

An Archaeological Inventory Survey
of TMKs: 3-7-5-10:85 and 3-7-5-17:06

Wai'aha Ahupua'a
North Kona District
Island of Hawai'i



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Contents

| | |
|---|-----|
| INTRODUCTION | 1 |
| BACKGROUND | 1 |
| Project Area Description | 1 |
| Cultural Contexts | 4 |
| Prior Archaeological Studies and Project Expectations | 6 |
| FIELDWORK AND ANALYSIS | 7 |
| Field and Laboratory Procedures | 8 |
| Analytical Methods | 8 |
| Site Descriptions, Test Excavations, and Functional Interpretations | 15 |
| SIGNIFICANCE EVALUATION AND TREATMENT RECOMMENDATIONS | 93 |
| Sites Recommended For No Further Work | 94 |
| Sites Recommended For Data Recovery | 95 |
| Sites Recommended For Preservation | 97 |
| REFERENCES CITED | 98 |
| APPENDIX A: Radiocarbon Results | 102 |

Figures

| | |
|---|----|
| 1. Project area location | 2 |
| 2. Portion of TMK 3-7-5-17 showing subject area | 3 |
| 3. Portion of Hawaii Territory Survey Map (ca. 1885) | 6 |
| 4. Project area plan view showing site locations | 16 |
| 5. SIHP Site 23662 plan view | 18 |
| 6. SIHP Site 23663 view to east | 19 |
| 7. SIHP Site 23668 view to south (tube entrance in foreground pavement in background) | 20 |
| 8. SIHP Site 23668 plan view and TU-3 profile | 21 |
| 9. SIHP Site 23668 tube entrance and location of TU-3 view to north | 22 |
| 10. SIHP Site 23669 plan view | 23 |
| 11. SIHP Site 23669 Features A and B view to east | 24 |
| 12. SIHP Site 23669 Features B and C view to southeast | 24 |
| 13. SIHP Site 23669 Feature D (Features E and F in background) view to south | 25 |
| 14. SIHP Site 23670 plan view and TU-12 profile | 26 |
| 15. SIHP Site 23670 Features A and B view to west | 27 |
| 16. SIHP Site 23670 Feature C view to northeast | 28 |
| 17. SIHP Site 23671 view to north | 28 |
| 18. SIHP Site 23672 plan view | 30 |
| 19. SIHP Site 23672 Feature A view to southwest | 29 |
| 20. SIHP Site 23672 Feature A TU-11 north wall profile | 31 |
| 21. SIHP Site 23672 Feature A TU-11 base of excavation view to north | 31 |
| 22. SIHP Site 23672 Feature B exterior view to north | 32 |
| 23. SIHP Site 23672 Feature B TU-13 east wall profile | 33 |
| 24. SIHP Site 23672 Feature B interior overview and surface of TU-13 | 34 |
| 25. SIHP Site 23673 plan view and TU-17 profile | 35 |
| 26. SIHP Site 23673 Feature A view to north | 36 |
| 27. SIHP Site 23673 Feature B view to east | 37 |
| 28. SIHP Site 23674 view to south | 38 |

| | | |
|-----|--|----|
| 29. | SIHP Site 23674 plan view. | 39 |
| 30. | SIHP Site 23675 view to southwest. | 39 |
| 31. | SIHP Site 23675 plan view. | 41 |
| 32. | SIHP Site 23675 TU-20 north wall profile. | 42 |
| 33. | SIHP Site 23676 plan view and TU-18 profile. | 43 |
| 34. | SIHP Site 23676 view to southwest. | 44 |
| 35. | SIHP Site 23676 <i>he'e</i> lure recovered from TU-18. | 44 |
| 36. | SIHP Site 23677 plan view and TU-16 profile. | 46 |
| 37. | SIHP Site 23677 view to southwest. | 47 |
| 38. | SIHP Site 23678 plan view. | 49 |
| 39. | SIHP Site 23678 view to east. | 50 |
| 40. | SIHP Site 23679 view to northeast. | 51 |
| 41. | SIHP Site 23680 view to west. | 51 |
| 42. | SIHP Site 23681 plan view and TU-14 profile. | 53 |
| 43. | SIHP Site 23681 view to northwest (Feature B in foreground and Feature A in background)..... | 54 |
| 44. | SIHP Site 23682 view to east. | 55 |
| 45. | SIHP Site 23683 view to south. | 56 |
| 46. | SIHP Site 23683 plan view. | 57 |
| 47. | SIHP Site 23683 TU-9 east wall profile. | 57 |
| 48. | SIHP Site 23684 plan view and TU-10 profile. | 58 |
| 49. | SIHP Site 23684 view to north. | 59 |
| 50. | SIHP Site 23684 TU-10 architectural layer (Layer 1) showing branch coral view to west. | 60 |
| 51. | SIHP Site 23685 plan view and TU-7 profile. | 61 |
| 52. | SIHP Site 23685 view to east. | 62 |
| 53. | SIHP Site 23686 plan view. | 63 |
| 54. | SIHP Site 23686 Feature 187 view to southeast. | 70 |
| 55. | SIHP Site 23686 Feature 187 plan view and TU-1 profile. | 71 |
| 56. | SIHP Site 23686 Feature 187 TU-1 base of excavation view to southwest. | 72 |
| 57. | SIHP Site 23686 Feature 189 view to northeast. | 72 |
| 58. | SIHP Site 23686 Feature 189 plan view and TU-2 profile. | 73 |
| 59. | SIHP Site 23686 Feature 189 TU-2 base of excavation view to northeast. | 74 |
| 60. | SIHP Site 23686 Feature 262 plan view and TU-15 profile. | 75 |
| 61. | SIHP Site 23686 Feature 262 view to east. | 76 |
| 62. | SIHP Site 23686 Feature 266 plan view and TU-19 profile. | 77 |
| 63. | SIHP Site 23686 Feature 266 view to east. | 78 |
| 64. | SIHP Site 23686 Feature 266 TU-19 base of excavation view to northeast. | 78 |
| 65. | SIHP Site 23686 Feature 271 view to southeast. | 79 |
| 66. | SIHP Site 23686 Feature 271 plan view and TU-21 profile. | 80 |
| 67. | SIHP Site 23686 Feature 183 view to northwest. | 81 |
| 68. | SIHP Site 23686 Feature 183 plan view and TU-4 profile. | 82 |
| 69. | SIHP Site 23686 Feature 201 view to east. | 83 |
| 70. | SIHP Site 23686 Feature 201 plan view and TU-5 profile. | 84 |
| 71. | SIHP Site 23686 Feature 204 plan view and TU-6 profile. | 85 |
| 72. | SIHP Site 23686 Feature 204 view to west. | 86 |
| 73. | SIHP Site 23686 Feature 239 view to north. | 86 |
| 74. | SIHP Site 23686 Feature 239 plan view and TU-8 profile. | 87 |
| 75. | SIHP Site 23686 Feature 239 TU-8 base of excavation view to south. | 88 |
| 76. | SIHP Site 23686 Feature 297 plan view and TU-22 profile. | 89 |
| 77. | SIHP Site 23686 Feature 297 view to north. | 90 |
| 78. | SIHP Site 23686 Feature 264 typical terrace construction view to northwest. | 91 |
| 79. | SIHP Site 23686 Feature 251 typical large enclosure view to southwest. | 92 |
| 80. | SIHP Site 23686 Feature 294 typical small enclosure view to west. | 92 |

Tables

| | |
|--|----|
| 1. Archaeological sites recorded as part of the current inventory survey. | 15 |
| 2. Recovered cultural material from SIHP Site 23672 Feature B, TU-13 Layer I. | 34 |
| 3. Recovered cultural material from SIHP Site 23673 Feature A, TU-17. | 36 |
| 4. Recovered cultural material from SIHP Site 23675, TU-20. | 40 |
| 5. Recovered cultural material from SIHP Site 23676, TU-18. | 45 |
| 6. Recovered cultural material from SIHP Site 23677, TU-16. | 48 |
| 7. Recovered cultural material from SIHP Site 23681, TU-14. | 52 |
| 8. SIHP Site 23686 agricultural features. | 64 |
| 9. Site significance and treatment recommendations | 94 |

INTRODUCTION

At the request of Mr. George Atta of Group 70 International, on behalf of his client Mr. Mark Spangler of U of N BENCORP, Rechtman Consulting, LLC conducted an archaeological inventory survey of a roughly 62-acre parcel (TMK:3-7-5-10:85 and 3-7-5-17:06) along Kuakini Highway in Wai'aha Ahupua'a, North Kona District, Island of Hawai'i (Figure 1). This survey was undertaken in accordance with draft Hawai'i Administrative Rules 13§13–284, dated 10/15/98, and was performed in compliance with the Rules Governing Minimal Standards for Archaeological Inventory Surveys and Reports as contained in draft Hawai'i Administrative Rules 13§13–276. Compliance with the above standards is sufficient for meeting the initial historic preservation review process requirements of both the Department of Land and Natural Resources–State Historic Preservation Division (DLNR–SHPD) and the County of Hawai'i Planning Department.

This report contains background information outlining the project area's physical and cultural contexts, a presentation of previous archaeological work in the area and current survey expectations based on that previous work, an explanation of the project methods, detailed descriptions of the archaeological resources encountered, interpretation and evaluation of those resources, and lastly, treatment recommendations for all of the documented sites.

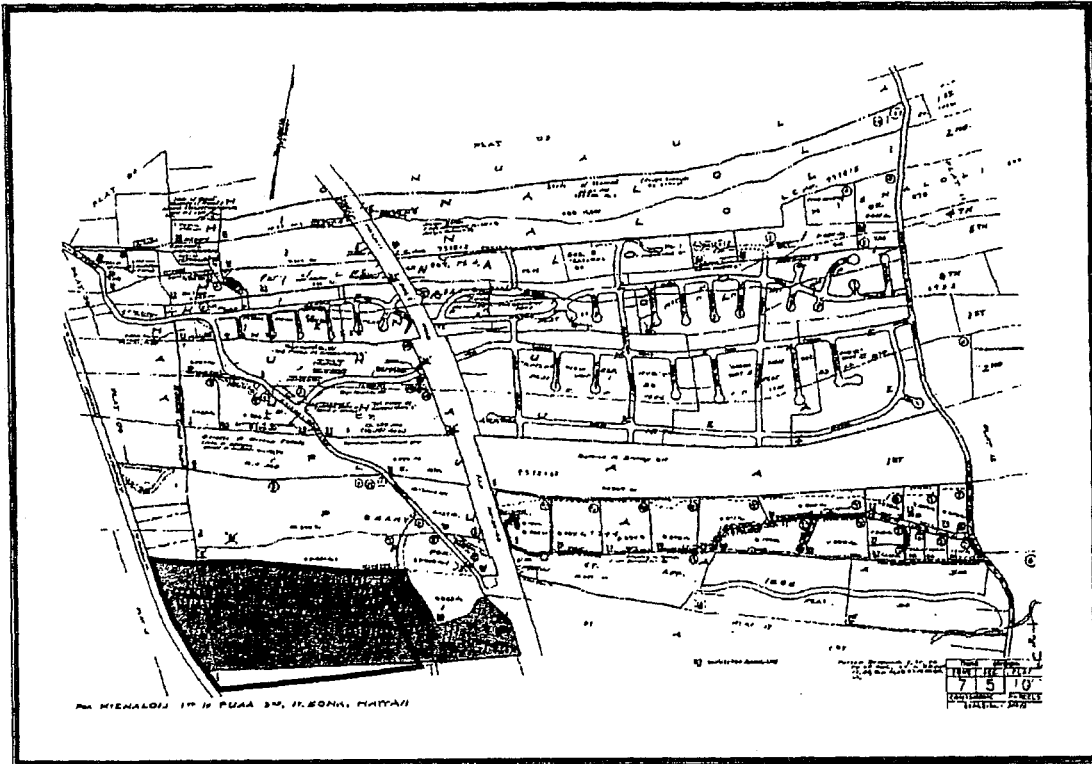
BACKGROUND

To generate expectations regarding the nature of the historic properties that might exist on the study parcel, and to provide an appropriate background to assess any resources that are encountered, the specific as well as general physical and cultural contexts are presented along with prior archaeological studies relevant to the project area.

Project Area Description

The current study area is bounded to the east by land (part of the same TMK parcel) that has reportedly (Corbin and Rosendahl 2002) already been inspected by a DLNR-SHPD representative (Mr. Marc Smith) and given historic preservation clearance; to the north by a stone wall along the Wai'aha 1st/Pua'a 3rd boundary; to the south by a stone wall in Wai'aha 2nd Ahupua'a just south of the Wai'aha 1st boundary along the edge of TMK: 3-7-5-17:6 and by an existing residential development where the wall no longer stands; and to the west by a stone wall along the *mauka* edge Kuakini Highway (Figure 2). Terrain in the project area is gently undulating and elevation ranges from 100 to 240 feet above sea level. Two soils characterize the project area, Wai'aha extremely stony silt loam and Punalu'u extremely rocky peat (Sato et al. 1973). Both are well-drained, thin organic soils over bedrock. The underlying bedrock is *pāhoehoe* within the western third of the project area transitioning to *'a'ā* in the eastern two-thirds; the flows date to more than 5,000 years BP (Wolfe and Morris 1996).

Despite the seemingly consistent semi-arid condition of this area, seasonality is evident. Throughout the Hawaiian Islands, the warmer and drier summer months, traditionally referenced as *kau*, extend from May to September, and the wetter, cooler months (*ho'oilo*) extend from October to April (Handy and Handy 1972). The temperatures in the Kona area are generally consistent with this seasonal pattern, ranging between 62–80 degrees in winter and 68–86 degrees in summer (Schilt 1984). However, the typical rainfall pattern differs considerably from that seen elsewhere; in all elevations along the Kona coast, rainfall during *kau* is typically greater than that during *ho'oilo* (Schilt 1984).



↑ TMK:3-7-5-10:85 □ = Study area ■ = U of N BENCORP parcels TMK:3-7-5-17:06 ↓

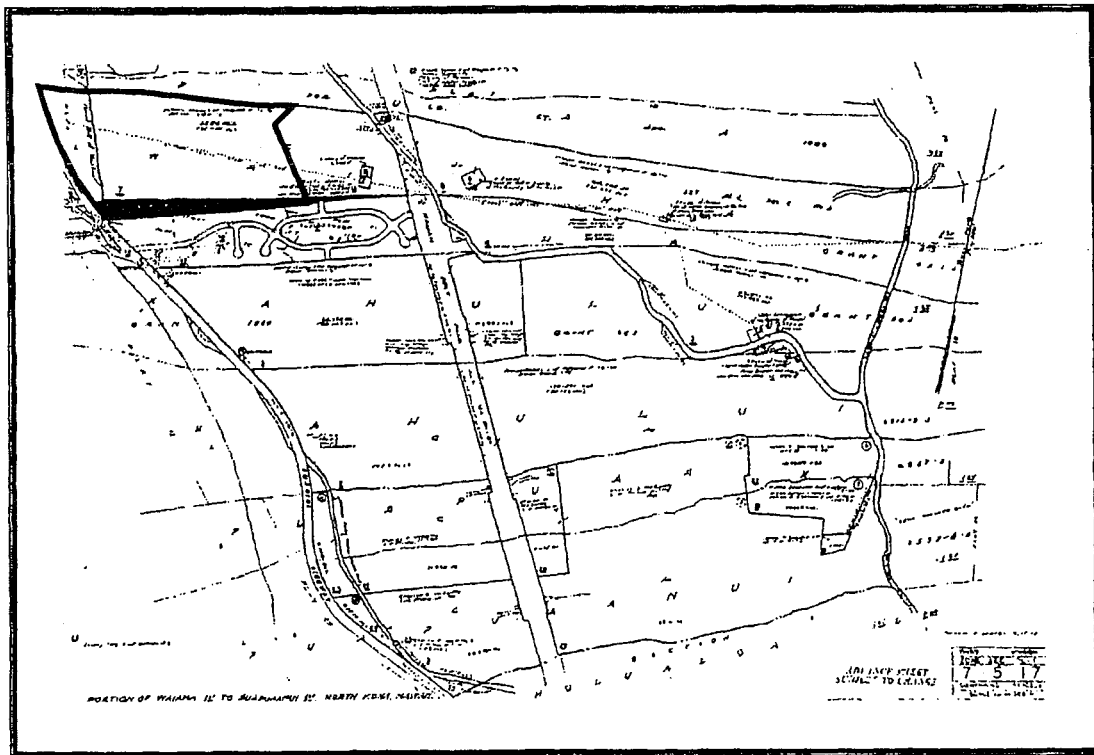


Figure 2. Tax Map Keys: 3-7-5-10 and 17 showing current project area (parcels 85 and 10).

Two historically introduced species, *kiawe* (*Prosopis pallida*) and *koa haole* (*Leucaena glauca*) dominate the vegetation within the project area. A variety of grasses, vines, weeds, and shrubs are also present. Prior impacts within the project area can be described as substantial. Mechanical earth moving is evident as a graded road (no longer in use) corresponding to a waterline easement running *mauka/makai* through the property.

Cultural Contexts

The project area is in the coastal edge of what has been termed the Kona Field System (Cordy 1995, Newman 1970, Schilt 1984). Below we present the current accepted “orthodox” view of this system; however, for a critical analysis of the utility of this construct see discussion beginning page 11. This area extends north at least to Kaū Ahupua‘a and south to Honaunau, west from the coastline and east to the forested slopes of Hualālai (Cordy 1995). A large portion of this area is designated in the Hawai‘i SIHP (State Inventory of Historic Places) as Site 50-10-37-6601 and has been determined eligible for inclusion in the National Register of Historic Places. The basic characteristics and elevationally delimited zones within this agricultural/residential system as presented in Newman (1970) have been confirmed and elaborated on by ethnohistorical investigations (Kelly 1983).

The current study parcel is in the *kula* zone. This is the area from sea level to 150 meters elevation. Annual rainfall in the *kula* zone is 75 to 125 centimeters. This lower elevation zone is traditionally associated with habitation and the cultivation of sweet potatoes, paper mulberry, and gourds. Agricultural features, such as clearing mounds, planting mounds, planting depressions, modified outcrops, pavements, enclosures, and planting terraces, are common throughout much of this zone (Hammatt and Clark 1980, Hammatt and Folk 1980, Haun et al. 1998, Schilt 1984). Dwellings were scattered throughout the agricultural portion of the *kula*, but they are commonly concentrated along the shoreline (Cordy 1981, Hammatt 1980). The shoreline zone, extending inland approximately 200 meters, was used primarily for permanent habitation and other non-agricultural activities, such as canoe storage, ceremonial and burial practices, recreation, and fishing-related activity. Mao or Nalupo‘o Heiau (SIHP 3834) was recorded along the sandy beach shoreline of Wai‘aha Ahupua‘a (Stokes and Dye 1991).

Royal and high chiefly centers were also situated within the shoreline of the *kula*. These complexes included dwellings for chiefs and their entourage, places of refuge, and other structures. Several large and densely populated royal centers were located along the shoreline between Kailua and Honaunau (Cordy 1995, Tomonari-Tuggle 1993). A variety of non-residential features are present in the *kula* near royal centers, including small agricultural plots, and formal and informal burial features (Cordy 1995, Han et al. 1986, Schilt 1984, Tainter 1973, Tomanari-Tuggle 1993).

Nineteenth century habitation features built on stone platforms were present in the *kula* (Hammatt and Meeker 1979, Schilt 1984). Stone platforms with clearly defined internal divisions are present (O‘Hare and Wolforth 1997) and probably reflect a change in residential plans from a complex of multiple, separate, single-function structures (men’s sleeping, women’s sleeping, cooking) to a single structure with multiple rooms and functions (entire family’s quarters and cooking) (Ladefoged 1991). Burial features with historic-era artifacts and architecture (i.e., mortar and corrugated tin) are present in the lower elevations. These are frequently isolated structures, but burial also occurred within residential platforms during the Historic Period (O‘Hare and Wolforth 1997).

During the early nineteenth century, following the breaking of the traditional eating *kapu* by Liholiho, Ka‘ahumanu, and the Queen mother Keopulani, which was a symbolic gesture that led to the demise of the entire Hawaiian religious system, the older places of worship (*heiau*) no longer held their significance. Many such places were dismantled, and the stones used for other building projects such as the Kuakini Wall, which bisects the current project area.

The religious, socioeconomic, and demographic changes that took place in the period between 1790 and the 1840s, promoted the establishment of a Euro-American style of land ownership, and the Great *Māhele* was the vehicle for determining ownership of the native land. During this period (1848-1899), the *Māhele* defined the land interests of the King (Kamehameha III), the high-ranking chiefs, and the low-ranking chiefs, the *konohiki*. The chiefs and *konohiki* were required to present their claims to the Land Commission to receive awards for lands provided to them by Kamehameha III. They were also required to provide commutations to the government in order to receive royal patents on their awards. The lands were identified by name only, with the understanding that the ancient boundaries would prevail until the land could be surveyed. This process expedited the work of the Land Commission and speeded the transfers (Chinen 1961:13).

During this process all lands were placed in one of three categories: Crown Lands (for the occupant of the throne), Government Lands, and Konohiki Lands. All three types of land were subject to the rights of the native tenants. Commoners could make claims for land, and if substantiated, they would receive awards referred to as *kuleana*, from the Land Commission. During this period, other land grants were also made to individuals directly from the Kingdom. In 1862, the Commission of Boundaries (Boundary Commission) was established in the Kingdom of Hawai'i to legally set the boundaries of all the *ahupua'a* that had been awarded as a part of the *Māhele*. Subsequently, in 1874, the Commissioners of Boundaries was authorized to certify the boundaries for lands brought before them. The primary informants for the boundary descriptions were old native residents of the lands, many of which had also been claimants for *kuleana* during the *Māhele*. The information was collected primarily between 1873 and 1885. The testimonies were generally given in Hawaiian and simultaneously transcribed in English.

The Missionary William Ellis visited the vicinity of the current project area in 1823 and described the following:

Leaving Kairua [Kailua], we passed through the villages thickly scattered along the shore to the southward. The country around looked unusually green and cheerful, owing to the frequent rain, which for some months past have fallen on this side of the island. Even the barren lava, over which we traveled, seemed to veil its sterility beneath frequent tufts of tall waving grass, or spreading shrubs and flowers.

The side of the hills, laid out for a considerable extent in gardens and fields, and generally cultivated with potatoes, and other vegetables, were beautiful.

The number of heiaus, and depositories of the dead, which we passed, convinced us that this part of the island must formerly have been populous. The latter were built with fragments of lava, laid up evenly on the outside, generally about eight feet long, from four to six broad, and about four feet high. Some appeared very ancient, other had evidently been standing but a few years. (1963[1823]:72-73).

In 1823 and 1824, Queen Ka'ahumanu granted Rev. Thurston and Rev. Bishop the right to establish missions and schools in Wai'aha. Later, during the *Māhele* the majority Wai'aha 1st was awarded to the American Board of Commissioners for Foreign Missions (LCAw. 387). There were no *kuleana* awards made within the project area. Wai'aha is generally considered to have been a place of high-status residences and ceremonial complexes, and Queen Emma lived in the *ahupua'a* in her later years. Her house and other landmarks are shown on an early (1880s) Hawaii Territory Survey map (Figure 3).

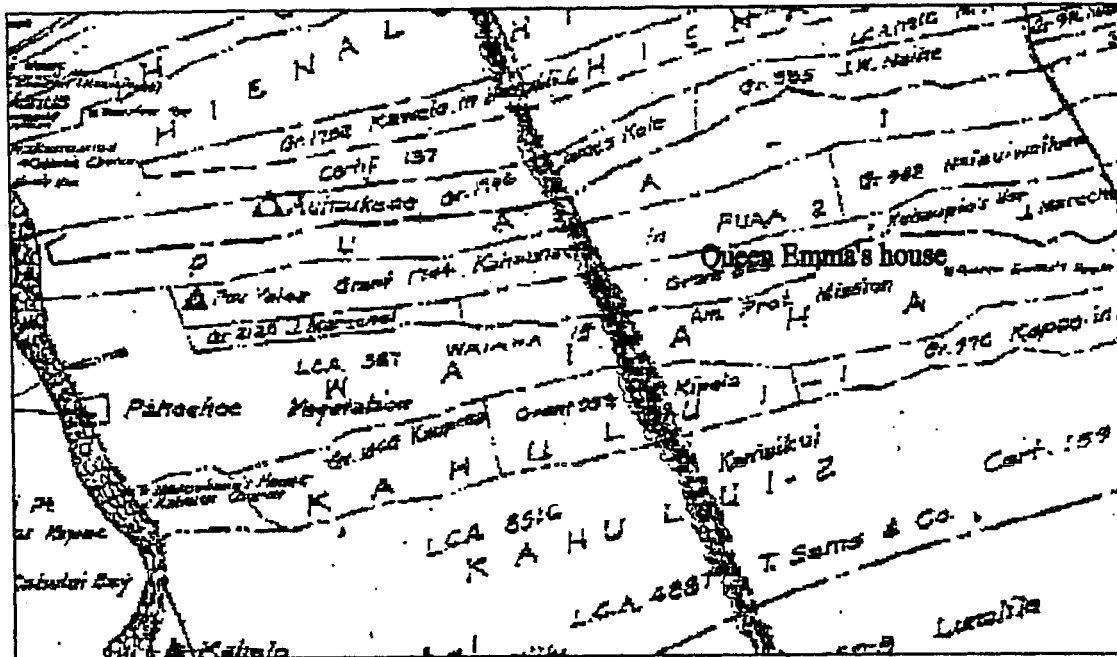


Figure 3. Portion of Hawai'i Territory Survey Map (ca. 1885).

Population declined and settlements became smaller in the Kona area during the Territorial Period (1900–1959). Coastal occupation was concentrated in the small villages of Kailua and Keauhou, with permanent residences with gardens and animal pens scattered along the shoreline. Upland habitation was associated with agricultural and ranching pursuits. More walls were added to the *kula* as cattle pastures expanded into the lower elevations during this period. In 1927, Manuel Gomes acquired the Wai'aha *ahupua'a*, along with the Kahului *ahupua'a*, from the failed Kona Sugar Company (O'Hare and Wolforth 1997). The land became part of the Gomes Ranch and was actively used for cattle grazing and stockading until the 1960s. Several of the stone walls seen in the study area today are a legacy of the Gomes Ranch.

Prior Archaeological Studies and Project Expectations

A number of archaeological surveys have been conducted in Wai'aha Ahupua'a, and a significant amount of work has been conducted in adjacent land divisions (see Head et al. 1994 and Haun et al. 1998 for a thorough overview). The findings of the prior investigations allow for a comprehensive portrayal of past land use and settlement patterns for the area. The coastal *kula* areas of greater Kailua-Kona contain numerous late prehistoric and early historic residential sites. Many of these were associated with the more privileged members of Hawaiian society. Also known to exist in this region are *heiau* and burial features. Such sites are known from both historic records and archaeological investigation. In fact, within coastal Wai'aha (*makai* of the current study area) was Ma'o Heiau (Pukui et al. 1974, Thrum 1909), a *heiau kâlua ua* built to control rain. Wai'aha may indeed derive its name ("gathering water") from the association with this *heiau* (Pukui et al. 1974:219). Burial sites both within habitation features and in dedicated burial features are not uncommon in the area (O'Hare and Wolforth 1997, Walker et al. 1996). Also common in this area are small agricultural features, most often associated with the residential sites, but not always. Historic Period sites, frequently related to cattle ranching, also left their mark on the landscape; stone walls and cattle enclosures are found consistently along the area *mauka* of present day Ali'i Drive (former *ala loa*).

One of the most proximate studies to the current project area was an archaeological inventory survey conducted by Rechtman Consulting, LLC on a 19-acre parcel *makai* of Kuakini Highway within Wai'aha 1st Ahupua'a (Rechtman 2000). Small portions of this property had also been previously surveyed (Head et al. 1994) and data recovered (Walker et al. 1996) as part of a sewer easement mitigation project. Of the twenty-nine sites recorded on the 19-acre parcel, twenty-eight were extant at the time of the Rechtman (2000) study. One of these twenty-eight was not considered to be a cultural site (SIHP 15525). Twelve of the remaining twenty-eight sites likely dated to the pre-Contact period; two of these were agricultural sites (SIHP 21992 and 22065), nine were habitation sites (SIHP 15517, 15518, 15521, 15524, 21991, 22067, 22068, 22069, and 22070), and one was a habitation/burial site (SIHP 15507). Three sites (SIHP 21994, 21996, and 22063) seemed to date from the late pre-Contact/early Historic Period, and all may have been associated with one another. All three of these latter sites also seemed to have religious importance, and human remains were discovered at one of them (SIHP 22063). Twelve of the twenty-eight sites dated to the Historic Period. All of these sites were walls or enclosures likely associated with cattle ranching during the early and middle twentieth century.

The current project area had been previously studied as part of a reconnaissance survey (Corbin and Rosendahl 2002) and burial-testing program (Rosendahl 2002) conducted by PHRI (Paul H. Rosendahl Ph.D., Inc.). As a result of the reconnaissance survey Corbin and Rosendahl (2002) recorded 28 archaeological sites encompassing approximately 45 features. One previously identified site (Site 6302), the Kuakini Wall, was also relocated. Other recorded feature types included walls, terraces, mounds, modified outcrops, platforms, enclosures, and lava blister caves. Possible functions suggested for these features included, habitation, ranching, agricultural, and burial. All of the PHRI sites were relocated during the current inventory survey. Subsequent to the reconnaissance survey, PHRI conducted archaeological testing of a sample of possible burial features. Eleven features at eleven different sites were tested for burials (PHRI does not indicate which features were actually tested), all with negative results (Rosendahl 2002). A coral abrader, an adze fragment, and marine shell fragments were noted during the excavations, but apparently not collected.

Based on the previously conducted archaeological studies in the vicinity of the current project area, and the background information presented above, a set of field expectations can be generated. Rechtman (2000) documented the presence of household agricultural sites, permanent and temporary habitation sites (one with a possible household shrine), historic ranching walls, and burial features on a parcel in Wai'aha *makai* of the current study area. All of these fit the pattern for the coastal portions of the Kona. Although Rosendahl (2002) did not identify burials in eleven features contained within the project area, Walker et al. (1996) and other work (O'Hare and Woforth 1998) in nearby *ahupua'a*, have encountered burials during subsurface testing of features, in both habitation and other contexts. During the current fieldwork it is expected that both temporary and permanent habitation features will be encountered that date from the Precontact and early Historic Periods, and that burials might be present at these sites. The former presence of a coastal *heiau* in Wai'aha may indicate the existence of other such features within the current study area. The project area was part of a failed sugarcane plantation and later became the Gomes Ranch. These Historic Period activities likely resulted in the disturbance of some of the earlier features and the ranching activities should be visible on the landscape in the form of core-filled walls and enclosures.

FIELDWORK AND ANALYSIS

Field work for the current project was carried out between October 29 and December 23, 2002, J. David Nelson, B.A., Dylan S. Amerine, B.A., Gregg A. Harmon, B.A., Kasey A. McCune, B.A., Michael E. Rivera, B.A., Mark J. Winburn, B.A., and Christopher L. Quiseng, B.A., under the direction of Robert B. Rechtman, Ph.D.. Each field worker spent eight hours a day five days a week in the field for the duration of the project, with the exception of one three-day week during Thanksgiving weekend, expending a total of approximately 2,000 man hours for the completion of the inventory survey.

Field and Laboratory Procedures

Fieldwork included a pedestrian survey of the entire study parcel and test excavations at selected features. Survey transects were oriented north/south and the surveyors maintained a 10-meter spacing interval using Garmin 12 handheld GPS technology. Although tall grass covered most of the project area at the time of the inventory survey (making feature identification difficult), it is believed that the vast majority of the archaeological resources on the study parcel were located. It is a possibility that a few isolated small rock mounds or modified outcrops may have been overlooked due to the dense vegetation (but rather unlikely due the tight spacing of the fieldworkers' during transect sweeps). Certainly all the major archaeological resources within the project area were located and recorded. Features identified during the survey were flagged and plotted on a field map. These features were later cleared, recorded in detail, photographed and placed on a large-scale map of the project area (Figure 4).

Twenty-two 1 x 1 meter test units (TUs) were excavated at ten sites. These excavation units were dug following natural strata. Where natural layers could not be determined, excavation followed 10-centimeter arbitrary levels. All excavated material was passed through ¼-inch screening in an attempt to recover cultural material. Excavation units were dug until bedrock was encountered or until buried human remains were discovered. In the latter case (3 instances) all of the material recovered from the unit was replaced and the feature restored to its pre-excavation condition.

Excavation record forms were maintained for each test unit and photographs were taken (except for the units containing burials). Upon completion of the units, prior to backfilling, stratigraphic information was recorded and profiles drawn. Artifacts recovered from the screening process were cleaned, weighed, counted, and described. Faunal remains were tabulated and identified to the lowest taxonomic level possible. Where applicable, the Number of Identified Specimens (NISP) and the Minimum Number of Individuals (MNI) were determined. Charcoal was recovered from only two units in a quantity sufficient for radiocarbon analysis; these samples were sent to Beta Analytic, Inc. for age determination (Appendix A).

Analytical Methods

This section of the report is intended to elucidate the methodology used in defining sites for the purposes of the current study. The archaeological "site" is the common analytical unit for undertaking comparative analyses. Sites are also the administrative unit for describing and defining archaeological resources, as mandated by DLNR-SHPD. However, sites are not absolute quantifiable entities that are simply waiting to be discovered by archaeologists; rather, sites are defined through the interpretation of features and associations, both spatial and temporal. It is features that are absolute entities waiting to be discovered, described, and measured. It is features that archaeologists encounter in the field, not sites; and it is the associations of features in space and time that facilitate interpretation. Sites are defined once the features are recorded and the associations studied within the context of an entire landscape. Thus, a feature can be said to have formal attributes and a site to be a functional interpretation of formal, spatial, and temporal associations.

Below we describe the formal categories to which features are assigned, the methods used for assigning temporal affiliation, the criteria used for associating features into sites (defining site boundaries), and the process of interpreting site function.

Formal Feature Definitions

Features are the quantifiable forms constructed or modified by human hands that make up the archaeological landscape and record generations of human occupation. It is important to keep in mind that individuals construct features at a certain time for a specific purpose. However, by the time archaeologists encounter formal features, they are often overgrown with vegetation, collapsed and destroyed (or trampled

on by cows), and sometimes dismantled or rebuilt; and almost always lack all perishable components. Numerous formal feature types have been identified (but not agreed upon) during the past 100 or so years of archaeological research (augmented by historical documentation and oral historical accounts) on the island of Hawai'i. Indeed, as Kirch points out, "given the bewildering variety of forms and permutations that Hawaiian structures take...no single classification has yet been found to be entirely satisfactory. In fact, Hawaiian archaeologists commonly use ad hoc combinations of functional and formal types in their survey work, applying functional terms to sites whose past use seems relatively unambiguous, and using formal, descriptive terms for sites that might have been used for several alternative purposes" (1985:36-38). By nature, this lack of agreement on feature terminology hinders comparisons between sites and projects, and the "ad hoc" combination of formal and functional terms used in describing features in the field can preclude innovative interpretation. As will be shown in the following sections of this report, similar formal feature types can have very diverse functional and temporal associations.

To help alleviate the hindrance of conflicting terminology, a set of formal feature definitions, specific to the current project area—but keeping in mind previous archaeological work—is presented below. The definitions are purposely devoid of function, and present only the common attributes that enabled us to place the diverse formal feature types into easily quantifiable groups. The formal feature types encountered within the project area are mound, modified outcrop, wall, enclosure, terrace, pavement, platform, and lava tube. A definition of each type is presented below and specific examples can be seen in the site inventory section of this text. Also, in addition to the defined feature types, two unique feature types (which have an implicit implied function attached to them) were encountered during the current study. These types include trails (worn alignments or stepping-stone) and game boards (*papamū*). No definitions are provided for these feature types.

Mound

A mound is collection of stones with an irregular surface. Mounds range considerably in size, shape, method of construction, and type of stone used. They are constructed from as few as four stones or as many as the topography and the effort of the individual(s) constructing them allow. The shape of a mound (i.e. oval, round, linear, curvilinear, square, crescent, rectangular, or irregular) varies considerably depending on the terrain and the individual (purpose of construction). However, all mounds, as dictated by gravity, have sloped sides. Mounds are either piled or stacked, or a combination of both. Stacked mounds usually contain a fill of piled stones with an outside layer stacked around the edges. The type of stone used in mound construction is a reflection of the immediately available source material. The size of stone used is also a function of material availability.

Modified outcrop

A modified outcrop is a natural bedrock formation with an associated collection of stones placed against and supported by it. Unlike a mound, the stone collection is not freestanding and depends on the bedrock formation for support. The type and size of the stones used is a function of the immediately available source materials. The stones are either stacked, piled, or a combination of both, but the size of the stone collection must be significantly smaller than the size of the bedrock formation, otherwise the feature is considered a mound. The surface of a modified outcrop is always irregular with sloped sides and incorporated bedrock. Occasionally, if the stones are stacked against a vertical bedrock formation, the stacked edges will also approach vertical.

Wall

A wall is a linear or curvilinear alignment of stones (at least two courses high) that is considerably longer than it is wide. Walls are constructed using stones of various type and size depending upon the source material. They generally have sloped sides, although in neatly stacked walls the slope approaches vertical. Walls encountered within the project area take on three general forms; piled (no placement of stones), stacked (stones placed on top of one another), and core-filled (stacked along the edges with a fill of piled stones). Walls may also form adjoining or shaped segments (i.e. L-shaped, T-shaped, U-shaped, etc.).

Terrace

A terrace is a linear or curvilinear stone construction built perpendicular to the natural slope of the terrain. It is generally longer than it is wide and at least two courses high. On the upslope side of the terrace soil is

either placed, or more often naturally accumulated, to form a relatively level surface area. The stones of a terrace may be piled or stacked (piled edges are sloped, while stacked edges are generally vertical). Although no such evidence was recorded within the current project area, level soil areas behind shorter terrace walls, which form rectangular areas, have been documented at other locations in Kona to be residential features.

Enclosure

An enclosure is a construction of stones that surrounds an interior space around at least 75% of its perimeter. The construction may incorporate natural formations (i.e. bedrock outcrops, boulders, etc.) or other formal feature types (i.e. walls, terraces, etc.) into its length. Construction materials are of varying type and size depending on the source. The shape of an enclosure (i.e. square, rectangular, three sided, many sided, circular, oval, or irregular) varies considerably depending on the topography and its intended function. Some enclosures completely surround an interior space with no openings.

Pavement

A pavement is a stone surfaced area, level with the surrounding ground surface on at least one side. Pavements are generally constructed against or into sloping terrain, and are then filled with stones to create a relatively flat surface. Pavements come in many shapes (including square, rectangular, and irregular) and sizes. The outside edges of a pavement may be piled or stacked (piled edges are sloped, while stacked edges are generally vertical). Small (cobble to gravel size) stones are generally used as the fill material.

Platform

A platform is a stone construction with a relatively flat upper surface that is elevated at least two courses above ground surface on all sides. Platforms are usually quadrangular (but may also be rounded or irregular) with neatly stacked edges. The upper surface of a platform often consists of smaller stones than are used to construct the rest of the feature.

Lava tube

This formal feature type is self-explanatory. A lava tube is only considered an archaeological feature if cultural material or modification is present.

Assigning Temporal Affiliation

After the individual features identified in the field are assigned formal type designations, they are examined for indicators of temporal affiliation. To begin this process, features are first categorized into three generic time periods; "Precontact times," the years between the arrival of the first Polynesians in Hawai'i and the European discovery of the islands by Captain Cook in 1778, "Historic times," the years after the arrival of Captain Cook, but before "Modern times," which we define as a fifty year sliding continuum dating back from the present – so beginning roughly in the early 1950's. Modern features are not considered significant archaeological resources, so are not reported on. All other features were grouped into the two remaining time periods using the recorded archaeological data (e.g. proximity and similarity to other features, surface and subsurface artifacts and architecture, topography, and the accumulated knowledge of Hawaiian archaeological forms), and where possible historical documentary research, and oral historical information. However, the two main criteria we used in separating Historic features from Precontact features were types of material remains observed in the archaeological deposits and architectural styles.

The presence of historic artifacts at a feature is a common indicator of Historic Period use. As Cordy et al. write:

Use of historic period artifacts as a relative dating technique is extremely common in Hawaiian archaeology. Certain artifact types were introduced after European Contact – A.D. 1778, the arrival of Captain Cook. These include objects made from materials such as metal, glass, ceramics, and chert. Common artifact types made from these materials include metal nails and spikes, barrel hoops, cans, knives, and bullets; glass bottles and window panes; ceramic pipes, plates, bowls, cups and beads; and chert gun flints. A less frequently considered artifact is concrete used as a construction material. The presence of

these objects and materials are indicators of post-A.D. 1778 age. Obviously, historic artifacts were not immediately adopted island-wide by A.D. 1778. Trade objects probably were not numerous until after 1790-1800, so the absence of the items could possibly indicate an early historic period age also. (Cordy et al. 1991: 459)

Of course, a feature containing Historic Period artifacts may not have been used solely during historic times. The feature could have been continually used from Precontact times into Historic times. This would be evidenced by a stratigraphic shift in subsurface artifacts from deeper Precontact items to shallower Historic items. Or, by the presence of artifact types that would have been rapidly replaced early in Historic times by the infusion of European materials (such as bone or shell fishhooks, basalt adzes, and coral or urchin spine abraders) mixed with Historic artifact types. Otherwise, a feature containing predominately historic artifacts, or historic artifacts mixed with less easily replaced Precontact artifacts (such as volcanic glass or cowrie shell octopus lures) probably dates to historic times (Cordy et al. 1991).

Historic walls can sometimes be distinguished from Precontact walls due to varying construction techniques. As Cordy et al. state, "It has long been realized in Hawaiian archaeology that high (1.0+ meter), vertically faced, and core-filled walls are common architectural features of the late 1800s—seen in the form of *kuleana* house lot walls, house walls themselves, and in ranch and *ahupua'a* border walls" (1991: 460). These types of walls are occasionally found in Precontact sites, but were not common and seem to be restricted to certain site types such as *heiau* and canoe houses (Cordy et al. 1991). Often, the materials used to construct the Historic walls were pirated from older Precontact features. Occasionally, the Historic walls even follow the alignments of older walls.

Using the accumulated archaeological data, historical documentary research, oral historical information, along with information contained in the *Māhele* records, the identified historic features were then separated from the Precontact archaeological landscape and grouped into sites (see Defining Site Boundaries below). Archaeological sites are groupings of related features that may span more than one time period. Historic Period sites (not features) can be further separated into relevant time periods. A similar strategy is applied to organize Precontact Period features into sites. Precontact sites can also be further segregated into more specific time periods following any of the established regional culture-historical sequences (i.e., Burchard 1995; Cordy 2000; Haun et al. 1998; Kirch 1985, Schilt 1984) based on radiocarbon assays and potentially other relative and absolute dating techniques. However, more chronometric data than was obtained during the current study is required to accomplish this goal. The acquisition of such data will be the focus of data recovery efforts within the project area.

Defining Site Boundaries

One of the major issues confronting archaeologists investigating tracks of land within the Kona region is that of defining site boundaries. Kona is not unique in this; in fact, an extensive body of worldwide archaeological literature exists on the subject (c.f. Binford 1972 for a discussion). What is unique about Kona is that much of the area has been classified under a single site number (SIHP Site 6601) corresponding to the Kona Field System. However this designation has no analytical utility, unless one is actually studying the entire universe of the Kona Field System. Even then, the concept of a "system" is misleading. A system is an arrangement of things so connected as to form a unity or organic whole. The Kona Field system is no such organic whole. In reality it is a composite of many different individual agricultural systems or fields that are only interrelated in that practitioners of the same culture created them. The agricultural fields of Ki'ilae and Kauleoli (Rechtman et al. 2001) are quite distinct from the fields of Wai'aha, which are in turn different in character than the fields of Kahalu'u *mauka* (Rechtman et al. 2003).

Further, the temporary habitation features within the fields are part of the individual systems, yet standard practice seems to be to assign distinct site numbers to habitation features apart from the agricultural features with which they appear to be associated. It is the position of the writers of this report that the Kona Field System be considered a conceptual cultural landscape upon which many individual agricultural systems were developed and expanded and contracted through time. The current project area, however, is small enough that all of the agricultural features may be related and the number of temporary habitations is great enough that breaking the agricultural features into sites containing habitation features was not possible. Therefore all features of the agricultural landscape (excluding habitations) have been

assigned one site number for the purposes of the current study, following standard practice. Subsequent data recovery efforts may help identify more meaningful feature clusters containing habitation features and associated agricultural features.

As for other site definitions used in the current study, unassociated stand-alone Historic Period features (e.g., walls and enclosures) are defined as individual sites; when associations can be confidently made between Historic Period features, these features are described together as belonging to definable site complexes; individual lava blisters are defined as individual sites; Precontact habitation and ceremonial platforms and enclosures are generally assigned individual site numbers unless closely associated with a like feature, and trails are considered individual sites. It is worth mentioning here that even though 26 different sites containing over 300 features are defined, the entire project area should be viewed as a single cultural landscape that records the Precontact diachronic story of an *'ohana holo'oko'a 'āpa'akuma* and their land with a later overlay and intermixing of different cultural practices and a new economic system.

Interpreting Site Function

Interpretation in archaeology is generally a means to an end no matter what one's theoretical orientation or bias happens to be; it is not an end in itself. Interpreting the function of features and organizing features into sites, whose functions are implicit in the features they contain, is an aspect of what has been labeled Middle-Range Theory (Raab and Goodyear 1984). The results of such endeavors can then be used to address more general theoretical research issues such as the development of complexity or the intensification of agriculture, and so on. However, for the purposes of this archaeological inventory survey the goal is to limit the research efforts to the less lofty and more administrative issues of interpreting feature and site function.

Essentially, there are four ways at deriving functional interpretations: Direct Informant Information, in this case a particular resource is identified by an individual who knows what it is and how it functioned; Direct Ethnographic Analogy, here a resource is compared to other resources that are known to have been used by members of the identical culture and the function has been documented; General Analogy, in this situation a resource is compared to a similar looking resource that is used by a related culture and the function of the resource has been documented; and Logical Supposition, in this last instance the researcher makes a conclusion about a resource's function based on a logical argument that usually takes into account prior archaeological interpretation, metrically derived information, archaeological associations, and the results of subsurface testing.

Obviously, each of these techniques has a different confidence level associated with its accuracy, Direct Informant Information potentially having the highest confidence level (however, such information always has to be assessed relative to an individual's faulty or selective memory and any political agendas that might interfere) and Logical Supposition potentially the lowest. All four of these techniques have been employed in varying degrees for making functional interpretations of the archaeological sites recorded during the study. However, before we discuss site function we must first address the possible functions of the formal feature types previously defined. These functional interpretations are specific to the current study. It is recognized that similar formal features found in other parts of North Kona have been interpreted with different functions. For example, burials have been found in modified outcrops, mounds, and platforms during other archaeological projects; but to date no such features within the current study area have yielded human remains. This is not to say that these feature types in the current study area absolutely do not contain burials, rather that we have not discovered any in our, albeit limited, testing. We feel strongly though, that based on the spatial associations, the agricultural features that we recorded are, for the most part, functionally interrelated. If during data recovery investigations burials are discovered in what are currently interpreted as agricultural or habitation features, they will be treated as previously identified and the Hawai'i Island Burial Council will be consulted regarding appropriate treatment.

Mound

This type of feature has a different function depending on its temporal and spatial associations. Mounds can be clearing features, planting features, or landscape markers. The functional distinction between types of mounds is contextual rather than formal. Mounds identified along known boundaries are important point locations are considered to be landscape markers. Mounds found in clusters on barren lava are considered to be planting features. Mounds found in clusters around rock-free areas of plentiful soil are considered to

be clearing features. These interpretations are based on both Direct Ethnographic Analogy (Ellis 1963; Fornander 1919; Handy and Handy 1972), and interpretations from prior archaeological studies (Allen 2001; Cordy 2000, Kirch 1985; Rechtman et al. 2001). Testing of mounds during the data recovery phase of this project will address the question of formal variation between presumed planting and clearing features.

Modified outcrop

Bedrock outcrops were modified and functioned as clearing features, planting features, or temporary habitation features. Temporary habitations are defined based on the presence of faunal remains and a level and/or paved surface. Clearing features are defined based on the presence of rocks piled on an outcrop in an area free of stones with ample soil. Planting features are defined based the presence of piled or stacked rocks on an outcrop in areas of no soil.

Wall

The function of a wall is highly dependant on its temporal association. During Precontact times walls functioned primarily as agricultural field boundaries (*kuaiwi*) (Cordy 2000; Kirch 1985; Soehren and Newman 1968). During Postcontact times walls continued to function as agricultural features, along with defining property boundaries and also were used to control or limit the movement of livestock. *Kuaiwi* are characterized by piled construction with a "humped" profile (Soehren and Newman 1968). Historic Period walls are often of core-filled construction with a rectangular profile (Cordy et al. 1991).

Terrace

The terrace is a specialized feature of an agricultural field. It functioned to trap or retain soil to create a planting area (Kirch 1985; Soehren and Newman 1968). Terrace walls are typically built connecting *kuaiwi* and are of stacked construction with a rectangular or trapezoidal profile.

Enclosure

An enclosure can be a habitation feature, a planting feature, or used to house or detain animals. Enclosures that function as habitations typically have one opening facing away from the prevailing wind and are constructed by piling and stacking rocks, the interior of the enclosure may or may not contain soil, and habitation debris is usually present. The outline of habitation enclosures is frequently rectangular, C-shaped, or U-shaped (Cordy 1981; Kirch 1985). Planting enclosures (typically with irregular shapes) do not have entrances and are piled or stacked constructions less than one meter in height, with soil in the interior (Ching 1971). Animal enclosures (often square or irregular in outline) usually have no more than one opening with a variable orientation and are core-filled constructions with wall heights greater than one meter (Ching 1971).

Pavement

For the current study, a pavement is hypothesized to be a specialized feature associated with agricultural activity, and used as a produce staging or processing area. This interpretation is based a lack of observed habitation debris at the feature, and the feature's close association with agricultural features (Rechtman et al. 2001). Also, this interpretation is based on personal observations of current day agricultural practices in other parts of the Pacific (particularly in Fiji and Samoa) where similar features are used. There, square or rectangular pavements of rock are built to contain stacked piles of harvested taro, sweet potatoes, and cassava; and also to begin process of preparing paper mulberry prior to pounding.

Platform

Platforms are considered to have functioned as habitation features (house foundations), ceremonial/religious features (*heiau*, altar, shrine), or burials. The characteristics used to distinguish habitation platforms from ceremonial platforms or burials are a suite of traits that include massiveness (the relative volume of rocks used in construction, a function of area multiplied by height)(this trait is discussed by Kolb 1991 relative to labor investment), multi-level (stepped) surface construction (Kirch 1985; Ladefoged et al. 1987), and associations with other features. While it is recognized that ceremonial shrines can be quite small features containing an upright stone for example, no such features were encountered within the current study area (and even if there were such features present, they would not be categorized as platforms). Artifact types found at the platforms can also be used to help determine their function.

Lava Blister

The lava blisters in the study area that were determined to be archaeological features contained evidence of having either been used for habitation or architecturally modified. Habitation tubes contained internal modifications and constructions, and possessed accumulations of marine and terrestrial faunal remains. Many of the lava blisters in the current project area had been recently modified by individuals forced to more marginal living/shelter areas by continued developmental expansion in Kailua.

As discussed above, features are grouped based on functional, spatial, and temporal associations into definable sites. Thus, based on the component features, a site's function is implicit. The following functional site types are defined for use in this study. This list is not intended to be a complete accounting of Hawaiian archaeological site types, but rather those site types we identified based on the features recorded in the current study area.

Habitation

Habitation sites could date to both the Precontact and Historic Periods, but for this study (because no Historic habitations were identified) Habitation Site is defined as a Precontact Period site type. Habitation sites can be a single feature or groupings of platforms, enclosures, or modified outcrops. Lava blister features can also be habitation sites. In the Hawaiian archaeological literature there is a significant amount of attention devoted to qualifying habitation sites into permanent and temporary categories. Cordy (1981, 1995) has developed a model for differentiating permanent and temporary habitation features based on structure size and substantiveness of construction; and permanent and temporary habitation sites based on these criteria plus the number and configuration of features. Generally features less than 20 square meters, those without substantial stonework, and those found in association with other similar features are interpreted as temporary habitations. In the Cordy model permanent habitations have an area greater than 20 square meters, but less than 60 square meters and substantial stonework (i.e., well-faced exteriors, well-made walls, and well-made corners). Temporary and permanent habitations can also be separated by the amount of observed habitation debris located at the feature (Rechtman et al. 2001). However, as Cordy et al. (1991) point out no one attribute should be considered the key variable as exceptions can be found to all of the attributes. Cordy's model has been generally applied to all habitations identified as part of the current study, except when logical supposition or extenuating circumstances superceded the model (exceptions are discussed in the individual site descriptions).

Agricultural

This site type can date from any time period and is an association of mounds, *kuaiwi*, terrace walls, modified outcrops, enclosures, and pavements presumably used for agricultural purposes.

Burial

Given thirty plus years of more or less systematic archaeological research in Kona, the types of sites (or features) that typically contain burials have been documented numerous times (e.g., Cordy et al. 1991; Han et al 1986; Kirch 1979, 1985; Touhy 1965). These include monument burials (Kirch 1985) where skeletal remains are placed in a natural blister or crack in the lava and an above ground stone platform (usually less than one meter tall) is constructed to both conceal the remains and mark the location. Although the surface area (usually less than 10 square meters) and shape (usually rectangular) may vary (Cordy et al. 1991), the construction attributes frequently consist of larger stones forming a facing with small stones filling in the feature, and yet smaller stones as a top dressing or paving. Burials placed in lava cracks and crevasses have also been discovered that do not have platforms erected above them, but rather have simply been concealed by filling in the crack or crevasse with stones, giving the feature a natural appearance. Another typical burial feature in Kona is a stone mound with a collapsed central portion, sometimes referred to as "doughnut-shape" (Cordy et al. 1991:299). Many times the skeletal remains are visible in the center of these features without having to excavate. Otherwise, burials were sometimes placed inside lava tubes on bedrock shelves and occasionally the tube entrances were concealed. It was also a common pattern following the turn of the century up to the 1930s to bury family members within the homestead compound.

A few formal mounds (but no lava tubes) were identified during the current study that approximated the typical burial feature forms and these were tested through hand excavation. None of these contained human skeletal material (or any cultural material), three platforms did however.

Ceremonial/Religious

A site is placed into this classification if it is a platform that has multiple terraced enclosures attached, is relatively massive (large volume of rock used in construction), and/or possesses surface or subsurface branch coral. This site type can date from any period, but typically dates to the Precontact Period.

Trail

Trails are defined by alignments of smooth stones (stepping-stones) across 'a'ā flows and cleared and worn linear alignments running *mauka/makai* across the landscape.

Ranching

This functional designation is assigned to core-filled walls and enclosures formed by multiple core-filled walls. Within the current project area these sites are associated with the Gomes Ranch and date between 1927-1960.

Landscape Marker

This site type is a wall (usually core-filled) so situated that it appears to correspond with a known land boundary (i.e., property boundary). Such walls were used as landscape markers only during historic times and were often constructed by early cattle ranchers.

Site Descriptions, Test Excavations, and Functional Interpretations

During the current archaeological inventory survey twenty-five previously unrecorded sites and one previously recorded site were discovered. Twenty-two test units were excavated at ten of these sites. Descriptions for each site and the test units excavated at them are presented below. Site discussions are grouped into seven categories: Historic Ranching Related Sites and Boundary Walls, Precontact Habitation Sites, Trails, Ceremonial Sites, Game Boards, Burials, and Agricultural Sites. A complete listing of the sites including their formal feature type, function, and temporal affiliation can be seen in Table 1. The location of each site is shown on Figure 4.

Table 1. Archaeological sites recorded as part of the current inventory survey.

| <i>SIHP No.</i> | <i>Formal Type</i> | <i>Functional Type</i> | <i>Age</i> |
|-----------------|--------------------|------------------------|------------|
| 6302 | Wall | Kuakini Wall | Historic |
| 23662 | Enclosure | Ranching | Historic |
| 23663 | Wall | Ranching | Historic |
| 23664 | Wall | Ranching | Historic |
| 23665 | Wall | Landscape marker | Historic |
| 23666 | Wall | Landscape marker | Historic |
| 23667 | Wall | Landscape marker | Historic |
| 23668 | Lava blister | Temporary habitation | Precontact |
| 23669 | Modified outcrop | Temporary habitation | Precontact |
| 23670 | Platform complex | Permanent habitation | Precontact |
| 23671 | Platform | Temporary habitation | Precontact |
| 23672 | Enclosure complex | Permanent habitation | Precontact |
| 23673 | Platform/enclosure | Permanent habitation | Precontact |
| 23674 | Platform/enclosure | Temporary habitation | Precontact |
| 23675 | Platform | Permanent habitation | Precontact |
| 23676 | Platform | Temporary habitation | Precontact |
| 23677 | Platform/enclosure | Temporary habitation | Precontact |
| 23678 | Enclosure | Temporary habitation | Precontact |
| 23679 | Trail | Trail | Precontact |
| 23680 | Trail | Trail | Precontact |
| 23681 | Platform/enclosure | Ceremonial | Precontact |
| 23682 | Game board | Game board | Precontact |
| 23683 | Platform | Burial | Precontact |
| 23684 | Platform/enclosure | Burial | Precontact |
| 23685 | Platform | Burial | Precontact |
| 23686 | Complex | Agricultural | Precontact |

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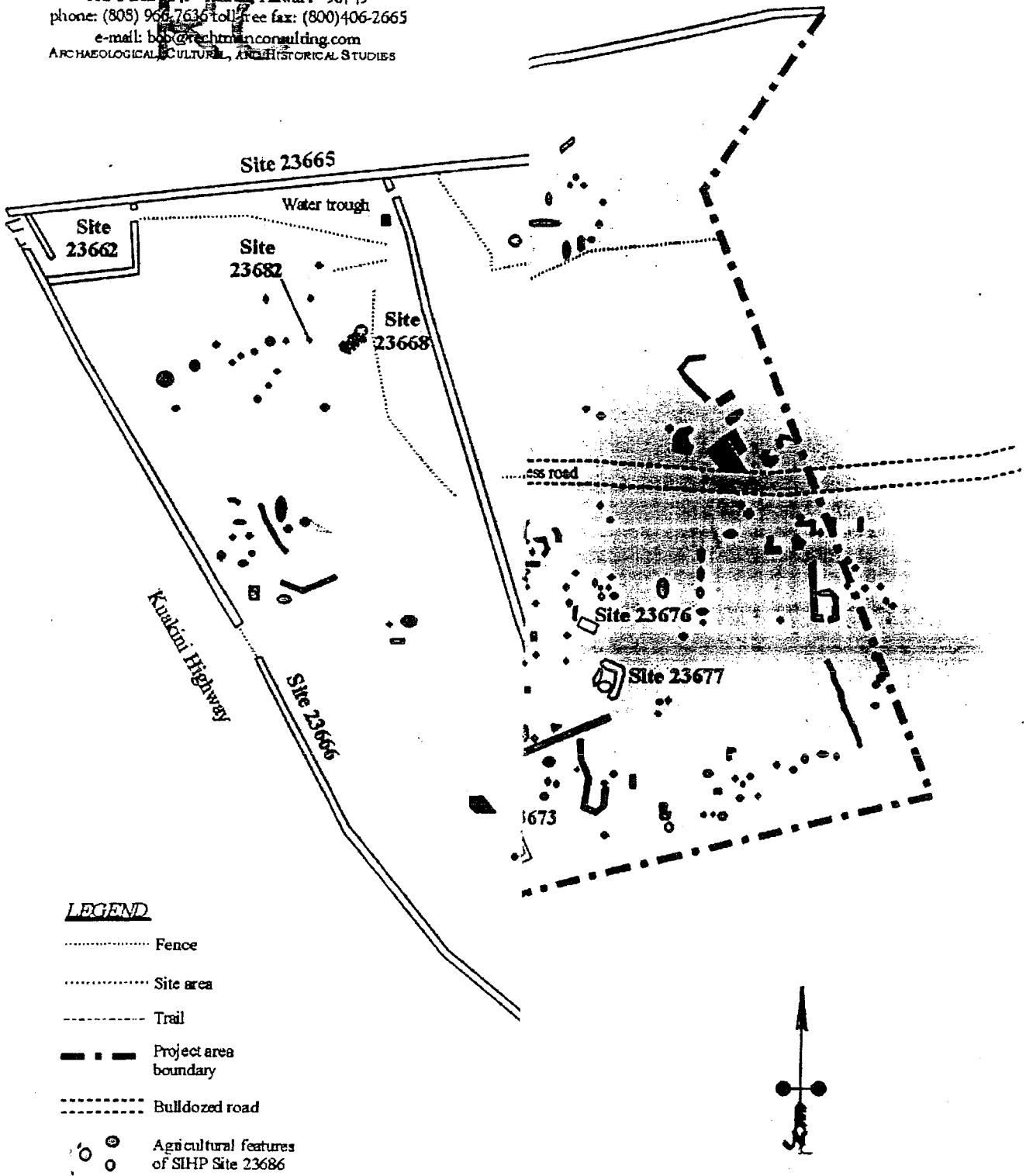


Figure 4. Project area plan view showing site locations.

Historic Ranching Related Sites and Boundary Walls

SIHP Site 6302

Site 6302 is the Statewide Inventory of Historic Places (SIHP) designation for the Kuakini Wall, a portion of which runs through the current project area (see Figure 4). Construction of the Great Wall of Kuakini began in the early 1800s as a response to the growing number of introduced herbivores (i.e. Cattle, goats, and pigs) running rampant in Kona. The wall, which stretches a considerable distance through Kona parallel to the coast, was designed to keep the animals out of coastal residential and agricultural areas. Although no record of Governor Kuakini having ordered the wall built exists, its final configuration was attributed to him (O'Hare and Wolforth 1998).

A 340-meter section of Site 6302 stretches north/south across the current project area. In this section the Kuakini Wall stands up to 1.2 meters high and measures as wide as 1.0 meter. It is of core-filled construction and has two breaks along its length. The first break occurs at its northern end adjacent to Site 23665 and measures 3 meters across. This break was most likely created by the Gomes Ranch (1927-1960s) to help funnel cattle west towards Site 23662. There is a metal water trough located just to the west of the break and a wire fence parallels Site 23665 all the way to Site 23662. The second break occurs at the wall segments south end 20 meters from the southern boundary of the project area at Site 23667. This section of wall was most likely removed to construct Sites 23666 and 23667. A wire fence connects the southern end of the Kuakini wall segment to Site 23666 creating a large paddock between the two walls.

SIHP Site 23662

Site 23662 is a historic/modern cattle enclosure located in the northwest corner of the project area along Kuakini Highway (see Figure 4). The enclosure walls (Figure 5) form a roughly rectangular area measuring 32 meters long (southern wall) by 24 meters wide (eastern wall). The north and west sides of the enclosure (which are actually longer) are formed by Sites 23665 and 23666 respectively. Site 23665 (the north wall of the enclosure), owing to on-going development at the adjoining parcel to the north, has been recently dismantled and reconstructed with stones cemented in place by that property owner. The remaining walls, which are of core-filled construction, attain a maximum height of 1.8 meters above ground surface and measure from 0.5-1.0 meter across their top edges. The interior of the enclosure, accessed through three gates (1 metal and 2 wooden), contains an internal dividing wall, a stone and wood ramp, and two rock piles. The enclosure, most likely constructed by the Gomes Ranch (1927-1960s), appears to have functioned as a holding area designed for loading/unloading cattle trucks at Kuakini Highway.

A small wooden gate (2.0 meters wide), located in the east wall of the enclosure 2.5 meters south of Site 23665, allows access to an eastern paddock area. An internal dividing wall (1.7 meter high by 0.6 meters wide) running southeast from Site 23665 (roughly parallel to the west wall of the enclosure) for 22 meters forms the western edge of the paddock area. The paddock contains several large *kiawe*, tall grasses, and two stone piles, which represent either clearing piles or left over wall building materials. The south end of the internal dividing wall adjoins a four-meter long wooden gate remnant connecting the aforementioned wall to the southern wall of the enclosure. On the west side of this gate a 10-meter wide passage, between the western wall of the enclosure and the internal dividing wall, leads to a ramp and a metal gate facing Kuakini Highway in the enclosure's northwest corner. The 3-meter long metal gate adjoins the southwestern corner of a 3.0 by 3.0 meter stone ramp with a "4 x 4" wooden frame. The ramp rises from ground surface along its eastern edge to 1.1 meters above ground surface along its western face. It is constructed of *pāhoehoe* boulders with smaller cobbles paving its surface. The ramp is fairly dilapidated and covered in dense vegetation. The wall to the north end of the ramp has been recently dismantled.

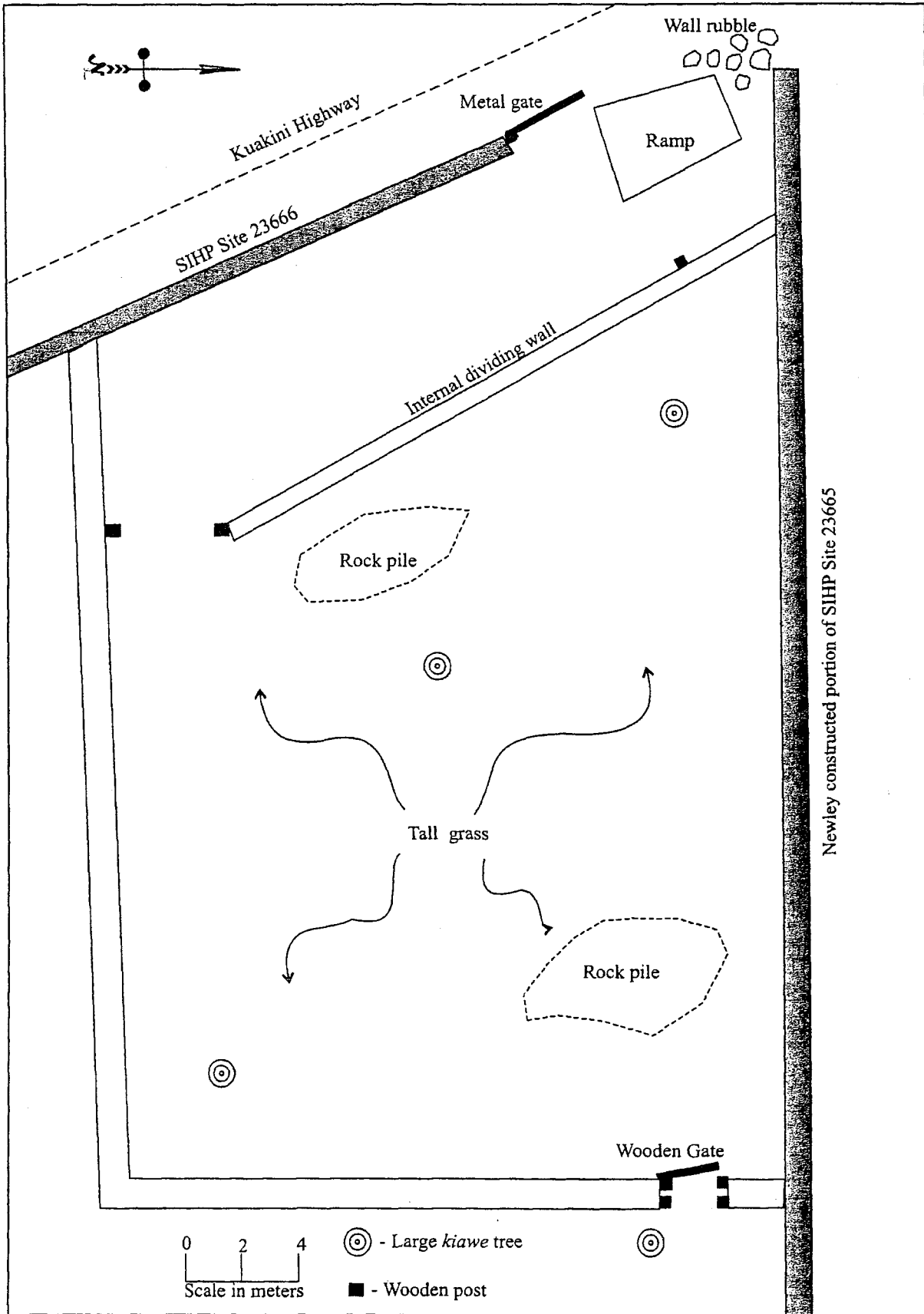


Figure 5. SIHP Site 23662 plan view.

SIHP Site 23663

Site 23663 is a historic wall remnant that, together with Site 23665, forms a rough enclosure along the northern boundary of the project area (see Figure 4). The wall is of core-filled construction, but is collapsed in several sections with gaps ranging from 1.0 to 8.0 meters wide. Intact sections of the wall stand up to 0.7 meters above ground surface and measure 40-90 centimeters wide (Figure 6). Starting at its western end (8 meters south of Site 23665) the wall runs for 38.6 meters at 166°, turns and runs a meandering course for 150.0 meters at 80°, then turns once more and runs for 14.3 meters at 380° to its end point (4 meters south of Site 23665). It appears that Site 23663 may have been partially dismantled along its east and west ends during the construction of Site 23665, making it the older of the two walls. Site 23663 was most likely used by the Gomes Ranch (1927-1960s) for livestock control purposes.



Figure 6. SIHP Site 23663 view to east.

SIHP Site 23664

Site 23664 is a historic core-filled wall remnant running east/west roughly parallel to Site 23663 (approximately 10-20 meters to the south) (see Figure 4). The wall stretches for a total distance of 95 meters near the west end of Site 23663. It is in a poor state of preservation standing only 0.6 meters high at its most intact sections and averaging up to 1.2 meters wide. Large portions of the wall may have been pirated to construct Site 23663 or, conversely, the two walls may have acted as a contemporary cattle chute, but over time only Site 23663 was maintained and Site 23664 fell into disuse, or was used for repairs to the other wall. In either case, this wall was most likely constructed by the Gomes Ranch (1927-1960s) for livestock control purposes.

SIHP Site 23665

Site 23665 is a historic core-filled wall running along the northern boundary of the project area (see Figure 4). This wall, most likely built by the Gomes Ranch (1927-1960s), also marks the boundary between Wai'aha 1st Ahupua'a and Pua'a 3rd Ahupua'a. The *makai* most 130 meters of Site 23665 (from the Kuakini Highway to the Kuakini Wall), as a result of on-going development at the neighboring parcel to the north, has been recently dismantled and reconstructed with stones cemented in place. The remaining 470 meters of wall along the northern project area boundary is relatively intact and of historic core-filled construction, although ground surface on the north side of the wall has been significantly raised. Site 23665 is collapsed in several places but in places it stands up to 1.3 meters above project area ground surface and measures as wide as 1.0 meter across the top.

SIHP Site 23666

Site 23666 is a historic core-filled boundary wall running along the *makai* edge of the study area parallel to the Kuakini Highway (see Figure 4). The wall, most likely constructed by the Gomes Ranch (1927-1960s), is in generally good condition, but may have been recently reconstructed in some sections. Site 23666 stretches along the western project area boundary for 440 meters, it stands up to 1.2 meters above ground surface and measures as wide as 0.7 meters across its top edge. The wall used to continue along Kuakini Highway out of the current project area to both the north and the south, but has been destroyed by development on the adjacent parcels. There are two constructed openings in the wall. The first opening, a 3-meter long metal gate located at the northern end of Site 23666, is part of Site 23662. The second opening, located 170 meters south of the walls north end, measures 8.5 meters across and is blocked off with wire fencing.

SIHP Site 23667

Site 23667 is a 140-meter long historic core-filled wall segment running along the southern boundary of the current project area (see Figure 4). This wall is located in Wai'aha 2nd Ahupua'a running along the southern edge of Parcel 6 (TMK:3-7-5-17). Site 23667 is in relatively good condition standing up to 1.0 meter above ground surface and measuring 0.8 meters across its top edge. The wall's western end abuts Site 23666 and the eastern end used to stretch further than it currently does, but has been removed by development on the adjoining parcel to the south.

Precontact Habitation Sites*SIHP Site 23668*

Site 23668 is an exposed *pāhoehoe* bedrock outcrop (9.0 meters by 7.8 meters) containing a small lava tube and a possibly leveled pavement of *pāhoehoe* cobbles (Figure 7). The site is located in the northwest portion of the project area approximately 20 meters *makai* of Site 6302 (the Kuakini Wall) (see Figure 4). The cobble pavement area (4.0 meters long by 2.5 meters wide), which is located at the southern end of the outcrop (Figure 8), slopes slightly to the north and although the cobbles are arranged in a relatively uniform fashion they may be resting in natural positions. The entrance to the lava tube has been slightly modified suggesting that the site may have been used for temporary habitation purposes. A *Cypraea* shell fragment was found on the ground surface seven meters at 26° from the tube entrance.



Figure 7. SIHP Site 23668 view to south (tube entrance in foreground pavement in background).

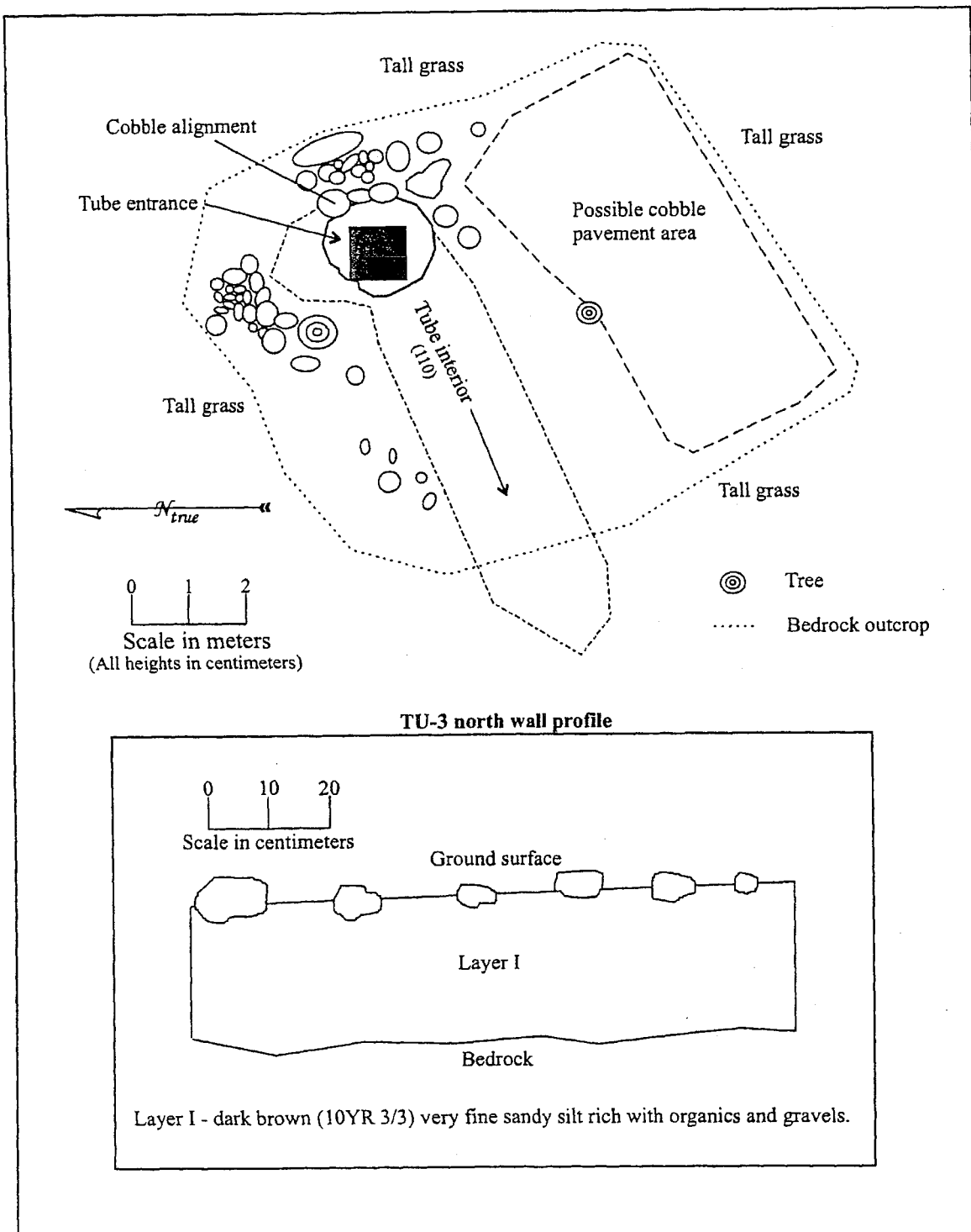


Figure 8. SIHP Site 23668 plan view and TU-3 profile.

The tube entrance measures 1.8 meters by 1.6 meters and drops 1.6 meters to the interior ground surface (Figure 9). A single course of *pāhoehoe* cobbles has been placed along the eastern edge of the entrance filling in a low spot in the bedrock. The interior tube area measures approximately 3.0 meters in diameter at the entrance with a floor to ceiling height of 1.1 meters. A narrow passage, 1.5 meters wide, runs west from the entrance for 6.5 meters before becoming impassable. The floor of the tube consists of soil with a few small cobbles and a house cat skeleton resting on its surface. A 1 x 1 meter test unit (TU-3) was excavated within the central area of the tube entrance (see Figure 8). Excavation of TU-3 revealed a single stratigraphic soil layer (60 centimeters deep) of dark brown (10YR 3/3) very fine sandy silt rich with organics and gravels resting on bedrock. No cultural material was recovered from TU-3 leaving the presumed function of the site somewhat in doubt. The cobble alignment along the eastern edge of the opening may have been placed there by the Gomes Ranch to deter cattle from falling in and injuring themselves.



Figure 9. SIHP Site 23668 tube entrance and location of TU-3 view to north.

SIHP Site 23669

Site 23669 consists of a large 'a'ā outcrop (27 meters long by 7 meters wide) with several cultural modifications along its length (Features A-F) likely used for temporary habitation purposes with possible agricultural associations (Figure 10). Site 23669 is centrally located within the western half of the project area (see Figure 4) near several agricultural features and a burial (Site 23683). The outcrop stands up to 3 meters above ground surface along its north side and up to 2 meters above ground surface along its south side. The culturally modified areas consist of terraces, stacking, and a modern rock shelter contained within a 20-meter long section on the north side of the outcrop. No habitation debris was observed in the vicinity of the features; however, their formal attributes, small size, and insubstantial construction suggest that they were used for Precontact temporary habitation purposes (Cordy 1985, 1991). Features D and E may have been further modified during modern times.

Feature A is a small cleared and leveled terrace area located at the northeastern end of the outcrop (see Figure 10). The cleared area contains soil and measures 1.4 meters (east/west) by 1.3 meters (north/south) (Figure 11). Its western edge, which consists of stacked cobbles, rises 0.65 meters above ground surface while its southern edge abuts Feature B.

Feature B is cobble terrace (3.0 meters long by 2.0 meters wide) located between Features A and C. The feature consists of stacked cobbles (1.35 meters high) along its north (against Feature A) and west (against Feature C) edges (see Figures 10 and 11), while the two remaining edges are level with the bedrock outcrop. The surface of the feature slopes slightly to the east and lacks any sort of paving. Feature B may represent cobbles cleared and stacked from Features A and C.

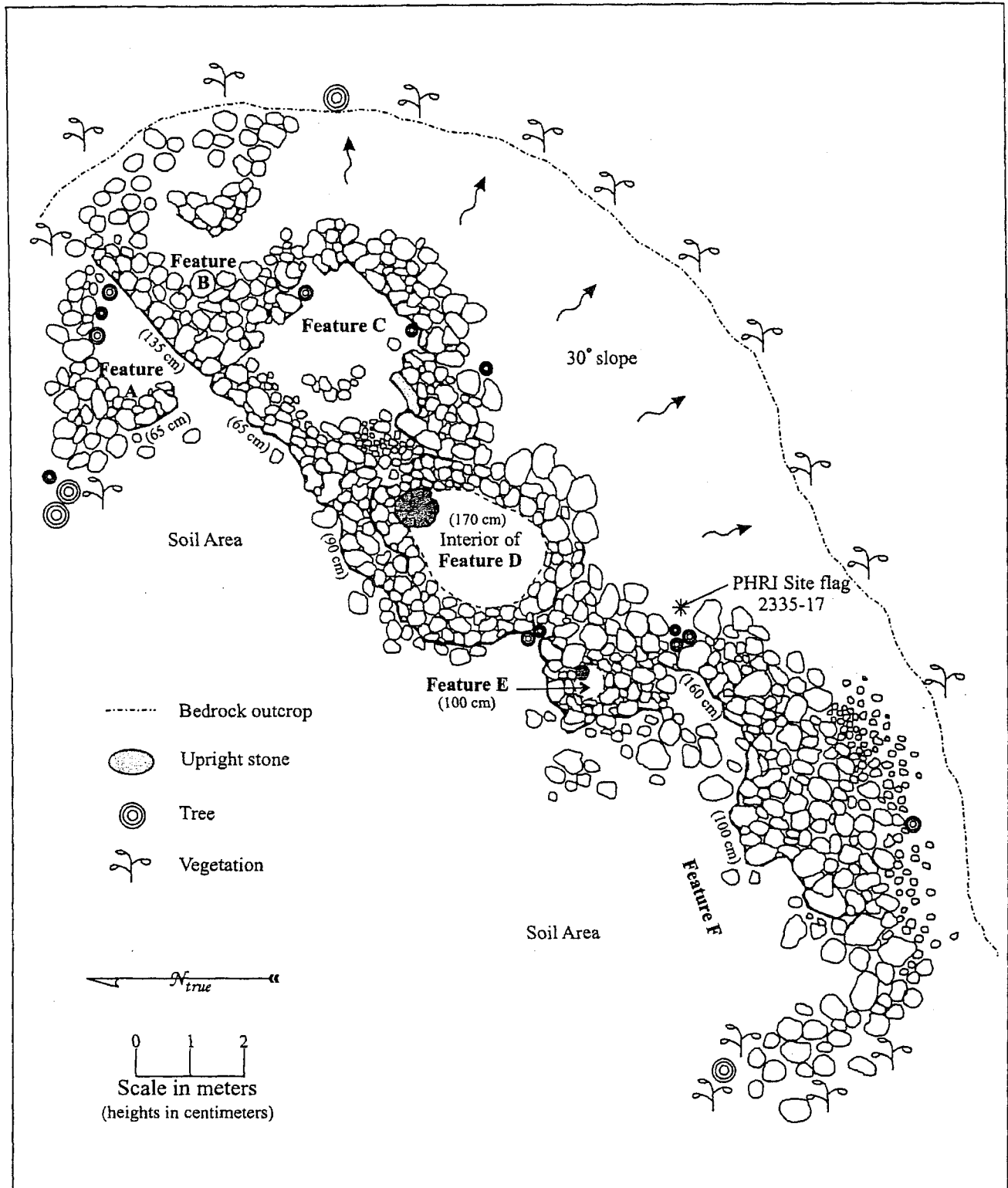


Figure 10. SIHP Site 23669 plan view.



Figure 11. SIHP Site 23669 Features A and B view to east.

Feature C is a cleared and leveled terrace area adjacent to the west side of Feature B (see Figure 10). The cleared area measures 3.0 meters by 2.5 meters and consists of soil (Figure 12). The northern edge of the terrace is stacked and rises 0.65 meters above ground surface. The south and west (Feature B) edges are also stacked and rise 1.35 meters above the terrace's surface. The eastern edge of the soil abuts Feature D.



Figure 12. SIHP Site 23669 Features B and C view to southeast.

Feature D is a modern igloo-style domed habitation feature located along the eastern edge of Feature C (see Figure 10). Feature D is built entirely of large 'a'ā cobbles fitted together with 'a'ā slab as a roof so as to create an enclosed interior area 2.5 meters long by 1.85 meters wide and 1.8 meters tall. There is a small opening (0.9 meters in diameter) allowing access to the western end of the feature (Figure 13). The interior floor is level, consists of soil, and is littered with modern debris including plastic, beer bottles, Olympia Beer cans, tin cans, and pork chop bones. Feature D appears to have been recently constructed on a former cleared and leveled terrace area.

Feature E is a cupboard located 1.2 meters southwest of Feature D (see Figure 10). The cupboard is constructed with a semicircular alignment of stacked 'a'ā cobbles (1.0 meter high) to the north and west abutting the bedrock outcrop to the southeast. The interior of the cupboard measures 0.9 meters long by 0.6 meters wide and 0.4 meters deep. Two eroded 'a'ā cobbles rest across the top of the cupboard creating a roof. A 0.3-meter diameter opening at the west end of the cupboard is its only opening. This feature appears to be related to Feature D and is of modern construction.

Feature F is a meandering alignment of stacked 'a'ā cobbles and boulders along the southwestern end of the outcrop (see Figure 10). The stacking stands 0.85 vertical meters above ground surface on its north side and behind this slopes southeast at 28° to the top of the outcrop. Feature F may have been created as the soil area to the north of the outcrop was cleared of cobbles, or perhaps as a retaining wall to keep cobbles out of the soil area.



Figure 13. SIHP Site 23669 Feature D (Features E and F in background) view to south.

SIHP Site 23670

Site 23670 is a Precontact permanent habitation site located in the western half of the project area approximately 30 meters north of the eastern end of Site 23667 (see Figure 4). Site 23670 consists of a two-tiered platform (Features A and B) with a second smaller platform (Feature C) located two meters to the east (Figure 14). Both platforms are constructed of 'a'ā with large cobbles stacked around the outside edges and small cobbles paving the surface. A single *Cypraea* shell fragment was found on ground surface near the south edge of Feature A. Despite the lack of significant habitation debris, the size and construction of the larger platforms (Features A and B) conforms to the specifications generally accepted as permanent habitation (Cordy 1981, 1995), so therefore a function of permanent habitation is tentatively assigned to this site. Subsequent data recovery will help further refine the specific nature of habitation at this site.

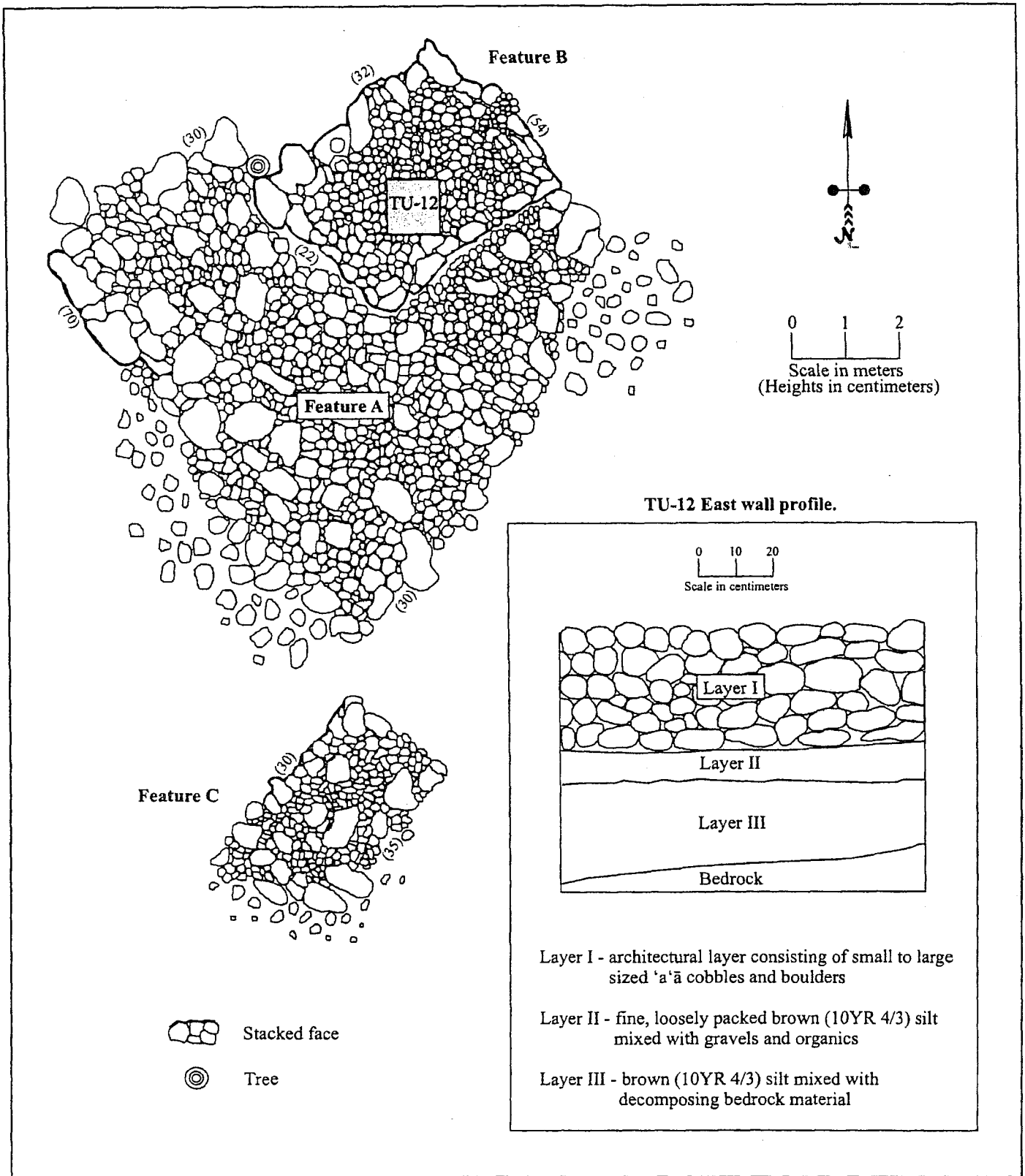


Figure 14. SIHP Site 23670 plan view and TU-12 profile.

Feature A is the lower platform of the two-tiered platform (see Figure 14). This roughly rectangular platform measures 9.0 meters long by 6.2 meters wide (Figure 15). The feature is constructed on bedrock with the outside edges stacked 0.7 meters (two courses) high. The paved surface of Feature A is relatively level and in good condition, although some collapse has occurred along the south and west edges.

Feature B, the upper platform of the two-tiered platform (see Figure 14), is situated on the northeast corner of Feature A (see Figure 15). Feature B is rectangular in shape measuring 3.4 meters long by 3.0 meters wide. Its stacked edges rise as much as 0.3 meters (2 courses) above the surface of Feature A and 0.54 meters above the bedrock ground surface. A single 1 x 1 meter test unit (TU-12) was excavated in the central portion of Feature B.



Figure 15. SIHP Site 23670 Features A and B view to west.

Excavation of TU-12 revealed a simple three-layer stratigraphic profile (see Figure 14). Layer I, the architectural layer, consisted of small to large sized 'a'ā cobbles and boulders. This layer continued to a depth of 35 centimeters below the unit's surface. Layer I rested on and was incorporated into Layer II, a fine loosely packed brown (10YR 4/3) silt mixed with gravels and organics. Layer II continued for 10 centimeters before transitioning to Layer III at a depth of 45 centimeters below the unit's surface. Layer III consisted of brown silt (10YR 4/3) mixed with decomposing bedrock material, which continued for 25 centimeters below Layer II to a depth of 70 centimeters below the unit's surface. Layer III and the excavation of TU-12 terminated at bedrock. No cultural material was recovered from TU-12.

Feature C is a small rectangular platform located 1.5 meters south of Feature A's southwestern corner (see Figure 14). Feature C measures 3.8 meters long by 3.1 meters wide with stacked sides standing up to 0.35 (1–2 courses) meters above the surrounding bedrock ground surface (Figure 16). Feature C is in relatively good condition, although portions of its southwestern edge have collapsed. No habitation debris was observed in the vicinity of this feature.



Figure 16. SIHP Site 23670 Feature C view to northeast.

SIHP Site 23671

Site 23671 is a temporary habitation platform remnant located in the central portion of the project area (see Figure 4). The platform (Figure 17), constructed of 'a'ā cobbles, is largely collapsed although some stacking remains along the western edge. Current platform dimensions are 6.9 meters (north/south) by 3.8 meters (east/west) including the rubble scatter that surrounds the feature. The stacked western edge of the site stands up to 0.9 meters above the surrounding bedrock ground surface. The surface of the platform is relatively level and paved primarily with small 'a'ā cobbles, although some larger cobbles are present. Site 23671 seems to have been heavily disturbed by ranching activities in the area. No habitation debris was observed on ground surface at this site. No subsurface testing was undertaken at this site as it appeared to lack some context (due to historic ranching impacts) and it generally conformed (with its small size and insubstantial construction) to Cordy's (1981, 1995) model for Precontact temporary habitations. Data recovery efforts will help further determine the specific function of Site 23671.



Figure 17. SIHP Site 23671 view to north.

SIHP Site 23672

Site 23672 is a Precontact permanent habitation site centrally located within the project area (see Figure 4). The site consists of a large rectangular enclosure (Feature A) with a small rounded enclosure (Feature B) located six meters to its south (Figure 18). Bulldozing activity along the old central access road came close to impacting the north edge of Feature A and may have covered a third feature near its northwest corner. Two test units (TU-11 and TU-13), one in each feature, were excavated at Site 23672. Based on the large size of Feature A (Cordy 1981, 1995) and the presence of Precontact habitation debris along with a radiocarbon sample dated 210 ± 70 at Feature B, Site 23672 is thought to have served a Precontact permanent habitation function.

Feature A is a large low-lying enclosure located at the north end of Site 23672. The enclosure (Figure 19), constructed of piled and stacked 'a'ā cobbles, measures 13.5 meters long by 8.5 meters wide. The interior area of the enclosure (10.1 meters by 6.0 meters) has been cleared of cobbles leaving a leveled soil floor. The cleared cobbles were used to create the enclosure's walls, which stand between 0.6 and 0.9 meters high along the interior edges and gradually transitions into ground surface along the exterior edges.



Figure 19. SIHP Site 23672 Feature A view to southwest.

A single 1 x 1 meter test unit (TU-11) was excavated in the soil floor along the western interior wall of Feature A (see Figure 18). Excavation of TU-11 revealed a two-layer stratigraphic profile (Figure 20). Layer I, the uppermost layer, consisted of a very dark brown (10YR 2/2) thin topsoil four centimeters deep mixed with grass roots and organics. Below this layer was an 'a'ā cobble layer (Layer II) mixed fairly evenly with a sandy-silt soil. Layer II gradually transitioned from very dark brown (10YR 2/2) to dark yellowish brown (10YR 4/4) and mixed with decomposing bedrock with depth. Excavation of TU-11 concluded at the base of Layer II, 42 centimeters below ground surface at bedrock (Figure 21). Sixteen cow bone fragments were recovered from Layer I and the top of Layer II. These bones showed no sign of human processing and are most likely not related to the feature, but rather to the cow pasture within which the feature resides.

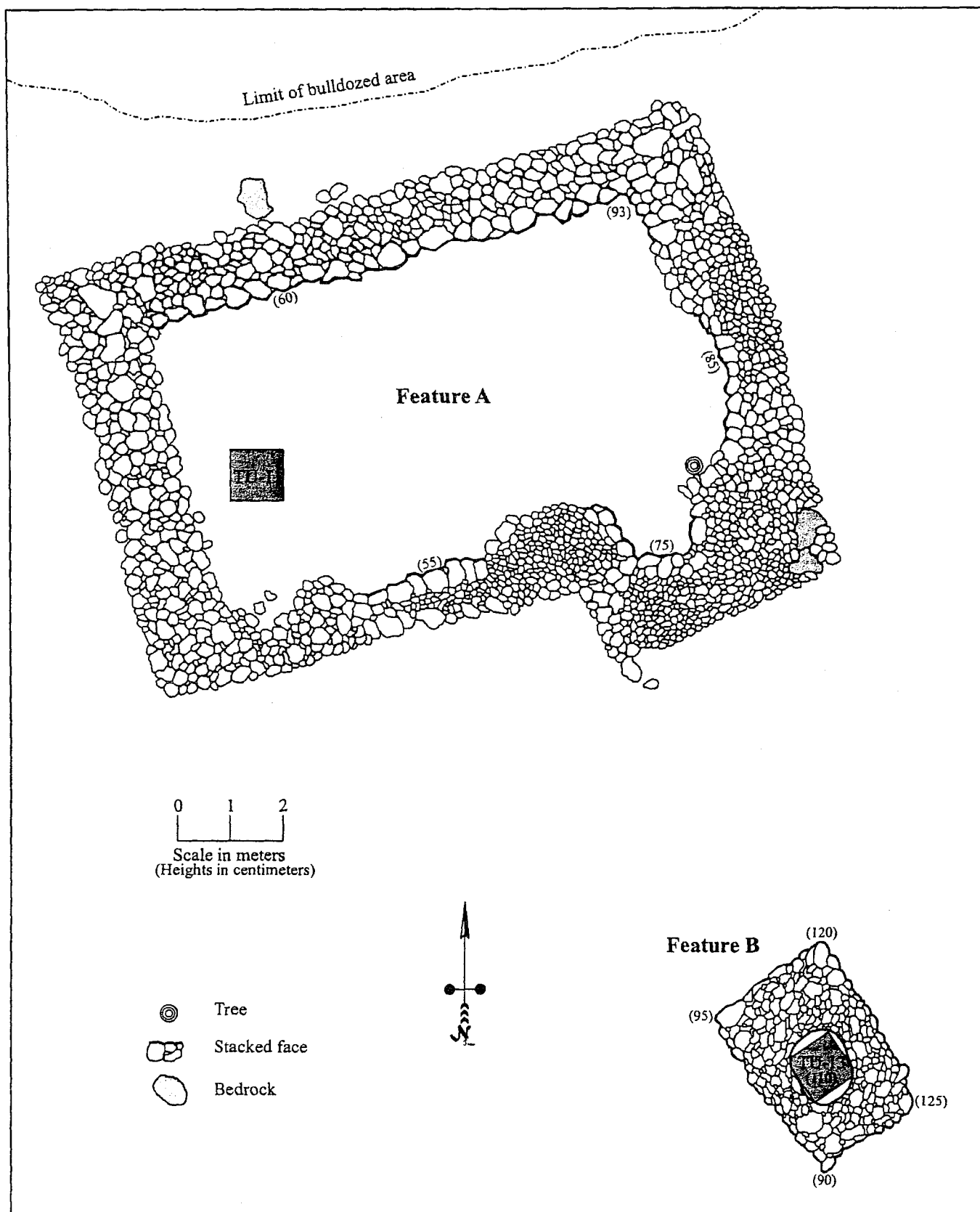


Figure 18. SIHP Site 23672 plan view.

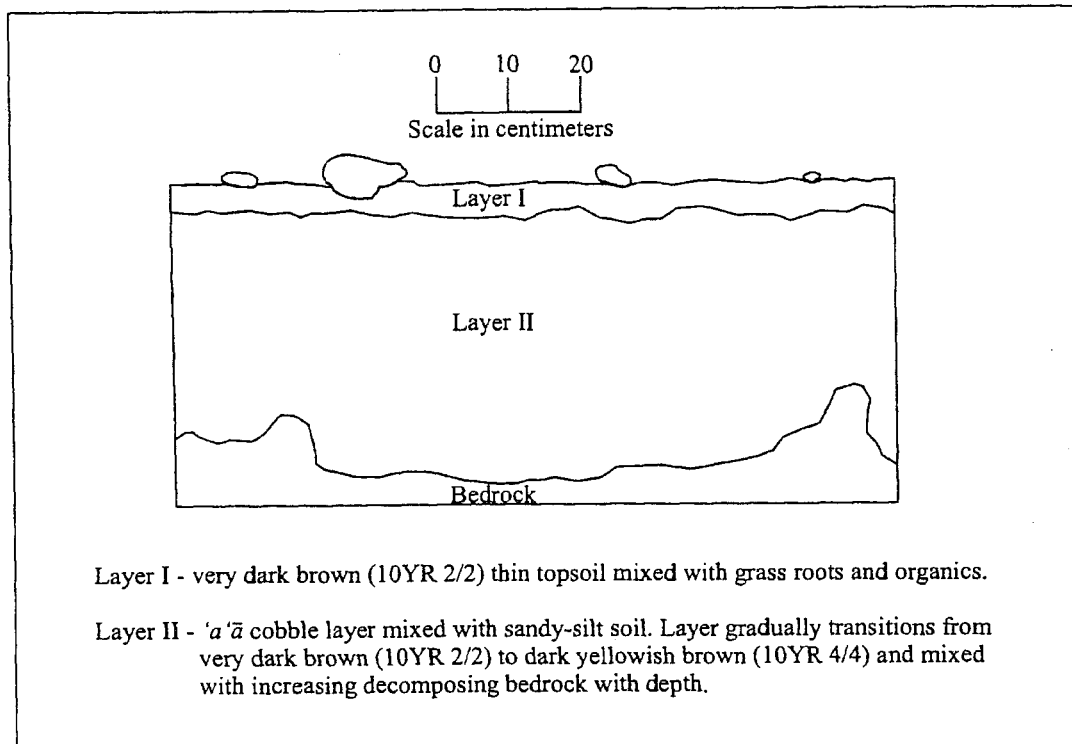


Figure 20. SIHP Site 23672 Feature A TU-11 north wall profile.



Figure 21. SIHP Site 23672 Feature A TU-11 base of excavation view to north.

Feature B is small roughly rectangular enclosure with rounded corners located six meters south of Feature A (see Figure 18). The enclosure is constructed on an 'a'ā bedrock outcrop of stacked 'a'ā cobbles standing 6-8 courses (1.0 –1.3 meters) high (Figure 22). It measures 3.5 meters long by 2.5 meters wide along its exterior edges and has a roughly circular centrally located interior space 1.2 meters in diameter and 1.1 meters deep containing a soil floor. A rubber hose fragment, a modern beer can, decaying organics, and several cobbles were resting on ground surface within the enclosure. Feature B is not large enough to have been used for habitation purposes, and may have been used by the residents of Feature A as a storage area, an agricultural processing area, or perhaps even a trash receptacle.

The entire soil floor of Feature B was removed as a single 1 x 1 meter test unit (TU-13). Excavation of TU-13 revealed two distinct soil horizons resting on bedrock (Figure 23). The uppermost soil layer (Figure 24), Layer I, consisted of very dark grayish brown (10YR 3/2) very fine silt mixed with many small 'a'ā pebbles, roots and decaying organic material. This layer proceeded to a depth of 22 centimeters below the unit's surface, although bedrock was encountered in the northeastern portion of the unit just below ground surface. Cultural material recovered from Layer I (Table 2) included a large amount of volcanic glass, *kukui* nut fragments, shark's teeth, marine shell fragments, a water worn pebble, and a small amount of charcoal. In portions of the unit a 20-centimeter thick Layer II consisting of dark brown (10YR 3/3) fine silt mixed with decomposing bedrock was encountered. This culturally sterile layer was situated directly on bedrock. Excavation of TU-13 concluded at bedrock.

A carbon sample (1.8 grams) was collected from Layer I during the screening of Level 2, 10-20 centimeters below the surface of TU-13. The carbon sample from this layer was sent to Beta Analytic, Inc. for radiocarbon age determination (Beta-175916; see Appendix A). The sample produced a conventional radiocarbon age of 210 ± 70 years before present, or a 2 sigma calibrated result of A.D. 1510 to 1950 with an intercept of A.D. 1660.



Figure 22. SIHP Site 23672 Feature B exterior view to north.

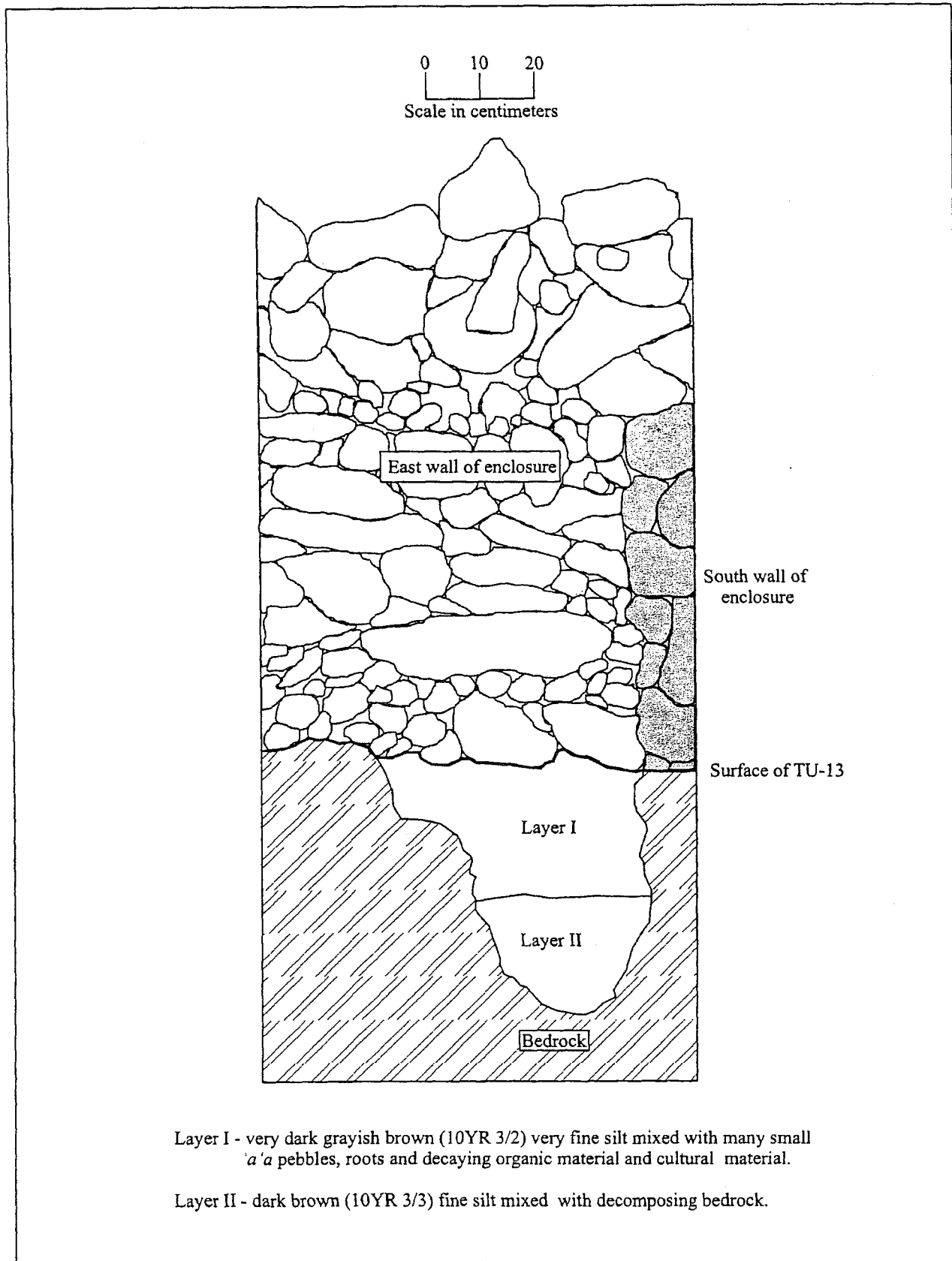


Figure 23. SIHP Site 23672 Feature B TU-13 east wall profile.



Figure 24. SIHP Site 23672 Feature B interior overview and surface of TU-13.

Table 2. Recovered cultural material from SIHP Site 23672 Feature B, TU-13 Layer I.

| <i>ACC #</i> | <i>Depth (cm)</i> | <i>Material</i> | <i>Species/type</i> | <i>Count</i> | <i>MNI</i> | <i>Weight (g)</i> |
|--------------|-------------------|-----------------|---------------------|--------------|------------|-------------------|
| 4 | 0-10 | Volcanic glass | Flakes | 4 | - | 1.5 |
| 5 | 0-10 | Organic | <i>Kukui</i> | 2 | 1 | 3.0 |
| 6 | 10-20 | Basalt | Water worn | 1 | - | 45.1 |
| 7 | 10-20 | Volcanic glass | Shatter | 44 | - | 17.5 |
| 8 | 10-20 | Bone | Rodent | 1 | 1 | 0.05 |
| 9 | 10-20 | Bone | Shark (teeth) | 2 | 1 | 0.2 |
| 10 | 10-20 | Shell | <i>Drupa</i> | 1 | 1 | 0.1 |
| 11 | 10-20 | Shell | <i>Nerita</i> | 1 | 1 | 0.2 |
| 12 | 10-20 | Organic | Charcoal | - | - | 1.8 |

SIHP Site 23673

Site 23673 is a permanent habitation site consisting of a platform (Feature A) and an enclosure (Feature B) located in the eastern half of the project area along the southern property boundary (see Figure 4). The permanent habitation interpretation is primarily based on size (Cordy 1991; 1995). The features are constructed of 'a'ā cobbles and boulders in an area of exposed bedrock and thin soil. Feature A is located 6.7 meters west of Feature B (Figure 25). Modern debris was observed on the surface of the site including a paint can lid and several golf balls. A 1 x 1 meter test unit (TU-17) excavated in the center of Feature A revealed an abundance of habitation debris.

Feature A is a habitation platform measuring 6.8 meters long by 3.9 meters wide (see Figure 25). It is constructed with large cobbles and boulders stacked along the exterior edges (Figure 26) and small cobbles paving the roughly level platform surface. The western edge of the feature rises 0.9 meters above ground surface, while the eastern edge rises 0.4-0.7 meters above ground surface. The exterior edges of Feature A are collapsed in several locations.

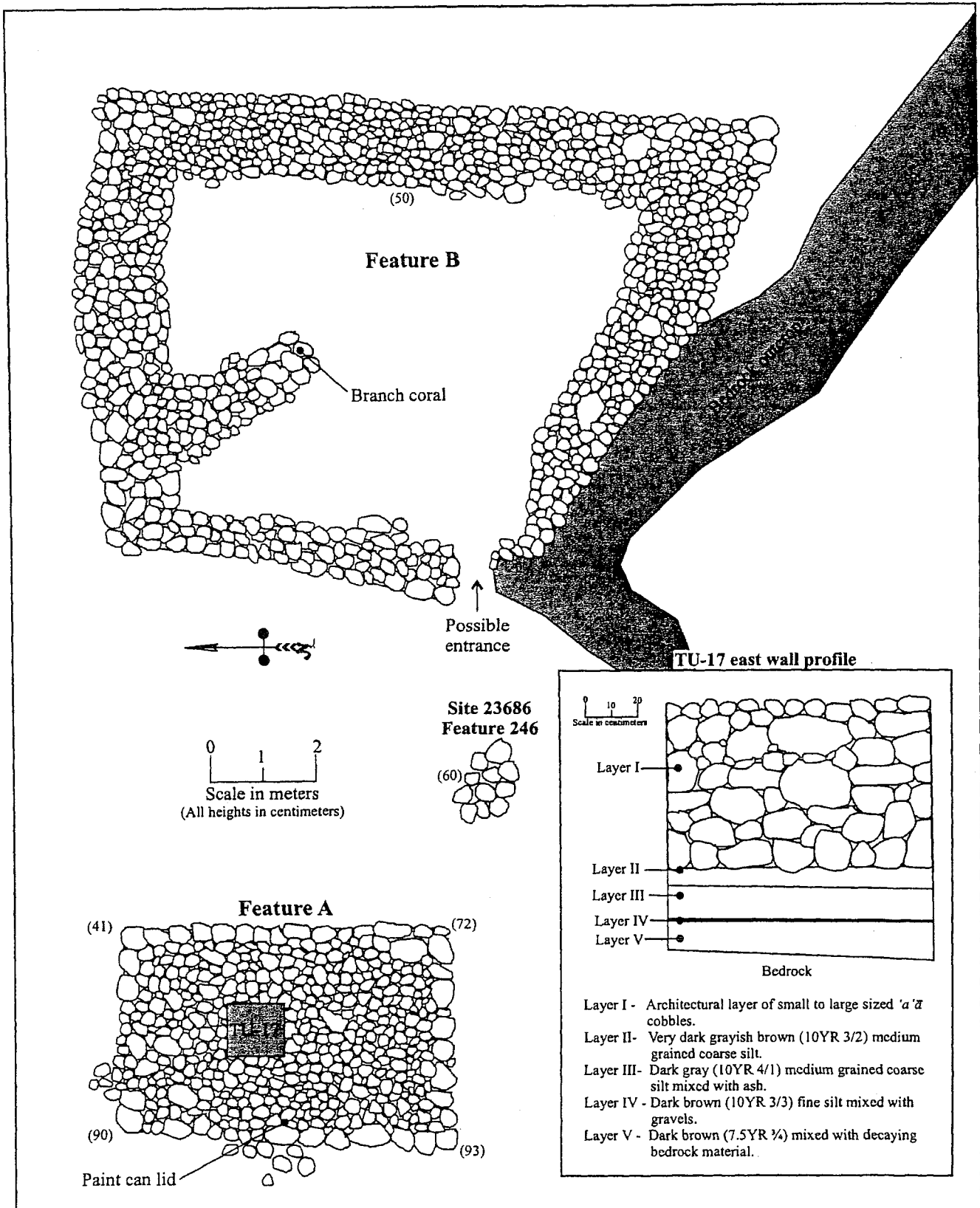


Figure 25. SIHP Site 23673 plan view and TU-17 profile.



Figure 26. SIHP Site 23673 Feature A view to north.

A 1 x 1 meter test unit (TU-17) was excavated in the approximate center of Feature A. Excavation of TU-17 revealed a five-layer stratigraphic soil sequence resting on bedrock (see Figure 25). Layers I, II, III, and IV all contained cultural material consistent with the feature's habitation function (Table 3) including marine shell, coral, bone, *kukui*, and volcanic glass. Layer I, the architectural layer, consisted of small to large sized 'a'ā cobbles and extended to a depth of 65.0 centimeters below the platform's surface. Layer I rested on and was incorporated into Layer II, a very dark grayish brown (10YR 3/2) medium grained coarse silt rich with organics and habitation debris 8.0 centimeters thick. Layer II gradually transitioned into Layer III, a dark gray (10YR 4/1) medium grained coarse silt mixed with ash and 'a'ā gravels 13.0 centimeters thick. Layer III rested on the earliest habitation soil at Feature A, Layer IV. Layer IV, which is only 2.0 centimeters thick, consisted of dark brown (10YR 3/3) fine silt mixed with gravels. This layer rested on Layer V, culturally sterile dark brown (7.5YR 3/4) fine silt mixed with decaying bedrock material. Layer V terminated at bedrock marking the base of excavation at TU-17.

Table 3. Recovered cultural material from SIHP Site 23673 Feature A, TU-17.

| <i>ACC #</i> | <i>Layer</i> | <i>Material</i> | <i>Species/type</i> | <i>Count</i> | <i>MNI</i> | <i>Weight (g)</i> |
|--------------|--------------|-----------------|---------------------|--------------|------------|-------------------|
| 58 | I | Coral | Branch | 1 | 1 | 28.7 |
| 59 | I | Organic | <i>Kukui</i> | 1 | 1 | 6.3 |
| 60 | I | Shell | <i>Echinoidea</i> | 7 | 1 | 0.1 |
| 61 | I | Shell | <i>Cypraea</i> | 1 | 1 | 2.0 |
| 62 | I | Bone | Rodent | 1 | 1 | 0.1 |
| 63 | II | Coral | Branch | 1 | 1 | 0.4 |
| 64 | II | Organic | <i>Kukui</i> | 6 | 1 | 1.6 |
| 65 | II | Shell | <i>Echinoidea</i> | 4 | 1 | 1.0 |
| 66 | II | Shell | <i>Cypraea</i> | 5 | 2 | 5.3 |
| 67 | II | Bone | Fish | 1 | 1 | 0.6 |
| 68 | II | Bone | Rodent | 1 | 1 | 0.1 |
| 69 | II | Volcanic glass | Flakes | 15 | - | 11.2 |
| 70 | III | Organic | Seed | 1 | 1 | 0.1 |

Table 3 continued on next page.

Table 3. Continued.

| ACC # | Layer | Material | Species/type | Count | MNI | Weight (g) |
|-------|-------|----------------|-------------------|-------|-----|------------|
| 71 | III | Shell | <i>Echinoidea</i> | 109 | 1 | 9.1 |
| 72 | III | Shell | <i>Cypraea</i> | 6 | 3 | 6.6 |
| 73 | III | Shell | <i>Drupa</i> | 3 | 1 | 0.7 |
| 74 | III | Shell | <i>Nerita</i> | 2 | 2 | 0.4 |
| 75 | III | Shell | <i>Cellana</i> | 3 | 1 | 0.5 |
| 76 | III | Organic | <i>Kukui</i> | 6 | 1 | 0.4 |
| 77 | III | Bone | Fish | 4 | 1 | 3.6 |
| 78 | III | Volcanic glass | Flakes | 24 | - | 12.1 |
| 81 | III | Basalt | Flake | 1 | - | 0.1 |
| 82 | IV | Shell | <i>Echinoidea</i> | 13 | 1 | 0.8 |
| 83 | IV | Volcanic glass | Flakes | 2 | - | 0.3 |
| 84 | IV | Shell | <i>Cypraea</i> | 4 | 1 | 2.7 |
| 85 | IV | Shell | <i>Conus</i> | 1 | 1 | 2.1 |
| 86 | IV | Shell | <i>Drupa</i> | 1 | 1 | 0.3 |

End of Table 3.

Feature B is an enclosure located 6.7 meters east of Feature A (see Figure 25). The enclosure (Figure 27) is roughly square measuring 8.7 meters by 8.6 meters along its exterior edges. The enclosure walls, which are constructed of stacked (but largely collapsed) 'a'ā cobbles, measure up to 1.2 meters wide and stand 0.5 meters high. The south edge of the feature abuts a raised linear 'a'ā bedrock outcrop running northwest/southeast. There is a 1.0 meter wide opening (entrance?) accessing the enclosure's southwestern corner. A 3.0-meter long internal dividing wall runs southeast from Feature B's interior north wall. This internal wall, which may have partitioned off separate use areas within the enclosure, stands up to 0.7 meters high and 1.2 meters wide. A branch coral fragment was found on the surface of the wall's south end. No other cultural debris was observed at Feature B. Its habitation function is inferred from its close proximity to Feature A.



Figure 27. SIHP Site 23673 Feature B view to east.

SIHP Site 23674

Site 23674 is a temporary habitation site located in the east-central portion of the project area (see Figure 4). Site 23674 consists of a rough rectangular platform (5.2 meters by 3.3 meters) with a circular enclosure (4.8 meters in diameter) protruding from its south edge (Figure 28). The site is constructed of stacked and piled 'a'ā cobbles, and the partially leveled surface of the platform is roughly paved with small 'a'ā cobbles (Figure 29). The platform stands up to 0.66 meters above ground surface along its stacked southern edge and is slightly terraced to the north standing up to 0.46 meters above ground surface along its northern edge. The enclosure walls measures as wide as 1.9 meters and stand up to 0.66 meters high along their interior edge. The central area of the enclosure consists of leveled soil covered by dense vegetation. No habitation debris was observed at Site 23674; subsequent data recovery investigations will help further refine this site's function.



Figure 28. SIHP Site 23674 view to south.

SIHP Site 23675

Site 23675 is a Precontact permanent habitation platform located in the east-central portion of the project area (see Figure 4). The permanent habitation function assigned to this site is based on its large size (Cordy 1981, 1995) and the presence of habitation debris discovered during subsurface testing (TU-20). The platform is constructed of partially stacked, but now mostly collapsed, small to large sized 'a'ā cobbles (Figure 30). It measures 5.8 meters long by 5.7 meters wide and stands up to 0.8 meters above ground surface (Figure 31). The platform's surface is roughly paved with small sized cobbles. The platform's surface also contains two water worn pebbles and two small circular depressions, one near its southeast corner and the other near the northeast corner. The northern depression measures 1.2 meters in diameter and 0.55 meters deep, while the southern depression measures 1.2 meters in diameter and 0.5 meters deep; both depressions may be the result of vegetation growth at the site.

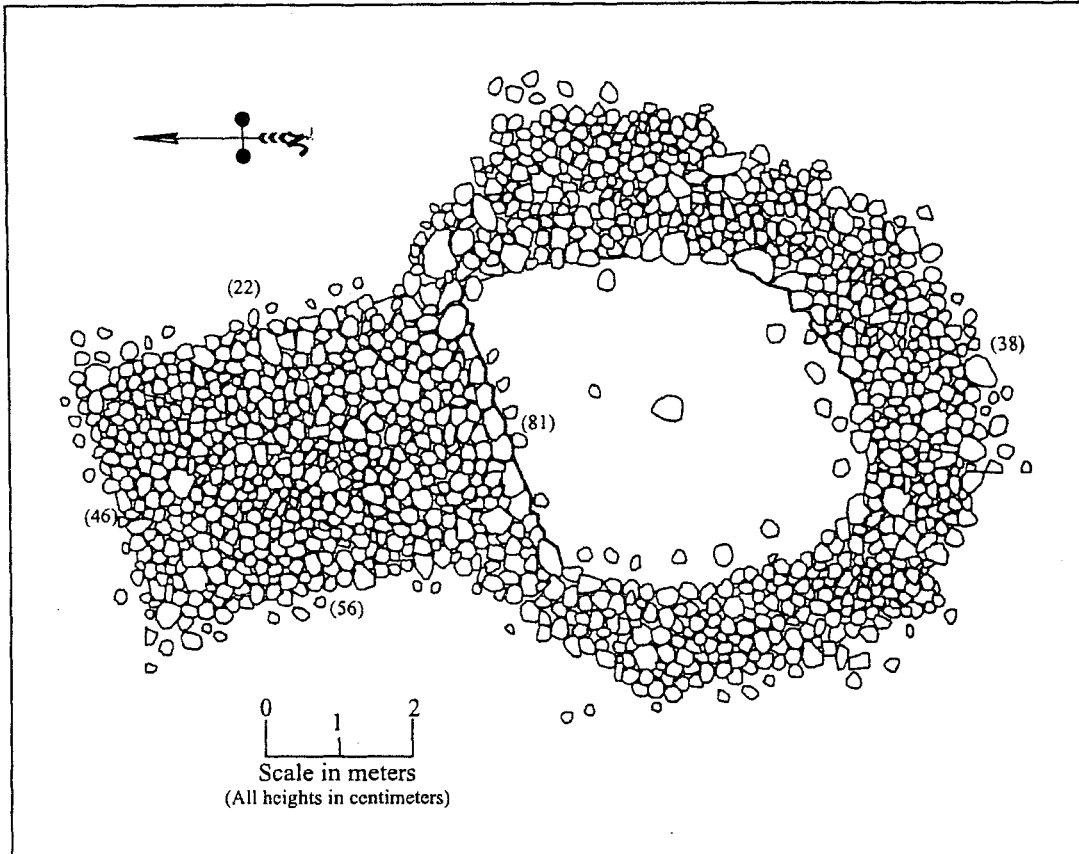


Figure 29. SIHP Site 23674 plan view.



Figure 30. SIHP Site 23675 view to southwest.

A 1 x 1 meter test unit (TU-20) was excavated on top of the northeastern depression (see Figure 31). Excavation of TU-20 revealed a two layer stratigraphic profile resting on bedrock (Figure 32). A small amount of cultural material was recovered from TU-16 (Table 4) including pig (*Sus*) teeth and bone, a marine shell fragment, a water worn pebble, a coral fragment, and a small amount of charcoal. Layer I, a 95-centimeter thick architectural layer, consisted of small to large sized 'a'ā cobbles mixed with organics. This layer rested on and was incorporated into Layer II, a dark yellowish brown (10YR 4/4) sandy silt mixed with some organics and containing approximately 70 percent gravel content. As the 28-centimeter thick Layer II neared bedrock it gradually transitioned to a dark brown (10YR 3/3) silt containing a high concentration of gravels and decomposing bedrock. Excavation of TU-20 terminated at bedrock 113 centimeters below the platforms surface.

Table 4. Recovered cultural material from SIHP Site 23675, TU-20.

| ACC # | Layer | Depth* | Material | Species/type | Count | MNI | Weight (g) |
|-------|-------|--------|----------|-------------------------|-------|-----|------------|
| 116 | I | 0-95 | Organic | Charcoal | - | - | 0.6 |
| 117 | II | 95-105 | Shell | <i>Cypraea</i> | 1 | 1 | 1.3 |
| 118 | II | 95-105 | Basalt | Water worn | 1 | - | 71.4 |
| 119 | II | 95-105 | Basalt | Groundstone fragment | 1 | - | 116.7 |
| 120 | II | 95-105 | Bone | <i>Sus</i> | 21 | 1 | 9.6 |

*Depth in centimeters below the surface of TU-20.

SIHP Site 23676

Site 23676 is a Precontact temporary habitation platform located in the east-central portion of the project area (see Figure 4). The platform (5.3 meters long by 3.4 meters wide) is constructed with partially stacked—mostly collapsed—large 'a'ā cobbles forming its exterior edges (Figure 33). The platform is roughly paved with small 'a'ā cobbles and pebbles creating a somewhat level living surface (Figure 34). Site 23676 stands up to 0.7 meters above the surrounding ground surface and its southeastern edge dissipates into a bedrock outcrop. A water worn coral fragment was observed on the platform's southern corner. Site 23676 was assigned a temporary habitation function based on its small size and relatively insubstantial construction (Cordy 1981, 1995).

A 1 x 1 meter test unit (TU-18) was excavated into the northwest portion of Site 23676. Excavation of TU-18 revealed a three-layer stratigraphic profile resting on bedrock (see Figure 33). Cultural material consistent with the platform's habitation function was recovered from Layers I and II. Recovered cultural material (Table 5) included marine shell, bone, *kukui*, volcanic glass, a *he'e* (octopus) lure (Figure 35), and a small amount of charcoal. Layer I, the architectural layer, consisted of a 40-centimeter thick layer small to large sized 'a'ā cobbles mixed with organic debris. Layer I rested on and was incorporated into Layer II, a 31-centimeter thick layer of very dark brown (10YR 2/2) sandy silt with approximately 45 percent 'a'ā gravel content. Layer II gradually transitioned into Layer III, a dark brown (7.5YR 3/4) fine silt mixed with gravels and decomposing bedrock 6 centimeters thick. Excavation of TU-18 terminated at bedrock 73 centimeters below the platform's surface. The charcoal recovered from TU-18 was too small for standard radiometric analysis, and not deemed a good candidate for AMS dating.

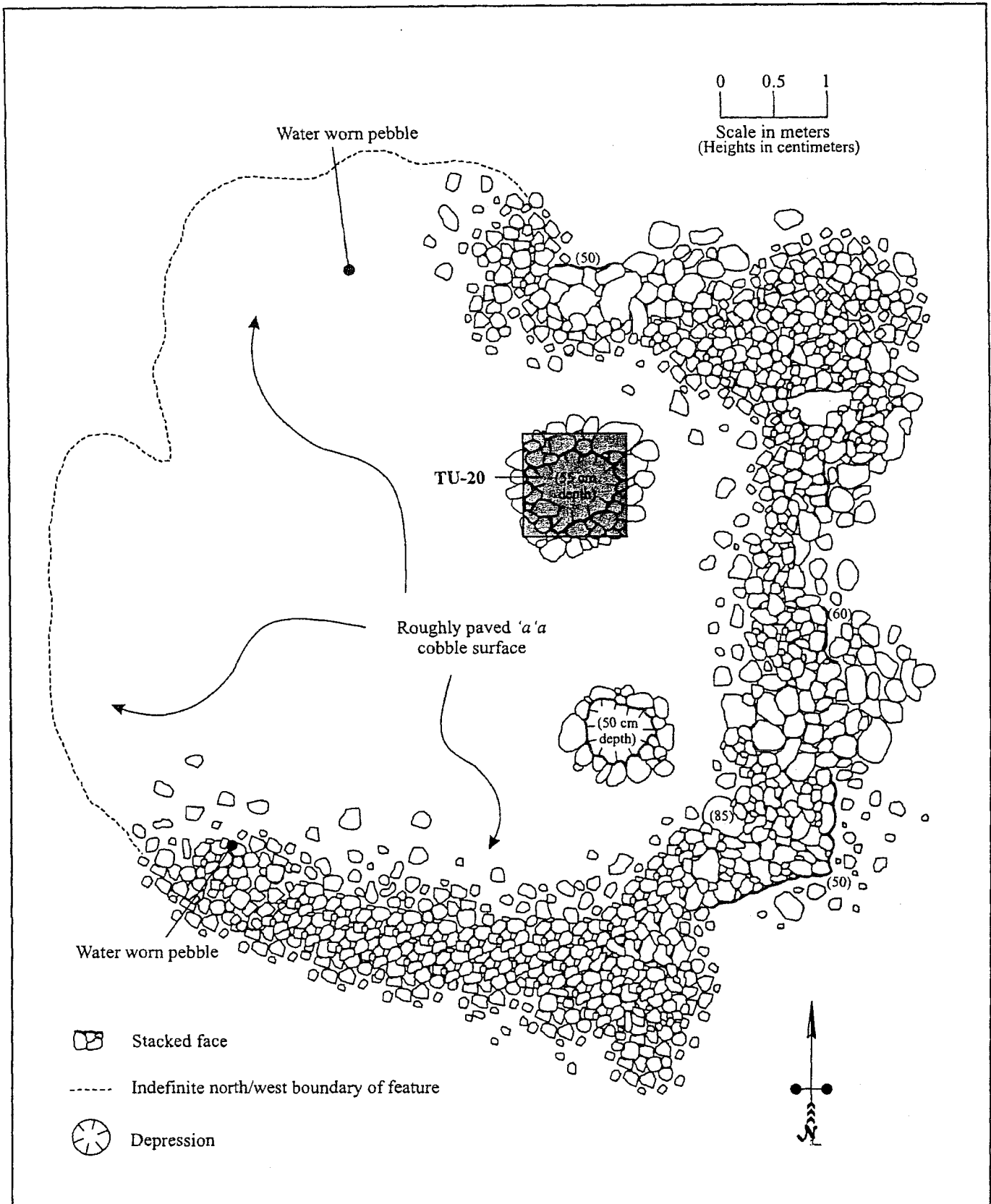


Figure 31. SIHP Site 23675 plan view.

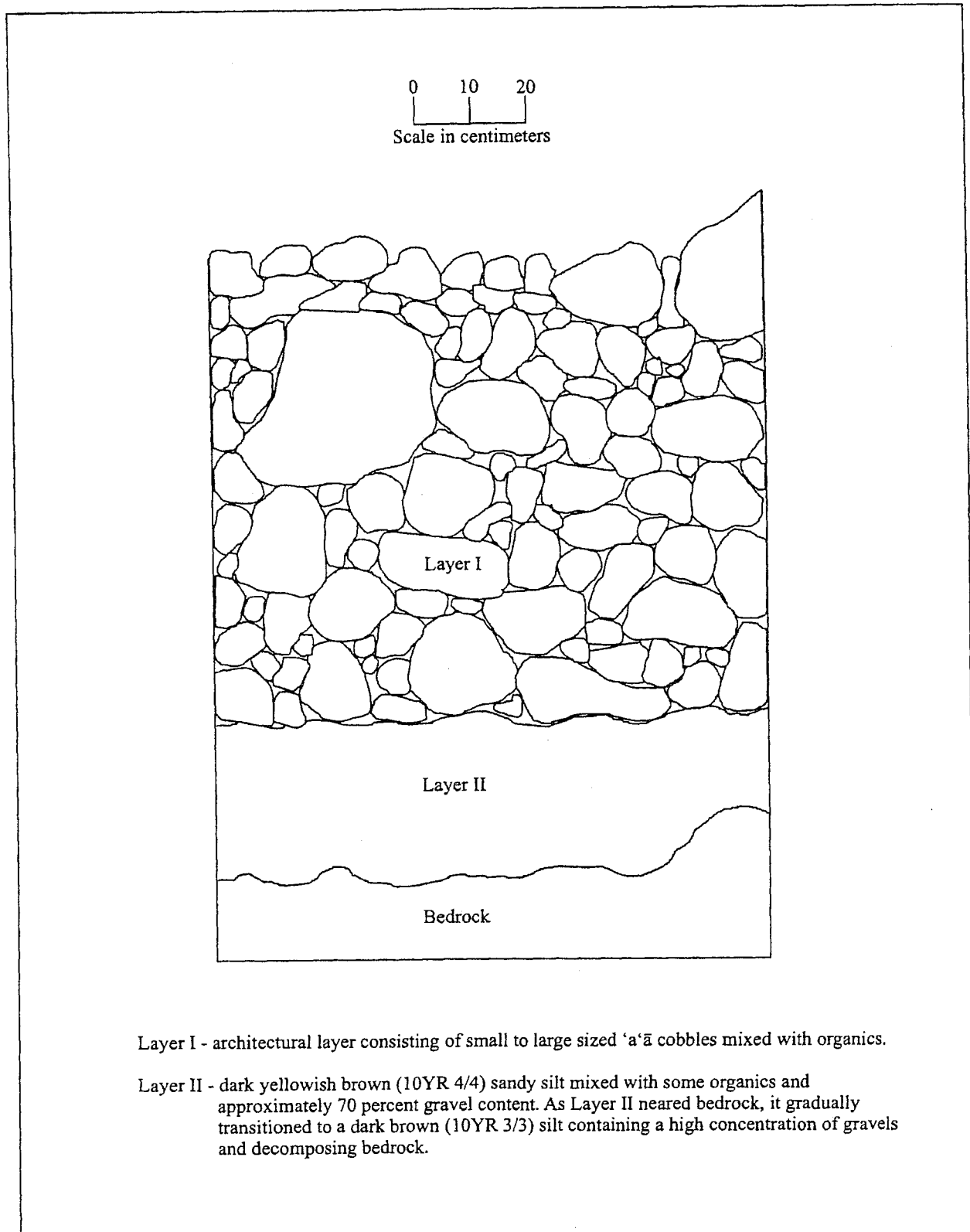


Figure 32. SIHP Site 23675 TU-20 north wall profile.

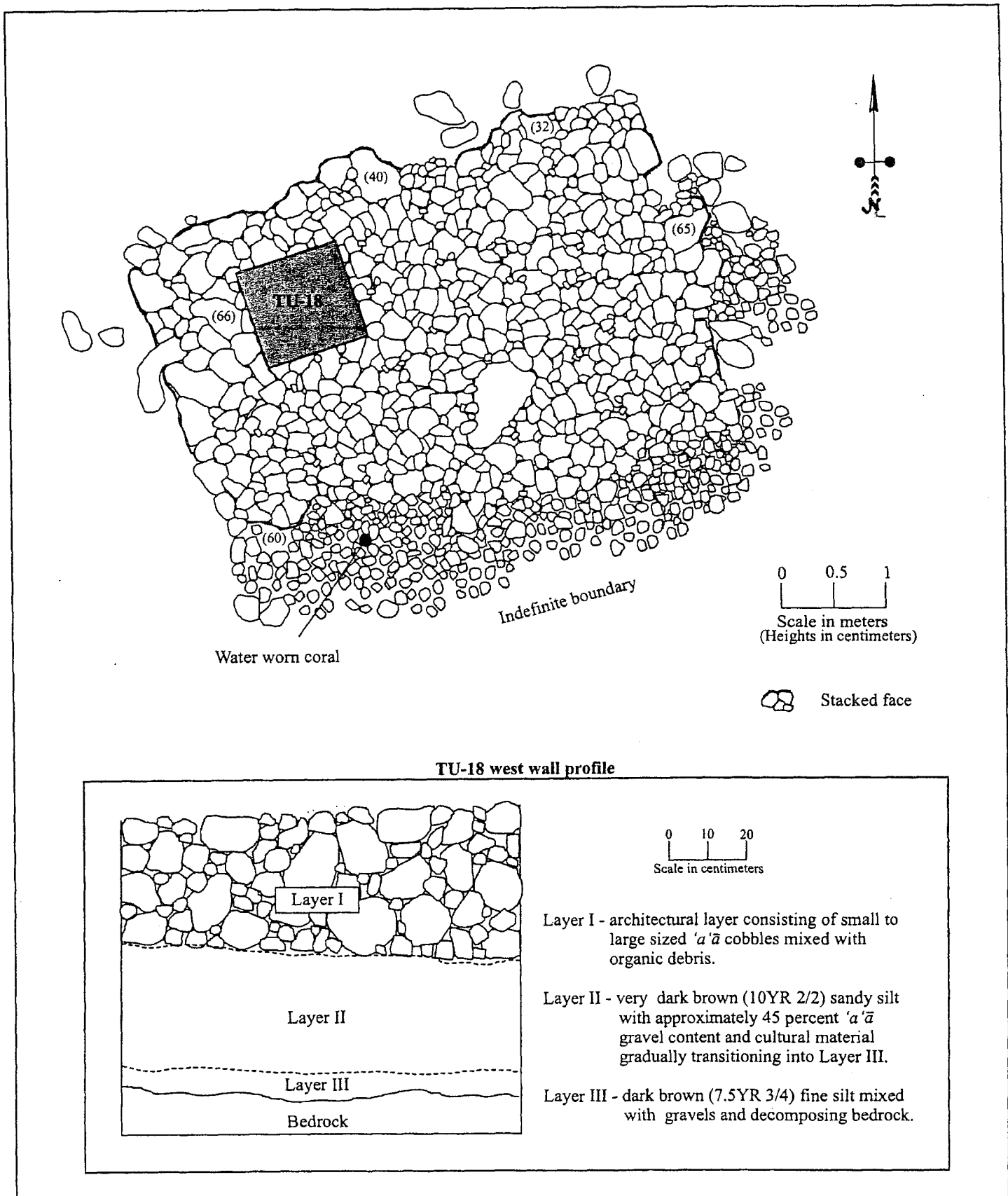


Figure 33. SIHP Site 223676 plan view and TU-18 profile.



Figure 34. SIHP Site 23676 view to southwest.

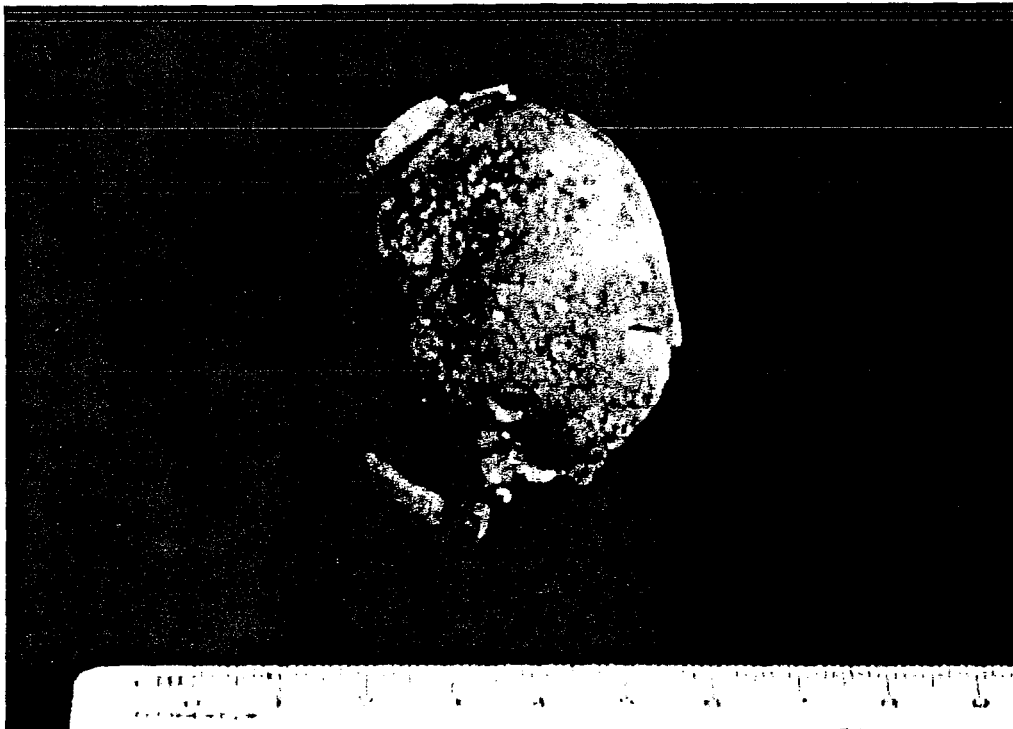


Figure 35. SIHP Site 23676 *he'e* lure recovered from TU-18.

Table 5. Recovered cultural material from SIHP Site 23676, TU-18.

| ACC # | Layer | Depth* | Material | Species/type | Count | MNI | Weight (g) |
|-------|-------|--------|----------------|-------------------|-------|-----|------------|
| 87 | I | 0-40 | Shell | <i>Cypraea</i> | 9 | 3 | 9.4 |
| 88 | I | 0-40 | Shell | <i>Cellana</i> | 1 | 1 | 0.1 |
| 89 | I | 0-40 | Shell | Unidentified | 1 | 1 | 1.0 |
| 90 | I | 0-40 | Shell | <i>He'e lure</i> | 1 | 1 | 32.0 |
| 91 | I | 0-40 | Organic | <i>Kukui</i> | 5 | - | 4.5 |
| 92 | I | 0-40 | Bone | Fish | 1 | 1 | 0.1 |
| 93 | I | 0-40 | Bone | <i>Sus</i> | 1 | 2 | 1.4 |
| 79 | I | 0-40 | Bone | Rodent | 3 | - | 0.3 |
| 94 | I | 0-40 | Volcanic glass | Flakes | 2 | - | 2.6 |
| 95 | II | 40-50 | Organic | Charcoal | - | - | 0.5 |
| 96 | II | 40-50 | Organic | <i>Kukui</i> | 10 | - | 2.3 |
| 97 | II | 40-50 | Shell | <i>Echinoidea</i> | 25 | 1 | 1.6 |
| 98 | II | 40-50 | Shell | <i>Conus</i> | 1 | 1 | 0.2 |
| 99 | II | 40-50 | Shell | <i>Cypraea</i> | 39 | 14 | 22.3 |
| 100 | II | 40-50 | Shell | <i>Drupa</i> | 1 | 1 | 0.1 |
| 101 | II | 40-50 | Shell | <i>Nerita</i> | 1 | 1 | 0.2 |
| 102 | II | 40-50 | Shell | <i>Cellana</i> | 3 | 1 | 0.4 |
| 103 | II | 40-50 | Shell | <i>Strombina</i> | 1 | 1 | 0.3 |
| 104 | II | 40-50 | Shell | Unidentified | 17 | - | 0.3 |
| 105 | II | 40-50 | Bone | Small mammal | 4 | 2 | 0.8 |
| 106 | II | 40-50 | Volcanic glass | Flakes | 8 | - | 6.4 |
| 107 | II | 40-50 | Organic | <i>Kukui</i> | 1 | 1 | 0.1 |
| 108 | II | 50-60 | Shell | <i>Echinoidea</i> | 25 | 1 | 1.9 |
| 109 | II | 50-60 | Shell | <i>Nerita</i> | 1 | 1 | 0.1 |
| 110 | II | 50-60 | Organic | Charcoal | - | - | 0.2 |
| 111 | II | 50-60 | Shell | <i>Cypraea</i> | 12 | 3 | 10.9 |
| 112 | II | 50-60 | Volcanic glass | Flakes | 2 | - | 0.9 |
| 113 | II | 60-71 | Shell | <i>Echinoidea</i> | 11 | 1 | 0.9 |
| 114 | II | 60-71 | Shell | <i>Cypraea</i> | 6 | 1 | 2.1 |
| 115 | II | 60-71 | Volcanic glass | Flakes | 2 | - | 1.1 |

*Depth in centimeters below the surface of TU-18.

SIHP Site 23677

Site 23677 is a temporary habitation site located in the east-central portion of the project area (see Figure 4). It consists of a small square platform remnant (Feature A) constructed in the southwest corner of a rough enclosure (Feature B) (Figure 36). The features are constructed of 'a'ā cobbles and boulders formerly stacked, but now largely collapsed (Figure 37). The interior of the enclosure consists of thin soil covered by dense vegetation. A water worn cobble, a piece of coral, and *Cypraea* shell fragments were observed on ground surface within the site. A 1 x 1 meter test unit (TU-16) was excavated in the center of Feature A.

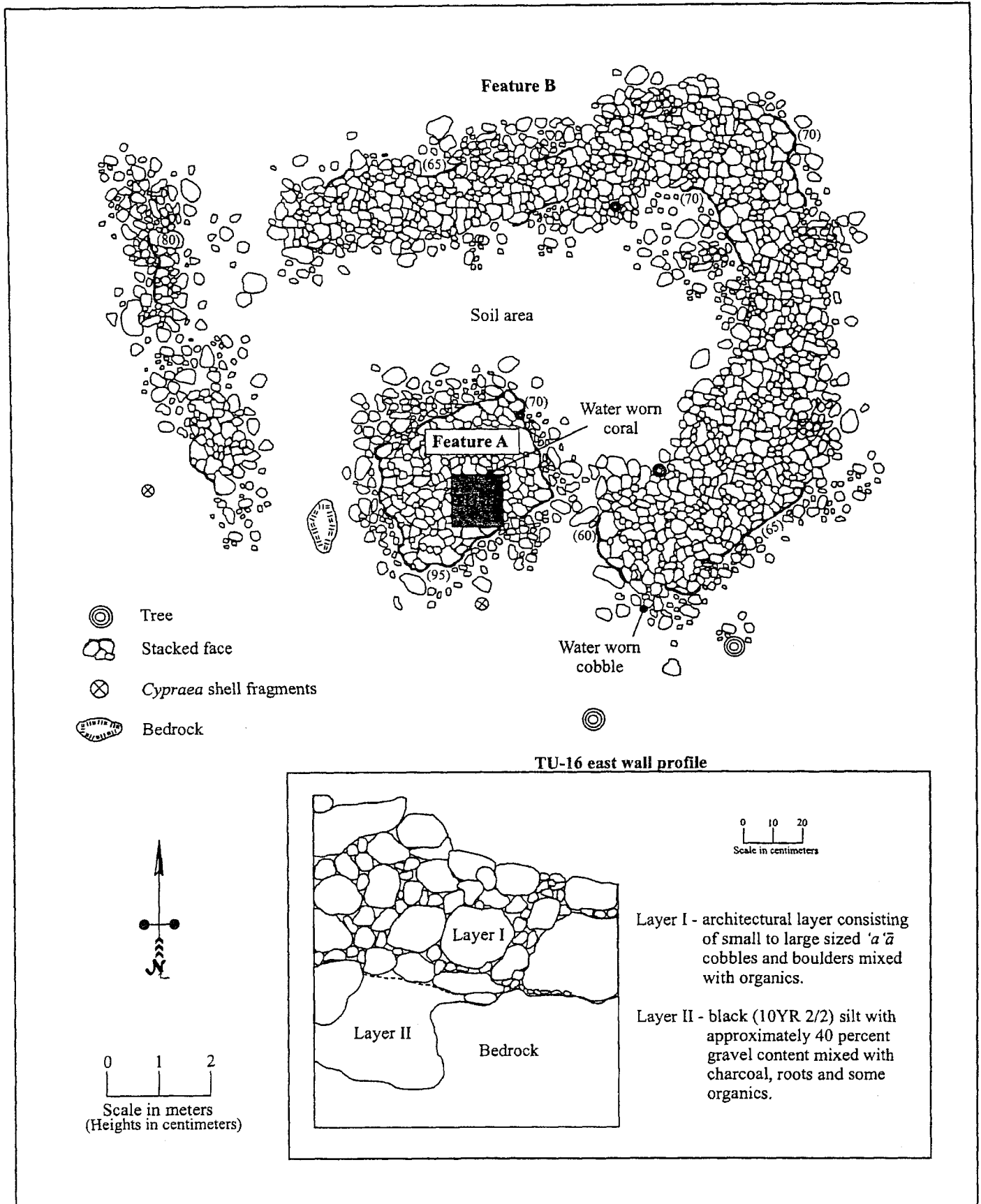


Figure 36. SIHP Site 23677 plan view and TU-16 profile.



Figure 37. SIHP Site 23677 view to southwest.

Feature A is a small platform remnant (2.9 meters long by 2.5 meters wide) located in the northwest corner of the enclosure area (Feature B). The platform is constructed with large 'a'ā cobbles stacked around the outside edges (0.9 meters high) and small cobbles paving its roughly level surface. Much of Feature A has collapsed leaving a rubble scatter around the entire feature. A piece of water worn coral was found on the platform's surface.

A 1 x 1 meter test unit (TU-16) was excavated in the south-central area of Feature A (see Figure 36). Excavation of TU-16 revealed a two-layer stratigraphic profile and a plethora of cultural material consistent with the sites habitation function. Recovered cultural materials included (Table 6) marine shell, urchin, burned bone, volcanic glass, coral, and a small amount of charcoal. The uppermost layer of TU-16 (Layer I), a 65-centimeter thick architectural layer, consisted of small to large sized 'a'ā cobbles and boulders mixed with organics. Layer I rested on and was incorporated into Layer II, a 30-centimeter thick layer of black (10YR 2/2) silt with approximately 40 percent gravel content mixed with roots and some organics. The dark color of the soil is most likely the result of charcoal staining. A charcoal sample from this layer was sent to Beta Analytic, Inc. for AMS radiocarbon analysis (Beta Sample No. 175917). The resulting conventional radiocarbon age is 160 ± 40 B.P., with a 2-sigma range of A.D. 1660 to 1950 (Appendix A). Layer II terminated at bedrock 95 centimeters below the platform's surface.

Table 6. Recovered cultural material from SIHP Site 23677, TU-16.

| ACC # | Layer | Depth* | Material | Species/type | Count | MNI | Weight (g) |
|-------|-------|--------|----------------|-------------------|-------|-----|------------|
| 26 | I | 0-65 | Organic | Charcoal | - | - | 0.4 |
| 27 | I | 0-65 | Shell | <i>Echinoidea</i> | 2 | 1 | 0.3 |
| 28 | I | 0-65 | Shell | <i>Cypraea</i> | 3 | 2 | 5.0 |
| 29 | I | 0-65 | Shell | <i>Conus</i> | 1 | 1 | 0.7 |
| 30 | I | 0-65 | Shell | <i>Drupa</i> | 1 | 1 | 3.5 |
| 31 | I | 0-65 | Shell | <i>Nerita</i> | 1 | 1 | 0.2 |
| 32 | II | 65-75 | Organic | Charcoal | - | - | 2.2 |
| 34 | II | 65-75 | Shell | <i>Echinoidea</i> | 28 | 1 | 3.6 |
| 35 | II | 65-75 | Shell | <i>Nerita</i> | 5 | 5 | 1.7 |
| 36 | II | 65-75 | Shell | Unidentified | 1 | 1 | 0.1 |
| 37 | II | 65-75 | Coral | Water worn | 8 | - | 4.1 |
| 38 | II | 65-75 | Shell | <i>Drupa</i> | 2 | 1 | 0.6 |
| 39 | II | 65-75 | Shell | <i>Cantharus</i> | 1 | 1 | 0.1 |
| 40 | II | 65-75 | Shell | <i>Cypraea</i> | 30 | 4 | 14.7 |
| 41 | II | 65-75 | Shell | <i>Cellana</i> | 1 | 1 | 0.1 |
| 42 | II | 65-75 | Shell | <i>Venus</i> | 1 | 1 | 0.1 |
| 43 | II | 65-75 | Bone | Fish | 1 | 1 | 0.2 |
| 44 | II | 65-75 | Bone | Small mammal | 1 | 1 | 2.4 |
| 45 | II | 65-75 | Volcanic glass | Flakes | 2 | - | 0.5 |
| 46 | II | 75-85 | Organic | Charcoal | - | - | 1.3 |
| 47 | II | 75-85 | Shell | <i>Echinoidea</i> | 16 | 1 | 1.6 |
| 48 | II | 75-85 | Shell | <i>Cypraea</i> | 5 | 1 | 1.1 |
| 49 | II | 75-85 | Shell | <i>Nerita</i> | 1 | 1 | 0.1 |
| 50 | II | 75-85 | Shell | <i>Cellana</i> | 1 | 1 | 0.1 |
| 51 | II | 75-85 | Bone | Small mammal | 1 | 1 | 1.0 |
| 52 | II | 75-85 | Volcanic glass | Debitage | 1 | - | 0.3 |
| 53 | II | 75-85 | Organic | Charcoal | - | - | 0.9 |
| 54 | II | 75-85 | Shell | <i>Echinoidea</i> | 2 | 1 | 0.3 |
| 55 | II | 75-85 | Shell | <i>Cypraea</i> | 3 | 1 | 2.7 |
| 56 | II | 75-85 | Shell | <i>Nerita</i> | 1 | 1 | 0.1 |
| 57 | II | 75-85 | Shell | <i>Venus</i> | 1 | 1 | 0.3 |

*Depth in centimeters below the surface of TU-16.

Feature B is a rough wall partially enclosing Feature A to the north and east. The wall which was formerly stacked, but is now mostly collapsed, measures up to 2.5 meters wide, 0.7 meters high, and encompasses an area approximately 13.2 meters long by 9.5 meters wide. This 'a'ā cobble wall is absent in the site's southwest corner near Feature A, and only a faint trace of the western wall remains intact. The central area enclosed by the wall consists primarily of thin soil.

SIHP Site 23678

Site 23678 is an oval shaped habitation enclosure located in the north east quadrant of the project area (see Figure 4) constructed within the center of a *kuaiwi* wall remnant (Site 23686 Feature 291) (Figure 38). The enclosure (12.5 meters long by 5.5 meters wide) is constructed of partially stacked (mostly collapsed) 'a'ā cobbles and boulders (Figure 39). In several locations the tops of the walls, which stand up to 0.6 meters above ground surface and measure 1.0 meter wide, are topped with smooth *pāhoehoe* cobbles. The interior of the enclosure area (7.7 meters long by 2.6 meters wide) consists primarily of thin soil (at least 8 centimeters thick) covered by dense vegetation (Figure x). An engineered opening (1.0 meter wide) located in the center of the north wall allows access to the enclosure. A *Cypraea* shell fragment and a small piece of coral were found on ground surface within Site 23678. Judging by the continuous construction, it appears that the enclosure was built prior to, or at the same time as, the *kuaiwi* wall (Site 23686 Feature 291), which extends in both directions from the enclosure's east and west ends. The rough (insubstantial) construction of the enclosure combined with its relatively small interior space suggests that Site 23678 may have been used for temporary habitation purposes.

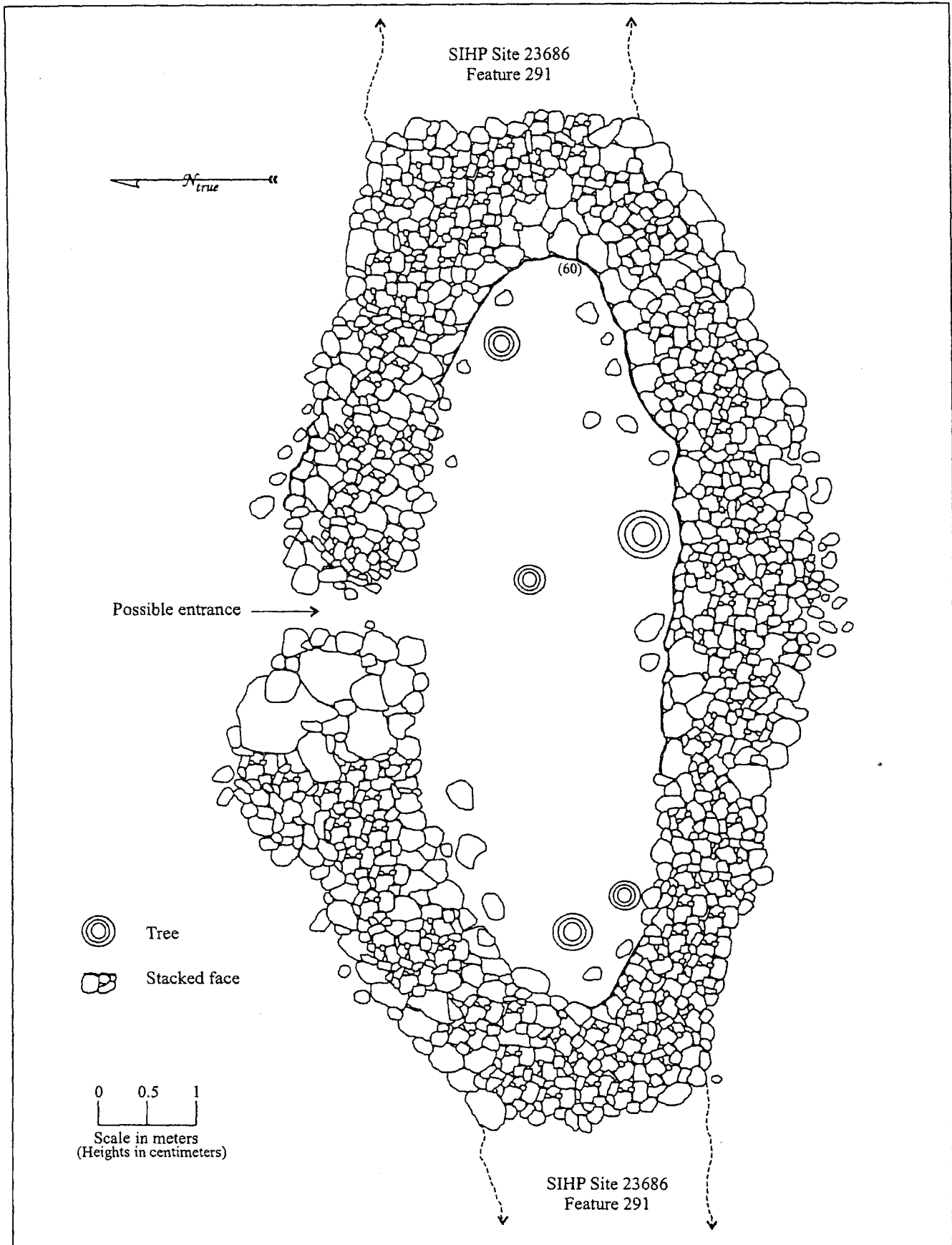


Figure 38. SIHP Site 23678 plan view.



Figure 39. SIHP Site 23678 view to east.

Trails

SIHP Site 23679

Site 23679 is a 20-meter long segment of stepping stone trail running east/west along the south-central portion of the project area (see Figure 4). Site 23679 is constructed of flat *pāhoehoe* and 'a'ā slabs laid across an exposed 'a'ā flow (Figure 40). Large cobbles and boulders have been cleared from the trail route and loosely piled along its edges creating a rough kerbing. The west end of the trail segment appears to fork. The north fork runs three meters west before terminating and the south fork travels five meters west before terminating at a wire fence. No further portions of the trail could be located either *mauka* or *makai* of the site.

SIHP Site 23680

Site 23680 is a stepping stone trail segment located in the central eastern portion of the project area (see Figure 4). The trail segment runs east/west for 10 meters across an exposed 'a'ā flow. It is constructed of at least 10 weathered 'a'ā and smooth *pāhoehoe* slabs laid flat on the natural outcrop (Figure 41). No further portions of the trail could be located either *mauka* or *makai* of the site.



Figure 40. SIHP Site 23679 view to northeast.



Figure 41. SIHP Site 23680 view to west.

Ceremonial Sites

SIHP Site 23681

Site 23681 is interpreted as an agricultural shrine or *heiau* centrally located within the project area (see Figure 4). The site consists of a platform (Feature A) constructed within the northeast corner of a double enclosure area (Feature B) (Figure 42). The platform and enclosure walls are constructed of 'a'ā cobbles and boulders, while the floor of the enclosure area consists of thin soil covered by dense vegetation. Site 23681 resembles in size and shape other sites described in North Kona as *heiau*:

Based on the character of their foundations, the *heiau* would seem to fall into two classes – the platform and the walled enclosure. There were many intermediate forms and combinations of the two. The terraced form was generally an elaboration of the platform type. (Stokes and Dye 1991:21)

Feature A is a large rectangular platform (9.1 meters long by 5.3 meters wide) located in the northeast corner of Site 23681 (see Figure 42). The platform is constructed with large 'a'ā cobbles and boulders stacked along its outside edges and a surface of small cobbles paving top (Figure 43). The platform rises up to 0.7 meters above the surrounding ground surface and is mostly intact with the exception of some collapse in the southwest corner and along the north edge. The enclosure walls (Feature B) run in a perpendicular direction from the platform's edge starting at its southeast and northwest corners. The walls are not of continuous construction and may have been built subsequent to the completion of the platform. A single piece of water rounded coral and a water worn cobble were found on the surface of the Feature A.

A 1 x 1 meter test unit (TU-14) was excavated in the northeast corner of Feature A (see Figure 42). Excavation of TU-14 revealed a three-layer stratigraphic profile resting on bedrock. Layer I, the 70-centimeter thick architectural layer, consisted of small to large sized 'a'ā cobbles mixed with organics. Layer I rested on and was incorporated into Layer II, a dark brown (10YR 3/3) sandy silt with approximately 40 percent gravel content 15 centimeters thick. Layer II gradually transitioned into Layer III, a 26-centimeter thick (in places) dark yellowish brown (10YR 4/4) culturally sterile silt mixed with decomposing bedrock. Cultural material collected from Layers I and II included volcanic glass, fire cracked rock, marine shell, urchin, *kukui*, and mammal bone (Table 7). The presence of these remains possibly indicates that multiple activities took place at this site. Excavation of TU-14 ceased at undulating bedrock 106 centimeters below the platform's surface.

Table 7. Recovered cultural material from SIHP Site 23681, TU-14.

| <i>ACC #</i> | <i>Layer</i> | <i>Depth*</i> | <i>Material</i> | <i>Species/type</i> | <i>Count</i> | <i>MNI</i> | <i>Weight (g)</i> |
|--------------|--------------|---------------|-----------------|---------------------|--------------|------------|-------------------|
| 13 | I | 0-70 | Volcanic glass | Flake | 1 | - | 2.7 |
| 15 | I | 0-70 | Basalt | Flake | 1 | - | 15.6 |
| 16 | I | 0-70 | Bone | Small mammal | 2 | 1 | 0.3 |
| 17 | I | 0-70 | Shell | <i>Cypraea</i> | 2 | 2 | 6.0 |
| 18 | I | 0-70 | Shell | <i>Echinoidea</i> | 9 | 1 | 0.7 |
| 19 | II | 70-80 | Volcanic glass | Flake | 1 | - | 2.8 |
| 20 | II | 70-80 | Bone | Small mammal | 2 | 2 | 0.1 |
| 21 | II | 70-80 | Shell | <i>Cypraea</i> | 8 | 2 | 9.7 |
| 22 | II | 70-80 | Shell | <i>Echinoidea</i> | 6 | 1 | 1.2 |
| 23 | II | 70-80 | Organic | <i>Kukui</i> | 1 | 1 | 0.2 |
| 25 | II | 80-95 | Shell | <i>Echinoidea</i> | 1 | 1 | 0.2 |

*Depth in centimeters below the surface of TU-14.

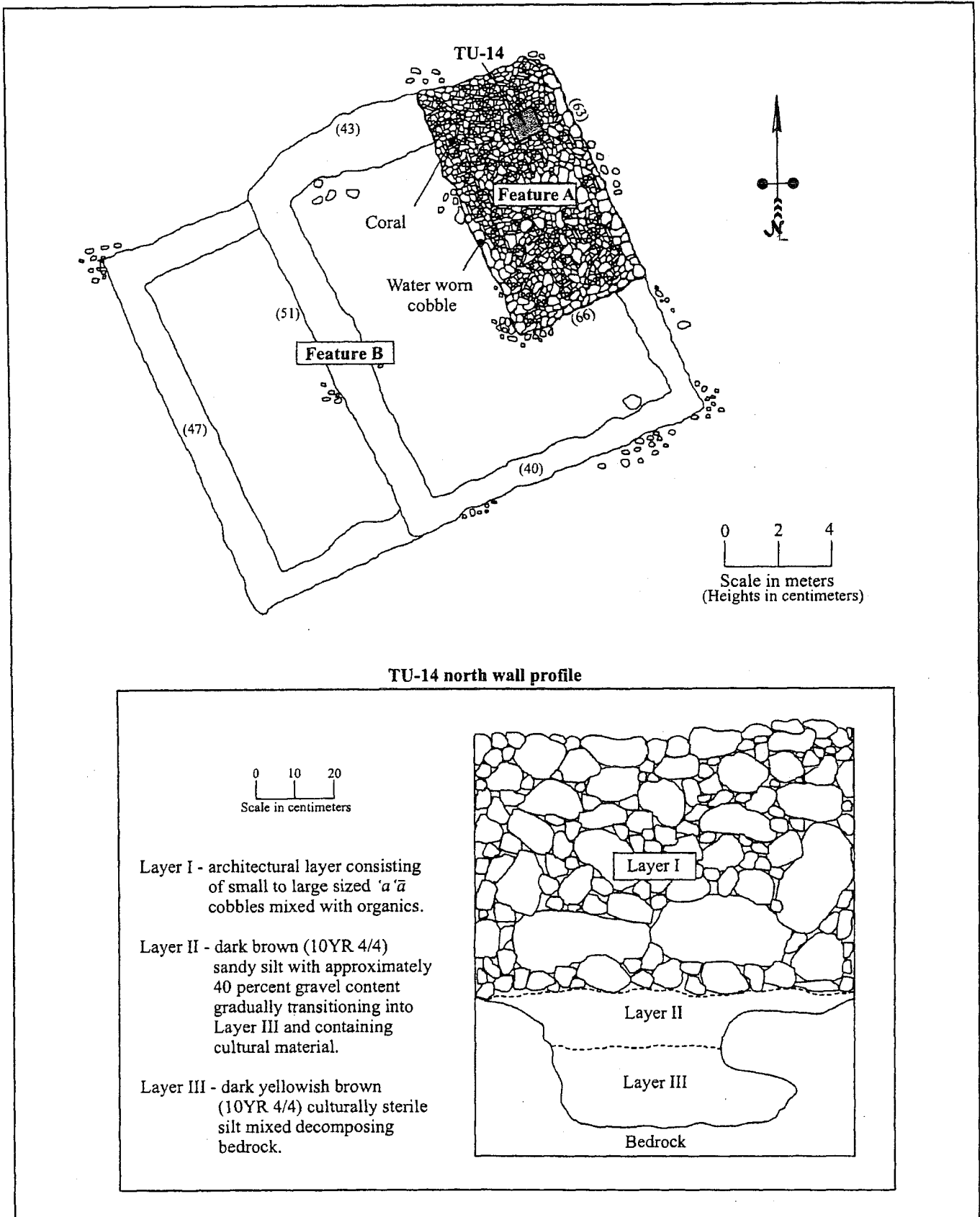


Figure 42. SIHP Site 23681 plan view and TU-14 profile.



Figure 43. SIHP Site 23681 view to northwest (Feature B in foreground and Feature A in background).

Feature B consists of a double enclosure located to the south and west of Feature A (see Figure 42). The enclosure measures 19 meters long by 15 meters wide. A partially terraced central dividing wall creates two enclosure areas within Feature B; the interior of the western area measures 12 meters by 5 meters, and the interior of the eastern area measures 12 meters by 10 meters. The eastern enclosure area is slightly terraced (0.5 meters high) above its western counterpart. The enclosure walls are constructed of 'a'ā cobbles and boulders (see Figure 43), they were formerly stacked, but are now mostly collapsed. Intact sections of wall stand up to 0.5 meters above ground surface and measure 1.0 meter wide. Ground surface within Feature B consists of thin soil covered by dense vegetation.

Game Boards

SIHP Site 23682

Site 23682 is a rough *papamū* located approximately 15 meters west of Site 23668. The roughly square game board (Figure 44), which measures 30 centimeters by 30 centimeters, is pecked into *pāhoehoe* bedrock in an area surrounded by agricultural mounds. It is very weathered making the number of pecked holes and their alignments difficult to discern. It is possible that Site 23682 is located along an old trail route no longer traceable on the *pāhoehoe* bedrock.

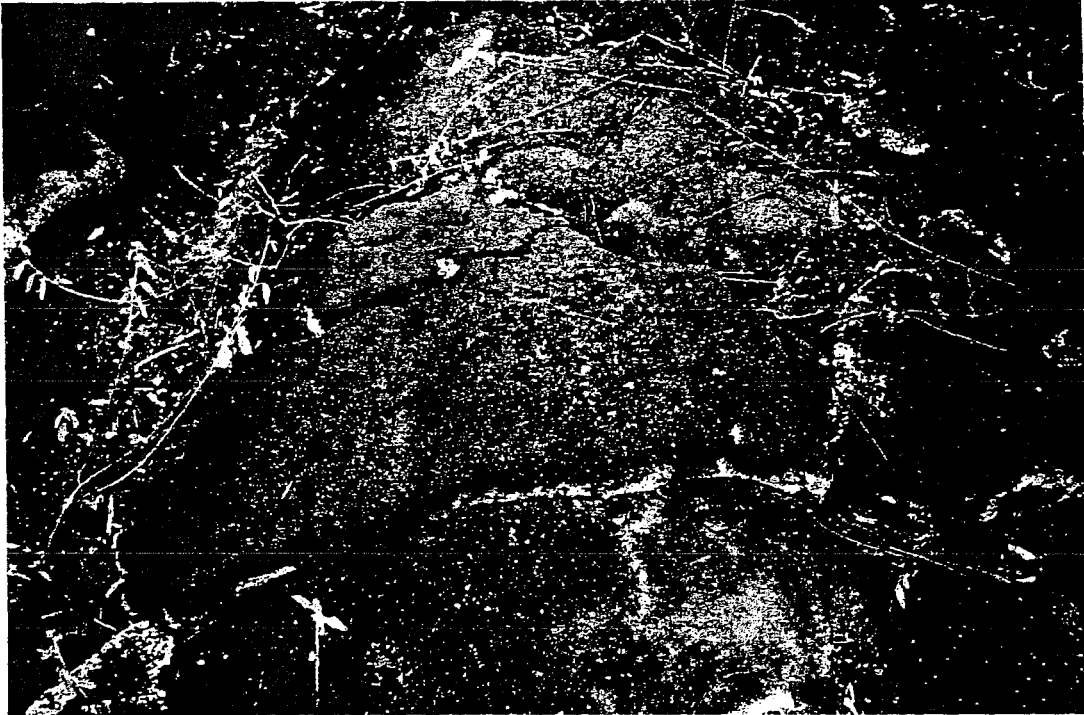


Figure 44. SIHP Site 23682 view to east.

Burials

SIHP Site 23683

Site 23683 is a burial platform located in the west-central portion of the project area (see Figure 4). The platform measures 6.7 meters long by 5.4 meters wide and rises 1.6 meters (3-4 courses) above the surrounding bedrock ground surface at its northeast corner. Site 23683 is constructed with 'a'ā and *pāhoehoe* boulders and cobbles stacked along its exterior north, south, and east edges. The western edge of the platform abuts a raised bedrock outcrop and the platform's surface is paved with small 'a'ā and *pāhoehoe* cobbles. Site 23683 is in a decent state of repair, although portions of the exterior walls have collapsed (Figure 45).

A metal site tag with the inscription "PHRI # 17" was found on the platform's surface indicating that this site had been designated as PHRI temporary site 2235-17 (Corbin and Rosendahl 2002). There was further evidence of a previously excavated 1 x 1 meter test unit located near the eastern edge of the platform (Figure 46). A PHRI letter report (Rosendahl 2002) indicated that Site 23683 had indeed been subject to burial testing in June of 2002 with negative results. However, the platform's formal attributes appeared so burial like (i.e. similar to other North Kona burial sites) that it was decided to re-evaluate the presence or absence of a burial within.



Figure 45. SIHP Site 23683 view to south.

A 1 x 1 meter test unit (TU-9) was excavated in the approximate center of the platform adjacent to the western edge of the previously excavated PHRI unit (see Figure 46). Excavation of TU-9 revealed that human skeletal remains were indeed present at Site 23683 (Figure 47). The excavation began with the removal of a 1.1-meter thick architectural layer, Layer I, consisting of small to large sized 'a'ā and pāhoehoe cobbles. A single water worn cobble was observed in the northwest corner of the unit at the base of Layer I, but no other cultural material was present. Layer I rested on a dark brown (10YR 3/2) fine silt mixed with 'a'ā gravels, Layer II. Approximately 10 centimeters below the surface of Layer II articulated human skeletal remains (oriented north/south) were encountered in the northeast corner of the unit. Upon discovery of the skeletal remains excavation of TU-9 immediately ceased. The remains, which were not moved from their original position, were stabilized and re-buried with the soil excavated from the unit. The architectural layer was then rebuilt on top of the burial, as close to its original specifications as possible, and DLNR-SHPD was notified of the discovery. As no habitation debris or any other cultural material was found at Site 23683 it is suggested that the platform was built solely as a burial monument subsequent to the interment of the deceased individual.

SIHP Site 23684

Site 23684 consists of a burial platform with an attached enclosure located in the southwest corner of the project area (see Figure 4). The rectangular burial platform measures 7.0 meters long by 3.5 meters wide (Figure 48). It is constructed of neatly stacked 'a'ā cobbles and boulders along its exterior edges (1.1 meters high) with small cobbles paving the roughly level surface (Figure 49). The northwest corner of the platform has collapsed, but otherwise the feature is in fairly stable condition. A single piece of branch coral was found amongst the rubble scatter in the northwest corner. The platform (and enclosure) may have been used for habitation purposes prior to the interment of the deceased individual at the site.

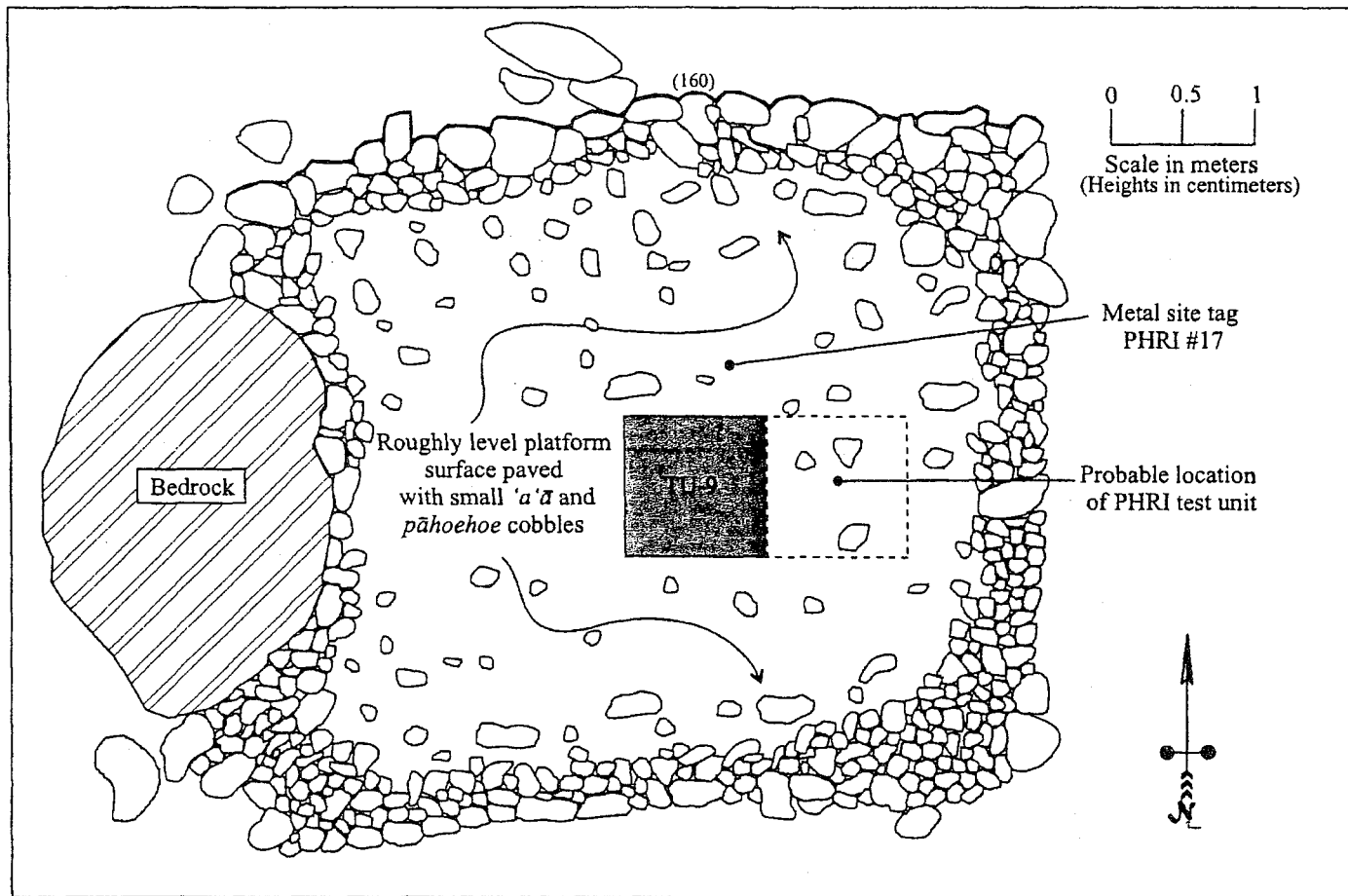


Figure 46. SIHP Site 23683 plan view.

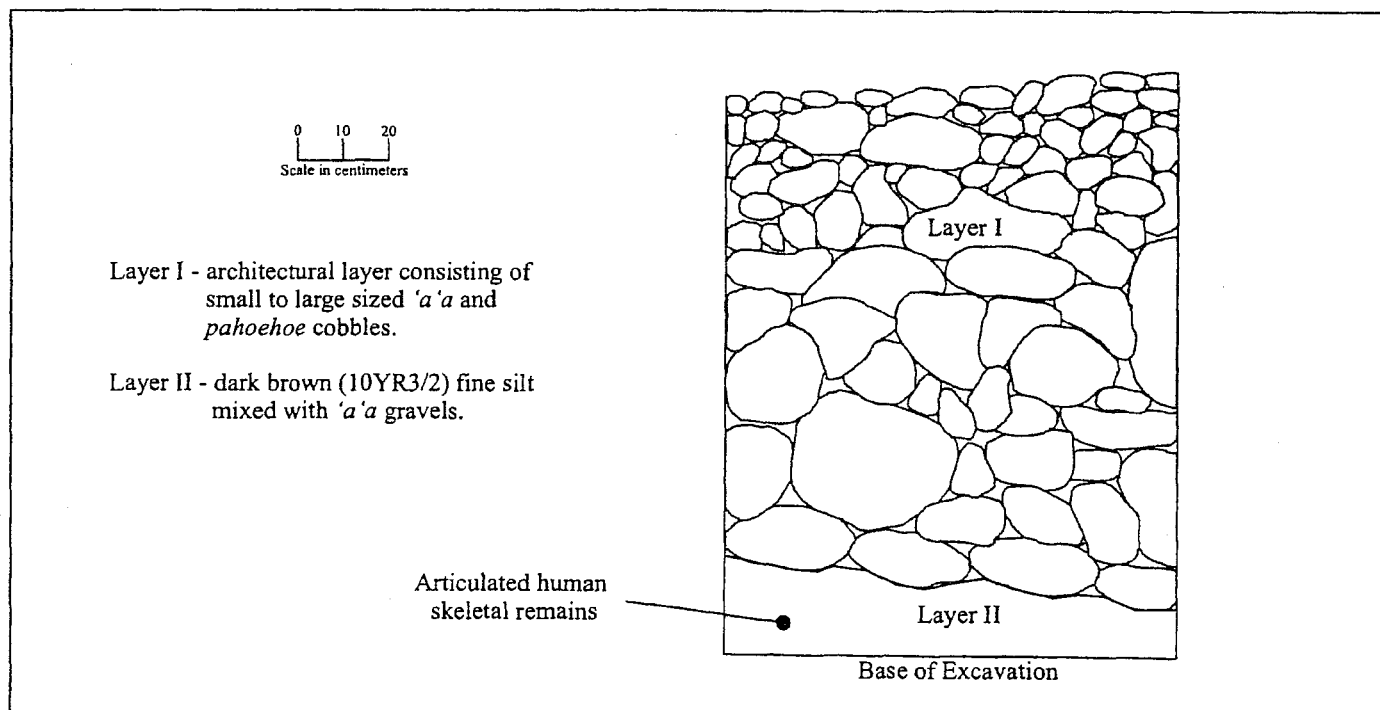


Figure 47. SIHP Site 23683 TU-9 east wall profile.

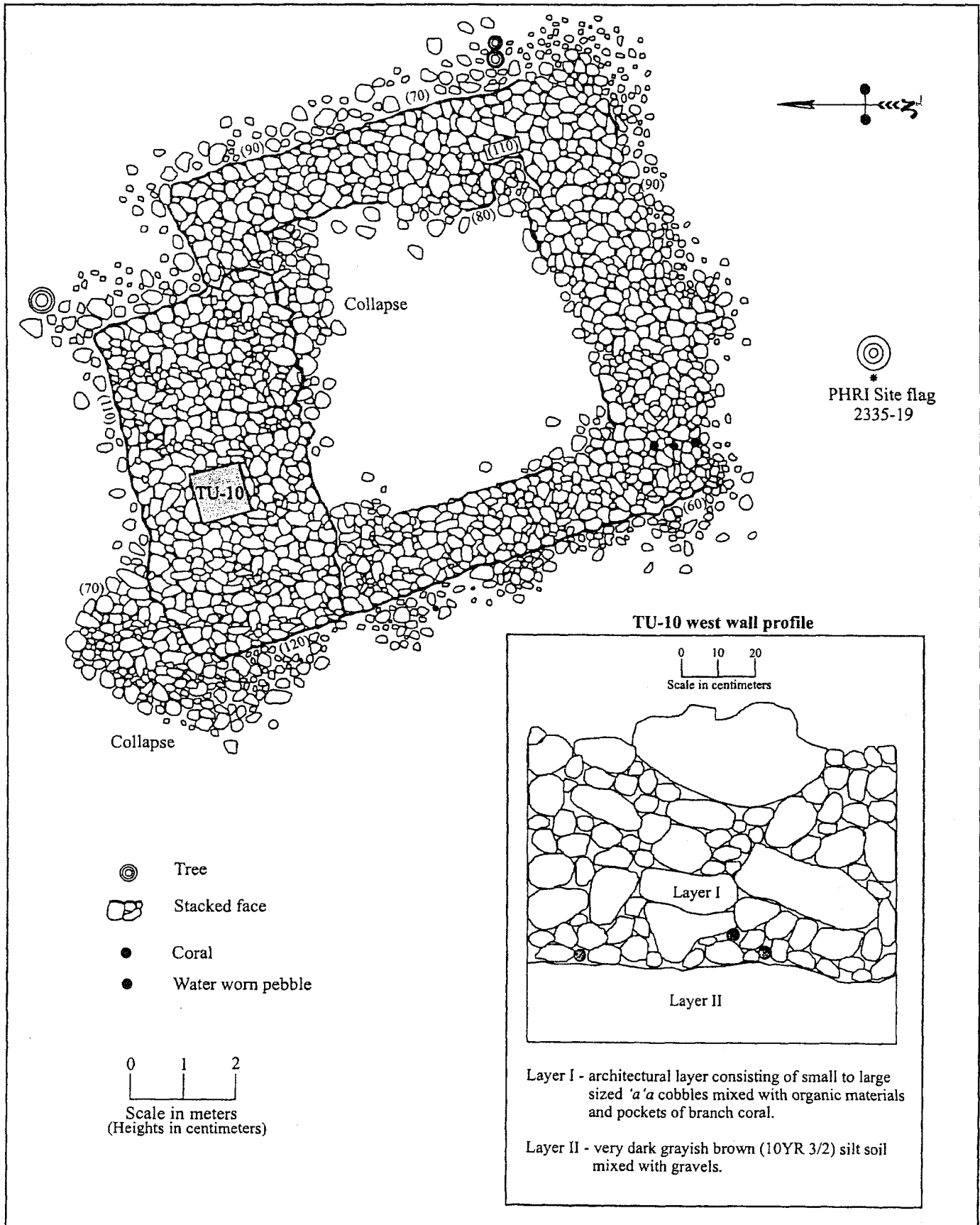


Figure 48. SIHP Site 23684 plan view and TU-10 profile.



Figure 49. SIHP Site 23684 view to north.

A square enclosure protrudes from the south edge of the platform (see Figure 48). The interior space created by the enclosure walls measures 5.6 meters by 5.6 meters, and consists of soil covered by dense vegetation. The enclosure walls measure approximately 1.5 meters wide and stand up to 1.25 meters high along the interior edge and 0.7 meters high along the exterior edge. They are constructed of stacked 'a'ā cobbles and boulders and are relatively intact with the exception of some collapse along the exterior southern edge. Two water worn pebbles and a rounded piece of coral were found on top of the wall in the south west corner of the enclosure. Although no test unit was excavated within the interior of the enclosure, it is possible that it contains burials.

A 1 x 1 meter test unit TU-10 was excavated in the central portion of the platform (see Figure 48). Excavation of TU-10 revealed two stratigraphic layers and revealed the presence of human skeletal remains at Site 23684. The excavation began with the removal of a 70-centimeter thick architectural layer, Layer I, consisting of small to large sized 'a'ā cobbles mixed with organic materials. Pockets of branch coral were also found carefully cached within the architectural layer (Figure 50). Location and placement of the stones and coral were metrically recorded so that they could be returned to their appropriate places upon completion of the unit. Beneath the architectural layer was a very dark grayish brown (10YR 3/2) silt soil mixed with gravels (Layer II). Marine shells, coral and water worn pebbles were also noted in the soil. Five centimeters into the excavation of Layer II articulated human skeletal remains (a cranium) were encountered in the southeast corner of the unit. Upon discovery of the skeletal remains excavation of TU-10 immediately ceased. The remains, which were not moved from their original position, were stabilized and re-buried with the soil excavated from the unit. All artifacts recovered from the screen were returned to their rightful places. The architectural layer was then rebuilt on top of the burial, as close to its original specifications as possible, and DLNR-SHPD was notified of the discovery.



Figure 50. SIHP Site 23684 TU-10 architectural layer (Layer I) showing branch coral view to west.

SIHP Site 23685

Site 23685 consists of a burial feature located in the north-central portion of the project area (see Figure 4). The feature is a platform (3.8 meters long by 3.0 meters wide) constructed of formerly stacked, but now mostly collapsed *pāhoehoe* cobbles and boulders. It abuts a *pāhoehoe* bedrock outcrop along its northern up slope edge (Figure 51). The platform consists of boulders and cobbles forming a roughly circular monument with a slightly rounded top surface paved with small cobbles (Figure 52). The feature stands 0.95 meters above ground surface along its southern edge and 0.4 meters above the bedrock outcrop along its northern edge. Overall, Site 23685 has a very formal appearance.

A 1 x 1 meter test unit (TU-7) was excavated in the central portion of the feature along an upright *pāhoehoe* slab (see Figure 51). Excavation of TU-7 revealed three stratigraphic layers and confirmed the presence of human skeletal remains at Site 23685. The excavation began with the removal of a 30-centimeter thick architectural layer, Layer I, consisting of small to large sized *pāhoehoe* cobbles mixed with some organics. Layer I rested on and was incorporated into Layer II, a 30-centimeter thick brown (10YR 2/2) fine slightly sandy silt mixed with gravels. In the southeast corner of the unit a black (10YR 2/1) silt soil rich with charcoal (Layer III) was noted 14 centimeters below the base of Layer I, the remains of a possible hearth. Screened soil from this hearth feature yielded a small amount of marine shell, sea urchin, and *kukui*. In the southwest corner of the unit, 18 centimeters below the base of Layer I, articulated human skeletal remains, including a skull, mandible, and scapula were discovered under a large *pāhoehoe* boulder capstone. The burial appeared to be an intrusive pit excavated into the cultural soil, indicating that the individual was interred subsequent to the area being used as a habitation feature. Judging by the accumulated non-cultural soil on top of the hearth feature, the architectural layer may have been added as a monument after the individual was interred.

Upon discovery of the skeletal remains excavation of TU-7 immediately ceased. The remains, which were not moved from their original position, were stabilized and re-buried with the soil excavated from the unit. All artifacts recovered from the screen were returned to their rightful places and the capstone was replaced over the burial. The architectural layer was then rebuilt, as close to its original specifications as possible, and DLNR-SHPD was notified of the discovery.



Figure 49. SIHP Site 23684 view to north.

A square enclosure protrudes from the south edge of the platform (see Figure 48). The interior space created by the enclosure walls measures 5.6 meters by 5.6 meters, and consists of soil covered by dense vegetation. The enclosure walls measure approximately 1.5 meters wide and stand up to 1.25 meters high along the interior edge and 0.7 meters high along the exterior edge. They are constructed of stacked 'a'ā cobbles and boulders and are relatively intact with the exception of some collapse along the exterior southern edge. Two water worn pebbles and a rounded piece of coral were found on top of the wall in the south west corner of the enclosure. Although no test unit was excavated within the interior of the enclosure, it is possible that it contains burials.

A 1 x 1 meter test unit TU-10 was excavated in the central portion of the platform (see Figure 48). Excavation of TU-10 revealed two stratigraphic layers and revealed the presence of human skeletal remains at Site 23684. The excavation began with the removal of a 70-centimeter thick architectural layer, Layer I, consisting of small to large sized 'a'ā cobbles mixed with organic materials. Pockets of branch coral were also found carefully cached within the architectural layer (Figure 50). Location and placement of the stones and coral were metrically recorded so that they could be returned to their appropriate places upon completion of the unit. Beneath the architectural layer was a very dark grayish brown (10YR 3/2) silt soil mixed with gravels (Layer II). Marine shells, coral and water worn pebbles were also noted in the soil. Five centimeters into the excavation of Layer II articulated human skeletal remains (a cranium) were encountered in the southeast corner of the unit. Upon discovery of the skeletal remains excavation of TU-10 immediately ceased. The remains, which were not moved from their original position, were stabilized and re-buried with the soil excavated from the unit. All artifacts recovered from the screen were returned to their rightful places. The architectural layer was then rebuilt on top of the burial, as close to its original specifications as possible, and DLNR-SHPD was notified of the discovery.



Figure 50. SIHP Site 23684 TU-10 architectural layer (Layer I) showing branch coral view to west.

SIHP Site 23685

Site 23685 consists of a burial feature located in the north-central portion of the project area (see Figure 4). The feature is a platform (3.8 meters long by 3.0 meters wide) constructed of formerly stacked, but now mostly collapsed *pāhoehoe* cobbles and boulders. It abuts a *pāhoehoe* bedrock outcrop along its northern up slope edge (Figure 51). The platform consists of boulders and cobbles forming a roughly circular monument with a slightly rounded top surface paved with small cobbles (Figure 52). The feature stands 0.95 meters above ground surface along its southern edge and 0.4 meters above the bedrock outcrop along its northern edge. Overall, Site 23685 has a very formal appearance.

A 1 x 1 meter test unit (TU-7) was excavated in the central portion of the feature along an upright *pāhoehoe* slab (see Figure 51). Excavation of TU-7 revealed three stratigraphic layers and confirmed the presence of human skeletal remains at Site 23685. The excavation began with the removal of a 30-centimeter thick architectural layer, Layer I, consisting of small to large sized *pāhoehoe* cobbles mixed with some organics. Layer I rested on and was incorporated into Layer II, a 30-centimeter thick brown (10YR 2/2) fine slightly sandy silt mixed with gravels. In the southeast corner of the unit a black (10YR 2/1) silt soil rich with charcoal (Layer III) was noted 14 centimeters below the base of Layer I, the remains of a possible hearth. Screened soil from this hearth feature yielded a small amount of marine shell, sea urchin, and *kukui*. In the southwest corner of the unit, 18 centimeters below the base of Layer I, articulated human skeletal remains, including a skull, mandible, and scapula were discovered under a large *pāhoehoe* boulder capstone. The burial appeared to be an intrusive pit excavated into the cultural soil, indicating that the individual was interred subsequent to the area being used as a habitation feature. Judging by the accumulated non-cultural soil on top of the hearth feature, the architectural layer may have been added as a monument after the individual was interred.

Upon discovery of the skeletal remains excavation of TU-7 immediately ceased. The remains, which were not moved from their original position, were stabilized and re-buried with the soil excavated from the unit. All artifacts recovered from the screen were returned to their rightful places and the capstone was replaced over the burial. The architectural layer was then rebuilt, as close to its original specifications as possible, and DLNR-SHPD was notified of the discovery.

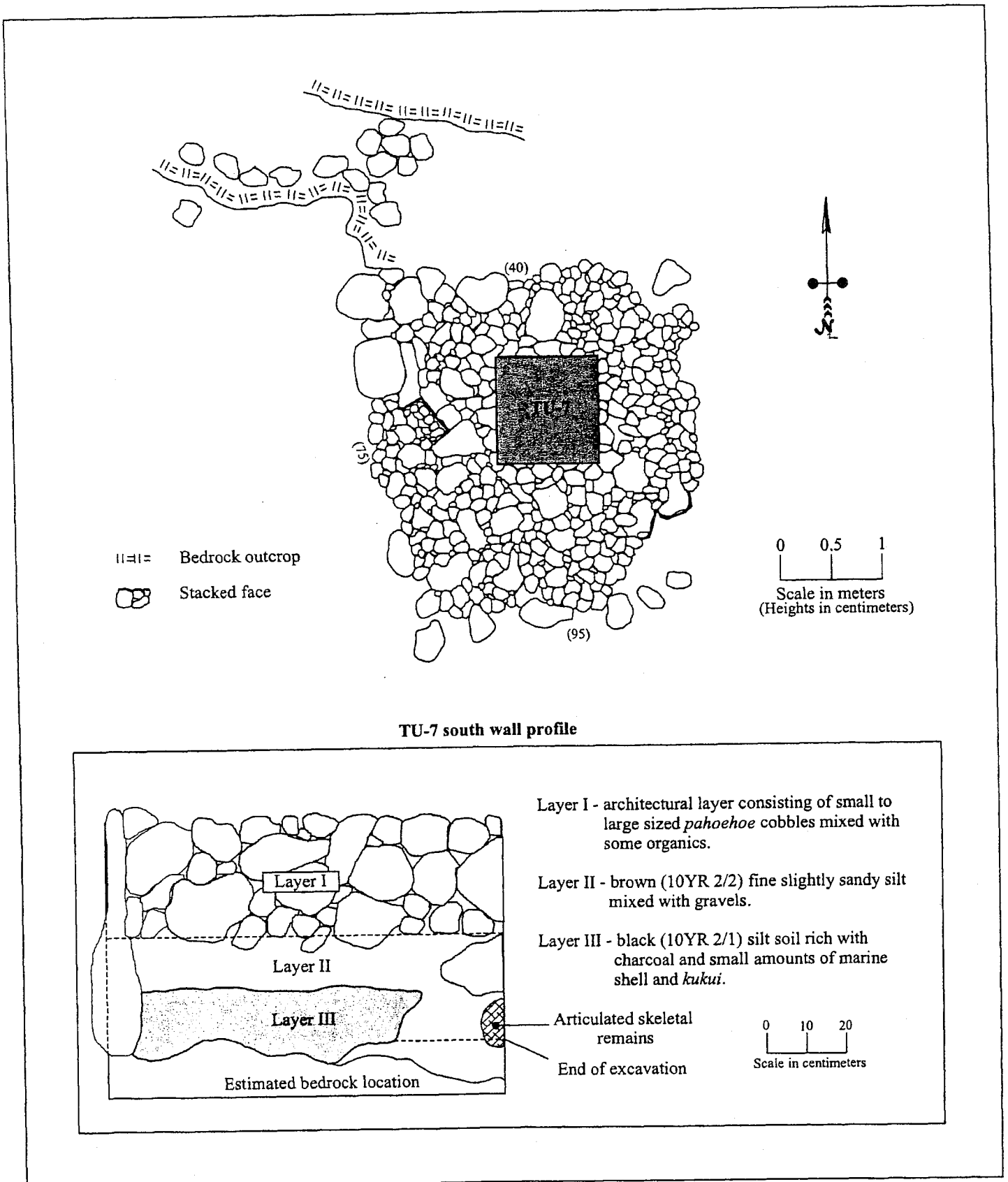


Figure 51. SIHP Site 23685 plan view and TU-7 profile.



Figure 52. SIHP Site 23685 view to east.

Agricultural Sites

SIHP Site 23686

Site 23686 consists of the entire archaeological agricultural landscape contained within the project area. The site encompasses 297 distinct agricultural features including 199 mounds (67.0%), 59 modified outcrops (19.6%), 22 terraces (7.4%), 7 enclosures (2.4%), 7 *kuaiwi* (2.4%), and 3 pavements (1.0%). These features stretch over the entire landscape but, by far, the greatest numbers are concentrated in the southeast quadrant of the project area. This area may have received less historic use, which would point to a higher number of preserved features in this area, rather than increased Precontact use of this portion of the project area. Features in the *makai* third to one half of the project area are constructed primarily of *pāhoehoe* while the *mauka* features are constructed primarily of 'a'ā, as dictated by the readily available source materials. A complete listing of the features at Site 23686 is shown in Table 8, and the locations of the features are shown on Figure 53.

Ten test units were excavated within a diverse range of features at a variety of elevations within Site 23686. All ten test units had one thing in common, they all yielded no cultural material. A description of the test units, along with a generalized discussion of feature types, using specific examples of the agricultural features, is presented below.

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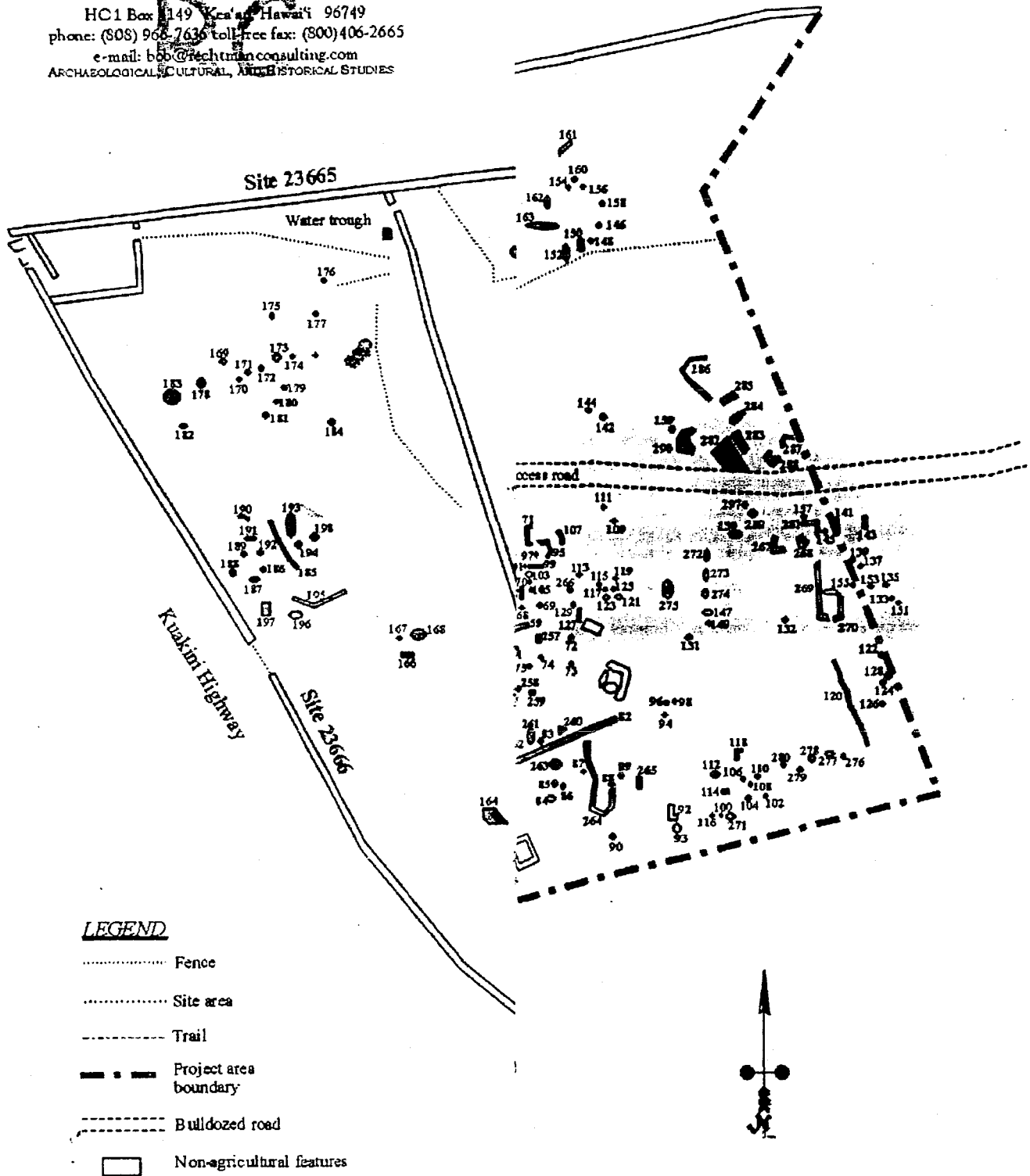


Figure 53. SIHP Site 23686 plan view.

Table 8. SIHP Site 23686 agricultural features.

| <i>Feature #</i> | <i>Feature type</i> | <i>Attribute*</i> | <i>Length (m)</i> | <i>Width (m)</i> | <i>Height (m)</i> | <i>Shape</i> |
|------------------|---------------------|-------------------|-------------------|------------------|-------------------|--------------|
| 1 | Mound | S/P | 5.2 | 2.9 | 0.8 | Irregular |
| 2 | Mound | S | 2.8 | 2.7 | 0.8 | Oval |
| 3 | Modified outcrop | S | 4.3 | 2.2 | 1.8 | Irregular |
| 4 | Modified outcrop | P | 4.6 | 2.9 | 1.1 | Linear |
| 5 | Modified outcrop | P | 5.8 | 4.2 | 0.6 | Irregular |
| 6 | Mound | P | 5.0 | 2.1 | 0.4 | Linear |
| 7 | Modified outcrop | P | 4.4 | 3.6 | 0.6 | Triangular |
| 8 | Mound | P | 2.8 | 2.8 | 0.5 | Circular |
| 9 | Modified outcrop | S | 5.2 | 2.9 | 0.8 | Irregular |
| 10 | Mound | P | 2.0 | 1.5 | 0.5 | Oval |
| 11 | Mound | P | 3.9 | 1.8 | 0.8 | Linear |
| 12 | Mound | P | 3.7 | 2.1 | 0.7 | Linear |
| 13 | Mound | P | 3.8 | 2.7 | 0.9 | Linear |
| 14 | Mound | P | 2.7 | 2.7 | 0.7 | Circular |
| 15 | Mound | P | 3.5 | 3.0 | 1.0 | Oval |
| 16 | Mound | P | 2.3 | 2.3 | 0.8 | Circular |
| 17 | Kuaiwi | P | 38.7 | 2.0 | 0.8 | Linear |
| 18 | Mound | P | 2.7 | 2.4 | 0.7 | Circular |
| 19 | Mound | P | 2.1 | 0.9 | 0.9 | Linear |
| 20 | Mound | P | 3.1 | 1.9 | 0.9 | Oval |
| 21 | Mound | P | 2.7 | 1.6 | 1.0 | Irregular |
| 22 | Mound | P | 3.2 | 2.9 | 0.5 | Rectangular |
| 23 | Mound | P | 3.3 | 0.9 | 0.9 | Linear |
| 24 | Mound | P | 3.8 | 3.0 | 0.9 | Irregular |
| 25 | Mound | P | 3.1 | 2.5 | 0.5 | Irregular |
| 26 | Modified outcrop | P | 4.5 | 3.5 | 0.7 | Irregular |
| 27 | Mound | P | 2.1 | 2.1 | 0.7 | Circular |
| 28 | Mound | P | 3.5 | 2.0 | 0.4 | Irregular |
| 29 | Mound | P | 4.1 | 3.5 | 0.9 | Oval |
| 30 | Mound | P | 10.7 | 2.7 | 0.4 | Linear |
| 31 | Mound | P/S | 2.1 | 1.9 | 0.7 | Irregular |
| 32 | Mound | P | 1.8 | 1.6 | 0.6 | Irregular |
| 33 | Mound | P | 4.0 | 3.6 | 0.8 | Oval |
| 34 | Mound | P | 2.2 | 2.2 | 1.0 | Circular |
| 35 | Enclosure | P | 3.0 | 2.5 | 0.4 | Oval |
| 36 | Modified outcrop | P/S | 2.1 | 1.4 | 1.1 | Irregular |
| 37 | Terrace | P | 4.8 | 3.1 | 0.9 | Linear |
| 38 | Mound | P | 2.0 | 1.7 | 0.5 | Oval |
| 39 | Mound | P | 1.8 | 1.4 | 0.5 | Oval |
| 40 | Mound | P | 2.8 | 2.1 | 0.7 | Oval |
| 41 | Mound | P | 1.4 | 1.4 | 0.4 | Circular |
| 42 | Mound | S | 2.1 | 1.8 | 0.8 | Irregular |
| 43 | Mound | P | 1.9 | 1.8 | 0.5 | Circular |
| 44 | Mound | P | 2.3 | 2.0 | 0.5 | Oval |
| 45 | Mound | P | 2.3 | 1.5 | 0.5 | Oval |
| 46 | Mound | P | 3.2 | 1.0 | 0.4 | Linear |
| 47 | Mound | P | 2.5 | 1.9 | 0.6 | Oval |
| 48 | Mound | P | 2.6 | 2.0 | 0.4 | Oval |
| 49 | Mound | P | 2.3 | 1.9 | 0.5 | Oval |
| 50 | Mound | P | 3.2 | 2.1 | 0.5 | Irregular |
| 51 | Mound | P | 2.7 | 1.8 | 0.5 | Irregular |
| 52 | Mound | P | 1.3 | 1.3 | 0.6 | Circular |

*S=Stacked; P=Piled.

Table 8 continued on next page.

Table 8. Continued.

| <i>Feature #</i> | <i>Feature type</i> | <i>Attribute*</i> | <i>Length (m)</i> | <i>Width (m)</i> | <i>Height (m)</i> | <i>Shape</i> |
|------------------|---------------------|-------------------|-------------------|------------------|-------------------|--------------|
| 53 | Mound | P | 4.4 | 2.9 | 0.6 | Oval |
| 54 | Mound | P | 1.8 | 1.3 | 0.4 | Irregular |
| 55 | Mound | P | 1.9 | 1.3 | 0.4 | Rectangular |
| 56 | Mound | P | 2.5 | 1.7 | 0.7 | Oval |
| 57 | Mound | P | 2.5 | 1.6 | 0.7 | Linear |
| 58 | Mound | P | 4.5 | 3.2 | 0.7 | Irregular |
| 59 | <i>Kuaiwi</i> | P | 18.6 | 1.1 | 0.4 | Linear |
| 60 | Mound | P | 1.4 | 1.4 | 0.6 | Linear |
| 61 | Mound | P | 3.3 | 1.5 | 0.7 | Linear |
| 62 | Mound | P | 2.1 | 2.1 | 0.3 | Circular |
| 63 | Mound | P | 1.7 | 1.0 | 0.5 | Irregular |
| 64 | Mound | P | 3.3 | 1.9 | 0.3 | Oval |
| 65 | Mound | P | 2.1 | 1.5 | 0.2 | Oval |
| 66 | Mound | P | 1.7 | 2.1 | 0.3 | Circular |
| 67 | Mound | P | 3.5 | 0.8 | 0.4 | Linear |
| 68 | Mound | P | 1.8 | 1.0 | 0.5 | Circular |
| 69 | Mound | P | 2.7 | 2.7 | 0.6 | Circular |
| 70 | Mound | P | 2.2 | 1.2 | 0.4 | Oval |
| 71 | Mound | P | 4.8 | 3.3 | 0.4 | Irregular |
| 72 | Mound | P | 1.9 | 1.5 | 0.8 | Oval |
| 73 | Mound | P | 1.9 | 1.9 | 0.4 | Circular |
| 74 | Mound | P | 1.7 | 1.7 | 0.3 | Circular |
| 75 | Mound | P | 2.1 | 1.4 | 0.6 | Oval |
| 76 | Mound | P | 1.3 | 1.3 | 0.5 | Circular |
| 77 | Mound | P | 1.9 | 1.2 | 0.3 | Oval |
| 78 | Mound | P | 1.8 | 1.1 | 0.5 | Oval |
| 79 | Mound | P | 1.4 | 1.4 | 0.4 | Circular |
| 80 | Mound | P | 3.2 | 1.4 | 0.7 | Linear |
| 81 | Terrace | S | 60.0 | 1.0 | 0.5 | Linear |
| 82 | <i>Kuaiwi</i> | S | 108.0 | 2.1 | 0.7 | Linear |
| 83 | Mound | S | 1.8 | 1.3 | 0.5 | Circular |
| 84 | Mound | S | 3.4 | 2.1 | 0.8 | Rectangular |
| 85 | Mound | P | 3.1 | 2.2 | 0.8 | Oval |
| 86 | Mound | P | 3.0 | 1.7 | 0.5 | Oval |
| 87 | Mound | S | 1.8 | 1.1 | 0.4 | Rectangular |
| 88 | Mound | P | 2.1 | 1.1 | 0.4 | Oval |
| 89 | Mound | P | 1.5 | 1.5 | 0.5 | Circular |
| 90 | Mound | P | 3.4 | 1.7 | 0.6 | Linear |
| 91 | Mound | P | 1.9 | 1.9 | 0.6 | Circular |
| 92 | Mound | P | 5.6 | 2.1 | 0.7 | Linear |
| 93 | Mound | P | 3.4 | 1.9 | 0.4 | Rectangular |
| 94 | Mound | P | 1.9 | 1.9 | 0.7 | Circular |
| 95 | Mound | P | 6.4 | 1.8 | 1.4 | Crescent |
| 96 | Mound | P | 2.6 | 1.2 | 0.7 | Irregular |
| 97 | Mound | P | 1.9 | 1.4 | 0.5 | Oval |
| 98 | Mound | P | 2.0 | 1.2 | 0.4 | Rectangular |
| 99 | Mound | P | 4.0 | 1.4 | 0.4 | Linear |
| 100 | Mound | P | 11.9 | 1.9 | 0.5 | Circular |
| 101 | Mound | P | 2.0 | 2.0 | 0.5 | Circular |
| 102 | Mound | P | 1.4 | 1.4 | 0.4 | Circular |
| 103 | Mound | P | 3.4 | 1.7 | 0.5 | Irregular |
| 104 | Mound | P | 1.6 | 1.1 | 0.4 | Oval |

*S=Stacked; P=Piled.

Table 8 continued on next page.

Table 8. Continued.

| <i>Feature #</i> | <i>Feature type</i> | <i>Attribute*</i> | <i>Length (m)</i> | <i>Width (m)</i> | <i>Height (m)</i> | <i>Shape</i> |
|------------------|---------------------|-------------------|-------------------|------------------|-------------------|--------------|
| 105 | Mound | P | 2.4 | 2.4 | 0.4 | Circular |
| 106 | Mound | P | 1.7 | 1.7 | 0.4 | Circular |
| 107 | Terrace | P | 5.2 | 2.4 | 0.3 | Linear |
| 108 | Mound | P | 1.7 | 1.5 | 0.5 | Irregular |
| 109 | Mound | P | 1.7 | 1.2 | 0.5 | Oval |
| 110 | Mound | P | 1.6 | 1.6 | 0.5 | Circular |
| 111 | Mound | P | 1.8 | 1.2 | 0.5 | Oval |
| 112 | Modified outcrop | P | 3.6 | 2.3 | 0.8 | Linear |
| 113 | Mound | P | 2.8 | 1.8 | 0.6 | Linear |
| 114 | Mound | P | 2.2 | 1.5 | 0.3 | Rectangular |
| 115 | Mound | P | 2.1 | 2.0 | 0.5 | Irregular |
| 116 | Mound | P | 2.3 | 1.4 | 0.5 | Oval |
| 117 | Mound | P | 2.4 | 1.2 | 0.3 | Oval |
| 118 | Terrace | P | 7.0 | 0.7 | 0.6 | L-shaped |
| 119 | Mound | P | 2.8 | 1.9 | 0.4 | Oval |
| 120 | Terrace | S | 29.0 | 1.0 | 0.6 | Linear |
| 121 | Mound | P | 2.7 | 1.3 | 0.4 | Oval |
| 122 | Mound | S | 2.8 | 1.7 | 0.6 | Oval |
| 123 | Mound | P | 2.3 | 1.2 | 0.5 | Linear |
| 124 | Mound | P | 2.3 | 1.3 | 0.4 | Oval |
| 125 | Mound | P | 2.0 | 1.4 | 0.5 | Oval |
| 126 | Mound | S | 2.6 | 1.6 | 0.7 | Rectangular |
| 127 | Mound | P | 5.2 | 1.2 | 0.4 | Linear |
| 128 | Mound | P | 3.2 | 2.2 | 0.6 | Oval |
| 129 | Mound | P | 3.5 | 3.2 | 1.0 | Oval |
| 130 | Modified outcrop | S | 4.7 | 2.8 | 0.3 | Linear |
| 131 | Mound | S | 3.4 | 2.3 | 0.5 | Triangular |
| 132 | Mound | P | 1.8 | 1.3 | 0.8 | Oval |
| 133 | Modified outcrop | P | 2.2 | 2.0 | 0.7 | Irregular |
| 134 | Mound | P | 1.9 | 1.3 | 0.4 | Oval |
| 135 | Modified outcrop | P | 1.8 | 1.1 | 0.6 | Irregular |
| 136 | Mound | P | 2.3 | 1.9 | 0.6 | Irregular |
| 137 | Modified outcrop | P | 2.8 | 2.0 | 0.8 | Rectangular |
| 138 | Mound | P | 1.3 | 1.3 | 0.3 | Circular |
| 139 | Modified outcrop | P | 1.5 | 1.1 | 0.7 | Oval |
| 140 | Mound | S | 2.3 | 1.8 | 0.7 | Irregular |
| 141 | Terrace | P | 4.7 | 2.5 | 1.0 | Rectangular |
| 142 | Mound | S | 1.3 | 0.9 | 0.9 | Oval |
| 143 | Terrace | P | 3.6 | 1.8 | 0.8 | Rectangular |
| 144 | Mound | P | 2.6 | 2.1 | 0.8 | Oval |
| 145 | Modified outcrop | P | 1.8 | 2.1 | 0.7 | Oval |
| 146 | Mound | P | 2.6 | 2.2 | 0.6 | Oval |
| 147 | Mound | P | 3.7 | 1.6 | 0.5 | Linear |
| 148 | Mound | P | 2.3 | 1.2 | 0.6 | Oval |
| 149 | Mound | P | 2.0 | 2.0 | 0.7 | Circular |
| 150 | Mound | P | 4.4 | 2.5 | 0.6 | Linear |
| 151 | Mound | P | 1.4 | 1.4 | 0.3 | Circular |
| 152 | Mound | P | 4.9 | 3.2 | 0.7 | Linear |
| 153 | Mound | P | 1.4 | 0.8 | 0.3 | Oval |
| 154 | Mound | P | 3.6 | 2.3 | 0.7 | Linear |
| 155 | Mound | P | 1.5 | 1.0 | 0.4 | Triangular |
| 156 | Mound | P | 3.2 | 2.1 | 0.6 | Oval |

*S=Stacked; P=Piled.

Table 8 continued on next page.

Table 8. Continued.

| Feature # | Feature type | Attribute* | Length (m) | Width (m) | Height (m) | Shape |
|-----------|------------------|------------|------------|-----------|------------|-------------|
| 157 | Mound | P | 1.8 | 1.5 | 0.5 | Circular |
| 158 | Mound | S | 2.5 | 1.6 | 0.7 | Oval |
| 159 | Mound | P | 1.5 | 1.2 | 0.7 | Oval |
| 160 | Mound | S | 1.8 | 1.3 | 0.6 | Irregular |
| 161 | Modified outcrop | S/P | 6.0 | 3.0 | 1.4 | Rectangular |
| 162 | Mound | P | 1.3 | 1.3 | 0.6 | Circular |
| 163 | Modified outcrop | P | 12.2 | 1.1 | 1.1 | Irregular |
| 164 | Modified outcrop | P | 5.8 | 4.8 | 1.9 | Rectangular |
| 165 | Mound | P | 1.8 | 1.8 | 0.4 | Irregular |
| 166 | Mound | P | 3.2 | 1.7 | 0.8 | Linear |
| 167 | Mound | P | 1.3 | 1.3 | 0.4 | Circular |
| 168 | Mound | S/P | 5.7 | 3.9 | 0.9 | Oval |
| 169 | Mound | P | 2.2 | 1.6 | 0.7 | Oval |
| 170 | Mound | P | 1.3 | 1.3 | 0.5 | Circular |
| 171 | Mound | P | 2.2 | 1.7 | 0.8 | Irregular |
| 172 | Mound | P | 2.3 | 1.8 | 0.5 | Oval |
| 173 | Mound | P | 3.0 | 2.2 | 0.9 | Oval |
| 174 | Mound | P | 1.8 | 1.8 | 0.3 | Circular |
| 175 | Modified outcrop | P | 2.3 | 2.1 | 1.0 | Irregular |
| 176 | Mound | P | 1.1 | 1.0 | 0.5 | Circular |
| 177 | Modified outcrop | P | 2.9 | 2.6 | 0.6 | Crescent |
| 178 | Mound | P | 2.6 | 2.1 | 0.5 | Irregular |
| 179 | Modified outcrop | P | 1.4 | 2.3 | 0.4 | Irregular |
| 180 | Mound | P | 1.8 | 1.8 | 0.6 | Circular |
| 181 | Mound | P | 2.8 | 1.7 | 0.8 | Irregular |
| 182 | Mound | P | 2.2 | 2.2 | 0.5 | Circular |
| 183 | Modified outcrop | S | 6.7 | 5.3 | 0.8 | Irregular |
| 184 | Mound | P | 2.0 | 2.0 | 0.4 | Circular |
| 185 | Terrace | P | 17.0 | 0.6 | 0.9 | Linear |
| 186 | Mound | S/P | 2.6 | 1.4 | 0.9 | Oval |
| 187 | Mound | S/P | 3.0 | 1.7 | 0.8 | Rectangular |
| 188 | Modified outcrop | P | 3.5 | 2.7 | 1.0 | Irregular |
| 189 | Mound | P | 2.4 | 2.2 | 0.7 | Irregular |
| 190 | Modified outcrop | S/P | 3.9 | 2.3 | 0.9 | Linear |
| 191 | Modified outcrop | P | 4.4 | 2.1 | 0.8 | Linear |
| 192 | Modified outcrop | S | 2.5 | 1.8 | 0.8 | Oval |
| 193 | Modified outcrop | P | 9.2 | 3.1 | 1.1 | Irregular |
| 194 | Mound | P | 3.0 | 2.1 | 0.6 | Oval |
| 195 | <i>Kuaiwi</i> | S/P | 16.0 | 1.0 | 0.5 | Linear |
| 196 | Modified outcrop | P | 5.2 | 2.8 | 0.8 | Linear |
| 197 | Mound | S/P | 6.0 | 2.3 | 1.1 | Rectangular |
| 198 | Modified outcrop | P | 3.1 | 2.7 | 0.6 | Irregular |
| 199 | Modified outcrop | P | 6.5 | 4.8 | 0.7 | L-shaped |
| 200 | Terrace | P | 7.2 | 2.1 | 0.8 | Crescent |
| 201 | Modified outcrop | S/P | 6.2 | 3.8 | 0.7 | Oval |
| 202 | Mound | P | 2.1 | 2.1 | 0.6 | Circular |
| 203 | Mound | P | 3.4 | 2.8 | 0.8 | Circular |
| 204 | Modified outcrop | S/P | 3.4 | 2.7 | 0.7 | Irregular |
| 205 | Modified outcrop | P | 3.0 | 2.3 | 0.6 | Irregular |
| 206 | Mound | S | 2.3 | 2.3 | 0.6 | Circular |
| 207 | Mound | S | 3.2 | 3.2 | 0.8 | Irregular |
| 208 | Modified outcrop | P | 2.7 | 0.9 | 0.4 | Linear |

*S=Stacked; P=Filed.

Table 8 continued on next page.

Table 8. Continued.

| <i>Feature #</i> | <i>Feature type</i> | <i>Attribute*</i> | <i>Length (m)</i> | <i>Width (m)</i> | <i>Height (m)</i> | <i>Shape</i> |
|------------------|---------------------|-------------------|-------------------|------------------|-------------------|--------------|
| 209 | Modified outcrop | P | 3.7 | 2.6 | 0.6 | Oval |
| 210 | Modified outcrop | P | 5.2 | 3.4 | 0.9 | Irregular |
| 211 | Mound | P | 3.6 | 2.8 | 0.8 | Irregular |
| 212 | Terrace | P | 5.2 | 1.4 | 0.5 | Linear |
| 213 | <i>Kuaiwi</i> | P | 50.2 | 1.8 | 0.7 | Linear |
| 214 | Mound | S/P | 2.6 | 2.1 | 0.9 | Oval |
| 215 | Modified outcrop | S/P | 10.3 | 3.9 | 1.7 | Irregular |
| 216 | Mound | P | 2.7 | 2.4 | 0.2 | Circular |
| 217 | Modified outcrop | S | 1.6 | 0.4 | 0.4 | Linear |
| 218 | Modified outcrop | P | 2.0 | 1.8 | 0.7 | Oval |
| 219 | Modified outcrop | P | 3.0 | 1.8 | 1.0 | Irregular |
| 220 | Modified outcrop | S | 1.8 | 1.0 | 1.5 | Crescent |
| 221 | Mound | S/P | 3.5 | 1.9 | 1.1 | Irregular |
| 222 | Mound | P | 3.6 | 2.7 | 1.0 | Rectangular |
| 223 | Mound | P | 2.5 | 2.0 | 0.8 | Irregular |
| 224 | Mound | S/P | 3.3 | 1.9 | 0.9 | Rectangular |
| 225 | Mound | P | 1.4 | 1.4 | 0.7 | Circular |
| 226 | Mound | P | 2.0 | 2.0 | 0.6 | Circular |
| 227 | Mound | P | 4.1 | 3.7 | 0.8 | Irregular |
| 228 | Mound | P | 2.3 | 2.1 | 1.0 | Oval |
| 229 | Mound | S/P | 4.3 | 2.0 | 0.9 | Rectangular |
| 230 | Modified outcrop | P | 3.4 | 2.3 | 0.9 | Oval |
| 231 | Modified outcrop | P | 2.3 | 2.0 | 0.7 | Irregular |
| 232 | Modified outcrop | P | 1.9 | 1.7 | 0.9 | Oval |
| 233 | Mound | P | 2.3 | 1.7 | 0.8 | Irregular |
| 234 | Mound | S/P | 2.0 | 1.7 | 1.0 | Irregular |
| 235 | Modified outcrop | S/P | 3.9 | 1.9 | 1.0 | Irregular |
| 236 | Modified outcrop | S/P | 2.1 | 1.6 | 1.1 | Irregular |
| 237 | Terrace | S/P | 6.0 | 4.0 | 2.1 | Rectangular |
| 238 | Modified outcrop | P | 3.4 | 2.8 | 1.0 | L-shaped |
| 239 | Modified outcrop | S/P | 4.0 | 2.5 | 0.7 | Rectangular |
| 240 | Mound | P | 2.5 | 2.1 | 0.8 | Circular |
| 241 | Mound | P | 4.4 | 3.1 | 1.0 | Irregular |
| 242 | Modified outcrop | S/P | 3.4 | 2.2 | 0.8 | Irregular |
| 243 | Terrace | S/P | 11.8 | 7.9 | 0.9 | Crescent |
| 244 | Terrace | S/P | 9.0 | 5.6 | 0.7 | Linear |
| 245 | Modified outcrop | S/P | 13.9 | 7.8 | 1.7 | Irregular |
| 246 | Mound | S/P | 2.2 | 1.0 | 0.6 | Irregular |
| 247 | Terrace | S/P | 11.0 | 2.6 | 0.9 | Linear |
| 248 | Modified outcrop | P | 3.5 | 1.9 | 0.7 | Irregular |
| 249 | Mound | P | 4.1 | 2.3 | 0.6 | Oval |
| 250 | Pavement | P | 2.5 | 1.8 | 0.5 | Rectangular |
| 251 | Enclosure | P | 12.5 | 11.5 | 0.6 | Rectangular |
| 252 | <i>Kuaiwi</i> | P | 38.0 | 2.3 | 0.8 | Linear |
| 253 | Terrace | S/P | 15.0 | 2.5 | 0.7 | Linear |
| 254 | Terrace | S/P | 20.0 | 2.7 | 0.8 | Linear |
| 255 | Mound | P | 9.5 | 2.8 | 0.8 | Linear |
| 256 | Mound | P | 1.5 | 1.4 | 0.5 | Circular |
| 257 | Mound | S/P | 2.9 | 2.1 | 0.6 | Rectangular |
| 258 | Mound | P | 1.2 | 1.0 | 0.5 | Oval |
| 259 | Mound | P | 2.8 | 1.2 | 0.6 | Rectangular |
| 260 | Mound | S | 3.3 | 2.3 | 1.2 | Triangular |

*S=Stacked; P=Piled.

Table 8 continued on next page.

Table 8. Continued.

| Feature # | Feature type | Attribute* | Length (m) | Width (m) | Height (m) | Shape |
|-----------|------------------|------------|------------|-----------|------------|-------------|
| 261 | Mound | S | 5.1 | 3.0 | 1.2 | Oval |
| 262 | Mound | S | 3.4 | 1.7 | 1.2 | Irregular |
| 263 | Mound | S/P | 4.2 | 2.2 | 1.4 | Oval |
| 264 | Terrace | S/P | 36.0 | 2.1 | 0.7 | Linear |
| 265 | Terrace | P | 5.2 | 1.4 | 0.4 | Linear |
| 266 | Mound | S | 2.4 | 1.2 | 0.7 | Rectangular |
| 267 | Terrace | S/P | 5.0 | 5.0 | 1.0 | L-shaped |
| 268 | Modified outcrop | P | 3.1 | 2.1 | 0.9 | Irregular |
| 269 | Terrace | S/P | 22.5 | 1.8 | 0.8 | Linear |
| 270 | Enclosure | S/P | 11.0 | 9.5 | 0.9 | U-shaped |
| 271 | Mound | S | 2.9 | 2.5 | 0.9 | Rectangular |
| 272 | Modified outcrop | P | 4.6 | 4.5 | 0.7 | Oval |
| 273 | Modified outcrop | P | 5.5 | 3.0 | 1.1 | Irregular |
| 274 | Mound | P | 4.0 | 2.5 | 1.0 | Oval |
| 275 | Modified outcrop | S/P | 5.0 | 4.5 | 1.2 | Oval |
| 276 | Mound | P | 2.7 | 1.4 | 0.8 | Linear |
| 277 | Mound | S/P | 5.0 | 2.7 | 0.9 | Oval |
| 278 | Mound | P | 3.2 | 2.4 | 0.9 | Oval |
| 279 | Enclosure | S/P | 3.5 | 2.6 | 0.7 | Oval |
| 280 | Mound | P | 2.2 | 2.2 | 0.6 | Circular |
| 281 | Modified outcrop | P | 6.4 | 4.3 | 1.0 | L-shaped |
| 282 | Pavement | P | 12.5 | 8.5 | 0.2 | Rectangular |
| 283 | Mound | P | 7.4 | 1.7 | 0.8 | Linear |
| 284 | Mound | P | 4.5 | 2.9 | 0.7 | Irregular |
| 285 | Mound | S/P | 5.0 | 1.3 | 0.8 | Linear |
| 286 | Terrace | P | 16.0 | 1.8 | 0.6 | Irregular |
| 287 | Modified outcrop | S/P | 3.5 | 1.7 | 0.9 | Irregular |
| 288 | Modified outcrop | P | 3.0 | 1.1 | 0.8 | Crescent |
| 289 | Pavement | P | 9.0 | 5.5 | 0.2 | Irregular |
| 290 | Terrace | S/P | 11.0 | 6.5 | 0.8 | Crescent |
| 291 | <i>Kuaiwi</i> | P | 78.0 | 3.5 | 0.3 | Linear |
| 292 | Modified outcrop | P | 5.6 | 4.7 | 0.9 | Rectangular |
| 293 | Enclosure | P | 1.9 | 1.9 | 0.5 | Square |
| 294 | Enclosure | P | 2.2 | 2.2 | 0.6 | Square |
| 295 | Enclosure | P | 5.5 | 3.4 | 0.5 | U-shaped |
| 296 | Mound | P | 2.3 | 1.3 | 0.7 | Oval |
| 297 | Modified outcrop | S/P | 4.5 | 4.0 | 0.7 | Oval |

*S=Stacked; P=Piled.

End of Table 8.

Mounds

A mound is collection of stones with an irregular surface. Mounds range considerably in size, shape, method of construction, and type of stone used. They are constructed from as few as four stones or as many as the topography and the effort of the individual(s) constructing them allow. The shape of a mound (i.e. oval, round, linear, curvilinear, square, crescent, rectangular, or irregular) varies considerably depending on the terrain and the individual (purpose of construction). However, all mounds, as dictated by gravity, have sloped sides. Mounds are either piled or stacked, or a combination of both. Stacked mounds usually contain a fill of piled stones with an outside layer stacked around the edges. The type of stone used in mound construction is a reflection of the immediately available source material. The size of stone used is also a function of material availability.

This type of feature has a different function depending on its temporal and spatial associations. Mounds can be clearing features, planting features, or landscape markers. The functional distinction between types of mounds is contextual rather than formal. Mounds found in clusters on barren lava are considered to be planting features. Mounds found in clusters around rock-free areas of plentiful soil are considered to be clearing features. Testing of mounds during the data recovery phase of this project will address the question of formal variation between presumed planting and clearing features.

Nearly two hundred mounds were recorded within the project area (see Table 8 and Figure 53). The mounds varied immensely in size, shape, and formal attributes. Five mounds (Features 187, 189, 262, 266, 271), ones that appeared to have the most time invested in their construction, underwent subsurface testing in the form of 1 x 1 meter test units. The results are presented below.

Feature 187 is a partially stacked rectangular shaped *pāhoehoe* cobble mound located in the extreme western end of the project area. The mound rests on exposed bedrock. Its edges are mostly stacked, but have collapsed in small sections (Figure 54). Feature 187 measures 3.0 meters long by 1.7 meters wide and 0.8 meters tall. Its surface slopes slightly to the north following the natural bedrock contours.



Figure 54. SIHP Site 23686 Feature 187 view to southeast.

A 1 x 1 meter test unit (TU-1) was excavated into the north-central portion of Feature 187 (Figure 55). Excavation of TU-1 revealed a single architectural layer (Layer I) resting on bedrock. Layer I consisted of small to medium sized *pāhoehoe* cobbles mixed with some organics. This layer rested directly on bedrock and at the base of the layer a single piece of a water rounded coral was discovered. Along the unit's northern edge, a small amount of brown (10YR 4/3) sandy silt (less than 1 centimeter thick) had accumulated subsequent to the feature's construction. No cultural material (with the exception of the coral fragment) was recovered from TU-1 and the excavation terminated at bedrock (Figure 56).

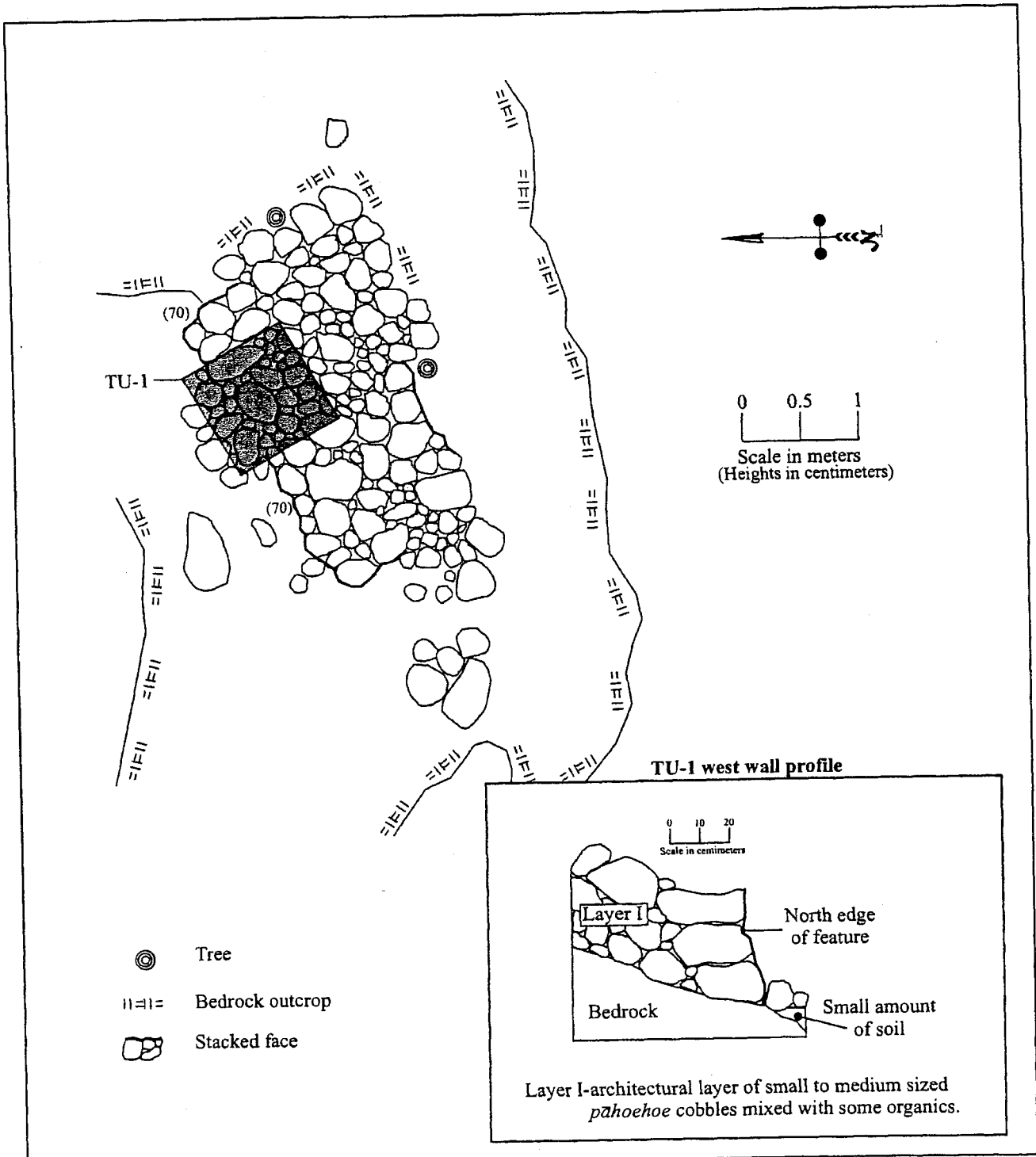


Figure 55. SIHP Site 23686 Feature 187 plan view and TU-1 profile.



Figure 56. SIHP Site 23686 Feature 187 TU-1 base of excavation view to southwest.

Feature 189 is a piled irregular shaped *pāhoehoe* cobbles mound located in the extreme western end of the project area (see Figure 53). The mound rests on exposed bedrock and may have been formerly stacked around its edges, but is now largely collapsed (Figure 57). In its current condition Feature 189 measures 2.4 meters long by 2.2 meters wide and 0.7 meters tall. A small rounded piece of coral was found resting on the feature's southwest corner (Figure 58).



Figure 57. SIHP Site 23686 Feature 189 view to northeast.

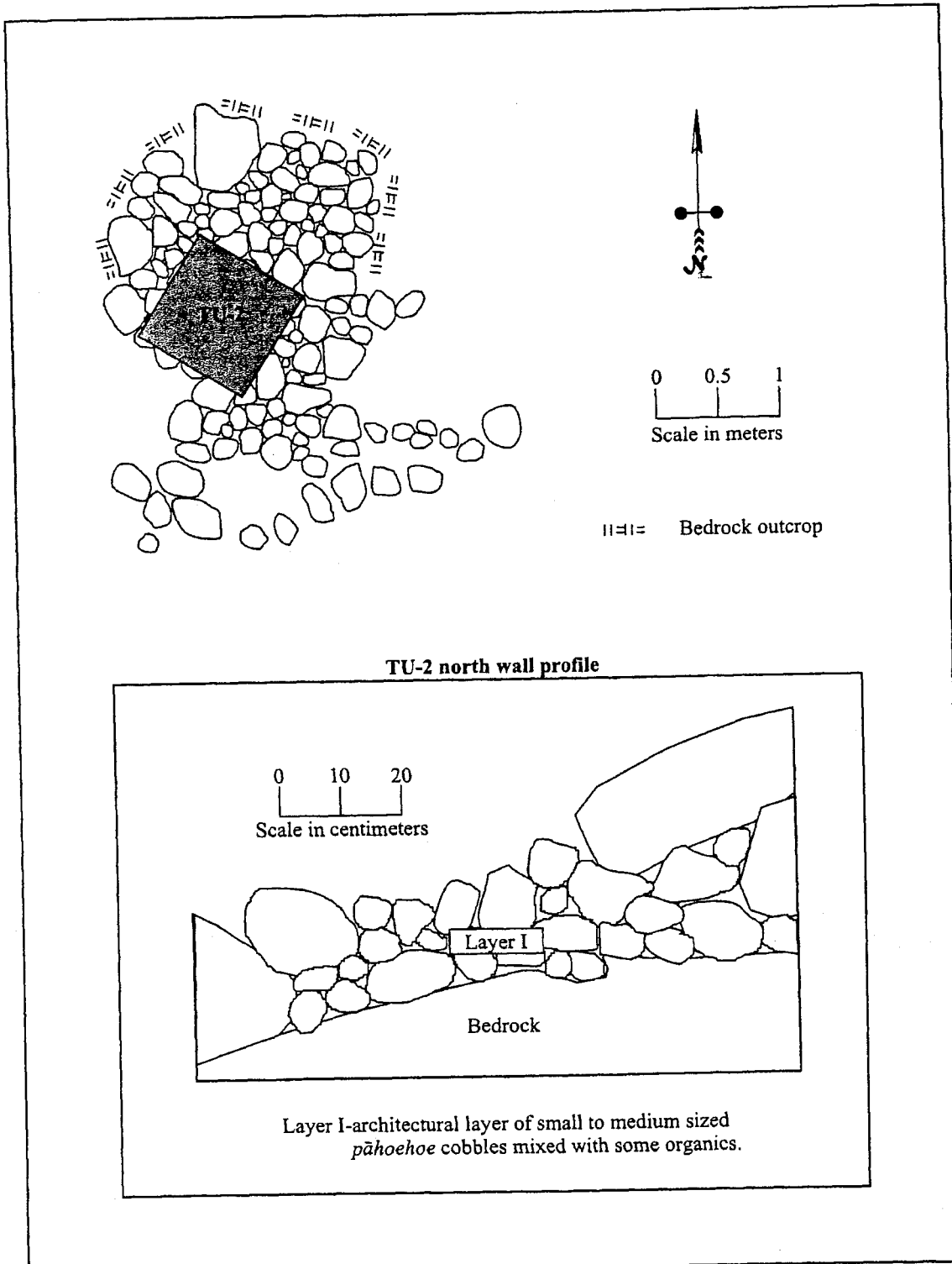


Figure 58. SIHP Site 23686 Feature 189 plan view and TU-2 profile.

A 1 x 1 meter test unit (TU-2) was excavated into the central portion of Feature 189 (see Figure 58). Excavation of TU-2 revealed a single architectural layer (Layer I) resting on bedrock. Layer I consisted of small to medium sized *pāhoehoe* cobbles mixed with some organics. This layer rested directly on bedrock. However, along its southwestern edge, in a bedrock depression (Figure 59), a small amount of brown (7.5YR 3/4) fine silt (less than 1 centimeter thick) had accumulated subsequent to the feature's construction. No cultural material of any kind was recovered from TU-2 and the excavation terminated at bedrock.



Figure 59. SIHP Site 23686 Feature 189 TU-2 base of excavation view to northeast.

Feature 262 is an irregular shaped mound constructed of stacked 'a'a cobbles located in the southeast quadrant of the project area along the north side of Feature 82, a *kuaiwi* (see Figure 53). The mound measures 3.4 meter long by 1.7 meters wide and up to 1.25 meters tall (Figure 60). It has a squared north side and a slightly rounded south side with a rounded top surface (Figure 61). Feature 262 rests on a soil ground surface covered by dense vegetation.

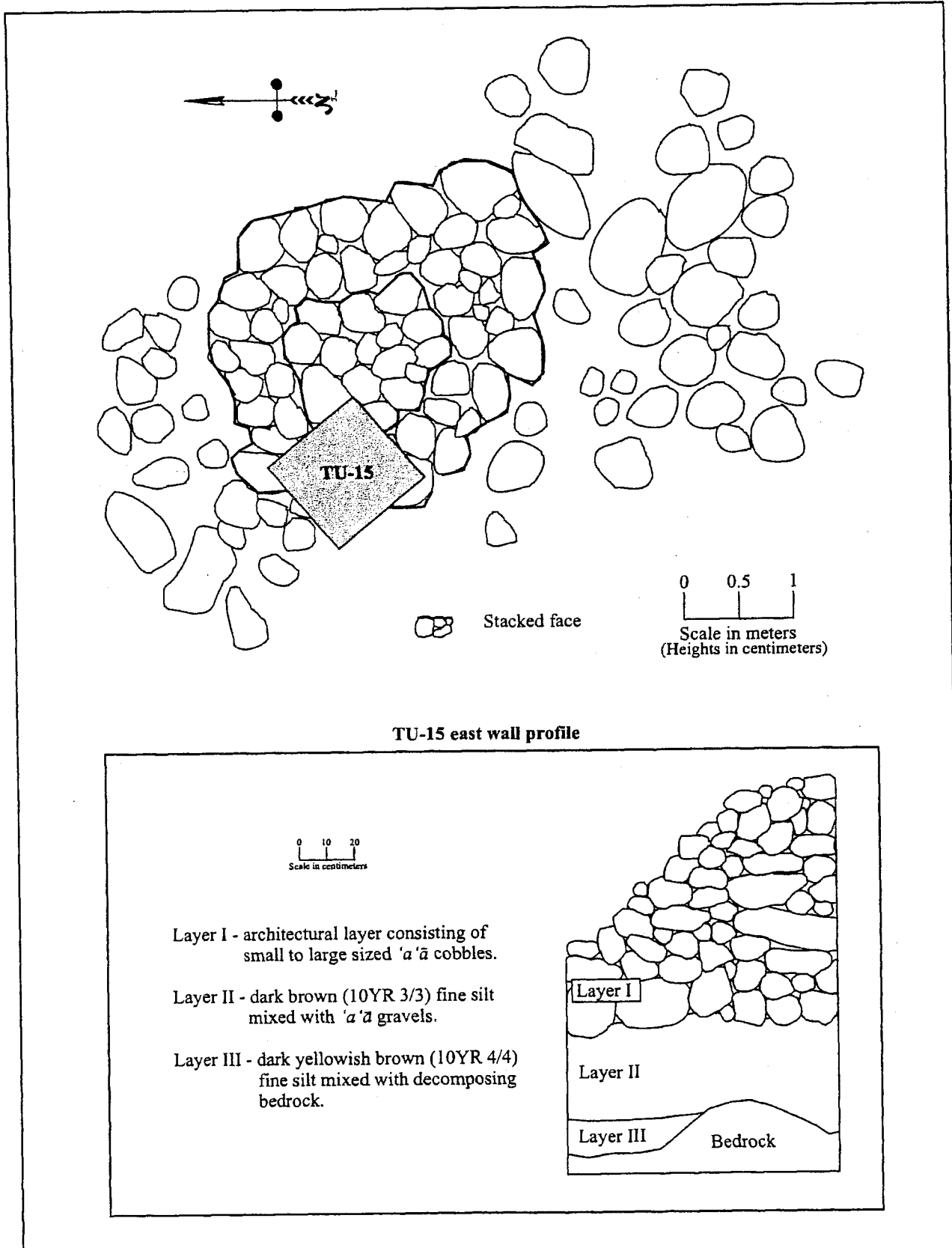


Figure 60. SIHP Site 23686 Feature 262 plan view and TU-15 profile.



Figure 61. SIHP Site 23686 Feature 262 view to east.

A 1 x 1 meter test unit TU-15 was excavated in the northwest corner of Feature 262 (see Figure 60). Excavation of TU-15 revealed a three-layer stratigraphic profile. Layer I, the 92-centimeter thick architectural layer, consisted of small to large sized 'a'ā cobbles stacked along the exterior edges of the feature and piled within the interior. Layer I rested on Layer II, a 49-centimeter thick dark brown (10YR 3/3) fine silt mixed with 'a'ā gravels. Layer II rested on bedrock in the southern portion of TU-15 and Layer III in the northern portion. Layer III consisted of dark yellowish brown (10YR 4/4) fine silt mixed with decomposing bedrock 12 centimeters thick. Excavation of TU-15 terminated at bedrock 147 centimeters below the feature's surface. No cultural material was recovered from TU-15.

Feature 266 is a stacked 'a'ā cobble mound located in the southeast quadrant of the project area amongst a number of less formal mounds (see Figure 53). This mound, which is roughly rectangular in shape, measures 2.4 meters long by 1.2 meters wide and stands up to 0.7 meters above the surrounding soil ground surface (Figure 62). The west end of the feature is neatly stacked and an 'a'ā slab (70 centimeters long) had been placed upright at the eastern end of the feature (Figure 63).

A 1 x 1 meter test unit (TU-19) was excavated within the center of Feature 266. Excavation of TU-19 revealed a two-layer stratigraphic profile resting on bedrock. The upper most layer (Layer I), the architectural layer, consisted of small to large sized 'a'ā cobbles mixed with organics. The 48-centimeter thick Layer I was roughly size sorted with large cobbles on top and smaller cobbles beneath resting on and incorporated into Layer II (Figure 64). Layer II consisted of a dark grayish brown (10YR 3/2) silt containing approximately 50 percent gravel. This 19-centimeter thick layer rested on undulating bedrock. Excavation of TU-19 terminated at bedrock 67 centimeters below the feature's surface. No cultural material was recovered from TU-19.

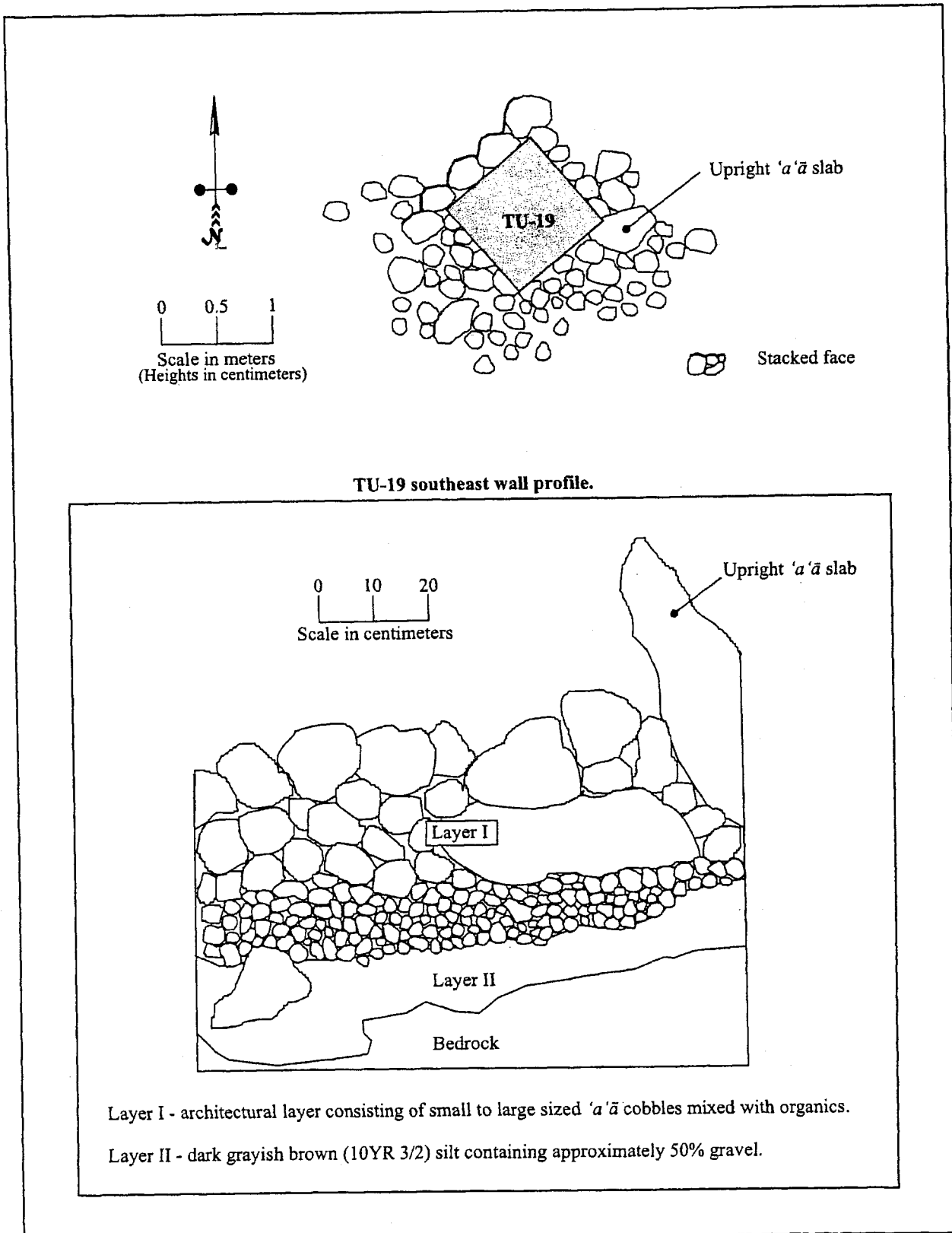


Figure 62. SIHP Site 23686 Feature 266 plan view and TU-19 profile.

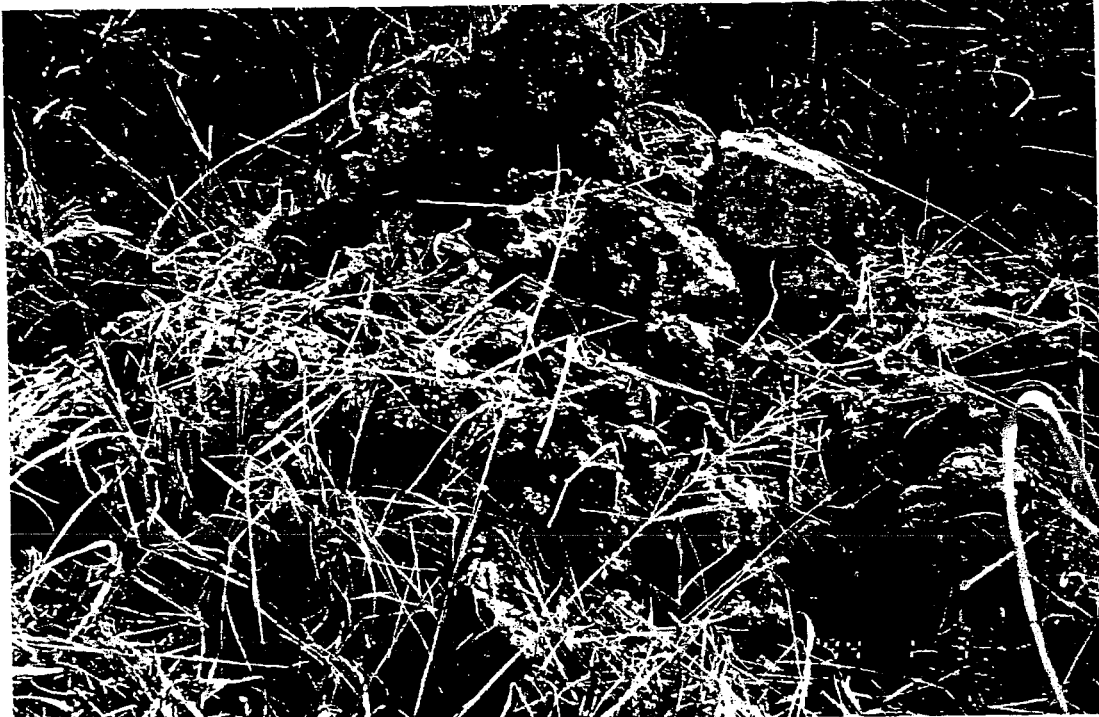


Figure 63. SIHP Site 23686 Feature 266 view to east.



Figure 64. SIHP Site 23686 Feature 266 TU-19 base of excavation view to northeast.

Feature 271 is a stacked 'a'ā cobble mound located in the southeast quadrant of the project area along the southern property boundary amongst a number of less formal mounds (see Figure 53). The mound, which is roughly rectangular in shape, measures 2.9 meters long by 2.5 meters wide and stands up to 0.9 meters above the surrounding soil ground surface (Figure 65). An aluminum site tag with the inscription "PHRI Site T2235-10" was found on the surface of the feature and there was evidence that a 1 x 1 meter test unit had been previously excavated at Feature 271. A fragment of water-rounded coral was discovered along the eastern edge of the mound and three coconut husks were resting on its northeast corner.



Figure 65. SIHP Site 23686 Feature 271 view to southeast.

A 1 x 1 meter test unit (TU-21) was excavated in the northeast corner of Feature 271 adjacent to the north edge of the previously excavated PHRI test unit (Figure 66). Excavation of TU-21 revealed a single architectural layer (Layer I) resting on bedrock. Layer I consisted of small to large sized 'a'ā cobbles mixed with organics 61 centimeters thick resting on bedrock. A small amount of soil (approximately 2 centimeters thick) had accumulated in the southwest corner of the unit on top of the bedrock subsequent to the construction of the feature. Excavation of TU-21 terminated at bedrock 61 centimeters below the feature's surface and no cultural material was recovered from Feature 271.

Modified Outcrops

A modified outcrop is a natural bedrock formation with an associated collection of stones placed against and supported by it. Unlike a mound, the stone collection is not freestanding and depends on the bedrock formation for support. The type and size of the stones used is a function of the immediately available source materials. The stones are either stacked, piled, or a combination of both, but the size of the stone collection must be significantly smaller than the size of the bedrock formation, otherwise the feature is considered a mound. The surface of a modified outcrop is always irregular with sloped sides and incorporated bedrock. Occasionally, if the stones are stacked against a vertical bedrock formation, the stacked edges will also approach vertical.

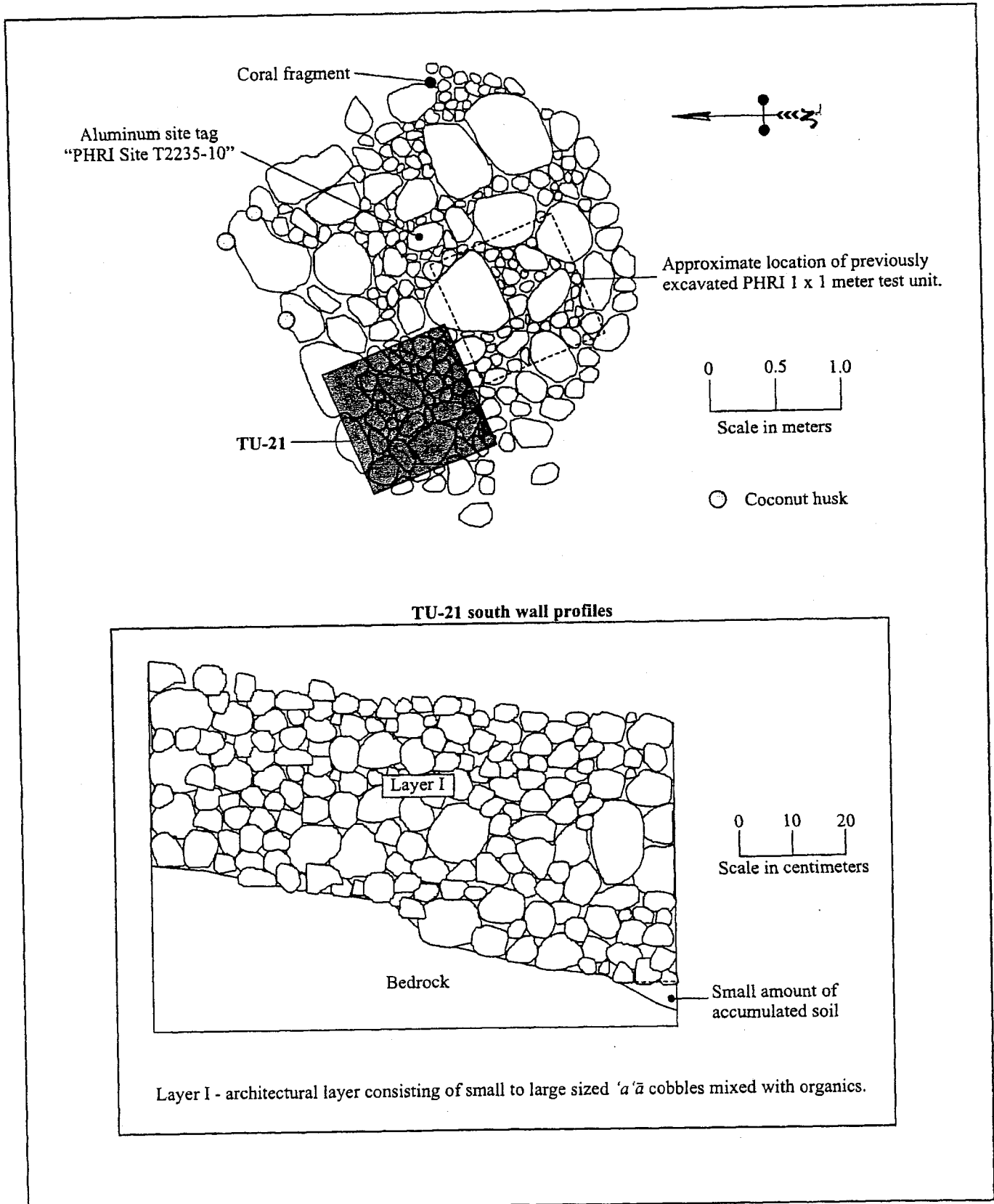


Figure 66. SIHP Site 23686 Feature 271 plan view and TU-21 profile.

Bedrock outcrops, once modified, functioned as clearing features, planting features, or temporary habitation features. Temporary habitations are defined based on the presence of faunal remains and a level and/or paved surface. Clearing features are defined based on the presence of rocks piled on an outcrop in an area free of stones with ample soil. Planting features are defined based on the presence of piled or stacked rocks on an outcrop in areas of no soil. The modified outcrops identified as part of this study are considered either planting or clearing features. No modified outcrop temporary habitations were discovered within the project area.

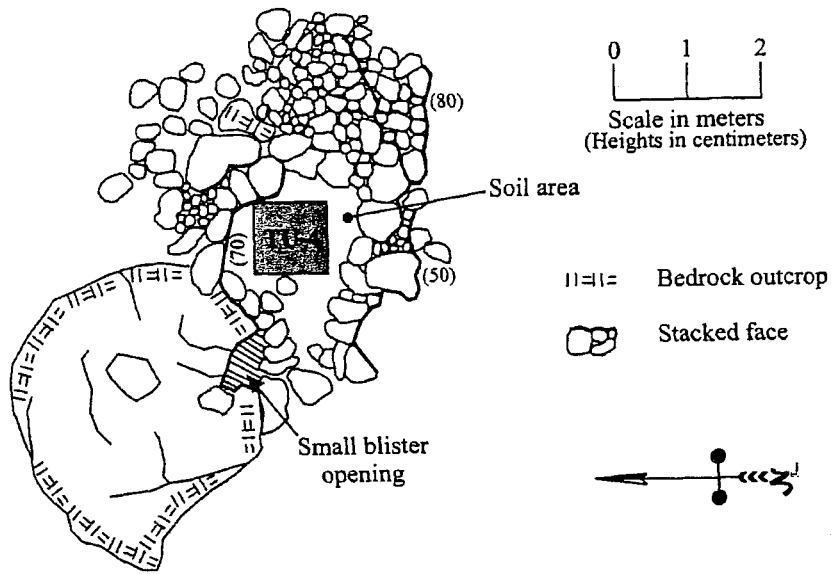
Fifty-nine modified outcrops were recorded within the project area (see Table 8 and Figure 53). The modified outcrops varied immensely in size, shape, and formal attributes. Five modified outcrops (Features 183, 201, 204, 239, and 297), ones that appeared to have the most time invested in their construction, underwent subsurface testing in the form of 1 x 1 meter test units. The results are presented below.

Feature 183 is a modified *pāhoehoe* outcrop located in the extreme northwestern portion of the project area (see Figure 53). The feature measures 6.7 meters long by 5.3 meters wide and stands up to 0.8 meters above the surrounding ground surface. It consists of *pāhoehoe* cobbles and boulders stacked along the south and east edges of an elongated bedrock outcrop stretching to the west (Figure 67). The central portion of the feature, on top of the outcrop, consists of a soil area (2 meters in diameter) cleared of cobbles possibly used for planting. Along the west edge of the soil area is a small blister opening that measures 48 centimeters from floor to ceiling and 60 centimeters deep. No cobble modification was evident around the blister. The feature is most likely constructed from the remains of a larger collapsed blister.



Figure 67. SIHP Site 23686 Feature 183 view to northwest.

A 1 x 1 meter test unit (TU-4) was excavated in the cleared soil area at the center of Feature 183 (Figure 68). Excavation of TU-4 revealed a two-layer stratigraphic soil profile resting on bedrock. Layer I, the uppermost layer, consisted of a 10-centimeter thick very dark grayish brown (10YR 3/2) topsoil mixed with decaying organics and grass roots. This layer rested on Layer II, a dark yellowish brown (10YR 4/3) fine silt mixed with decomposing bedrock at its base. Layer II was 35 centimeters thick and terminated at bedrock 45 centimeters below the surface of TU-4. No cultural material of any kind was recovered Feature 183, but it is suggested that the feature was utilized as a planting area.



TU-4 east wall profile

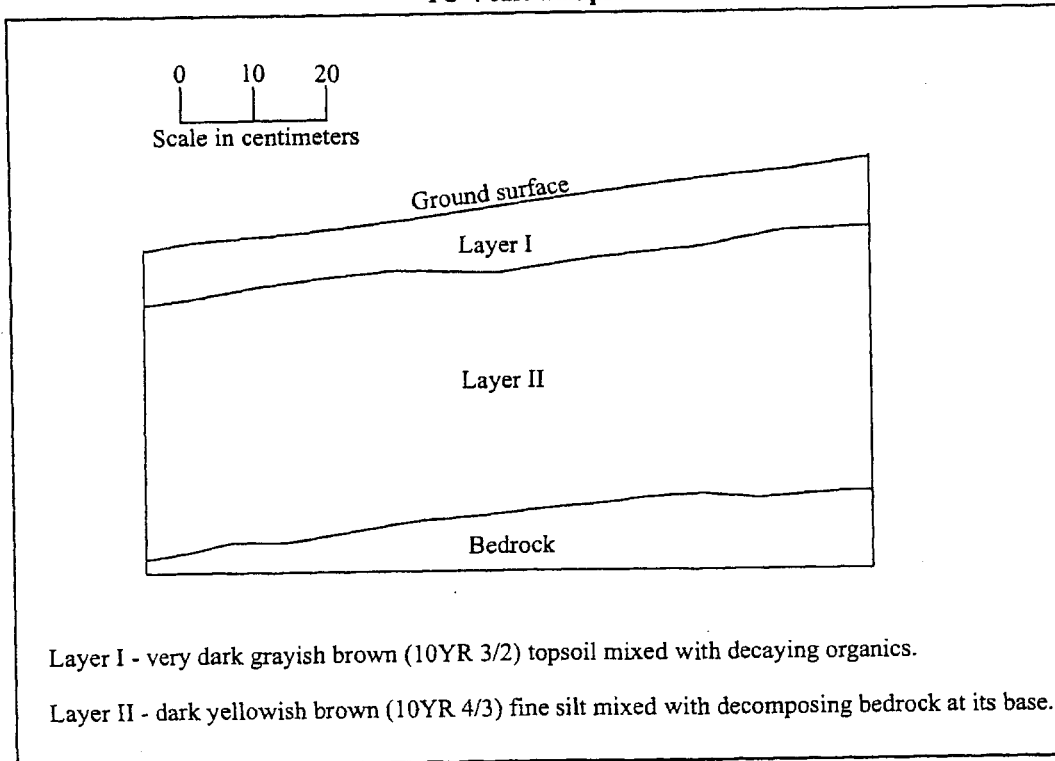


Figure 68. SIHP Site 23686 Feature 183 plan view and TU-4 profile.

Feature 201 is a modified *pāhoehoe* outcrop located in the northwestern quadrant of the project area along the northern property boundary (see Figure 53). The feature consists of formerly stacked *pāhoehoe* cobbles and boulders, now partially collapsed, supported by a bedrock outcrop to the east (Figure 69). Feature 201 is roughly oval in shape and measures 6.2 long by 3.8 meters wide and stands up to 0.7 meters high along its western edge. The surface of the feature is roughly leveled and paved with small *pāhoehoe* cobbles.



Figure 69. SIHP Site 23686 Feature 201 view to east.

A 1 x 1 meter test unit (TU-5) was excavated in the central portion of Feature 201 (Figure 70). Excavation of TU-5 revealed a two-layer stratigraphic profile resting on undulating bedrock. Layer I, the 25 to 40-centimeter architectural layer, consisted of small to large sized *pāhoehoe* cobbles. This layer rested on and was incorporated into Layer II, a dark brown (10YR 3/3) silt mixed with organics 15 centimeters thick. Layer II most likely accumulated after the construction of the feature as it is only present at low spots within the bedrock. Excavation of TU-5 terminated at bedrock 35 to 50 centimeters below the feature's surface. No cultural material was recovered from Feature 201, and it is suggested that this feature was a by-product of agricultural clearing in the area.

Feature 204 is a modified *pāhoehoe* outcrop located in the northwestern quadrant of the project area (see Figure 53). The feature has an irregular shape and may have been formerly stacked, but is now mostly collapsed (Figure 71). Some remnant *pāhoehoe* cobble stacking still remains along its southwestern edge and the northeastern edge abuts the bedrock outcrop. The surface of the feature, which has evidence of protruding bedrock, is roughly leveled and paved with small *pāhoehoe* cobbles (Figure 72). A water worn cobble was found on the feature's surface adjacent to the bedrock outcrop. Feature 204 measures 3.4 meters long by 2.7 meters wide and stands 0.7 meters high along its western edge.

A 1 x 1 meter test unit (TU-6) was excavated in the west-central portion of Feature 204 (see Figure 71). Excavation of TU-6 revealed a two-layer stratigraphic profile resting on bedrock. Layer I consisted of small to large sized *pāhoehoe* cobbles mixed with organics up to 18 centimeters thick. A small amount of soil (approximately 1 to 5 centimeters thick) had accumulated in low-lying bedrock pockets subsequent to the construction of the feature (Layer II) at the base of Layer I. This soil was a dark brown (10YR 3/3) silt mixed with organics and, like Layer I, rested on bedrock. Excavation of TU-6 terminated at bedrock 25 centimeters below the unit's surface. No cultural material was recovered from Feature 271.

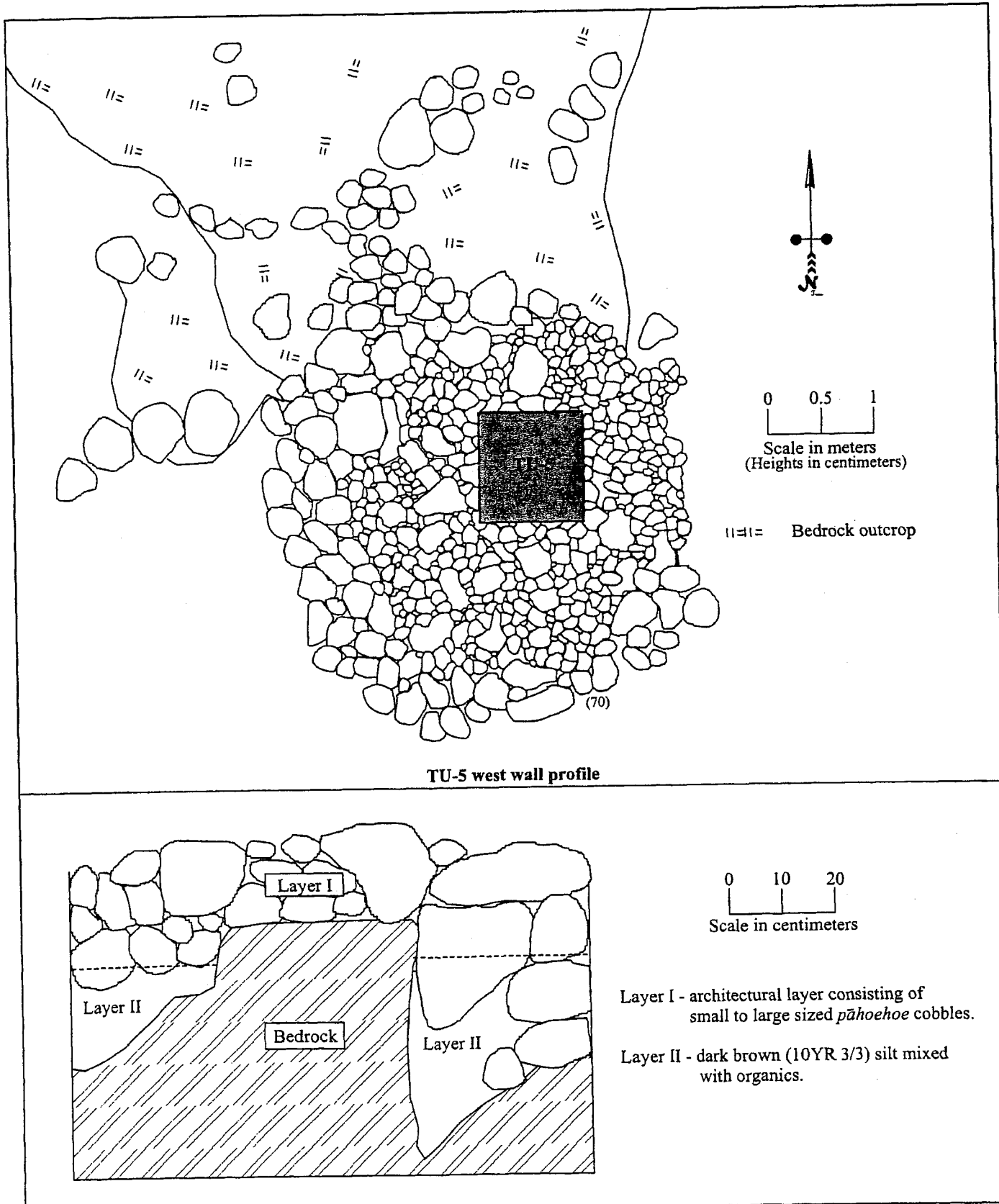


Figure 70. SIHP Site 23686 Feature 201 plan view and TU-5 profile.

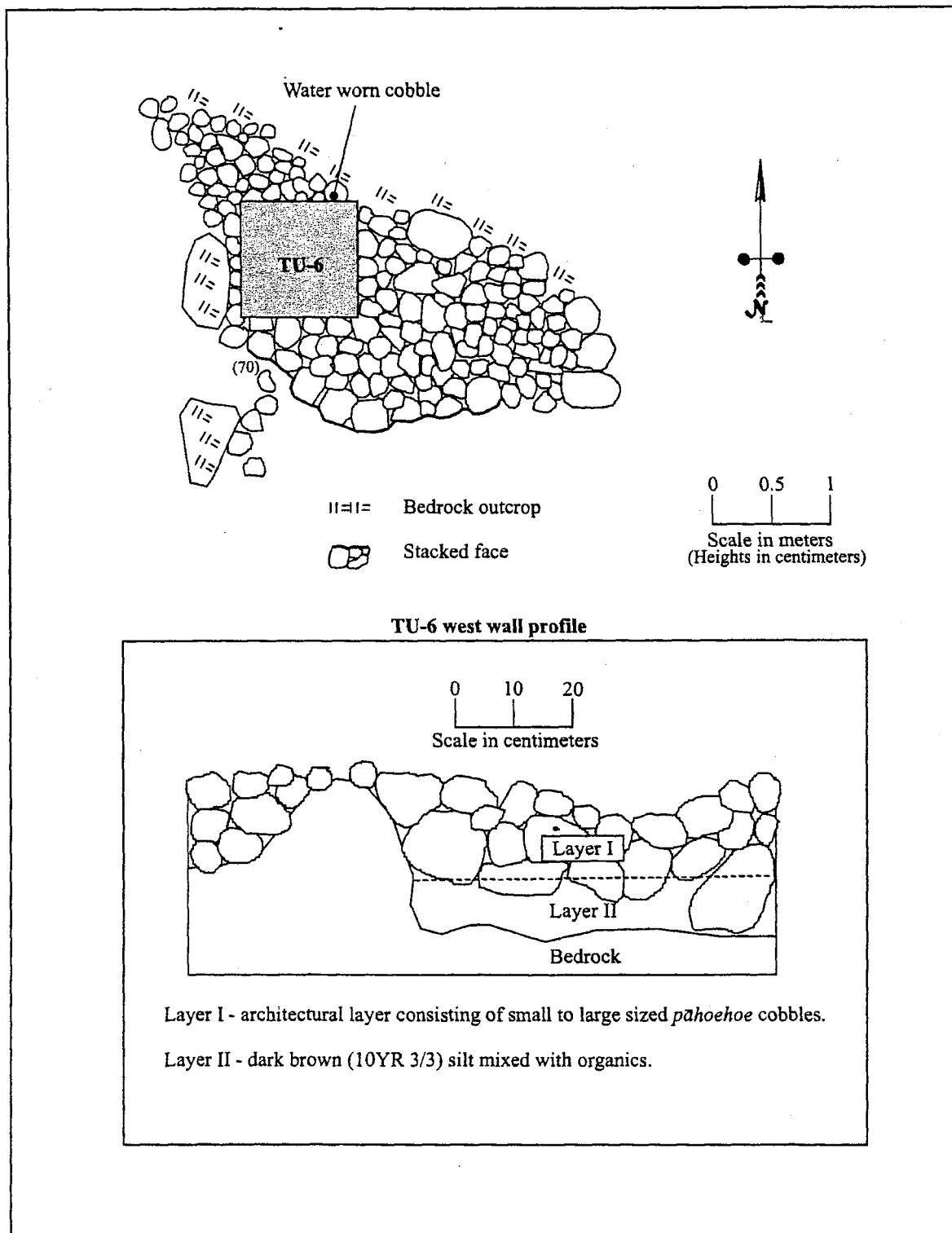


Figure 71. SIHP Site 23686 Feature 204 plan view and TU-6 profile.



Figure 72. SIHP Site 23686 Feature 204 view to west.

Feature 239 is a modified 'a'ā outcrop centrally located within the project area amongst a number of other agricultural features (see Figure 53). The feature, which is roughly rectangular, measures 4.0 meters long by 2.5 meters wide and stands up to 0.7 meters high along its southern edge. The southern and western edges consist of stacked 'a'ā cobbles and boulders (Figure 73). The eastern edge is completely collapsed and the bedrock outcrop supports the northern edge of the feature (Figure 74). The surface of feature 239 is roughly paved and leveled with small 'a'ā cobbles.



Figure 73. SIHP Site 23686 Feature 239 view to north.

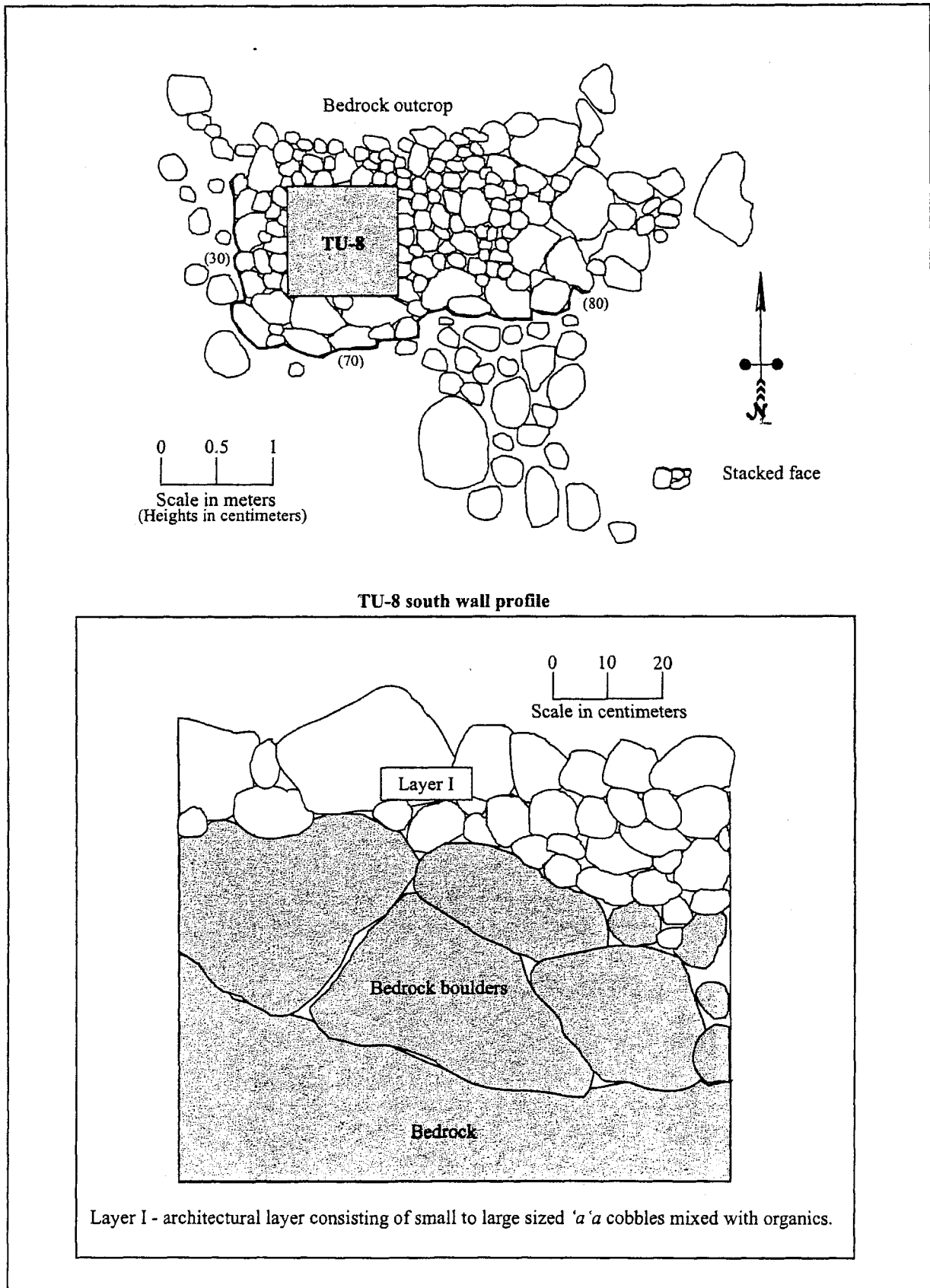


Figure 74. SIHP Site 23686 Feature 239 plan view and TU-8 profile.

A 1 x 1 meter test unit (TU-8) was excavated in the west-central portion of Feature 239 (see Figure 74). Excavation of TU-8 revealed a single architectural layer (Layer I) resting on bedrock. Layer I consisted of small to large sized 'a'ā cobbles mixed with organics 55 centimeters thick resting on bedrock and mixed with fractured bedrock boulders. A small amount of soil (approximately 1 to 2 centimeters thick) had accumulated at the base of the unit within low-lying bedrock areas subsequent to the construction of the feature. Excavation of TU-8 terminated at bedrock 55 centimeters below the feature's surface (Figure 75). No cultural material was recovered from Feature 239 and it is suggested that this feature may be a by-product of agricultural clearing in the area.



Figure 75. SIHP Site 23686 Feature 239 TU-8 base of excavation view to south.

Feature 297 is a modified 'a'ā outcrop located at the extreme eastern end of the project area along the southern edge of the old access road (see Figure 53). Feature 297 was formerly constructed of stacked 'a'ā cobbles, but is now collapsed in several sections. The feature, which is roughly oval in shape, measures 4.5 meters long by 4.0 meters wide and stands up to 0.7 meters above ground surface in its southwestern corner (Figure 76). The southern and northern edges of the feature are stacked (Figure 77). The western edge is nearly completely collapsed and a bedrock outcrop supports the eastern edge of the feature. The surface of Feature 297 is roughly paved and leveled with small sized 'a'ā cobbles. Overall, the feature has a very formal appearance.

A 1 x 1 meter test unit (TU-22) was excavated in the east central portion of Feature 297 (see Figure 76). Excavation of TU-22 revealed a two-layer stratigraphic profile. Layer I, the 33-centimeter thick architectural layer, consisted of small to large sized 'a'ā cobbles mixed with organics. This layer rested on and was incorporated into Layer II, a dark brown (10YR 3/3) very fine sandy silt 30 centimeters thick. The upper portions of this layer were mixed with decaying organics, while the lower portions gradually transitioned into dark yellowish brown soil (10YR 4/4) mixed with decomposing bedrock. Excavation of TU-22 terminated at bedrock 63 centimeters below the unit's surface. No cultural material of any kind was recovered from TU-22, and it is suggested that Feature 297 may be the by-product of agricultural clearing in area.

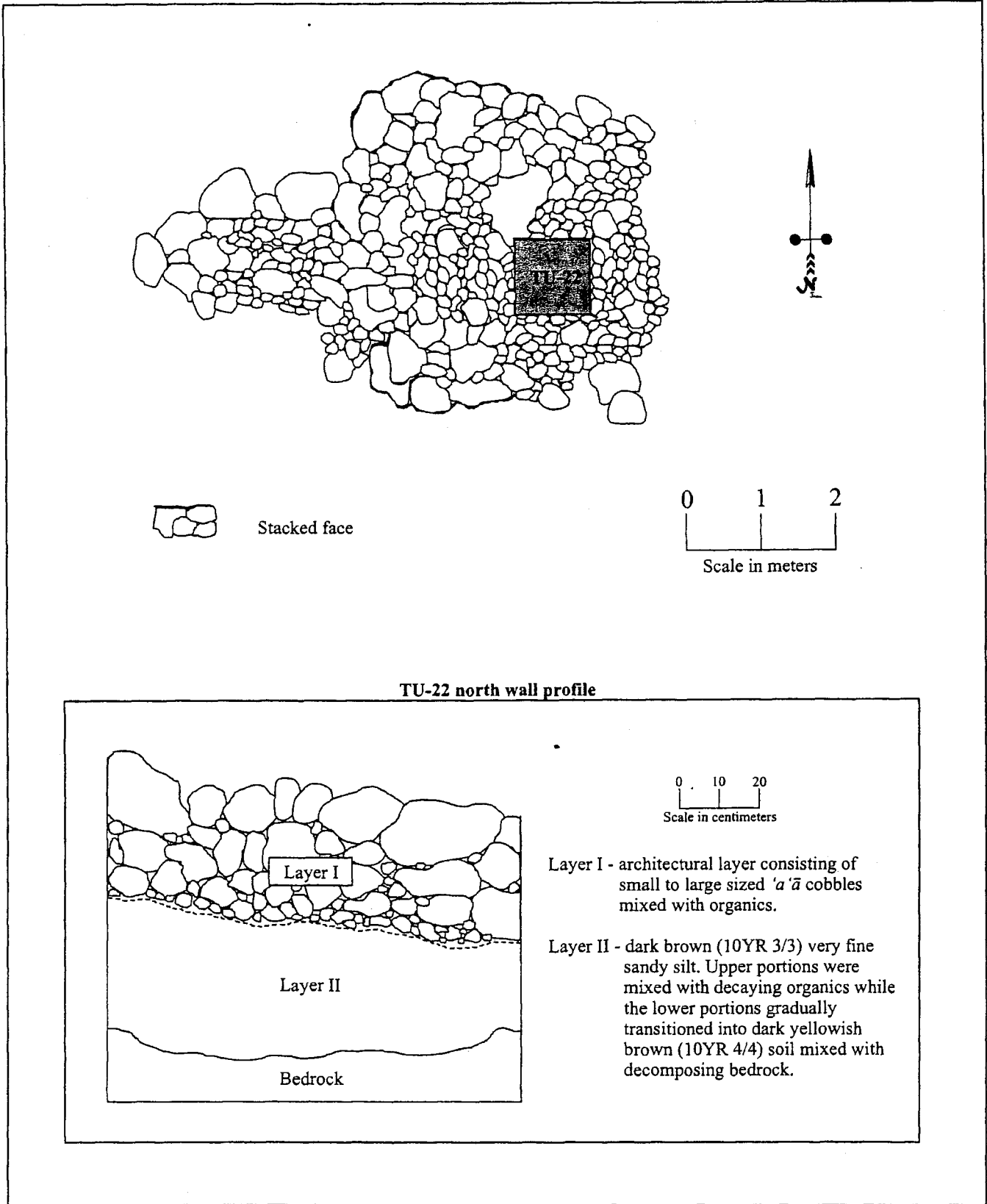


Figure 76. SIHP Site 23686 Feature 297 plan view and TU-22 profile.



Figure 77. SIHP Site 23686 Feature 297 view to north.

Terraces

A terrace is a linear or curvilinear stone construction built perpendicular to the natural slope of the terrain. It is generally longer than it is wide and at least two courses high. On the upslope side of the terrace soil is either placed, or more often naturally accumulated, to form a relatively level surface area. The stones of a terrace may be piled or stacked (piled edges are sloped, while stacked edges are generally vertical). The terrace is a specialized feature of an agricultural field. It functioned to trap or retain soil to create a planting area (Kirch 1985; Soehren and Newman 1968). Terrace walls are typically built connecting *kuaiwi* and are of stacked construction with a rectangular or trapezoidal profile. Although no such evidence was recorded within the current project area, level soil areas behind shorter terrace walls, which form rectangular areas, have been documented at other locations in Kona to be residential features.

Twenty-two remnant terraces (Figure 78) are present within the study area and are generally orientated perpendicular to the *kuaiwi* (see Figure 53). The downslope sides of the terraces are formed by either piled or stacked walls that range in length from 3.6 to 60 meters and are mostly collapsed because of both erosional forces and cattle grazing impacts. The walls range in height from 0.3 to 1 meter. The terrace areas retained by the walls are a combination of soil and stone and likely functioned as planting areas. Some of the terraces also contain mounds. No terraces were tested as part of the inventory survey.

Enclosures

An enclosure is a construction of stones that surrounds an interior space around at least 75% of its perimeter. The construction may incorporate natural formations (i.e. bedrock outcrops, boulders, etc.) or other formal feature types (i.e. walls, terraces, etc.) into its length. Construction materials are of varying type and size depending on the source material. The shape of an enclosure (i.e. square, rectangular, three sided, many sided, circular, oval, or irregular) varies considerably depending on the topography and its intended function. Some enclosures completely surround an interior space with no openings.



Figure 78. SIHP Site 23686 Feature 264 typical terrace construction view to northwest.

An enclosure can be a habitation feature, a planting feature, or used to house or detain animals. Planting enclosures (typically with irregular shapes) do not have entrances and are piled or stacked constructions less than one meter in height, with soil in the interior (Ching 1971). Large enclosures with soil interiors could be the by-product of clearing agricultural planting areas in the midst of cobble fields (i.e. the cleared rocks are used to form the enclosure walls). Small enclosures that currently lack soil (or contain only minimal soil) may have at one time been mulched to help create soil and retain moisture (wind and rain could have carried the soil away). Enclosures with higher walls may have also acted as barriers to keep animals out of planting areas. The location of an enclosure is often opportunistic, taking advantage of natural landforms to maximize its usefulness and minimize the amount of effort required for its construction.

Seven agricultural enclosures were recorded within the study area (Features 35, 251, 270, 279, 293, 294, 295) (see Figure 53). One of these is rectangular, two are square, two are oval and two are U-shaped (Figures 79 and 80). All of these features are similar in that they represent cleared areas in an otherwise rocky terrain. The rocks that make up the stacked and piled walls have been cleared from the center of the feature. None of these features is built substantially enough to keep animals inside or to serve as habitations. The walls, however, are tall and wide enough to retain compost and soil and to deter pigs from casually entering the interior enclosed space. No enclosures were tested as part of the current inventory survey, but will be a focus of subsequent data recovery efforts.

Kuaiwi

Kuaiwi are linear or curvilinear alignments of stones (at least two courses high) running *mauka/makai* that are considerably longer than wide. They are constructed using stones of various type and size depending upon the source material. *Kuaiwi* are characterized by piled construction with a “humped” profile (Soehren and Newman 1968). During Precontact times (and into Historic times) *kuaiwi* functioned primarily as agricultural field boundaries (Cordy 2000; Kirch 1985; Soehren and Newman 1968).

Seven remnant *kuaiwi*, orientated generally northeast/southwest, are distributed in a parallel fashion across the study area. They range from relatively short, collapsed segments minimally 16 meters in length to semi-intact segments that extend for as much as 108 meters. Linear *kuaiwi* features (Features 17, 59, 82, 195, 213, 252, 291) can be seen on Figure 53 and appear as broken and segmented wall fragments. It is possible that these field boundary are coincident with *'ili* designations, suggesting the presence of at least five different *'ili* in Wai'aha 1st. No *kuaiwi* were tested as part of the current inventory survey.



Figure 79. SIHP Site 23686 Feature 251 typical large enclosure view to southwest.



Figure 80. SIHP Site 23686 Feature 294 typical small enclosure view to west.

Pavements

A pavement is a stone surfaced area, level with the surrounding ground surface on at least one side. Pavements are generally constructed against or into sloping terrain, and are then filled with stones to create a relatively flat surface. Pavements come in many shapes (including square, rectangular, and irregular) and sizes. The outside edges of a pavement may be piled or stacked (piled edges are sloped, while stacked edges are generally vertical). Small (cobble to gravel size) stones are generally used as the fill material. One possible explanation for the function of a pavement is that it represents a specialized feature associated with agricultural activity, and was perhaps used as a produce staging or processing area (Rechtman et al. 2001).

Three pavement features (Features 250, 282, 289) were recorded within Site 23686, all within the *mauka* one third of the site (see Figure 53). The respective dimensions of these features are presented in Table 8. Rechtman et al. (2001) formally defined this specialized agricultural feature type based on archaeological survey work within large more or less intact agricultural sites in South Kona. The distribution of the pavements recorded during the current study match what would be expected for centrally located staging and processing areas (it is assumed here that the Precontact agricultural fields once continued more *mauka* than is currently recorded). As none of the pavements were investigated through subsurface testing, this feature type should be a focus of the limited data recovery that is recommended for Site 23686.

SIGNIFICANCE EVALUATION AND TREATMENT RECOMMENDATIONS

All of the sites recorded during the current study are assessed for their significance based on criteria established and promoted by the DLNR-SHPD and contained in the draft Hawaii Administrative Rules 13§13-284-6, dated 1998. These significance evaluations should be considered as preliminary until DLNR-SHPD provides concurrence. For resources to be considered significant they must possess integrity of location, design, setting, materials, workmanship, feeling, and association and meet one or more of the following 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 important 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;
- E. Have an important traditional cultural value to the native Hawaiian people or to another ethnic group of the state due to associations with traditional cultural practices once carried out, or still carried out, at the property or due to associations with traditional beliefs, events or oral accounts—these associations being important to the group's history and cultural identity.

The significance and recommended treatment for the twenty-six sites are discussed below and presented in Table 9.

Table 9. Site significance and treatment recommendations.

| <i>SIHP No.</i> | <i>Function</i> | <i>Temporal Association</i> | <i>Significance</i> | <i>Recommended Treatment</i> |
|-----------------|----------------------|-----------------------------|---------------------|------------------------------|
| 6302 | Kuakini Wall | Historic | A,C,D | Preservation |
| 23662 | Ranching | Historic | D | No further work |
| 23663 | Ranching | Historic | D | No further work |
| 23664 | Ranching | Historic | D | No further work |
| 23665 | Landscape marker | Historic | D | No further work |
| 23666 | Landscape marker | Historic | D | No further work |
| 23667 | Landscape marker | Historic | D | No further work |
| 23668 | Temporary habitation | Precontact | D | No further work |
| 23669 | Temporary habitation | Precontact | D | No further work |
| 23670 | Permanent habitation | Precontact | D | Data recovery |
| 23671 | Temporary habitation | Precontact | D | Data recovery |
| 23672 | Permanent habitation | Precontact | D | Data recovery |
| 23673 | Permanent habitation | Precontact | D | Data recovery |
| 23674 | Temporary habitation | Precontact | D | Data recovery |
| 23675 | Permanent habitation | Precontact | D | Data recovery |
| 23676 | Temporary habitation | Precontact | D | Data recovery |
| 23677 | Temporary habitation | Precontact | D | Data recovery |
| 23678 | Temporary habitation | Precontact | D | Data recovery |
| 23679 | Trail | Precontact | D | No further work |
| 23680 | Trail | Precontact | D | No further work |
| 23681 | Ceremonial | Precontact | D,E | Preservation |
| 23682 | Game board | Precontact | D | No further work |
| 23683 | Burial | Precontact | D,E | Preservation |
| 23684 | Burial | Precontact | D,E | Preservation |
| 23685 | Burial | Precontact | D,E | Preservation |
| 23686 | Agricultural | Precontact | D | Data recovery |

Sites Recommended For No Further Work

Upon approval of this report, sites that fall into this category can be dismantled or otherwise destroyed with no further historic preservation consideration.

SIHP 23662

This Historic Period cattle enclosure is significant under Criterion D, and has provided information relative to late nineteenth and early twentieth century use of the property. No further work is recommended.

SIHP 23663

This wall is a significant feature under Criterion D as it relates to early twentieth century ranching practices. The information recorded from this site has sufficiently mitigated any potential impact that may be caused by the development of the parcel.

SIHP 23664

This wall is a significant feature under Criterion D as it relates to early twentieth century ranching practices. The information recorded from this site has sufficiently mitigated any potential impact that may be caused by the development of the parcel.

SIHP 23665

This historic wall is significant under Criterion D and no further work is recommended to mitigate impacts to it. The data collected during the current study sufficiently documented this site.

SIHP 23666

This wall is a significant feature under Criterion D as it relates to early twentieth century ranching practices. The information recorded from this site has sufficiently mitigated any potential impact that may be caused by the development of the parcel.

SIHP 23667

This wall is significant under Criterion D as part of the network of historic ranching/boundary walls on the property. No further work is recommended to mitigate impacts as the data collected during the current study sufficiently documents this site.

SIHP 23668

This lava blister was at most used minimally for temporary habitation purposes and is considered significant under Criterion D. Test excavation conducted as part of this study has resulting in the collection of sufficient information to warrant a no further work recommendation.

SIHP 23669

This site is considered significant under Criterion D as illustrative of the temporary residential use of the *kula* zone. No further work is recommended to mitigate impacts as the data collected during the current study sufficiently documents this very ephemeral temporary habitation site.

SIHP 23679

This short trail segment is significant under Criterion D. It continuance both *mauka* and *makai* could not be discerned. Therefore, the data collected during the current study has been sufficient to mitigate any potential impacts that might be caused by the proposed development; no further work is recommended.

SIHP 23680

This short trail segment is significant under Criterion D. It continuance both *mauka* and *makai* could not be discerned. Therefore, the data collected during the current study has been sufficient to mitigate any potential impacts that might be caused by the proposed development; no further work is recommended.

SIHP 23682

The *papamū* is in a poor state of preservation and has been documented in its entirety; therefore no further work is recommended. However, given the nature of the proposed development (a cultural center), the location of this site could be maintained or memorialized in the development planning and perhaps a similar game board established in the vicinity with appropriate interpretive signage.

Sites Recommended For Data Recovery

Upon approval of this report, sites in this category should be protected until data recovery investigations are completed.

SIHP 23670

This permanent habitation platform complex is considered significant under Criterion D for the potential data it could yield relative to Precontact settlement patterns and land use. Data recovery is recommended.

SIHP 23671

This temporary habitation platform is evaluated as significant under Criterion D, and further data collection is recommended. Excavation of the feature and underlying deposit could provide further data relative to the age of the site and potential association to other sites and features in the vicinity.

SIHP 23672

This permanent habitation enclosure complex is evaluated as significant under Criterion D, and further data collection is recommended. Excavation of portions of both enclosures could provide more specific information relative to both function and temporality.

SIHP 23673

Site 23673 is interpreted as a permanent habitation platform and enclosure and is considered significant under Criterion D. Further investigation of this site will help determine the functional relationship between the two features and establish a more precise temporal association for the site. Data recovery is recommended.

SIHP 23674

This temporary habitation platform and enclosure is evaluated as significant under Criterion D, and further data collection is recommended. Excavation of this site could focus on documenting the quantity and diversity of dietary remains in an effort to make comparisons with Site 23673, interpreted as a permanent habitation platform and enclosure.

SIHP 23675

This permanent habitation platform is considered significant under Criterion D, and further data recovery is recommended to augment the excavation data obtained during the testing. Data recovery excavations could shed further light on site function and age.

SIHP 23676

This site is considered significant under Criteria D as a Precontact temporary habitation platform. As a result of the test excavations, this site yielded a relatively substantial amount remains including marine shell, volcanic glass flakes, and a *he'e* lure. Data recovery is recommended in an effort to further define site function and temporality.

SIHP 23677

This temporary habitation platform and enclosure is evaluated as significant under Criterion D, and further data collection is recommended. Excavation of this site could focus on documenting the quantity and diversity of dietary remains in an effort to make comparisons with Site 23674 (another temporary habitation platform and enclosure) and Site 23673, interpreted as a permanent habitation platform and enclosure.

SIHP 23678

This enclosure is incorporated into a *kuaiwi* (Site 23686 Feature 292) and is unique for the project area. It is interpreted as a temporary habitation and is considered significant under Criterion D. Data recovery is recommended to assess the precise function of the site and to further investigate the relationship between the enclosure and the *kuaiwi*.

SIHP 23686

This site is the complex of agricultural features that form the archaeological backdrop of the study area. A total of 296 features were recorded and this site is considered significant under Criterion D. Limited data recovery is recommended in an effort to collect radiocarbon samples sufficient for age determination analysis. Potentially documenting when the *kula* zone of Kona was first used for agriculture is an important on-going research goal.

Sites Recommended For Preservation

Upon approval of this report, sites in this category should be protected indefinitely, and perpetual easements established to ensure their long-term preservation.

SIHP 6302

This site has come to be known as the Kuakini Wall and its significance has been evaluated and approved in several projects. This site has been determined significant for its association with broad patterns of local history (Criterion A), its characteristic construction style (Criterion C) and its archaeological information (Criterion D). Preservation and interpretation is the recommended general treatment, with the allowance of possible breaches for *mauka/makai* property access. A preservation and interpretation plan should be written in consultation with members of the local community and DLNR-SHPD.

SIHP 23681

This ceremonial site is evaluated as significant under Criteria D, and E; and should be preserved as a stabilized ruin with interpretation. A preservation and interpretation plan should be written in consultation with members of the local community and DLNR-SHPD.

SIHP Sites 23683, 23684 and 23685

These three sites contain buried human remains and are evaluated as significant under Criteria D and E. All of these single feature sites should be preserved as is without interpretation. A search for lineal and cultural descendants should be undertaken and a burial treatment plan written in consultation with any identified descendants and the Hawai'i Island Burial Council.

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APPENDIX A – RADIOCARBON RESULTS

Dr. Bob Reichtman

Report Date: 2/17/2003

Reichtman Consulting

Material Received: 2/7/2003

| Sample Data | Measured Radiocarbon Age | $^{13}\text{C}/^{12}\text{C}$ Ratio | Conventional Radiocarbon Age(*) |
|--|--------------------------|-------------------------------------|---------------------------------|
| Beta - 175916 SAMPLE : RC-0153-12 ANALYSIS : Radiometric-Priority delivery (with extended counting) MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid 2 SIGMA CALIBRATION : Cal AD 1510 to 1600 (Cal BP 440 to 350) AND Cal AD 1620 to 1950 (Cal BP 330 to 0) | 180 +/- 60 BP | -23.5 o/oo | 210 +/- 70 BP |
| Beta - 175917 SAMPLE : RC-0153-40 ANALYSIS : AMS-Advance delivery MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid 2 SIGMA CALIBRATION : Cal AD 1660 to 1950 (Cal BP 290 to 0) | 140 +/- 40 BP | -23.5 o/oo | 160 +/- 40 BP |

CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-23.5;lab. mult=1)

Laboratory number: Beta-175916

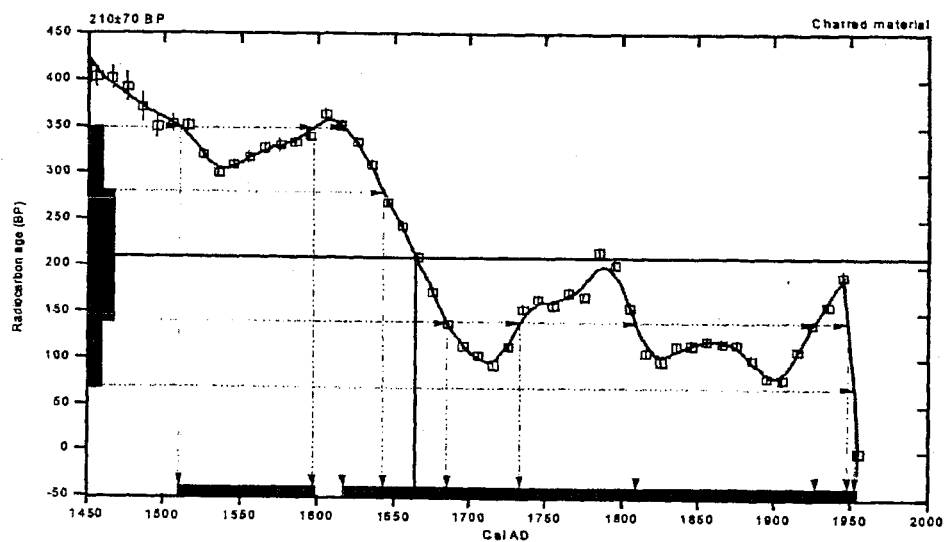
Conventional radiocarbon age: 210 ± 70 BP

2 Sigma calibrated results: Cal AD 1510 to 1600 (Cal BP 440 to 350) and
(95% probability) Cal AD 1620 to 1950 (Cal BP 330 to 0)

Intercept data

Intercept of radiocarbon age
with calibration curve: Cal AD 1660 (Cal BP 290)

1 Sigma calibrated results: Cal AD 1640 to 1680 (Cal BP 310 to 260) and
(68% probability) Cal AD 1730 to 1810 (Cal BP 220 to 140) and
Cal AD 1930 to 1950 (Cal BP 20 to 0)



References:

Database used

Calibration Database
Editorial Comment

Stuiver, M., van der Plicht, H., 1998, *Radiocarbon* 40(3), pxi-xiii
INTCAL98 Radiocarbon Age Calibration

Stuiver, M., et. al., 1998, *Radiocarbon* 40(3), p1041-1083

Mathematics

A Simplified Approach to Calibrating C14 Dates

Talmo, A. S., Vogel, J. C., 1993, *Radiocarbon* 35(2), p317-322

Beta Analytic Inc.

4985 SW 74 Court, Miami, Florida 33155 USA • Tel: (305) 667 5167 • Fax: (305) 663 0964 • E-Mail: beta@radiocarbon.com

EXHIBIT "A"

PARCEL FIRST:

LOT A

LAND SITUATED ON THE EASTERLY SIDE OF
KUAKINI HIGHWAY, PROJECT FAP NO. S-2291(1) AND ON THE WESTERLY SIDE OF
LOT B AND HUALALAI ROAD (KAILUA-KEAUHOU MIDDLE ROAD)

AT WAIAHA 1ST, NORTH KONA, HAWAII, HAWAII

BEING A PORTION OF ROYAL PATENTS 1930
TO ASA THURSTON ON A PORTION OF LAND COMMISSION AWARD 387
PART 4, SECTION 2, NO. 3 TO AMERICAN BOARD OF COMMISSIONERS FOR FOREIGN
MISSIONS

Beginning at the Northerly corner of this parcel of land at the Great Wall of Kuakini, being the Southeast corner of Lot 7, TMK: 7-5-018-028, being the existing Northeast corner of TMK: 7-5-018-073 and the existing Northwest corner of TMK: 7-5-017-007, the coordinates of said point of beginning referred to Government Survey Triangulation Station "KAILUA" (North Meridian) being 4,301.12 feet South and 3,245.12 feet East and running by azimuths measured clockwise from true South:

Thence, along Lot A, along Lot 1 of Land Court Application 1666 - Map 1 for the following six (6) courses;

1. 258° 38' 49" 419.30 feet to a point;
2. 265° 41' 49" 603.40 feet to a point;
3. 269° 49' 49" 229.50 feet to a point;
4. 261° 25' 49" 329.20 feet to a point;
5. 258° 35' 49" 269.50 feet to a point;

6. 265° 37' 49" 77.10 feet to a point;

Thence, along Lot B, along a curve to the left having a radius of 500.00 feet, the chord azimuth and distance being;

7. 325° 39' 31" 184.00 feet to a point;

8. 315° 03' 20" 145.67 feet along Lot B to a point;

Thence, along Lot B, along a curve to the right having a radius of 900.00 feet, the chord azimuth and distance being;

9. 322° 59' 20" 248.44 feet to a point;

10. 240° 55' 18" 92.44 feet along Lot B to a point;

11. 179° 04' 30" 10.85 feet along Lot B to a point;

12. 269° 04' 30" 20.28 feet along Lot B to a point;

13. 240° 55' 18" 144.12 feet along Lot B to a point;

Thence, along Lot B, along a curve to the left having a radius of 160.00 feet, the chord azimuth and distance being;

14. 217° 00' 44" 129.69 feet to a point;

15. 193° 06' 10" 33.04 feet to a point;

Thence, along Lot B, along a curve to the right having a radius of 100.00 feet, the chord azimuth and distance being;

16. 215° 47' 40" 77.15 feet to a point;

17. 271° 35' 47" 54.62 feet to a point;

Thence, along the Southwesterly to Westerly side of Hualalai Road (Queen Kaahumanu Highway Extension) Hawaii Belt Road for the following five (5) courses;

| | | | | | |
|-----|------|-----|-----|---------|--|
| 18. | 304° | 42' | 24" | 138.61 | feet to a point; |
| 19. | 302° | 00' | 00" | 134.71 | feet to a point; |
| 20. | 311° | 15' | 00" | 21.71 | feet to a point; |
| 21. | 334° | 11' | 04" | 337.35 | feet to a point; |
| 22. | 71° | 47' | 48" | 37.57 | feet to a point; |
| 23. | 76° | 50' | 39" | 150.56 | feet along Lots 29 and 26 of Kona Hillcrest Subdivision to a point; |
| 24. | 75° | 03' | 00" | 404.68 | feet along Lots 26, 24, 23, 21 and 20 of Kona Hillcrest to a point; |
| 25. | 78° | 26' | 08" | 2213.85 | feet along TMK: 7-5-017-006, along Grant 5327 to Samuel Liftee to a point; |
| 26. | 68° | 38' | 00" | 105.50 | feet along TMK: 7-5-017-006, along Grant 5327 to Samuel Liftee to a point; |
| 27. | 143° | 26' | 35" | 838.99 | feet to a point; |
| 28. | 151° | 59' | 00" | 321.64 | feet along the Easterly side of Kuakini Highway to a point; |
| 29. | 265° | 01' | 00" | 424.15 | feet along Lot 7, Land Court Application 1659, Map 4 to the point of beginning and containing a gross area of 57.047 acres, more or less, and a net area of 56.597 acres excluding the two (2) Water Tank sites (TMK: 7-5-017-013 and 015), as per survey by Donald C. McIntosh, L.P.L.S. #4968, dated April 4, 2001, revised December 20, 2001. |

PARCEL SECOND:

All of that certain parcel of land (being a portion of Land Patent Grant No. 5237 to Samuel Liftee), situate, lying and being at Kahului 1st, District of North Kona, Island and County of Hawaii, State of Hawaii, containing an area of 5.560 acres, more or less, and commonly designated by Tax Map Key (3) 7-5-017-006.

NOTE: First Hawaii Title Corporation recommends that a modern metes and bounds survey be made of the land under search in order that its boundaries may be definitely established and its area accurately computed.

AS TO PARCEL FIRST AND SECOND:

TOGETHER WITH an easement for roadway and utility purposes, as granted by instrument dated November 23, 2001, recorded as Document Nos. 2762460 and 2001-198862 more particularly described as follows:

FIRST:

EASEMENT 79 (50-ft. wide) for roadway and utility purposes, as granted by instrument dated November 23, 2001, recorded as Document Nos. 2762460 and 2001-198862, affecting Lot 1-B as shown on Map filed in the Office of the Assistant Registrar of the Land Court of the State of Hawaii with Land Court Application No. 1066 of the Roman Catholic Church in the State of Hawaii as described in Land Court Order No. 143824.

SECOND:

**EASEMENT R-1 (PART 1) 50 FEET WIDE
for Roadway and Utility Purposes**

**EASEMENT SITUATED ON THE WESTERLY SIDE OF LOT B
ADJOINING THE EASTERLY SIDE OF HUALALAI ROAD**

AT PUA A 2ND & 3RD, NORTH KONA, HAWAII, HAWAII

**BEING A PORTION OF LOT B, A PORTION OF GRANT 1744
TO KAHUNAELE**

Beginning at the Northerly corner of THIS EASEMENT being the Northerly corner of Lot B, also being the Easterly corner of Lot C on the Southwesterly side of Hualalai Road, the coordinates of said point of beginning referred to Government Survey Triangulation Station "North Meridian" being 3,519.30 feet South and 5,165.02 feet East and running by azimuths measured clockwise from true South:

Thence, along the Southwesterly side of Hualalai Road for the following three (3) courses:

1. 313° 50' 49" 36.33 feet to a point;
2. 314° 26' 49" 110.60 feet to a point;
3. 305° 57' 49" 12.10 feet to a point;

Thence, along the remainder of Lot B for the following four (4) courses:

4. 35° 57' 49" 20.84 feet to a point;

Thence, along a curve to the left having a radius of 60.00 feet, the chord azimuth and distance being:

5. 84° 54' 19" 78.82 feet to a point;

Thence, along a curve to the left having a radius of 275.00 feet, the chord azimuth and distance being:

6. 31° 22' 51" 118.72 feet to a point;

7. 76° 47' 49" 46.25 feet along the remainder of Lot B, the remainder of Easement R-1 and Land Court Application 1666, lot 1-B, Map 15, to a point;

8. 81° 43' 49" 10.67 feet along remainder of Lot B, the remainder of Easement R-1 and Land Court Application 1666, Lot 1-B, Map 15, to a point;

Thence, along Lot C, along a curve to the right having a radius of 325.00 feet, the chord azimuth and distance being:

9. 208° 46' 48.5" 168.96 to a point;

Thence, along Lot C, along a curve to the right having a radius of 60.00 feet, the chord azimuth and distance being:

10. 178° 50' 49" 84.85 feet to a point;

11. 223° 50' 49" 19.57 feet along Lot C to the point of beginning and containing an area of 0.342 acres, more or less.

PARCEL THIRD:

ITEM ONE

**LOT B
(BEING A CONSOLIDATION OF ITEM ONE, ITEM TWO AND ITEM THREE)
A 4.979 ACRE PARCEL**

LAND SITUATED ON THE SOUTHWESTERLY SIDE OF HUALALAI ROAD (KAILUA-HOLUALOA ROAD) ON THE EASTERLY SIDE OF LOT A

AT WAIAHA 1ST, NORTH KONA, HAWAII, HAWAII

BEING A PORTION OF LOT B, A PORTION OF ROYAL PATENT 1930 TO ASA THURSTON ON A PORTION OF LAND COMMISSION AWARD 387, PART 4, SECTION 2, NO. 3 TO AMERICAN BOARD OF COMMISSIONERS

Beginning at the Northeasterly corner of this parcel of land, being the Southeast corner of Land Court Application 1666, Lot 1 on the Southwesterly side of Hualalai Road, the coordinates of said point of beginning referred to Government Survey Triangulation Station "Kailua" (North Meridian" being 4,019.90 feet South and 5,797.91 feet East and running by azimuths measured clockwise from true South:

Thence, along the Southwesterly side of Hualalai Road for the following three (3) courses;

1. 328° 39' 40" 141.39 feet to a point;

2. 319° 18' 00" 62.91 feet to a point;

- | | | | | | |
|-----|------|-----|-----|--------|---|
| 3. | 304° | 42' | 24" | 11.46 | feet to a point; |
| | | | | | Thence, along Lot A, along a curve to the left having a radius of 50.00 feet, the chord azimuth and distance being; |
| 4. | 91° | 35' | 47" | 54.62 | feet to a point; |
| | | | | | Thence, along Lot A, along a curve to the left having a radius of 100.00 feet, the chord azimuth and distance being; |
| 5. | 35° | 47' | 40" | 77.15 | feet to a point; |
| 6. | 13° | 06" | 10" | 33.04 | feet along Lot A to a point; |
| | | | | | Thence, along Lot A, along a curve to the right having a radius of 160.00 feet, the chord azimuth and distance being; |
| 7. | 37° | 00' | 44" | 129.69 | feet to a point; |
| 8. | 60° | 55' | 18" | 144.12 | feet along Lot A to a point; |
| 9. | 89° | 04' | 30" | 20.28 | feet along a Water Tank site (TMK: 7-5-017-015) to a point; |
| 10 | 359° | 04' | 30" | 10.85 | feet along a Water Tank site (TMK: 7-5-017-015) to a point; |
| 11. | 60° | 55' | 18" | 92.44 | feet along Lot A to a point; |
| | | | | | Thence, along Lot A, along a curve to the left having a radius of 900.00 feet, the chord azimuth and distance being; |
| 12. | 142° | 59' | 20" | 248.44 | feet to a point; |
| 13. | 135° | 03' | 20" | 145.67 | feet to a point; |

Thence, along Lot A, along a curve to the right having a radius of 500.00 feet, the chord azimuth and distance being;

14. 145° 39' 31" 184.00 feet to a point;
15. 265° 37' 49" 550.70 along the remainder of Lot B, along Land Court Application 1666, Lot 1, Map 1 to a point.
16. 268° 27' 49" 95.35 feet along the remainder of Lot B, along Land Court Application 1666, Lot 1, Map 2 to the point of beginning and containing an area of 4.979 acres, as per survey by Donald C. McIntosh, L.P.L.S. #4968, dated April 4, 2001, revised November 17, 2001.

Being a portion of the land conveyed by the following:

WARRANTY DEED

Grantor: GOMES FAMILY LIMITED PARTNERSHIP, a Hawaii limited partnership
Grantee: PACU BENCORP, INC., a Hawaii nonprofit corporation
Dated: July 31, 2000
Document No. 2000-112926

ITEM TWO

All of that certain parcel of land situate at Puaa 3rd, North Kona, State of Hawaii, described as follows:

Lot 1-B, area 3.985 acres, more or less, as shown on Map 15, filed in the Office of the Assistant Registrar of the Land Court of the State of Hawaii with Land Court Application No. 1666 of Roman Catholic Church;

Being all of the land described in Transfer Certificate(s) of Title No. 596,798.

ITEM THREE:

A 0.702 ACRE PARCEL

LAND SITUATED ON THE SOUTHWESTERLY SIDE
OF HUALALAI ROAD (KAILUA-HOLUALOA ROAD)
ON THE EASTERLY SIDE OF LOT C

AT PUA A 2ND, NORTH KONA, HAWAII, HAWAII

PORTION OF LOT B
PORTIONS OF GRANT 1744
TO KAHUNAELE

Beginning at the Northerly corner of this parcel of land, being the Easterly corner of Lot C on the Southwesterly side of Hualalai Road, the coordinates of said point of beginning referred to Government Survey Triangulation Station "KAILUA" (North Meridian) being 3,519.30 feet South and 5,165.02 feet East and running by azimuths measured clockwise from true South:

Thence along the Southwesterly side of Hualalai Road for the following eight (8) courses;

- | | | | | | |
|----|------|-----|-----|--------|---|
| 1. | 313° | 50' | 49" | 36.33 | feet to a point; |
| 2. | 314° | 26' | 49" | 110.60 | feet to a point; |
| 3. | 305° | 57' | 49" | 57.60 | feet to a point; |
| 4. | 302° | 55' | 07" | 73.03 | feet to a point; |
| 5. | 76° | 47' | 49" | 303.75 | feet along Lot 1-B, a portion of Lot 1 of Land Court Application No. 1666 to a point; |
| 6. | 81° | 43' | 49" | 10.67 | feet along Lot 1-B, a portion of Lot 1 of Land Court Application No. 1666 to a point; |

Thence, following, along a curve to the right having a radius of 325.00 feet, the chord azimuth and distance being;

- 7. 208° 46' 48.5" 168.96 feet to a point;
Thence, along Lot C, along a curve to the left having a radius of 60.00 feet, the chord azimuth and distance being;
- 8. 178° 50' 49" 84.85 feet to a point;
- 9. 223° 50' 49" 19.57 feet along Lot C to the point of beginning and containing an area of 0.702 acres.

Being all of the land conveyed by the following:

WARRANTY DEED

| | |
|--------------|---|
| Grantor: | UNIVERSITY OF THE NATIONS, INC., a Hawaii nonprofit corporation |
| Grantee: | U OF N BENCORP, a Hawaii nonprofit corporation |
| Dated: | October 17, 2001 |
| Document No. | 2755105 |
| Document No. | 2001-184091 |

NOTE(S): Parcel Third, Item One, Item Two and Item Three as above described have been consolidated into one parcel of land designated as Lot B on the Revised Final Plat Map approved by the County of Hawaii Planning Department under Final Subdivision Approval No. 7415 on May 21, 2001 and thus cannot be separately conveyed, leased or encumbered.