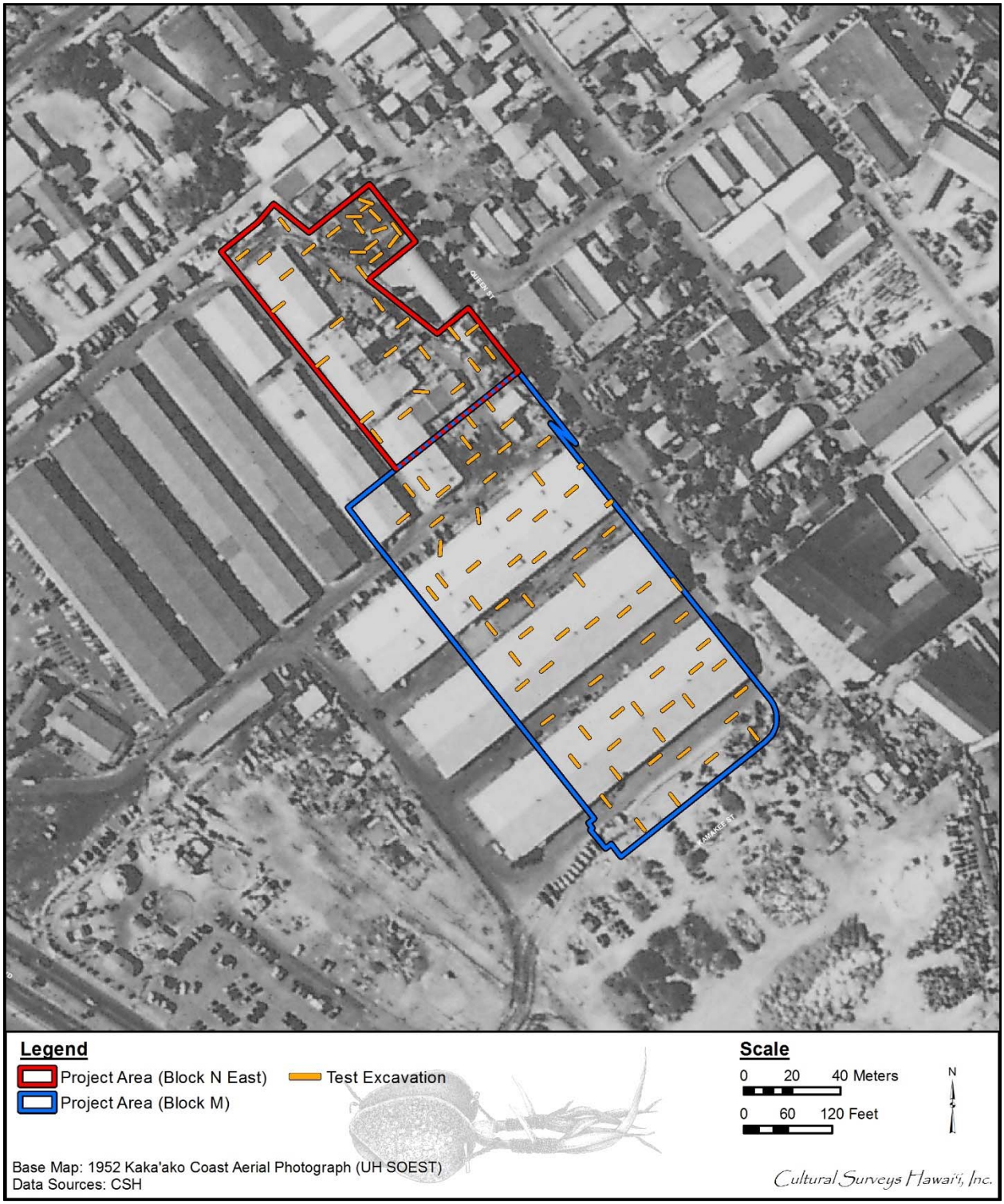

Figure 201. Close-up of a 1952 aerial photograph showing Block N East (outlined in red) and Block M (outlined in blue) in relation to commercial warehouse structures and surrounding asphalt surfaces (UH SOEST)

also likely associated with this mid-twentieth century commercial development, functioning as access roads and parking areas. However, a few of the asphalt surfaces within Block N East predate (underlie) commercial warehouse foundations and may instead be related to a nineteenth to twentieth century roadway that traversed this area. The oil-rolled surface, which predates the 1919–1927 Kaka‘ako reclamation fill deposits, may be associated with an earlier construction of this historic road, or may represent a historic surface not documented by historic maps or photographs.

SIHP # -7686 was previously assessed by Hawkins et al. (2015) as significant under Hawai‘i State historic property significance criterion “d” (has yielded, or may be likely to yield information important in prehistory or history) pursuant to HAR §13-275-6 and §13-284-6. The results of this investigation support this previous significance assessment. SIHP # -7686 has provided, and can potentially provide additional information on nineteenth and twentieth century urban and commercial development within Kaka‘ako.

Section 7 -Research Objectives

Based on historic background research and previous archaeological investigations, the AISP for the Block N East project (Sroat, O'Hare, and McDermott 2014) formulated three research objectives. Information obtained from the AIS investigation greatly informed each of the objectives and is presented below for each question.

7.1 Research Question 1

Previous archaeology within the Block N East project area (Hammatt 2013) documented a culturally enriched A horizon within the northern portion of the block (SIHP # -7429) and a light cultural signature within an A horizon in the central portion. Surrounding areas documented wetland sediments. The current archaeological investigation will focus on identifying the extent to which sand areas within this mosaic of wetlands were utilized for cultural activity and how the cultural signature informs about the nature and intensity of cultural land use in this area during the pre-Contact to late nineteenth century time periods.

Hammatt (2013) documented alternating wetland and sand deposits within the portion of the HRTP City Center project corridor that traverses Block N East. However, subsequent AIS investigations within and surrounding this area (Block M, Block I, and Block N East) show the area of "wetlands" within Block N East is anomalous; instead, this area consists of a large sand dune that extends northwest to southeast and which contains two isolated, low-lying pockets in which saturated wetland deposits formed (see Figure 185). Extending *makai* from this large sand dune is an extensive area of natural wetlands.

This prominent sand dune evidences cultural activity from at least the early fifteenth century up through the twentieth century. As documented by previous AIS investigations (Hammatt 2013, Hawkins et al. 2015, Humphrey et al. 2015, and Sroat et al. 2015), the natural Jaucas sand deposits and associated A horizons within the sand dune contain evidence of pre-Contact to early post-Contact traditional-type cultural use, including cultural enrichment of the A horizons (e.g., midden, charcoal, fire-affected rock), associated pit features (including a fire pit radiocarbon dated to AD 1333–1337 or AD 1398–1449), and human burials associated with both the Jaucas sand and A horizons. The in situ A horizons also contain evidence of post-Contact cultural activity in the form of historic artifacts, historically introduced faunal remains, and associated features with historic cultural material. These culturally enriched, in situ sand deposits have been designated SIHP # -7429 Component 2 cultural deposits. Overlying these in situ sand dune deposits are multiple historic fill deposits composed of reworked local sediment that were also utilized as living surfaces for a period of time. These historic fill surfaces, designated SIHP # -7429 Component 1 cultural deposits, contain mostly historic cultural material with some traditional-type material, much of which may be in a secondary context. The Component 1 cultural deposits contain both historic and traditional-type human burials (Sroat et al. 2015).

Within Block N East, the vast majority of test excavations (29 out of 35) documented natural terrestrial sand deposits associated with the sand dune. Cultural use of this natural sand dune was documented within 14 test excavations, mainly within the northern portion of the project area (T-1, T-2, T-5, T-8, T-10, T-13, T-14, T-14A through T-14D, T-14F, T-14G) but also within T-24 in the southern portion. Cultural material within the in situ A horizons consisted of both

traditional-type and historic material; associated features consisted of 11 indeterminate pits, two possible post molds, five in situ traditional-type burials, and one area of disturbed human skeletal remains. The Jaucas sand contained two post molds and 18 in situ human burials, 16 of which are traditional-type burials and one, possibly two, are coffin burials. Thus, the cultural activity within the Component 2 cultural deposits largely consists of habitation (post molds) and human interment. The human burials are densely clustered within the northern, crenelation-shaped area of Block N East, where the elevation of the sand dune is highest (T-14 through T-14G), and appears to represent an established burial ground (see Figure 176). As most burials were located within Jaucas sand rather than associated with the A horizon, it appears that initially this area functioned as a burial ground rather than a living surface.

Within one of the low-lying pockets in the sand dune containing wetland deposits, located in the north/central portion of the project area, slight cultural enrichment was also documented within the wetland A horizons (T-7, T-11, and T-17). The cultural material consists of historic artifacts and likely represents use of the surrounding sand dune, with material discarded along the wetland edge.

Within the historic period, the sand dune underwent modification(s) as evidenced by overlying deposits of locally procured sediments (i.e., various mixtures of A horizon material, sand, and sandy clay). These historic fills were likely utilized to grade or level the natural topography. Based on the presence of cultural material and associated features, these local fills served as living surfaces from the nineteenth century to the early twentieth century prior to the large-scale land reclamation activities within this area of Kaka‘ako. While the surrounding project areas (Block M and Block I) showed a greater cultural use of these locally procured fill deposits (SIHP # -7429 Component 1), five test excavations within Block N East evidenced associated cultural enrichment (T-4, T-14A, T-14C, T-14E, and T-27), consisting of one trash pit, four indeterminate pits, three post molds containing milled wood, and two areas of disturbed human skeletal remains. The post molds were documented within a single test excavation (T-27) and likely represent habitation. The disturbed human skeletal remains were found in the area of the burial ground (T-14C and T-14E).

With the exception of the dense human burial ground within the northern portion of the Block N East project area, the cultural use of this central portion of the sand dune was relatively light and scattered prior to twentieth century urban development (see Research Question 2). This also appeared to be the case within the HRTP City Center project corridor, Block M, and most of Block I. Only one area of relatively dense A horizon pit features was documented, within Block I, as well as a small burial ground. Thus, while the SIHP # -7429 Component 1 and Component 2 cultural layers evidence cultural activity spanning the early fifteenth century to the early twentieth century, this cultural activity appears somewhat intermittent, with perhaps increasing use during the early post-Contact through historic period.

Further discussion of the SIHP # -7429 cultural deposit can be found in Section 6.1, which details the portions identified within the Block N East project area and their relation to the findings from previous studies (Hammatt 2013, Hawkins et al. 2015, Humphrey et al. 2015, and Sroat et al. 2015).

7.2 Research Question 2

1914 and 1927 Sanborn Fire Insurance maps and early twentieth century photographs show small residential-type structures along the makai *side of Queen Street within Block N East. To what extent are early twentieth century residential deposits extant beneath fill layers within the project area and what was the nature and intensity of the activities and land use?*

Twentieth century residential deposits were documented throughout the *mauka* portion of the Block N East project area. These deposits were found within a sharply delineated area, bounded on the *makai* side by a historic property line that runs diagonally through the project area from northwest to southeast and on the *mauka* side by Queen Street. Historic maps show a diagonal line extending northwest-southeast through the project area as early as 1883 (see Figure 18), likely indicating an unpaved roadway; however, by 1903–1909 (see Figure 27), this line also represents a property line, with residential houses *mauka* of the line fronting Queen Street (see Figure 184). The 1914 Sanborn fire insurance map shows four residential houses within this area—two within the crenelation-shaped area in the north portion of the project area and two within the crenelation-shaped area in the east portion. Historic maps and aerial photographs continue to show residential structures within these areas until 1970 (see Figure 37).

The residential deposits consist mainly of mixed fill, consisting of varying proportions of imported sediment (generally alluvium) and locally procured sediment (A horizon and Jaucas sand material); however, a few residential deposits appear to be composed of local sandy sediment, or in the case of one layer, of imported volcanic cinder. These residential fill layers are stratigraphically located atop the locally procured sandy fill layers discussed in Research Question 1 (i.e., the SIHP # -7429 Component 1 locally procured fill cultural deposits). Abundant historic artifacts were documented within these mixed fills and associated pit features, the vast majority of which represent residential/domestic material, including abundant ceramic tableware and bottle glass fragments, buttons, door knobs, window screen, candlestick or lamp base fragments, nails, a bone toothbrush handle, a toilet fragment, medicine bottles and food jars, flooring tile, a battery, bricks, and a stainless steel fork. The manufacture dates of the historic artifacts range from the early nineteenth century (several ceramic artifacts) to 1967 (two glass bottle artifacts). Based on the historic maps and aerial photographs and the abundant residential-type historic artifacts, these mixed fill layers are interpreted as associated with the twentieth century residences fronting Queen Street. As the fill layers represent historic living surfaces, they are designated part of SIHP # -7429 Component 1.

The current AIS documented 12 features associated with the mixed fill/volcanic cinder residential deposits, consisting of one dog burial, one trash pit, two post molds, and eight pits of indeterminate function. The dog burial may represent a domestic pet burial, while the post molds again indicate habitation.

It is important to note that the residential structures within the northern portion of the project area were constructed directly over the SIHP # -7429 pre- to post-Contact burial ground. Thus, it appears the burial function of this historic property in this area had ceased by the first decade of the twentieth century.

A full discussion of historic use within the study area associated with the SIHP # -7429 cultural deposits can be found within Section 6.1.

7.3 Research Question 3

What evidence exists of the various historic reclamation projects within the project area, and can deposits be dated to specific reclamation projects and/or time periods?

Hydraulic (dredged) fill and crushed coral fill associated with the 1919 to early 1930s Kewalo Basin dredging/Kaka‘ako land reclamation were observed overlying natural sediments in the central and *makai* portions of the project area. These reclamation fill layers were not observed within the *mauka* portion of the project area fronting Queen Street; this area was located on the high ground of a sand dune extending through the project area and was already developed with residential structures by the time of the reclamation projects (Figure 202).

The hydraulic (dredged) fill, which was derived from a combination of hydraulic pumping and truck dumping of sediment from the ocean floor, was generally comprised of platy lenses of sandy or silty clay, ranging from light gray to very pale brown in color. The upper portion of the hydraulic fill typically grades to very fine sand. The clearest observable characteristic of the hydraulic fill was the presence of microstratigraphic banding. The topmost layer of land reclamation fill typically consisted of a crushed coral (cobbly sand) fill material, differing from the hydraulic clays by providing a dry, permeable, and stable land surface.

Background research indicates the area of Kaka‘ako (previously referred to as Kewalo) was infilled in stages, with the area northwest (‘Ewa) of Ward Avenue in filled by February 1914 (see Section 3.1.6). The area southeast (Diamond Head) of Ward Avenue, including the Block N East project area, was infilled between 1919 and the early 1930s with materials from the dredging of Kewalo Basin. A 1920 report by the U.S. Department of the Interior notes the following:

> The development of Kewalo Basin as a lumber trade terminal and fishing fleet base has been given considerable study and preliminary investigations have been carried on during this period. Surveys were made, including the necessary borings and soundings, for a channel into this basin from the sea 15 feet deep and 150 feet wide as the first unit of development. A contract was awarded for dredging this channel for $39,000. Part of the material dredged has been utilized for reclaiming a piece of land for the Territory 200 feet square at the southeast corner of the bishop estate fill now owned by the Territory; part of the material is being pumped ashore reclaiming some of the Ward estate lands and the balance wasted at sea. [U.S. Department of the Interior 1920:52]

The above report, pertaining to the fiscal year ending 30 June 1920, suggests land reclamation within the Ward Estate lands, which would include the current project area, was ongoing in the first half of 1920. A 1914 report on the Kewalo Reclamation describes the dredging process:

> By this [hydraulic] method the material dredged is carried in suspension or by the influence of water which is forced through large pipes and laid upon the lands and intervening streets, and afterwards is distributed and leveled, the water having drained off through ditches provided for the purpose. The work is done in large sections around which bulkheads have been constructed. A section can be filled in about thirty days, the dredger working about fifteen hours per day. And in about

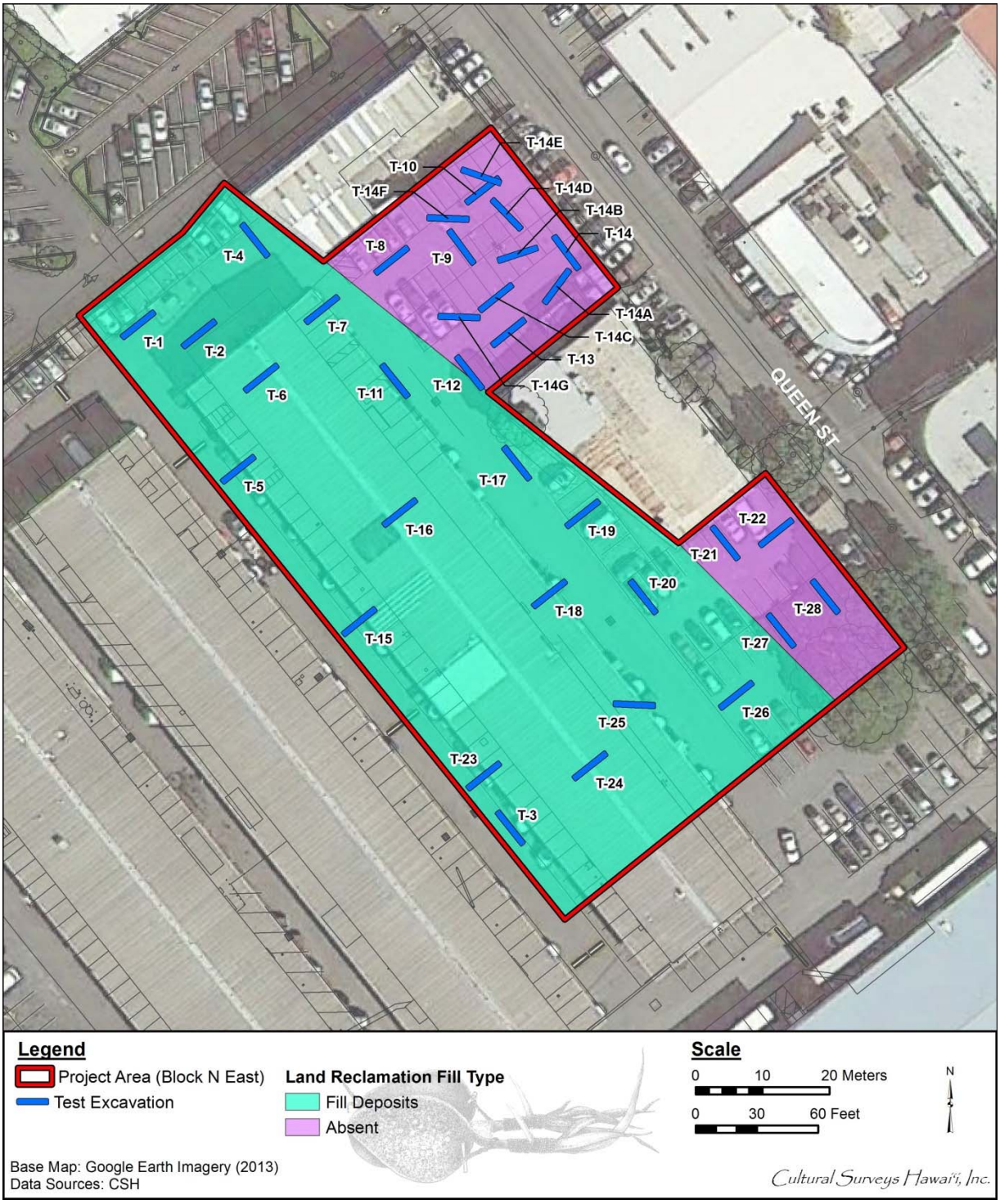

Figure 202. Aerial photograph showing the documented location of Kaka‘ako land reclamation fill deposits (shaded green) within the Block N East project area (Google Earth Imagery 2013). Reclamation fill is exclusively located *makai* of a historic road/ property line which cuts diagonally through the project area. Residential fill deposits are located on the *mauka* side of the line (shaded purple).

> two months after a section has been filled the ground will have dried out so as to be fit for use as before. . . .
>
> It appears in evidence that though the method employed the finest of the material which is carried upon the land settles when the water which transports it becomes quiet and as the water runs off a sludge or mud remains which forms a strata more or less impervious to water. This strata, however, is covered by the coarser and more porous material. . . . It appears that by mixing in to a depth of a few inches ordinary soil small plants will grow without difficulty. . . . [Hawaii Reports 1914:351]

This report suggests the dredging and filling of an area was relatively quick (three months total). It appears the hydraulic and crushed coral fill were placed as one reclamation event, the hydraulic clay preceeding the crushed coral in an effort to first "drain off" the marshy water.

A 1927 aerial photograph depicts the infilled Block N East project area, the *makai* portion of which is barren with no structures present (see Figure 30). The characteristically white land reclamation fill deposits are visible within the project area. An active dredge is positioned within Kewalo Basin, a trough or pipeline extending from the dredge to the shore, continuing reclamation of the shoreline. The white land reclamation fill remains visible as the project area's land surface on a subsequent 1939–1941 aerial photograph (see Figure 32). This unique and easily identifiable, early to mid-twentieth century land reclamation deposit was used throughout excavations within the project area as an initial relative dating technique. Land reclamation activity within the project area occurred beginning as early as 1919, indicating that all underlying strata (such as SIHP # -7429 Component 1 locally procured cultural deposits) were deposited prior to approximately 1919. Land reclamation was likely completed within the project area by 1927, and these deposits remained the land surface up until at least 1939–1941, indicating all overlying strata were deposited sometime after that. By 1943, the *makai* portion of the project area had been developed and contained a large warehouse (see Figure 33). The current configuration of the project area was completed by 1970, including parking areas and a new warehouse building (in the same location) (see Figure 37). These structures and associated fill materials which overlay the land reclamation fill represent the final historic fill layers.

Section 8 Summary and Interpretation

The fieldwork component of this AIS was conducted between 5 May 2014 and 10 October 2015, requiring approximately 137 person-days to complete. All fieldwork was conducted under the direction of the principal investigator, Matt McDermott, M.A, by Ena Sroat, B.A. (project director), Megan Hawkins, M.A. (project supervisor), and a rotating crew of CSH archaeologists. ‘Ōiwi Cultural Resources LLC provided cultural monitoring services for the AIS investigation. The project proceeded through ongoing consultation with these cultural monitors.

Fieldwork consisted of an initial 100% coverage pedestrian survey followed by a subsurface testing program. The pedestrian survey confirmed there were no surface historic properties within the Block N East project area and that the entire surface of the project area has been modified as a result of modern development. As there were no surface historic properties, the AIS focused on a program of subsurface testing to locate any buried cultural deposits and to facilitate a thorough examination of stratigraphy within the project area.

A total of 35 backhoe-assisted test excavations were completed, including both exterior (parking lot/road) and interior (warehouse space) locations. The test excavations were distributed throughout the project area in order to provide comprehensive testing coverage. Upon discovery of a burial cluster in T-14, seven additional test excavations (T-14A through T-14G) were added to define the boundaries of the burial cluster. On average, each test excavation measured approximately 2 ft by 20 ft (0.6 m by 6.1 m), and terminated at the upper boundary of the coral shelf or just below the water table, whichever was encountered first.

The stratigraphic sequence within Block N East from the present land surface to the coral shelf typically included the modern developed land surface and associated base course and grading fills, overlying two types of historic fill deposits—reclamation fill (crushed coral and silty clays) or residential fill (heavily mixed sediments designated as Component 1 of SIHP # -7429 if culturally enriched), overlying locally procured and redeposited fill layers (designated as Component 1 of SIHP # -7429 if culturally enriched), overlying natural sand and wetland A horizons (designated as Component 2 of SIHP # -7429 if culturally enriched), overlying natural Jaucas sand deposits (also designated as Component 2 of SIHP # -7429 if culturally enriched) and/or natural wetland and marine deposits.

Findings of the inventory survey included the identification and further documentation of two historic properties, SIHP #s -7429 and -7686. SIHP # -7429 consists of subsurface pre- and post-Contact cultural deposits with associated features (including human burials and burial finds). This site is located within the area of a buried sand dune deposit that extends northwest-southeast along the *mauka* edge of the Kaka‘ako coastal wetlands (largely comprising the entire project area). SIHP # -7429 was previously documented within survey areas surrounding Block N East (Block M, Block I, and the HRTP City Center project corridor). Within Block N East, SIHP # -7429 consists of culturally enriched in situ A horizon and Jaucas sand deposits (Component 2) overlain by culturally enriched historic fill deposits (Component 1) consisting of locally procured fill deposits (nineteenth to early twentieth centuries) and mixed (local and non-local) fill deposits associated with twentieth century residential houses. A total of 71 associated features were documented, including indeterminate pit features, trash pits, a dog burial, numerous post molds, and 23 in situ burials and four instances of isolated and disarticulated human skeletal remains identified within a large burial cluster (pre- to post-Contact burial ground).

SIHP # -7686 consists of buried historic infrastructure remnants. This historic property was previously documented within the adjacent Block M project area as consisting of subsurface remnants of twentieth century commercial warehouses and associated asphalt roadways/parking areas. Within Block N East, SIHP # -7686 consists of buried asphalt surfaces and a single oil-rolled surface. The oil-rolled surface is located atop buried wetland-edge sediments. The asphalt surfaces are located in a linear alignment atop Kaka‘ako reclamation fill and may represent the reconstruction of a historic road that previously cut through the project area in the late nineteenth to early twentieth centuries and/or mid-twentieth century asphalt surfaces associated with the first warehouse structures of the Ward Industrial Center.

In summary, the Block N East AIS documented a former natural environment that was predominantly a natural sand dune with small pockets of wetland areas, which was later modified for various domestic and commercial needs. The buried sand dune evidenced pre- to post-Contact cultural activity (SIHP # -7429), including the establishment of a pre-Contact burial ground which continued in use into the historic period and post-Contact modification of the sand dune in the form of fill deposition (likely leveling the topography and/or raising the land surface), which was utilized as a subsequent living surface. The *mauka* portion of the project area, along Queen Street, was developed early, with structures present by 1903–1909. These structures and their associated fill layers overlie the burial ground. Subsequently, in the early twentieth century (between 1919 and 1927), the *makai* portion of the project area (*makai* of the early structures) was infilled with land reclamation fill, consisting of hydraulic (dredged) marine clay and crushed coral sourced from the dredging of Kewalo Basin, as part of Kaka‘ako land reclamation activities. Based on aerial photographs, sometime between 1939 and 1943 the *makai* portion of the project area was converted to commercial use, with the construction of warehouse buildings, while the *mauka* portion was converted from residences to commercial space (paved parking lots) by 1970.

Section 9 Significance Assessments

Once a historic property is identified, then an assessment of significance shall occur pursuant to HAR §13-284-6. To be significant, a historic property shall possess integrity of location, design, setting, materials, workmanship, feeling, and/or association, and meet one or more of the following significance criteria:

a. be associated with events that have made an important contribution to the broad patterns of our history;
b. be associated with the lives of persons significant in our past;
c. embody the distinctive characteristics of a type, period, or method of construction; represent the work of a master, or possess high artistic value;
d. have yielded, or is likely to yield, information important for research on prehistory or history; or
e. have an important value to the native Hawaiian people or to another ethnic group of the state due to associations with cultural practices once carried out, or still carried out, at the property or due to associations being important to the group's history and cultural identity.

By convention, criterion "e" usually includes human skeletal remains and/or burials and religious sites.

Table 19 lists the historic properties documented within the Block N East project area along with their significance assessment and mitigation recommendations. The significance assessment and mitigation recommendations are included in this AISR for the review and concurrence of the SHPD. In addition, historic property integrity, which is the ability of a property to convey its significance, was assessed based on the guidance provided in National Register Bulletin #15, "How to Apply the National Register Criteria for Evaluation" (NPS 1997) and "Assessing Site Significance: A Guide for Archaeologists and Historians" (Hardesty and Little 2000). The seven aspects of integrity and their descriptions are as follows:

- *Location* is the place where the historic property was constructed or the place where the historic event occurred
- *Design* is the combination of elements that create the form, plan, space, structure, and style of the property
- *Setting* is the physical environment of a historic property
- *Materials* are the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property
- *Workmanship* is the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory
- *Feeling* is a property's expression of the aesthetic or historic sense of a particular period of time
- *Association* is the direct link between an important historic event or person and a historic property (NPS 1997; Hardesty and Little 2000)

Table 19. Archaeological Historic Property Integrity, Significance/Eligibility, and Mitigation Recommendations

SIHP # 50-80-14	Test Excavations	Formal Type/Description	Function	Age	Previous Reference	Integrity							Significance Per HAR §13-284-6	Mitigation
						Location	Design	Setting	Materials	Workmanship	Feeling	Association		
-7429	T-1, T-2, T-4, T-5, T-7–T-14, T-14A–T-14G, T-20, T-24, and T-27	Subsurface cultural deposits including human burials and burial finds	Habitation, agriculture/domestic, burial	Pre- and Post-Contact	Hammatt 2013; Hawkins et al. 2015; Sroat et al. 2015; Humphrey et al. 2015	Y	Y	N	Y	Y	N	N	“d” and “e”	Burial treatment and archaeological monitoring
-7686	T-6, T-7, T-11, T-16–T-20, and T-26	Subsurface historic infrastructure remnants	Historic infrastructure	Post-Contact	Hawkins et al. 2015	Y	Y	N	Y	Y	Y	N	“d”	Archaeological monitoring

SIHP # -7429 consists of subsurface cultural deposits with associated traditional-type and historic features, including human burial sites (both in situ burials and isolated skeletal remains). SIHP # -7429 was previously assessed (by Hammatt 2013, Hawkins et al. 2015, Sroat et al. 2015, and Humphrey et al. 2015) as significant under Hawai‘i State historic property significance criteria “d” (has yielded, or may be likely to yield, information important in prehistory or history) and “e” (has cultural significance to an ethnic group, including, but not limited to, religious structures, burials, and traditional cultural properties), pursuant to HAR §13-275-6 and 13-284-6. SIHP # -7429 was also evaluated as eligible for the National Register of Historic Places under Criterion D (information potential), pursuant to 36 CFR Part 60.) The elements of integrity that apply to SIHP # -7429 are location, design, materials, and workmanship. SIHP # -7429 has provided, and can potentially provide additional, information on pre- to early post-Contact habitation, historic land use, and pre- and post-Contact burial practices and burial distribution within Kaka‘ako. The results of the current AIS support this assessment.

SIHP # -7686 consists of subsurface historic infrastructure remnants. SIHP # -7686 was previously assessed by Hawkins et al. (2015) as significant under Hawai‘i State historic property significance criteria “d” (has yielded, or may be likely to yield, information important in prehistory or history), pursuant to HAR §13-275-6 and 13-284-6. The results of the current AIS support this assessment. The historic property reflects land-use activities related to the historic development of the Kaka‘ako, and has the potential to offer insight into historic activities in the Kaka‘ako area.

Section 10 Project Effect and Mitigation Recommendations

The following project effect discussion and cultural resource management recommendations are intended to facilitate project planning and support the proposed project's required historic preservation consultation. It is also intended to provide mitigation recommendations for the entire Block N East project area.

10.1 Project Effect

Under Hawai‘i State historic preservation review legislation, one of two project effect determinations must be established: 1) "No historic properties affected," the project will have no effect on significant historic properties; or 2) "Effect, with agreed upon mitigation commitments," the project will affect one or more significant historic properties, and the effects will potentially be harmful. However, the agreed upon mitigation commitments involving one or more forms of mitigation will reasonably and acceptably mitigate any harmful effects (HAR §13-284-7).

Two significant historic properties (SIHP #s -7429 and -7686) were documented in the Block N East AIS project area, and the proposed project has the potential to affect these historic properties. CSH's project specific effect recommendation is "effect, with agreed upon mitigation commitments." The recommended mitigation measures outlined below will reduce the project's potential effect on these historic properties.

10.2 Mitigation Recommendations

Under Hawai‘i State historic preservation review legislation, if a project will have an "effect" (impact) on significant historic properties, then a mitigation commitment proposing the form of mitigation to be undertaken for each significant historic property shall be submitted for SHPD review and approval. Mitigation may occur in the following five forms: A) Preservation, B) Architectural Recordation, C) Archaeological Data Recovery (which includes archaeological monitoring), D) Historical Data Recovery, and E) Ethnographic Documentation (HAR §13-284-8).

This AIS indicates the Block N East project area contains two significant historic properties: 1) SIHP # -7429, subsurface cultural deposits and associated features including human burial sites, located throughout the project area; and 2) SIHP # -7686, subsurface historic infrastructure remnants, located in a linear alignment within the central portion of the project area. Due to the inherent limitations of any sampling strategy, however, it is possible additional historic properties, potentially including human burials and non-burial archaeological deposits, may be uncovered during construction activities.

Based on the AIS findings, and in consultation with the SHPD, the recommended mitigation measures for SIHP # -7429 consist of burial treatment and archaeological monitoring. The recommended mitigation measures for SIHP # -7686 consist of archaeological monitoring.

10.2.1 Burial Treatment

It is a requirement of Hawai‘i State burial law that the treatment of any previously identified burial sites identified during an archaeological survey be addressed in a burial treatment plan

prepared for the consideration of the OIBC (HAR §13-300-33). The burial treatment plan will incorporate appropriate input from the SHPD, recognized lineal/cultural descendants, and the OIBC.

Within the Block N East project area, 27 burial sites were documented within SIHP # -7429, within the northern portion of the parcel within a large burial cluster (pre- to post-Contact burial ground). A burial treatment plan addressing these burial sites will be developed. In the interim, mitigation for the burial sites will be preservation in place.

10.2.2 Archaeological Monitoring

In consultation with the SHPD, it has been determined that an archaeological monitoring program is an appropriate mitigation for the Block N East project area. The monitoring program will be detailed in an archaeological monitoring plan to be submitted to the SHPD. It will consist of on-site monitoring, targeting SIHP # -7429 and -7686, and any additional, as yet unidentified, historic properties. On-site monitoring will occur for all ground disturbance below the current ground surface (i.e., the current asphalt parking lot areas and concrete building foundation pads).

10.2.3 Disposition of Collections

The Hawai‘i State rules governing AIS investigations (HAR §13-276) state the following regarding AIS collections from private lands:

> Arrangements shall be made with private landowners on the disposition of collections from their lands. If private landowners request archiving of material, then the archive shall be determined in consultation with the SHPD. [HAR §13-276-6]

All materials collected during the current AIS, including samples and artifacts (but excluding human remains and grave goods), are the property of the landowner, VWL/HHC. Upon conclusion of the AIS investigation, all collected materials (excluding human remains and grave goods), will be temporarily stored at the CSH office in Waimānalo, O‘ahu. Final disposition of the collection will be determined in consultation with the landowner and the SHPD, per HAR §13-276-6. All data generated during the course of the AIS will be stored at the CSH offices.

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Appendix A SHPD AISP Acceptance

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

WILLIAM J. AILA, JR.
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

ESTHER KIA‘AINA
FIRST DEPUTY

WILLIAM M. TAM
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES BOATING AND OCEAN RECREATION BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

HISTORIC PRESERVATION DIVISION
DEPARTMENT OF LAND AND NATURAL RESOURCES
601 Kamokila Boulevard, Suite 555
Kapolei, HI 96806

January 21, 2014

Ms. Ena Sroat
Cultural Surveys Hawai‘i, Inc.
P.O. Box 1114
Kailua, Hawaii 96734

LOG NO: 2014.00644
DOC NO: 1402SL12
Archaeology

Dear Ms. Sroat:

SUBJECT: **Chapter 6E-42 Historic Preservation Review –**
Archaeological Inventory Survey Plan for the Block N East Project Area
Kaka‘ako Ahupua‘a, Honolulu (Kona) District, O‘ahu
TMK: (1) 2-3-002:001 por., 067, 086, 087

Thank you for the opportunity to review this draft report titled *Archaeological Inventory Survey Report for the Block N East Project Area, Kaka‘ako Ahupua‘a, Honolulu (Kona) District, O‘ahu Island TMK: (1) 2-3-002:001 (por.), 067, 086, 087* (Sroat et al. February 2014). We received this submittal on February 12, 2014.

The archaeological inventory survey was conducted at the request of Victoria Ward, Limited (VWL) and the Howard Hughes Corporation (HHC) in support of construction of a high-rise residential tower with commercial space located on the ground floor. This private development is owned and funded by VWL. The project area is located within Ward Industrial Center, along the *makai* side of Queen Street between Ward Avenue and Kamakee Street. The project area totals 1.8 acres. Ground disturbance associated with project construction will include demolition and removal of existing buildings and structures in the Ward Industrial Center, borings related to foundation pile installation, and excavation for structural footings, utilities, roadways and parking, and landscaping.

The archaeological inventory survey plan (AISP) contains an adequate discussion of the environmental setting and an extensive discussion of the traditional and historical background. The previous investigations and specific research questions concerning temporal and spatial land use changes provide a framework for the AIS of Block N East. The field methods involve excavation of about 33 backhoe trenches, the final number and placement of which will be determined in consultation with SHPD based on spatial identification and documentation of possible A horizon deposits, features, and/or Jaucas sands within the project area. The trench excavation methods will involve, where possible, identification and mapping in plan view and hand excavation of cultural layers, midden remains, artifacts, and pit features; and hand excavation of the Jaucas sands. Artifact assemblages present in fill deposits and large historic trash-filled pits will be subjected to field documentation (photographs of representative samples and qualitative and quantitative analysis) with collection of only a representative sample of artifacts for more detailed analysis in the laboratory. Traditional Hawaiian artifacts and faunal shell and bone, and charcoal and other botanics will be collected (or sampled, as appropriate) for analysis in the laboratory. Fire-affected rocks will be documented in the field.

Please revise the following:

(1) Revise research objectives to indicate you will focus on better characterizing the SIHP# 7429, the wetland sediments, as well as the sand areas to examine change in the nature and intensity of land use from the pre-Contact period into the 20th century; this will require analysis of bulk samples, charcoal samples, and palynology. Also that you will examine the potential of correlating historic maps showing residences on the property in the 20th century with historic deposits below the fill layers. Remove any mention of correlating these deposits with ethnicity.

This plan is accepted pursuant to Hawaii Administrative Rules (HAR) §13-284-5 with the understanding that the above **minor revisions are made** in the final document. Please make these revisions and send one hardcopy of the

Ms. Sroat
January 21, 2014
Page 2

document, clearly marked **FINAL**, along with a copy of this review letter and a text-searchable PDF version on CD to the Kapolei SHPD office, attention SHPD Library.

Aloha,

Susan A. Lebo

Susan A. Lebo, PhD
Oahu Lead Archaeologist

Appendix B LCA 387 to the A.B.C.F.M.

F.R. = Foreign Register

F.T. = Foreign Testimony

N.R.= Native Register

N.T.= Native Testimony

LCA 387 Claim to the A.B.C.F.M.*

*A.B.C.F. M.=American Board of Commissioners for Foreign Missions

LCA No. 387*O‘ahu, General Claim, Mission Claims

To the Board of Commissioners for quieting Land titles, Gentlemen:

The undersigned as agents of the Mission of the American Board of Commissioners for foreign missions a the Sandwich Islands beg leave to present for your examination, the accompanying documents; being statements of grants made to various individuals of the mission at sundry times & places, for the purpose of affording facilities for the prosecution of the Missionary work in these Islands by the Missionaries of the said A.B.C.F.M. to the end, that if upon examination, they shall be found valid, the said grants may be confirmed in such manner as the laws of the Sandwich Islands may require. The following is a list of claims to be considered, viz.

Kauai - Premises & lands at Waiole, Koloa & Waimea
Oahu - Premises & lands at Honolulu, Ewa, Waialua, Kaneohe, Hauula & Punahou
Molakai - Premises & lands at Kaaluaha & out stations - if any
Maui - Premises & lands at Lahaina, Lahainaluna, Kanipali, Wailuku & Hana
Hawaii - Premises & lands at Kailua, Kealakekua, Kau, Hilo, Kohala & Waimea.

The lands & premises at the above-mentioned stations are in care of the resident missionaries of the A.B.C.F.M. at said stations. We have thought it best to enumerate all the stations though some of the claims have not been received, & some have been already presented to the Board.
Signed, Samuel N. Castle, Edwin O. Hall, agents
Honolulu, March 125h, 1847

The claims herewith sent are for Waialua, Honolulu, Punahou, Kaneohe, Waiole, Koloa, Waimea, Kaui, Hilo, Kealakekua, Kailua, Waimea, Hawaii, Kohala.

I believe Kau, Lahainaluna, Lahaina, Wailuku, Hana & Molakai are already sent in.
S.N.C.

F.R. 31-33v2
[No. 387], Honolulu, Statement of Mission Lands Claims at Honolulu.

Premises occupied by Mr. Dimond, given by Kalaimoku to Reverend William Ellis of F. M. [Foreign Missions] Society, & by him to the Mission of A.B.C.F.M, at these islands. The original grant was much larger then the spot at present enclosed by Mr. Dimond.

2d. All the parcels of land enclosed by the mission in the district known as Kawaihao, which whole distinct was given by Kaahumanu, 1st to Mr. Bingham for the use of the mission & also any enclosed portions of said district, if there be any such, not in actual possession of the natives. The mission buildings & land upon said lands. Also a portion of ground enclosed & upon which stands an adobie school house, at present occupied by Mr. Wilcox.

In addition there is a land in Koolau called Kaluanui, given by Kaahumanu to Mr. Bingham. S.N. Castle, Edwin O. Hall, agents.

To the Board of Commissioners &c, Gentlemen:

In compliance with your public notice relative to claims of land &c I beg leave to state that I have no lease or written document of the Mission premises now occupied by myself in the Northwest part of Honolulu called Kaumakapili.

This station was commenced by myself soon after the general meeting of the American missionaries held in May 1837.

The land upon which the dwelling house, the station school house & meeting house are erected, was said to belong at that time to Konia, wife of Paki. Several of the chiefs then in authority, viz. Kinau, Kekuanaoa, Kona & Paki, after mature deliberation, informed me that they had set apart the yard in which the dwelling house is built, & the one where the station schoolhouse is erected, for a new missionary station & told me that I might commence operations at pleasure.

In the fall of 1838, the same persons set apart our meeting house yard as a place upon which to erect a house of worship to Almighty God. These 3 several yards are each enclosed with adobie walls, & their boundaries & dimensions are nearly as follows:

1st. Residence of the missionary measures about 46 yards & is bounded by a narrow lane. The mauka side is about 53 yards long, the northwest end is about 46 yards wide & the makai side is 60 yards long.

2d. The schoolhouse yard lies contiguous to the enclosure above described on the Southwest and is an oblong square, bounded on the Southeast side by the narrow lane & is 46 yard long and about 24 yards wide.

3d. The meeting house yard lies a few rods mauka of the mission dwelling house. The makai end is bounded by the public road & measures 48 yards, the northwest side is about 70 yards long &

the mauka end is 40 yards wide, the southeast side is 61 yards long
Signed, Lowell Smith
Honolulu, July 14, 1846

F.R. 33-34v2
[No. 387], Punahou [margin note illegible]

The undersigned claim in behalf of the mission of A.B.C.F.M. at the Sandwich Islands all that tract of land known as Punahou lot mauka & makai; to be used for the purposes for which it was granted.

That portion of said land which lies mauka of the Wai'un [?] road is said to be bounded nearly as follows: commencing by Allen's bridge which crosses the street near Allen's house & running inland to near the top of Ualakaa. Thence east into the valley near a certain rocky knowl [sic. knoll] pointed out by natives as the corner, thence toward the sea along a line running a short distance [illegible] east of that part of said land which is enclosed & extending to the road which runs from Honolulu to Waikiki just mauka of Allen's house, thence along said road to place of beginning.

The boundaries of that part which lies on the sea shore we cannot define so definitely, but presume there will be no difficulty in determining them as it is commonly known as pertaining to Punahou. This part embraces fishing grounds, coral flats & salt beds.

The above land was given by Boki to Mr. Bingham; then a number of the above named mission & the grant was afterwards confirmed by Kaahumanu. We have heard several persons mentioned as being acquainted with the facts & circumstances respecting this grant of land among whom are Reverend H. Bingham, Asa Thurston, William Richards, Levi Chamberlain, Governor Kekuanaoa, Laanui, John Ii, &c&c.
Signed, Daniel Dole, W.H. Rice.

I was told that Punahou extended from the road near to Allens, back to the top of Ualakaa, then the northern boundary was said to run from the top of Ualakaa eastward into the valley so far that the eastern line would include much of the rocky hill near the spring in passing down the road near Allens. There, there was a large flat on the sea shore embracing fishponds & salt beds & coral flats.
The above was written by Mr. Bingham from United States
W. Richards

F.R. 34-35v2
[No. 387], Kaneohe, Land connected with the mission station at Kaneohe

About 4 acres are held by the mission enclosed by a fence; it has been occupied about 12 years. The station was taken by permission of the King & the land given by an agent of Liliha, widow

of Boki, since deceased.

In addition to the above there is a taro land, known among the natives as an ili aina; not designated by any particular boundaries. This was given for the use of the mission by Liliha - widow of Boki.
(No signature)
Kaneohe, December 8,1846

F.R. 35-36v2
[No. 387], Ewa, April 20, 1847

To the Commissioner, &c, Gentlemen:
I hereby make application for confirmation of title to a piece of land called Kionaole, a small ili in the ahupuaa of Waiawa, Ewa. I hereby enclosed a draft of said land, the measurement of which is as follows: Beginning at Northwest course & running south 74 fathoms, thence east 70 fathoms, thence north 20 fathoms, thence west 26 fathoms, thence north 44 fathoms & thence west 40 fathoms to the place of beginning. Said land comprises about 3 acres more or less.

Also a fish pond situated near the river joining southeast corner on a piece of waste land reckoned as belonging to Manana, an ahupuaa on the opposite side of the river. Said fish pond was dug out for me by my church members in 1838 & measures 27 fathoms by 14 (see draft).

I would also ask for a grant to the Protestant Church at Ewa for the use of their pastor, one of the moo paahao, of which there are two in Waiawa. As they have not been cultivated for more than 3 years & are now overgrown with bulrushes, there is no probability that both will be wanted again for the aupuni. Each moo contains 3 or 4 acres each. The members of the church wish one of them to cultivate, the avails of which are to be devoted to religious purposes.

Also, my house lot within the ili aina of Waiawa called Panaio, & three or four acres of land adjoining the Protestant Chapel for a church yard and burying ground, to be confirmed by title in the same manner as similar grants are confirmed.

For authority respecting the grant of my land marked out i the enclosed draft. I beg to refer you to Governor Kekuanaoa executor of Kinau, who gave me the said land in 1836 or early in 1837.
Signed, A. Bishop

[DIAGRAM]

F.R. 28v2
No. 387, [American Board of Commissioners for Foreign Missions], [Oahu claims, continuation of claims from other islands]

Extract from a letter addressed to Mr. Castle dated February 17th, Waialua and Signed P.J.

Gulick.

"P.S. I opened this to say a few words relative to the land connected with our premises. What it seems desirable to retain is a long narrow strip of probably 20 acres; bounded on the East by a road which crosses the river, or brook, Anahula, about 1/4 of a mile east of Mr. Emerson's residence, On the south by the brook Lanahula, On the west by the road which crosses said brook just opposite Mr. Emerson's house & On the north by a crooked stone wall built by Mr. Lock & Mr. Wilcox.

It has also been a stone wall on the east and a doby west, built by our Brethren. It is the better part of the land called Lokoea, but on the west & north it is said to fall considerably within the boundaries of Lokoea. With these data & the papers, I think you can make a more correct statement that I can; unless I get it surveyed. I don't know that I can do any better than I have now done.
Signed P.J. Gulick.

N.R. 229-231v2
No. 387, [Missionary claim]

Unirrigated farm land at Waialua, Oahu. Conveyance of a portion of land for dry farming at Waialua.

Because of my thought of the importance of knowledge and education which will benefit the Kingdom of Hawaii; and because I also think Mr. Loke /Mr. Looke/ has a good school at Waialua and the students are preparing to be educated to end the idleness and deficiencies of this land, therefore I agree and explain that a portion of land at Waialua shall be transferred to said school without payment or tax. the diagram of this land is below, however, the north side is not exactly like the diagram. The ancient boundary will prevail on that side until the time when I understand the correctness of the new move. The steam is not conveyed with the land. It is, however, the boundary on this side. If the supplies of the school are taken on the stream this is not a wrong, however, the fish are protected.

Furthermore, there are given some divisions of water for this land, three days in one week on the north side of the stream, and on the south side, two days. On those two days the water shall flow to irrigate the crops.

Furthermore, John Ii, the School Superintendent of Oahu, shall administer that land and he is also the perpetual custodian of that land.

It /the land/ is conveyed absolutely to that school; it shall not be arbitrarily taken, nor shall it be disturbed unless the school is at fault or its haole teacher or his successor, perhaps. The land shall be administered so as to benefit the school. The land may not be given over to anyone else. It is given only for the benefit and to supply the needs of the school. Here is the diagram of the land:

/see diagram/ [No diagram in this text]

This diagram is not absolutely correct, as it was not surveyed with a transit. The beginning of the measurement is at the corner marked I, at a place close to the wooden road over the water /bridge or causeway?/

This word is recorded at Honolulu on the 14th day of September, 1841.
KEKUANAOA
Witness: Paalua, Limaikaika /Armstrong/

In accordance with Kekuanaoa's thought explained in this paper, giving me the administration of that kula farm land at Waialua, I agree that this land be conveyed to said school, and Locke or his successor, perhaps, the one who teaches at that school, to stimulate intellectual growth here in Hawaii.

Recorded at Honolulu this 14th day of September, 1841.
JOHN II, School Superintendent of Oahu

We two consent to all the words in this document.
KAMEHAMEHA III, KEKAULUOHI

F.T. 260v3
No. 387, American Mission, Part 1, Section 5, Division 1, 22 February, Emerson Waialua

1. Kuakoa, sworn, I know this land at Kawaipuole in Waialua.

It is bounded:
Mauka by Kukipa's land
Waianae by an old adobe fence
Makai by my fence
Waimea by land of mine and a kalo patch of Poli and a river called Anahulu, and a kalo patch of mine.

2. This land is in Olohana, an ili, the land is called Manawai. It is an orange garden

bounded:
Mauka by a stone wall and a dry stream
Waianae by stream of Kawailoa
Makai by konohiki's land
Kolauloa by a pali.

3. This piece is an ili aina of Kawailoa at Paalaa.

It is kalo and kula bounded:

by konohiki's land, Mauka
Waianae by a pali
Makai by konohiki's land
Kolauloa by a stream of Paalaa.

Claimant got the piece No. 1 from Kinau in 1832 and has lived there constantly ever since, and no one has ever disturbed him.

He got No. 2 from Gideon Laanui in Kinau's time, 1838, and has occupied it without disturbance in peace ever since.

He got the piece No. 3 from Kinau in 1835 and has held it ever since in peace.

Olopana, sworn, the preceding testimony is correct and true, which I now of my own knowledge, and that Mr. Emerson has lived there to the present time in peace.

Continued page 302.

No. 2. Mr. Emerson did not think required a survey and states it at less than acre.

F.T. 302v3
No. 387, Sandwich Islands Mission Claim, Part 1. Section 5, Division 1, J.S. Emerson, from P. 260 [p. 260 claim for Waialua Oahu]

Kilioe, sworn (from Kauikawaha's written Report to Claimant and translated by him for the Commissioner), I heard D. Oleloa & Kaukualii ,his wife, say the Kinau wrote to them at Kauai thus "Laanui sought for land for the Missionary located at Waialua & he has found it within your land viz. Hawailoa - Give Your assent that it be given him" To which we Daniela ma gave our assent in writing.

Kamalie, sworn, I heard the same things as Kilioe says - and I heard before, at a time when Hawailoa was our land as hoaainas - my mother's brother named Wana, one of Laanui's family, came to us and said "Your land is given by the foreigner, Mr. Emerson by Kinau - so says Laanui.
Continued 306 page, Division 2

F.T. 306-307v3
No. 387, Sandwich Islands Mission, Part 1, Section 5, Division 2, P.I. Gulick, from p. 302

Reverend I.S. Emerson, sworn, In about 1837 Kinau granted to me a certain part of the land now coccupied by Mr. Gulick to aid the Church. This grant included the Western end, containing probably 3 to 5 acres. It did not I think to include the spot of Mr. Gulick's house lot. that spot, as I understood Mr. Locke came into an unwritten contract between him & Laanui, by which Mr. L.

[Locke] was to pay Laanui a certain sum per annum for the remainder of the land which Mr. Gulick now claims. This land has been in the possession & use of the Mission from about 1838 to this time.

Witness admitted Mr. Metcalf's survey [as] correct.

"E ike auanei na kanaka a pau ma keia palapala ke nana mai lakou.

Owau o M. Kekuanaoa ka makua Kane a kahu waiwai o Victoria Kamamalu. Ua Kuai lilo loa aku au no`u iho a no kuu poe hooilina a hope paha i kekahi mau Eka Umikumamaono a me ka hapa Eka aina e waiho la ma Kawailoa & Waialua Mokupuni Oahu. Aia keia aina maka aoao mauka iho o ka pa ona Gulicka la. Ua komo pu keia me kahi i Ku mua ai kona hale.

Eia ke kumu o ka lilo ana o keia aina no ka loaa ana mai ma kuu lima na Dala maikai $82.50. No laila aole o`u kuleana i koe. ua lilo loa ia Gulika a me kona mau hooilina a hopepaha.

No ka oiaio Kekakau nei au i kou inoa i keia la 23 October, 1850, M. Kekuanaoa
Ike maka, Kahiwalani

F.T. 341-343v3 [Claim 5877 of Keakaku]

F.T. 368v3
Cl. 387, American Mission, Part 1, Section 6, Ewa, May 14, 1856

Artemis Bishop testified that in 1836 this land called "Kianaole" in the district of Ewa was given to witness for the American Board of Missions and that the 2 surveys of T. Metcalf of the same, dated March 2, 1849, correctly desribe the lot which has been occupied & used for the Mission without interruption to the present time.

Note. Governor Kekuanaoa has seen these surveys & approved of them before the Commission.

See page 343

N.T. 592-593v3
No. 387, Honolulu Mission, Part 1, Section 5, Waialua, Emerson

Kuakoa, sworn, I have seen his land at Kawaipuolo in Waialua.

The boundaries are:
Mauka, Huki's lot
Waianae, the old mud wall
Makai, my fence

Waimea, Kuokoa's land, Poli's patch, Anahulu River and one patch for me.

2. Olohana ili land in Kawailoa named Manawai and is an orange grove.

Mauka, a stone wall and dry stream
Waianae, Kawailoa stream
Makai, the konohiki's land
Koolauloa, a precipice.

3. Hawaiiloa's ili land at Paalaa, a taro land and the pasture.
Mauka, the konohiki's land
Waianae, a precipice
Makai, the konohiki's land
Koolauloa, Paalaa's stream.

Section 1 from Kinau in the year 1833 and he has always lived there to the present. No one has objected.

Section 2 is from G. Laanui during Kinau's time in 1838 and life has been comfortable; No one has objected. Section 3 is from Kinau in 1835. No one has objected.

Olopana, sworn, The statements just made by Kuokoa are true, accurate and right and I have known the same way. Emerson has always lived there to the present. No one has objected.

N.T. 677v3
No. 387, Emerson, Part 1, Section 5, October 8, 1850

Kuokua, sworn, I have seen Emerson's land at Kawailoa Paalaa in Waialua. I have known the boundaries, but I have not known who had given him his land except that I had heard only it was given by Kinau and Kamekualii; however, I am not very sure.

F.T. 115-116v3
Cl. 387, part 1, americal Sandwich Island Mission, Oahu, 23 March [1849], section 2 Punahou, Oahu, [illegible], William H. Rice, agent, present

[Margin note: Mr. Lee's notes]

John Ii, sworn for claimant, I am well acquainted with Punahou and its boundaries. It consists of two parts, one inland and the other a sea land.

It is bounded:
Mauka by the large land called Manoa
Waialae by Mauna Pohaku
Makai by kula land of Allen, Kapeau, myself & others.

I think it extends nearly down to the road leading from Honolulu past Allen's place, Honolulu side by the road leading from the old Allen place to Manoa and by my land.

The makai part of Punahou is bounded:
Mauka by Kewalo and Koula
Waititi side by Kalia
Seaward it extends out to where the surf breaks
Honolulu side by Honoliilii.

This land was given to Mr. Bingham for the Sandwich Island Mission by Governor Boki in 1829. It was given upon the same terms as all their other lands were given to them; and the Grant was confirmed, so far as silence proved it, for in truth she [he?] had no right to set aside this grant.

From that time to this, the Sandwich Island Mission have been the only possessors and konohikis of the land. I was a witness to the gift. The title of the Mission is perfectly clear.

The name of the makai part is Kukulaaeo. There are several tenants on the land of Punahou whose rights should be respected.

Z. Kaauwai, sworn, I know this land. I heard Boki say to Hoapili Kane concerning the gift of this land to Sandwich Island Mission that the had given it to Mr. Bingham.

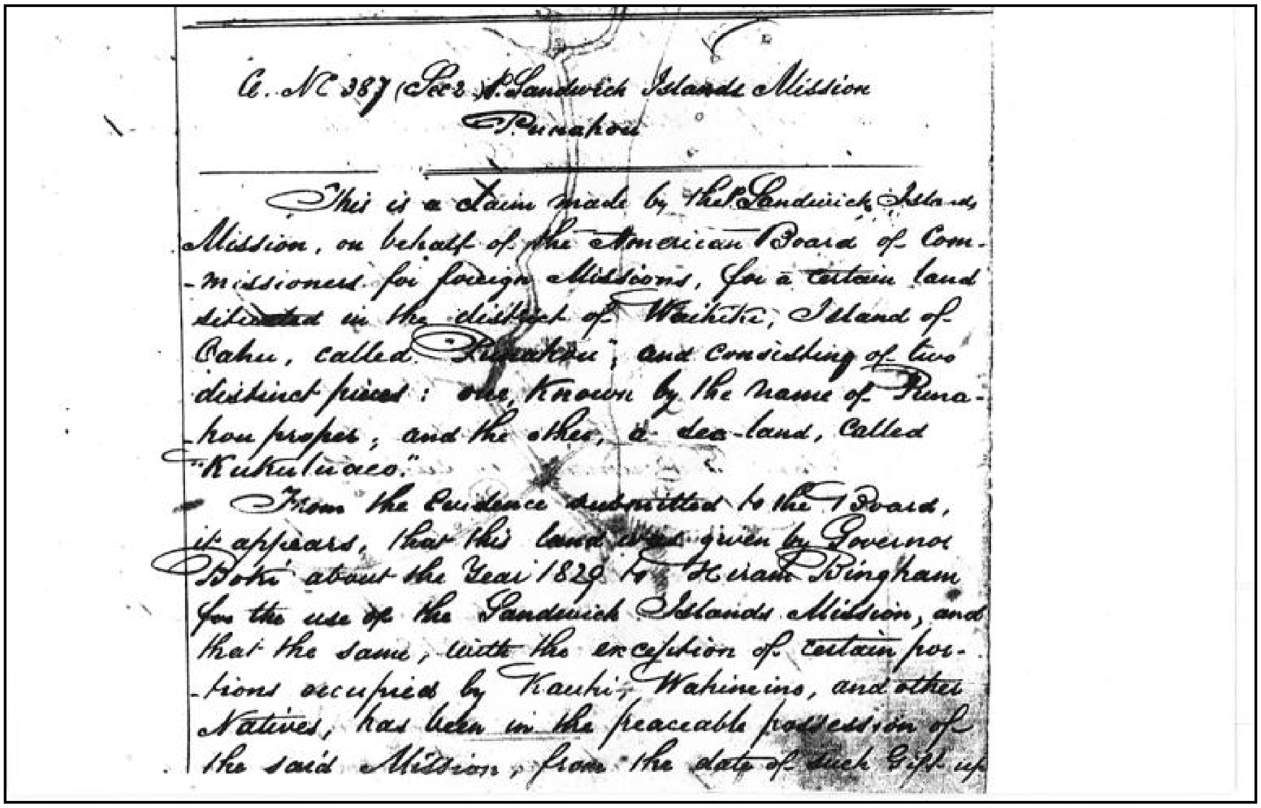
Boki's wife made some objections to giving it to Mr. Bingham, claiming it has hers as received from her father, Hoapili Kane but Hoapili Kane confirmed the gift and it was adjudged to be right & propert.

From what I heard at the time of the boundaries, I should think Mr. Metcalf's survey correct.

[Award 387; (Oahu) R.P. 1600; Beretania St. Honolulu Kona; 2 ap.; 5.36 Acs; R.P. 1600; King St. Honolulu Kona; 1 ap.; .41 Ac.; King St. Honolulu Kona; 3 ap.; 6.66 Acs; no R.P.; R.P. 5698; Printers Lane Honolulu Kona; 1 ap.; .36 Ac.; R.P. 1947; Panaio; 3 ap.; 4.13 Acs. (A. Bishop); R.P. 1931, Punahou Manoa Kona; 1 ap.; 224.68 Acs; R.P. 1945; Punahou Manoa Kona; 1 ap.; 77 Acs; R.P. 1941, 1945, 1958 R.P. 1931; Punahou Honolulu; 1 ap.; 36.90 Acs (S.N. Castle and Amos S. Cooke); R.P. 1932; Kawaiahao Honolulu; 1 ap.; 1.23 Ac. (S.N. Castle); R.P. 1941; Kawaiahao Honolulu; 1 ap.; 1.30 Ac.(Maria P. Chamberlain); R.P. 1941 Punahou Honolulu; 1 ap.; 26.66 Acs (Maria P. Chamberlain); R.P. 1944; Kukuluaeo; 3 ap.; 77 Acs (Ephraim W. Clarke; R.P. 1944; Kawaiahao Honolulu; 2 ap.; 1.64 Ac. (Ephraim W. Clarke); R.P. 1934; Kawaiahao Honolulu; 1 ap.; 1.5 Ac. (Amos S. Cooke); R.P. 1945; Kawaiahao & Punahou Honolulu; 3 ap.; 27.97 Acs (E.M. Rogers); R.P. 1933; Kaumakapili Honolulu; 1 ap.; .53 Ac. ; R.P. 1600; Kaumakapili Honolulu Kona; 1 ap.; .6 Ac.; R.P. 1600; Kaumakapili Honolulu Kona; 1 ap.; .19 Ac.; (Lowell Smith); R.P. 1938; Pukauki Kaneohe Koolaupoko; 1 ap.; 16.1 Acs; R.P. 1958; Waikapoki Kaneohe Koolaupoko; 1 ap.; 5.13 Acs (ABCFM); R.P. 1951; Kawailoa Waialua; 2 ap.; 10.81 acs (John S. Emerson); R.P. 1940; Kawailoa Waialua; 1 ap.; 24.56 acs. (Peter I. Gulick)]

LCA 387 Award to to the A.B.C.F.M.

The boundary of the Kukulāe‘o lands given to the A.B.C.F. M. is on the last page of the award.



A. No 387 (Sec 2) Sandwich Islands Mission
Punahou

This is a claim made by the Sandwich Islands Mission, on behalf of the American Board of Commissioners for foreign Missions, for a certain land situated in the district of Waikiki, Island of Oahu, called "Punahou", and consisting of two distinct pieces: one known by the name of Punahou proper, and the other, a sea-land, called "Kukuluaeo."

From the Evidence submitted to the Board, it appears, that this land was given by Governor Boki about the Year 1829 to Hiram Bingham for the use of the Sandwich Islands Mission, and that the same, with the exception of certain portions occupied by Kauhi, Wahineino, and other Natives, has been in the peaceable possession of the said Mission, from the date of such Gift up

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to the present time.

We consider the Title of the "American Board of Commissioners for Foreign Missions" to "Punahou proper", and to the Sea land "Kukuluaeo", to be the same in its nature as that set forth in the Award of February 1st 1849 of the Lot now occupied by Henry Dimond, and designated as Claim "No 38½ - part 1 of Honolulu Claims."

We do therefore Award to the "American Board of Commissioners for Foreign Missions" the aforesaid lands of "Punahou proper" and "Kukuluaeo"; with the exception of those portions occupied by Natives :- to have and to hold to them, and to their Successors, during the existence of the "Sandwich Island Mission":- that is to say - so long as the "Sandwich Islands Mission" shall continue to exist, and labor to promote the Christian faith they profess. But if they should cease to exist, or to pursue the object of their profession, these lands will then revert to the Sandwich Islands Government.

The above Award, however, is made upon the express understanding, that if the "American Board of Commissioners for foreign Missions", shall desire to lease, sell, or otherwise dispose of these lands, or any portion thereof, they shall be at liberty to do so, by first obtaining the consent of the Sandwich Island Government, to such lease, sale, or other disposition.

The correct metes and bounds of the above awarded lands, are contained in the following surveys, made by J. Metcalf on the 6th and 9th days of May 1848.

"Notes of Survey of Punahou premises"

"Commencing at Mauka N. corner of enclosed

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premises by Road leading to Manoa valley - and running S. 40° W. 1 ch. 5 3/12 ft. along wall to slight angle. thence S. 35° W. 75 ch. 26 1/2 ft. along Road to W. corner of enclosed Premises. thence S. 26° W. 16 3/4 ch along Road to makai W. Corner of this land. (9 1/2 ch. on to new Road) thence S. 63° 15' E. 22 Ch. 29 ft. along Pauoa to Stake, at makai S. corner of this land. Thence N. 58° 45' E. 7 Ch. 8 1/2 ft. along Keauhou to Rock marked + angle - thence N. 64° 45' E. 26 Ch. 47 ft. along Kal. kaha to Rock marked + on stoney rise - angle - Thence N. 55° E. 11 Ch. 59 1/2 ft. along Pilipili to pile of stones by path - angle. thence N. 15° 30' E. 6 1/2 ch. along Pilipili to Rock on makai side of stone wall by Path N. 1° 15' W. 7 Ch. 54 1/2 ft. to E. angle of this lot - thence N. 37° 45' W. 13 Ch. 13 3/12 ft. along Mauka side of this land to Waitole Path - angle. thence N. 37° 15' W. 9 Ch. 19 10/12 ft. to stake at intersection of Roads leading up Manoa valley. thence N. 27° W. 20 ch. 13 ft. to point on Pulumala - the mauka N. Corner of this land - then direct down Ulakaa to place of Commencement - Including an area of Acres 224 68/100 :

May 6. 1848. J. Metcalf Sur.

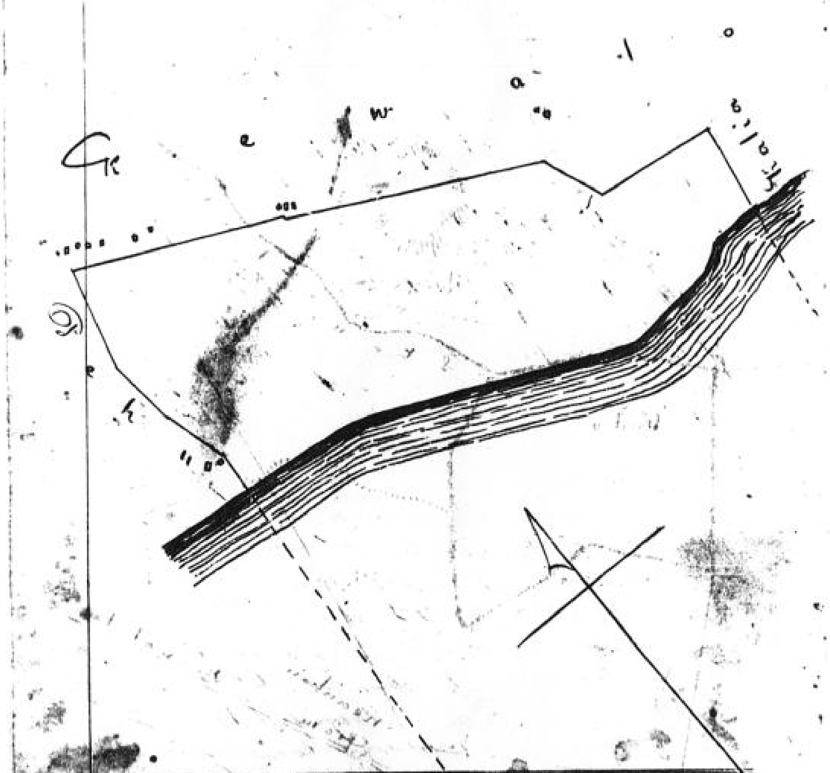
See diagram Page 603.

"Notes of Survey of Kukuluaeo" the sea-lands belonging to Punahoa".

"Commencing at bevied stone at Mauka N. Corner of this land - joining Kewalo" on mauka and Poho on N. W. side, and running S. 16° W. 8 ch. 11 ft. along Poho to angle - thence S. 5° 45' E. 5 ch 19 12/12 ft. along and to E. Corner of large fish Pond. thence S. 12° 15' E. 6 ch. 23 1/2 ft. to E. Corner of Pagoha's house angle - thence S. 5° 45' W. 2 1/2 Ch. to, and indefinitely into Sea. Then from point of Commencement and running S. 61° 45' E. 17 Ch. 19 10/12 ft. along Kewalo to post in front of Oneua's house - angle. thence S. 60° E. 21 ch. 6 1/2 ft. along Kewalo to angle (about 4 ch. makai of Samuel Toddys house) thence S. 31° E.

602

5½ Ch. along Kewalo to angle - Thence S. 81° E.
9 ch. 59 5/12 ft. along Kewalo to Mauka E. corner
of this Land - Thence S. 11° W. 7 ch. 9 3/12 ft.
along land Called Kalia, to, and Indefinitely
into Sea - Containing an Area of dry land of.
Acres 77
May 9 1848. J. Metcalf Sur.



Contd. Part 2 of No 387. S. I. Mission Dr
By Bill of Survey of J. Metcalf
Commission Wm L Lee
J. H. Smith
Z. Kaauwai
Hale Kauwila Wm Kamakau
7 April 1849 Ioane Ii

15
5
20

Appendix C Consultation Letter

CULTURAL SURVEYS HAWAI'I
ARCHAEOLOGICAL, CULTURAL, AND HISTORICAL DOCUMENTATION SERVICES - SINCE 1982

O‘ahu Island
P.O. Box 1114
Kailua, Hawai‘i 96734
Ph: (808) 262-9972
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Maui Island
1860 Main Street
Wailuku, Hawai‘i 96793
Ph: (808) 242-9882
Fax: (808) 244-1994

Branch Offices:
Hilo, Hawai‘i
Kona, Hawai‘i
Lāwai, Kaua‘i

11 January 2016

Dr. Kamana‘opono Crabbe
Administrator
Office of Hawaiian Affairs
Attn: OHA Compliance Enforcement
560 N. Nimitz Hwy, Ste. 200
Honolulu, Hawai‘I 96817

Subject: Cultural Surveys Hawai‘i, Inc.’s (CSH) request for consultation regarding archaeological inventory survey results for the Block N East project area, Kaka‘ako, Honolulu Ahupua‘a, Honolulu (Kona) District, O‘ahu, TMKs: [1] 2-3-002:001 (por.), 067, 086, 087

CSH Job Code: KAKAAKO 130

Aloha Dr. Crabbe:

On behalf of Victoria Ward, Limited (WVL) and The Howard Hughes Corporation (HHC), CSH recently completed the fieldwork for an archaeological inventory survey (AIS) for the Block N East project area, a component of VWL/HHC’s Ward Neighborhood Master Plan. As yet, there are no definitive development plans for Block N East. The brief AIS summary presented below is intended to support AIS-related consultation with the Office of Hawaiian Affairs (OHA). The summary includes historic property significance evaluations, per Hawai‘i Administrative Rules (HAR) §13-284-6(c). Following your review of the information provided, CSH requests that OHA reply with any questions, comments, or concerns regarding the Block N East AIS results.

Block N East AIS Summary

The Block N East project area is within the Ward Industrial Center, on the *makai* side of Queen Street between Ward Avenue and Kamake‘e Street (Figure 1). Based on the State Historic Preservation Division (SHPD)-accepted Block N East AIS plan, 35 test excavations were completed, including both exterior (parking lot/road) and interior (warehouse space) locations (Figure 2). One previously identified historic property was further documented during the AIS (Figure 3). State Inventory of Historic Places (SIHP) # 50-80-14-7429 consists of subsurface pre- and post-Contact cultural deposits with associated features (including human burials and burial finds). SIHP # -7429 is the old land surface that predates the importation of land reclamation fill in the first part of the twentieth century.

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The human skeletal remains designated part of SIHP # -7429 were documented within AIS test excavations T-10, T-14, and T-14A–T-14G, located within the northern corner of Block N East, adjacent to Queen Street (see Figure 3). AIS testing identified the remains of 23 in situ burials and four instances of isolated and disarticulated human skeletal remains within a burial cluster. In consultation among HHC and the stakeholders outlined below, seven additional AIS test excavations were carried out to identify the burial cluster boundaries within HHC property. Based on AIS results, the burial cluster appears to have been used almost solely by Native Hawaiians in the pre- and/or early post-Contact periods. Located within Jaucas sand deposits, most burials are flexed in the traditional Hawaiian manner. The presence of two historic coffin burials indicated that the area continued to be used intermittently into the post-Contact period. During AIS documentation, care was taken to minimize the disturbance of human skeletal remains, which were left in place within their respective test excavations. Cultural protocol was provided by ‘Oiwi Cultural Resources.

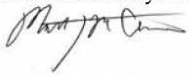
SIHP # -7429 was previously determined significant under the State of Hawai‘i historic property significance criteria “d” (information potential) and “e” (cultural significance to an ethnic group). The current Block N East AIS results support the prior significance determination. AIS mitigation recommendations include an archaeological monitoring program during project construction and a burial treatment program to decide treatment of this previously identified burial site.

Consultation

Consultation with the SHPD, the O‘ahu Island Burial Council (OIBC), and HHC’s group of previously recognized Kaka‘ako cultural descendants was conducted during the preparation of the AIS plan, during the course of AIS fieldwork, and following the completion of AIS fieldwork. ‘Oiwi Cultural Resources’ cultural monitors were on-site during AIS fieldwork and provided cultural protocol for all identified *iwi kūpuna*. Burial treatment consultation with the Block N East recognized cultural descendants and the OIBC is currently under way. The AIS results (including the burial finds) were presented to the OIBC on 9 December 2015. Burial treatment will be decided through the burial treatment plan preparation process (per HAR §13-300-33) and related consultation.

Once again, CSH welcomes OHA’s input in this consultation process. Please review the information and figures provided in this consultation letter and contact CSH with any questions, concerns, or comments that OHA may have regarding the AIS results. Thank you for your consideration of this matter.

Sincerely,
Cultural Surveys Hawai‘i, Inc.



Matt McDermott
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Tel. (808) 262-9972

Figure 1. Aerial photograph showing the location of the Block N East project area

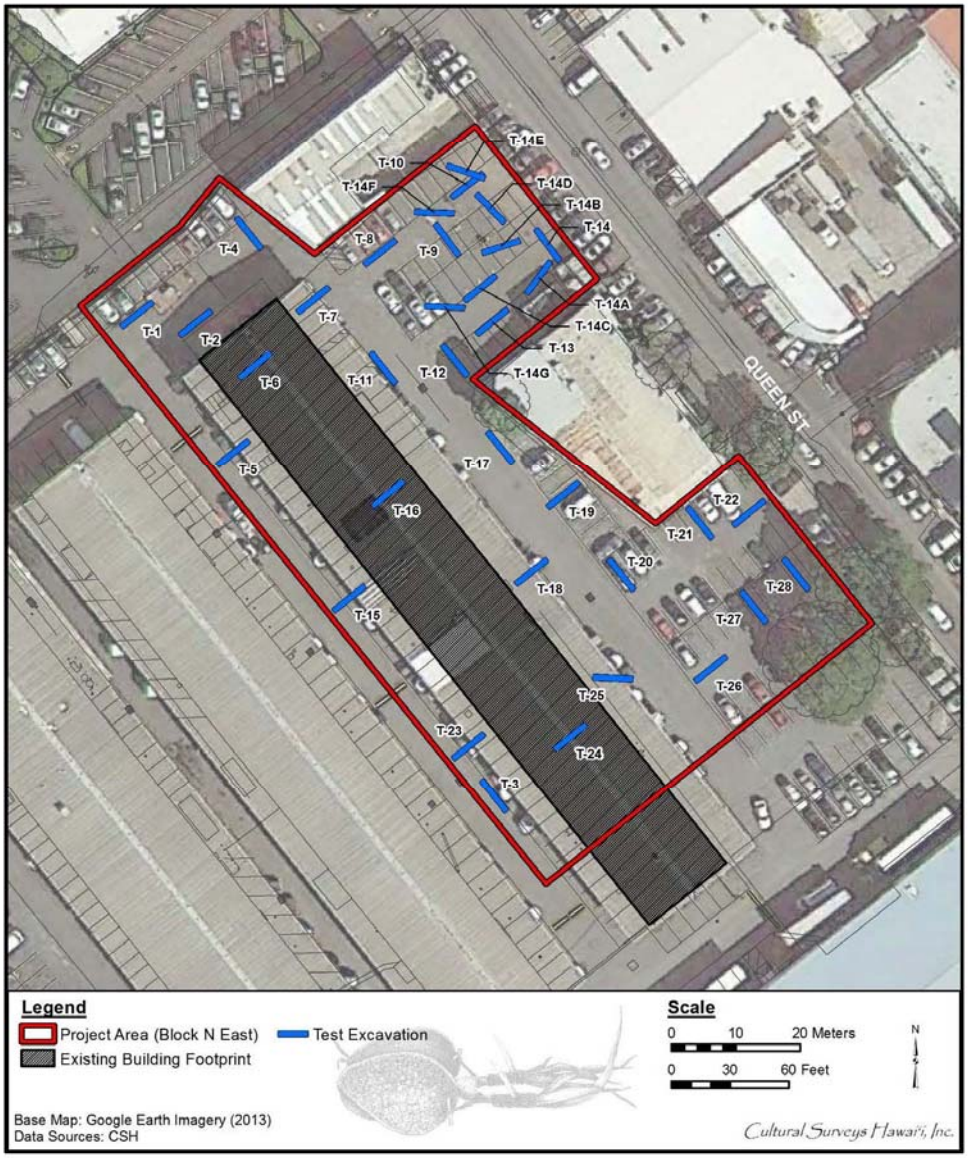

Figure 2. Aerial photograph showing the locations of 35 test excavations completed within the Block N East project area

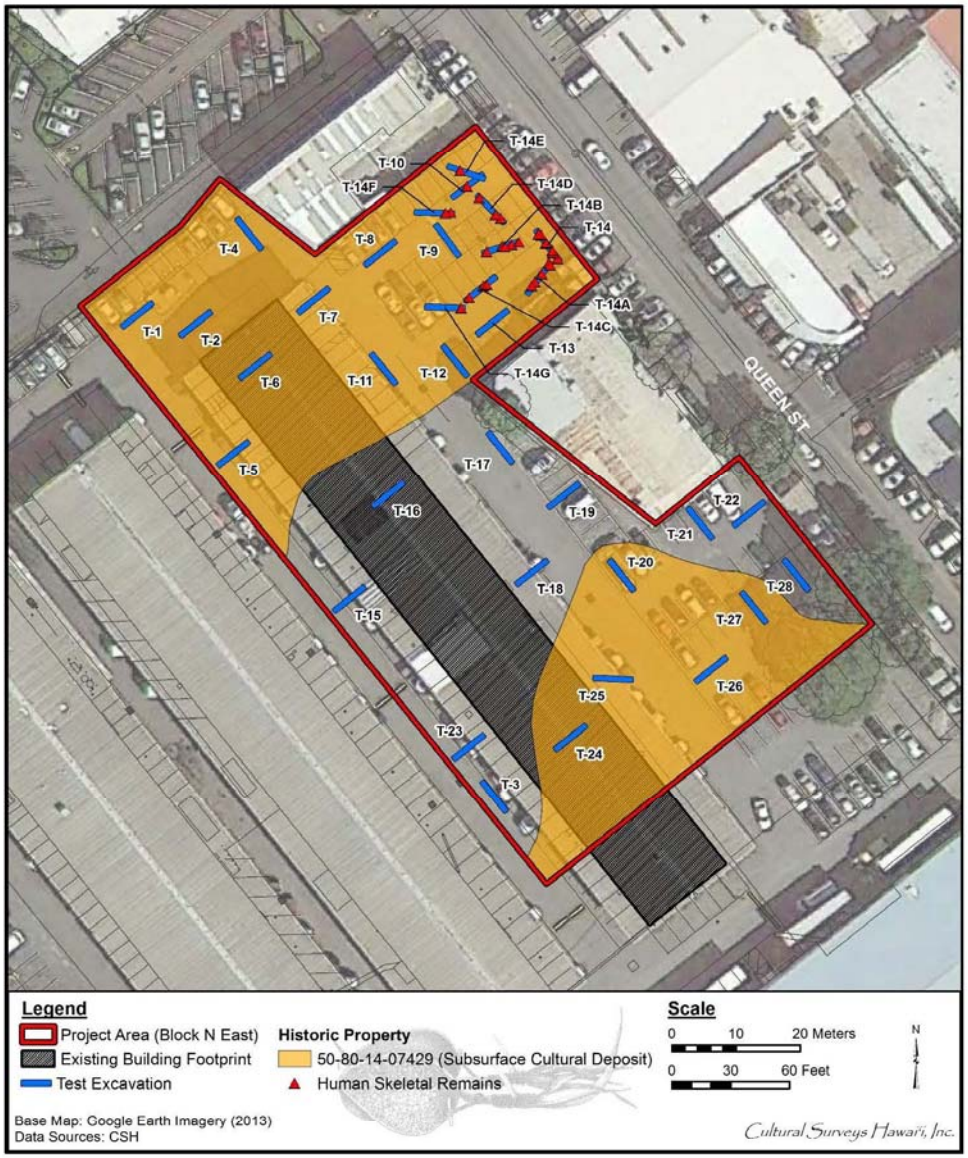

Figure 3. Figure showing the locations of the documented historic property (SIHP # -7429) including burial finds within the Block N East project area