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**Draft**

**Archaeological Data Recovery Report for the  
Queen Ka‘ahumanu Highway Widening Phase 2 Project,  
Kalaoa, Kalaoa-‘O‘oma, ‘O‘oma 2, Kohanaiki, Kaloko,  
Honokōhau 1–2 and Kealakehe Ahupua‘a,  
North Kona District, Island of Hawai‘i,  
TMKs: [3] 7-3-009, 7-3-043, and 7-4-008**

**VOLUME II: Historic Property and Excavation Unit Documentation**

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## Section 1 Overview

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### 1.1 Project Background

On 15 October 2012, the data recovery and preservation plan (ADRP) for the project (Shideler et al. 2012) was accepted by SHPD (LOG NO.: 2012.3052, DOC. NO.: 1210MV25); subsequently on 9 April 2014, an archaeological preservation plan and mitigation plan (APMP) addressing a redesign of the project was accepted by SHPD (LOG NO.: 2014.1379, DOC. NO.: 1404MV06; see Appendix A in Volume I). CSH completed the data recovery fieldwork for the project and submitted an end of fieldwork letter to SHPD on 25 June 2015. The historic properties mitigated herein were discovered during an archaeological inventory survey (AIS) of an approximately 190-acre survey area related to a proposed highway widening project (Monahan et al. 2012). Project development included grading and filling portions of the highway right-of-way (ROW). Most of the major ground disturbance was proposed for the *makai* (seaward) side of the existing highway.

Data recovery fieldwork occurred during both the 2011 and 2015 field seasons (see Methods in Volume I for additional discussion of this). Data recovery during the 2011 field season followed a 2011 ADRP (Altizer and Monahan 2011). At the time of that report, Altizer and Monahan (2011: 178–179) recommended data recovery at four historic properties (State Inventory of Historic Places [SIHP] #s 50-10-27-10154, -28812, -28813, and -28814). Excavation was planned to consist of three excavation units at SIHP # -10154, one at SIHP # -28812, two at SIHP # -28813, and one at SIHP # -28814. However, due to a revision of the project scope, data recovery was halted during the fieldwork effort, which consisted of five excavation units covering approximately 5 square meters (sq m) of surface area. While excavation was completed at SIHP #s -28812, -28813, and -28814, it was not completed at SIHP # -10154, which was recommended for preservation during the revision of the data recovery plan. The results of the data recovery from the 2011 field season are included in this report.

In 2015, data recovery efforts (following the Shideler et al. 2012 ADRP and the Hammatt and Shideler 2014 APMP) included the following: controlled excavation at 12 historic properties (SIHP #s -10154, -28778, -28785, -28786, -28807, -28812 through -28815, -29332, 29335, and -29345); artifact collection at two historic properties (SIHP #s -29348 and -29349); relocation of SIHP #s -29346 and -28808 Features D and E; and characterization of 16 historic trail properties (SIHP #s -00002, -10714, -15324, -18099, -19946, -19952 through -19954, -22418, -22507, -28774, -28782, -28784, -28787, -28791, and -29272) through historical research. Figure 1 and Figure 2 show the locations of the non-trail data recovery historic properties, which are discussed in this volume (see Volume III for discussion of trails). Data recovery fieldwork focused on the collection of data to support Research Objectives 2–4 (cultivation, function, and temporal analysis; Objective 1 [trails] was addressed through archival research only). A total of 82 excavation units were excavated, comprising approximately 81.5 sq m of surface area. Due to the size of the project area, the location of each excavation unit (EU) is shown in plan view within its associated historic property description presented in Section 2.



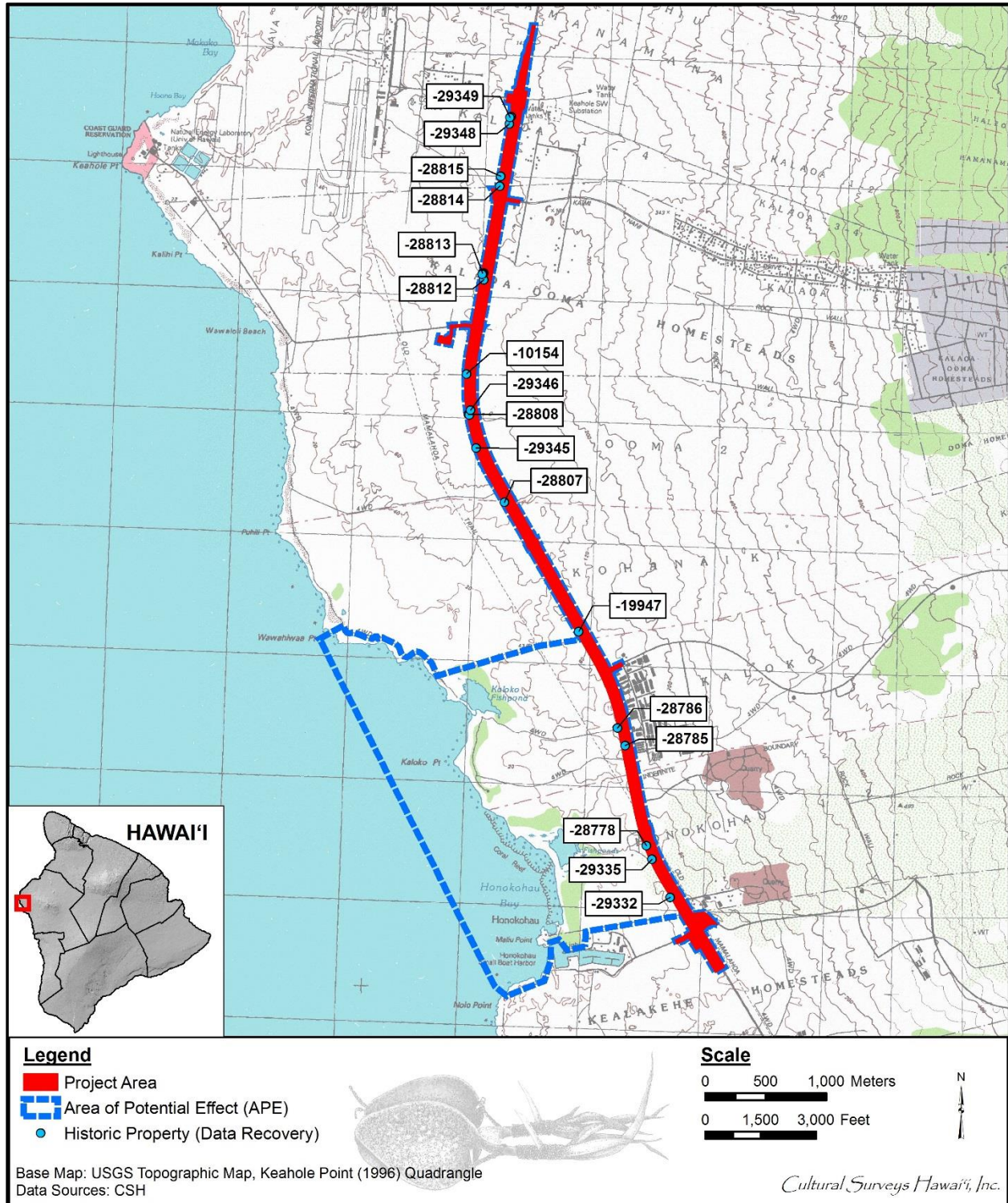


Figure 1. Portion of the 1996 Keahole Point USGS 7.5-minute series topographic quadrangle, showing the locations of the non-trail data recovery sites within the project area



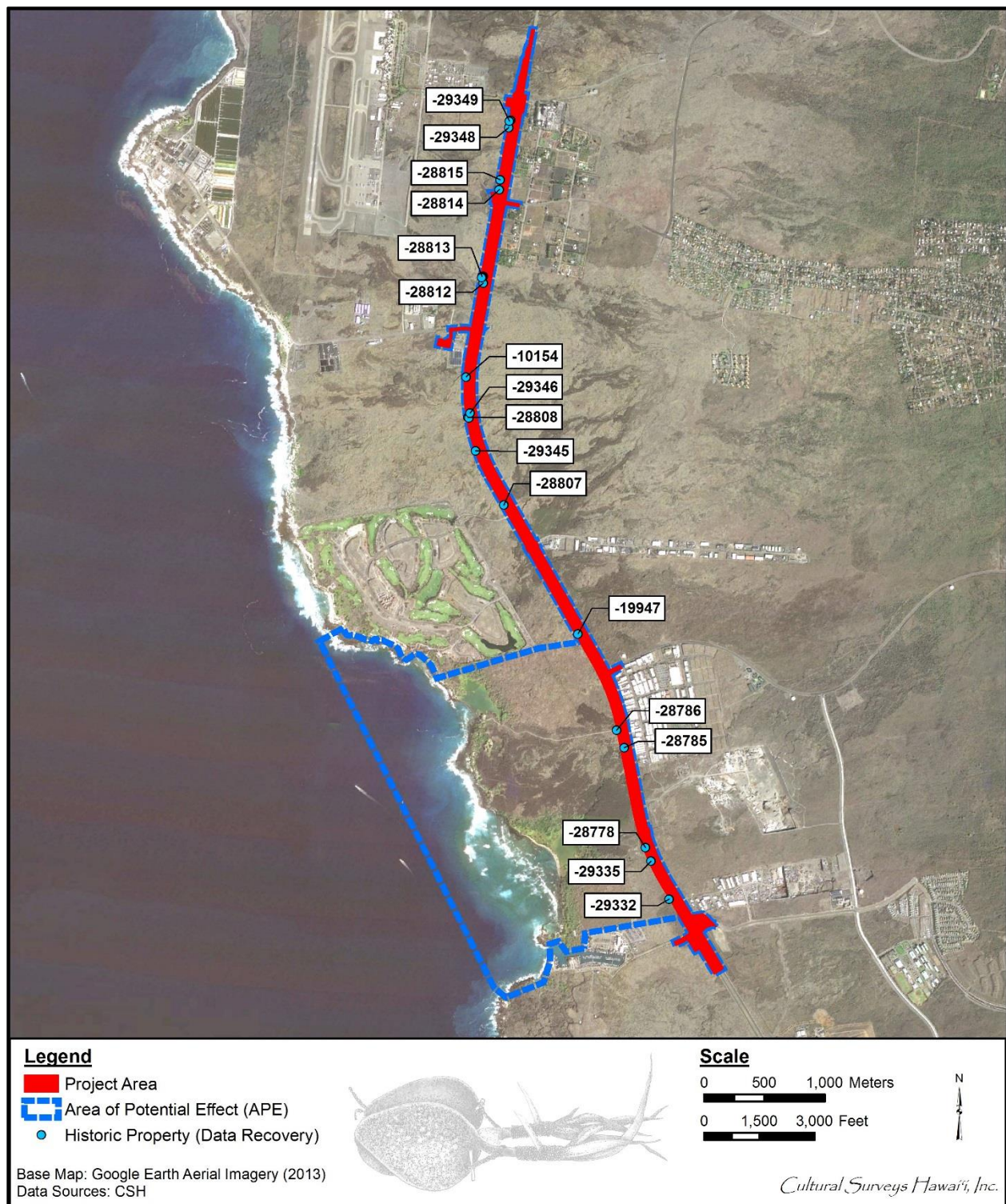


Figure 2. Aerial photograph of North Kona from 2013, showing the locations of the non-trail data recovery sites within the project area (Google Earth 2013)



## 1.2 Fieldwork Personnel

In October 2011, Sarah Wilkinson, B.A., Olivier Bautista, B.A., and Trevor Yucha, B.A., assisted project director Chris Monahan, Ph.D., with the fieldwork effort. Data recovery fieldwork was completed under the general supervision of Hallett H. Hammatt, Ph.D. (principal investigator). In May and June 2015, Olivier Bautista, B.A., Scott Belluomini, B.A., Johnny Dudoit, B.A., Angus Raff-Tierney, M.A., Andrew Soltz, B.A., Nifae Hunkin, B.A., Layne Krause, B.A., and Richard Stark, Ph.D., assisted project director William Folk, B.A., with the fieldwork effort, which required approximately 97 person-days to complete. Data recovery fieldwork was completed under the general supervision of Hallett H. Hammatt, Ph.D. (principal investigator).

## 1.3 Stratigraphic Summary of Excavation Units

The land surface is composed predominately of undissected ‘a‘ā and *pāhoehoe* lava flows. The *Soil Survey of the Island of Hawai‘i* describes ‘a‘ā lava terrain as having “practically no soil covering and is bare of vegetation, except for mosses, lichens, ferns, and a few small *ohia* trees. . . . This lava is rough and broken. It is a mass of clinkers, hard, glassy sharp pieces piled in tumbled heaps” (Sato et al. 1973:34). The same study describes *pāhoehoe* lava as “a billowy, glassy surface that is relatively smooth. In some areas however, the surface is rough and broken and there are hummocks and pressure domes” (Sato et al. 1973:34). The majority of the project area consists of ‘a‘ā flows (rLV) and *pāhoehoe* flows (rIW), with a few areas of Punaluu Extremely Rocky Peat, 6–20% slopes (rPYD; see Volume I, Figure 7). This soil series consists of very shallow, well drained, organic soils that formed in organic material mixed with minor amounts of basic volcanic ash over *pāhoehoe* lava.

During data recovery efforts, sediment was encountered in approximately 70% of the excavation units. Only one type of sediment (rPYD) was observed, and the deposits were sparse and generally located in pockets near the transition to undisturbed basalt bedrock. The sediment had a silt loam texture with no real structure. Due to the arid environment of coastal North Kona, very little organic sediment accumulation has occurred. The transport process of the sediment within the project area is primarily Aeolian in nature, with no signs of alluvial deposition. Bulk sediment samples were collected from 59 of the 87 excavation units for further study and laboratory analysis. Column samples were also taken from excavation units that were less historically disturbed and had greater potential for exposure to the pre-Contact pollen record.

The excavation unit dimensions and findings are summarized in Table 1, which includes the final depth and size of the excavation unit, sediment present, cultural material observed, and sediment samples collected. Following Table 1 are historic property descriptions, testing results, data recovery efforts, plan views, excavation unit profiles, and historic property interpretations.

Table 1. Summary of findings by excavation unit (EU)

EU #	SIHP # 50-10-27	Field Year	Size	Depth (cmbd)	Soil / Sediment	Cultural Materials	Pollen Sample	<sup>14</sup> C Sample	Faunal Remains
1	-28814	2011	~2.5 by 1.0 m	109	Decomposing bedrock	None observed	No	No	Unidentified fragment
2	-28813a	2011	0.8 by 0.8 m	148	Silt loam	None observed	Yes	Yes	Yes
3	-28813a	2011	0.8 by 0.8 m	135	Silt loam	None observed	Yes	Yes	Midden
4	-28812	2011	0.8 by 0.8 m	125	Decomposing bedrock	None observed	No	No	No
5	-10154	2011	0.8 by 0.8 m	95	Wall collapse	Wall collapse	No	No	No
1	-29332	2015	1.0 by 1.0 m	114	Silt loam and decomposing bedrock	None observed	No	No	No
2	-28815	2015	1.0 by 1.0 m	71	Silt loam	Angular basalt boulders with quarrying scars (not collected)	N/a	N/a	No
3	-28815	2015	1.0 by 1.0 m	72	Silt loam	Angular basalt boulders with quarrying scars (not collected)	N/a	N/a	No
4	-28814	2015	1.0 by 1.0 m	65	Decomposing bedrock	None observed	N/a	N/a	No

EU #	SIHP # 50-10-27	Field Year	Size	Depth (cmbd)	Soil / Sediment	Cultural Materials	Pollen Sample	<sup>14</sup> C Sample	Faunal Remains
5	-28814	2015	1.0 by 1.0 m	70	Decomposing bedrock	None observed	N/a	N/a	No
6	-28814	2015	1.0 by 1.0 m	65	Decomposing bedrock	None observed	N/a	N/a	No
7	-28814	2015	1.0 by 1.0 m	70	Decomposing bedrock	None observed	N/a	N/a	No
8	-28814	2015	1.0 by 1.0 m	26	Decomposing bedrock	None observed	N/a	N/a	No
9	-28814	2015	1.0 by 1.0 m	111	Decomposing bedrock	None observed	N/a	N/a	No
10	-28814	2015	1.0 by 1.0 m	19	Decomposing bedrock	None observed	N/a	N/a	No
11	-28814	2015	1.0 by 1.0 m	9	Decomposing bedrock	None observed	N/a	N/a	No
12	-28813b	2015	1.0 by 1.0 m	145	Silt loam	None observed	Yes	Yes	No
13	-28813b	2015	1.0 by 1.0 m	145	Silt loam	None observed	Yes	Yes	Crustacean fragments (0.1 g)
14	-28813b	2015	1.0 by 1.0 m	148	Silt loam	None observed	Yes	Yes	No
15	-28813b	2015	1.0 by 1.0 m	145	Silt loam	None observed	Yes	Yes	Crustacean fragments (3.2 g, n=16), unidentified (0.4 g, n=1)

EU #	SIHP # 50-10-27	Field Year	Size	Depth (cmbd)	Soil / Sediment	Cultural Materials	Pollen Sample	<sup>14</sup> C Sample	Faunal Remains
16	-28813b	2015	1.0 by 1.0 m	162	Silt loam	None observed	Yes	Yes	No
17	-28813b	2015	1.0 by 1.0 m	152	Silt loam	None observed	Yes	Yes	Crustacean fragments (1 g, n=3)
18	-28813c	2015	1.0 by 1.0 m	196	Silt loam	None observed	Yes	Yes	No
19	-28813c	2015	1.0 by 1.0 m	191	Silt loam	None observed	Yes	Yes	Crustacean claw (0.2 g, n=1), Ranellidae fragment (20.4 g, 1 nisp)
20	-28813c	2015	1.0 by 1.0 m	210	Silt loam	None observed	Yes	Yes	Crustacean claw fragments (1.8 g, n=6)
21	-28813c	2015	1.0 by 1.0 m	210	Silt loam	None observed	Yes	Yes	Crustacean shell and claw fragments (20.1 g)
22	-28813c	2015	1.0 by 1.0 m	218	Silt loam	None observed	Yes	Yes	Unidentified (7.2 g)
23	-28813c	2015	1.0 by 1.0 m	220	Silt loam	None observed	Yes	Yes	No
24	-28813e	2015	1.0 by 1.0 m	110	Silt loam	None observed	Yes	Yes	Crustacean claw fragments (0.7 g, n=5)
25	-28813e	2015	1.0 by 1.0 m	103	Silt loam	None observed	Yes	Yes	No

EU #	SIHP # 50-10-27	Field Year	Size	Depth (cmbd)	Soil / Sediment	Cultural Materials	Pollen Sample	<sup>14</sup> C Sample	Faunal Remains
26	-28813e	2015	1.0 by 1.0 m	111	Silt loam	None observed	Yes	Yes	Unidentified (7.8 g)
27	-28813e	2015	1.0 by 1.0 m	107	Silt loam	None observed	Yes	Yes	Crab claw fragments (8 nisp), avian bone fragments (n=2); 1.8 g total weight
28	-28813e	2015	1.0 by 1.0 m	100	Silt loam	None observed	Yes	Yes	No
29	-28813e	2015	1.0 by 1.0 m	100	Silt loam	None observed	Yes	Yes	No
30	-28813e	2015	1.0 by 1.0 m	63	Silt loam	None observed	Yes	Yes	No
31	-28813e	2015	1.0 by 1.0 m	72	Silt loam	None observed	Yes	Yes	No
32	-28813e	2015	1.0 by 1.0 m	63	Silt loam	None observed	Yes	Yes	No
33	-28813e	2015	1.0 by 1.0 m	60	Silt loam	None observed	Yes	Yes	No
34	-28813e	2015	1.0 by 1.0 m	100	Silt loam	None observed	Yes	Yes	No
35	-28813e	2015	1.0 by 1.0 m	92	Silt loam	None observed	Yes	Yes	No
36	-28813e	2015	1.0 by 1.0 m	93	Silt loam	None observed	Yes	Yes	No

EU #	SIHP # 50-10-27	Field Year	Size	Depth (cmbd)	Soil / Sediment	Cultural Materials	Pollen Sample	<sup>14</sup> C Sample	Faunal Remains
37	-28813e	2015	1.0 by 1.0 m	100	Silt loam	None observed	Yes	Yes	No
38	-28813e	2015	1.0 by 1.0 m	100	Silt loam	None observed	Yes	Yes	No
39	-28813e	2015	1.0 by 1.0 m	90	Silt loam	None observed	Yes	Yes	No
40	-28813e	2015	1.0 by 1.0 m	90	Silt loam	None observed	Yes	Yes	No
41	-28813e	2015	1.0 by 1.0 m	72	Silt loam	None observed	Yes	Yes	No
42	-28813e	2015	1.0 by 1.0 m	111	Silt loam	None observed	Yes	Yes	Crustacean shell fragment (0.1 g, n=1)
43	-28813e	2015	1.0 by 1.0 m	116	Silt loam	None observed	Yes	Yes	No
44	-28813e	2015	1.0 by 1.0 m	90	Silt loam	None observed	Yes	Yes	No
45	-28813e	2015	1.0 by 1.0 m	120	Silt loam	None observed	Yes	Yes	No
46	-28813e	2015	1.0 by 1.0 m	118	Silt loam	None observed	Yes	Yes	No
47	-28813e	2015	1.0 by 1.0 m	110	Silt loam	None observed	Yes	Yes	No
48	-28813d	2015	1.0 by 1.0 m	75	Silt loam	None observed	Yes	Yes	No

EU #	SIHP # 50-10-27	Field Year	Size	Depth (cmbd)	Soil / Sediment	Cultural Materials	Pollen Sample	<sup>14</sup> C Sample	Faunal Remains
49	-28813d	2015	1.0 by 1.0 m	191	Decomposing bedrock	None observed	No	No	No
50	-28812	2015	1.0 by 1.0 m	104	Decomposing bedrock	None observed	Yes	Yes	No
51	-28812	2015	1.0 by 1.0 m	97	Decomposing bedrock	None observed	Yes	Yes	No
52	-29345	2015	1.0 by 1.0 m	105	Coral cobbles	Manuport coral cobbles (not collected)	N/a	N/a	No
53	-29345	2015	1.0 by 1.0 m	113	Coral cobbles	Manuport coral cobbles (not collected)	N/a	N/a	No
54	-29345	2015	1.0 by 1.0 m	148	Coral cobbles	Manuport coral cobbles (not collected)	N/a	N/a	No
55	-28807	2015	1.0 by 1.0 m	110	Coral and basalt cobbles	47 massive water rounded coral cobble and pebble manuports (24 liters, not collected)	N/a	N/a	No
56	-28807	2015	1.0 by 1.0 m	120	Coral and basalt cobbles	22 massive water rounded coral cobble and pebble manuports (24 liters, not collected)	N/a	N/a	No

EU #	SIHP # 50-10-27	Field Year	Size	Depth (cmbd)	Soil / Sediment	Cultural Materials	Pollen Sample	<sup>14</sup> C Sample	Faunal Remains
57	-28807	2015	1.0 by 1.0 m	117	Coral and basalt cobbles	Two massive water rounded coral cobble manuports (not collected)	N/a	N/a	No
58	-28807	2015	1.0 by 1.0 m	141	Coral and basalt cobbles	Ten massive water rounded coral cobble manuports (not collected)	N/a	N/a	No
59	-28807	2015	1.0 by 1.0 m	140	Coral and basalt cobbles	23 massive water rounded coral cobble manuports (not collected)	N/a	N/a	No
60	-28807	2015	1.0 by 1.0 m	140	Coral and basalt cobbles	22 massive water rounded coral cobble manuports (20 liters, not collected)	N/a	N/a	No
61	-28807	2015	1.0 by 1.0 m	147	Coral and basalt cobbles	33 massive water rounded coral cobble manuports (48 liters, not collected), modern worked stick (not collected)	N/a	N/a	No



EU #	SIHP # 50-10-27	Field Year	Size	Depth (cmbd)	Soil / Sediment	Cultural Materials	Pollen Sample	<sup>14</sup> C Sample	Faunal Remains
62	-28807	2015	1.0 by 1.0 m	141	Coral and basalt cobbles	Two individual massive water rounded coral cobble manuports (not collected)	N/a	N/a	No
63	-28813f	2015	1.0 by 1.0 m	82	Silt loam	None observed	Yes	Yes	No
64	-28813f	2015	1.0 by 1.0 m	90	Silt loam	None observed	Yes	Yes	No
65	-28786	2015	1.0 by 1.0 m	38	Decomposing bedrock	None observed	Yes	Yes	Unidentified faunal rib (8.1 g)
66	-28785	2015	1.0 by 1.0 m	155	Silt loam	Stacked and collapsed basalt pebbles, cobbles, and boulders (not collected)	Yes	Yes	No
67	-28785	2015	1.0 by 1.0 m	157	Silt loam	None observed	Yes	Yes	<i>Sus scrofa</i> (pig) end tusk fragment (5.4 g)
68	-28785	2015	1.0 by 1.0 m	160	Silt loam	Charcoal (3.1 g)	Yes	Yes	No
69	-28785	2015	1.0 by 1.0 m	168	Silt loam	None observed	Yes	Yes	<i>S. scrofa</i> (pig): jaw bone, axial and appendicular skeleton (1596.6 g)

EU #	SIHP # 50-10-27	Field Year	Size	Depth (cmbd)	Soil / Sediment	Cultural Materials	Pollen Sample	<sup>14</sup> C Sample	Faunal Remains
70	-28785	2015	1.0 by 1.0 m	160	Silt loam	Charcoal (1.3 g)	Yes	Yes	<i>S. scrofa</i> (pig): axial and appendicular skeleton (2850.6 g), unidentified midden (32.6 g)
71	-28785	2015	1.0 by 1.0 m	162	Silt loam	None observed	Yes	Yes	<i>S. scrofa</i> (pig): axial and appendicular skeleton (657.2 g)
72	-28785	2015	1.0 by 1.0 m	165	Silt loam	Stacked and collapsed basalt pebbles, cobbles, and boulders (not collected)	Yes	Yes	No
73	-28785	2015	1.0 by 1.0 m	179	Silt loam	Stacked and collapsed basalt pebbles, cobbles, and boulders (not collected)	Yes	Yes	No
74	-28785	2015	1.0 by 1.0 m	153	Silt loam	None observed	Yes	Yes	No
75	-28785	2015	1.0 by 1.0 m	153	Silt loam	None observed	Yes	Yes	Unidentified (0.2 g)
76	-28778	2015	1.0 by 1.0 m	90	Silt loam	Angular basalt boulders with quarrying scars (not collected)	Yes	Yes	No

EU #	SIHP # 50-10-27	Field Year	Size	Depth (cmbd)	Soil / Sediment	Cultural Materials	Pollen Sample	<sup>14</sup> C Sample	Faunal Remains
77	-28778	2015	1.0 by 1.0 m	88	Silt loam	Angular basalt boulders with quarrying scars (not collected)	Yes	Yes	No
78	-28778	2015	1.0 by 1.0 m	98	Silt loam	Angular basalt boulders with quarrying scars (not collected)	Yes	Yes	No
79	-28778	2015	1.0 by 1.0 m	90	Silt loam	Angular basalt boulders with quarrying scars (not collected)	Yes	Yes	No
80	-28778	2015	1.0 by 1.0 m	104	Silt loam	Angular basalt boulders with quarrying scars (not collected)	Yes	Yes	No
81	-29335	2015	1.5 by 0.5 m	93	N/a	Stacked and collapsed basalt pebbles, cobbles, and boulders (not collected)	N/a	N/a	No
82	-29335	2015	1.5 by 0.5 m	93	N/a	Stacked and collapsed basalt pebbles, cobbles, and boulders (not collected)	N/a	N/a	No

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## Section 2 Historic Property/Excavation Unit Documentation

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### 2.1 SIHP # 50-10-27-10154

**Temporary Site No.:** T-4 (Barrera 1985)

**Formal Type:** Walled enclosure

**No. of Features:** 0

**Function:** Indeterminate, possible habitation

**Age:** Historic

**Dimensions:** 3.0 m N/S by 10.3 m E/W

**Topography:** Level *pāhoehoe* flow

**Elevation:** 32 m (105 ft) AMSL

**Description:** SIHP # -10154 is a walled enclosure approximately 400 m south of OTEC road (see Figure 1 and Figure 2), first formally described by Barrera (1985). For unknown reasons, Walsh and Hammatt (1995) do not mention or include SIHP # -10154 in their study, although it was clearly within the limits of their project area. SIHP # -10154 was revisited during the current project's AIS by Monahan et al. (2012) and found to be in the same physical condition as described by Barrera (1985).

Barrera (1985:11) describes SIHP # -10154 as “a habitation structure measuring approximately 13 meters in length and three meters in width, and standing to a height of about one meter.” Barrera (1989) provided additional detail in a data recovery effort that included SIHP # -10154:

This is a well-constructed shelter built against a bedrock ledge plus an adjacent short wall section, covering an area of 3 by 10.3 meters. The shelter measures 7.8 meters in length and 3 meters in width, and stands to a height of 1.2 meters. Its wall, which measures between 0.65 and 0.95 meters in width, encloses an area of 14.4 square meters and cover an area of 8 square meters. The short wall section measures 0.8 by 1.7 meters and stands to a height of one meter. Although no midden or artifacts were found at the site, its proximity and similarity in construction to the adjacent historic period boundary [SIHP # -06432] wall suggests that it is of the same age, but its function remains unknown. [Barrera 1989:101]

SIHP # -10154 has been assessed as significant under Criteria d and e.

#### 2.1.1 Data Recovery Effort

Documentation of SIHP # -10154 involved updating the original AIS plan map, drafting a profile and cross-section of the enclosure wall (Figure 3 through Figure 5), taking photographs (Figure 6 and Figure 7), and excavating one unit (EU 5) to bedrock. Data recovery fieldwork at SIHP # -10154 occurred only during the 2011 field season and followed the 2011 ADRP (Altizer and Monahan 2011). At the time of that report, Altizer and Monahan (2011:153) recommended SIHP # -10154 for data recovery consisting of three 1.0 by 1.0 m excavation units within the feature's interior. However, in the middle of fieldwork at the site, the status of SIHP # -10154 was changed from data recovery to preservation. Therefore, only one of the three excavation units (EU 5) was completed before work was stopped due to the status change. The results of that excavation are presented below.

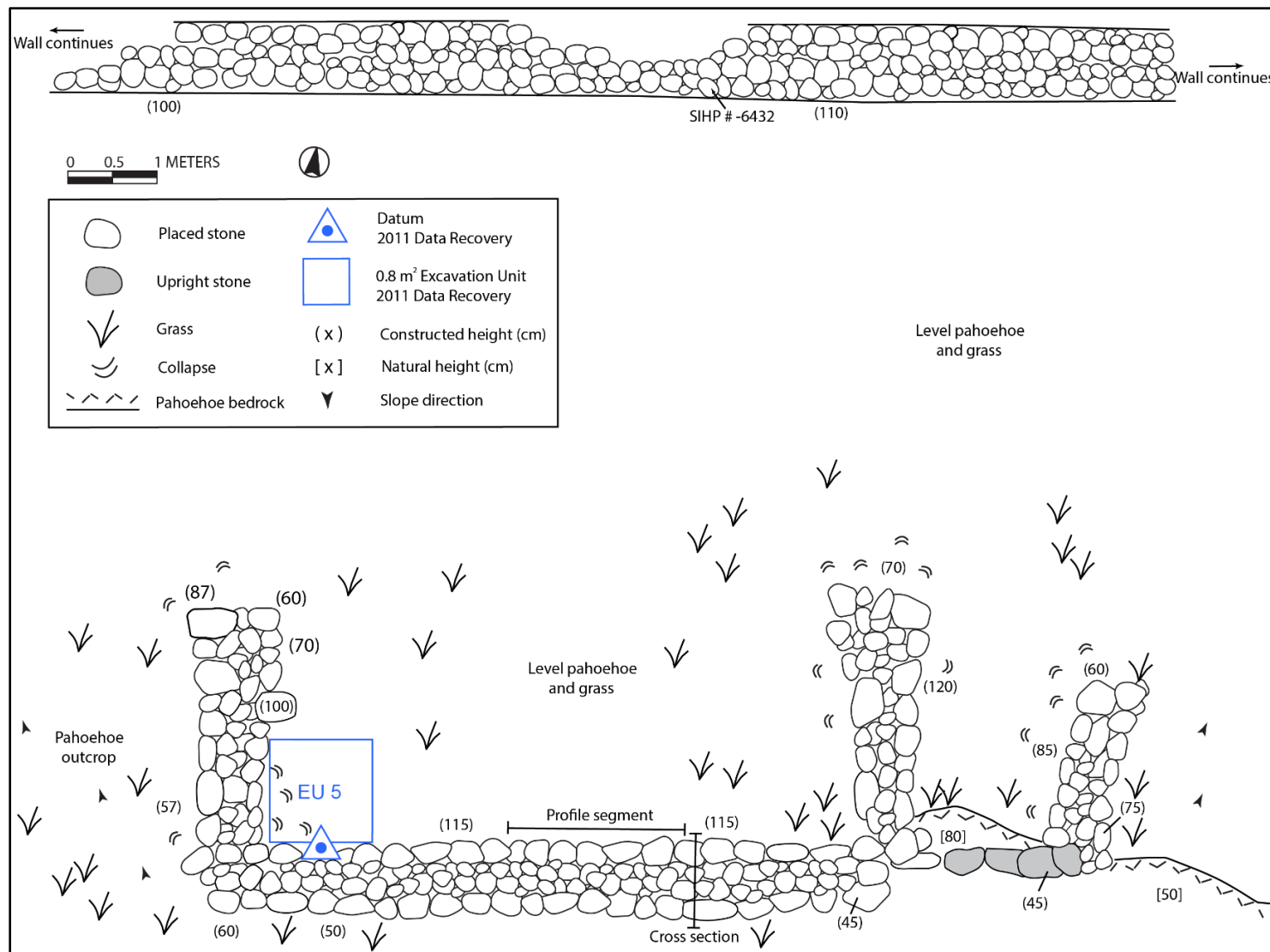


Figure 3. SIHP # -10154 plan view map showing EU 5 profile and cross-section locations

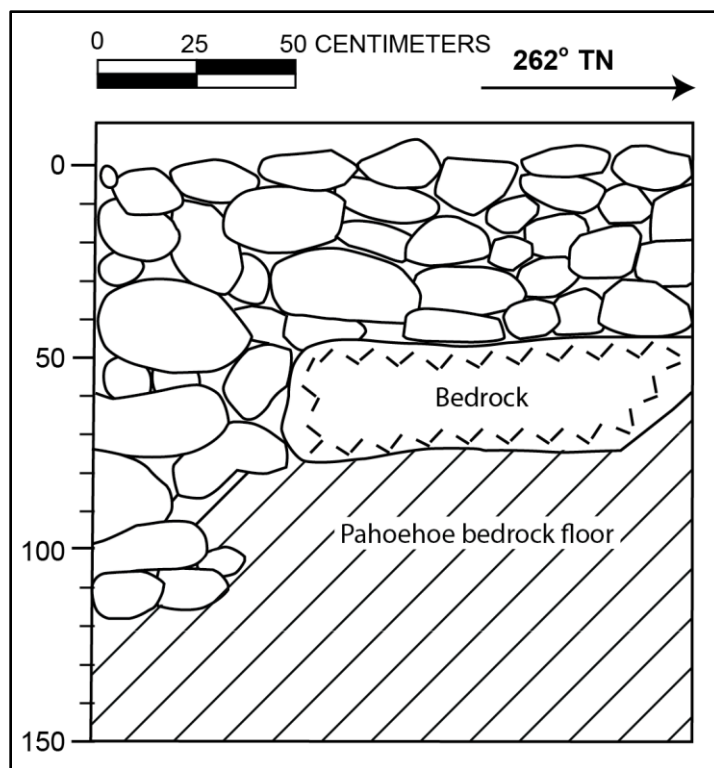


Figure 4. SIHP # -10154 profile (see Figure 3 above for location), view to southeast

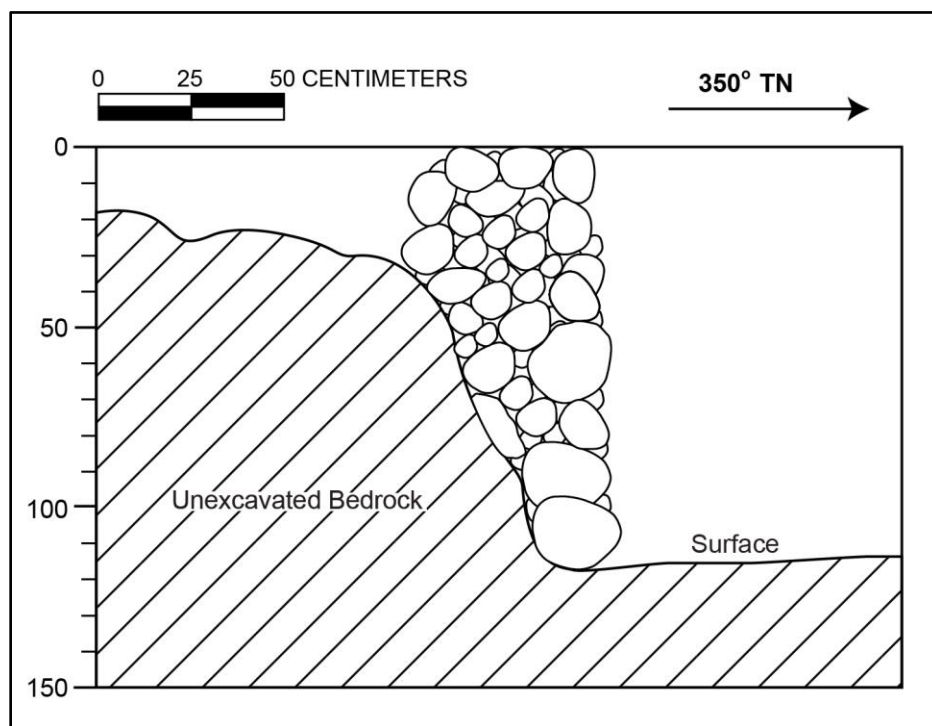


Figure 5. SIHP # -10154 cross-section (see Figure 3 above for location), view to southwest





Figure 6. SIHP # -10154 pre-excavation overview, view to southwest



Figure 7. SIHP # -10154 pre-excavation close-up, view to southwest

### 2.1.1.1 EU 5

EU 5, a 1.0 m by 1.0 m excavation unit, was at the center of SIHP # -10154 (Figure 8 and Figure 9). Sediment consisted almost entirely of *pāhoehoe* boulder collapse from the adjacent enclosure wall, with less than 1% aeolian deposited silt overlying the undulating *pāhoehoe* bedrock (Table 2). The collection of bulk samples for pollen analysis was planned; however, there was not enough fine grained sediment for collection. Other than the wall collapse, no evidence of anthropogenic/cultural modification were observed within EU 5.

Table 2. SIHP # -10154 EU 5 stratigraphy

Stratum	Depth (cmbd)	Description
I	55–95	Angular basalt boulders and cobbles with less than 1% fine silt; wall collapse

### 2.1.2 Interpretation

Excavations at SIHP # -10154 were conducted in order to obtain sufficient data to address a research objective in the 2011 version of the ADRP (Altizer and Monahan 2011). This research objective was “to develop criteria to distinguish temporary habitation sites from other primary functions such as cultivation and water-catchment by developing a set of test implications based on variation in excavated finds” (Altizer and Monahan 2011:186). SIHP # -10154 was originally interpreted as a possible habitation site dating from historic (post-Contact) times. This date was based on architectural similarity and proximity to the historic period *ahupua'a* boundary (SIHP # -06432). During data recovery fieldwork, no portable cultural material was observed other than collapse from the enclosure wall. The results of the data recovery do not contradict the original interpretation of SIHP # -10154 as a historic habitation site.





Figure 8. SIHP # -10154 EU 5 pre-excavation overview, view to south



Figure 9. SIHP # -10154 EU 5 post-excavation overview, view to south

## 2.2 SIHP # 50-10-27-28778

**CSH Site No.:** T-080510-2 (Monahan et al. 2012)

**Formal Type:** *Pāhoehoe* excavation

**No. of Features:** 0

**Function:** Resource prospecting pit

**Age:** Pre- to post-Contact

**Dimensions:** 3.0 m N/S by 2.0 m E/W

**Topography:** Level *pāhoehoe* flow

**Elevation:** 11 m (36 ft) AMSL

**Description:** SIHP # -28778 is a *pāhoehoe* excavation adjacent to the Kaloko-Honokōhau National Historical Park, approximately 120 m south of the park's visitor center entrance (see Figure 1 and Figure 2). SIHP # -28778 is described by Monahan et al. (2012) as a *pāhoehoe* excavation consisting of an excavated pit with small piles of angular *pāhoehoe* cobbles and small boulders (the excavated material) both covering and surrounding the pit. The excavated area is irregularly shaped, has scalloped edges, and is 3.0 m north/south by 2.0 m east/west. The *pāhoehoe* excavation has exposed a small lava tube between two layers of *pāhoehoe* at the north end of the site. The lava tube is approximately 5.0 m north/south by 5.0 m east/west with a maximum ceiling height of 0.45 m. Along the perimeter of the excavated area is a shallow overhang with a maximum ceiling height of 0.22 m and a maximum width of 1.1 m. The base of the excavated area consists of a thin layer of sediment and organic debris supporting the growth of *koa haole* (*Leucaena leucocephala*) and exotic grasses (Monahan et al. 2012:156).

SIHP # -28778 has been assessed as significant under Criteria d and e.

### 2.2.1 Data Recovery Effort

Data recovery fieldwork at SIHP # -28778 involved 100% areal excavation. While the ADRP (Shideler et al. 2012:120) predicted that 6 sq m of excavation would be required, the irregular shape of the pit allowed for five 1.0 m by 1.0 m units. Excavation consisted of four 1.0 m by 1.0 m excavation units (EU 76 through 79) placed into a 2.0 m by 2.0 m areal excavation, along with another 1.0 by 1.0 m excavation unit (EU 80) adjacent to the north (Figure 10 and Figure 11). Two perpendicular profiles were documented for each excavation unit, and the existing AIS plan map was updated to depict the locations of the excavation units (see Figure 10).

Bulk samples were collected from the surface and base of excavations for pollen analysis and radiocarbon dating (see Volume I Sections 8.3 and 8.4). A sub-meter accurate Trimble GPS unit was used to record the center point of each unit. EU 76 through 80 were excavated to the undulating *pāhoehoe* bedrock (Figure 12). Depositional stratigraphy for SIHP # -28778 consists of an aeolian silt deposit with many fine roots, likely associated with the *koa haole* (*L. leucocephala*) in the center of the feature, overlying the natural *pāhoehoe* bedrock ranging in depth from 85-104 cmbd (Table 3). No cultural materials were observed in the test excavations, which are described in detail below.

#### 2.2.1.1 EU 76

EU 76, a 1.0 m by 1.0 m excavation unit, was excavated through a single stratigraphic layer to bedrock at 90 cmbd (Figure 13 through Figure 16). Profile drawings of the southeast and southwest

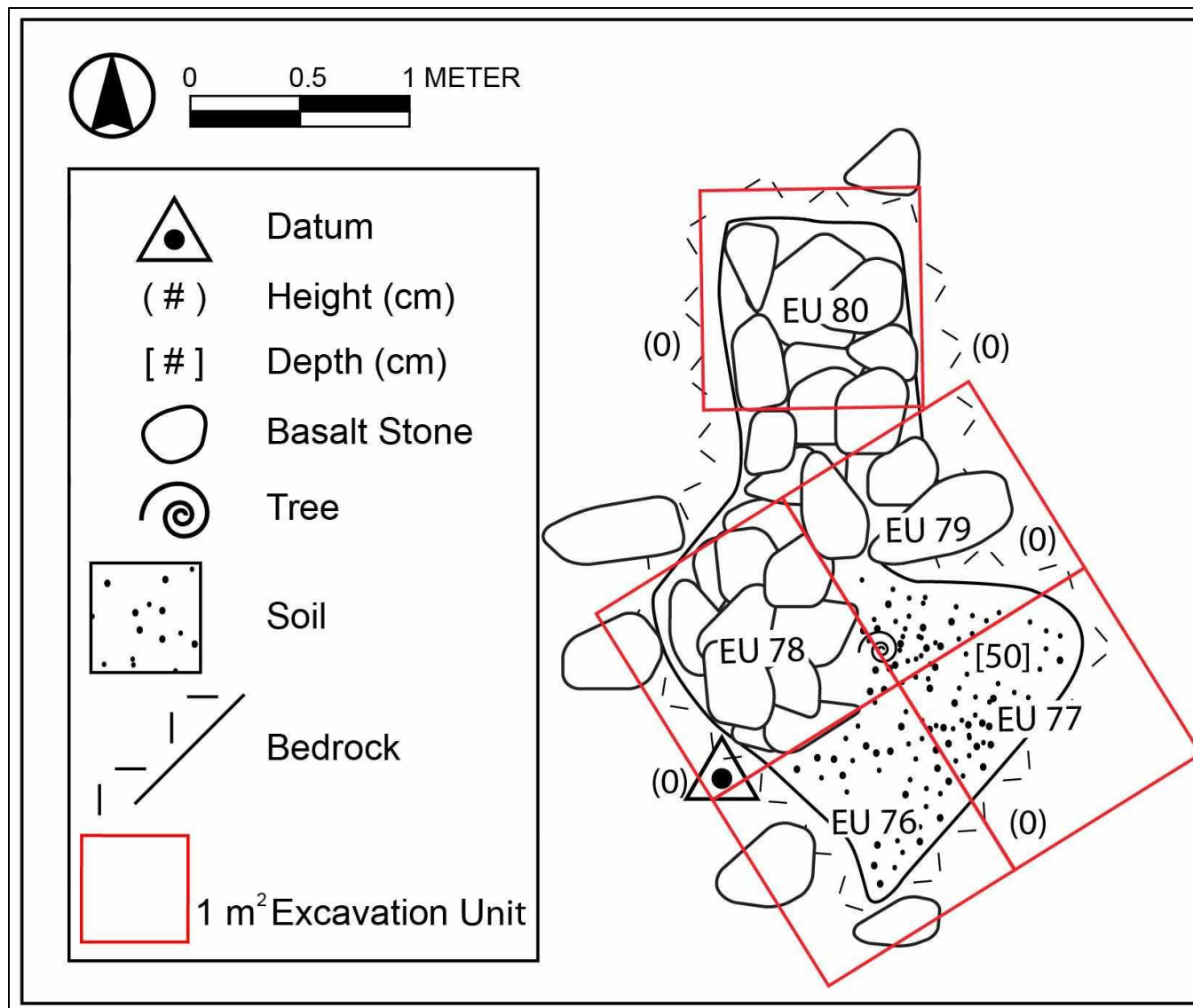


Figure 10. SIHP # -28778 plan map showing the locations of EU 76 through 80





Figure 11. SIHP # -28778 showing EU 76 through 79 grid set up, view to north



Figure 12. SIHP # -28778 post-excavation overview, view to north

Table 3. SIHP # -28778 EU 76 through 80 stratigraphy

Excavation Unit	Stratum	Depth (cmbd)	Description
EU 76	I	47–90	Natural; 10YR 4/2, dark grayish brown; stony silt loam; weak, fine, granular structure; moist, loose consistence; non-plastic; terrigenous origin; many, fine roots; very abrupt, wavy lower boundary; contains abundant decomposed organic matter and a few small, angular <i>pāhoehoe</i> boulders
EU 77	I	82–88	Natural; 10YR 4/2, dark grayish brown; cobbly silt loam; weak, fine, granular structure; moist, loose consistence; non-plastic; terrigenous origin; common, fine roots; very abrupt, wavy lower boundary; contains abundant decomposed organic matter and a few small to medium, angular <i>pāhoehoe</i> cobbles
EU 78	I	93–98	Natural; 10YR 4/2, dark grayish brown; stony silt loam; weak, fine, granular structure; moist, loose consistence; non-plastic; terrigenous origin; common, fine roots; very abrupt, wavy lower boundary; contains abundant decomposed organic matter and 18 small to medium <i>pāhoehoe</i> boulders
EU 79	I	85–90	Natural; 10YR 4/2, dark grayish brown; stony silt loam; weak, fine, granular structure; moist, loose consistence; non-plastic; terrigenous origin; common, fine roots; very abrupt, wavy lower boundary; contains abundant decomposed organic matter and small to medium, angular <i>pāhoehoe</i> boulders
EU 80	I	25–104	Natural; 10YR 4/2, dark grayish brown; cobbly silt loam; weak, fine, granular structure; moist, loose consistence; non-plastic; terrigenous origin; many, fine roots; very abrupt, wavy lower boundary; contains abundant decomposed organic matter and ten small to medium, angular <i>pāhoehoe</i> cobbles





Figure 13. SIHP # -28778 EU 76 pre-excavation overview, view to northwest



Figure 14. SIHP # -28778 EU 76 post-excavation overview, view to northwest





Figure 15. SIHP # -28778 EU 76 profile of southeast wall, view to southeast



Figure 16. SIHP # -28778 EU 76 profile of southwest wall, view to southwest

walls (Figure 17) indicate a natural void within the feature. Sediment (Stratum I) consisted of silt loam with a few small *pāhoehoe* boulders and abundant decomposed organic matter (grasses and *koa haole* [*L. leucocephala*] roots) from 47–90 cmbd (see Table 3), overlying the undulating *pāhoehoe* bedrock. No cultural materials were observed.

#### 2.2.1.2 EU 77

EU 77, a 1.0 m by 1.0 m excavation unit, was excavated through a single stratigraphic layer to bedrock at 88 cmbd (Figure 18 through Figure 20). Profile drawings of the southwest and northeast walls (Figure 21) indicate a natural void within the feature. Sediment (Stratum I) consists of silt loam with small to medium *pāhoehoe* cobbles and abundant decomposed organic matter (grasses and *koa haole* [*L. leucocephala*] roots) from 82–88 cmbd (see Table 3), overlying the undulating *pāhoehoe* bedrock. No cultural materials were observed.

#### 2.2.1.3 EU 78

EU 78, a 1.0 m by 1.0 m excavation unit, was excavated through a single stratigraphic layer to bedrock at 105 cmbd (Figure 22 through Figure 25). Profile drawings of the southwest and northwest walls (Figure 26) indicate a natural void within the feature. Sediment (Stratum I) consists of silt loam with 18 small to medium *pāhoehoe* boulders and abundant decomposed organic matter and roots from 26–105 cmbd (see Table 3), overlying the undulating *pāhoehoe* bedrock. No cultural materials were observed.

#### 2.2.1.4 EU 79

EU 79, a 1.0 m by 1.0 m excavation unit, was excavated through a single stratigraphic layer to bedrock at 90 cmbd (Figure 27 through Figure 30). Profile drawings of the northwest and northeast walls (Figure 31) indicate a natural void within the feature. A bedrock outcrop covered the northern and eastern quadrants, and a *koa haole* (*L. leucocephala*) stump covered the western edge of the excavation unit. Sediment (Stratum I) consists of silt loam with small to medium *pāhoehoe* boulders and abundant decomposed organic matter and roots from 55–90 cmbd (see Table 3), overlying the undulating *pāhoehoe* bedrock. No cultural materials were observed.

#### 2.2.1.5 EU 80

EU 80, a 1.0 m by 1.0 m excavation unit, was placed north of the areal excavation on a filled crevice (Figure 32 through Figure 35). Profile drawings of the west and north walls (Figure 36) indicate a natural void or lava tube within the feature. A bedrock outcrop covered the western and eastern edges of the excavation unit. Sediment (Stratum I) consisted of silt loam with ten small to medium *pāhoehoe* cobbles and abundant decomposed organic matter and roots from 25–104 cmbd (see Table 3), overlying the undulating *pāhoehoe* bedrock. Within the excavation unit, a low hanging (45 cm) opening to a lava tube was observed and investigated. No cultural materials or modifications were observed within the lava tube or the rest of the excavation unit.

### 2.2.2 Interpretation

Excavations at SIHP # -28778 were conducted to obtain sufficient data to address two research objectives on cultivation and temporal analysis, proposed in the ADRP preceding this report (Shideler et al. 2012). The former was proposed “to understand the nature and intensity of cultivation in the project area in the context of predictive models for North Kona based on variation in elevation and rainfall” (Shideler et al. 2012:264). The latter was proposed “to determine the



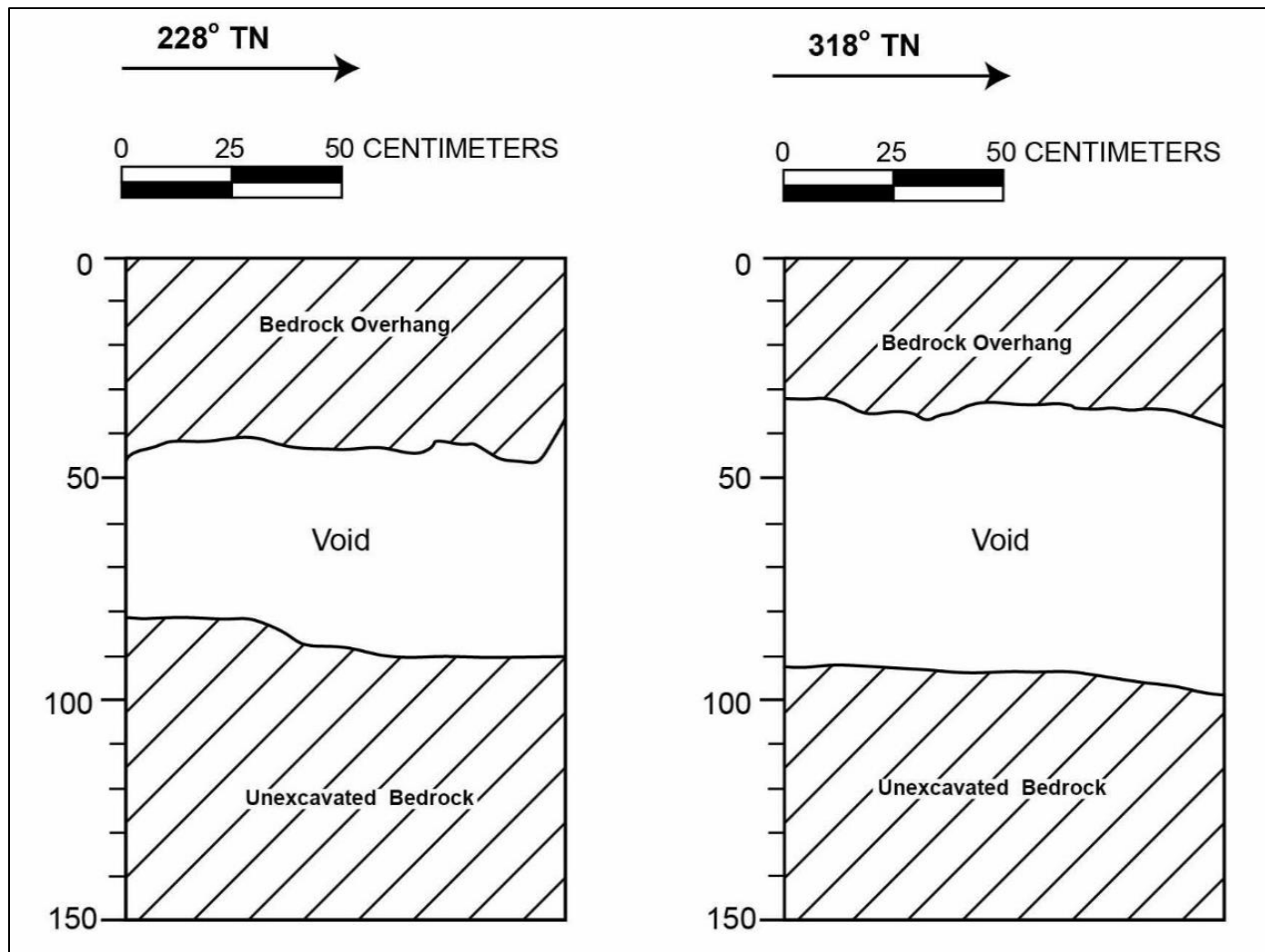


Figure 17. SIHP # -28778 EU 76 southeast and southwest wall profiles



Figure 18. SIHP # -28778 EU 77 pre-excavation overview, view to northwest



Figure 19. SIHP # -28778 EU 77 post-excavation overview, view to northwest





Figure 20. SIHP # -28778 EU 77 profile of southeast wall, view to southeast

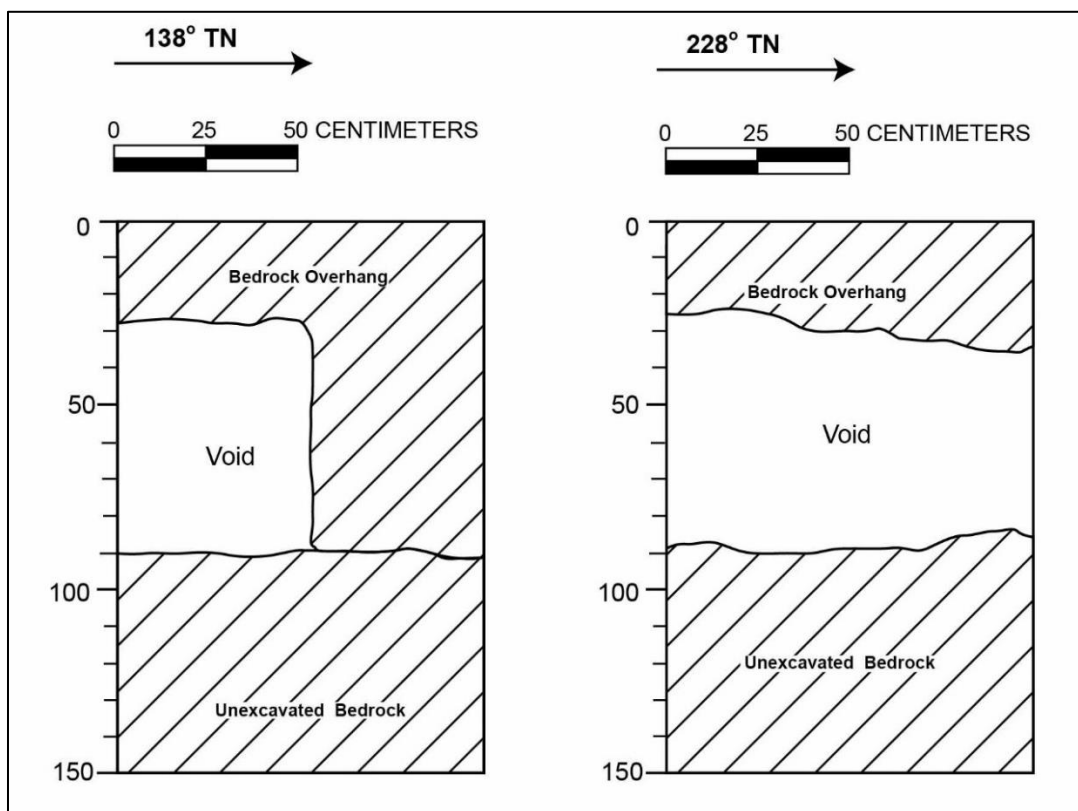


Figure 21. SIHP # -28778 EU 77 southwest and northeast wall profiles





Figure 22. SIHP # -28778 EU 78 pre-excavation overview, view to northwest



Figure 23. SIHP # -28778 EU 78 post-excavation overview, view to northwest





Figure 24. SIHP # -28778 EU 78 profile of northwest wall, view to northwest



Figure 25. SIHP # -28778 EU 78 profile of southwest wall, view to west



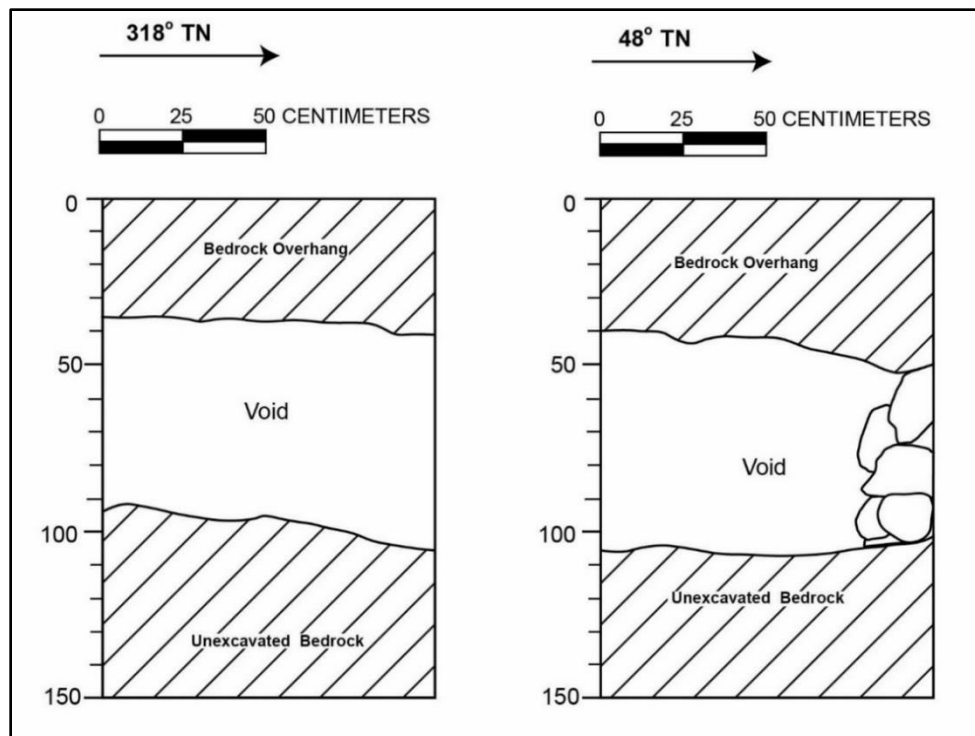


Figure 26. SIHP # -28778 EU 78 southwest and northwest wall profiles



Figure 27. SIHP # -28778 EU 79 pre-excavation overview, view to northwest





Figure 28. SIHP # -28778 EU 79 post-excavation overview, view to northwest



Figure 29. SIHP # -28778 EU 79 profile of northeast wall, view to northeast





Figure 30. SIHP # -28778 EU 79 profile of northwest wall, view to northwest

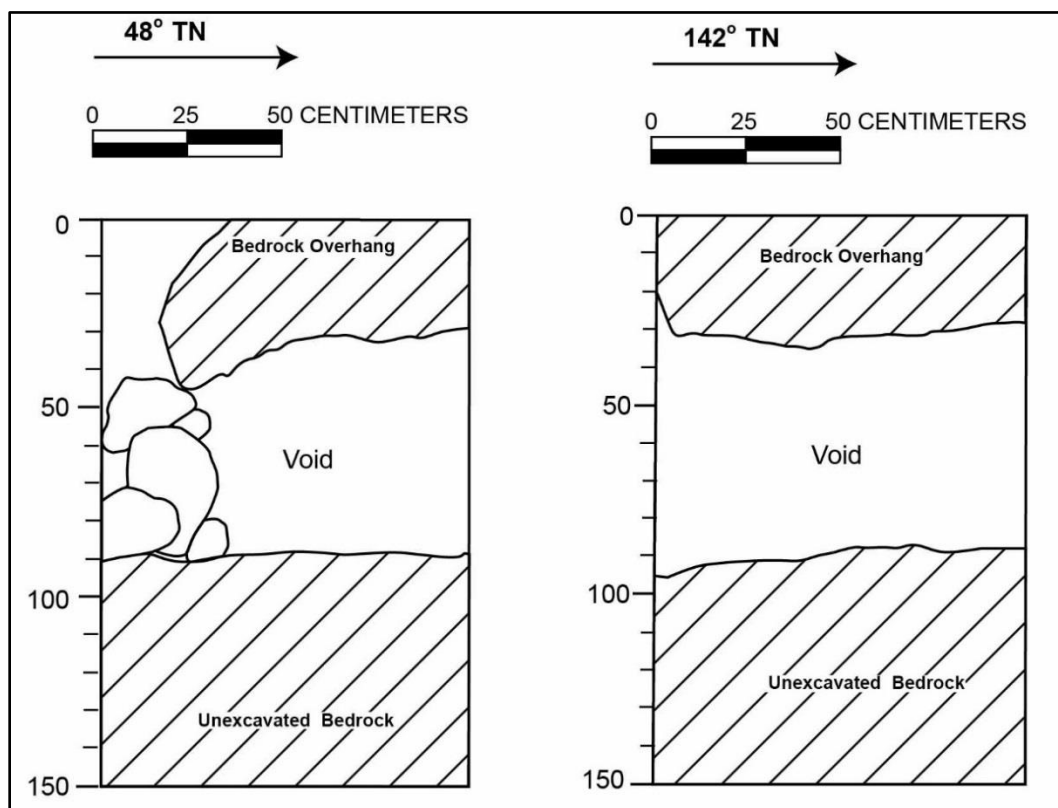


Figure 31. SIHP # -28778 EU 79 northwest and northeast wall profiles





Figure 32. SIHP # -28778 EU 80 pre-excavation overview, view to north



Figure 33. SIHP # -28778 EU 80 post-excavation overview, view to north





Figure 34. SIHP # -28778 EU 80 profile of west wall, view to west



Figure 35. SIHP # -28778 EU 80 profile of north wall, view to north

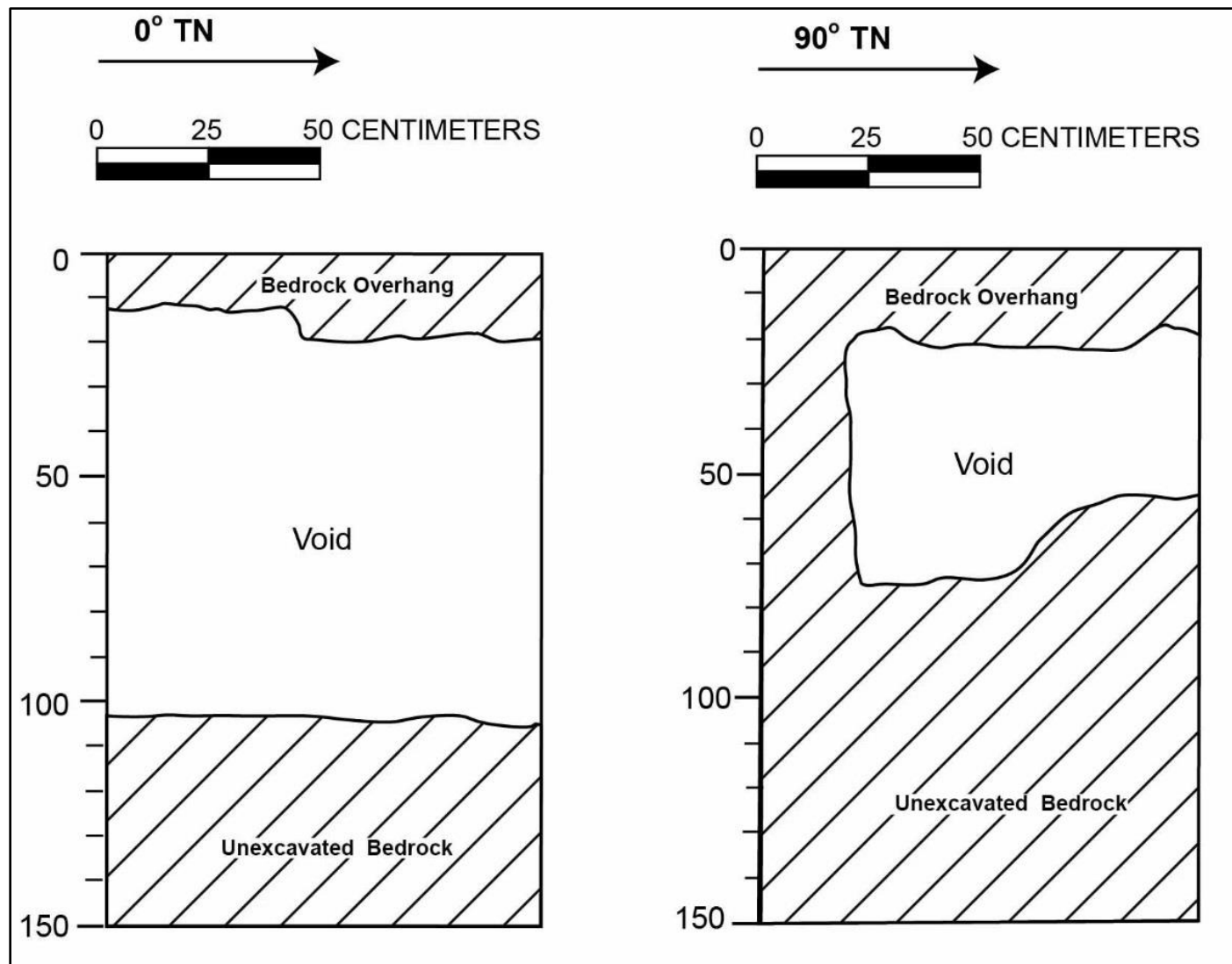


Figure 36. SIHP # -28778 EU 80 west and north wall profiles

absolute dates of occupation of the project area as may be available from data recovery sites...” (Shideler et al. 2012:265).

While originally interpreted as a “planting pit feature” (Monahan et al. 2012:156), no evidence of agricultural use was observed at SIHP # -28778 during data recovery efforts. All five excavation units yielded a culturally sterile matrix. A low hanging opening to a shallow lava tube was observed and investigated upon excavation of EU 80 (northernmost unit, filled crevice); however, no cultural materials or modifications were observed within the lava tube. Irregular, scalloped edges observed on the margins of the pit made it clear the pit was anthropogenically modified; however, no other cultural indicators or materials were observed. The discovery of the small lava tube in its northern end and the presence of most, if not all, of the original excavated material remaining suggest SIHP # -28778 is associated with prospecting for subterranean openings in the lava (Monahan et al. 2013:25). This reinterpretation of SIHP # -28778 is also supported by the results of pollen and starch analysis, performed on a sediment sample collected from 98–104 cmbd within EU 80, which yielded no evidence of common dryland cultigens. Radiocarbon dating on unidentified hardwood charcoal from the same sample yielded a two-sigma calibrated age range of AD 1649 to 1683 (28.5%), AD 1737 to 1756 (5.7%), AD 1761 to 1804 (42.9%), and AD 1936 to present (18.3%), indicating deposition within the last approximately 300 years. These results indicate the sample could date from a late pre-Contact time frame or be as recent as modern in age.

## 2.3 SIHP # 50-10-27-28785

**CSH Site No.:** T-091010-1 (Monahan et al. 2012)

**Formal Type:** Enclosure

**No. of Features:** 0

**Function:** Animal husbandry

**Age:** Early Historic

**Dimensions:** 3.5 m N/S by 7.5 m E/W

**Topography:** *Pāhoehoe* tumulus and undulating *pāhoehoe* flow, level to slightly sloping

**Elevation:** 26 m (85 ft) AMSL

**Description:** SIHP # -28785 is an enclosure 635 m south of the intersection of Hina Lani Street and the Queen Ka'ahumanu Highway (see Figure 1 and Figure 2) within the portion of the project area adjacent to the Kaloko-Honokōhau National Historical Park. It is described by Monahan et al. (2012) as an oval-shaped enclosure composed of a C-shaped wall to the south along the edge of a natural depression or collapsed lava blister. The east and west ends of the C-shaped wall connect to the edge of a *pāhoehoe* tumulus to the north. The wall is constructed of three to six courses of stacked, medium 'a'ā and *pāhoehoe* boulders. The wall ranges in height from 0.9 to 1.1 m and encloses an area measuring 3.5 m north/south by 7.5 m east/west. Portions of the interior wall show facing, and several boulders from the wall have collapsed into the interior of the enclosure. The area enclosed by the wall and tumulus is relatively level and consists of a thick layer of sediment and organic debris supporting the growth of grasses (Monahan et al. 2012:217).

SIHP # -28785 has been assessed as significant under Criteria d and e.

### 2.3.1 Data Recovery Effort

Data recovery fieldwork at SIHP # -28785 followed recommendations from the ADRP wherein Shideler et al. (2012:143) proposed excavation of "an 8-m long and 1-m wide trench down the central long axis (east/west) of the enclosure." They also proposed an option for two additional 1.0 m by 1.0 m excavations should there be "significant finds." Due to the discovery of pig (*S. scrofa*) remains, the optional excavation units (EU 74 and 75) were included, for a total of ten excavation units (EU 66 through 75; Figure 37 through Figure 39).

For each excavation unit, two perpendicular profiles were documented, and the existing plan map was updated to depict the location of excavation units. Bulk sediment samples were collected from the surface and base of excavations for pollen analysis and radiocarbon dating (see Volume I Sections 8.3 and 8.4). A Trimble GPS unit with sub-meter accuracy was used to record the center point of all excavation units, which were excavated to the undulating *pāhoehoe* bedrock.

Depositional stratigraphy consists of an A horizon (Stratum I) overlying the *pāhoehoe* bedrock, which ranges in depth from 150–160 cmbd (Table 4). The A horizon consists of an organic rich, gravelly silt loam most likely enriched by manure. Overlying the A horizon is grass and leaf litter mostly derived from a thick *koa haole* (*L. leucocephala*) stand. Within the leaf litter are the nearly complete, articulated remains of a mature *S. scrofa* (pig).



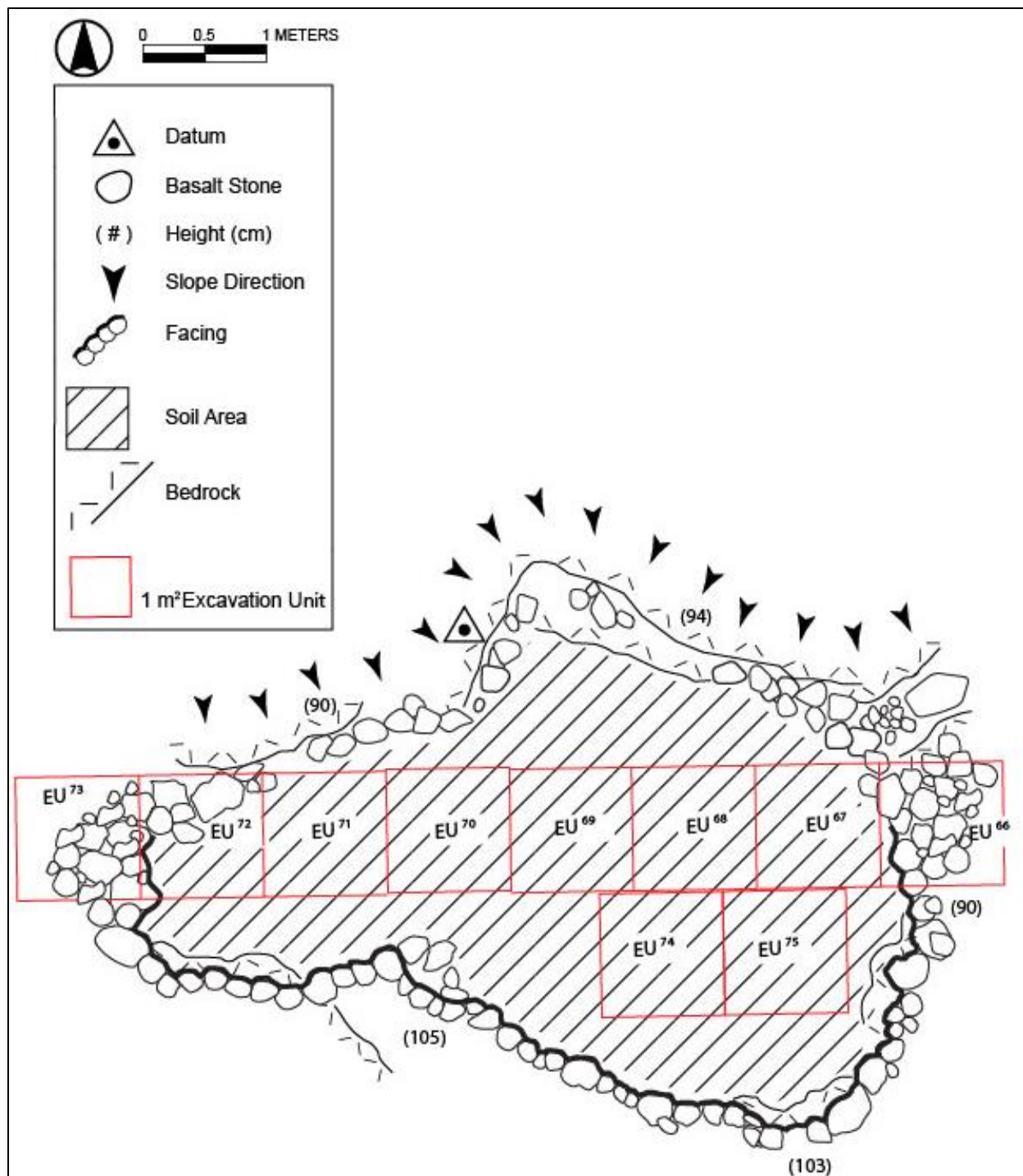


Figure 37. SIHP # -28785 plan map showing the locations of EU 66 through 75



Figure 38. SIHP # -28785 pre-excavation overview, view to west



Figure 39. SIHP # -28785 post-clearing, showing EU grid layout, view to west

Table 4. SIHP # -28785 EU 66 through 75 stratigraphy

Excavation Unit	Stratum	Depth (cmbd)	Description
EU 66	I	139–155	Natural; 10YR 3/2, very dark grayish brown; very gravelly silt loam containing 50% angular 'a 'ā pebbles; weak, fine granular structure; moist, loose consistence; terrigenous origin; many, fine roots; very abrupt, wavy lower boundary; contains abundant decomposed organic matter and 50% angular 'a 'ā pebbles
EU 67	I	140–157	Natural; 10YR 3/2, very dark grayish brown; very gravelly silt loam; weak, fine, granular structure; moist, loose consistence; terrigenous origin; many, fine to coarse roots; very abrupt, wavy lower boundary; contains abundant decomposed organic matter and 50% angular 'a 'ā pebbles
EU 68	I	130–160	Natural; 10YR 3/2, very dark grayish brown; very gravelly silt loam; weak, fine, granular structure; moist, loose consistence; terrigenous origin; many, fine roots; very abrupt, wavy lower boundary; contains abundant decomposed organic matter and 50% angular 'a 'ā pebbles
EU 69	I	145–168	Natural; 10YR 3/3, dark brown; very gravelly silt loam; weak, fine, granular structure; moist, loose consistence; terrigenous origin; many, fine roots; very abrupt, wavy lower boundary; contains abundant decomposed organic matter and 50% angular 'a 'ā pebbles
EU 70	I	145–160	Natural; 10YR 3/2, very dark grayish brown; gravelly silt loam; weak, fine, granular structure; moist, loose consistence; terrigenous origin; many, fine roots; very abrupt, wavy lower boundary; contains abundant decomposed organic matter and 20 % angular 'a 'ā pebbles
EU 71	I	146–162	Natural; 10YR 3/2, very dark grayish brown; gravelly silt loam; weak, fine, granular structure; moist, loose consistence; terrigenous origin; many, fine roots; very abrupt, wavy lower boundary; contains abundant decomposed organic matter and 20% angular 'a 'ā pebbles



Excavation Unit	Stratum	Depth (cmbd)	Description
EU 72	I	145–165	Natural; 10YR 3/2, very dark grayish brown; extremely gravelly silt loam; weak, fine, granular structure; moist, loose consistence; terrigenous origin; many, fine roots; very abrupt, wavy lower boundary; contains abundant decomposed organic matter and 80% angular 'a'ā pebbles
EU 73	I	95–179	Natural; 10YR 3/2, very dark grayish brown; extremely gravelly silt loam; weak, fine, granular structure; moist, loose consistence; terrigenous origin; very abrupt, wavy lower boundary; contains abundant decomposed organic matter and 95% angular 'a'ā pebbles
EU 74	I	130–153	Natural; 10YR 3/2, very dark grayish brown; very gravelly silt loam; weak, fine, granular structure; moist, loose consistence; terrigenous origin; many, fine roots; very abrupt, wavy lower boundary; contains abundant decomposed organic matter and 50% angular 'a'ā pebbles
EU 75	I	130–153	Natural; 10YR 3/2, very dark grayish brown; extremely gravelly silt loam; weak, granular, structure; moist, loose consistence; terrigenous origin; many, fine roots; very abrupt, wavy lower boundary; contains abundant decomposed organic matter and 80% angular 'a'ā pebbles

### 2.3.1.1 EU 66

EU 66, a 1.0 m by 1.0 m excavation unit, was at the *mauka* (east) end of the trench (Figure 40 through Figure 43). A constructed rock wall covered all but the southwestern quadrant from 48–139 cmbd and is visible in the pre-excavation photo (see Figure 40). Profile drawings of the south and west walls (Figure 44) indicate a relatively thick layer of sediment (Stratum I). Sediment consists of silt loam with 50% angular 'a'ā pebbles and abundant decomposed organic matter and roots from 139–155 cmbd (Table 4), overlying the undulating *pāhoehoe* bedrock. No cultural materials were observed.

### 2.3.1.2 EU 67

EU 67, a 1.0 m by 1.0 m excavation unit, was west (adjacent to) EU 66 and east of EU 68 (Figure 45 through Figure 48). Rock fall from a loosely constructed rock wall covered the northern edge of the excavation unit and is visible in the pre-excavation photo (see Figure 45). Profile drawings of the south and west walls (Figure 49) indicate a relatively thick layer of sediment (Stratum I). Sediment consists of silt loam with 50% angular 'a'ā pebbles and abundant decomposed organic matter and heavy root concentration from 140–157 cmbd (see Table 4), overlying the undulating *pāhoehoe* bedrock. The canine of a *S. scrofa* (pig) was found at a depth of 140–145 cmbd.

### 2.3.1.3 EU 68

EU 68, a 1.0 m by 1.0 m excavation unit, was west (adjacent to) EU 67 and east of EU 69 (Figure 50 through Figure 53). Profile drawings of the south and west walls (Figure 54) indicate a relatively thick layer of sediment (Stratum I). Sediment consists of silt loam with 50% angular 'a'ā pebbles and abundant decomposed organic matter and roots from 130–160 cmbd (see Table 4), overlying the undulating *pāhoehoe* bedrock. A concentration of charcoal flecking was noted in the center of the excavation unit, but no midden or other cultural materials were found in association with the charcoal. The dispersion of the charcoal is consistent with brushfires.

### 2.3.1.4 EU 69

EU 69, a 1.0 m by 1.0 m excavation unit, was west (adjacent to) EU 68 and east of EU 70 (Figure 55 through Figure 58). Profile drawings of the south and west walls (Figure 59) indicate a relatively thick layer of sediment (Stratum I). Sediment consists of silt loam with 50% angular 'a'ā pebbles, and abundant decomposed organic matter and roots from 145–168 cmbd (see Table 4), overlying the undulating *pāhoehoe* bedrock. The skull, dentition, and forelimbs of a *S. scrofa* (pig) were uncovered at approximately 153 cmbd.

### 2.3.1.5 EU 70

EU 70, a 1.0 m by 1.0 m excavation unit, was adjacent (west) to EU 69 and east of EU 71 (Figure 60 through Figure 63). Profile drawings of the south and west walls (Figure 64) indicate a relatively thick layer of sediment (Stratum I). Sediment consists of silt loam with 20% angular 'a'ā pebbles, and abundant decomposed organic matter and roots from 145–160 cmbd (see Table 4), overlying the undulating *pāhoehoe* bedrock. The pelvis, ribs, and vertebrae of a *S. scrofa* (pig) were uncovered along with fragmented small bird bones at approximately 153 cmbd from the center of the excavation unit.



Figure 40. SIHP # -28785 EU 66 pre-excavation overview showing rock wall and associated rubble fill, view to west



Figure 41. SIHP # -28785 EU 66 post-excavation overview, view to south





Figure 42. SIHP # -28785 EU 66 profile of south wall, view to south



Figure 43. SIHP # -28785 EU 66 profile of west wall, view to west



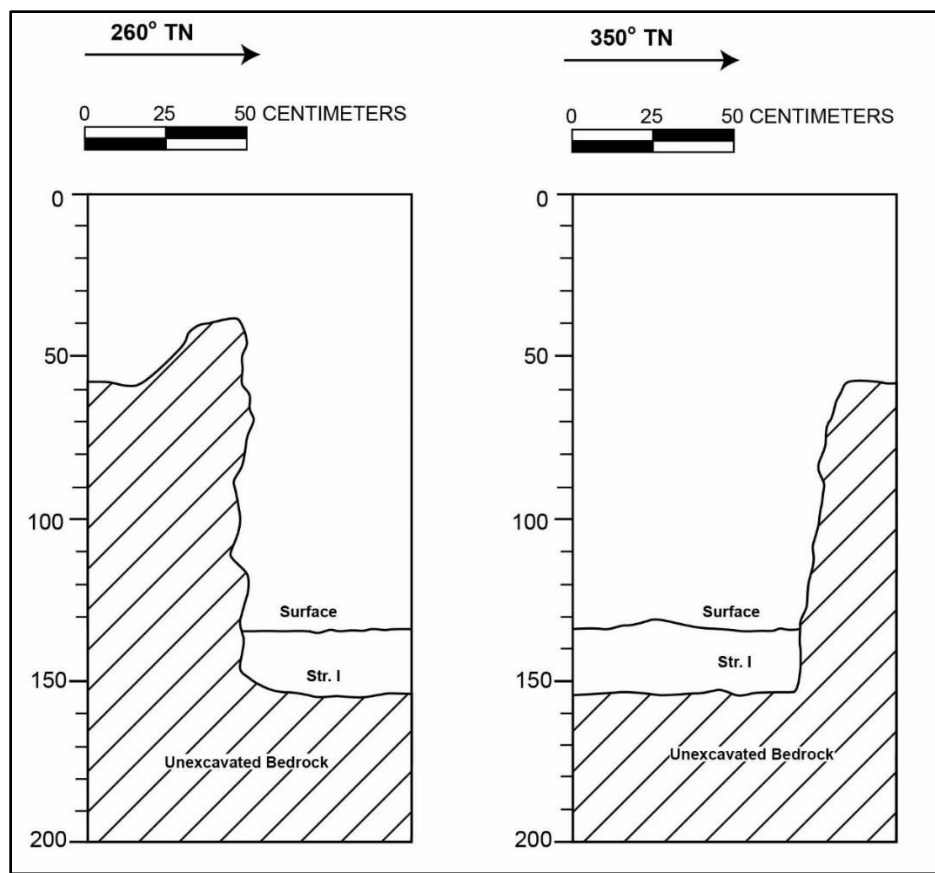


Figure 44. SIHP # -28785 EU 66 south and west wall profiles showing thick sediment (Stratum I) within *pāhoehoe* (bedrock) depression



Figure 45. SIHP # -28785 EU 67 pre-excavation overview showing rock wall, view to east



Figure 46. SIHP # -28785 EU 67 post-excavation overview, view to west



Figure 47. SIHP # -28785 EU 67 profile of south wall, view to south





Figure 48. SIHP # -28785 EU 67 profile of west wall, view to west

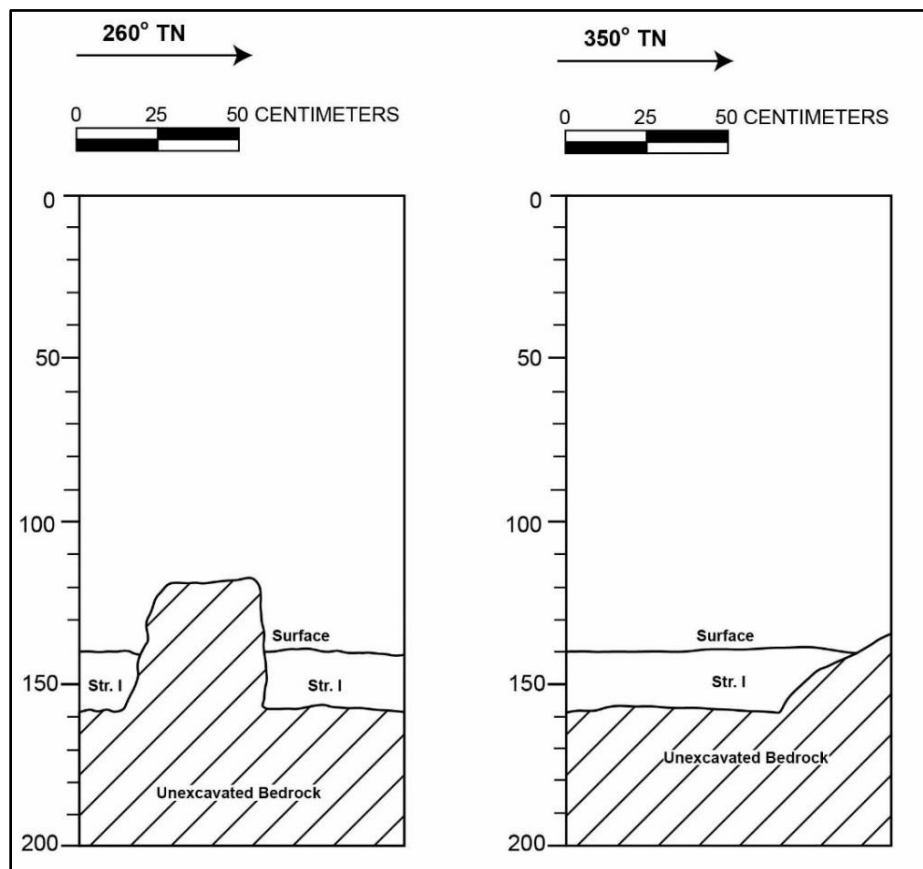


Figure 49. SIHP # -28785 EU 67 south and west wall profiles





Figure 50. SIHP # -28785 EU 68 pre-excavation overview, view to southwest



Figure 51. SIHP # -28785 EU 68 post-excavation overview, view to east





Figure 52. SIHP # -28785 EU 68 profile of south wall, view to south



Figure 53. SIHP # -28785 EU 68 profile of west wall, view to southwest

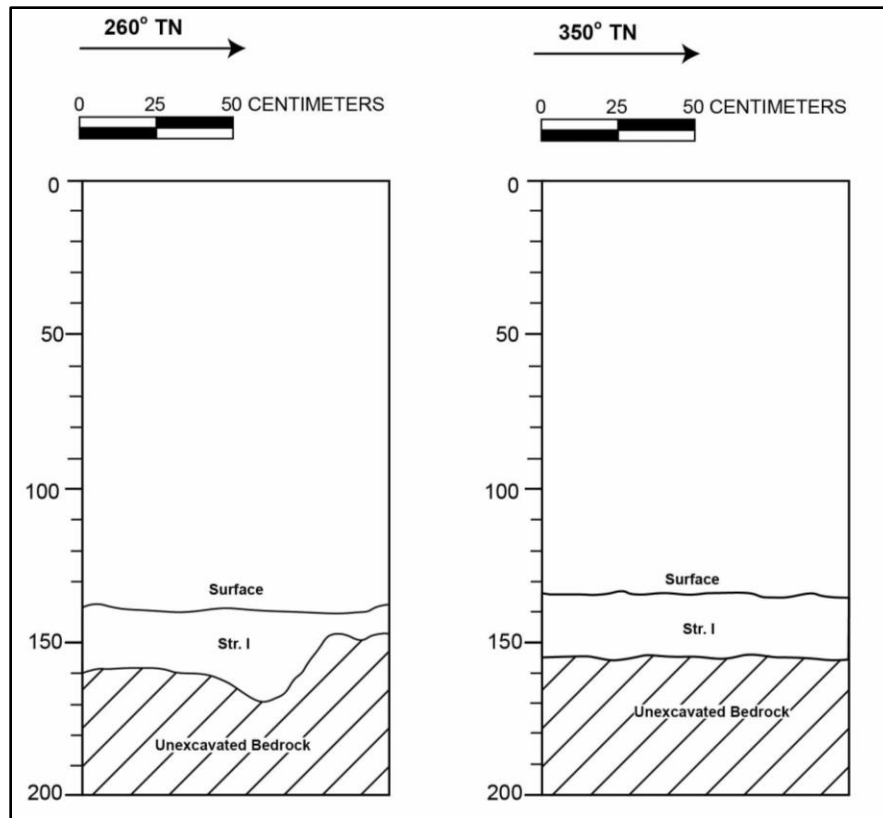


Figure 54. SIHP # -28785 EU 68 south and east wall profiles



Figure 55. SIHP # -28785 EU 69 pre-excavation overview, view to north





Figure 56. SIHP # -28785 EU 69 post-excavation overview, view to south



Figure 57. SIHP # -28785 EU 69 profile of south wall, view to south





Figure 58. SIHP # -28785 EU 69 profile of west wall, view to west

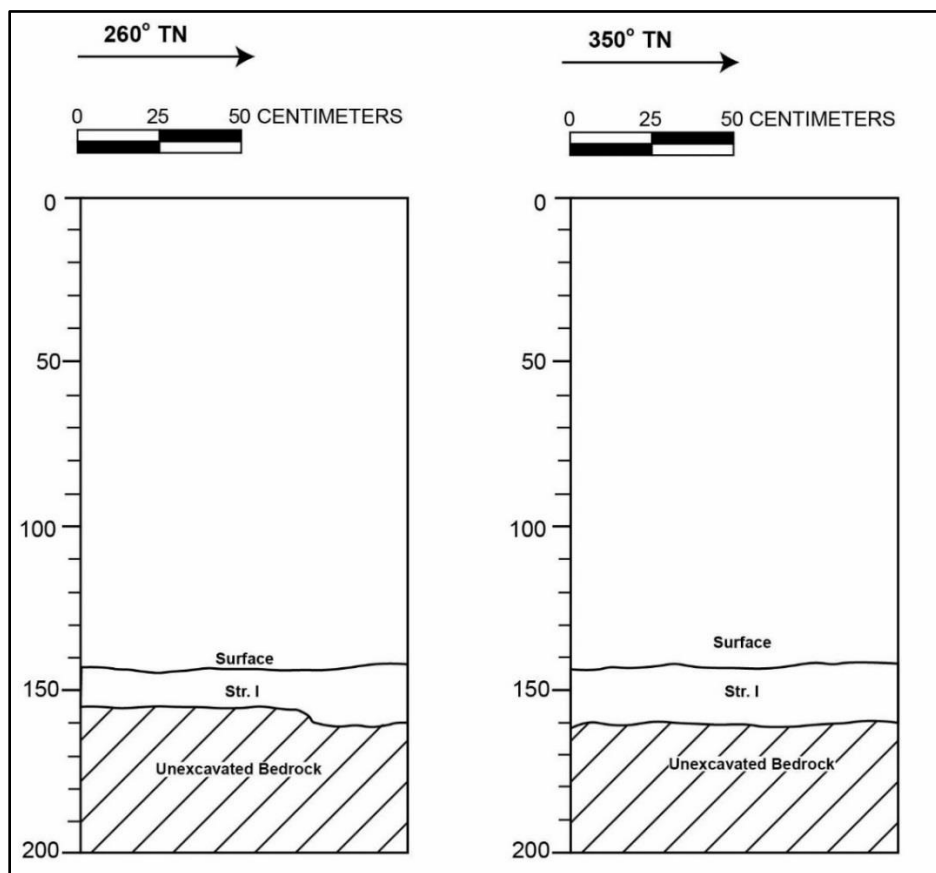


Figure 59. SIHP # -28785 EU 69 south and west wall profiles



Figure 60. SIHP # -28785 EU 70 pre-excavation overview, view to north



Figure 61. SIHP # -28785 EU 70 post-excavation overview, view to east





Figure 62. SIHP # -28785 EU 70 post-excavation profile of south wall, view to south



Figure 63. SIHP # -28785 EU 70 post-excavation profile of west wall, view to west



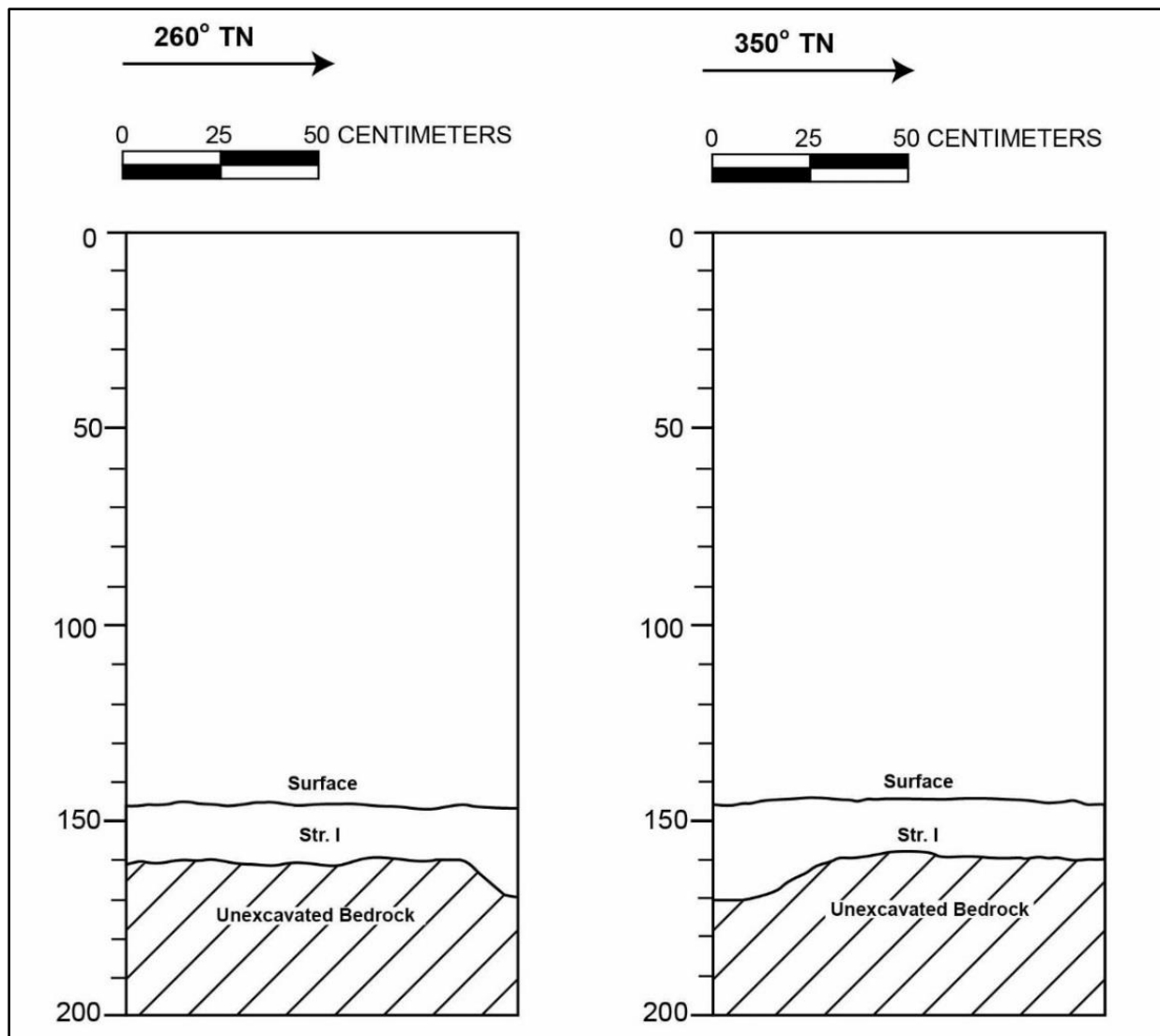


Figure 64. SIHP # -28785 EU 70 south and west wall profiles

### 2.3.1.6 EU 71

EU 71, a 1.0 m by 1.0 m excavation unit, was adjacent (west of) EU 70 and east of EU 72 (Figure 65 through Figure 68). Profile drawings of the south and west walls (Figure 69) indicate a relatively thick layer of sediment (Stratum I). Angular rocks cover the northern edge of the excavation unit. Sediment consists of silt loam with 20% angular 'a'ā pebbles, and abundant decomposed organic matter and roots from 146–162 cmbd (see Table 4), overlying the undulating *pāhoehoe* bedrock. A few charcoal fragments were collected from the screen. These are most likely the result of natural brush fires. The leg and foot bones of a *S. scrofa* (pig) were uncovered.

### 2.3.1.7 EU 72

EU 72, a 1.0 m by 1.0 m excavation unit, was adjacent (west of) EU 71 and east of EU 73 (Figure 70 through Figure 73). A loose rock wall built on rubble covered all but the southeastern quadrant of the excavation unit, and is visible in the pre-excavation photo (see Figure 70). Profile drawings of the south and west walls (Figure 74) indicate a large deposit (Stratum I) of rocks with sediment only in a few small cavities. Sediment consists of silt loam with 80% angular 'a'ā pebbles, and abundant decomposed organic matter and roots from 145–165 cmbd (see Table 4) overlying the undulating *pāhoehoe* bedrock. No cultural materials were observed other than the rock wall.

### 2.3.1.8 EU 73

EU 73, a 1.0 m by 1.0 m excavation unit, was at the far *makai* (west) end of the trench (Figure 75 through Figure 78). A rock wall made of loosely stacked 'a'ā pebbles covered the entire excavation unit, and is visible in the pre-excavation photo (see Figure 75). Profile drawings of the south and west walls (Figure 79) indicate a thick deposit of rocks with only a thin layer of sediment (Stratum I). Sediment consists almost entirely of angular 'a'ā gravels and pebbles with 5% silt loam from 95–179 cmbd (see Table 4), overlying the undulating *pāhoehoe* bedrock. No cultural materials were observed other than the rock wall.

### 2.3.1.9 EU 74

EU 74, a 1.0 m by 1.0 m excavation unit, was near the center of SIHP # -28785 (Figure 80 through Figure 83). This is one of two additional excavation units. Profile drawings of the south and west walls (Figure 84) indicate a relatively thick layer of sediment (Stratum I). Sediment consists of silt loam with 50% angular 'a'ā gravel, and abundant decomposed organic matter and roots from 130–153 cmbd (see Table 4), overlying the undulating *pāhoehoe* bedrock. No cultural materials were observed.

### 2.3.1.10 EU 75

EU 75, a 1.0 m by 1.0 m excavation unit, was near the center of SIHP # -28785 (Figure 85 through Figure 88). This is the second of two additional excavation units. Profile drawings of the south and west walls (Figure 89) indicate a relatively thick layer of sediment (Stratum I). Sediment consists of silt loam with 80% angular 'a'ā gravel and abundant decomposed organic matter and roots from 130–153 cmbd (see Table 4), overlying the undulating *pāhoehoe* bedrock. A few additional fragments of *S. scrofa* (pig) bones were collected from this excavation unit.



Figure 65. SIHP # -28785 EU 71 pre-excavation overview, view to south



Figure 66. SIHP # -28785 EU 71 post-excavation overview, view to south





Figure 67. SIHP # -28785 EU 71 profile of west wall, view to west



Figure 68. SIHP # -28785 EU 71 profile of south wall, view to south



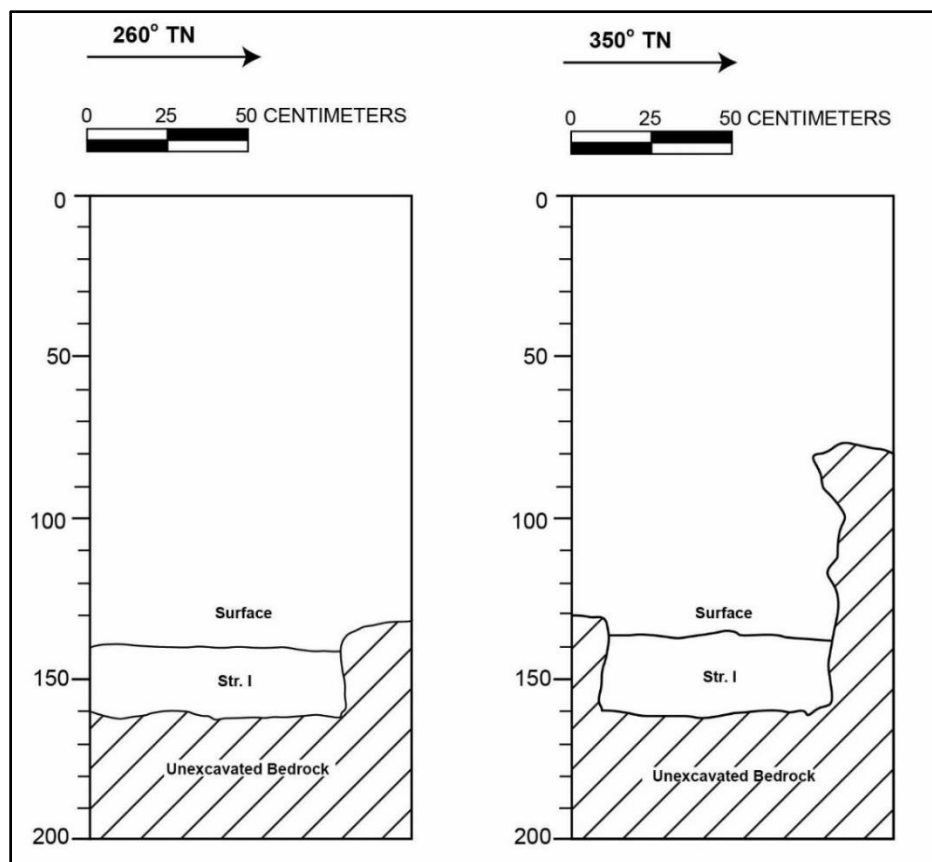


Figure 69. SIHP # -28785 EU 71 south and west wall profiles



Figure 70. SIHP # -28785 EU 72 pre-excavation overview showing rock wall, view to south



Figure 71. SIHP # -28785 EU 72 post-excavation overview, view to south



Figure 72. SIHP # -28785 EU 72 profile of west wall, view to west





Figure 73. SIHP # -28785 EU 72 profile of south wall, view to south

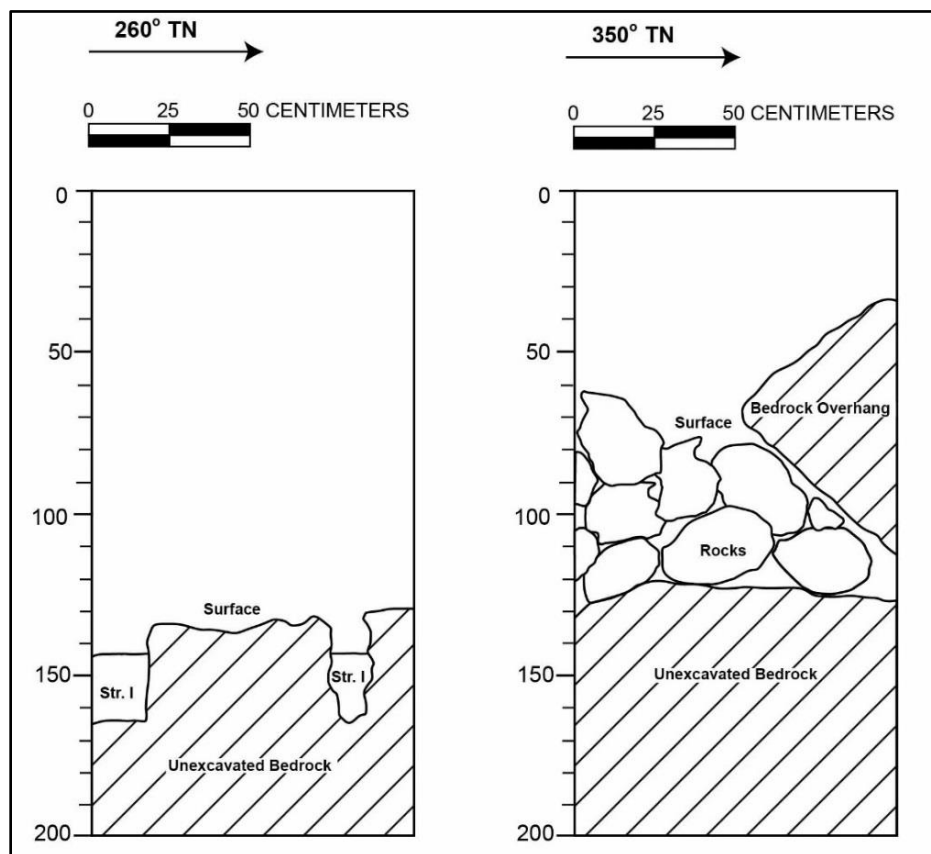


Figure 74. SIHP # -28785 EU 72 south and west wall profiles





Figure 75. SIHP # -28785 EU 73 pre-excavation overview showing rock wall, view to north



Figure 76. SIHP # -28785 EU 73 post-excavation overview, view to south





Figure 77. SIHP # -28785 EU 73 profile of west wall, view to west



Figure 78. SIHP # -28785 EU 73 profile of south wall, view to south



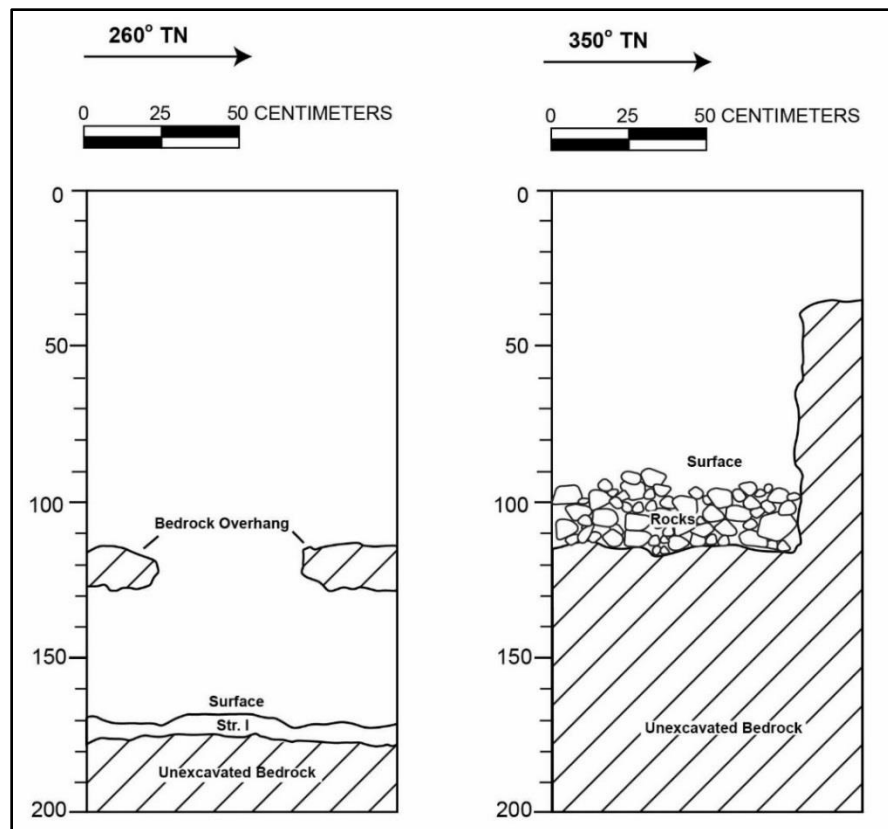


Figure 79. SIHP # -28785 EU 73 south and west wall profiles



Figure 80. SIHP # -28785 EU 74 pre-excavation overview, view to west





Figure 81. SIHP # -28785 EU 74 post-excavation overview, view to south



Figure 82. SIHP # -28785 EU 74 profile of west wall, view to southwest





Figure 83. SIHP # -28785 EU 74 profile of south wall, view to south

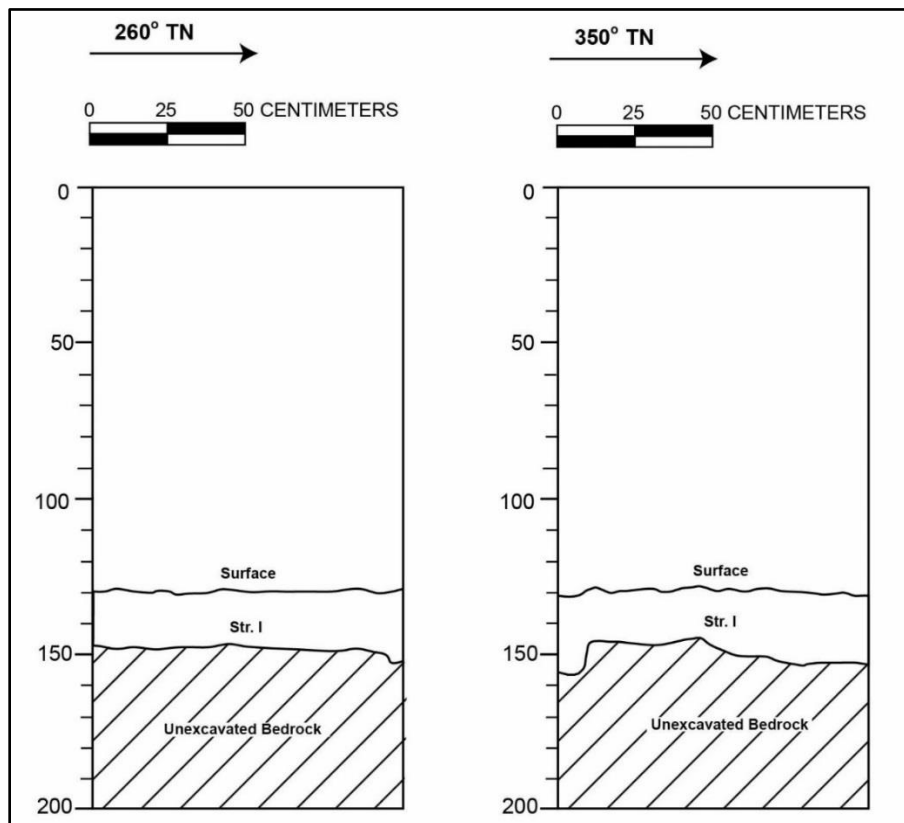


Figure 84. SIHP # -28785 EU 74 south and west wall profile



Figure 85. SIHP # -28785 EU 75 pre-excavation overview, view to north



Figure 86. SIHP # -28785 EU 75 post-excavation overview, view to north





Figure 87. SIHP # -28785 EU 75 profile of west wall, view to southwest



Figure 88. SIHP # -28785 EU 75 profile of south wall, view to south

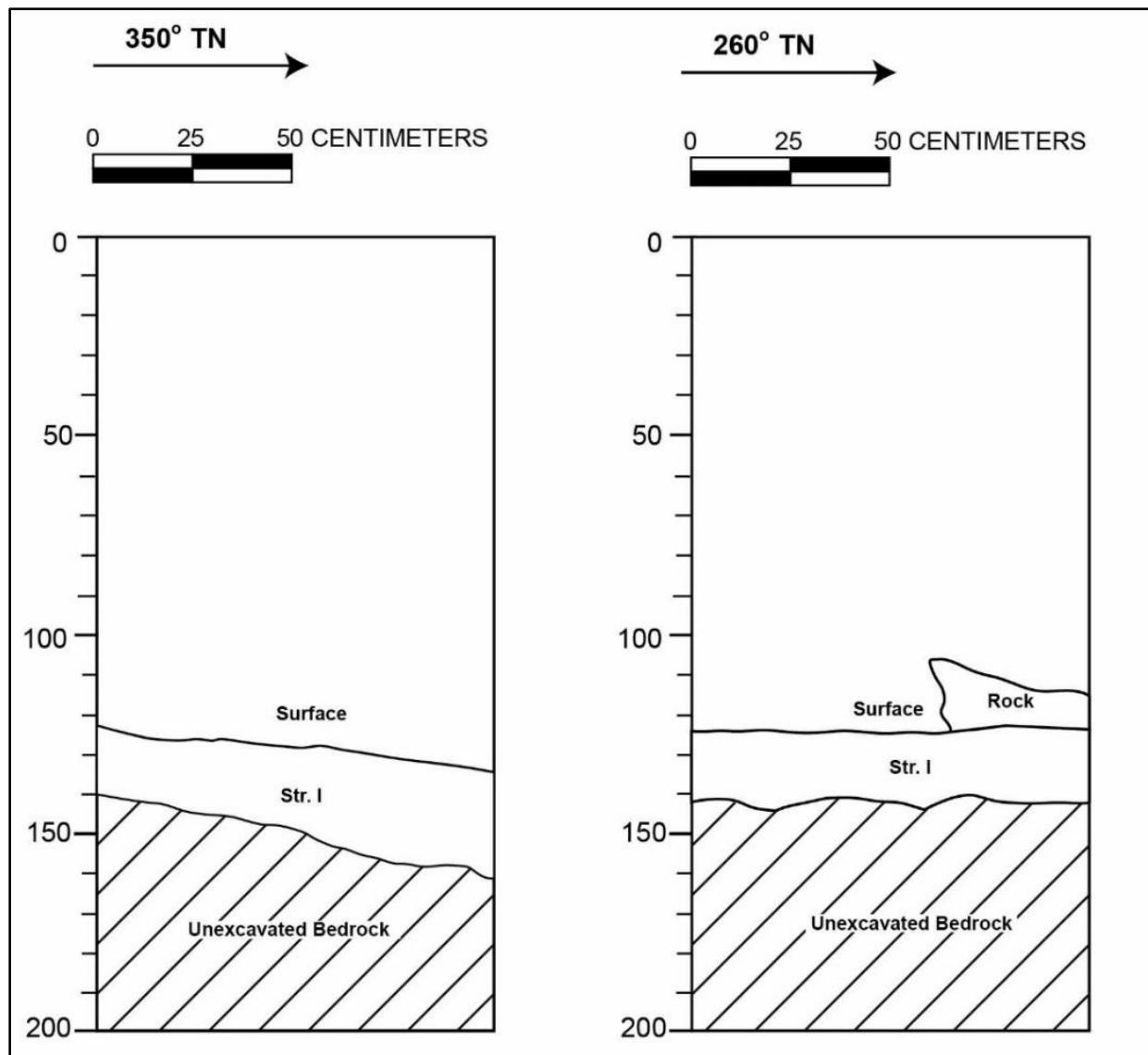


Figure 89. SIHP # -28785 EU 75 west and south wall profiles

### 2.3.2 Interpretation

Excavations at SIHP # -28785 were conducted to obtain sufficient data to address two research objectives regarding cultivation and temporal analysis, which were proposed in the ADRP by Shideler et al. (2012). The former was proposed “to understand the nature and intensity of cultivation in the project area in the context of predictive models for North Kona based on variation in elevation and rainfall,” (Shideler et al. 2012:264). The latter was proposed “to determine the absolute dates of occupation of the project area as may be available from data recovery sites . . .” (Shideler et al. 2012:265).

During the project's AIS, SIHP # -28785 was interpreted as an agricultural enclosure, likely dating to the pre-Contact period. This interpretation was based on the presence of a thick sediment layer within the enclosure, which could have supported various dryland cultigens (Monahan et al. 2012:217). During data recovery efforts, no evidence of an agricultural function was observed, and the nearly complete remains of a mature pig (*S. scrofa*) were discovered within the enclosure. No cut marks or other cultural modifications were observed on the bones. Except for a partial basalt abrader, no artifacts were observed. Due to these findings, SIHP # -28785 has been reinterpreted as a pen utilized for animal husbandry.

The results of palynological analysis on two sediment samples collected from 150–160 cmbd within EU 68 and 174–179 cmbd within EU 73 also support this reinterpretation. Not only were the samples devoid of pollen and starch grains from common dryland cultigens, but one of the samples contained *Sporormiella* dung fungal spores. *Sporormiella* is a genus of fungi that is obligately coprophilous, growing on the dung of domestic livestock (e.g., cows and horses), as well as wild herbivores; therefore, the presence of *Sporormiella* spores can be used as a proxy for the abundance of grazing mammals.

Radiocarbon dating was performed on a charcoal sample collected from EU 68. The sample was identified by IARII as *Euphorbia* sp., which is unlikely to have any significant amount of inbuilt age. The sample yielded a two-sigma calibrated age range of AD 1526 to 1557 (5.7%), AD 1632 to 1682 (51.9%), AD 1738 to 1751 (1.3%), AD 1762 to 1903 (29.5%), and AD 1937 to present (7.1%). Radiocarbon analysis was also conducted on bone collagen collected from the femoral head of the pig skeleton discovered during excavation of EU 70. The bone sample yielded a two-sigma calibrated age range of AD 1675 to 1778 (38.0%), AD 1799 to 1894 (42.4%), and AD 1905 to post-1942 (14.9%). These results indicate the samples could date from a late pre-Contact time frame or be as recent as modern in age.



## 2.4 SIHP # 50-10-27-28786

**CSH Site No.:** T-080510-15 (Monahan et al. 2012)

**Formal Type:** Modified depression

**No. of Features:** 0

**Function:** Temporary shelter

**Age:** Historic

**Dimensions:** 3.2 m N/S by 2.7 m E/W

**Topography:** Undulating 'a 'ā flow, level to slightly-sloping

**Elevation:** 26 m (85 ft) AMSL

**Description:** SIHP # -28786 is a modified depression along the northern edge of Kaloko Road within the portion of the project area adjacent to the Kaloko-Honokōhau National Historical Park (see Figure 1 and Figure 2). It is described by Monahan et al. (2012) as a modified depression with three to four courses of informally stacked 'a 'ā cobbles and small boulders along the south, east, and northeast edges. These enclose an area measuring 3.2 m northeast/southwest by 2.7 m northwest/southeast. Within the depression is a thin layer of sediment and organic debris supporting the growth of a Christmasberry (*Schinus terebinthifolia*) tree. Modern trash, including discarded coconut husks, was also present within the depression (Monahan et al. 2012:222). According to the NPS, SIHP # -28786 is consistent with, and likely associated with, an agricultural complex of enclosures extending more than 600 m into Kaloko-Honokōhau National Historical Park and may therefore be part of the larger cultural landscape of the National Park.

SIHP # -28786 has been assessed as significant under Criteria d and e.

### 2.4.1 Data Recovery Effort

Data recovery fieldwork at SIHP # -28786 followed recommendations set forth in the ADRP, wherein Shideler et al. (2012:146) proposed a 1.0 m by 1.0 m excavation at the location with the most potential to yield data. They also proposed an additional 1.0 m by 1.0 m excavation should there be “any significant quantity of midden or any artifacts other than a small quantity of basalt waste flakes.” However, since only modern cultural materials were observed, a single 1.0 m by 1.0 m excavation unit (EU 65) was excavated in the location with the deepest sedimentary deposit (Figure 90 through Figure 92).

Two perpendicular profiles were documented, and the existing plan map was updated to depict the location of the excavation unit (see Figure 90). A Trimble GPS unit with sub-meter accuracy was used to record the center point of EU 65, which was excavated to the undulating *pāhoehoe* bedrock. Depositional stratigraphy consisted of naturally deposited, very gravelly silt loam sediment, overlying the *pāhoehoe* bedrock, which was present at the base of excavation from 22–38 cmbd. No evidence of anthropogenic/cultural modifications at SIHP # -28786 was discovered during data recovery fieldwork.

#### 2.4.1.1 EU 65

EU 65, a 1.0 m by 1.0 m excavation unit, was in the center of SIHP # -28786 (Figure 93 and Figure 94). Sediment (Stratum I) consisted of aeolian deposited silt loam containing 50% angular basalt pebbles and fine to coarse roots (Figure 95 and Table 5). The only cultural material observed was modern trash, including glass bottles and coconut husks.

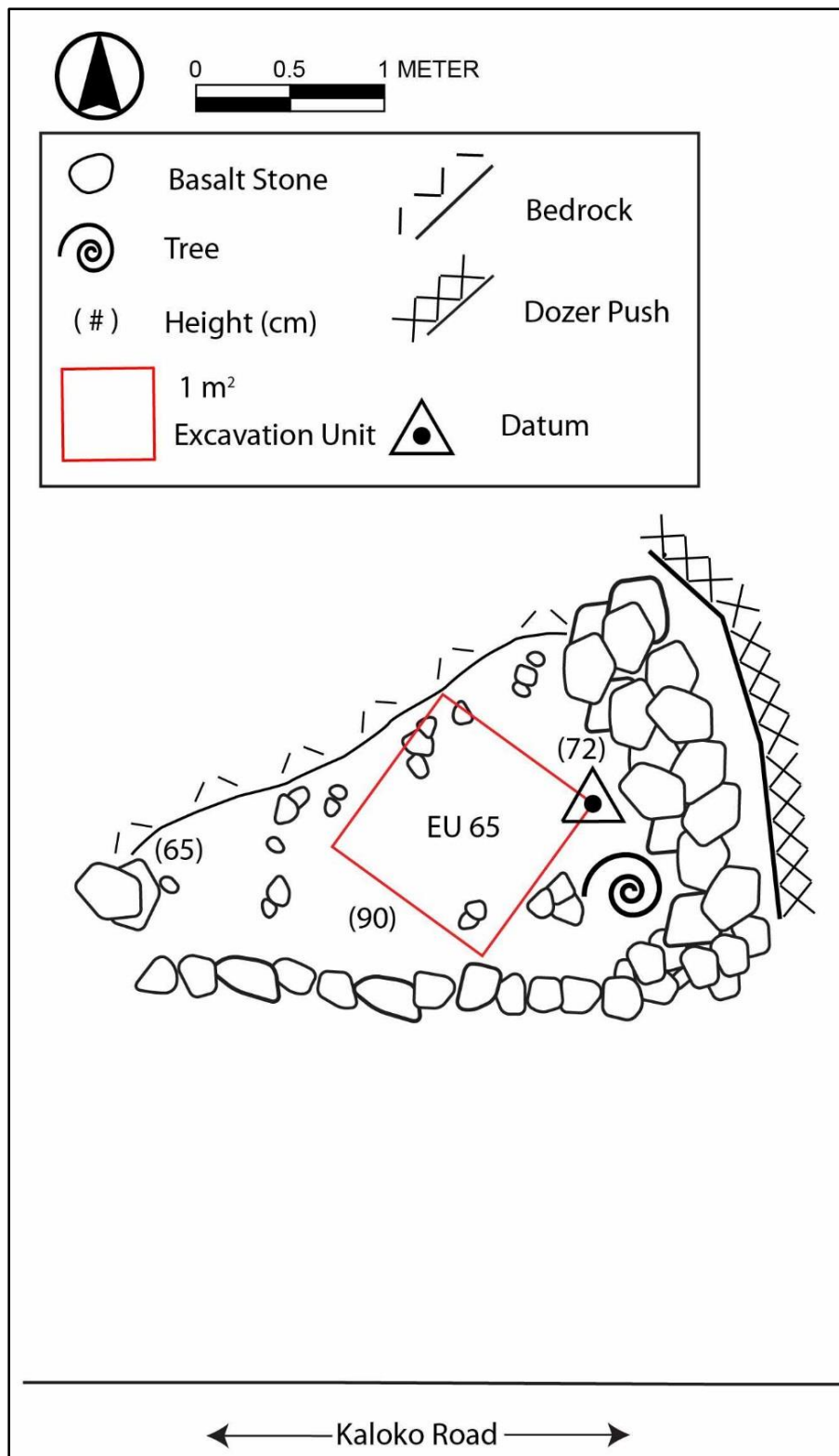


Figure 90. SIHP # -28786 plan view map showing EU 65 location



Figure 91. SIHP # -28786 pre-excavation overview, view to southwest



Figure 92. SIHP # -28786 pre-excavation overview, view to north





Figure 93. SIHP # -28786 EU 65 pre-excavation overview, view to northeast



Figure 94. SIHP # -28786 EU 65 post-excavation overview, view to north

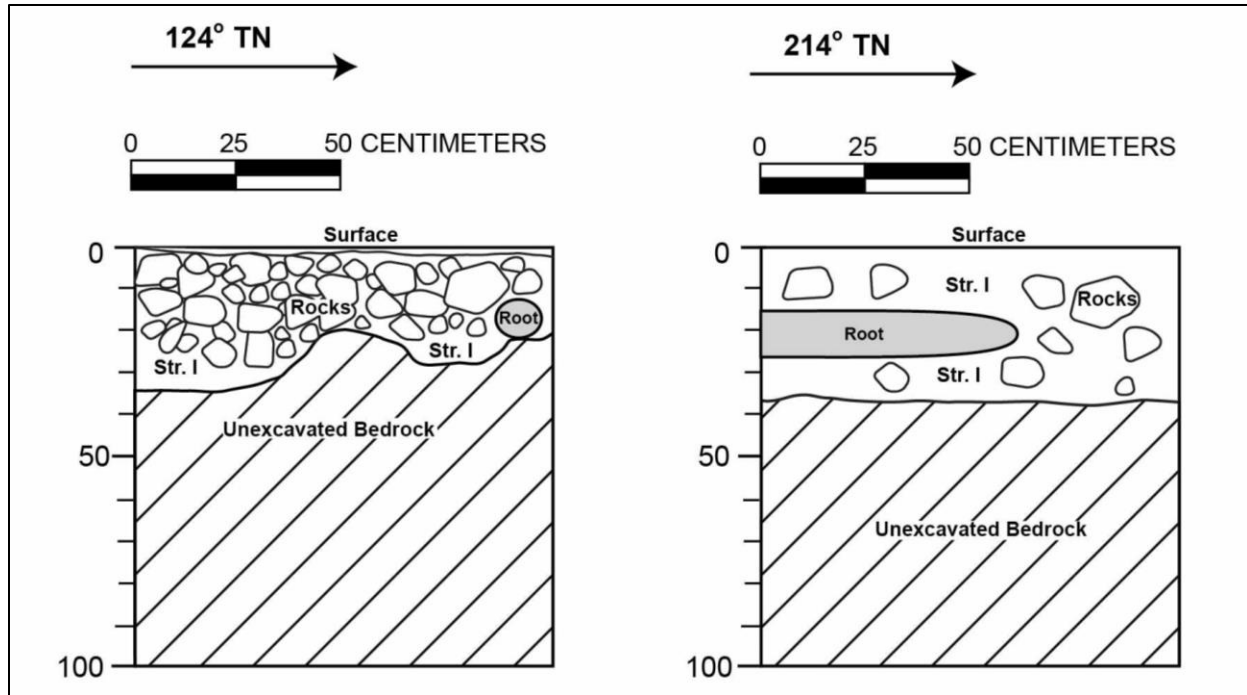


Figure 95. SIHP # -28786 EU 65, northeast and southeast wall profiles

Table 5. SIHP # -28786 EU 65 stratigraphy

Stratum	Depth (cmbd)	Description
I	0-38	Natural; 10YR 3/2, very dark grayish brown; very gravelly silt loam; weak, fine, granular structure; moist, friable consistence; non-plastic; terrigenous origin; common, fine to coarse roots; very abrupt, wavy lower boundary; contains 50% angular basalt pebbles and modern trash

### 2.4.2 Interpretation

Excavations at SIHP # -28786 were conducted to obtain sufficient data to address two research objectives regarding cultivation and temporal analysis proposed in the ADRP by Shideler et al. (2012). The purpose of the former is “to understand the nature and intensity of cultivation in the project area in the context of predictive models for North Kona based on variation in elevation and rainfall,” (Shideler et al. 2012:264). The purpose of the latter is “to determine the absolute dates of occupation of the project area as may be available from data recovery sites . . .” (Shideler et al. 2012:265).

SIHP # -28786 was originally interpreted as an agricultural locality, likely dating to the pre-Contact period. This was based on the presence of shallow sediment within the modified depression, which could have supported dryland cultivars (e.g., sweet potato). According to the NPS, SIHP # -28786 is consistent with, and likely associated with, an agricultural complex of enclosures extending more than 600 m into Kaloko-Honokōhau National Historical Park. However, during data recovery efforts no evidence of agricultural use was observed. In addition, pollen analysis of a sediment sample from 30–38 cmbd within EU 65 yielded no evidence of common cultivars such as sweet potato (see Section 8 of present Volume II). Unidentified hardwood charcoal fragments from the same sample were intended for radiocarbon dating; however, the tiny fragments did not survive chemical pre-treatment. Modern trash was observed at SIHP # -28786, which is adjacent to a pull-off area along Koloko Road. The eastern margin of the site contained the highest concentration of constructed rock stacking, which may have acted as a wind break or early morning sun shade for temporary habitation. As a result of new evidence collected during data recovery, SIHP # -28786 has been reassessed as a historic to modern temporary shelter.



## 2.5 SIHP # 50-10-27-28807

**CSH Site No.:** T-092110-2 (Monahan et al. 2012)

**Formal Type:** Filled crevice

**No. of Features:** 0

**Function:** Activity area

**Age:** Modern

**Dimensions:** 7.4 m N/S by 0.8 m E/W

**Topography:** *Pāhoehoe* tumulus, level to moderately sloping

**Elevation:** 22 m (72 ft) AMSL

**Description:** SIHP # -28807 is a filled crevice approximately 420 m northwest of the intersection of Hulikoa Drive and the Queen Ka'ahumanu Highway and 100 m east of the highway (see Figure 1 and Figure 2). SIHP # -28807 is described by Monahan et al. (2012) as a filled crevice of indeterminate function. The filled crevice consists of a prominent *pāhoehoe* tumulus with a natural crevice running roughly north-south through the central apex of the tumulus. Within the crevice is a concentration of large, water-rounded and weathered coral cobbles and several small boulder-sized *pāhoehoe* slabs. The center of the coral concentration consists of one to three courses of loosely piled cobbles that thin out to the north and south within an area of 7.4 m north/south by 0.8 m east/west. At the base of the tumulus, there are a few more coral cobbles with similar morphology to those found within the crevice (Monahan et al. 2012:327).

SIHP # -28807 has been assessed as significant under Criteria d and e.

### 2.5.1 Data Recovery Effort

Data recovery fieldwork at SIHP # -28807 involved dismantling and clearing out stones from 100% of the site, following the recommendations set in the ADRP (Shideler et al. 2012:185). This required the excavation of eight 1.0 m by 1.0 m excavation units (EU 55 through 62; Figure 96 through Figure 98). Documentation included two perpendicular profiles of each excavation unit, along with updating existing maps with EU locations. Sample collection for radiocarbon dating was planned, but a lack of dateable organic material within the crevice precluded this effort. A sub-meter accurate Trimble GPS unit was used to record the center point of each excavation unit. EU 55 through 62 were excavated to the *pāhoehoe* bedrock.

Excavations at SIHP # -28807 removed 161 massive rounded coral cobbles and pebbles (approximately 136 liters) from within the *pāhoehoe* crevice. The highly irregular *pāhoehoe* bedrock crevice surface was encountered between 0 and 148 cmbd. Cultural materials encountered consisted of massive (i.e., not branched) coral manuports and a modern modified stick. During data recovery efforts, modern artifacts observed 5 m north of the crevice consisted of nails and circular metal arranged in the shape of a cross. A wooden stake with deteriorated orange flagging tape tied to one end, first observed during the project's AIS (see Monahan et al. 2012), was also relocated beneath the central coral concentration.

#### 2.5.1.1 EU 55

EU 55, a 1.0 m by 1.0 m excavation unit, was at the *mauka* (northeast) end of the crevice (Figure 99 through Figure 101). Profile drawings of the southwest and northwest walls (Figure 102) indicate the narrowness of the crevice. Excavation uncovered 47 massive, water-

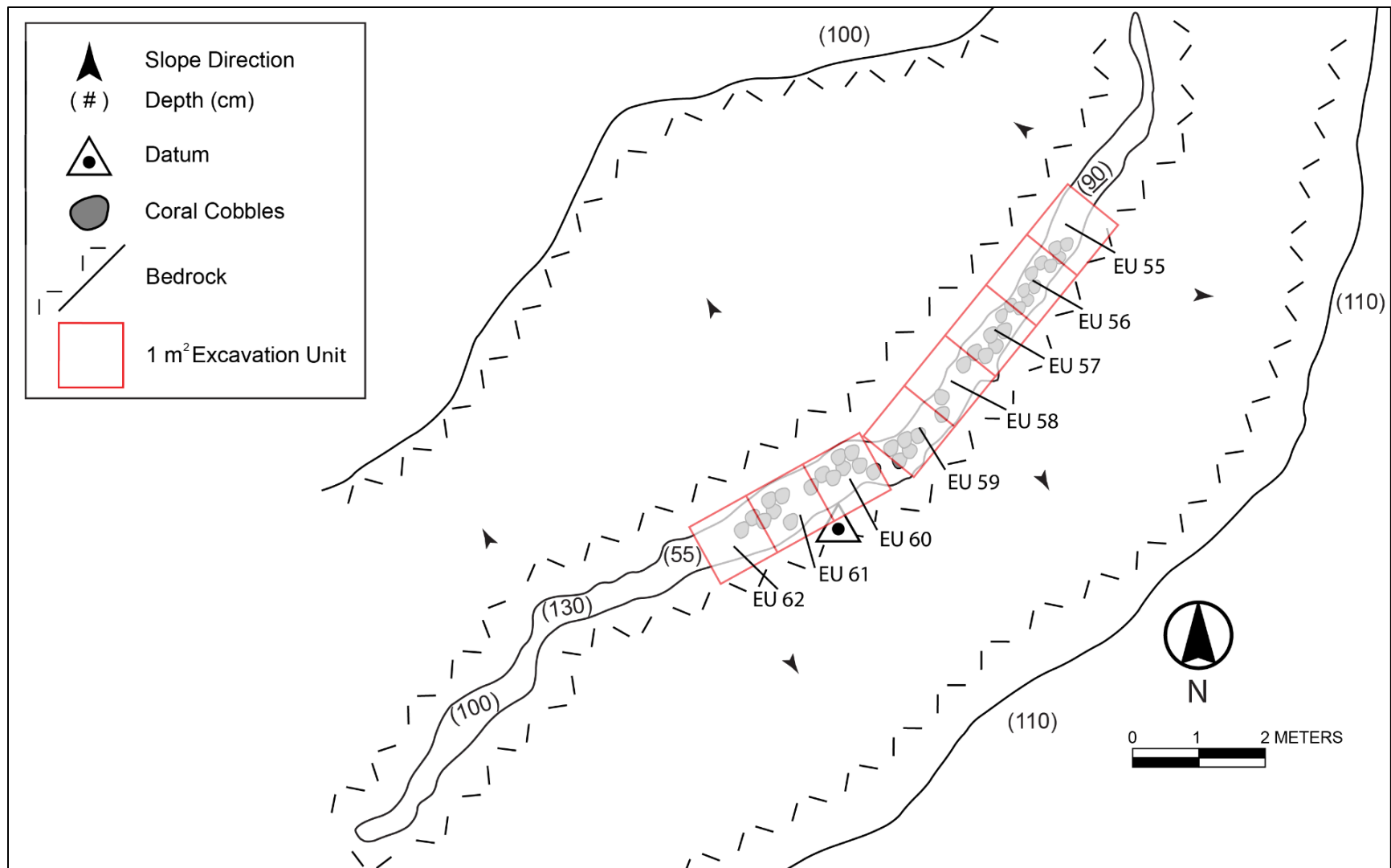


Figure 96. SIHP # -28807 plan view map, showing locations of EU 55 through 62



Figure 97. SIHP # -28807 pre-excavation overview of *makai* end, view to southwest



Figure 98. SIHP # -28807 pre-excavation overview of *mauka* end, view to southwest





Figure 99. SIHP # -28807 EU 55 post-excavation overview, view to northwest



Figure 100. SIHP # -28807 EU 55 profile of northwest wall, view to northwest



Figure 101. SIHP # -28807 EU 55 profile of southwest wall, view to southwest

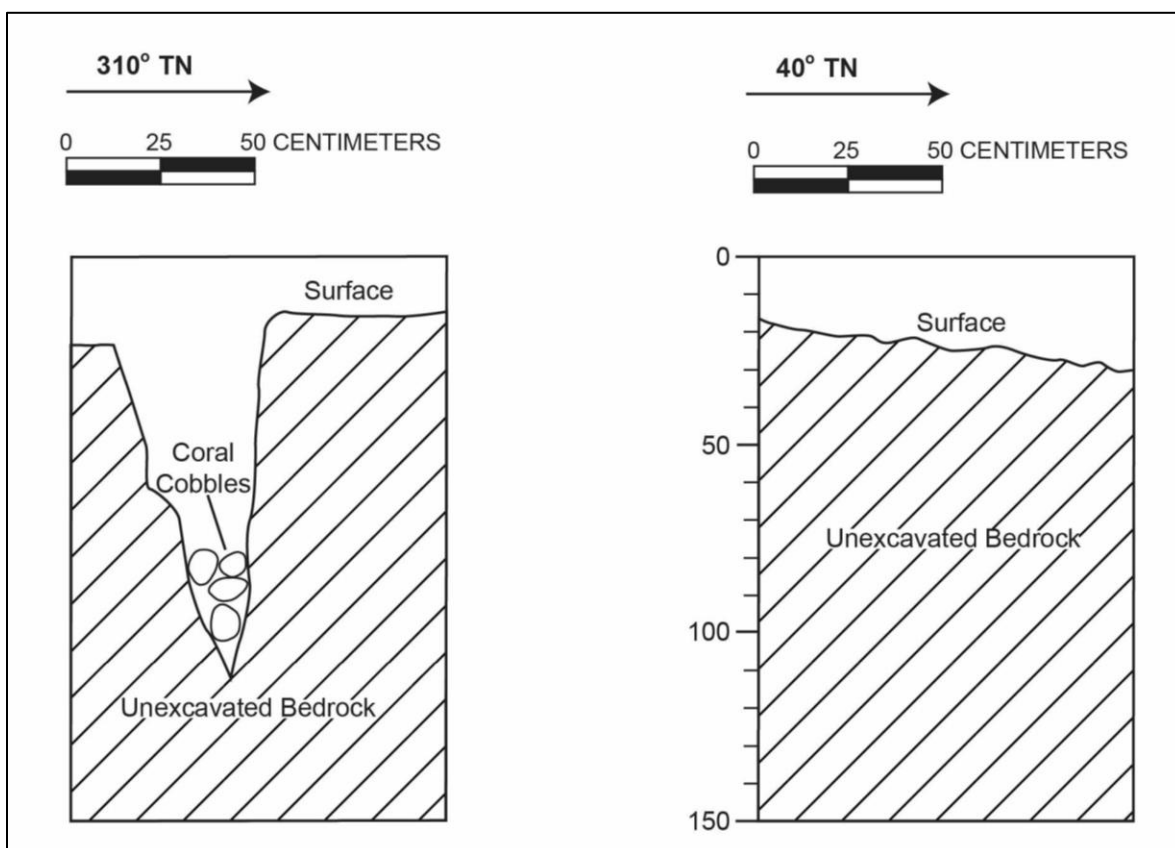


Figure 102. SIHP # -28807 EU 55 southwest and northwest wall profiles



rounded coral cobble and pebble manuports (24 liters) from 77–110 cmbd, but no smaller grained sediment was present. Other than the manuports, no cultural materials were observed.

#### 2.5.1.2 EU 56

EU 56, a 1.0 m by 1.0 m excavation unit, was south (adjacent to) EU 55 and north of EU 57 (Figure 103 through Figure 106). Profile drawings of the southwest and northwest walls (Figure 107) indicate the narrowness of the crevice. Excavation uncovered 22 massive, water-rounded coral cobble and pebble manuports (24 liters) from 89–120 cmbd, but no smaller-grained sediment was present. Other than the manuports, no cultural materials were observed.

#### 2.5.1.3 EU 57

EU 57, a 1.0 m by 1.0 m excavation unit, was south (adjacent to) EU 56 and north of EU 58 (Figure 108 through Figure 111). Profile drawings of the southwest and northwest walls (Figure 112) indicate the narrowness of the crevice. Excavation uncovered two massive, water-rounded coral cobble manuports, as well as angular *pāhoehoe* cobbles, from 28–117 cmbd., but no smaller-grained sediment was present. Other than the manuports, no cultural materials were observed.

#### 2.5.1.4 EU 58

EU 58, a 1.0 m by 1.0 m excavation unit, was south (adjacent to) EU 57 and north of EU 59 (Figure 113 through Figure 116). Profile drawings of the southwest and northwest walls (Figure 117) indicate the narrowness of the crevice. Excavation uncovered ten massive, water-rounded coral cobble manuports, as well as a few angular *pāhoehoe* cobbles, from 90–141 cmbd, but no smaller-grained sediment was present. Other than the manuports, no cultural materials were observed.

#### 2.5.1.5 EU 59

EU 59, a 1.0 m by 1.0 m excavation unit, was south (adjacent to) EU 58 and north of EU 60 (Figure 118 and Figure 121). Profile drawings of the southwest and northwest walls (Figure 122) indicate the narrowness of the crevice. Excavation uncovered 23 massive, water-rounded coral cobble manuports, as well as angular *pāhoehoe* cobbles, from 70–140 cmbd, but no smaller grained sediment was present. Other than the manuports, no cultural materials were observed.

#### 2.5.1.6 EU 60

EU 60, a 1.0 m by 1.0 m excavation unit, was south (adjacent to) EU 59 and north of EU 61 (Figure 123 through Figure 126). Profile drawings of the southwest and northwest walls (Figure 127) indicate the narrowness of the crevice. Excavation uncovered 22 massive, water-rounded coral cobble manuports (20 liters) with angular *pāhoehoe* cobbles from 89–140 cmbd, but no smaller grained sediment was present. Other than the manuports, no cultural materials were observed.

#### 2.5.1.7 EU 61

EU 61, a 1.0 m by 1.0 m excavation unit, was south (adjacent to) EU 60 and north of EU 62 (Figure 128 through Figure 131). Profile drawings of the southwest and northwest walls (Figure 132) indicate the narrowness of the crevice. Excavation uncovered 33 massive, water-rounded coral cobble manuports (48 liters), as well as angular *pāhoehoe* cobbles, from 76–147 cmbd, but no smaller-grain sediment was present.





Figure 103. SIHP # -28807 EU 56 pre-excavation overview, view to northwest



Figure 104. SIHP # -28807 EU 56 post-excavation overview, view to southwest





Figure 105. SIHP # -28807 EU 56 northwest wall profile, view to northwest



Figure 106. SIHP # -28807 EU 56 southwest wall profile, view to southwest

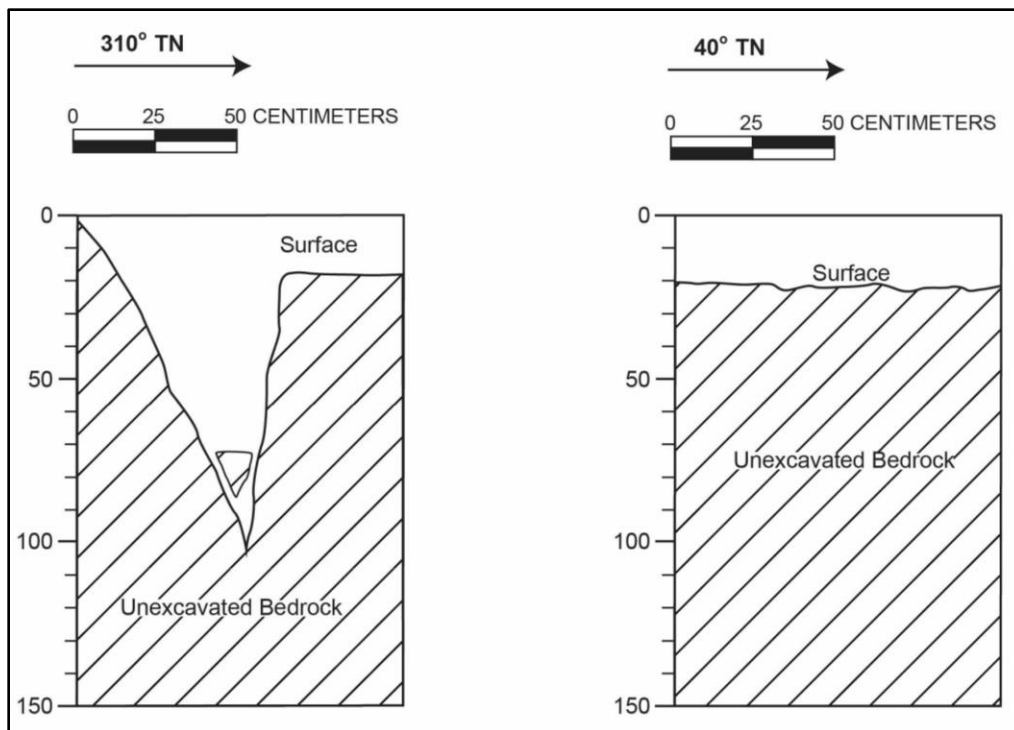


Figure 107. SIHP # -28807 EU 56 southwest and northwest wall profiles



Figure 108. SIHP # -28807 EU 57 pre-excavation overview, view to southwest





Figure 109. SIHP # -28807 EU 57 post-excavation overview, view to west



Figure 110. SIHP # -28807 EU 57 northwest wall profile, view to northwest





Figure 111. SIHP # -28807 EU 57 southwest wall profile, view to southwest

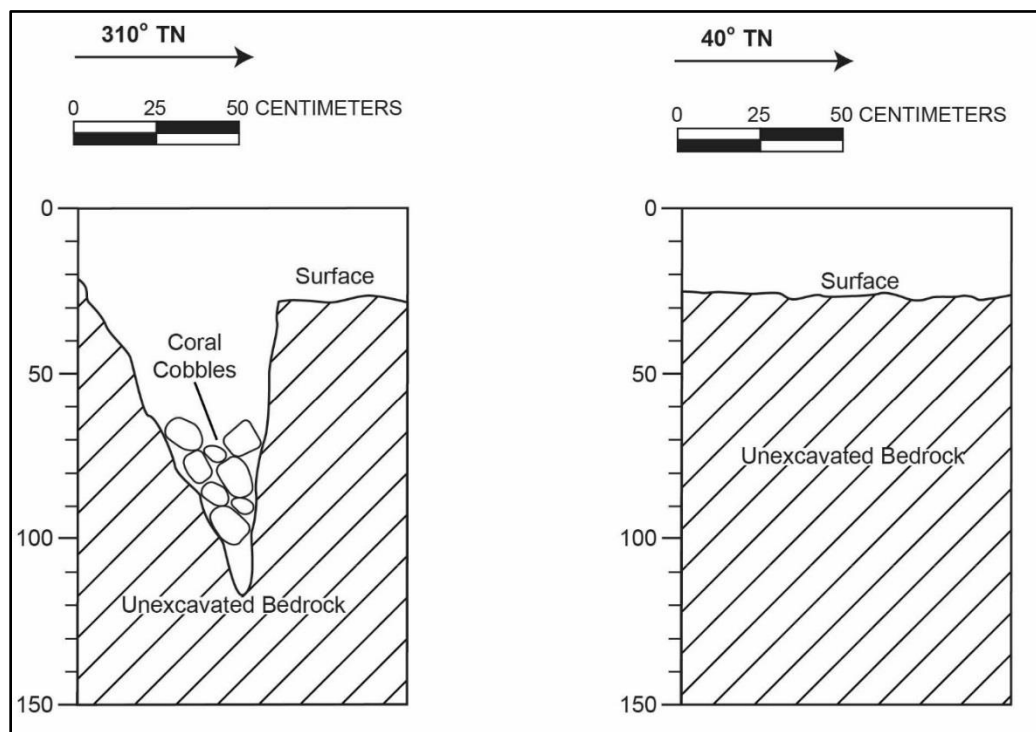


Figure 112. SIHP # -28807 EU 57 southwest and northwest wall profile





Figure 113. SIHP # -28807 EU 58 pre-excavation overview, view to southwest



Figure 114. SIHP # -28807 EU 58 post-excavation overview, view to west





Figure 115. SIHP # -28807 EU 58 northwest wall profile, view to northwest



Figure 116. SIHP # -28807 EU 58 southwest wall profile, view to southwest



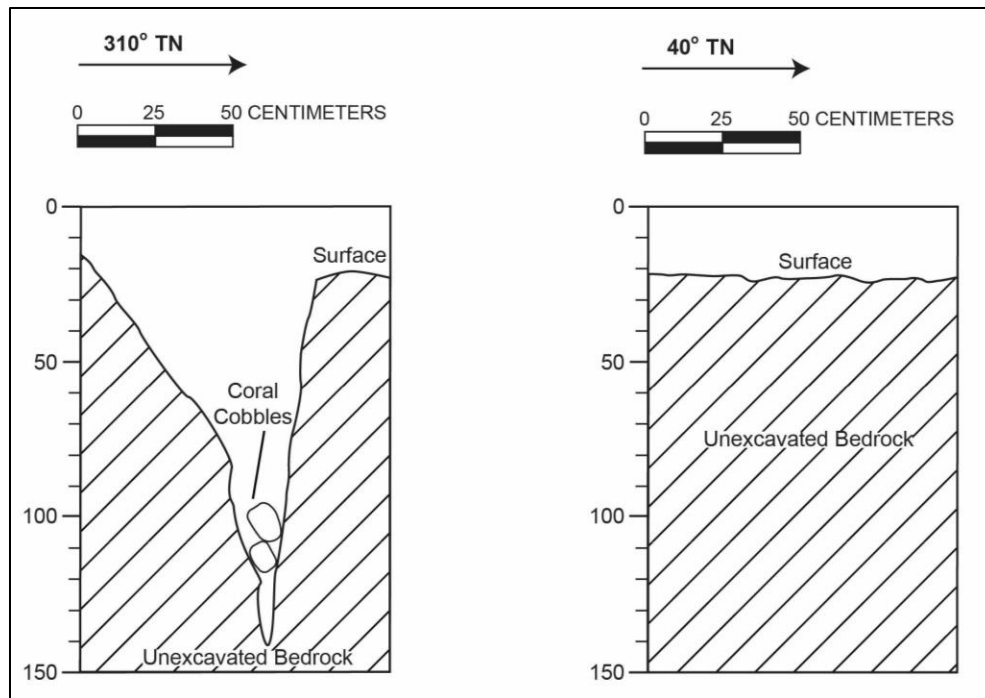


Figure 117. SIHP # -28807 EU 58 southwest and northwest wall profiles



Figure 118. SIHP # -28807 EU 59 pre-excavation overview, view to southwest





Figure 119. SIHP # -28807 EU 59 post-excavation overview, view to southwest



Figure 120. SIHP # -28807 EU 59 southwest wall profile, view to southwest





Figure 121. SIHP # -28807 EU 59 northwest wall profile, view to northwest

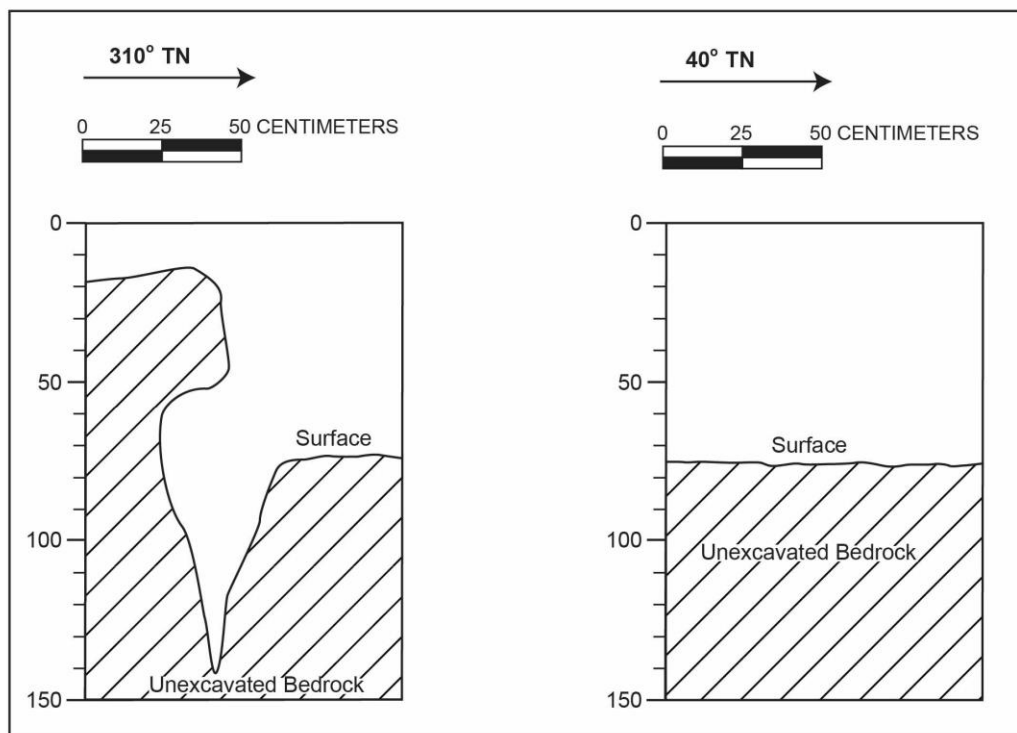


Figure 122. SIHP # -28807 EU 59 southwest and northwest wall profile





Figure 123. SIHP # -28807 EU 60 pre-excavation overview, view to northeast



Figure 124. SIHP # -28807 EU 60 post-excavation overview, view to northeast





Figure 125. SIHP # -28807 EU 60 southwest wall profile, view to southwest



Figure 126. SIHP # -28807 EU 60 northwest wall profile, view to northwest



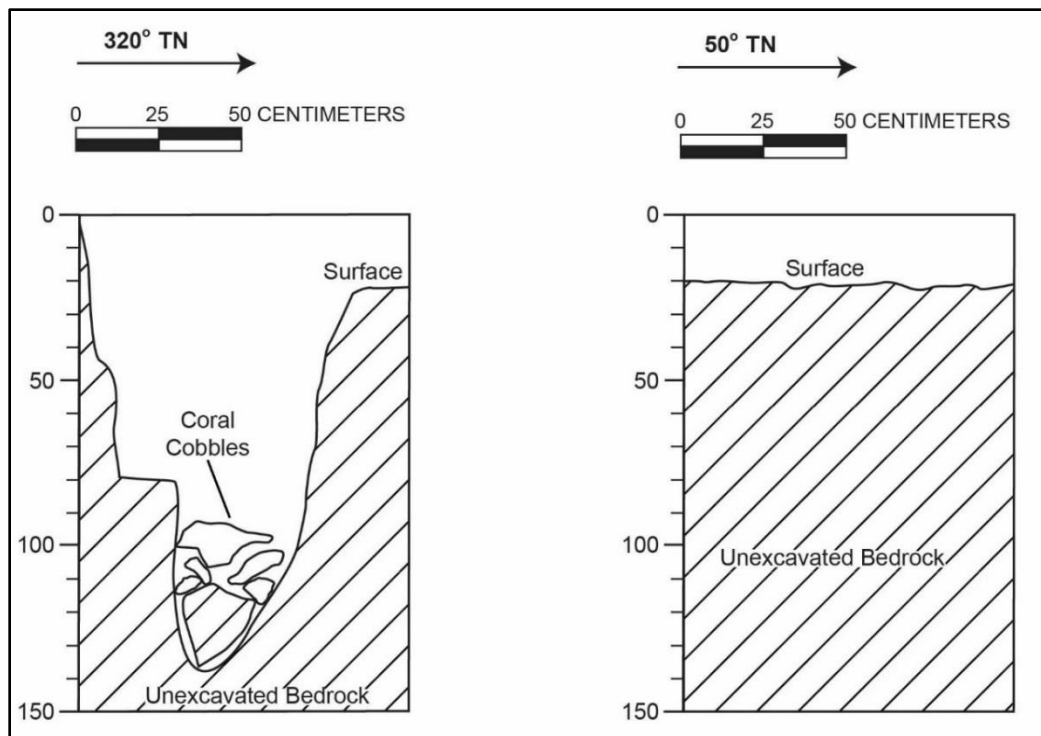


Figure 127. SIHP # -28807 EU 60 southwest and northwest wall profiles



Figure 128. SIHP # -28807 EU 61 pre-excavation overview, view to northeast



Figure 129. SIHP # -28807 EU 61 post-excavation overview, view to northeast



Figure 130. SIHP # -28807 EU 61 southwest wall profile, view to southwest





Figure 131. SIHP # -28807 EU 61 northwest wall profile, view to northwest

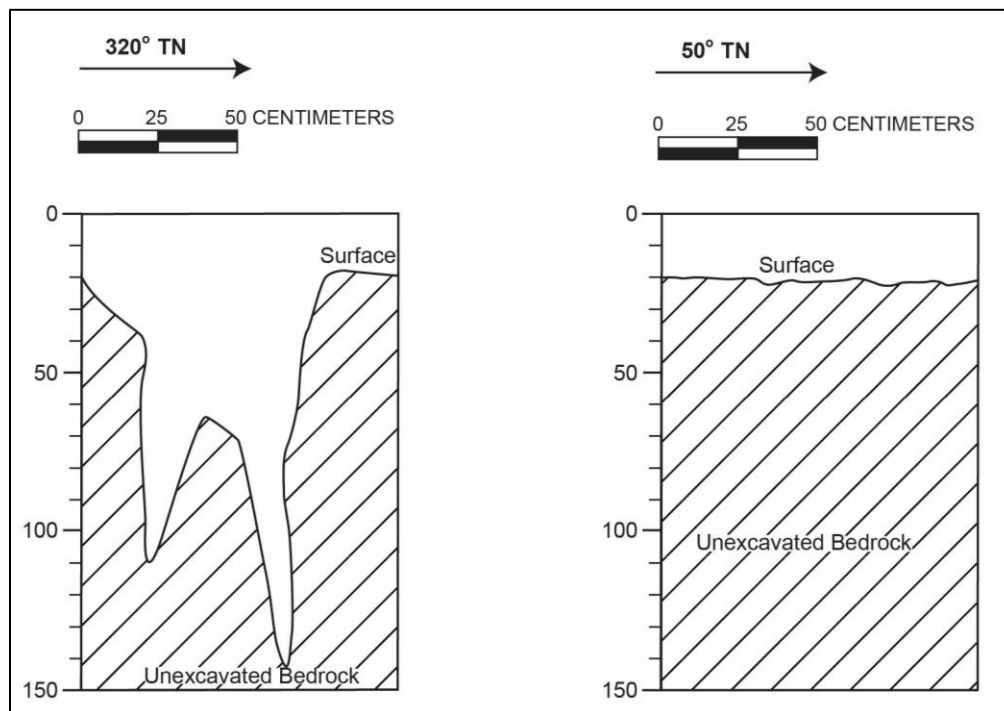


Figure 132. SIHP # -28807 EU 61, southwest and northwest wall profiles

A worked stick was found in EU 61 beneath the coral, near the central concentration. The stick was 90 cm long, 2-cm diameter and had one bi-facially saw-cut end (Figure 133). During the AIS, the field crew observed a similar wooden stake with deteriorated orange flagging tape tied to one end beneath the central coral concentration. Because of the similarity of location and description, it is assumed this is the same stick described during the AIS (see Monahan et al. 2012).

#### 2.5.1.8 EU 62

EU 62, a 1.0 m by 1.0 m excavation unit, was south (adjacent to) EU 61 and north of EU 63 (Figure 134 through Figure 137). Profile drawings of the southwest and northwest walls (Figure 138) indicate the narrowness of the crevice. Excavation uncovered two massive, water-rounded coral cobble manuports, as well as angular *pāhoehoe* cobbles, from 132–141 cmbd, but no smaller-grain sediment was present. Other than the manuports, no cultural materials were observed.

### 2.5.2 Interpretation

Excavations at SIHP # -28807 were conducted to obtain sufficient data to address two research objectives regarding site function and temporal analysis, proposed in the ADRP by Shideler et al. (2012). Site function was listed as a research objective for those historic properties that were “indeterminate as to function and/or the currently available evidence regarding function is ambiguous or inconclusive” (Shideler et al. 2012:265). Temporal analysis was intended “to determine the absolute dates of occupation of the project area as may be available from data recovery sites . . .” (Shideler et al. 2012:265).

SIHP # -28807 is situated on a prominent *pāhoehoe* tumulus that is easily visible from the Queen Ka‘ahumanu Highway and lies approximately 100 m to its east. At the base of the tumulus, there are many additional massive coral cobbles matching the type found within the crevice. The presence of a modern wooden stake beneath the coral fill of the crevice suggests SIHP # -28807 is either of modern construction or was highly disturbed during modern times. Five meters north of the crevice, nails and circular metal in the shape of a cross were observed. These modern artifacts may have been used to anchor a highway memorial. The proximity of SIHP # -28807 to modern artifacts, as well as its visibility from the modern highway, indicate the artifacts are likely associated with SIHP # -28807. The function of SIHP # -28807 was originally assessed as “indeterminate” (Monahan et. al. 2012:327); however, the results of data recovery suggest SIHP # -28807 represents a modern placement of corals, likely associated with commonly observed “Kona graffiti.” Kona graffiti refers to the placement of white coral pieces on Kona’s dark lava fields by locals, tourists, and artists to spell out names and other words. SIHP # -28807 is therefore reinterpreted as a modern activity area.





Figure 133. Saw-cut end of stick found at the base of EU 61



Figure 134. SIHP # -28807 EU 62 pre-excavation overview, view to southwest



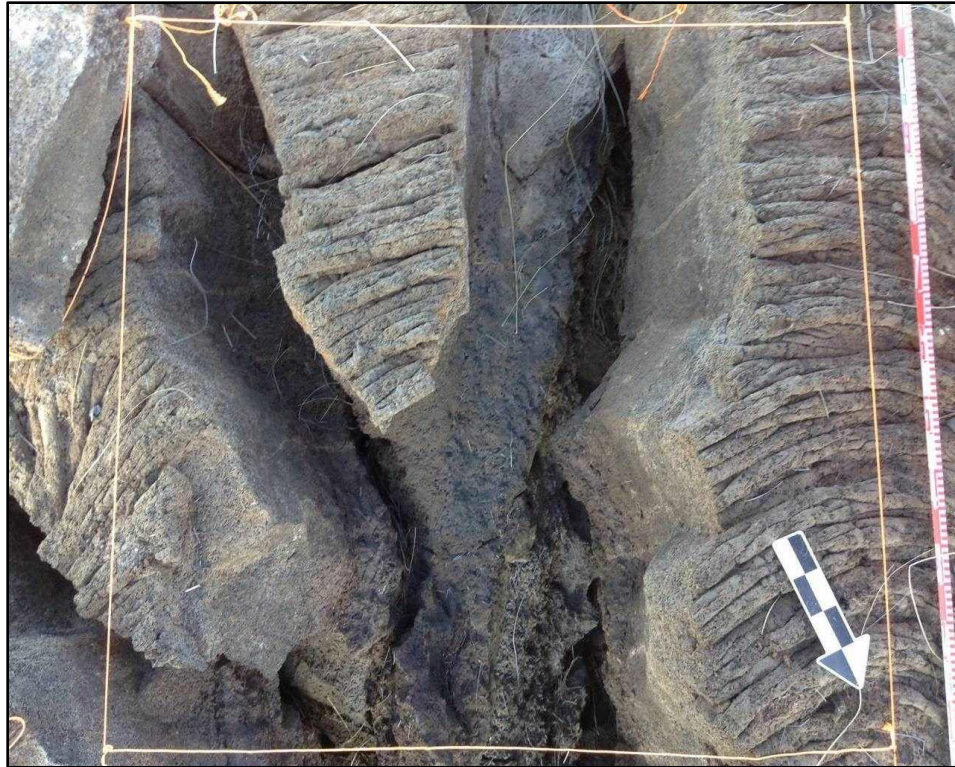


Figure 135. SIHP # -28807 EU 62 post-excavation overview, view to southwest



Figure 136. SIHP # -28807 EU 62 northwest wall profile, view to northwest





Figure 137. SIHP # -28807 EU 62 southwest wall profile, view to southwest

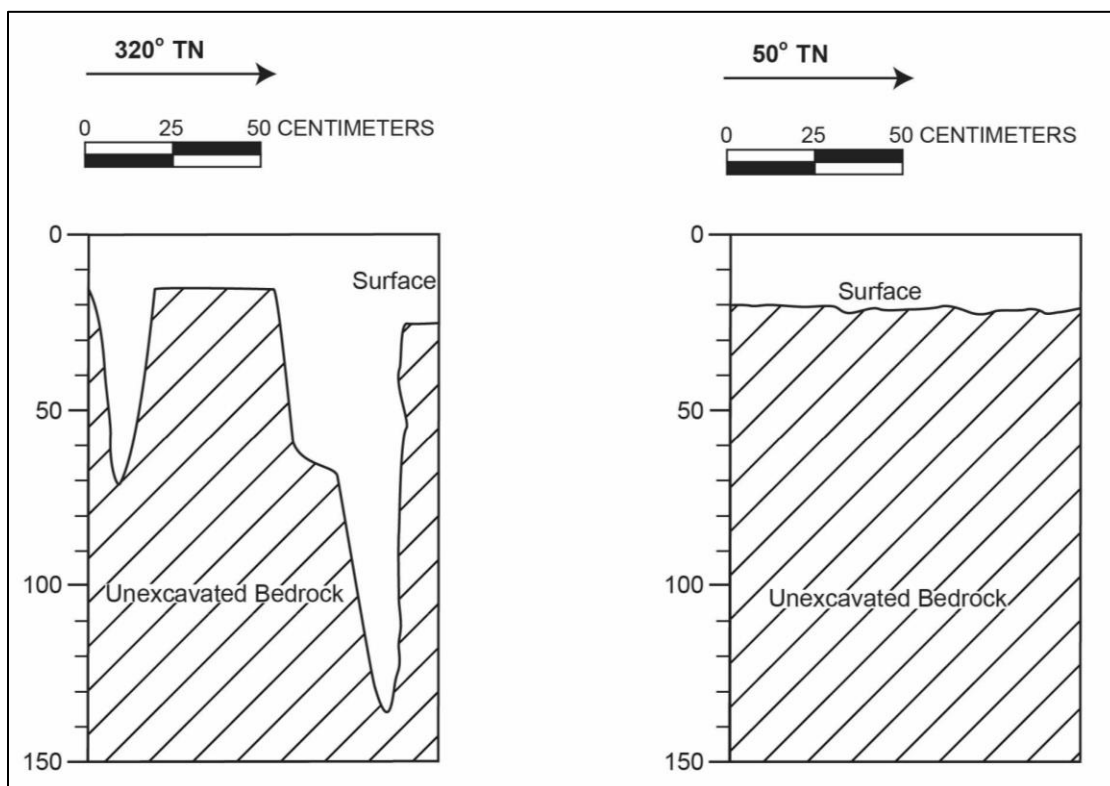


Figure 138. SIHP # -28807 EU 62 southwest and northwest wall profiles

## 2.6 SIHP # 50-10-27-28812

**CSH Site No.:** T-092410-1 (Monahan et al. 2012)

**Formal Type:** Natural outcrop

**No. of Features:** 0

**Function:** Indeterminate

**Age:** Modern

**Dimensions:** 1 m N/S by 1.5 m E/W

**Topography:** *Pāhoehoe* tumulus, level to moderately sloping

**Elevation:** 38 m (124 ft) AMSL

**Description:** SIHP # -28812 is a natural outcrop approximately 390 m north of the intersection of OTEC Road and the Queen Ka'ahumanu Highway (see Figure 1 and Figure 2). SIHP # -28812 is described by Monahan et al. (2012) as a possible filled crevice of an indeterminate function. The crevice, now considered a natural outcrop, was originally identified by the presence of a small stand of *kī* (*Cordyline fruticosa*) immediately north of SIHP # -28812. The outcrop, which consists of a natural crevice in the center of a *pāhoehoe* tumulus, measures 1.0 m north/south by 1.5 m east/west. The crevice contained a loose pile of *pāhoehoe* boulders and cobbles that appeared to be unmodified rubble or collapse (Monahan et al. 2012:365).

SIHP # -28812 has been assessed as significant under Criteria d and e.

### 2.6.1 Data Recovery Effort

Data recovery fieldwork at SIHP # -28812 occurred during both the 2011 and 2015 field seasons. Data recovery during the 2011 field season followed the 2011 ADRP (Altizer and Monahan 2011:153), which recommended a single 1.0 by 1.0 m excavation unit (EU 4) placed within the possible filled crevice (Figure 139). Documentation included two perpendicular profiles of the excavation unit as well as a plan map illustrating the location of EU 4. EU 4 was excavated to the undulating *pāhoehoe* bedrock.

During the 2015 season, data recovery fieldwork at SIHP # -28812 involved 100% areal excavation, as recommended by the 2012 ADRP (Shideler et al. 2012:200). This required the excavation of two 1.0 by 1.0 m excavation units (EU 50 and 51), which encompassed all of the sediment within the crevice (Figure 139 through Figure 141). For each excavation unit, two perpendicular profiles were documented, and the existing plan map was updated to depict the location of the units. Charcoal samples were collected from the surface and base of excavations. A sub-meter accurate Trimble GPS unit was used to record the center point of each unit. EUs 50 and 51 were excavated to the undulating *pāhoehoe* bedrock.

Both excavation units yielded a culturally sterile matrix composed of a naturally deposited aeolian sediment overlying the undulating *pāhoehoe* bedrock, which ranged in depth from 34-104 cmbd. The sediment (Stratum I) was composed of *pāhoehoe* cobbles, overlying decomposed organics and aeolian sandy loam. No cultural materials were observed.

#### 2.6.1.1 Data Recovery for the 2011 Season

##### 2.6.1.1.1 EU 4

EU 4, a 0.8 by 0.8 m excavation unit, was placed next to the *kī* stand in the area with the most



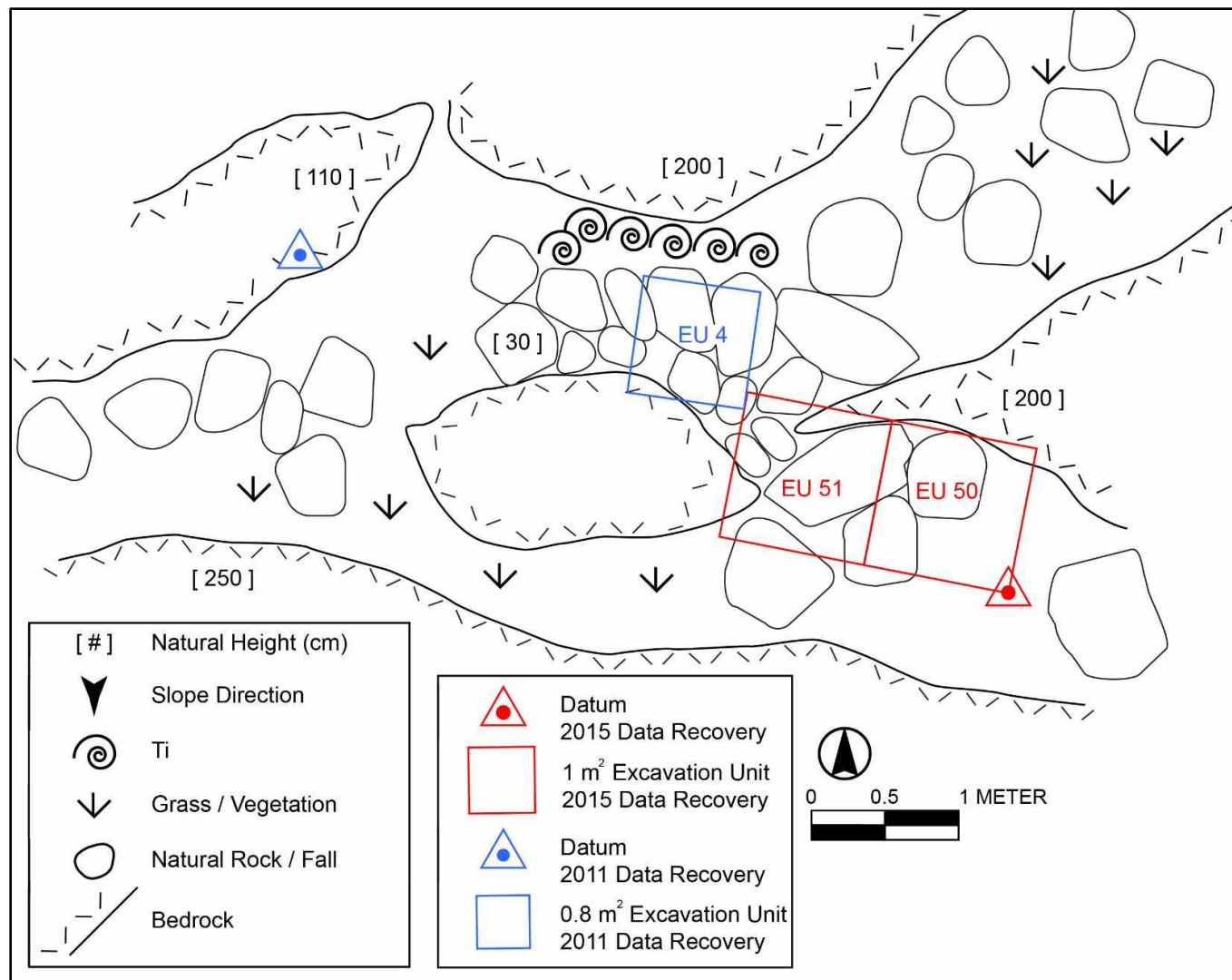


Figure 139. SIHP # -28812 plan view map, showing EU 50 and 51 from 2015 data recovery and EU 4 from 2011 data recovery



Figure 140. SIHP # -28812 pre-excavation overview showing stand of *kī* (*C. fruticosa*), view to north



Figure 141. SIHP # -28812 pre-excavation overview showing a loose pile of *pāhoehoe* boulders and cobbles, view to west



potential to yield data (i.e., having smaller surface stones and greater observable depth; Figure 142 and Figure 143). The unit was reduced in size from a regular 1.0 by 1.0 m excavation unit to fit in between rock outcrops. Profile drawings of the south and west walls (Figure 144) indicate cracked/eroded bedrock over solid bedrock. Sediment (Stratum I) consisting of naturally deposited silt loam only occurred in a crack in the middle of the unit (Table 6). Observed faunal material consisted of terrestrial snail shell fragments and is interpreted as having a natural origin. No cultural materials were observed.

#### 2.6.1.2 Data Recovery for the 2015 Season

##### 2.6.1.2.1 EU 50

EU 50, a 1.0 m by 1.0 m excavation unit, was east (adjacent to) EU 51 (Figure 145 through Figure 148). Profile drawings of the east and south walls (Figure 149) indicate an uneven bedrock surface. Sediment (Stratum I) consists of small to large *pāhoehoe* cobbles overlying decomposed organics and naturally deposited sandy loam from 46–104 cmbd, overlying the undulating *pāhoehoe* bedrock (Table 7). No cultural materials were observed.

##### 2.6.1.2.2 EU 51

EU 51, a 1.0 m by 1.0 m excavation unit, was west (adjacent to) EU 50 (Figure 150 through Figure 153). Profile drawings of the west and south walls (Figure 154) indicate an uneven bedrock surface. Sediment (Stratum I) consists of *pāhoehoe* cobbles overlying decomposed organics and naturally deposited sandy loam from 43–97 cmbd, overlying undulating *pāhoehoe* bedrock sloping to the north (see Table 7). No cultural materials were observed.

### 2.6.2 Interpretation

Excavations at SIHP # -28812 were conducted to obtain sufficient data to address two research objectives regarding site function and temporal analysis proposed in the ADRP by Shideler et al. (2012). Site function was listed as a research objective for those historic properties that were “indeterminate as to function and/or the currently available evidence regarding function is ambiguous or inconclusive” (Shideler et al. 2012:265). Temporal analysis is intended “to determine the absolute dates of occupation of the project area as may be available from data recovery sites . . .” (Shideler et al. 2012:265).

During the AIS, both the function and age of SIHP # -28812 were assessed as indeterminate (Monahan et al. 201:156). Subsequent data recovery determined the material within the crevice is unmodified rubble or collapse and does not contain cultural materials or modifications. However, the presence of *kī* plants suggests the area may have been planted. The *kī* plant was commonly used by Hawaiians for a variety of applications, including important religious activities (Merlin 1995:40); *kī* is not commonly seen except where manually introduced. That said, it is possible the *kī* could have been transported by animal, and the plants do not appear to be older than five years in age. Given the lack of evidence for anthropogenic modifications to the natural outcrop and the modern age of the *kī* plants, results of data recovery suggest SIHP # -28812 is a natural rock formation with no cultural function.



Figure 142. SIHP # -28812 EU 4 pre-excavation overview, view to north



Figure 143. SIHP # -28812 EU 4 post-excavation overview, view to northwest



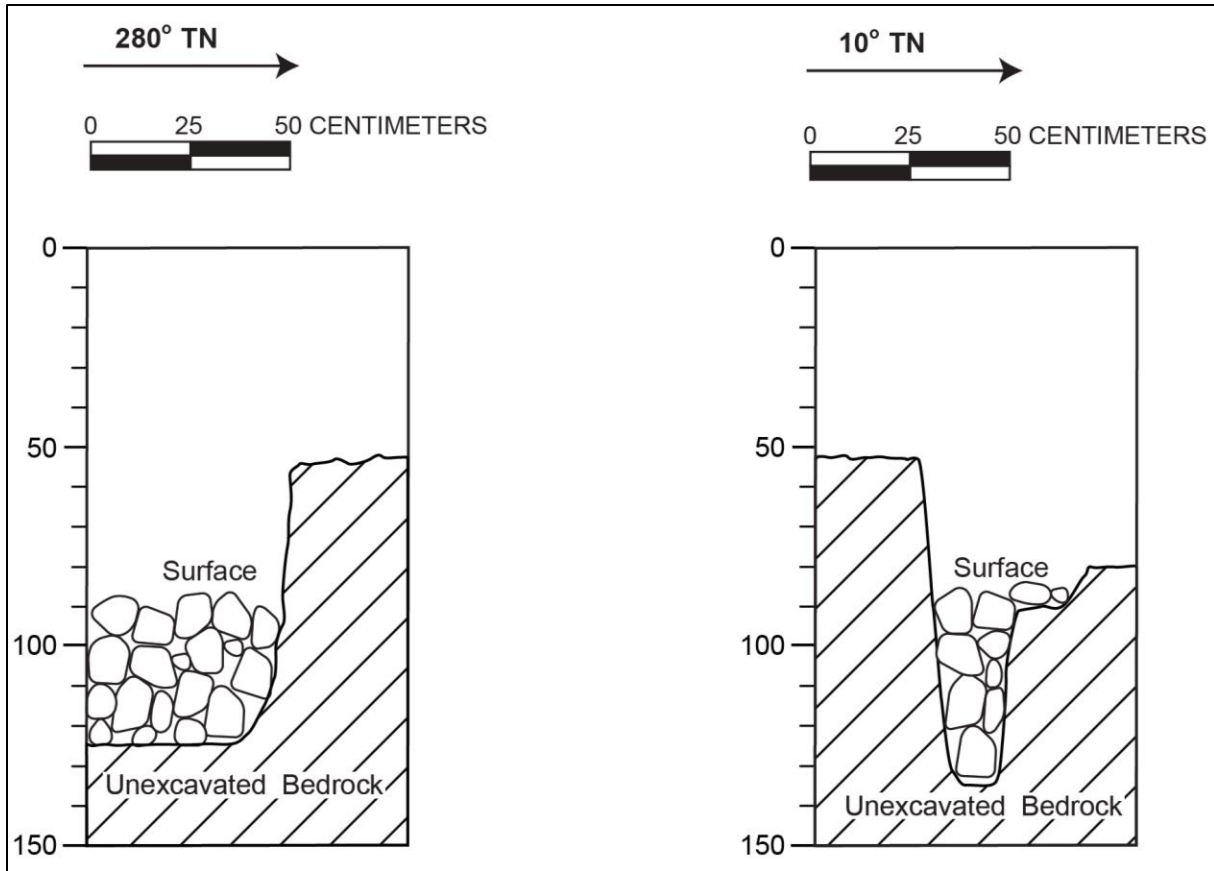


Figure 144. SIHP # -28812 EU 4 south and west wall profiles

Table 6. SIHP # -28812 EU 4 stratigraphy

Excavation Unit	Stratum	Depth (cmbd)	Description
EU 4	I	88–135	Natural; 10YR 3/3, very dark brown; extremely cobbly silt; structureless (single-grain); dry, loose consistence; non-plastic; terrigenous origin; common, fine roots; very abrupt, wavy lower boundary; decomposing bedrock containing over 90% angular pebbles and cobbles



Figure 145. SIHP # -28812 EU 50 pre-excavation overview, view to south



Figure 146. SIHP # -28812 EU 50 post-excavation overview, view to south





Figure 147. SIHP # -28812 EU 50 south wall profile, view to south



Figure 148. SIHP # -28812 EU 50 east wall profile, view to east

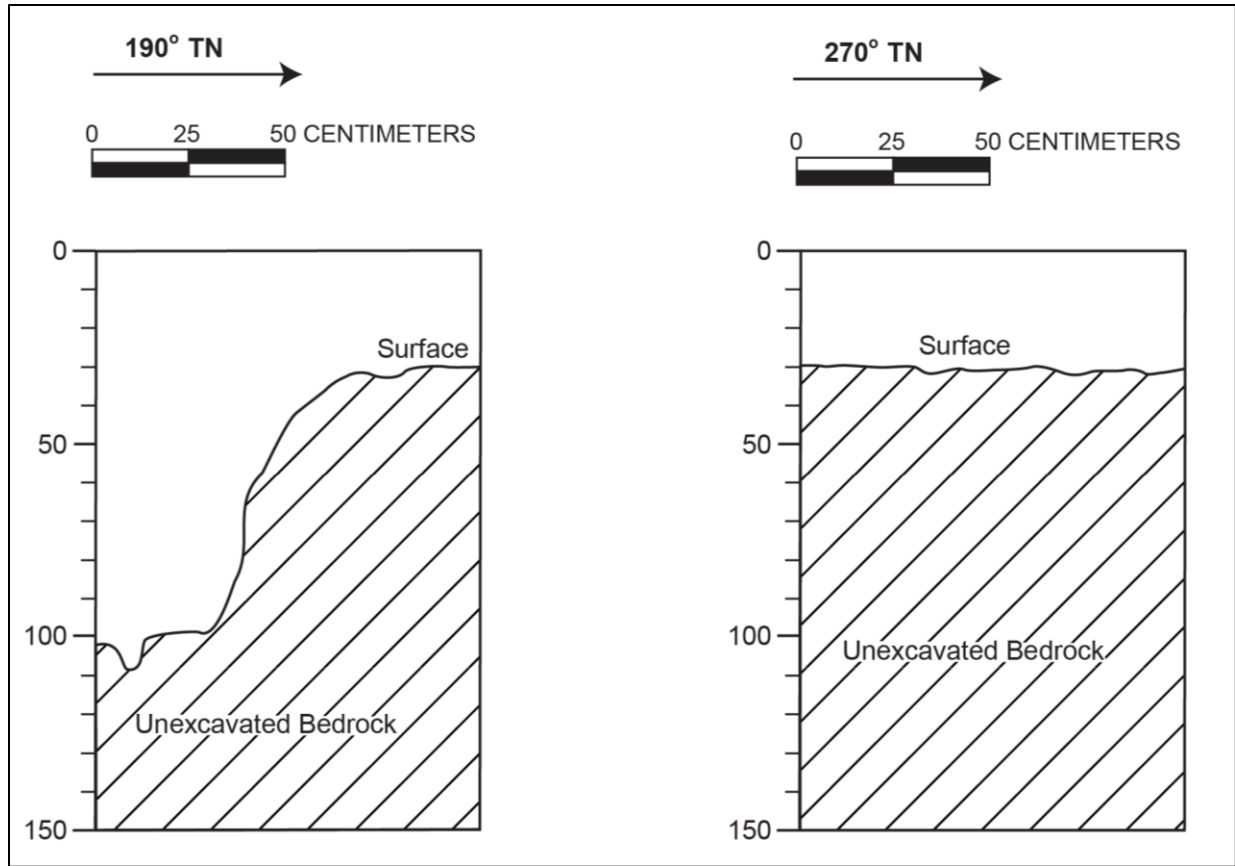


Figure 149. SIHP # -28812 EU 50 east and south wall profiles

Table 7. SIHP # -28812 EU 50 and 51 stratigraphy

Excavation Unit	Stratum	Depth (cmbd)	Description
EU 50	I	46–104	Natural; 10YR 4/2, dark grayish brown; very gravelly sandy loam; weak, fine, granular structure; moist, friable consistence; slightly plastic; terrigenous origin; very abrupt, wavy lower boundary; decomposing bedrock containing between 35% and 60% angular gravel
EU 51	I	43–97	Natural; 10YR 4/2, dark grayish brown; very gravelly sandy loam; weak, fine, granular structure; moist, friable consistence; slightly plastic; terrigenous origin; very abrupt, wavy lower boundary; decomposing bedrock containing between 35% and 60% angular gravel





Figure 150. SIHP # -28812 EU 51 pre-excavation overview, view to south



Figure 151. SIHP # -28812 EU 51 post-excavation overview, view to south





Figure 152. SIHP # -28812 EU 51 south wall profile, view to south

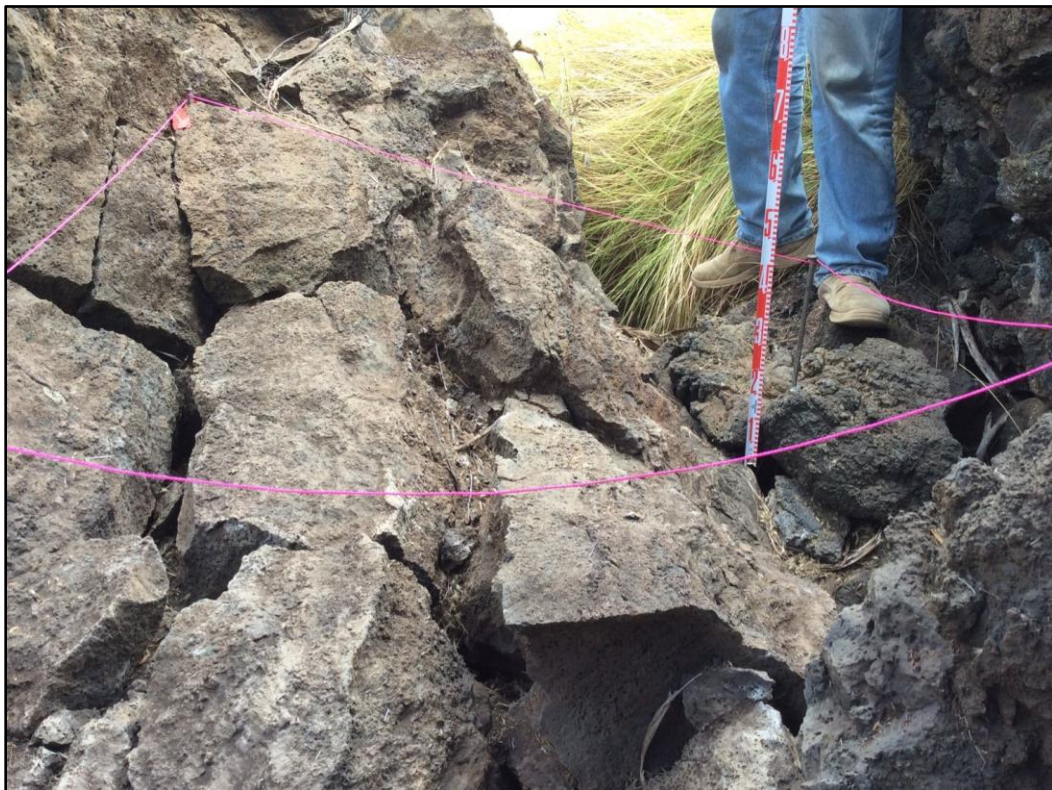


Figure 153. SIHP # -28812 EU 51 west wall profile, view to west



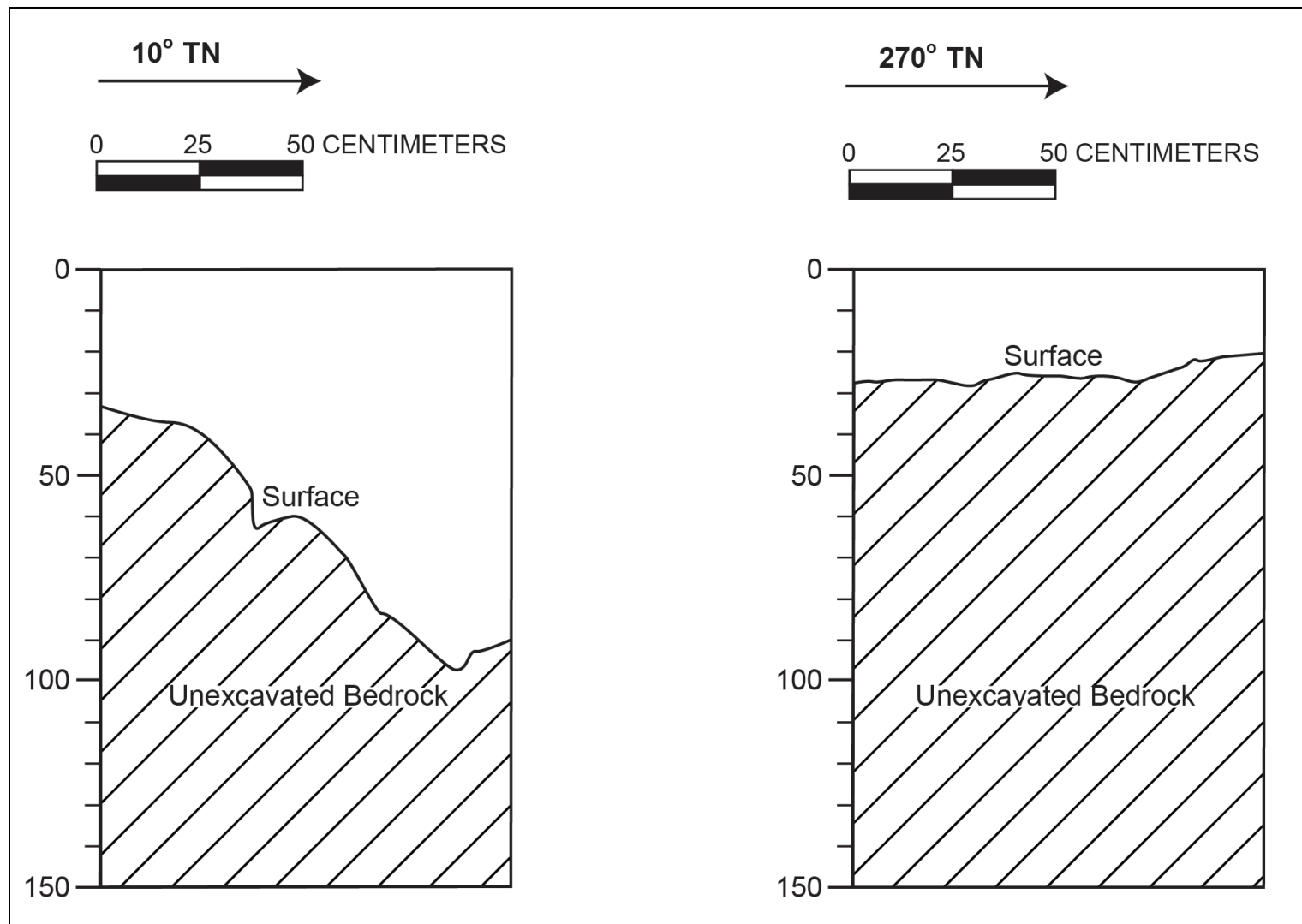


Figure 154. SIHP # -28812 EU 51 west and south wall profiles

## 2.7 SIHP # 50-10-27-28813

**CSH Site No.:** T-092110-11 (Monahan et al. 2012)

**Formal Type:** Modified lava blisters

**No. of Features:** 6

**Function:** Indeterminate

**Age:** Pre-Contact

**Dimensions:** 25 m NE/SW by 15 m NW/SE

**Topography:** Nearly level *pāhoehoe* flow

**Elevation:** 34–35 m (112–116 ft) AMSL

**Description:** SIHP # -28813 consists of six modified lava blisters designated features A through F. It is approximately 437 m north of the intersection of OTEC Road and the Queen Ka‘ahumanu Highway (see Figure 1, Figure 2, and Figure 155). SIHP # -28813 was originally documented in Monahan et al. (2012) as a single modified lava blister, which is now designated as Feature A (see Feature A description below and Figure 156).

Following the original AIS, additional field survey was conducted with NHO representative Isaac Harp (2011). This resulted in the identification of additional features, which Harp considered to be potentially archaeological. These features have been designated as Features B through E (Figure 157 through Figure 160). It was the opinion of CSH archaeologists that these additional features are natural rather than archaeological; however, after consulting with Mike Vitousek, former SHPD archaeologist, it was agreed to include these features in the data recovery to allay NHO concerns (Monahan et al. 2012:369).

After clearing vegetation within the boundaries of SIHP # -28813 during the data recovery effort, it became evident that additional modifications would be necessary in order to excavate 100% of the soils and sediments within the historic property's boundaries. This resulted in the inclusion of an additional lava blister (identified as Feature F; Figure 161) and the expansion of Feature E to include all contiguous sediment. The six features are described in detail below.

**Feature A** is an oval-shaped, collapsed lava blister with vertical sides that extend approximately 1.1 m below the surface (see Figure 156). The lava blister measures 6.0 m north/south by 3.2 m east/west. The interior of the lava blister consists of a thick layer of sediment and organic debris that currently supports the growth of grasses. A wall composed of two to three courses of stacked *pāhoehoe* cobbles and small boulders has been constructed along the southeastern edge of the lava blister. The wall is 2.8 m long by 0.4 m wide with a maximum height of 0.9 m. No artifacts or midden were observed in this area (Monahan et al. 2012:368).

**Feature B** is a collapsed blister or small sink that measures approximately 2.5 m east/west by 3.25 m north/south and up to 1.25 m deep at the north end (see Figure 157). Once cleared of grass, the feature was found to contain boulders resting on the base, around the interior perimeter with a minimal open area in the center. A significant amount of soil-sediment is present, likely due to the substantial grasses present. No overhangs are present that could accommodate a person, although quite a bit of shade would be provided (late or early in the day) by the depth of the feature alone. In 2011, a 1.0 m by 1.0 m excavation unit was excavated in the center of the feature. A crab chela (pincer part) was found in this feature during the AIS (Shideler et al. 2012).





Figure 155. SIHP # -28813 overview after clearing, with Feature B in foreground and Feature A beyond the preservation fence, view to west



Figure 156. SIHP # -28813 Feature A pre-excavation overview, view to north





Figure 157. SIHP # -28813 Feature B pre-excavation overview, view to northwest



Figure 158. SIHP # -28813 Feature C pre-excavation overview, view to south





Figure 159. SIHP # -28813 Feature D pre-excavation overview, view to northeast



Figure 160. SIHP # -28813 Feature E pre-excavation overview, view to north





Figure 161. SIHP # -28813 Feature F pre-excavation overview, view to northwest



**Feature C** is similar to Feature B. This collapsed blister/sink is 3.0 m (northeast/southwest) by 2.5 m east/west and up to 1.25 m deep at the south end (see Figure 158). A concentration of boulders covers the southeastern half of the pit floor, leaving the western and northern portions of the floor relatively open. The northern end has a shallow overhang. The sink contained a substantial amount of grass and, once cleared, a significant amount of soil sediment was observed. In 2011, a 1.0 m by 1.0 m excavation unit was excavated in the center of the feature.

**Feature D** is south of the other features. It is a small, natural pit in the *pāhoehoe* flow consisting of two holes separated by a section of *pāhoehoe* that had not collapsed (see Figure 159). Collapsed stones are present on the pit floors of the holes. The northern pit is roughly 0.5 m by 0.5 m and up to 1.0 m deep, while the smaller, southern pit is about 0.5 m east/west by 0.3 m north/south and up to 0.70 m deep.

**Feature E** is the *mauka*-most feature and is a natural C-shape formed by the edge of a *pāhoehoe* outcrop (see Figure 160). A clear, level area fronts the C-shape to the north and is somewhat enclosed by another *pāhoehoe* outcrop/tumulus, reaching a height of 1.6 m. The C-shape feature is approximately 4.0 m long east/west, and the level floor is about 1.0 m wide north/south. The outcrop edge is 1.0–1.3 m high. The feature was overgrown with grass. After clearing during data recovery, a substantial soil-sedimentary deposit was observed, which extended significantly to the north outside the originally designated feature boundaries. Some very shallow overhangs/crevices are present along the outcrop edge. Because the ADRP called for “100% excavation” (Shideler et al. 2012), this sediment was excavated and treated as part of Feature E.

**Feature F** is a smaller version of Features B and C. This collapsed blister/sink measures 2.0 m east/west by 1.0 m north/south (see Figure 161). The feature is very shallow at 0.5 m deep and does not contain any overhangs. Sediment is present at the base of the feature, which was discovered through vegetation clearing during data recovery. No cultural modification to the feature was apparent.

SIHP # -28813 has been assessed as significant under Criteria d and e.

### 2.7.1 Data Recovery Effort

Data recovery fieldwork at SIHP # -28813 occurred during both the 2011 and 2015 field seasons. Data recovery during the 2011 field season followed the 2011 ADRP (Altizer and Monahan 2011). At the time of that report, Altizer and Monahan (2011:153) considered SIHP # -28813 to consist only of Feature A, for which they recommended two 1.0 by 1.0 m excavation units (EU 2 and EU 3; Figure 162) within the feature's interior. Documentation included two perpendicular profiles of each excavation unit. Bulk samples were collected from the surface, and the stratigraphic column was sampled in 2-cm intervals in the deepest portion of each EU. Pollen analysis was performed on two samples from EU 2, collected from 112–116 and 144–148 cmbd (see Volume I Section 8.3.1).

During the 2015 season, data recovery fieldwork at SIHP # -28813 involved the excavation of 53 1.0 by 1.0 m excavation units (EU 12 through 64), designed to encompass all the sediment within the historic property (see Figure 162). The ADRP called for “100% areal excavation of Feature B through E” (Shideler et al. 2012:203). Feature A was recommended for preservation in the ADRP, with the knowledge that it was partially impacted by the 2011 data recovery efforts. Vegetation clearing resulted in the discovery of an additional lava sink with sediment (Feature F)

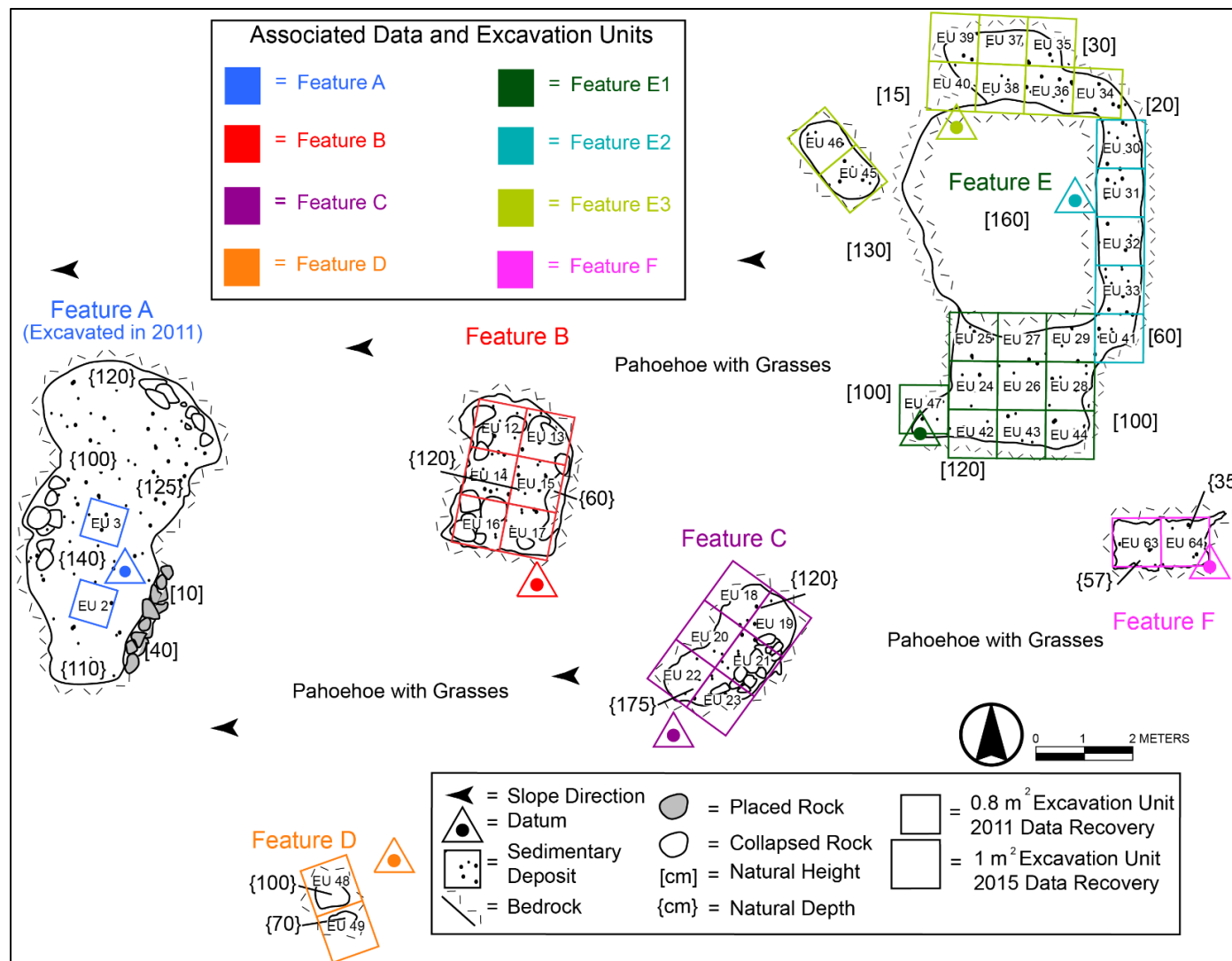


Figure 162. Plan view map of SIHP # -28813 showing EU and datum locations



and the expansion of Feature E to encompass sediment deposits extending northwards. For each excavation unit, two perpendicular profiles were documented, and the existing plan map was updated to depict the locations of the units. A sub-meter accurate Trimble GPS unit was used to record the center point of each unit. EUs 12 through 64 were excavated to the undulating *pāhoehoe* bedrock.

Depositional stratigraphy generally consists of an aeolian silt deposit mixed with varying amounts of decomposing bedrock in the form of angular cobbles and pebbles (Stratum I), overlying the *pāhoehoe* bedrock. Feature A (lava blister) contained the thickest fine sediment deposit from 101–148 cmbd and had the densest concentration of land snail shells (*Amastridae* sp.) and crab claw fragments (*G. severnsi* [extinct]). Feature B (lava blister) was rockier, containing approximately 20% decomposing bedrock within the aeolian silt sediment (Stratum I) from 120–150 cmbd, as well as *pāhoehoe* boulders that had collapsed from the roof. Feature C (lava blister) was identical to Feature B, except that it contained more roof collapse boulders. Feature D (*pāhoehoe* pits) contained a small amount of aeolian silt and decomposing bedrock. Feature E (natural C-shape) contained similar aeolian sediment to Features A through C, with 5–35% decomposing bedrock, but contained no boulders. Feature F (small lava blister) contained a similar aeolian silt deposit mixed with 15–35% decomposing bedrock from 65–90 cmbd. All 55 units yielded a culturally sterile matrix, with no evidence of anthropogenic/cultural modification.

#### 2.7.1.1 Data Recovery for the 2011 Season

##### 2.7.1.1.1 Feature A

###### 2.7.1.1.1.1 EU 2

EU 2, a 0.8 by 0.8 m excavation unit was placed in the southern portion of Feature A, beneath the constructed rock wall in the area with the greatest potential to yield data (Figure 163 through Figure 165). The unit was reduced in size from a regular 1.0 by 1.0 m excavation unit to fit between rock outcrops. Profile drawings of the north and east walls (Figure 166) indicate a relatively thick sediment deposit (Stratum I). Sediment consisted of naturally deposited silt loam overlying the undulating *pāhoehoe* bedrock (Table 8). Faunal remains observed included numerous land snail shells (*Amastridae* sp.) and crab claw fragments (*G. severnsi*); however, these materials are interpreted as having a natural origin. No cultural materials were observed.

As mentioned above, pollen analysis was performed on two samples from EU 2, collected from 112–116 and 144–148 cmbd. An abundance of organic debris prevented a pollen count in the upper sample, in which only a single pollen grain was identified. The lower sample yielded mostly large Poaceae pollen, reflecting large grasses. This suggests the growth and/or use of *pili* grass (*H. contortus*), which has been used for a variety of purposes in Hawai'i, including for thatching and to cover house floors (Handy et al. 1972; Krauss 1993 in Cummings and Kovacik 2016).

###### 2.7.1.1.1.2 EU 3

EU 3, a 0.8 by 0.8 m excavation unit (reduced from a 1.0 by 1.0 m to fit between outcrops) was placed near the center of Feature A, in the area most likely to yield data (Figure 167 through Figure 169). Profile drawings of the northwest and southwest walls (Figure 170) indicate a relatively thick sediment deposit (Stratum I). Sediment consists of naturally deposited silt loam overlying the undulating *pāhoehoe* bedrock (see Table 8). Faunal remains observed consisted of numerous terrestrial snail shell fragments (*Amastridae* sp.), and one crab claw fragment (*G.*

Table 8. SIHP # -28813 Feature A, EU 2 and 3 stratigraphy

Excavation Unit	Stratum	Depth (cmbd)	Description
EU 2	I	112–148	Natural; 10YR 3/3, very dark brown; silt; structureless (single-grain); dry, loose consistence; non-plastic; terrigenous origin; many, fine roots; very abrupt, wavy lower boundary
EU 3	I	101–135	Natural; 10YR 3/3, very dark brown; silt; structureless (single-grain); dry, loose consistence; non-plastic; terrigenous origin; many, fine roots; very abrupt, wavy lower boundary



Figure 163. SIHP # -28813 Feature A, EU 2 pre-excavation overview, view to east





Figure 164. SIHP # -28813 Feature A, EU 2 post-excavation overview, view to east



Figure 165. SIHP # -28813 Feature A, EU 2 east wall profile, view to east



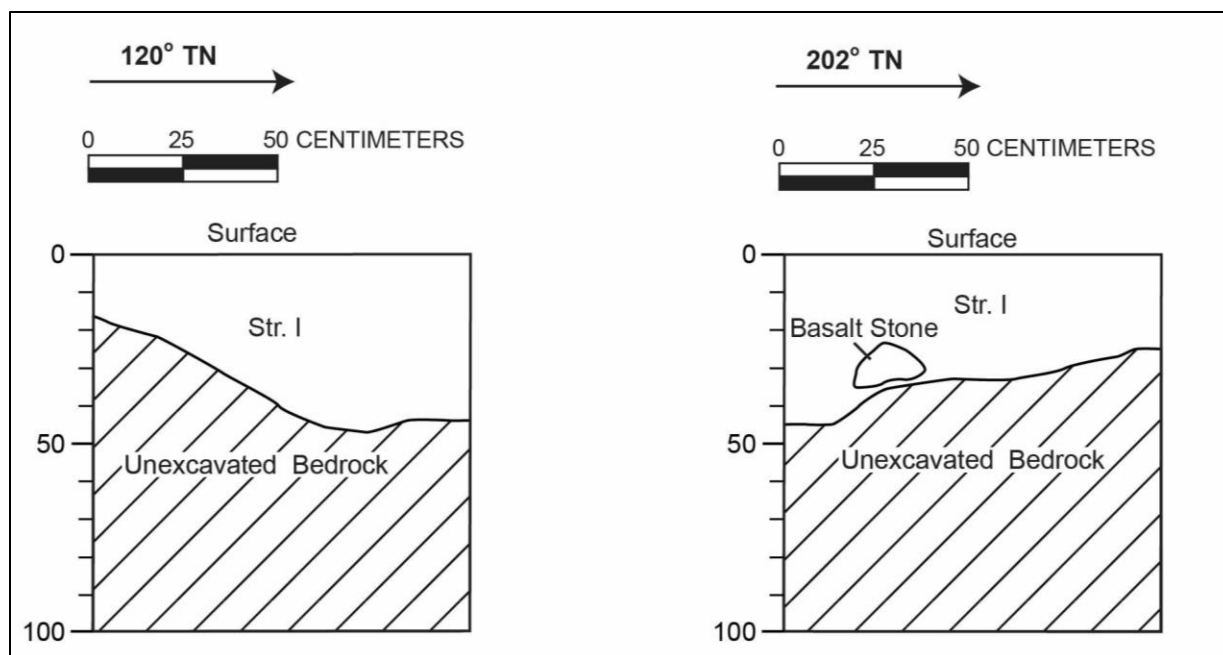


Figure 166. SIHP # -28813 Feature A, EU 2 north and east wall profiles



Figure 167. SIHP # -28813 Feature A, EU 3 pre-excavation overview, view to north





Figure 168. SIHP # -28813 Feature A, EU 3 post-excavation overview, view to north



Figure 169. SIHP # -28813 Feature A, EU 3 north wall profile, view to north

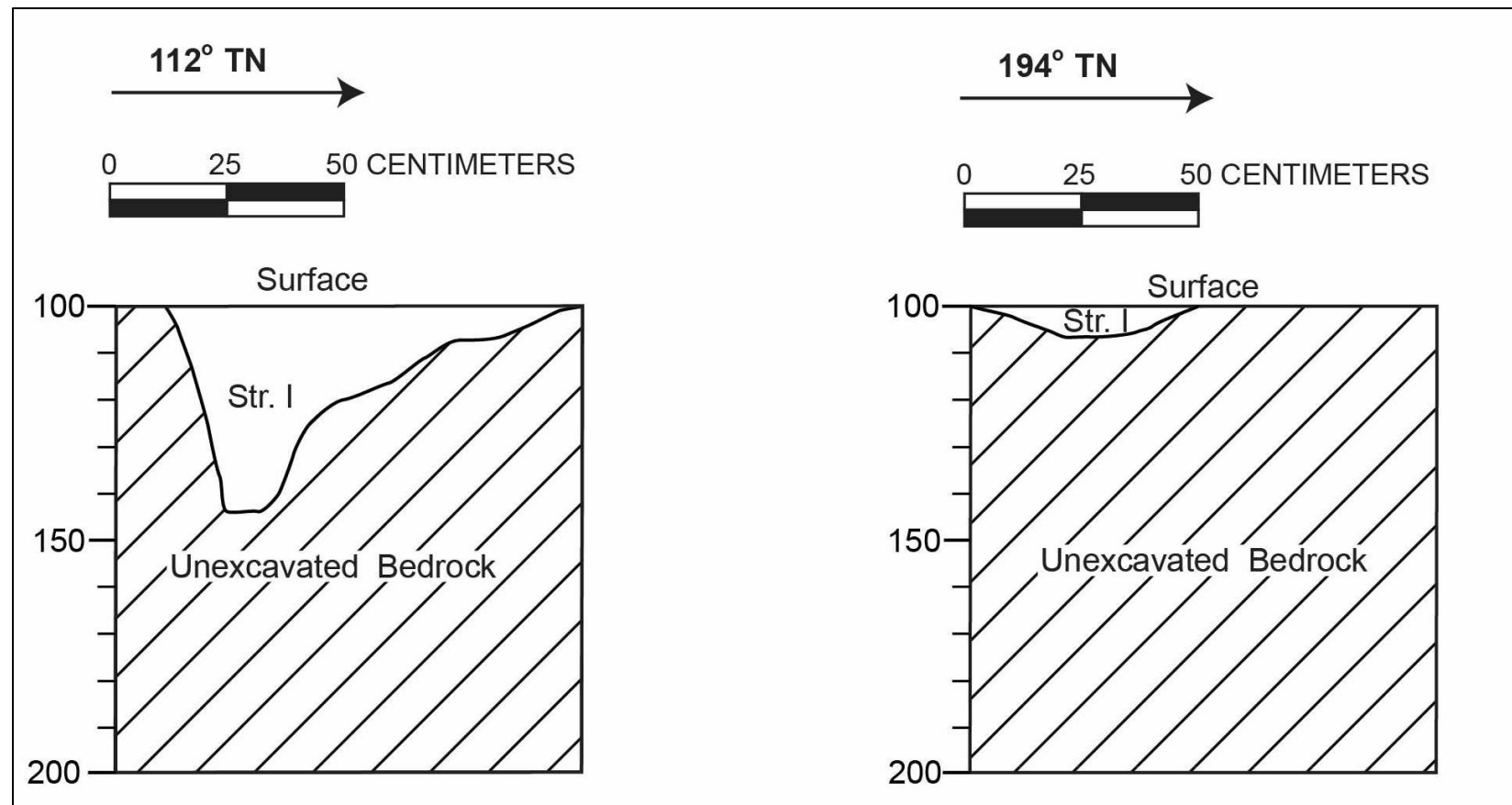


Figure 170. SIHP # -28813 Feature A, EU 3 north and west wall profile



*severnsi*); however, these materials are interpreted as having a natural origin. No cultural materials were observed.

#### 2.7.1.2 Data Recovery for the 2015 Season

##### 2.7.1.2.1 Feature B

It was originally estimated that seven 1.0 by 1.0 m excavation units would be necessary to cover 100% of the sediment within Feature B (Shideler et al. 2012:268); however, during data recovery, it was found that six excavation units would suffice. Therefore, Feature B was divided into six 1.0 by 1.0 m excavation units (EU 12 through 17) laid out in an aerial grid measuring 3.0 m north/south by 2.0 m east/west. Sediment within the feature consists of naturally deposited aeolean silt (Stratum I; Table 9). A small quantity of faunal remains (crab [*G. severnsi*] and rodent [*Rattus* sp.]) were recovered during data recovery field work; however, these are consistent with natural deposition. No cultural materials were observed during data recovery.

##### 2.7.1.2.1.1 EU 12

EU 12, a 1.0 m by 1.0 m excavation unit, was in the northwestern corner of Feature B. Profile drawings of the northwest and southwest walls (Figure 171) indicate a relatively thick sediment deposit (Stratum I). The majority of the unit was covered by angular *pāhoehoe* boulders, with sediment only along the eastern edge. Sediment consists of naturally deposited silt loam with 20% angular basalt gravel from 130–145 cmbd, overlying the undulating *pāhoehoe* bedrock (see Table 9). No cultural materials were observed.

##### 2.7.1.2.1.2 EU 13

EU 13, a 1.0 m by 1.0 m excavation unit, was in the northeastern corner of Feature B (Figure 172 through Figure 175). Profile drawings of the east and south walls (Figure 176) indicate a relatively thick sediment deposit (Stratum I). The majority of the unit was covered by a basalt outcrop, with sediment only along the western edge. Sediment consists of naturally deposited sandy loam with 20% angular basalt gravel from 130–145 cmbd, overlying the undulating *pāhoehoe* bedrock (see Table 9). One crab chela (*G. severnsi* pincer part) was observed and collected during screening. No cultural materials were observed.

##### 2.7.1.2.1.3 EU 14

EU 14, a 1.0 m by 1.0 m excavation unit, was in the central/western portion of Feature B (Figure 177 through Figure 180). Profile drawings of the east and south walls (Figure 181) indicate steep and rocky edges to the sink. The majority of the unit was covered by angular *pāhoehoe* boulders, with sediment only along the eastern edge (Stratum I). Sediment consists of naturally deposited silt loam with 20% angular basalt gravel from 130–148 cmbd, overlying the undulating *pāhoehoe* bedrock (see Table 9). No cultural materials were observed.

##### 2.7.1.2.1.4 EU 15

EU 15, a 1.0 m by 1.0 m excavation unit, was in the central/eastern portion of Feature B (Figure 182 through Figure 185). Profile drawings of the east and south walls (Figure 186) indicate a small void under an overhang. The majority of the unit was covered by a basalt outcrop with sediment only along the western edge. Sediment (Stratum I) consists of naturally deposited sandy loam with 20% angular basalt gravel from 130–145 cmbd, overlying the undulating *pāhoehoe* bedrock

Table 9. SIHP # -28813 Feature B, EU 12 through 17 stratigraphy

Excavation Unit	Stratum	Depth (cmbd)	Description
EU 12	I	130–145	Natural; 10YR 4/2, dark grayish brown; gravelly silt loam; weak, fine, granular structure; moist, loose consistence; many, fine to medium roots; very abrupt, wavy lower boundary; contains 20% angular basalt gravel
EU 13	I	130–145	Natural; 10YR 4/2, dark grayish brown; gravelly sandy loam; weak, fine, granular structure; moist, loose consistence; many, fine to medium roots; very abrupt, wavy lower boundary; contains 20% angular basalt gravel
EU 14	I	130–148	Natural; 10YR 4/2, dark grayish brown; gravelly silt loam; weak, fine, granular structure; moist, loose consistence; many, fine to medium roots; very abrupt, wavy lower boundary; contains 20% angular basalt gravel
EU 15	I	130–145	Natural; 10YR 4/2, dark grayish brown; gravelly sandy loam; weak, fine, granular structure; moist, loose consistence; many, fine to medium roots; very abrupt, wavy lower boundary; contains 20% angular basalt gravel
EU 16	I	120–162	Natural; 10YR 4/2, dark grayish brown; gravelly silt loam; weak, fine, granular structure; moist, loose consistence; many, fine to medium roots; very abrupt, wavy lower boundary; contains 20% angular basalt gravel
EU 17	I	120–152	Natural; 10YR 4/2, dark grayish brown; gravelly silt loam; weak, fine, granular structure; moist, loose consistence; many, fine to medium roots; very abrupt, wavy lower boundary; contains 20% angular basalt gravel



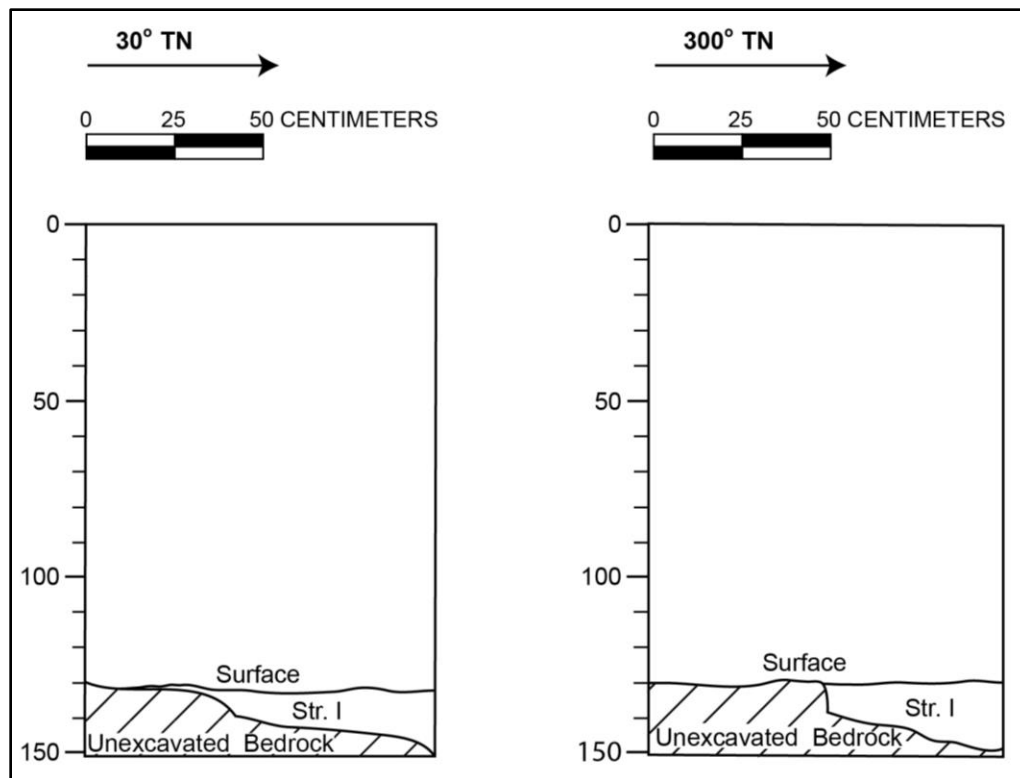


Figure 171. SIHP # -28813 Feature B, EU 12 northwest and southwest walls



Figure 172. SIHP # -28813 Feature B, EU 13 pre-excavation overview, view to east



Figure 173. SIHP # -28813 Feature B, EU 13 post-excavation overview, view to east



Figure 174. SIHP # -28813 Feature B, EU 13 south wall profile, view to south





Figure 175. SIHP # -28813 Feature B, EU 13 east wall profile, view to east

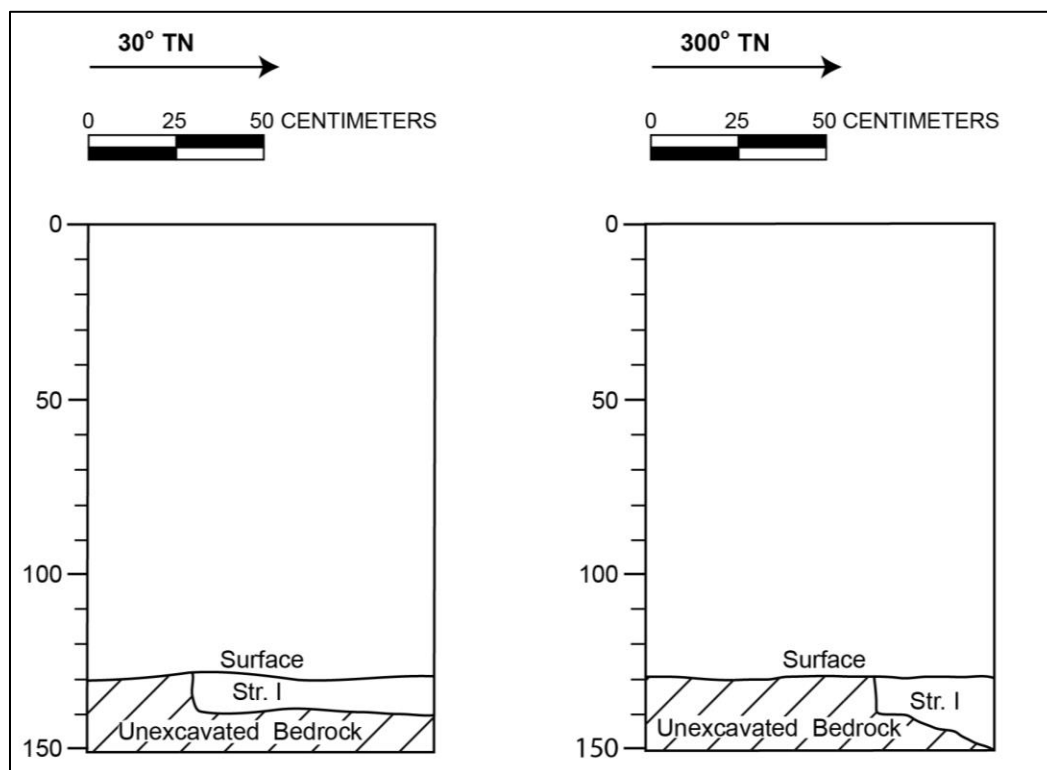


Figure 176. SIHP # -28813 Feature B, EU 13 east and south wall profile



Figure 177. SIHP # -28813 Feature B, EU 14 pre-excavation overview, view to east



Figure 178. SIHP # -28813 Feature B, EU 14 post-excavation overview, view to east





Figure 179. SIHP # -28813 Feature B, EU 14 east wall profile, view to east



Figure 180. SIHP # -28813 Feature B, EU 14 south wall profile, view to south

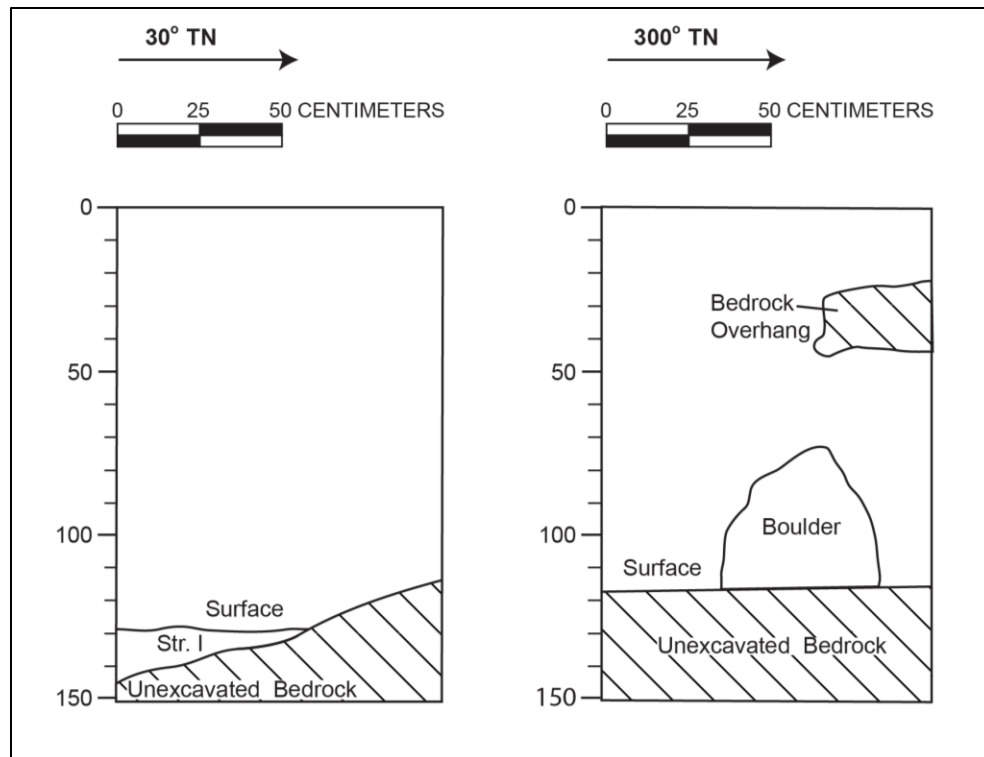


Figure 181. SIHP # -28813 Feature B, EU 14 east and south wall profiles



Figure 182. SIHP # -28813 Feature B, EU 15 pre-excavation photo, view to west





Figure 183. SIHP # -28813 Feature B, EU 15 post-excavation photo, view to south



Figure 184. SIHP # -28813 Feature B, EU 15 south wall profile, view to south



Figure 185. SIHP # -28813 Feature B, EU 15 east wall profile, view to east

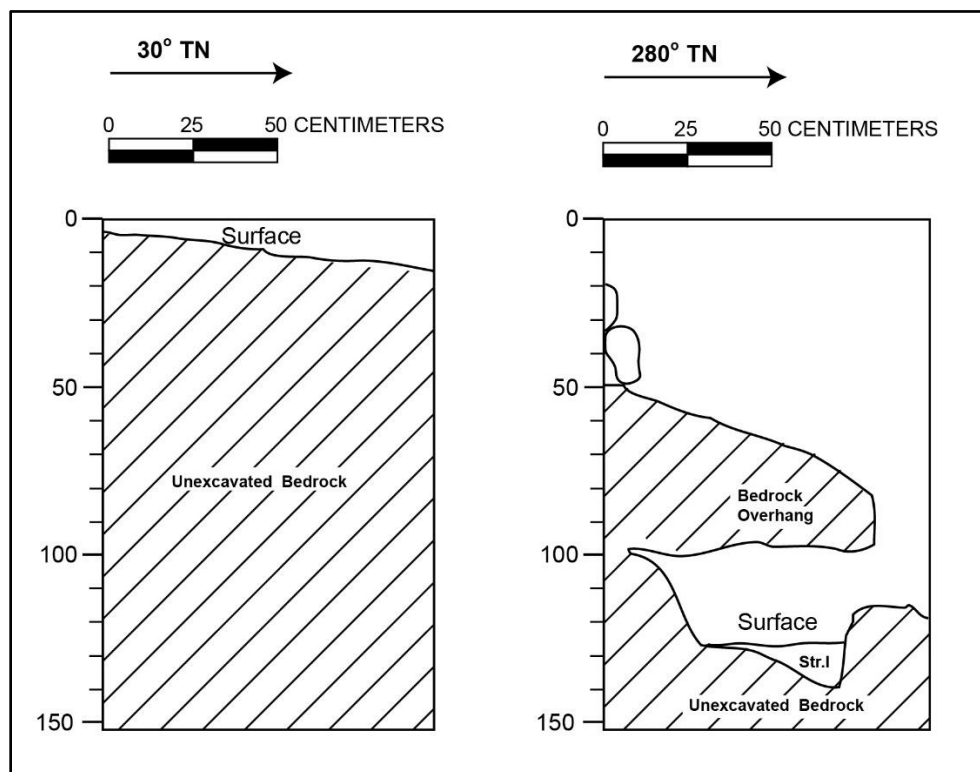


Figure 186. SIHP # -28813 Feature B, EU 15 east and south wall profiles



(see Table 9). One small mammal bone (likely rodent) and crustacean carapace fragments were collected during screening. No cultural materials were observed.

#### 2.7.1.2.1.5 EU 16

EU 16, a 1.0 m by 1.0 m excavation unit, was in the southwestern corner of Feature B (Figure 187 through Figure 190). Profile drawings of the east and south walls (Figure 191), indicate the irregular slope of the inside of the sink. The majority of the unit was covered by the edges of the collapsed blister, with sediment only in the northeastern corner. Sediment (Stratum I) consists of naturally deposited silt loam with 20% angular basalt gravel from 120–152 cmbd, overlying the undulating *pāhoehoe* bedrock (see Table 9). No cultural materials were observed.

#### 2.7.1.2.1.6 EU 17

EU 17, a 1.0 m by 1.0 m excavation unit, was in the southeastern corner of Feature B (Figure 192 through Figure 195). Profile drawings of the east and south walls (Figure 196) indicate the uneven surface of the surrounding bedrock. The majority of the unit was covered by the edges of the collapsed blister, with sediment only in the northwestern corner. Sediment (Stratum I) consists of naturally deposited silt loam with 20% angular basalt gravel from 120–152 cmbd, overlying the undulating *pāhoehoe* bedrock (see Table 9). No cultural materials were observed.

#### 2.7.1.2.2 Feature C

Feature C was estimated to require seven 1.0 by 1.0 m excavation units to cover 100% of the sediment within the feature (Shideler et al. 2012:268); however, during data recovery it was found that six excavation units would suffice. Feature C was therefore divided into six 1.0 by 1.0 m excavation units (EU 18 through 23) laid out in an aerial grid measuring 3.0 m north/south by 2.0 m east/west. Sediment within the feature consisted of naturally deposited aeolean silt (Stratum I; Table 10). A few faunal remains (crab [*G. severnsi*], land snail [*Amastridae* sp.], and rodent [*Rattus* sp.]) were recovered during data recovery field work; however, these are consistent with natural deposition. No cultural materials were observed during data recovery.

#### 2.7.1.2.2.1 EU 18

EU 18, a 1.0 m by 1.0 m excavation unit, was in the northwestern corner of Feature C (Figure 197 through Figure 200). Profile drawings of the southwest and northeast walls (Figure 201) show the many boulders within the sink. The majority of the unit was covered by angular *pāhoehoe* boulders, with sediment only in the southeastern quadrant. Sediment (Stratum I) consisted of naturally deposited silt loam with 20% angular basalt gravel from 163–196 cmbd, overlying the undulating *pāhoehoe* bedrock (see Table 10). No cultural materials were observed.

#### 2.7.1.2.2.2 EU 19

EU 19, a 1.0 m by 1.0 m excavation unit, was in the northwestern corner of Feature C (Figure 202 through Figure 205). Profile drawings of the southeast and southwest walls (Figure 206) show the many boulders within the sink. The majority of the unit was covered by the overhanging edges of the collapsed blister, with sediment concentrated in the southwestern half. Sediment (Stratum I) consists of naturally deposited silt loam with 20% angular basalt gravel from 168–191 cmbd, overlying the undulating *pāhoehoe* bedrock (see Table 10). No cultural materials were observed.



Figure 187. SIHP # -28813 Feature B, EU 16 pre-excavation photo, view to west



Figure 188. SIHP # -28813 Feature B, EU 16 post-excavation photo, view to west





Figure 189. SIHP # -28813 Feature B, EU 16 south wall profile, view to south



Figure 190. SIHP # -28813 Feature B, EU 16 east wall profile, view to east

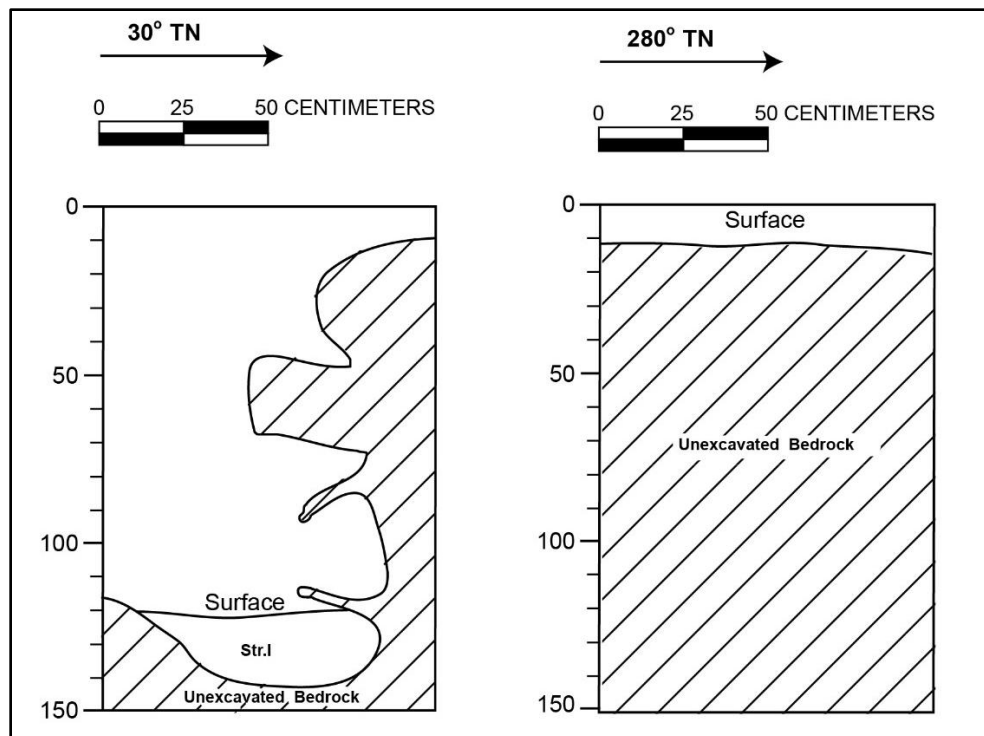


Figure 191. SIHP # -28813 Feature B, EU 16 east and south wall profiles



Figure 192. SIHP # -28813 Feature B, EU 17 pre-excavation photo, view to south





Figure 193. SIHP # -28813 Feature B, EU 17 post-excavation photo, view to south



Figure 194. SIHP # -28813 Feature B, EU 17 east wall profile, view to east



Figure 195. SIHP # -28813 Feature B, EU 17 south wall profile, view to south

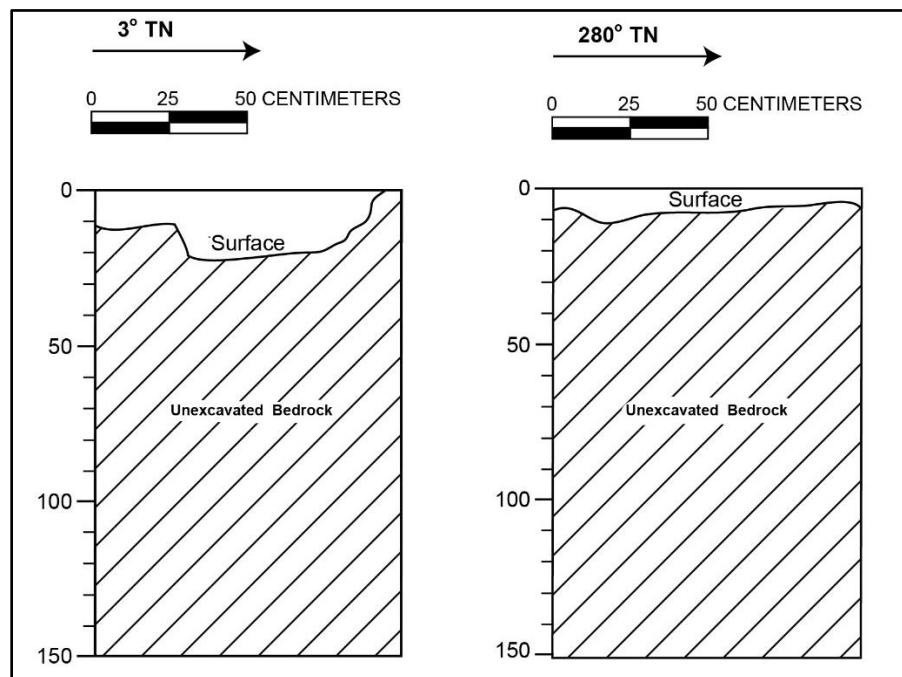


Figure 196. SIHP # -28813 Feature B, EU 17 east and south wall profile



Table 10. SIHP # -28813 Feature C, EU 18 through 23 stratigraphy

Excavation Unit	Stratum	Depth (cmbd)	Description
EU 18	I	163–196	Natural; 10YR 3/2, very dark grayish brown; gravelly silt loam; weak, fine, granular structure; dry, loose consistence; terrigenous origin; many, fine to medium roots; very abrupt, wavy lower boundary; contains 20% angular basalt gravel
EU 19	I	168–191	Natural; 10YR 3/3, dark olive brown; gravelly silt loam; weak, fine, granular structure; dry, loose consistence; terrigenous origin; many, fine to medium roots; very abrupt, wavy lower boundary; contains 20% angular basalt gravel
EU 20	I	161–210	Natural; 10YR 3/2, very dark grayish brown; gravelly silt loam; weak, fine, granular structure; dry, loose consistence; terrigenous origin; many, fine to medium roots; very abrupt, wavy lower boundary; contains 10% angular basalt gravel
EU 21	I	173–210	Natural; 10YR 3/3, dark olive brown; gravelly silt loam; weak, fine granular structure; dry, loose consistence; terrigenous origin; many, fine to medium roots; very abrupt, wavy lower boundary; contains 10% angular basalt gravel
EU 22	I	176–218	Natural; 10YR 4/2, dark grayish brown; gravelly silt loam; weak, fine granular structure; dry, loose consistence; terrigenous origin; many, fine to medium roots; very abrupt, wavy lower boundary; contains 10% angular basalt gravel
EU 23	I	171–220	Natural; 10YR 4/2, dark grayish brown; gravelly silt loam; weak, fine, granular structure; dry, loose consistence; terrigenous origin; many, fine to medium roots; very abrupt, wavy lower boundary; contains 10% angular basalt gravel



Figure 197. SIHP # -28813 Feature C, EU 18 pre-excavation photo, view to northwest



Figure 198. SIHP # -28813 Feature C, EU 18 post-excavation photo, view to northwest





Figure 199. SIHP # -28813 Feature C, EU 18 northeast wall profile, view to northeast



Figure 200. SIHP # -28813 Feature C, EU 18 southwest wall profile, view to southwest

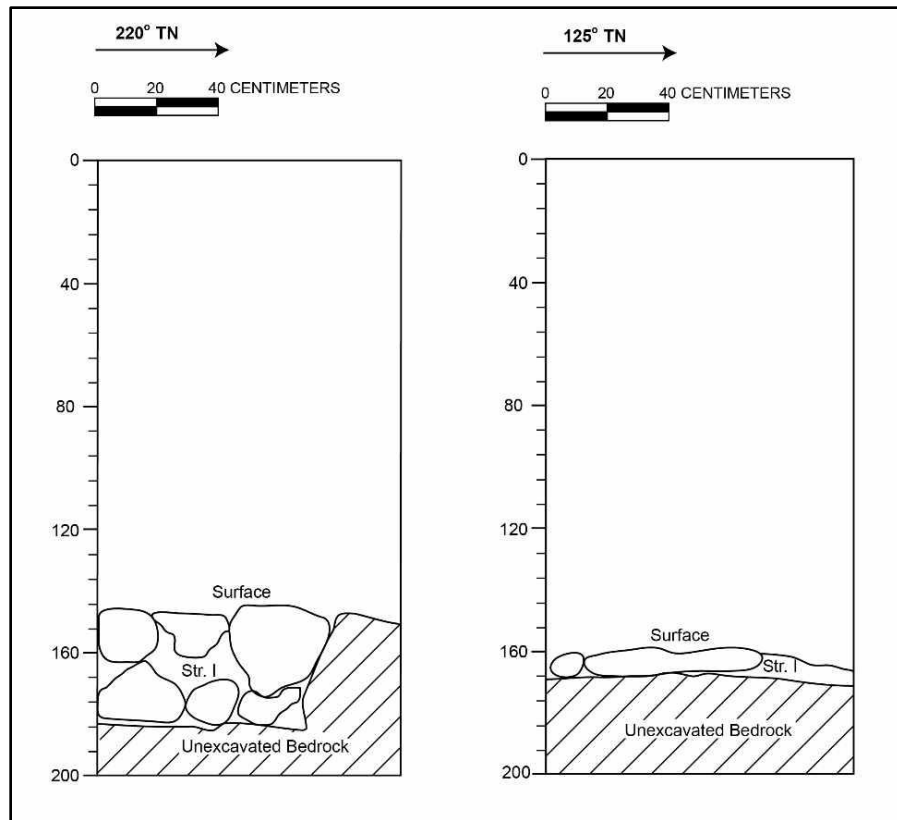


Figure 201. SIHP # -28813 Feature C, EU 18 southwest and northeast wall profiles



Figure 202. SIHP # -28813 Feature C, EU 19 pre-excavation photo, view to northwest





Figure 203. SIHP # -28813 Feature C, EU 19 post-excavation photo, view to northwest



Figure 204. SIHP # -28813 Feature C, EU 19 southeast wall profile, view to southeast



Figure 205. SIHP # -28813 Feature C, EU 19 southwest wall profile, view to southwest

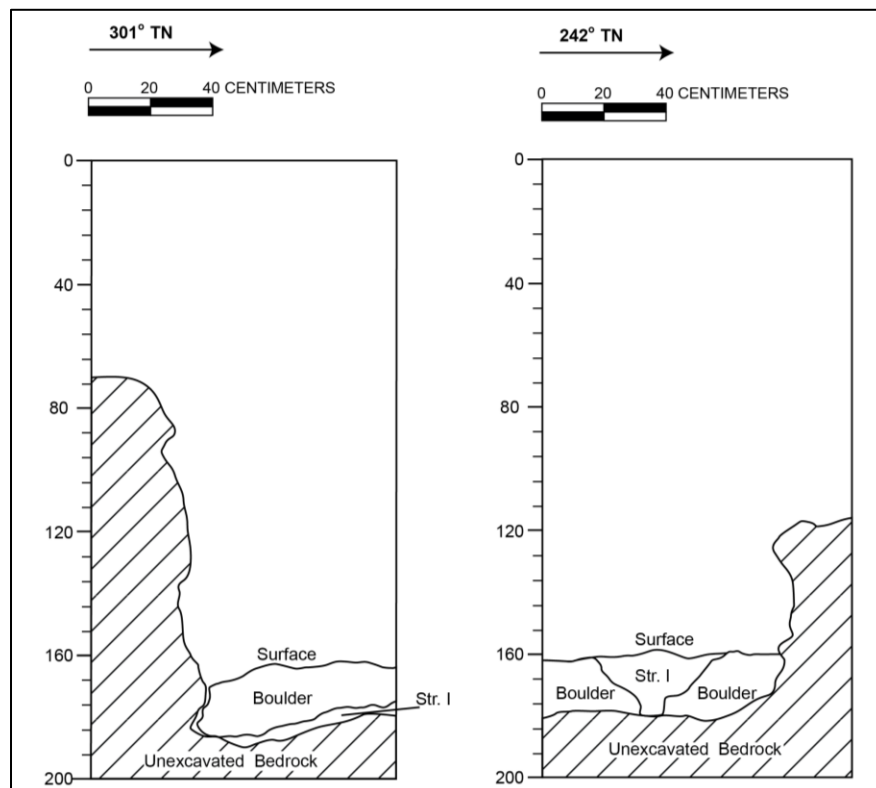


Figure 206. SIHP # -28813 Feature C, EU 19 southwest and southeast wall profiles



#### 2.7.1.2.2.3 EU 20

EU 20, a 1.0 m by 1.0 m excavation unit, was in the central/western portion of Feature C (Figure 207 through Figure 210). Profile drawings of the southwest and southeast walls (Figure 211) show the many boulders within the sink. The western edge of the unit was covered by the overhanging edge of the collapsed blister. Sediment (Stratum I) consists of naturally deposited silt loam with 10% angular basalt gravel from 161–210 cmbd, overlying the undulating *pāhoehoe* bedrock (see Table 10). No cultural materials were observed.

#### 2.7.1.2.2.4 EU 21

EU 21, a 1.0 m by 1.0 m excavation unit, was in the central/eastern portion of Feature C (Figure 212 through Figure 215). Profile drawings of the southwest and northwest walls (Figure 216) indicate a relatively thick sediment deposit. The eastern edge of the unit was covered by the overhanging edge of the collapsed blister. Sediment consists of naturally deposited silt loam with 10% angular basalt gravel (Stratum I) from 173–210 cmbd, overlying the undulating *pāhoehoe* bedrock (see Table 10). No cultural materials were observed.

#### 2.7.1.2.2.5 EU 22

EU 22, a 1.0 m by 1.0 m excavation unit, was in the southwestern corner of Feature C (Figure 217 through Figure 220). Profile drawings of the southwest and southeast walls (Figure 221) indicate a small void in the sink wall. The western and southern edges of the unit were covered by the overhanging edge of the collapsed blister, while much of the rest was covered by angular boulders. The majority of the sediment (Stratum I) was concentrated in the northeastern quadrant of the unit. Sediment consists of naturally deposited silt loam with 10% angular basalt gravel from 176–218 cmbd, overlying the undulating *pāhoehoe* bedrock (see Table 10). Crab (*G. severnsi*) and *Rattus* sp. fragments were collected during screening; however, these are consistent with natural deposition. No cultural materials were observed.

#### 2.7.1.2.2.6 EU 23

EU 23, a 1.0 m by 1.0 m excavation unit, was in the southeastern corner of Feature C (Figure 222 through Figure 225). Profile drawings of the southeast and southwest walls (Figure 226) indicate an uneven bedrock surface. The eastern and southern edges of the unit were covered by the overhanging edge of the collapsed blister, while much of the rest was covered by angular boulders. Sediment (Stratum I) consists of naturally deposited silt loam with 10% angular basalt gravel from 171–220 cmbd, overlying the undulating *pāhoehoe* bedrock (see Table 10). No cultural materials were observed.

#### 2.7.1.2.3 Feature D

It was originally estimated that one 0.4 sq m excavation unit would be sufficient to cover 100% of the sediment within Feature D (Shideler et al. 2012:268); however, during data recovery it was deemed necessary to split the feature into two 1.0 by 1.0 m excavation units (EU 48 and 49; one for each hole). Sediment within the feature consists of naturally deposited aeolean silt loam sediment with loose rocks (Stratum I). No cultural materials were observed.



Figure 207. SIHP # -28813 Feature C, EU 20 pre-excavation photo, view to northwest



Figure 208. SIHP # -28813 Feature C, EU 20 post-excavation photo, view to northwest





Figure 209. SIHP # -28813 Feature C, EU 20 southeast wall profile, view to southeast



Figure 210. SIHP # -28813 Feature C, EU 20 southwest wall profile, view to southwest

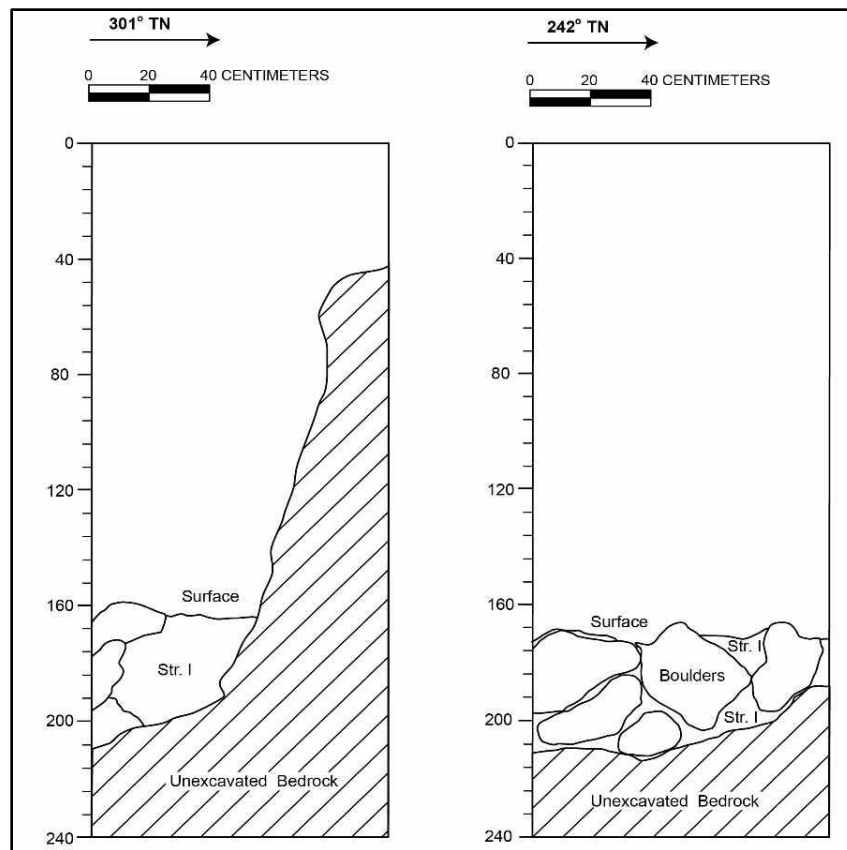


Figure 211. SIHP # -28813 Feature C, EU 20 southwest and southeast wall profiles



Figure 212. SIHP # -28813 Feature C, EU 21 pre-excavation photo, view to northwest





Figure 213. SIHP # -28813 Feature C, EU 21 post-excavation photo, view to northwest



Figure 214. SIHP # -28813 Feature C, EU 21 southeast wall profile, view to southeast



Figure 215. SIHP # -28813 Feature C, EU 21 southwest wall profile, view to southwest

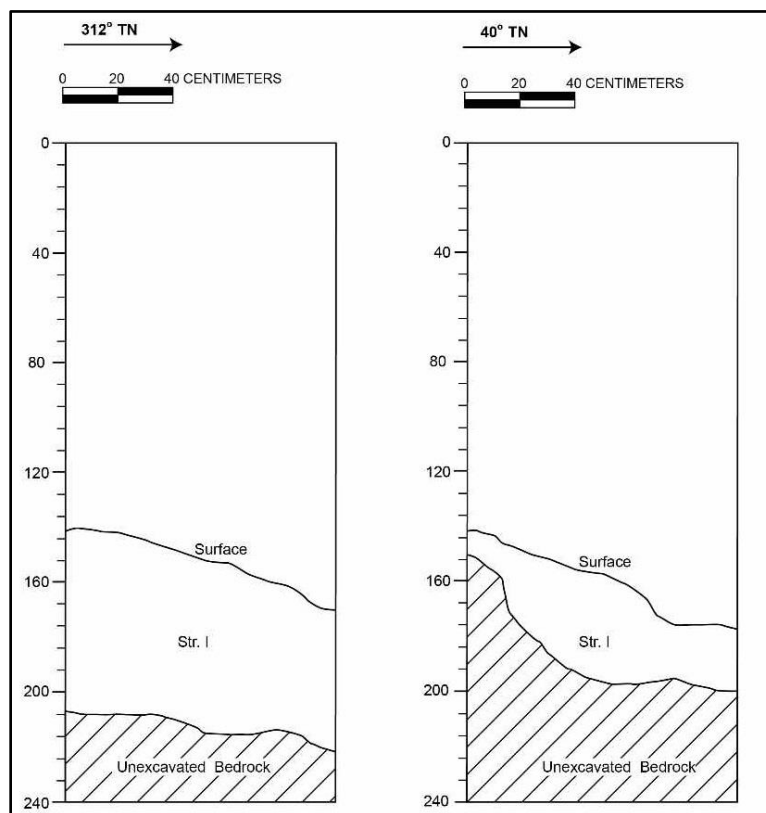


Figure 216. SIHP # -28813 Feature C, EU 21 southwest and southeast wall profiles





Figure 217. SIHP # -28813 Feature C, EU 22 pre-excavation photo, view to northwest



Figure 218. SIHP # -28813 Feature C, EU 22 post-excavation photo, view to northwest



Figure 219. SIHP # -28813 Feature C, EU 22 southeast wall profile, view to southeast



Figure 220. SIHP # -28813 Feature C, EU 22 southwest wall profile, view to southwest



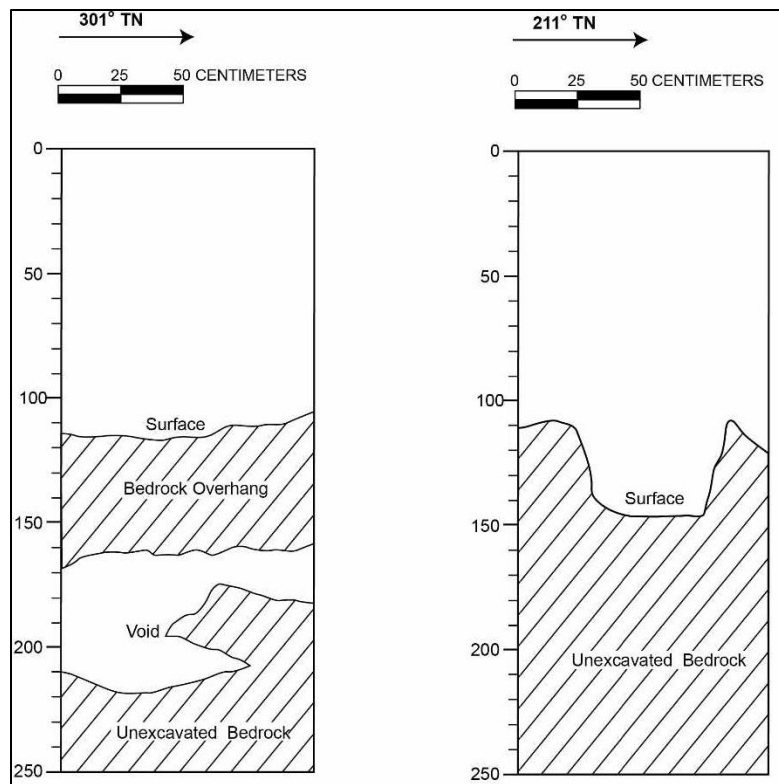


Figure 221. SIHP # -28813 Feature C, EU 22 southwest and southeast wall profiles



Figure 222. SIHP # -28813 Feature C, EU 23 pre-excitation photo, view to northwest



Figure 223. SIHP # -28813 Feature C, EU 23 post-excavation photo, view to northwest



Figure 224. SIHP # -28813 Feature C, EU 23 southwest wall profile, view to southwest





Figure 225. SIHP # -28813 Feature C, EU 23 southeast wall profile, view to southeast

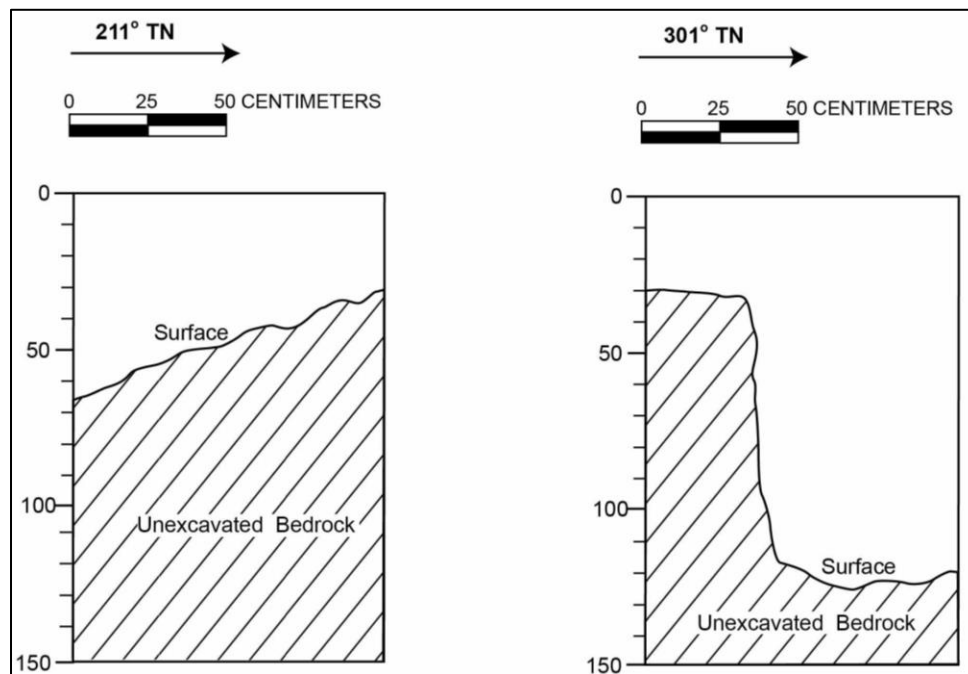


Figure 226. SIHP # -28813 Feature C, EU 23 southeast and southwest wall profiles

#### 2.7.1.2.3.1 EU 48

EU 48 was a 1.0 m by 1.0 m excavation unit that surrounded the northern and larger of the two small sinks comprising Feature D (Figure 227 through Figure 229). Profile drawings of the southwest and northwest walls (Figure 230) indicate the steep walls of the sink. The edges of the unit were covered by *pāhoehoe* bedrock, with sediment concentrated in the center of the unit within the sink. Sediment (Stratum I) consists of naturally deposited silt loam with 10% angular basalt gravel from 168–170 cmbd, overlying the undulating *pāhoehoe* bedrock (Table 11). No cultural materials were observed.

#### 2.7.1.2.3.2 EU 49

EU 49 was a 1.0 m by 1.0 m excavation unit that surrounded the southern and smaller of the two small sinks comprising Feature D (Figure 231 through Figure 234). Profile drawings of the northwest and southwest walls (Figure 235) indicate the steep walls of the sink. The edges of the unit were covered by *pāhoehoe* bedrock, with sediment (Stratum I) concentrated in the center of the unit within the sink. Sediment consists of 100% angular basalt gravel from 178–191 cmbd, overlying the undulating *pāhoehoe* bedrock (see Table 11). No cultural materials were observed.

#### 2.7.1.2.4 Feature E

It was originally estimated that four 1.0 m by 1.0 m excavation units would be necessary to cover 100% of the sediment within Feature E (Shideler et al. 2012:268); however, vegetation clearing revealed that sediment within the feature continued to the north beyond the area originally identified. Therefore, Feature E was divided into 23 1.0 m by 1.0 m excavation units (EU 24 through 47). Sediment (Stratum I) within the feature consists of naturally deposited aeolean silt (Table 12). A few faunal remains were recovered during data recovery field work and are consistent with natural deposition. No cultural materials were observed.

##### 2.7.1.2.4.1 EU 24

EU 24, a 1.0 m by 1.0 m excavation unit, was excavated to bedrock at a maximum depth of 110 cmbd (Figure 236 through Figure 239). Profile drawings of the south and west walls (Figure 240) indicate *pāhoehoe* bedrock exposed at the surface in the northwestern corner of the unit, with sediment (Stratum I) covering the remainder of the unit. Sediment consists of naturally deposited silt loam containing 15–35% angular gravel from 90–110 cmbd, overlying the undulating *pāhoehoe* bedrock (see Table 12). Crab (*G. severnsi*) and *Rattus* sp. fragments were collected during screening; however, these are consistent with natural deposition. No cultural materials were observed.

##### 2.7.1.2.4.2 EU 25

EU 25, a 1.0 m by 1.0 m excavation unit, was excavated to bedrock at a maximum depth of 103 cmbd (Figure 241 through Figure 244). Profile drawings of the north and east walls (Figure 245) indicate *pāhoehoe* bedrock exposed at the northern surface, with sediment (Stratum I) covering the remainder of the unit. Sediment consists of naturally deposited silt loam containing 15–35% angular gravel from 87–103 cmbd, overlying the undulating *pāhoehoe* bedrock (see Table 12). No cultural materials were observed.



Table 11. SIHP # -28813 Feature D, EU 48 and 49 stratigraphy

Excavation Unit	Stratum	Depth (cmbd)	Description
EU 48	I	62–75	Natural; 10YR 3/3 dark olive brown; gravelly silt loam; weak, fine, granular structure; dry, loose consistence; non-plastic; terrigenous origin; very abrupt, irregular lower boundary; no roots; contains 10% angular basalt gravel
EU 49	I	178–191	100% angular basalt gravel; terrigenous origin; very abrupt, irregular lower boundary; no roots



Figure 227. SIHP # -28813 Feature D, EU 48 pre-excavation photo, view to southwest



Figure 228. SIHP # -28813 Feature D, EU 48 southwest wall profile, view to southwest



Figure 229. SIHP # -28813 Feature D, EU 48 northwest wall profile, view to northwest



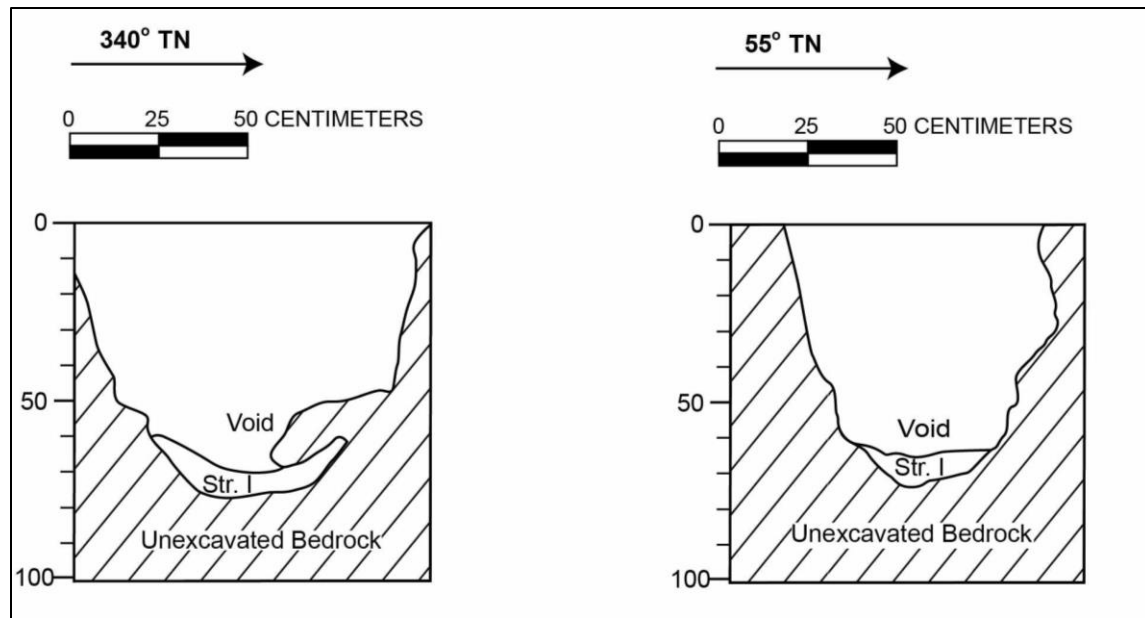


Figure 230. SIHP # -28813 Feature D, EU 48 southwest and northwest wall profiles



Figure 231. SIHP # -28813 Feature D, EU 49 pre-excavation photo, view to northwest





Figure 232. SIHP # -28813 Feature D, EU 49 post-excitation photo, view to northwest



Figure 233. SIHP # -28813 Feature D, EU 49, southwest wall profile, view to southwest





Figure 234. SIHP # -28813 Feature D, EU 49 northwest wall profile, view to northwest

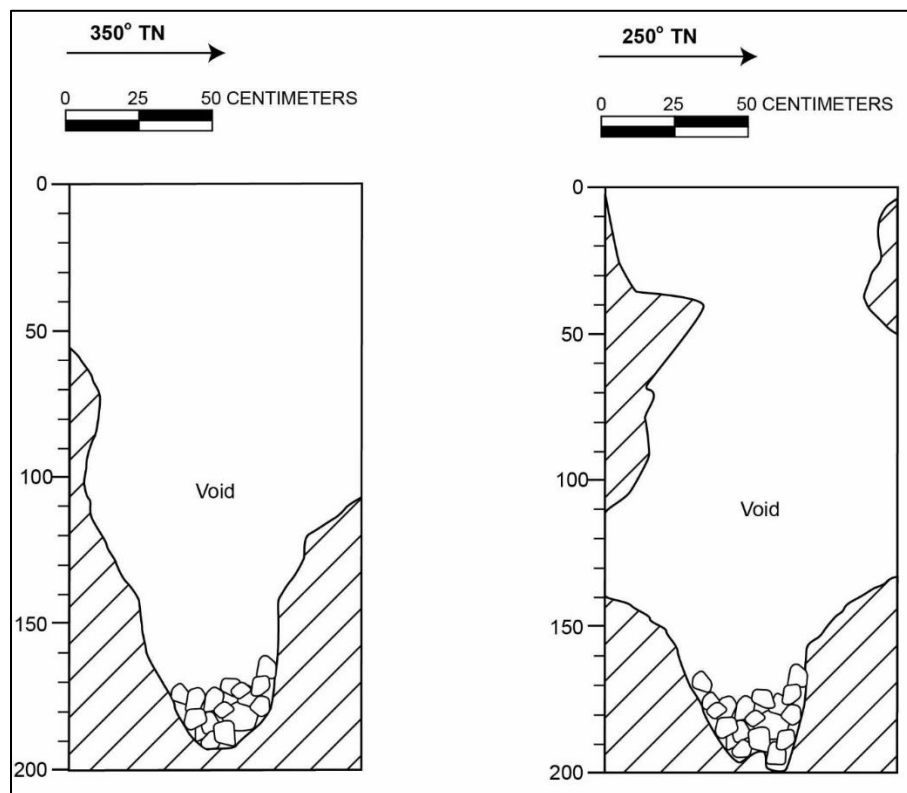


Figure 235. SIHP # -28813 Feature D, EU 49 northwest and southwest wall profiles

Table 12. SIHP # -28813 Feature E, EU 24 through 47 stratigraphy

Excavation Unit	Stratum	Depth (cmbd)	Description
EU 24	I	90–110	Natural; 10YR 3/4, dark olive brown; gravelly silt loam; weak, fine, granular structure; dry, loose consistence; slightly plastic; terrigenous origin; very abrupt, wavy lower boundary; many, fine roots; contains 15-35% angular gravel
EU 25	I	87–103	Natural; 10YR 3/2, very dark grayish brown; gravelly silt loam; weak, fine granular structure; dry, loose consistence; slightly plastic; terrigenous origin; very abrupt, wavy lower boundary; many, fine roots; contains 15-35% angular gravel
EU 26	I	90–111	Natural; 10YR 3/4, dark olive brown; gravelly silt loam; weak, fine, granular structure; dry, loose consistence; slightly plastic; terrigenous origin; very abrupt, wavy lower boundary; many, fine roots; contains 15-35% angular gravel
EU 27	I	94–107	Natural; 10YR 3/4, dark olive brown; gravelly silt loam; weak, fine granular structure; dry, loose consistence; slightly plastic; terrigenous origin; very abrupt, wavy lower boundary; many, fine roots; contains 15-35% angular gravel
EU 28	I	84–100	Natural; 10YR 3/4, dark olive brown; gravelly silt loam; weak, fine, granular structure; dry, loose consistence; slightly plastic; terrigenous origin; very abrupt, wavy lower boundary; many, fine roots; contains 15-35% angular gravel
EU 29	I	85–100	Natural; 10YR 3/4, dark olive brown; gravelly silt loam; weak, fine, granular structure; dry, loose consistence; slightly plastic; terrigenous origin; very abrupt, wavy lower boundary; many, fine roots; contains 15-35% angular gravel
EU 30	I	35–63	Natural; 10YR 3/4, dark olive brown; gravelly silt loam; weak, fine, granular structure; dry, loose consistence; slightly plastic; terrigenous origin; very abrupt, wavy lower boundary; many, fine roots; contains 15-35% angular gravel
EU 31	I	50–72	Natural; 10YR 3/3, dark olive brown; gravelly silt loam; weak, fine granular structure; dry, loose consistence; slightly plastic; terrigenous origin; very abrupt, wavy lower boundary; many, fine roots; contains 10% angular gravel
EU 32	I	47–63	Natural; 10YR 3/3, dark olive brown; gravelly silt loam; weak, fine, granular structure; dry, loose consistence; slightly plastic; terrigenous origin; very abrupt, wavy lower boundary; many, fine roots; contains 10% angular gravel



Excavation Unit	Stratum	Depth (cmbd)	Description
EU 33	I	49–60	Natural; 10YR 3/3, dark olive brown; gravelly silt loam; weak, fine, granular structure; dry, loose consistence; slightly plastic; terrigenous origin; very abrupt, wavy lower boundary; many, fine roots; contains 10% angular gravel
EU 34	I	75–100	Natural; 10YR 4/2, dark grayish brown; gravelly silt loam; weak, fine, granular structure; dry, loose consistence; slightly plastic; terrigenous origin; very abrupt, wavy lower boundary; many, fine roots; contains 5% angular gravel
EU 35	I	70–92	Natural; 10YR 4/2, dark grayish brown; gravelly silt loam; weak, fine, granular structure; dry, loose consistence; slightly plastic; terrigenous origin; very abrupt, wavy lower boundary; many, fine roots; contains 5% angular gravel
EU 36	I	70–93	Natural; 10YR 4/2, dark grayish brown; gravelly silt loam; weak, fine, granular structure; dry, loose consistence; slightly plastic; terrigenous origin; very abrupt, wavy lower boundary; many, fine roots; contains 5% angular gravel
EU 37	I	72–100	Natural; 10YR 4/2, dark grayish brown; gravelly silt loam; weak, fine, granular structure; dry, loose consistence; slightly plastic; terrigenous origin; very abrupt, undulating lower boundary; many, fine roots; contains 5% angular gravel
EU 38	I	71–100	Natural; 10YR 4/2, dark grayish brown; gravelly silt loam; weak, fine, granular structure; dry, loose consistence; slightly plastic; terrigenous origin; very abrupt, wavy lower boundary; many, fine roots; contains 10% angular gravel
EU 39	I	70–90	Natural; 10YR 4/2, dark grayish brown; gravelly silt loam; weak, fine, granular structure; dry, loose consistence; slightly plastic; terrigenous origin; very abrupt, wavy lower boundary; many, fine roots; contains 10% angular gravel
EU 40	I	70–90	Natural; 10YR 4/2, dark grayish brown; gravelly silt loam; weak, fine, granular structure; dry, loose consistence; slightly plastic; terrigenous origin; very abrupt, wavy lower boundary; many, fine roots; contains 5% angular gravel
EU 41	I	61–72	Natural; 10YR 4/2, dark grayish brown; gravelly silt loam; weak, fine, granular structure; dry, loose consistence; slightly plastic; terrigenous origin; very abrupt, wavy lower boundary; many, fine roots; contains 5% angular gravel

Excavation Unit	Stratum	Depth (cmbd)	Description
EU 42	I	90–111	Natural; 10YR 4/2, dark grayish brown; gravelly silt loam; weak, fine, granular structure; dry, loose consistence; slightly plastic; terrigenous origin; very abrupt, wavy lower boundary; many, fine roots; contains 5% angular gravel
EU 43	I	84–116	Natural; 10YR 4/2, dark grayish brown; gravelly silt loam; weak, fine, granular structure; dry, loose consistence; slightly plastic; terrigenous origin; very abrupt, wavy lower boundary; many, fine roots; contains 5% angular gravel
EU 44	I	67–90	Natural; 10YR 4/2, dark grayish brown; gravelly silt loam; weak, fine, granular structure; dry, loose consistence; slightly plastic; terrigenous origin; very abrupt, wavy lower boundary; many, fine roots; contains 5% angular gravel
EU 45	I	77–120	Natural; 10YR 3/3, dark olive brown; gravelly silt loam; weak, fine, granular structure; dry, loose consistence; slightly plastic; terrigenous origin; very abrupt, wavy lower boundary; many, fine roots; contains 5% angular gravel
EU 46	I	98–18	Natural; 10YR 3/3, dark olive brown; gravelly silt loam; weak, fine, granular structure; dry, loose consistence; slightly plastic; terrigenous origin; very abrupt, wavy lower boundary; many, fine roots; contains 5% angular gravel
EU 47	I	98–110	Natural; 10YR 3/3, dark olive brown; gravelly silt loam; weak, fine, granular structure; dry, loose consistence; slightly plastic; terrigenous origin; very abrupt, wavy lower boundary; many, fine roots; contains 5% angular gravel





Figure 236. SIHP # -28813 Feature E, EU 24 pre-excavation photo, view to north



Figure 237. SIHP # -28813 Feature E, EU 24 post-excavation photo, view to north





Figure 238. SIHP # -28813 Feature E, EU 24 south wall profile, view to south



Figure 239. SIHP # -28813 Feature E, EU 24 west wall profile, view to west



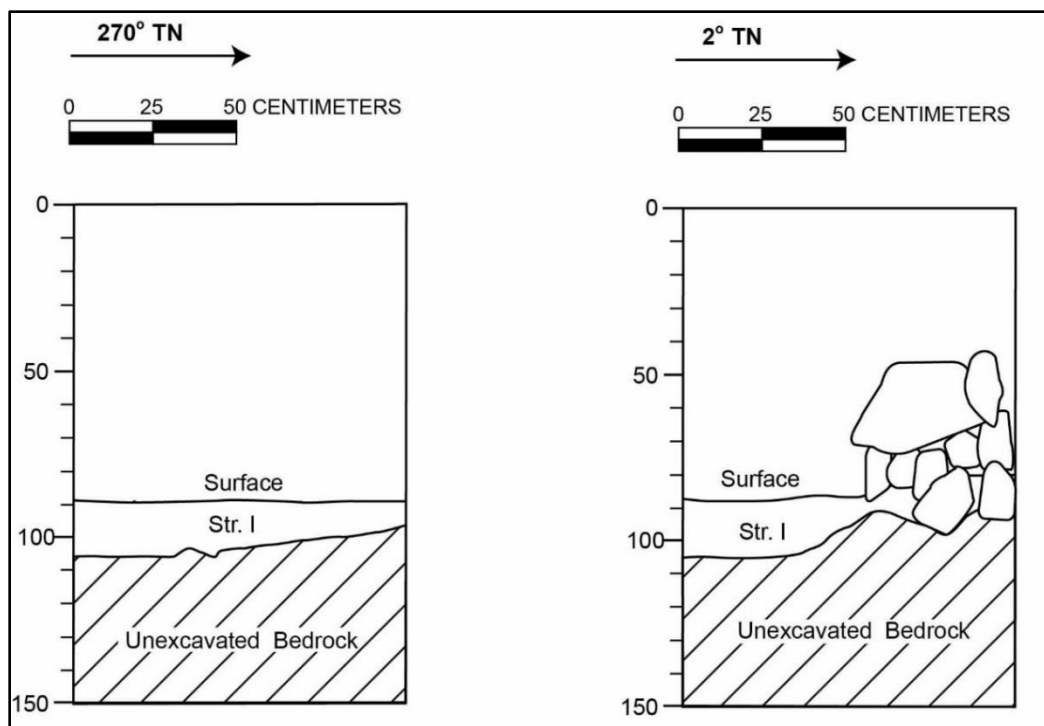


Figure 240. SIHP # -28813 Feature E, EU 24 south and west wall profiles



Figure 241. SIHP # -28813 Feature E, EU 25 pre-excavation photo, view to north





Figure 242. SIHP # -28813 Feature E, EU 25 post-excavation photo, view to north



Figure 243. SIHP # -28813 Feature E, EU 25 north wall profile, view to north





Figure 244. SIHP # -28813 Feature E, EU 25 east wall profile, view to east

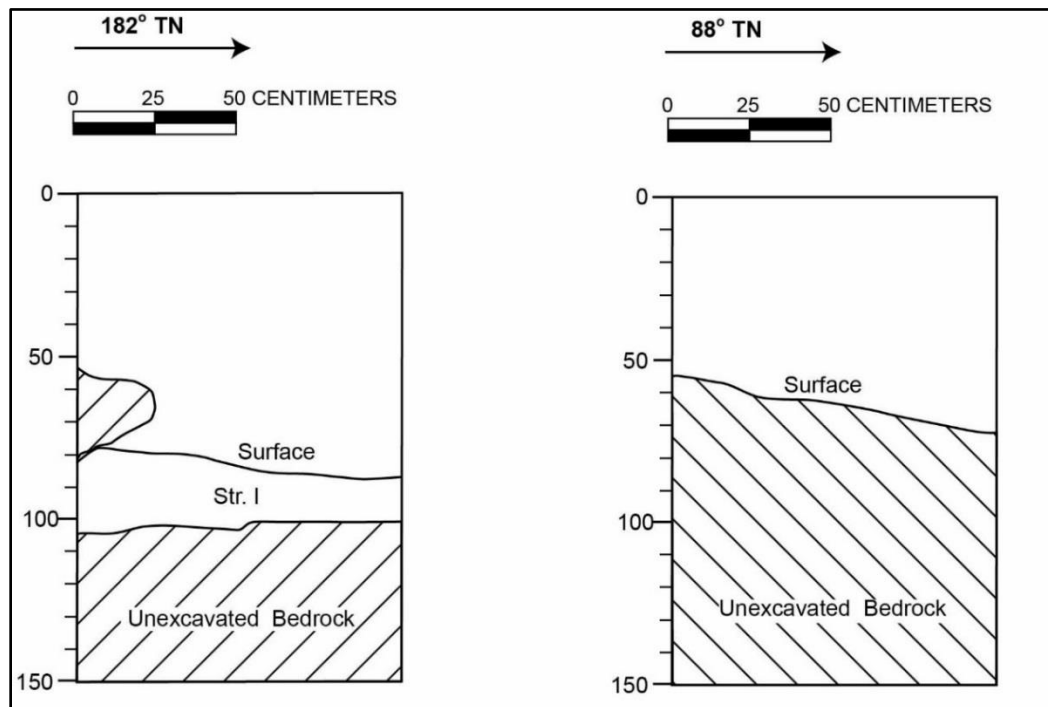


Figure 245. SIHP # -28813 Feature E, EU 25 east and north wall profile

#### 2.7.1.2.4.3 EU 26

EU 26, a 1.0 m by 1.0 m excavation unit, was excavated to bedrock at a maximum depth of 111 cmbd (Figure 246 through Figure 249). Profile drawings of the east and south walls (Figure 250) indicate sediment covering the entire surface of the unit. Sediment (Stratum I) consists of naturally deposited silt loam containing 15-35% angular gravel from 90–111 cmbd, overlying the undulating *pāhoehoe* bedrock (see Table 12). Crab (*G. severnsi*) carapace fragments were collected during screening; however, these materials are interpreted as having a natural origin. No cultural materials were observed.

#### 2.7.1.2.4.4 EU 27

EU 27, a 1.0 m by 1.0 m excavation unit, was excavated to bedrock at a maximum depth of 107 cmbd (Figure 251 through Figure 254). Profile drawings of the east and south walls (Figure 255) indicate *pāhoehoe* bedrock exposed at the surface in the northern half of the unit, with sediment covering the remainder. Sediment (Stratum I) consists of naturally deposited silt loam containing 15-35% angular gravel from 94–107 cmbd, overlying the undulating *pāhoehoe* bedrock (see Table 12). Faunal remains consisting of four crab chelas (*G. severnsi*) and two *Rattus* sp. bone fragments were collected during screening; however, these materials are interpreted as having a natural origin. No cultural materials were observed.

#### 2.7.1.2.4.5 EU 28

EU 28, a 1.0 m by 1.0 m excavation unit, was excavated to bedrock at a maximum depth of 100 cmbd (Figure 256 through Figure 259). Profile drawings of the north and east walls (Figure 260) indicate *pāhoehoe* bedrock exposed at the surface in the northwest and southeast quadrants, with sediment covering the remainder of the unit. Sediment (Stratum I) consists of naturally deposited silt loam containing 15-35% angular gravel from 84–100 cmbd, overlying the undulating *pāhoehoe* bedrock (see Table 12). No cultural materials were observed.

#### 2.7.1.2.4.6 EU 29

EU 29, a 1.0 m by 1.0 m excavation unit, was excavated to bedrock at a maximum depth of 100 cmbd (Figure 261). Profile drawings of the north and east walls (Figure 262) indicate uneven *pāhoehoe* bedrock exposed at the surface in the western half of the unit. Sediment (Stratum I) covering the remainder of the unit consists of naturally deposited silt loam containing 15-35% angular gravel from 85–100 cmbd, overlying the undulating *pāhoehoe* bedrock (see Table 12). No cultural materials were observed.

#### 2.7.1.2.4.7 EU 30

EU 30, a 1.0 m by 1.0 m excavation unit, was excavated to bedrock at a maximum depth of 63 cmbd (Figure 263 through Figure 266). Profile drawings of the south and west walls (Figure 267) indicate a thin layer of sediment concentrated in holes and cracks within the bedrock. This sediment (Stratum I) consists of naturally deposited silt loam containing 15-35% angular gravel from 35–63 cmbd, overlying the undulating *pāhoehoe* bedrock (see Table 12). No cultural materials were observed.





Figure 246. SIHP # -28813 Feature E, EU 26 pre-excavation photo, view to north



Figure 247. SIHP # -28813 Feature E, EU 26 post-excavation photo, view to north





Figure 248. SIHP # -28813 Feature E, EU 26 east wall profile, view to east



Figure 249. SIHP # -28813 Feature E, EU 26 south wall profile, view to south



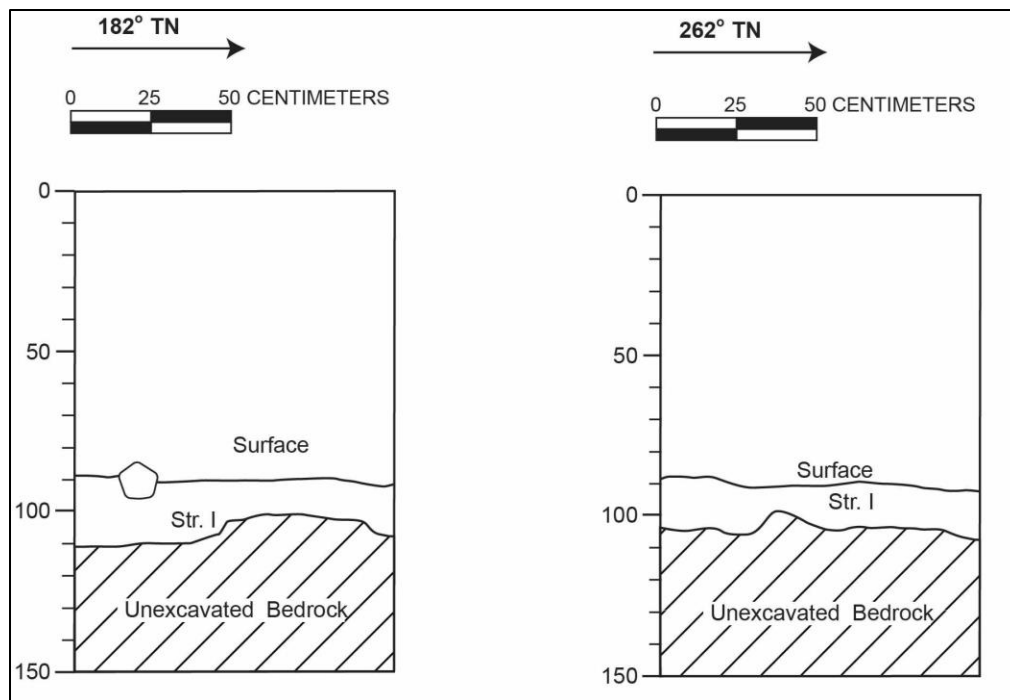


Figure 250. SIHP # -28813 Feature E, EU 26 east and south wall profiles



Figure 251. SIHP # -28813 Feature E, EU 27 pre-excavation photo, view to north





Figure 252. SIHP # -28813 Feature E, EU 27 post-excavation photo, view to north



Figure 253. SIHP # -28813 Feature E, EU 27 east wall profile, view to east





Figure 254. SIHP # -28813 Feature E, EU 27 south wall profile, view to south

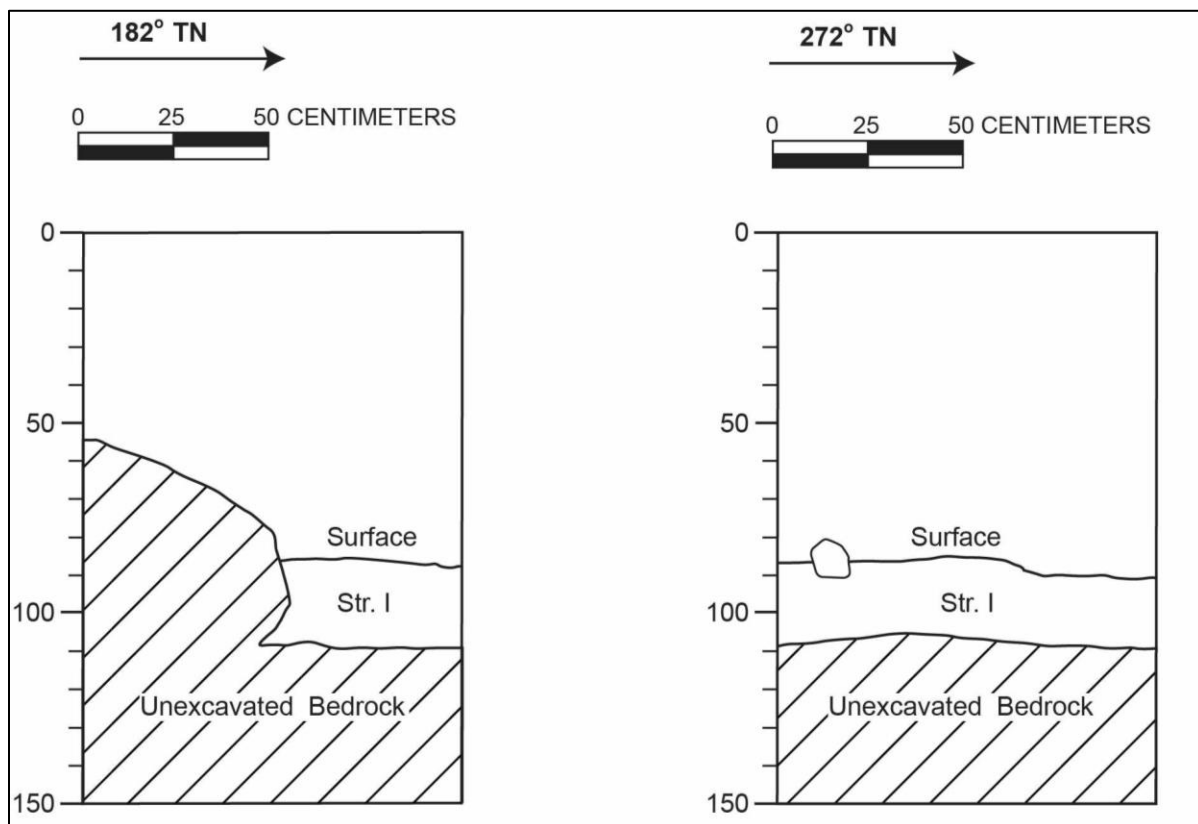


Figure 255. SIHP # -28813 Feature E, EU 27 east and south wall profiles



Figure 256. SIHP # -28813 Feature E, EU 28 pre-excavation photo, view to south



Figure 257. SIHP # -28813 Feature, E EU 28 post-excavation photo, view to west





Figure 258. SIHP # -28813 Feature E, EU 28 north wall profile, view to north



Figure 259. SIHP # -28813 Feature E, EU 28 east wall profile, view to east



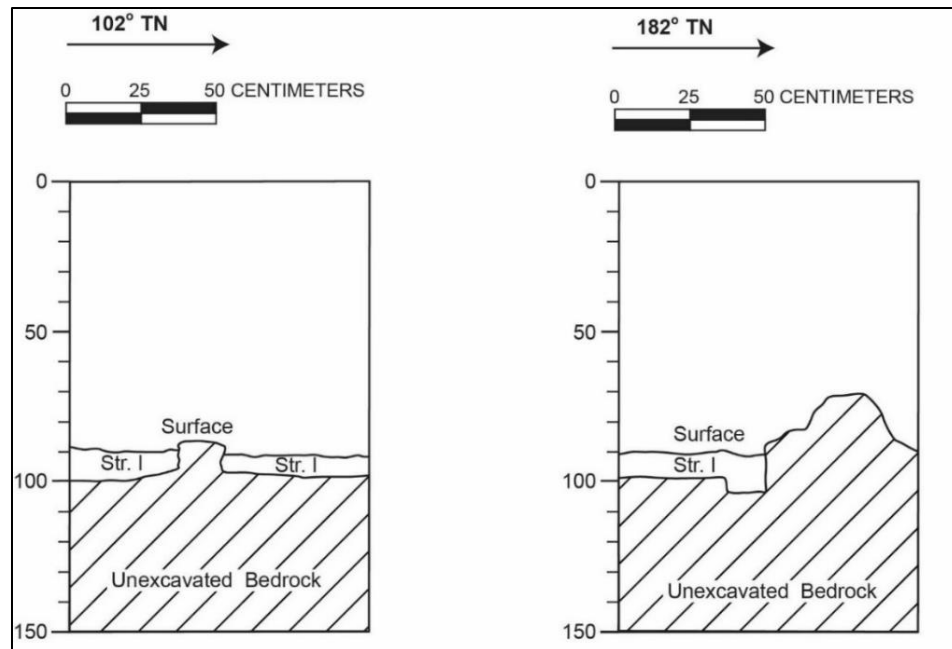


Figure 260. SIHP # -28813 Feature E, EU 28 north and east wall profiles



Figure 261. SIHP # -28813 Feature E, EU 29 pre-excavation photo, view to north



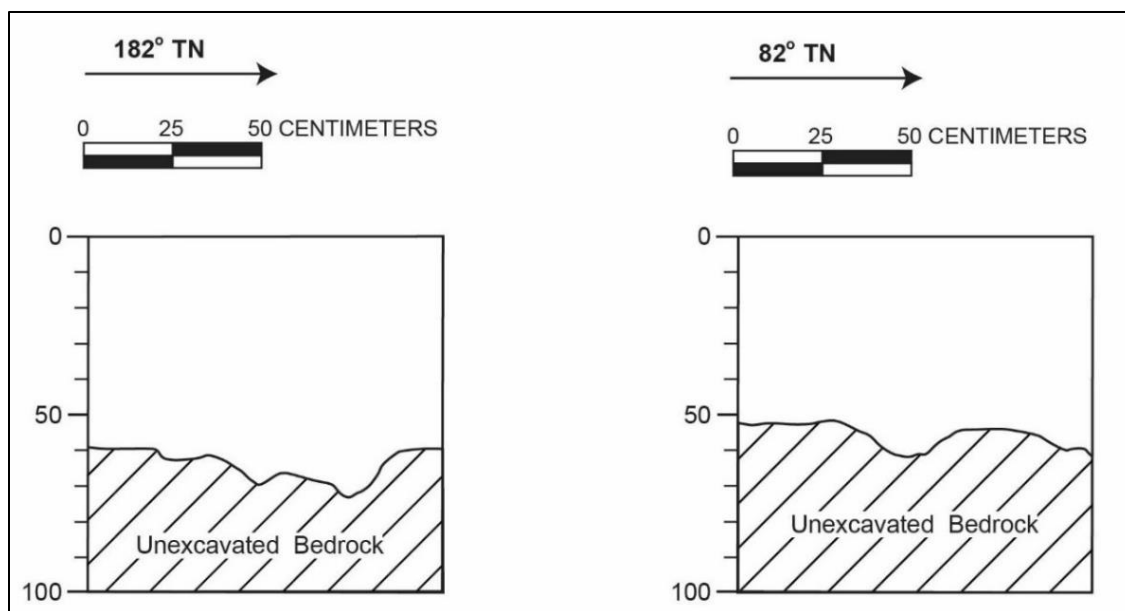


Figure 262. SIHP # -28813 Feature E, EU 29 east and north wall profiles



Figure 263. SIHP # -28813 Feature E, EU 30 pre-excavation photo, view to northwest





Figure 264. SIHP # -28813 Feature E, EU 30 post-excavation photo, view to northwest



Figure 265. SIHP # -28813 Feature E, EU 30 south wall profile, view to south





Figure 266. SIHP # -28813 Feature E, EU 30 west wall profile, view to west

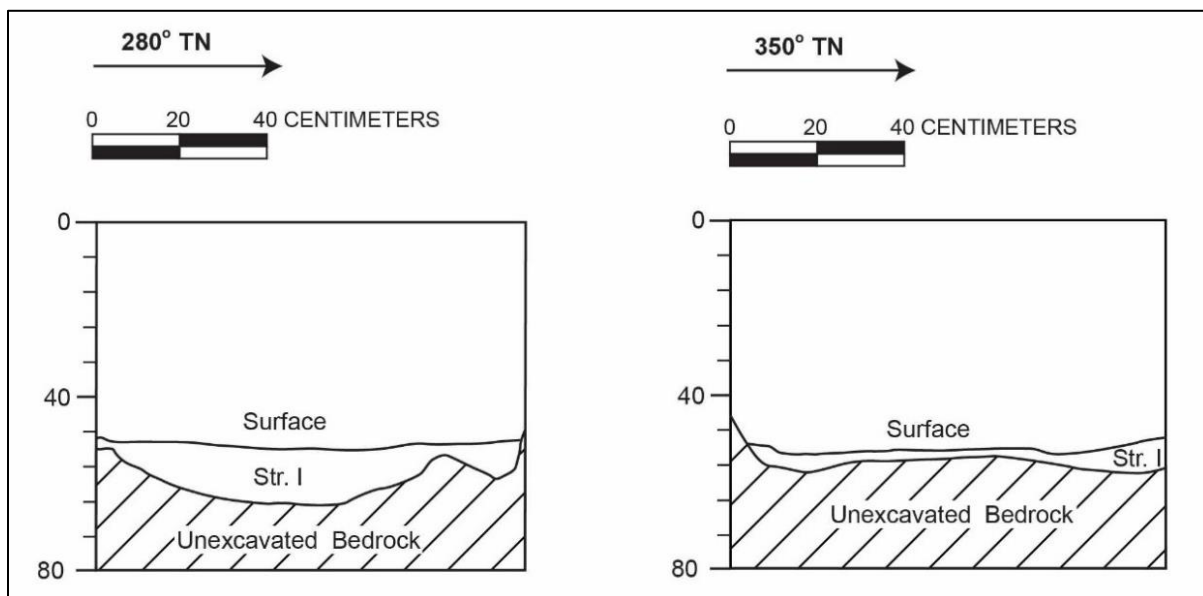


Figure 267. SIHP # -28813 Feature E, EU 30 south and west wall profiles

#### 2.7.1.2.4.8 EU 31

EU 31, a 1.0 m by 1.0 m excavation unit, was excavated to bedrock at a maximum depth of 72 cmbd (Figure 268 through Figure 271). Profile drawings of the south and west walls (Figure 272) indicate *pāhoehoe* bedrock covering the eastern half of the unit, with sediment covering the rest. Sediment (Stratum I) consists of naturally deposited silt loam containing 10% angular gravel from 50–72 cmbd, overlying the undulating *pāhoehoe* bedrock (see Table 12). No cultural materials were observed.

#### 2.7.1.2.4.9 EU 32

EU 32, a 1.0 m by 1.0 m excavation unit, was excavated to bedrock at a maximum depth of 63 cmbd (Figure 273 through Figure 276). Profile drawings of the south and west walls (Figure 277) indicate the majority of the surface consists of *pāhoehoe* bedrock. Sediment (Stratum I) is concentrated in holes and cracks within the bedrock and consists of naturally deposited silt loam containing 10% angular gravel from 47–63 cmbd, overlying the undulating *pāhoehoe* bedrock (see Table 12). No cultural materials were observed.

#### 2.7.1.2.4.10 EU 33

EU 33, a 1.0 m by 1.0 m excavation unit, was excavated to bedrock at a maximum depth of 60 cmbd (Figure 278 through Figure 281). Profile drawings of the west and south walls (Figure 282) indicate the majority of the surface consisted of *pāhoehoe* bedrock, with sediment concentrated in holes and cracks within the bedrock. The sediment (Stratum I) consists of naturally deposited silt loam containing 10% angular gravel from 49–60 cmbd, overlying the undulating *pāhoehoe* bedrock (see Table 12). No cultural materials were observed.

#### 2.7.1.2.4.11 EU 34

EU 34, a 1.0 m by 1.0 m excavation unit, was excavated to bedrock at a maximum depth of 100 cmbd (Figure 283 through Figure 286). Profile drawings of the east and south walls (Figure 287) indicate exposed *pāhoehoe* bedrock at the surface of the northern and southern edges, with sediment concentrated in the center of the unit. Sediment (Stratum I) consists of naturally deposited silt loam containing 5% angular gravel from 75–100 cmbd, overlying the undulating *pāhoehoe* bedrock (see Table 12). No cultural materials were observed.

#### 2.7.1.2.4.12 EU 35

EU 35, a 1.0 m by 1.0 m excavation unit, was excavated to bedrock at a maximum depth of 92 cmbd (Figure 288 through Figure 291). Profile drawings of the north and west walls (Figure 292) indicate exposed *pāhoehoe* bedrock in the eastern half of the unit, with sediment covering the western half. The sediment (Stratum I) consists of naturally deposited silt loam containing 5% angular gravel from 70–92 cmbd, overlying the undulating *pāhoehoe* bedrock (see Table 12). No cultural materials were observed.

#### 2.7.1.2.4.13 EU 36

EU 36, a 1.0 m by 1.0 m excavation unit, was excavated to bedrock at a maximum depth of 93 cmbd (Figure 293 through Figure 297). Profile drawings of the west and north walls (Figure 297) indicate exposed *pāhoehoe* bedrock in the northeastern quadrant and along the southern edge, with sediment covering the rest of the unit. Sediment (Stratum I) consisted of naturally





Figure 268. SIHP # -28813 Feature E, EU 31 pre-excavation photo, view to west



Figure 269. SIHP # -28813 Feature E, EU 31 post-excavation photo, view to west





Figure 270. SIHP # -28813 Feature E, EU 31 south wall profile, view to south



Figure 271. SIHP # -28813 Feature E, EU 31 west wall profile, view to west



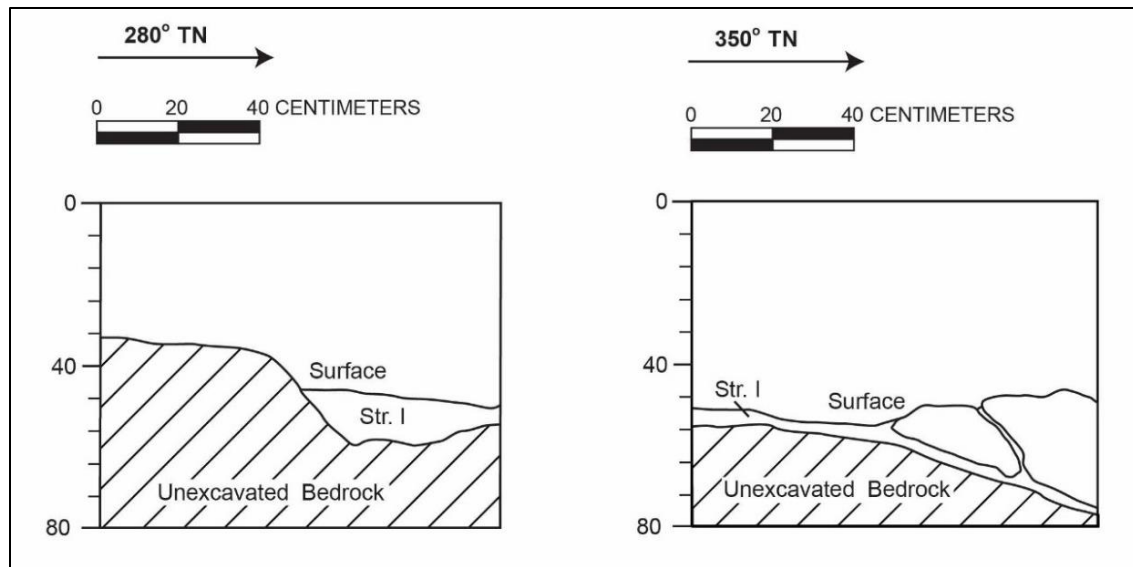


Figure 272. SIHP # -28813 Feature E, EU 31 south and west wall profiles



Figure 273. SIHP # -28813 Feature E, EU 32 pre-excavation photo, view to west



Figure 274. SIHP # -28813 Feature E, EU 32 post-excavation photo, view to west



Figure 275. SIHP # -28813 Feature E, EU 32 west wall profile, view to west





Figure 276. SIHP # -28813 Feature E, EU 32 south wall profile, view to south

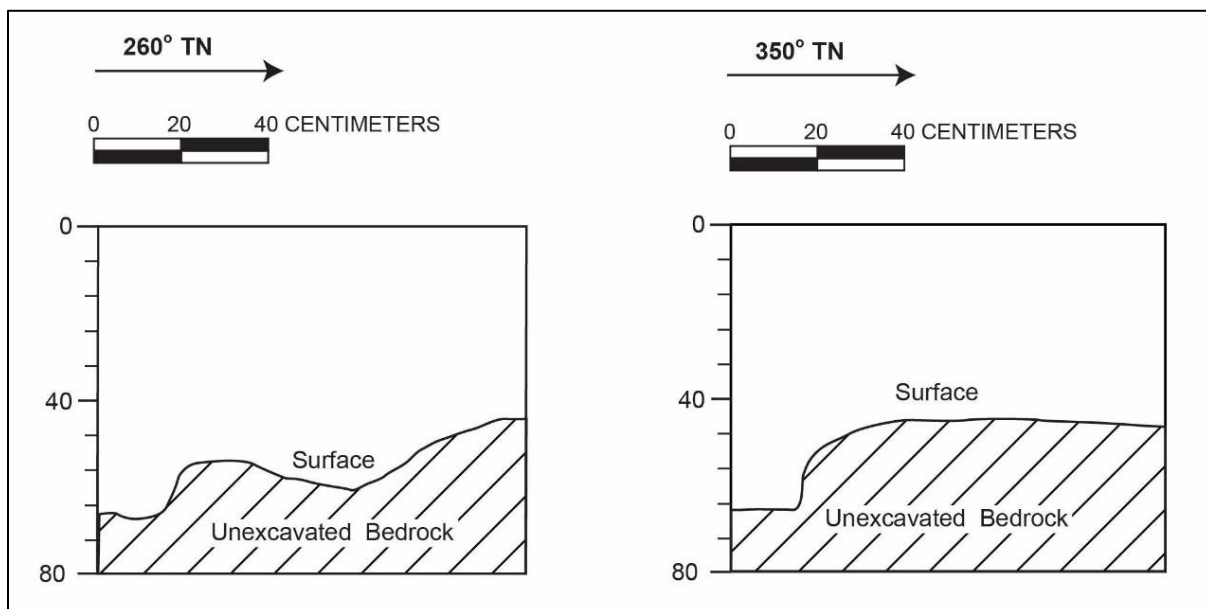


Figure 277. SIHP # -28813 Feature E, EU 32 south and west wall profiles



Figure 278. SIHP # -28813 Feature E, EU 33 pre-excavation photo, view to north



Figure 279. SIHP # -28813 Feature E, EU 33 post-excavation photo, view to north





Figure 280. SIHP # -28813 Feature E, EU 33 south wall profile, view to southeast



Figure 281. SIHP # -28813 Feature E, EU 33 west wall profile, view to northwest



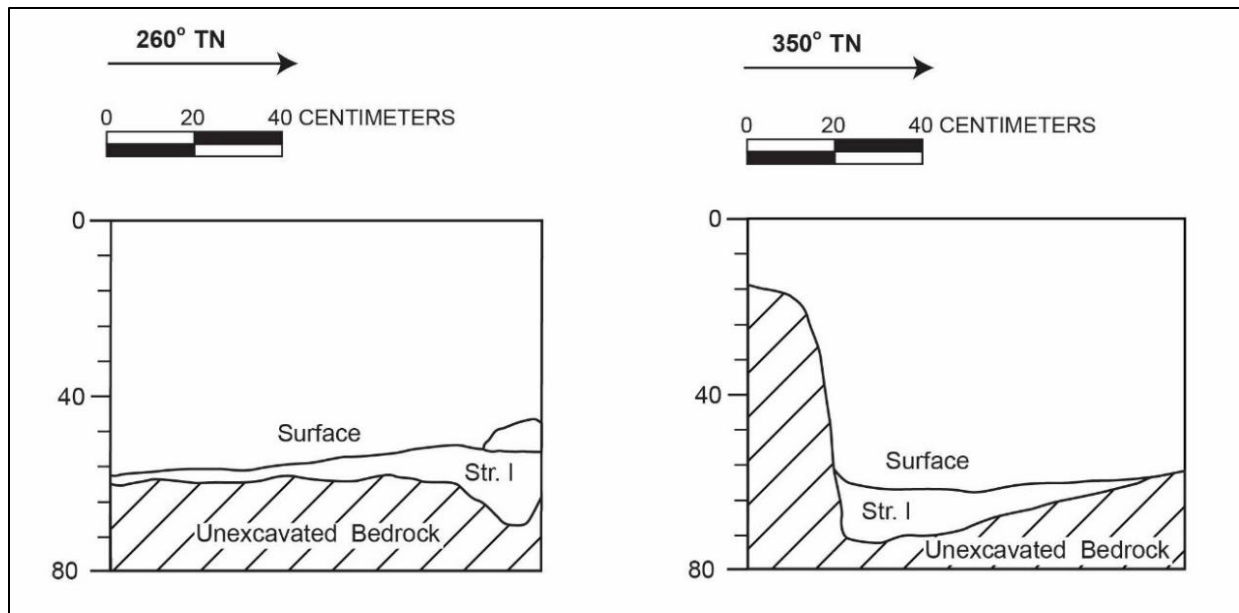


Figure 282. SIHP # -28813 Feature E, EU 33 south and west wall profiles



Figure 283. SIHP # -28813 Feature E, EU 34 pre-excavation photo, view to north





Figure 284. SIHP # -28813 Feature E, EU 34 post-excavation photo, view to west



Figure 285. SIHP # -28813 Feature E, EU 34 east wall profile, view to east



Figure 286. SIHP # -28813 Feature E, EU 34 south wall profile, view to south

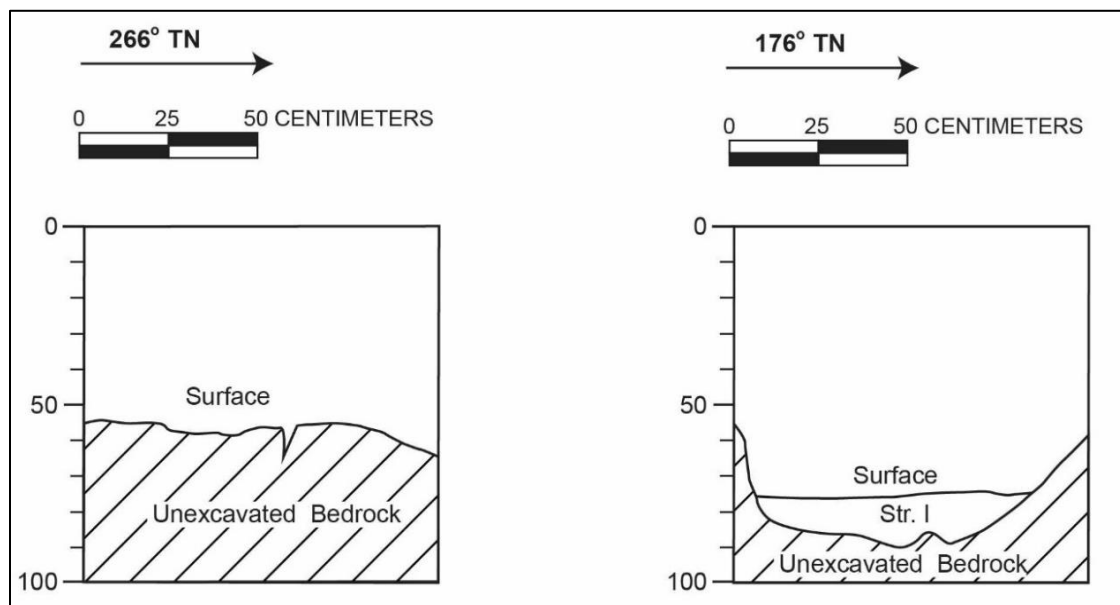


Figure 287. SIHP # -28813 Feature E, EU 34 south and east wall profiles





Figure 288. SIHP # -28813 Feature E, EU 35 pre-excavation photo, view to north



Figure 289. SIHP # -28813 Feature E, EU 35 post-excavation photo, view to north





Figure 290. SIHP # -28813 Feature E, EU 35 west wall profile, view to west



Figure 291. SIHP # -28813 Feature E, EU 35 north wall profile, view to north



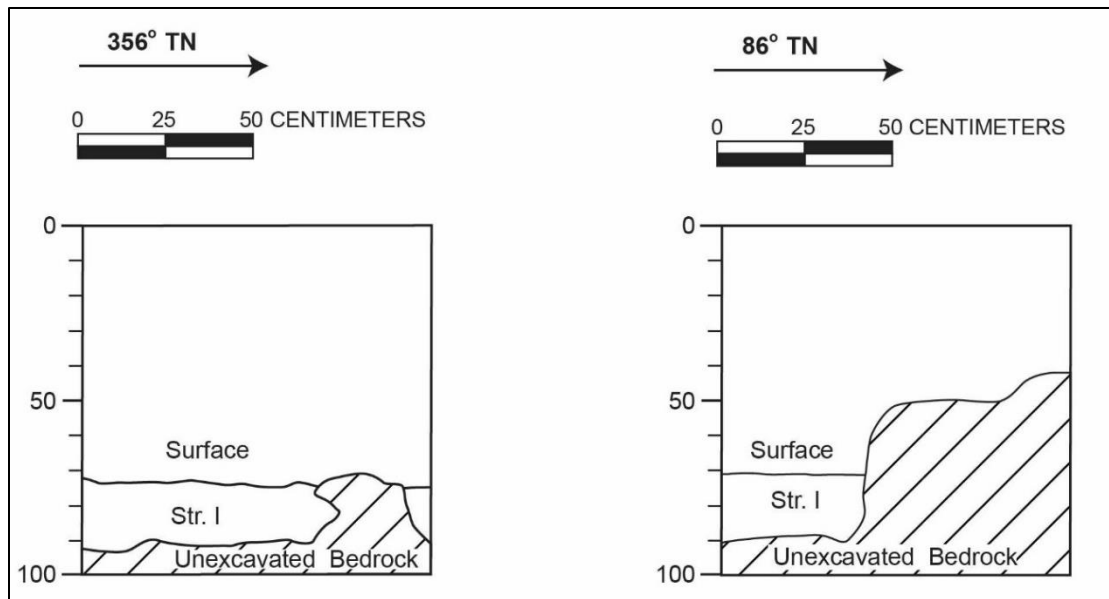


Figure 292. SIHP # -28813 Feature E, EU 35 west and north wall profiles



Figure 293. SIHP # -28813 Feature E, EU 36 pre-excavation photo, view to east





Figure 294. SIHP # -28813 Feature E, EU 36 post-excavation photo, view to east



Figure 295. SIHP # -28813 Feature E, EU 36 north wall profile, view to north





Figure 296. SIHP # -28813 Feature E, EU 36 west wall profile, view to west

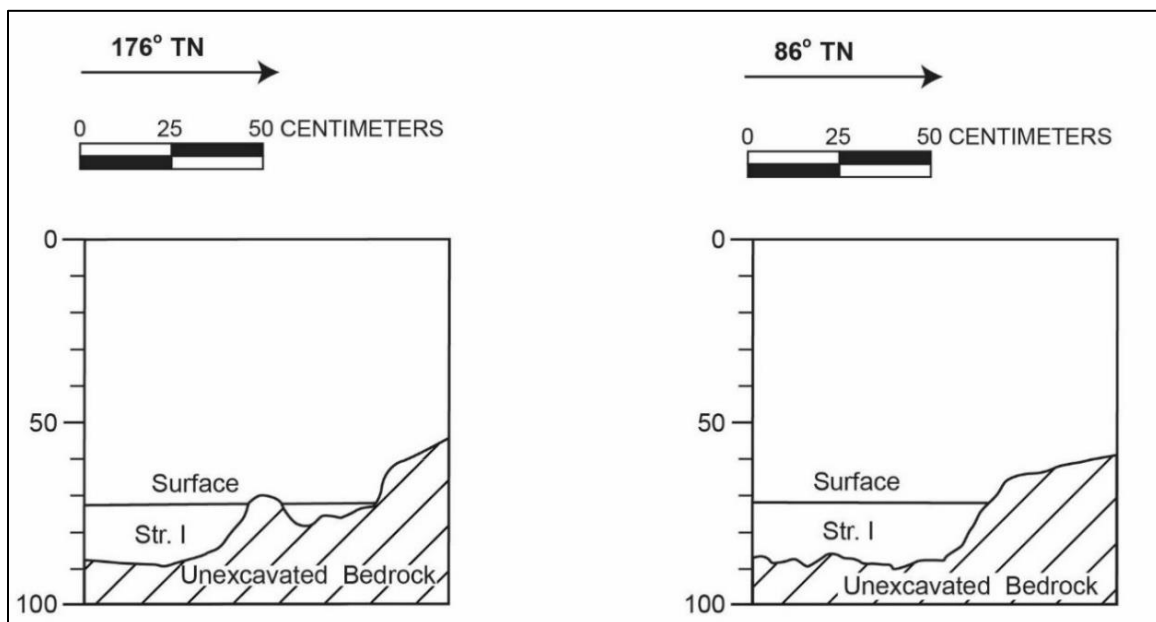


Figure 297. SIHP # -28813 Feature E, EU 36 west and north wall profiles

deposited silt loam containing 5% angular gravel from 70–93 cmbd, overlying the undulating *pāhoehoe* bedrock (see Table 12). No cultural materials were observed.

2.7.1.2.4.14 EU 37

EU 37, a 1.0 m by 1.0 m excavation unit, was excavated to bedrock at a maximum depth of 100 cmbd (Figure 298 through Figure 301). Profile drawings of the north and west walls (Figure 302) indicate exposed *pāhoehoe* bedrock along the northern edge of the unit, with sediment covering the rest. The sediment (Stratum I) consists of naturally deposited silt loam containing 5% angular gravel from 72–100 cmbd, overlying the undulating *pāhoehoe* bedrock (see Table 12). No cultural materials were observed.

2.7.1.2.4.15 EU 38

EU 38, a 1.0 m by 1.0 m excavation unit, was excavated to bedrock at a maximum depth of 100 cmbd (Figure 303 through Figure 305). Profile drawings of the north and west walls (Figure 306) indicate exposed *pāhoehoe* bedrock along the southern edge of the unit, and sediment covering the rest. The sediment (Stratum I) consists of naturally deposited silt loam containing 5% angular gravel from 71–100 cmbd, overlying the undulating *pāhoehoe* bedrock (see Table 12). No cultural materials were observed.

2.7.1.2.4.16 EU 39

EU 39, a 1.0 m by 1.0 m excavation unit, was excavated to bedrock at a maximum depth of 90 cmbd (Figure 307 through Figure 310). Profile drawings of the north and west walls (Figure 311) indicate exposed *pāhoehoe* bedrock across the northwestern half of the unit, with sediment covering the rest. The sediment (Stratum I) consists of naturally deposited silt loam containing 10% angular gravel from 70–90 cmbd, overlying the undulating *pāhoehoe* bedrock (see Table 12). No cultural materials were observed.

2.7.1.2.4.17 EU 40

EU 40, a 1.0 m by 1.0 m excavation unit, was excavated to bedrock at a maximum depth of 90 cmbd (Figure 312 through Figure 315). Profile drawings of the north and west walls (Figure 316) indicate sediment concentrated in the northeastern quadrant, with exposed *pāhoehoe* bedrock covering the rest of the unit. The sediment (Stratum I) consists of naturally deposited silt loam containing 5% angular gravel from 70–90 cmbd, overlying the undulating *pāhoehoe* bedrock (see Table 12). No cultural materials were observed.

2.7.1.2.4.18 EU 41

EU 41, a 1.0 m by 1.0 m excavation unit, was excavated to bedrock at a maximum depth of 72 cmbd (Figure 317 through Figure 320). Profile drawings of the south and west walls (Figure 321) indicate exposed *pāhoehoe* bedrock along the eastern edge of the unit, with sediment covering the rest. The sediment (Stratum I) consists of naturally deposited silt loam containing 5% angular gravel from 61–72 cmbd, overlying the undulating *pāhoehoe* bedrock (see Table 12). No cultural materials were observed.

2.7.1.2.4.19 EU 42

EU 42, a 1.0 m by 1.0 m excavation unit, was excavated to bedrock at a maximum depth of 111 cmbd (Figure 322 through Figure 325). Profile drawings of the south and west walls (Figure 326) indicate sediment covering the northern edge of the unit, with exposed *pāhoehoe* bedrock





Figure 298. SIHP # -28813 Feature E, EU 37 pre-excavation photo, view to south



Figure 299. SIHP # -28813 Feature E, EU 37 post-excavation photo, view to south





Figure 300. SIHP # -28813 Feature E, EU 37 north wall profile, view to north



Figure 301. SIHP # -28813 Feature E, EU 37 west wall profile, view to west



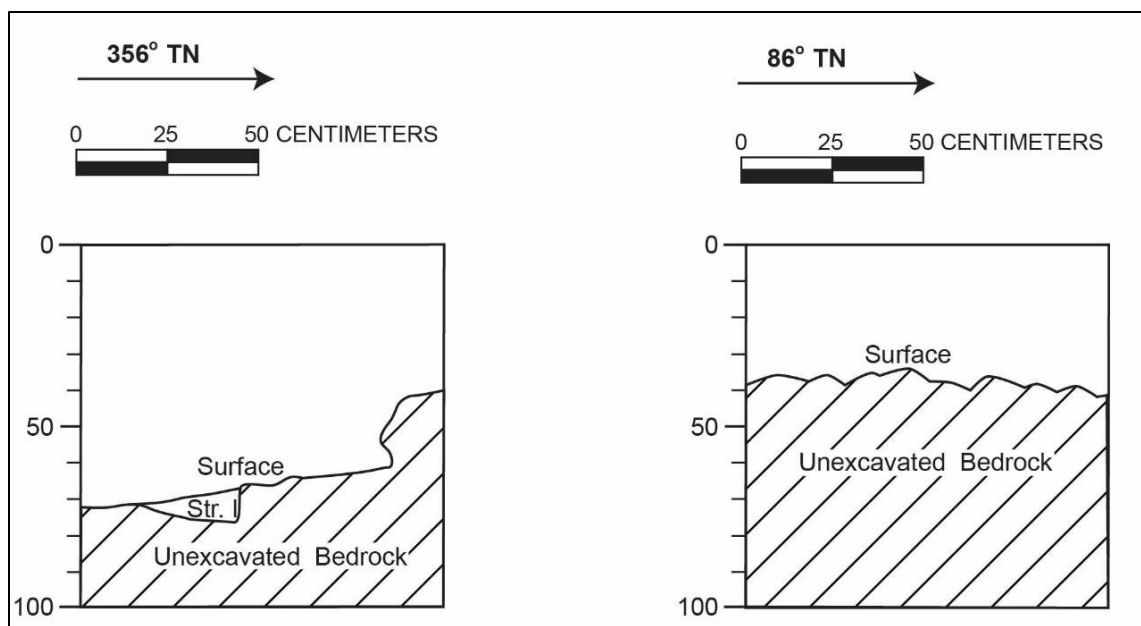


Figure 302. SIHP # -28813 Feature E, EU 37 west and north wall profiles



Figure 303. SIHP # -28813 Feature E, EU 38 pre-excavation photo, view to west





Figure 304. SIHP # -28813 Feature E, EU 38 post-excavation photo, view to west



Figure 305. SIHP # -28813 Feature E, EU 38 west wall profile, view to west



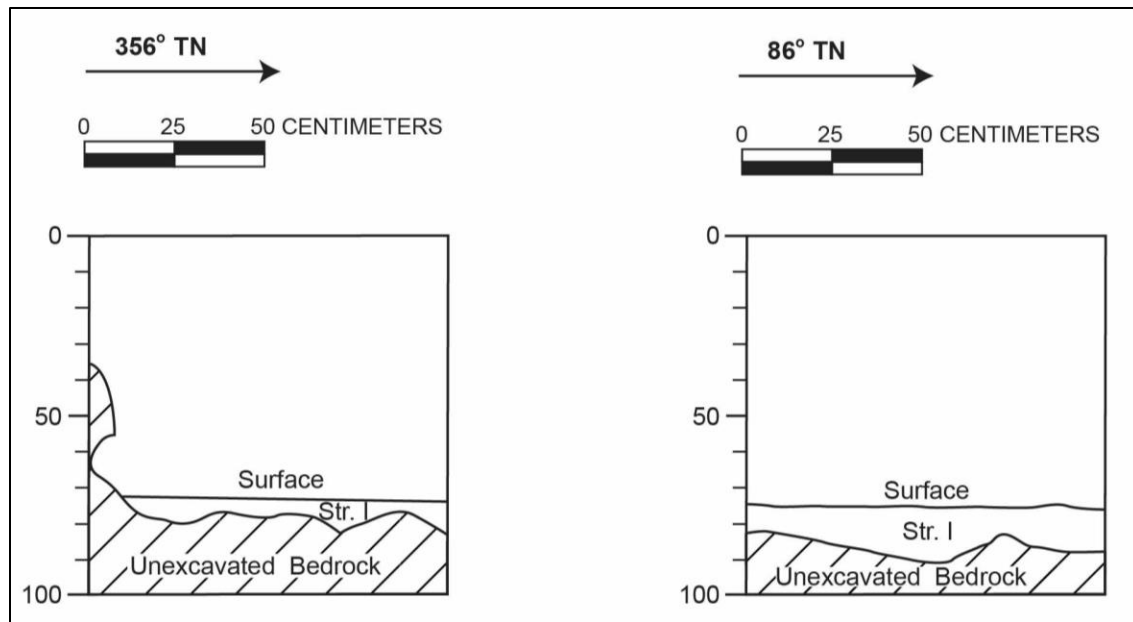


Figure 306. SIHP # -28813 Feature E, EU 38 west and north wall profiles



Figure 307. SIHP # -28813 Feature E, EU 39 pre-excavation photo, view to south



Figure 308. SIHP # -28813 Feature E, EU 39 post-excavation photo, view to south



Figure 309. SIHP # -28813 Feature E, EU 39 north wall profile, view to north





Figure 310. SIHP # -28813 Feature E, EU 39 west wall profile, view to west

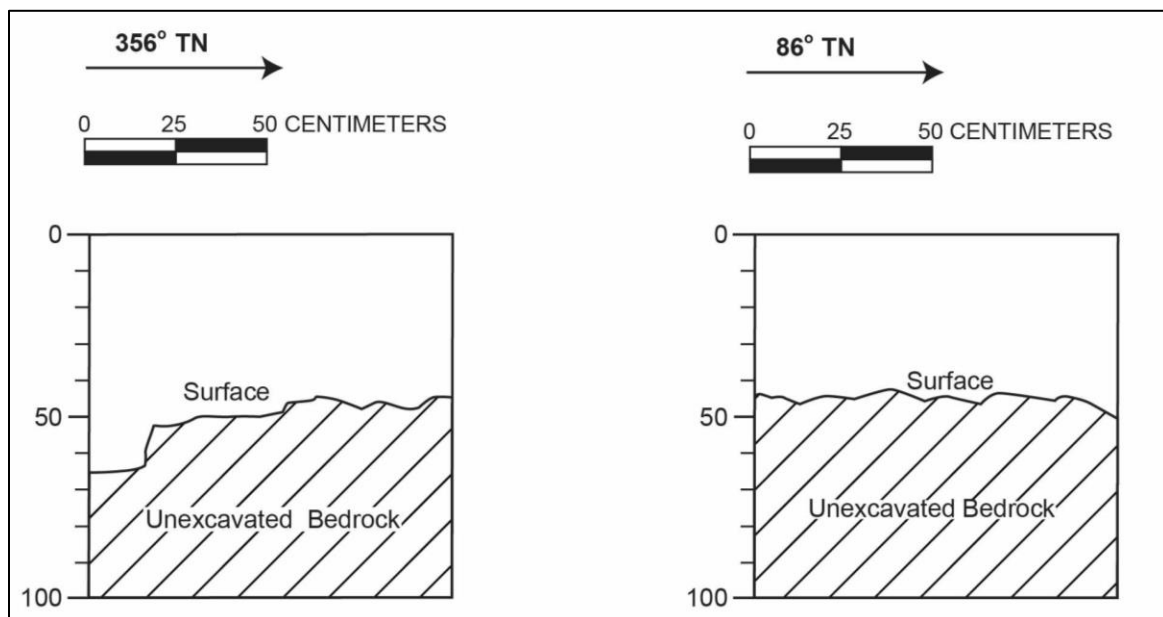


Figure 311. SIHP # -28813 Feature E, EU 39 west and north wall profiles



Figure 312. SIHP # -28813 Feature E, EU 40 pre-excavation photo, view to north



Figure 313. SIHP # -28813 Feature E, EU 40 post-excavation photo, view to north





Figure 314. SIHP # -28813 Feature E, EU 40 west wall profile, view to west



Figure 315. SIHP # -28813 Feature E, EU 40 north wall profile, view to north



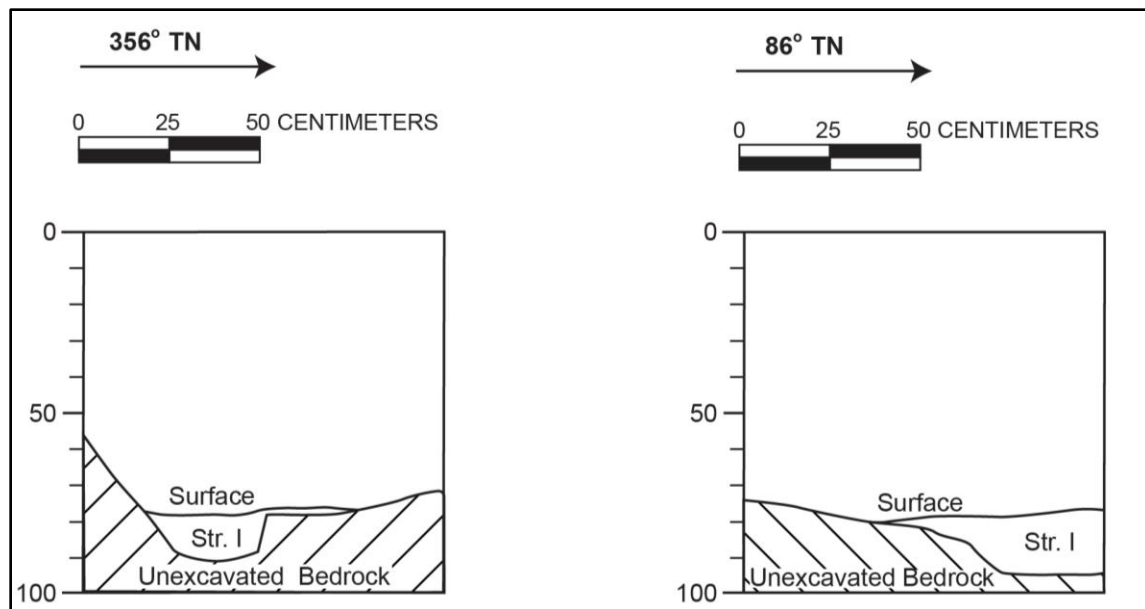


Figure 316. SIHP # -28813 Feature E, EU 40 west and north wall profiles



Figure 317. SIHP # -28813 Feature E, EU 41 pre-excavation photo, view to east





Figure 318. SIHP # -28813 Feature E, EU 41 post-excavation photo, view to north



Figure 319. SIHP # -28813 Feature E, EU 41 south wall profile, view to south



Figure 320. SIHP # -28813 Feature E, EU 41 west wall profile, view to west

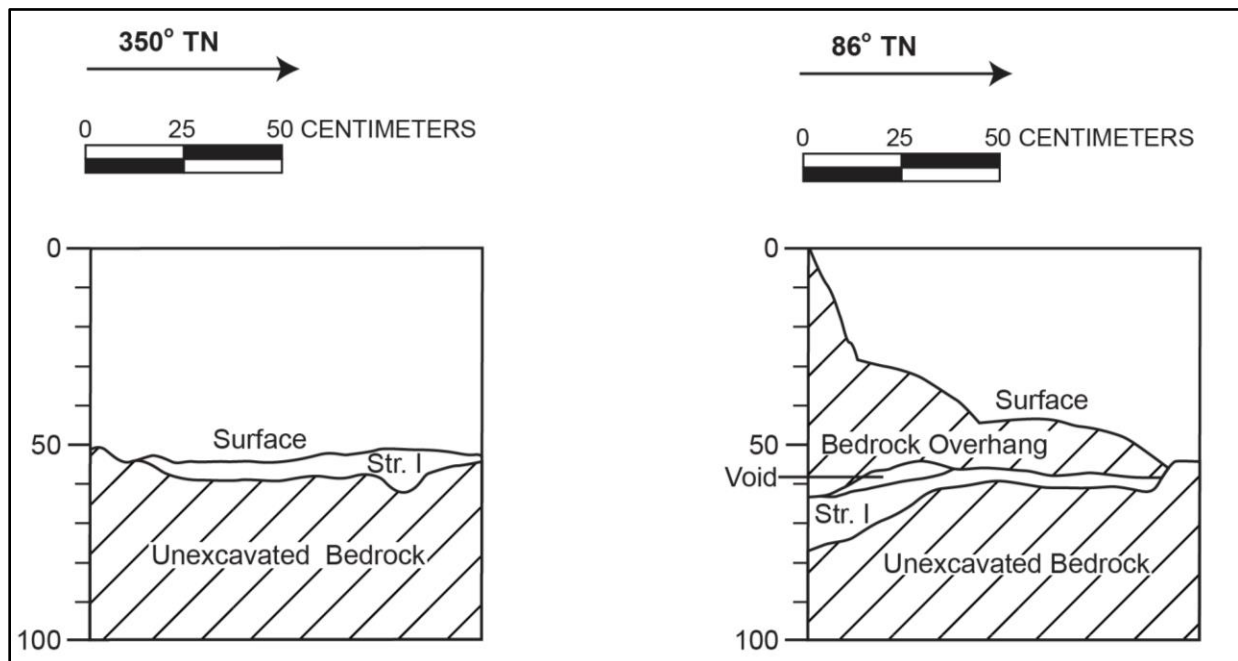


Figure 321. SIHP # -28813 Feature E, EU 41 west and south wall profiles





Figure 322. SIHP # -28813 Feature E, EU 42 pre-excavation photo, view to south



Figure 323. SIHP # -28813 Feature E, EU 42 post-excavation photo, view to south





Figure 324. SIHP # -28813 Feature E, EU 42 south wall profile, view to south



Figure 325. SIHP # -28813 Feature E, EU 42 west wall profile, view to west



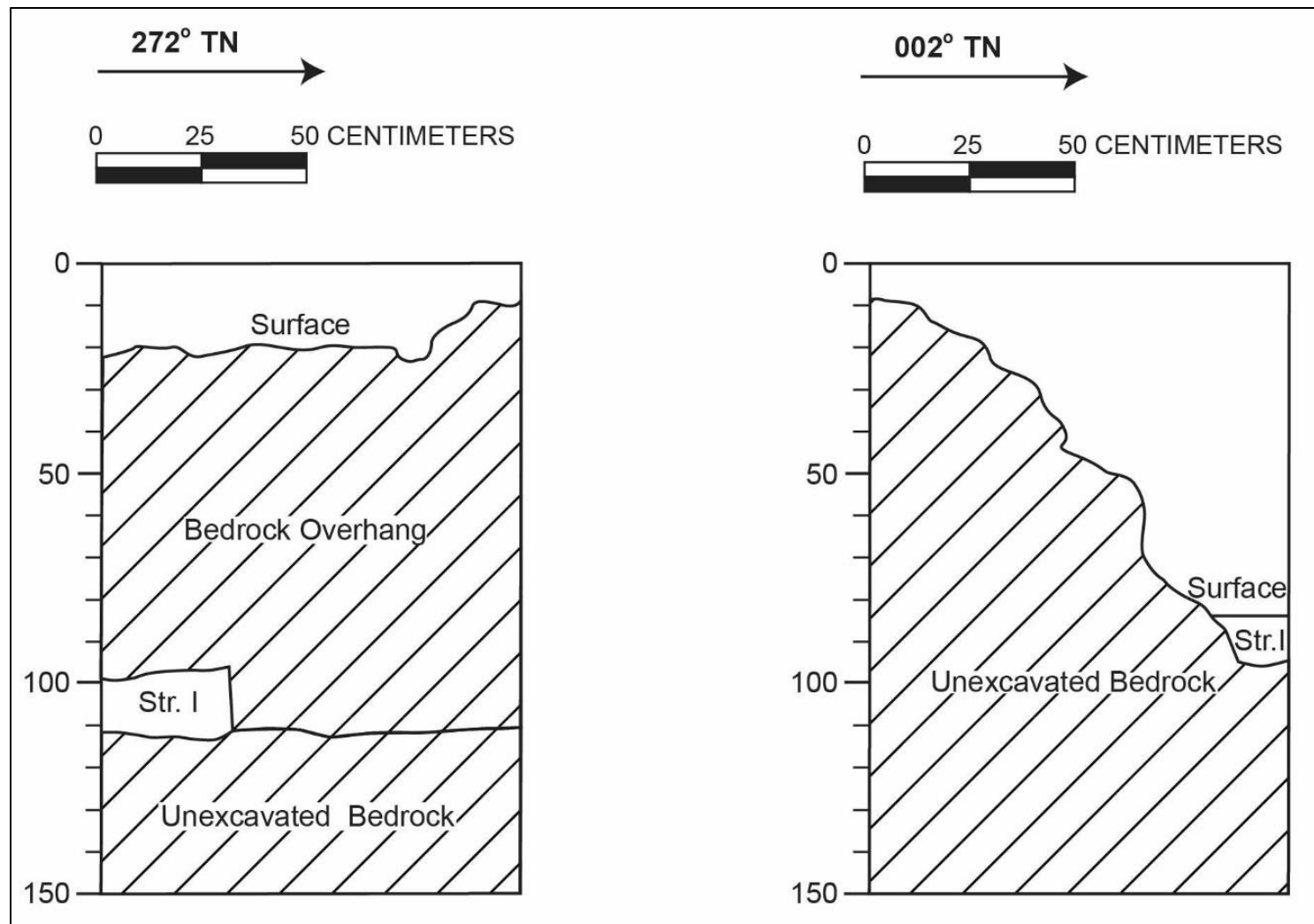


Figure 326. SIHP # -28813 Feature E, EU 42 south and west wall profiles

covering the rest. The sediment (Stratum I) consists of naturally deposited silt loam containing 5% angular gravel from 90–111 cmbd, overlying the undulating *pāhoehoe* bedrock (see Table 12). A small quantity of crab (*G. severnsi*) fragments was collected during screening. No cultural materials were observed.

2.7.1.2.4.20 EU 43

EU 43, a 1.0 m by 1.0 m excavation unit, was excavated to bedrock at a maximum depth of 116 cmbd (Figure 327 through Figure 330). Profile drawings of the east and south walls (Figure 331) indicate exposed *pāhoehoe* bedrock covering the southern half of the unit. Sediment (Stratum I) covering the northern half of the unit consists of naturally deposited silt loam containing 5% angular gravel from 84–116 cmbd, overlying the undulating *pāhoehoe* bedrock (see Table 12). No cultural materials were observed.

2.7.1.2.4.21 EU 44

EU 44, a 1.0 m by 1.0 m excavation unit, was excavated to bedrock at a maximum depth of 90 cmbd (Figure 332 through Figure 335). Profile drawings of the south and east walls (Figure 336) indicate exposed *pāhoehoe* bedrock covering the southern half of the unit. Sediment (Stratum I) covering the northern half consisted of naturally deposited silt loam containing 5% angular gravel from 67–90 cmbd, overlying the undulating *pāhoehoe* bedrock (see Table 12). No cultural materials were observed.

2.7.1.2.4.22 EU 45

EU 45, a 1.0 m by 1.0 m excavation unit, was excavated to bedrock at a maximum depth of 120 cmbd (Figure 337 through Figure 340). Profile drawings of the southeast and northeast walls (Figure 341) indicate exposed *pāhoehoe* bedrock covering the northeastern edge of the unit, with sediment covering the rest. The sediment (Stratum I) consists of naturally deposited silt loam containing 5% angular gravel from 77–120 cmbd, overlying the undulating *pāhoehoe* bedrock (see Table 12). No cultural materials were observed.

2.7.1.2.4.23 EU 46

EU 46, a 1.0 m by 1.0 m excavation unit, was excavated to bedrock at a maximum depth of 118 cmbd (Figure 342 through Figure 345). Profile drawings of the northeast and northwest walls (Figure 346) indicate exposed *pāhoehoe* bedrock covering the eastern quadrant of the unit, with sediment covering the rest. The sediment (Stratum I) consists of naturally deposited silt loam containing 5% angular gravel from 98–118 cmbd, overlying the undulating *pāhoehoe* bedrock (see Table 12). No cultural materials were observed.

2.7.1.2.4.24 EU 47

EU 47, a 1.0 m by 1.0 m excavation unit, was excavated to bedrock at a maximum depth of 110 cmbd (Figure 347 through Figure 350). Profile drawings of the south and west walls (Figure 351) indicate a narrow void under the *pāhoehoe* bedrock. Sediment (Stratum I) covering the rest of the unit consists of naturally deposited silt loam containing 5% angular gravel from 98–110 cmbd, overlying the undulating *pāhoehoe* bedrock (see Table 12). No cultural materials were observed.





Figure 327. SIHP # -28813 Feature E, EU 43 pre-excavation photo, view to south



Figure 328. SIHP # -28813 Feature E, EU 43 post-excavation photo, view to south





Figure 329. SIHP # -28813 Feature E, EU 43 east wall profile, view to east



Figure 330. SIHP # -28813 Feature E, EU 43 south wall profile, view to south



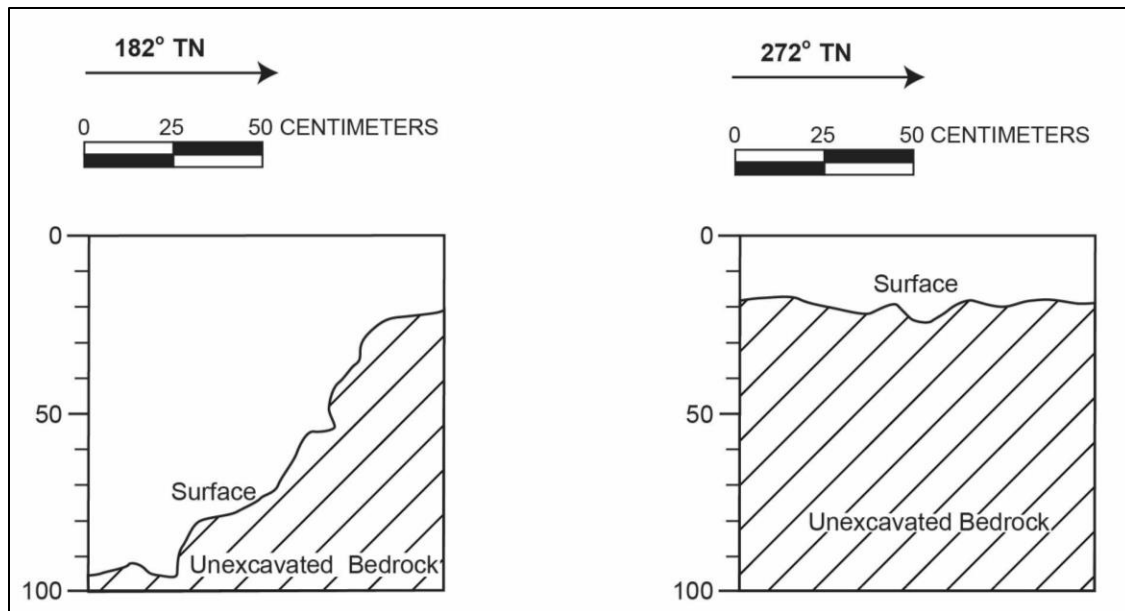


Figure 331. SIHP # -28813 Feature E, EU 43 east and south wall profiles



Figure 332. SIHP # -28813 Feature E, EU 44 pre-excavation photo, view to south



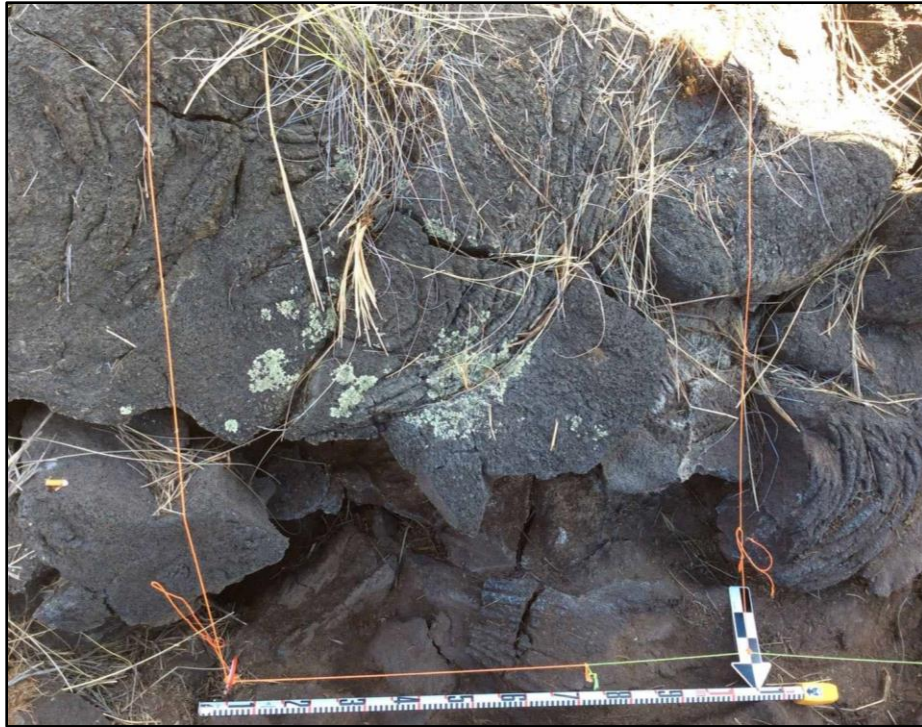


Figure 333. SIHP # -28813 Feature E, EU 44 post-excavation photo, view to south



Figure 334. SIHP # -28813 Feature E, EU 44 east wall profile, view to southeast





Figure 335. SIHP # -28813 Feature E, EU 44 south wall profile, view to south

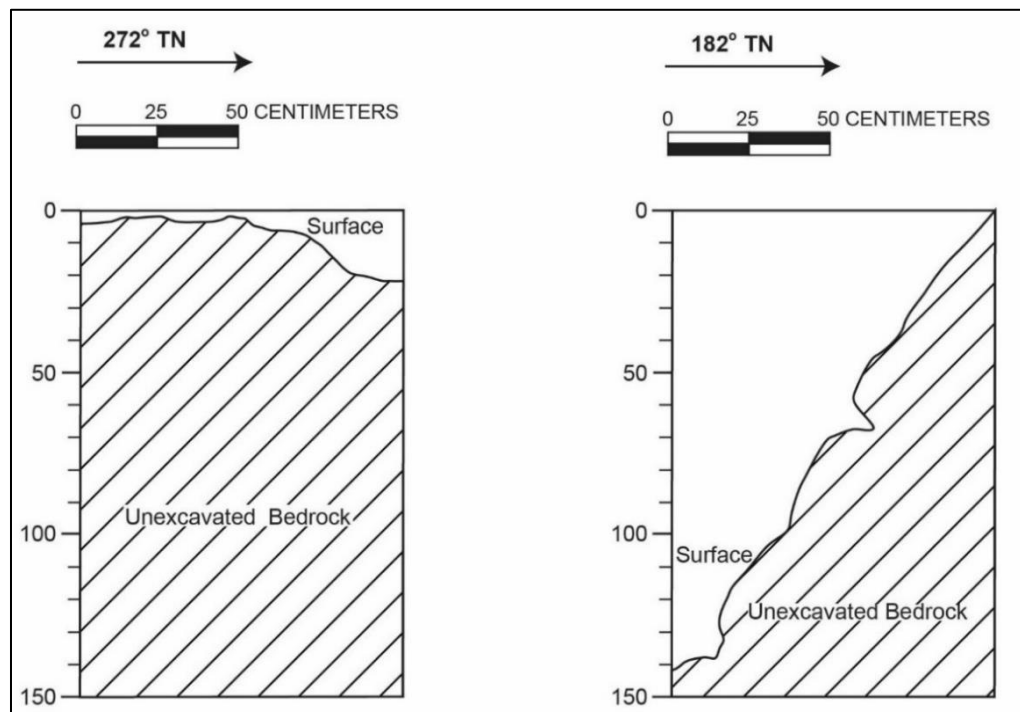


Figure 336. SIHP # -28813 Feature E, EU 44 south and east wall profiles



Figure 337. SIHP # -28813 Feature E, EU 45 pre-excavation photo, view to southeast



Figure 338. SIHP # -28813 Feature E, EU 45 post-excavation photo, view to southeast





Figure 339. SIHP # -28813 Feature E, EU 45 northeast wall profile, view to northeast



Figure 340. SIHP # -28813 Feature E, EU 45 southeast wall profile, view to southeast

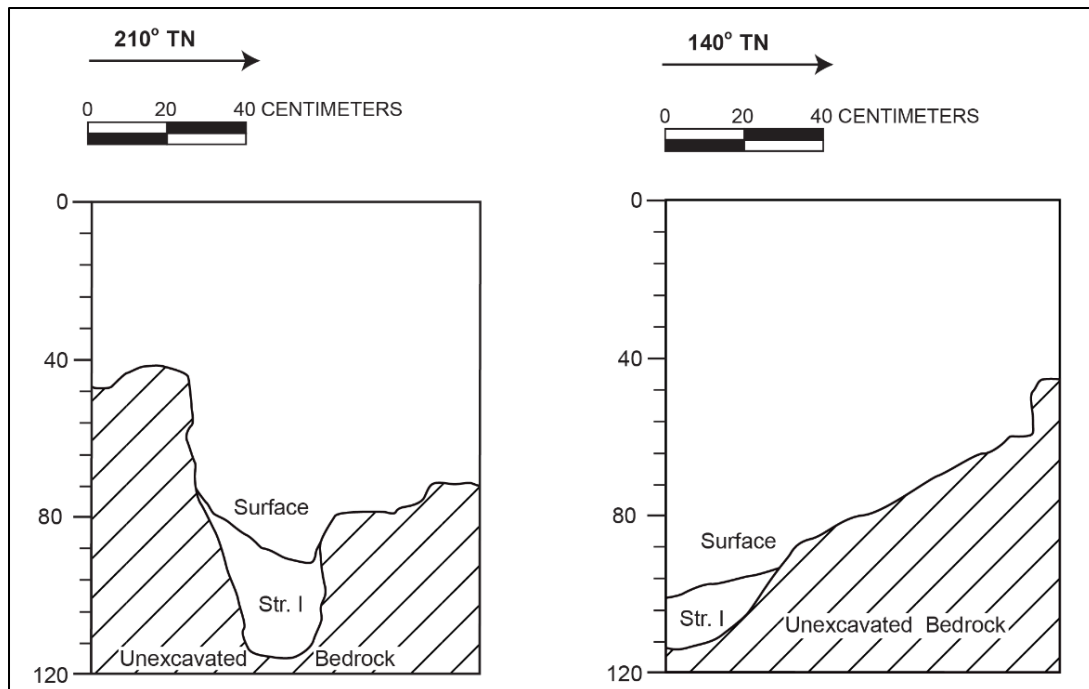


Figure 341. SIHP # -28813 Feature E, EU 45 southeast and northeast wall profile



Figure 342. SIHP # -28813 Feature E, EU 46 pre-excavation photo, view to southeast





Figure 343. SIHP # -28813 Feature E, EU 46 post-excavation photo, view to southeast



Figure 344. SIHP # -28813 Feature E, EU 46 northeast wall profile, view to northeast



Figure 345. SIHP # -28813 Feature E, EU 46 northwest wall profile, view to northwest

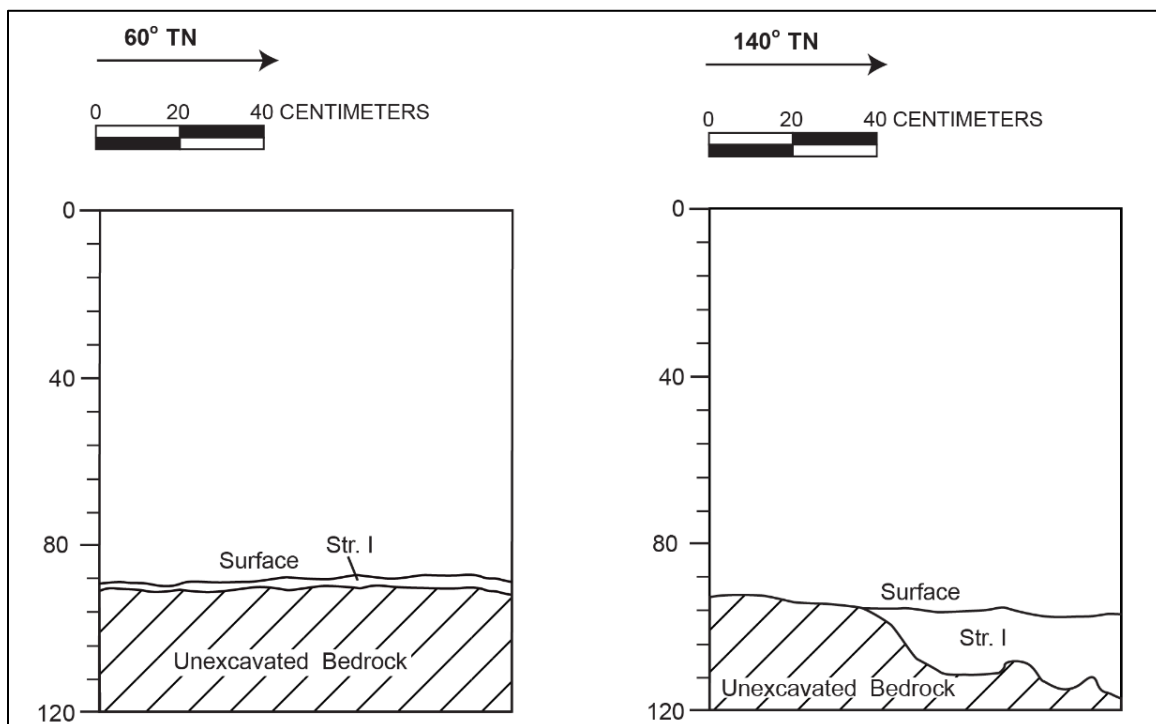


Figure 346. SIHP # -28813 Feature E, EU 46, northwest and northeast wall profiles





Figure 347. SIHP # -28813 Feature E, EU 47 pre-excavation photo, view to west



Figure 348. SIHP # -28813 Feature E, EU 47 post-excavation photo, view to west





Figure 349. SIHP # -28813 Feature E, EU 47 south wall profile, view to south



Figure 350. SIHP # -28813 Feature E, EU 47 west wall profile, view to west



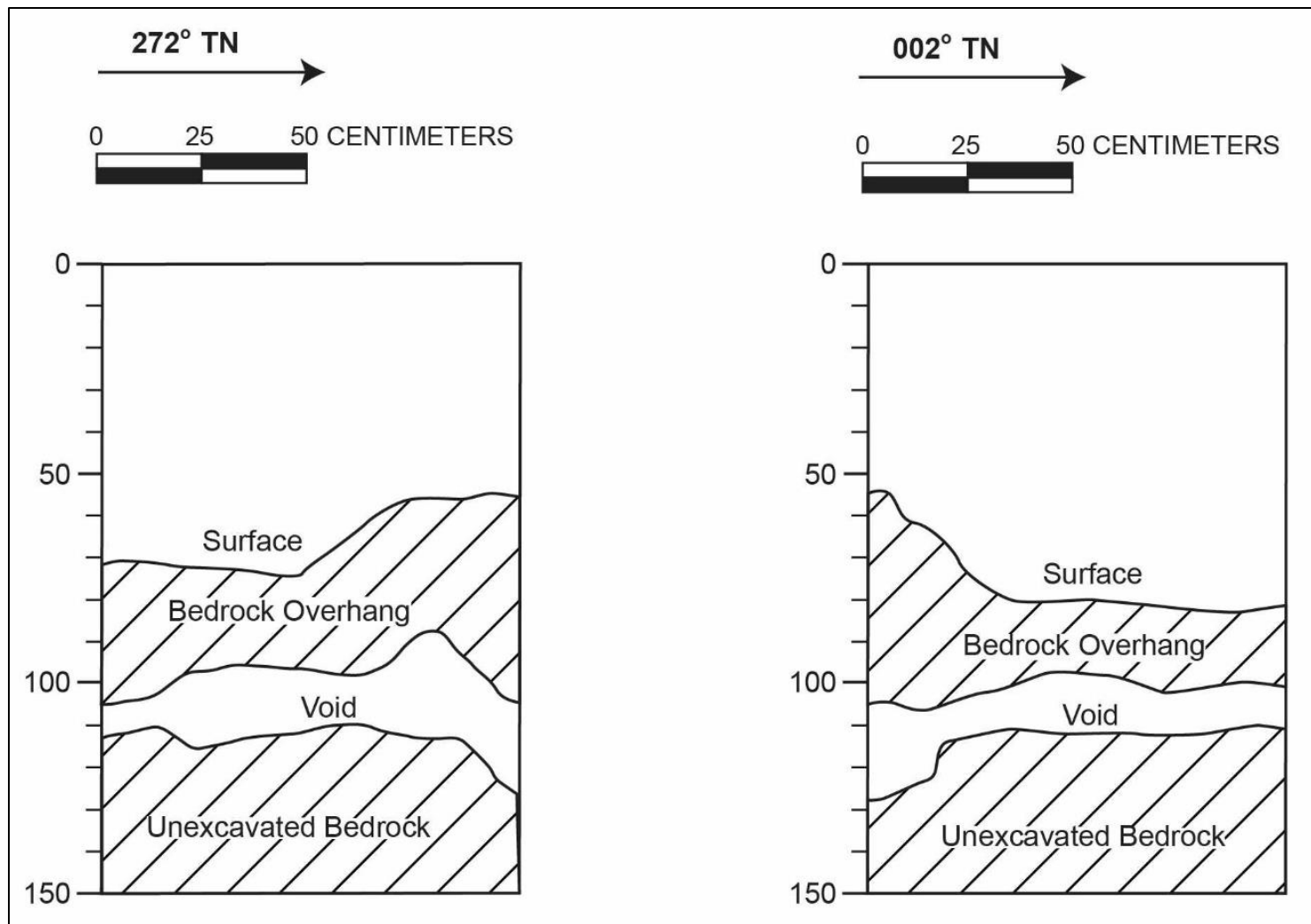


Figure 351. SIHP # -28813 Feature E, EU 47 south and west wall profile

#### 2.7.1.2.5 Feature F

Feature F was discovered during data recovery fieldwork and was divided into two 1.0 m by 1.0 m units (EU 63 and 64), arranged into a 2.0 m by 1.0 m grid. Sediment (Stratum I) within the feature consists of naturally deposited aeolean silt (Table 13). No cultural materials were observed.

##### 2.7.1.2.5.1 EU 63

EU 63, a 1.0 m by 1.0 m excavation unit, was excavated to bedrock at a maximum depth of 82 cmbd (Figure 352 through Figure 355). Profile drawings of the west and north walls (Figure 356) indicate exposed *pāhoehoe* bedrock covering the northern, western, and southern edges of the unit. Sediment (Stratum I) was concentrated in the remainder of the unit and consists of naturally deposited silt loam containing 5% angular gravel from 77–82 cmbd, overlying the undulating *pāhoehoe* bedrock (see Table 13).

##### 2.7.1.2.5.2 EU 64

EU 64, a 1.0 m by 1.0 m excavation unit, was excavated to bedrock at a maximum depth of 90 cmbd (Figure 357 through Figure 360). Profile drawings of the north and east walls (Figure 361) indicate exposed *pāhoehoe* bedrock covering the northern, western, and southern edges of the unit. Sediment (Stratum I) is concentrated in the remainder of the unit and consists of naturally deposited silt loam containing 5% angular gravel from 65–90 cmbd, overlying the undulating *pāhoehoe* bedrock (see Table 13).

### 2.7.2 Interpretation

Excavations at SIHP # -28813 were conducted to obtain sufficient data to address two research objectives regarding cultivation and temporal analysis, proposed in the ADRP by Shideler et al. (2012). The purpose of the former is “to understand the nature and intensity of cultivation in the project area in the context of predictive models for North Kona based on variation in elevation and rainfall,” (Shideler et al. 2012:264). The purpose of the latter is “to determine the absolute dates of occupation of the project area as may be available from data recovery sites . . .” (Shideler et al. 2012:265).

SIHP # -28813 was originally interpreted by Monahan et al. (2012) as an agricultural locality dating to pre-Contact times. (Note this interpretation only applies to what is now considered Feature A). A relatively thick deposit of sediment inside the blister was interpreted as potentially supporting dryland cultigens such as sweet potato; however, pollen and starch analysis performed on two sediment samples collected during the 2011 data recovery field season failed to yield evidence of such cultigens. Instead, the predominance of *H. contortus* (large grass) pollen grains in one of the samples indicates the growth and/or use of *pili* grass. As Feature A was recommended for preservation in the ADRP (Shideler et al. 2012:271) subsequent to the 2011 field season and therefore will not be impacted by the project, no work was conducted on the feature during the 2015 field season.

Data recovery on Features B through F revealed a sterile matrix with no cultural materials or anthropogenic modifications. Faunal remains (crab, rodent, and terrestrial snail) were observed in Features B, C, and E and are likely associated with a natural mode of transport to the area (i.e., are not midden. As mentioned in Section 2.7.1, data recovery was conducted on these features to



Table 13. SIHP # -28813 Feature F, EU 63 and 64 stratigraphy

Excavation Unit	Stratum	Depth (cmbd)	Description
EU 63	I	77-82	Natural; 10YR 4/2, dark grayish brown; silt loam; weak, fine, granular structure; dry, loose consistence; slightly plastic; terrigenous origin; very abrupt, wavy lower boundary; many, fine roots; contains 5% angular gravel
EU 64	I	65-90	Natural; 10YR 4/2, dark grayish brown; silt loam; weak, fine, granular structure; dry, loose consistence; slightly plastic; terrigenous origin; very abrupt, wavy lower boundary; many, fine roots; contains 5% angular gravel



Figure 352. SIHP # -28813 Feature F, EU 63 pre-excavation photo, view to west





Figure 353. SIHP # -28813 Feature F, EU 63 post-excavation photo, view to north



Figure 354. SIHP # -28813 Feature F, EU 63 north wall profile, view to north





Figure 355. SIHP # -28813 Feature F, EU 63 west wall profile, view to west

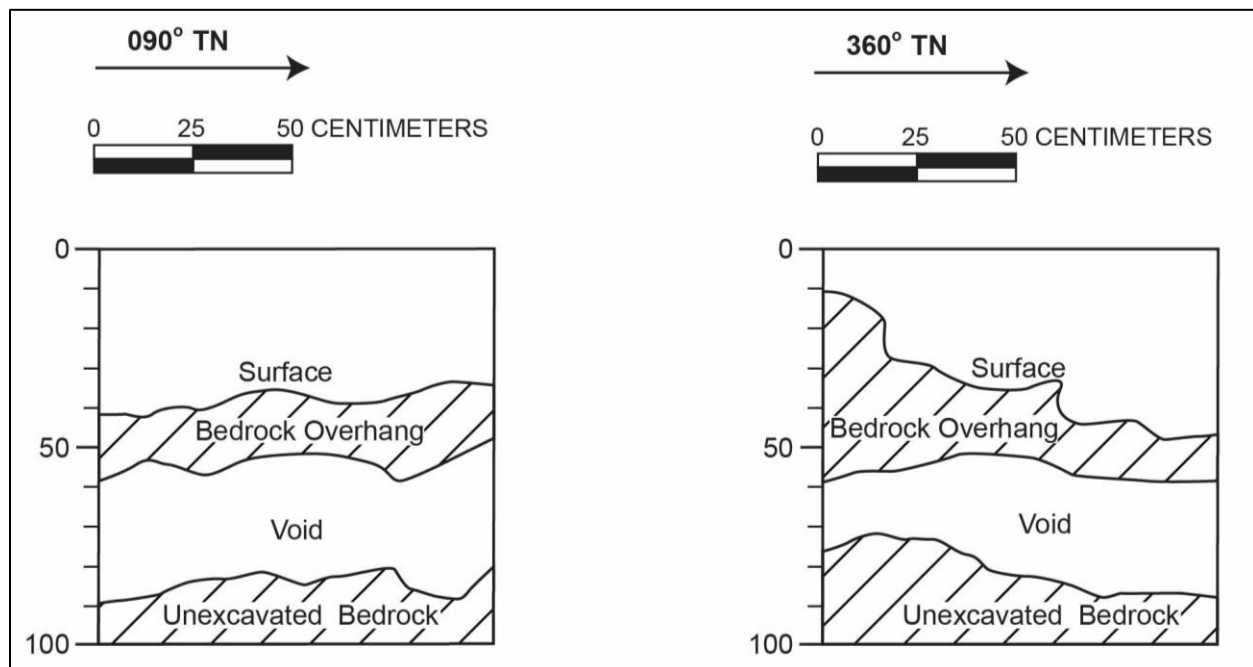


Figure 356. SIHP # -28813 Feature F, EU 63 north and west wall profiles





Figure 357. SIHP # -28813 Feature F, EU 64 pre-excavation photo, view to east



Figure 358. SIHP # -28813 Feature F, EU 64 post-excavation photo, view to north





Figure 359. SIHP # -28813 Feature F, EU 64 north wall profile, view to north



Figure 360. SIHP # -28813 Feature F, EU 64 east wall profile, view to east

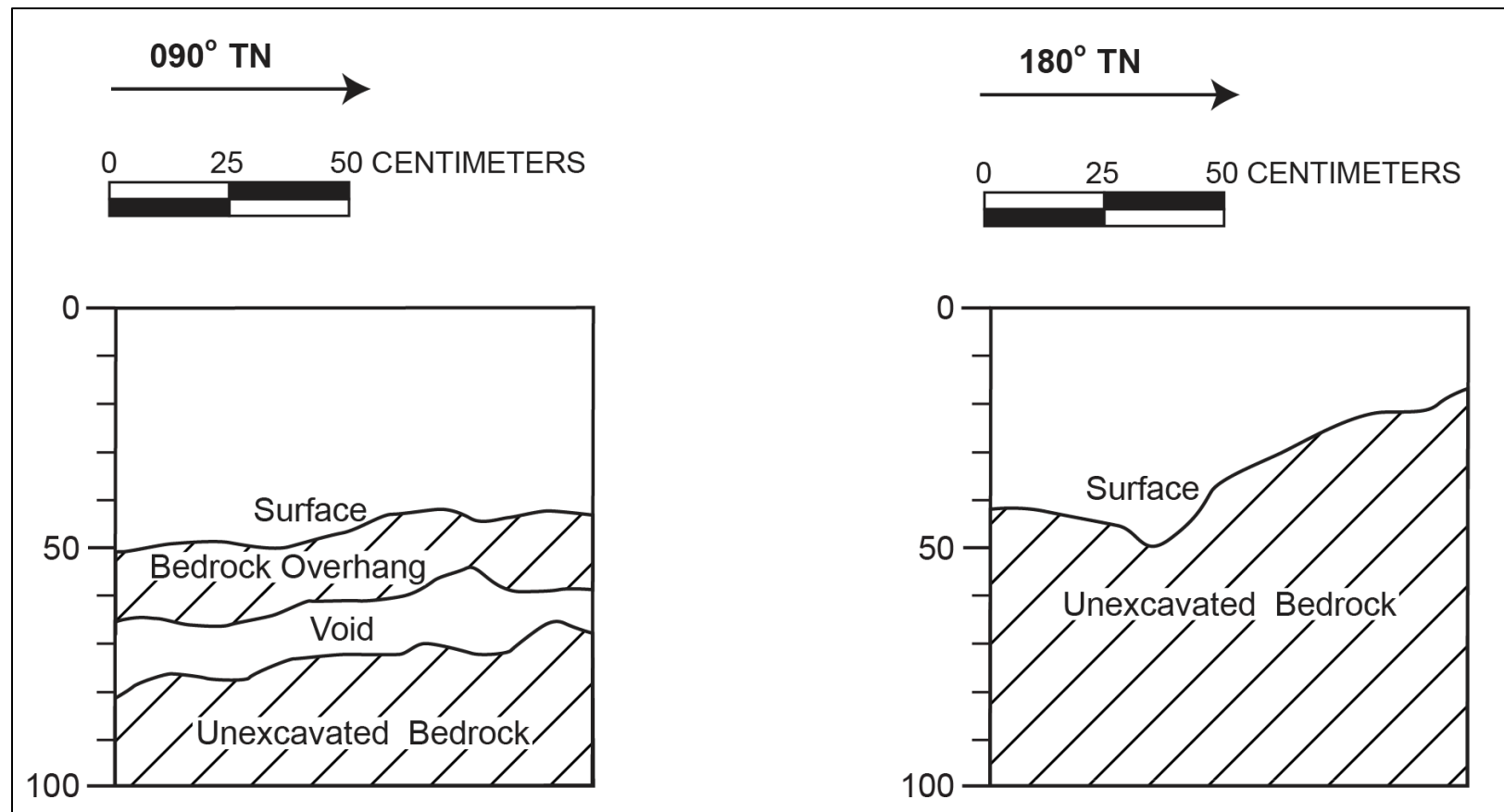


Figure 361. SIHP # -28813 Feature F, EU 64 north and east wall profiles



satisfy the recommendations of SHPD and address NHO concerns. The results of data recovery support the archaeologists' interpretation of the additional features (Features B through F) identified by Isaac Harp as natural basalt formations with no cultural indicators.

## 2.8 SIHP # 50-10-27-28814

**CSH Site No.:** T-092210-1 (Monahan et al. 2012)

**Formal Type:** Lava tube

**No. of Features:** 0

**Function:** Potential subterranean resource

**Age:** Pre-Contact

**Dimensions:** 15 m N/S by 13 m E/W

**Topography:** Undulating *pāhoehoe* tumulus, level to slightly sloping

**Elevation:** 44 m (143 ft) AMSL

**Description:** SIHP # -28814 is a lava tube approximately 105 m north of the intersection of Ka'imīnani Drive and the Queen Ka'ahumanu Highway (see Figure 1 and Figure 2). It is described by Monahan et al. (2012) as consisting of a lava tube with an indeterminate function. The lava tube extends 15.0 m north/south by 13.0 m east/west underneath an undulating *pāhoehoe* flow, with a 1.5-m wide opening and a ceiling height of 0.5 m. There are two main chambers within the lava tube connected by a linear passageway. Off the two main chambers, there are several small, tapering off-shoots that quickly become impassable. Potential modification to the lava tube consists of two *pāhoehoe* boulders (potential water catchment cradles) placed just inside the entrance by the northern wall and within the light zone (Figure 362). A thin layer of sediment and organic debris that had built up on the bedrock just inside the entrance and within the light zone supported vegetation. No artifacts or midden were observed in the area during the AIS (Monahan et al. 2012:377).

SIHP # -28814 has been assessed as significant under Criteria d and e.

### 2.8.1 Data Recovery Effort

Data recovery fieldwork at SIHP # -28814 occurred during the both 2011 and 2015 seasons. Data recovery during the 2011 field season followed the 2011 ADRP by Altizer and Monahan (2011:153), who recommended the entire soil-sedimentary deposit be removed “if the deposit measures less than 2.0 square meters in lateral extent.” During data recovery, the sediment deposit was measured at approximately 1.5 m by 1.0 m and therefore was excavated as a single, irregularly shaped unit (EU 1). Documentation included two perpendicular profiles of the excavation unit, as well as a plan map depicting the location of EU 1 (Figure 363). The data recovery plan stipulated the collection of bulk sediment samples for pollen analysis and radiocarbon dating; however, a paucity of sediment accrual precluded this effort.

During the 2015 field season, data recovery fieldwork at SIHP # -28814 followed the 2012 ADRP by Shideler et al. (2012:212), who recommended “excavation of the lava tube floor estimated at four m by three m (12 m<sup>2</sup>) centered along the long axis of the tube opening.” This required the excavation of eight 1.0 m by 1.0 m excavation units (EU 4 through 11; see Figure 363 through Figure 365). Documentation of SIHP # -28814 included two perpendicular profiles of each excavation unit, as well as updating the plan map with the new EU locations. The intended collection of radiocarbon samples was prevented by the lack of dateable organic material. A sub-meter accurate Trimble GPS unit was used to record the center point of each unit. EUs 4 through 11 were excavated to the undulating *pāhoehoe* bedrock.





Figure 362. Two placed boulders within SIHP # -28814, view to south

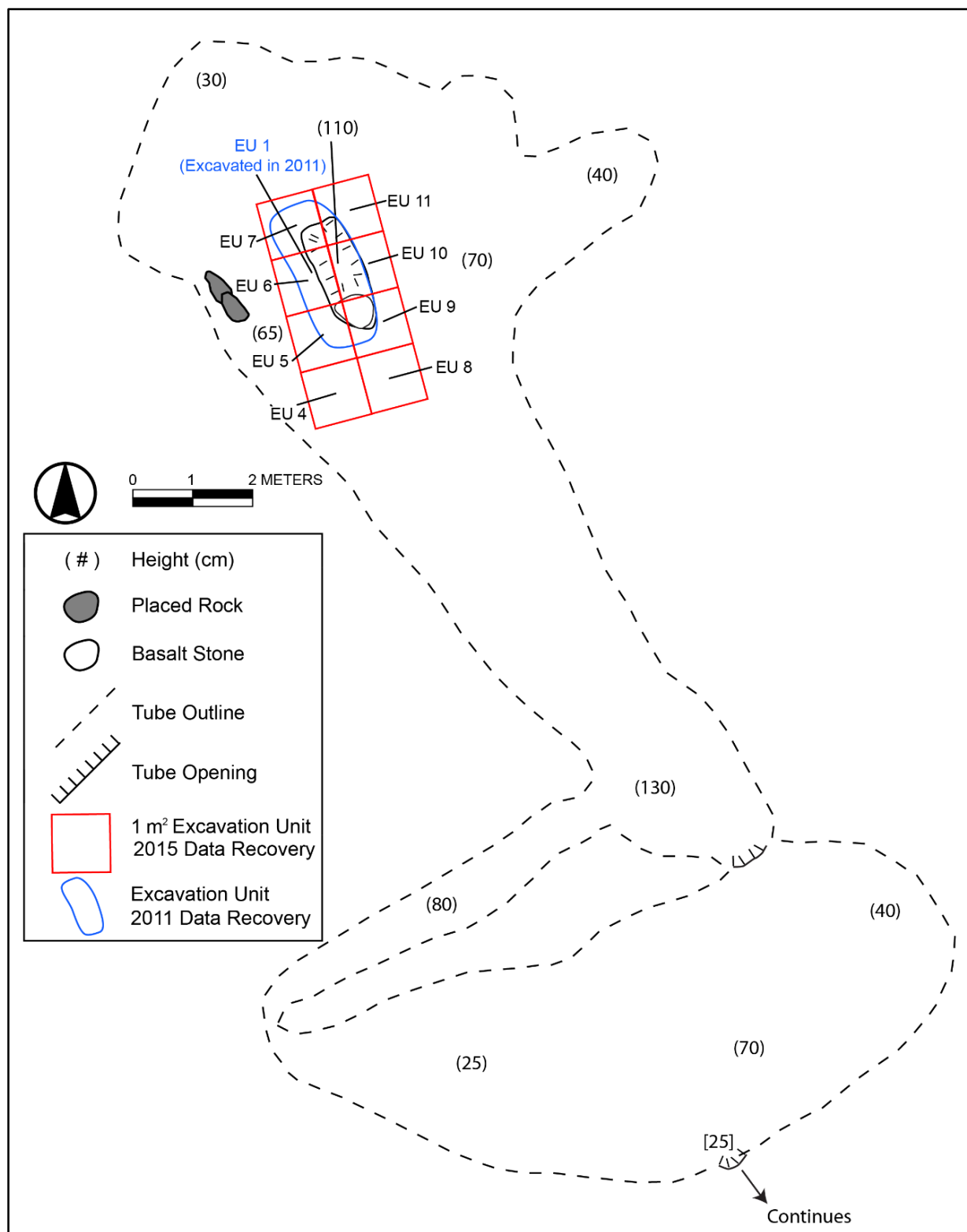


Figure 363. SIHP # -28814 plan view map showing EU locations





Figure 364. SIHP # -28814 pre-excavation overview showing EU grid layout, view to northwest



Figure 365. SIHP # -28814 post-excavation overview showing EU grid layout, view to northwest

Depositional stratigraphy at SIHP # -28814 consists of two surfaces: the ground surface above the lava tube and the lava tube floor. The ground surface consists of angular *pāhoehoe* cobbles overlying a billowing *pāhoehoe* R horizon. Beneath the R horizon is the lava tube void above the naturally deposited, angular *pāhoehoe* colluvium. This overlays the undulating lava tube floor, which consists of another *pāhoehoe* R horizon. A thin (less than 5 cm) layer of natural aeolian sediment (Stratum I) was observed on the ground surface of EUs 8, 10, and 11 (



Table 14). No cultural material was observed during excavation.

#### 2.8.1.1 Data Recovery for the 2011 Season

##### 2.8.1.1.1 EU 1

EU 1, was placed within the lava tube light zone in order to encompass the entire organic deposit. This resulted in an irregularly shaped unit measuring 2.5 m NE/SW by 1.0 m NW/SE (Figure 366 through Figure 368). Profile drawings of the north and east walls (Figure 369) detail the large void beneath the lava tube opening. Sediment consisted of 5 cm of grass, roots, twigs, and decomposing bedrock. No cultural materials were observed.

#### 2.8.1.2 Data Recovery for the 2015 Season

##### 2.8.1.2.1 EU 4

EU 4, a 1.0 m by 1.0 m excavation unit, was in the southwest corner of the EU grid, south of EU 5 and west of EU 8 (Figure 370 and Figure 371). Profile drawings of the north and west walls (Figure 372) show the lava tube void extending underground into the EU boundaries. The lava tube floor contained no sediment for excavation; however, approximately 19 liters of angular *pāhoehoe* cobbles were excavated from the unit surface above the lava tube void. No cultural materials were observed.

##### 2.8.1.2.2 EU 5

EU 5, a 1.0 m by 1.0 m excavation unit, was south of EU 6 and west of EU 9 (Figure 373 and Figure 374). Profile drawings of the north and west walls (Figure 375) show the lava tube void extending underground into the EU boundaries. The lava tube floor contained no sediment for excavation; however, approximately 2 liters of angular *pāhoehoe* cobbles were excavated from the unit surface above the lava tube void. No cultural materials were observed.

##### 2.8.1.2.3 EU 6

EU 6, a 1.0 m by 1.0 m excavation unit, was south of EU 7 and west of EU 10 (Figure 376 and Figure 377). Profile drawings of the north and west walls (Figure 378) show the lava tube void extending underground into the EU boundaries. The lava tube floor contained no sediment for excavation; however, approximately 2 liters of angular *pāhoehoe* cobbles were excavated from the unit surface above the lava tube void. No cultural materials were observed.

##### 2.8.1.2.4 EU 7

EU 7, a 1.0 m by 1.0 m excavation unit, was in the northwest corner of the aerial excavation and west of EU 11 (Figure 379 and Figure 380). Profile drawings of the north and west walls (Figure 381) show the lava tube void extended underground into the EU boundaries. The lava tube floor contained no sediment for excavation. Approximately 2 liters of angular *pāhoehoe* cobbles



Figure 366. SIHP # -28814 EU 1 pre-excavation photo, view to southwest



Figure 367. SIHP # -28814 EU 1 post-excavation photo, view to west





Figure 368. SIHP # -28814 EU 1 north wall profile, view to northeast

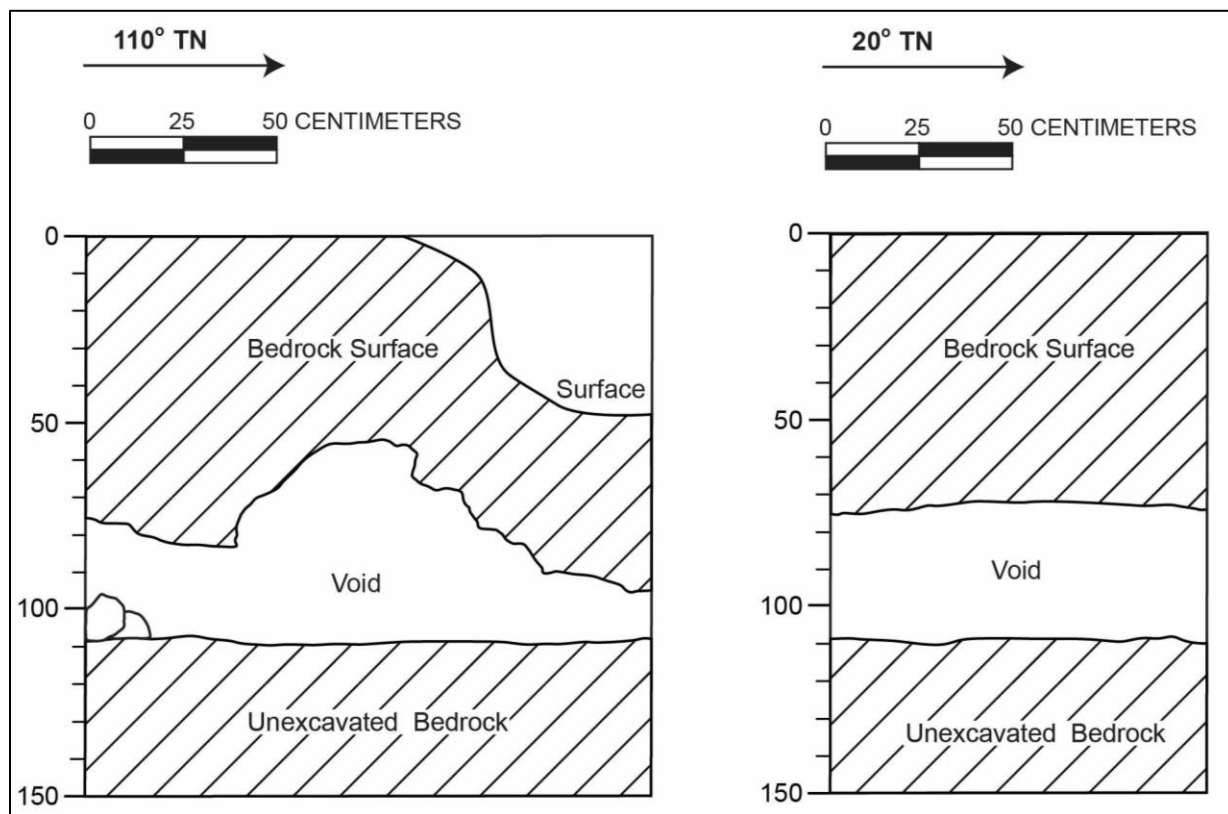


Figure 369. SIHP # -28814 EU 1, north and east wall profiles



Figure 370. SIHP # -28814 EU 4 west wall profile, view to west



Figure 371. SIHP # -28814 EU 4 north wall profile, view to north



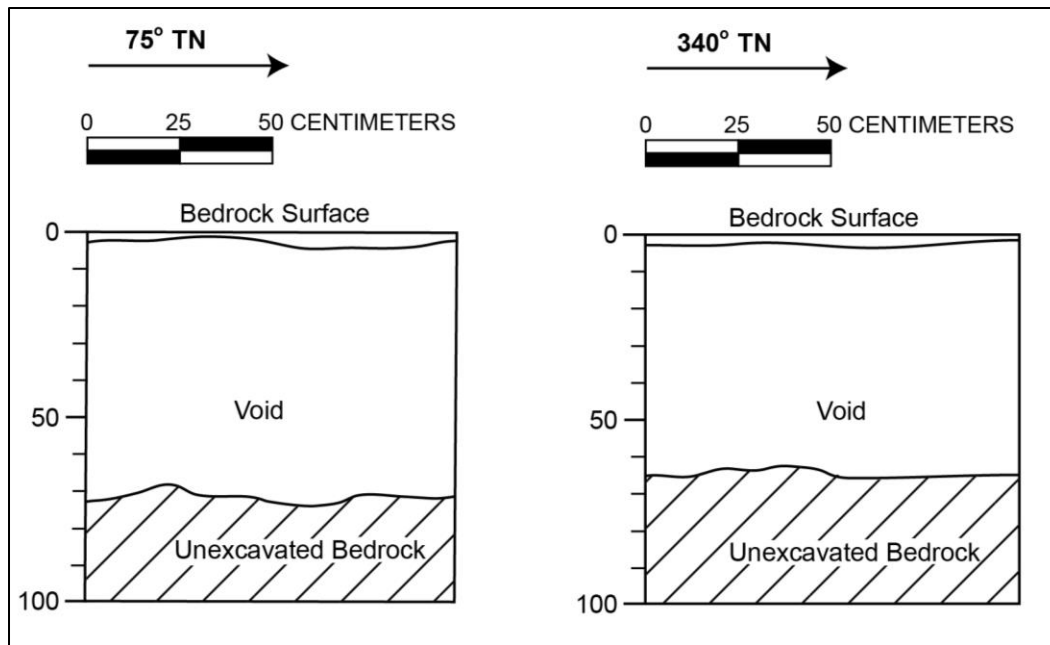


Figure 372. SIHP # -28814 EU 4, north and west wall profiles



Figure 373. SIHP # -28814 EU 5 west wall profile, view to west



Figure 374. SIHP # -28814 EU 5 north wall profile, view to north

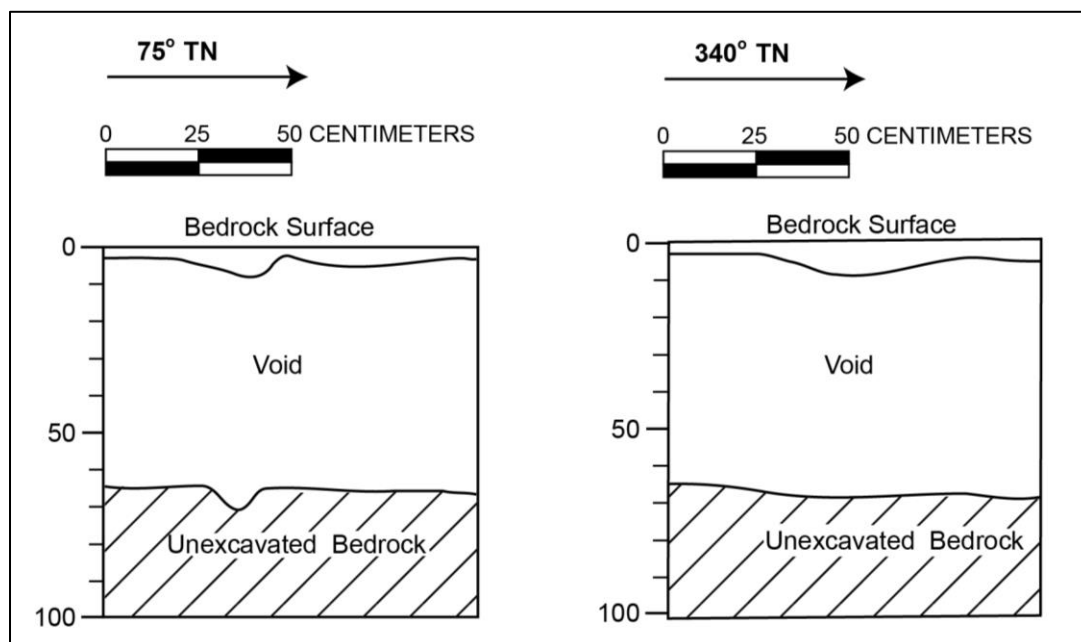


Figure 375. SIHP # -28814 EU 5, north and west wall





Figure 376. SIHP # -28814 EU 6 west wall profile, view to west



Figure 377. SIHP # -28814 EU 6 north wall profile, view to north

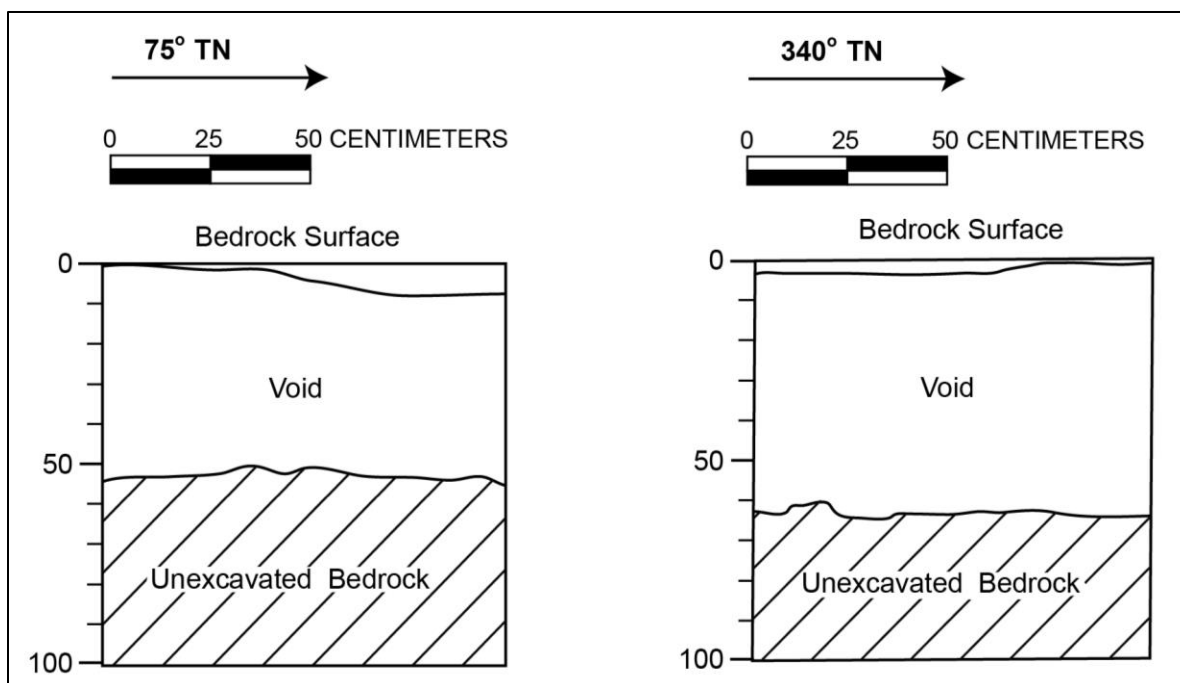


Figure 378. SIHP # -28814 EU 6, north and west wall profiles



Figure 379. SIHP # -28814 EU 7 west wall profile, view to west





Figure 380. SIHP # -28814 EU 7 north wall profile, view to north

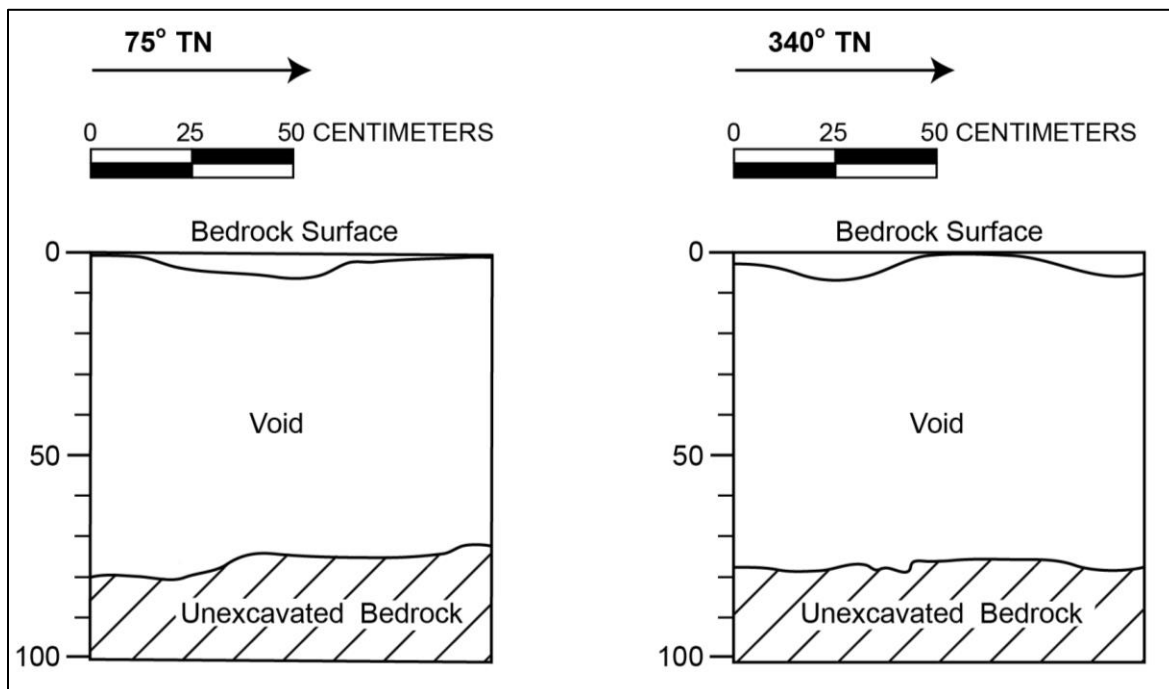


Figure 381. SIHP # -28814 EU 7 north and west wall profiles

were excavated from the unit surface above the lava tube void, but no finer-grained sedimentary material. No cultural materials were observed.

#### *2.8.1.2.5 EU 8*

EU 8, a 1.0 m by 1.0 m excavation unit, was in the southeast corner of the EU grid, south of EU 9 and east of EU 4 (Figure 382 and Figure 383). Profile drawings of the north and west walls (Figure 384) show a thin layer of naturally deposited sediment (Stratum I; 21–26 cmbd) on the ground surface (see



Table 14). The lava tube did not extended underground into the EU boundaries. No cultural materials were observed.

#### 2.8.1.2.6 EU 9

EU 9, a 1.0 m by 1.0 m excavation unit, was south of EU 10 and east of EU 5 (Figure 385 and Figure 386). Profile drawings of the north and west walls (Figure 387) indicate the lava tube entrance extended into the EU boundaries. The lava tube floor contained no finer-grained sediment for excavation. Above the lava tube void, the ground surface was covered with angular *pāhoehoe* cobbles (approximately two liters). No cultural materials were observed.

#### 2.8.1.2.7 EU 10

EU 10, a 1.0 m by 1.0 m excavation unit, was south of EU 11 and east of EU 6 (Figure 388 and Figure 389). Profile drawings of the north and west walls (Figure 390) show a thin layer of naturally deposited sediment (Stratum I; 15–19 cmbd) on the ground surface, underlying angular *pāhoehoe* cobbles (approximately 28 liters; see

Table 14). The lava tube entrance extended underground into the EU boundaries. The lava tube floor contained no finer-grained sediment for excavation. No cultural materials were observed.

#### 2.8.1.2.8 EU 11

EU 11, a 1.0 m by 1.0 m excavation unit, was south of EU 6 and west of EU 9 (Figure 391 and Figure 392). Profile drawings of the north and west walls (Figure 393) show a thin layer of naturally deposited sediment (Stratum I; 6–9 cmbd) on the ground surface, underlying angular *pāhoehoe* cobbles (approximately 4 liters; see



Table 14). The lava tube did not extend underground into the EU boundaries. No cultural materials were observed.

### 2.8.2 Interpretation

Excavations at SIHP # -28814 were conducted to obtain sufficient data to address two research objectives regarding site function and temporal analysis, proposed in the ADRP by (Shideler et al. (2012). Site function was listed as a research objective for those historic properties that were “indeterminate as to function and/or the currently available evidence regarding function is ambiguous or inconclusive” (Shideler et al. 2012:265). Temporal analysis was proposed “to determine the absolute dates of occupation of the project area as may be available from data recovery sites . . .” (Shideler et al. 2012:265).

The function of SIHP # -28814 was originally interpreted as Indeterminate/Possible Water Catchment, based on the presence of two placed boulders. In other studies, similar boulders have been identified as cradles for gourds or ‘opihi (*Cellana exarata*) shells to trap water dripping from the ceiling during rain events (Martin 1991). Water catchment locations were an important resource in arid regions such as the North Kona coast, where dependable water sources were rare.

Table 14. SIHP # -28814, stratigraphy for EUs containing sediment deposits

Excavation Unit	Stratum	Depth (cmbd)	Description
EU 8	I	21–26	Natural; 10YR 4/1, dark gray; silt; structureless (single-grain); dry, loose consistence; non-plastic; terrigenous origin; very abrupt, smooth lower boundary; naturally accumulated sediment
EU 10	I	15–19	Natural; 10YR 4/1, dark gray; silt; structureless (single-grain); dry, loose consistence; non-plastic; terrigenous origin; very abrupt, smooth lower boundary; naturally accumulated sediment
EU 11	I	6–9	Natural; 10YR 4/1, dark gray; silt; structureless (single-grain); dry, loose consistence; no cementation; non-plastic; terrigenous origin; very abrupt, smooth lower boundary; naturally accumulated sediment



Figure 382. SIHP # -28814 EU 8 west wall profile, view to west





Figure 383. SIHP # -28814 EU 8 north wall profile, view to north

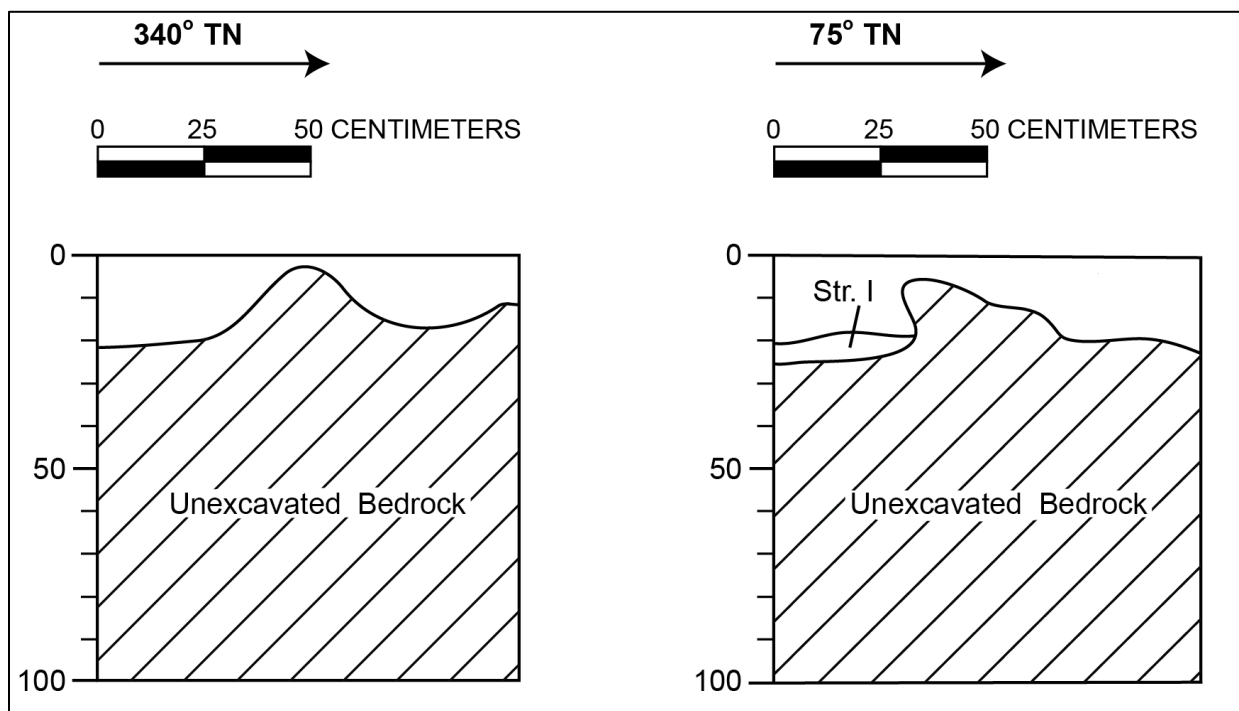


Figure 384. SIHP # -28814 EU 8 north and west wall profiles



Figure 385. SIHP # -28814 EU 9 west wall profile, view to west



Figure 386. SIHP # -28814 EU 9 north wall profile, view to north



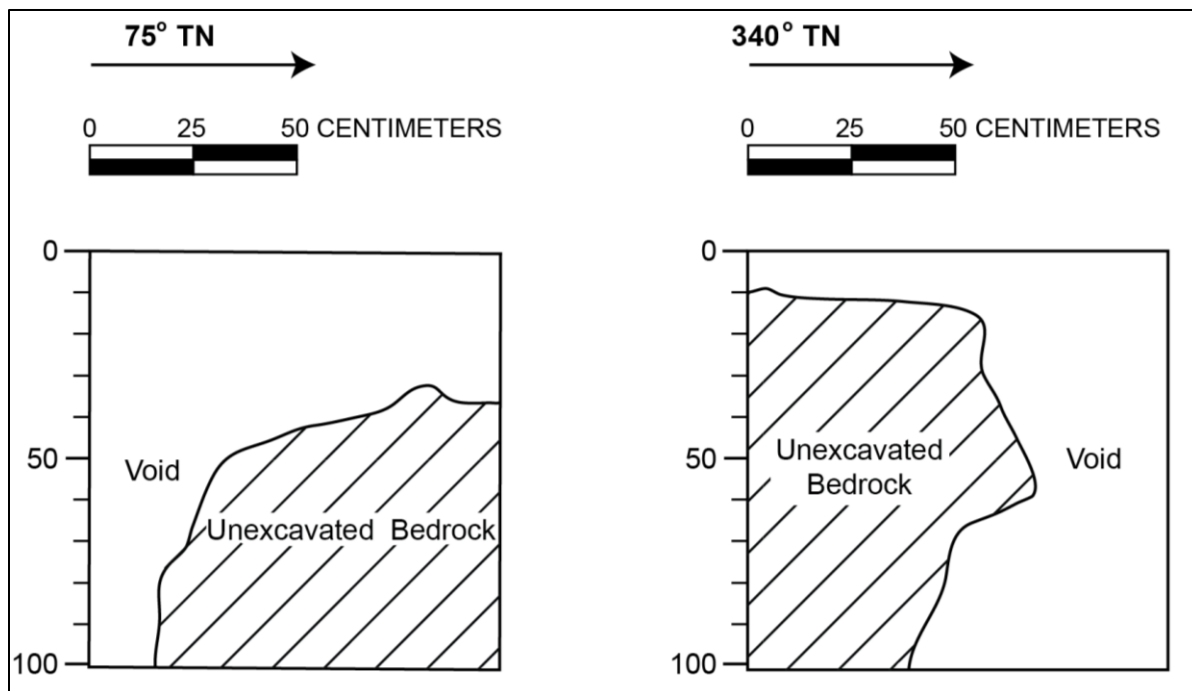


Figure 387. SIHP # -28814 EU 9 north and west wall profiles



Figure 388. SIHP # -28814 EU 10 west wall profile, view to west



Figure 389. SIHP # -28814 EU 10 north wall profile, view to north

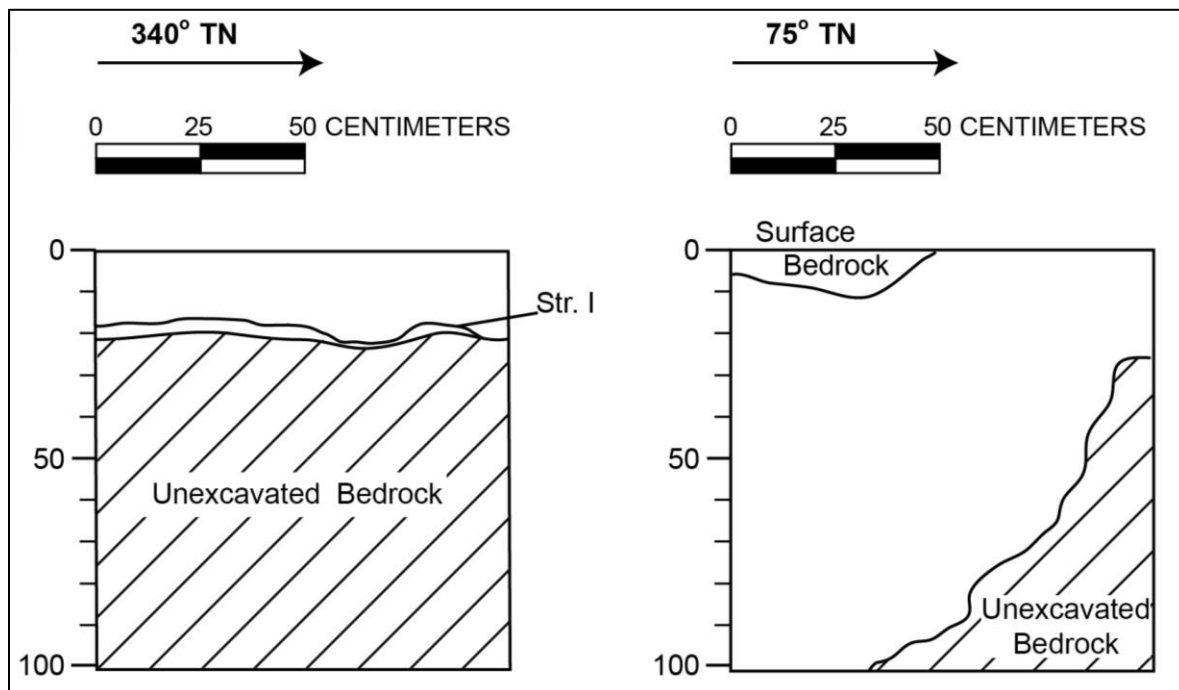


Figure 390. SIHP # -28814 EU 10 north and west wall profiles





Figure 391. SIHP # -28814 EU 11 west wall profile, view to west



Figure 392. SIHP # -28814 EU 11 north wall profile, view to north

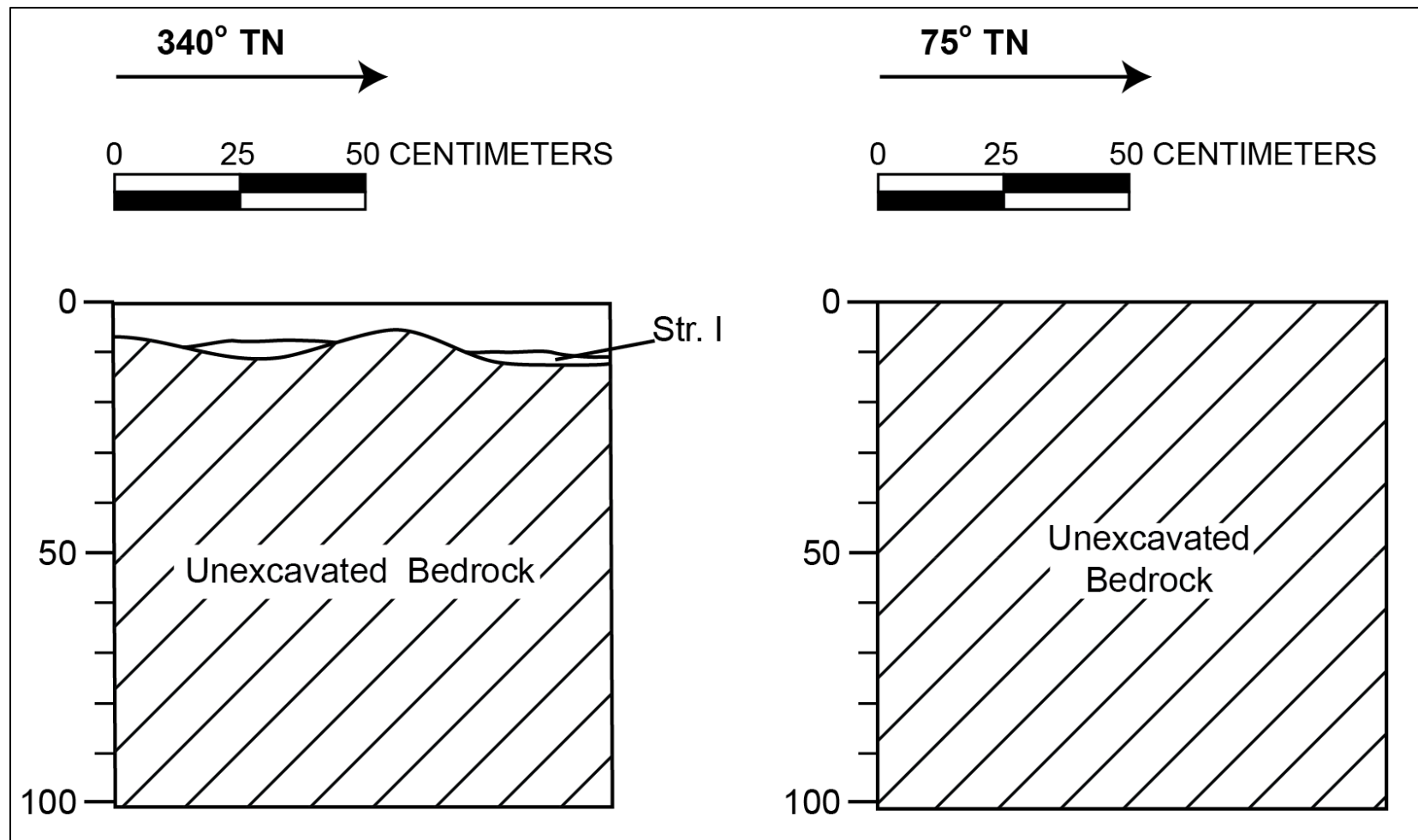


Figure 393. SIHP # -28814 EU 11 north and west wall profiles



While data recovery yielded no additional cultural materials such as gourds or *'opihi*, the possible function of the lava tube as a traditional Hawaiian water catchment cannot be ruled out. Therefore, the function of the lava tube has been reassessed as a "Potential Subterranean Resource."

## 2.9 SIHP # 50-10-27-28815

**CSH Site No.:** T-092210-2 (Monahan et al. 2012)

**Formal Type:** *Pāhoehoe* excavation

**No. of Features:** 0

**Functional Interpretation:** Resource prospecting pit

**Age:** Pre-Contact

**Dimensions:** 1.1 m N/S by 1.4 m E/W

**Topography:** Level *pāhoehoe* flow

**Elevation:** 45 m (149 ft) AMSL

**Description:** SIHP # -28815 is a *pāhoehoe* excavation approximately 185 m northeast of the intersection of Ka'iminani Drive and the Queen Ka'ahumanu Highway (see Figure 1 and Figure 2). It was originally described by Monahan et al. (2012) as follows:

The *pāhoehoe* excavation consists of an area where an overlying, uplifted sheet of *pāhoehoe* has been quarried and removed, exposing a lower *pāhoehoe* surface. Quarry marks and scalloping were observed along the edges of the excavation. The excavated area is irregular-shaped, has scalloped edges, and is 1.1 m N/S by 1.4 m E/W with a depth of 0.5 m below surface. The majority of the excavated material (large *pāhoehoe* cobbles) remains within the excavated area. While some has been placed outside of the excavation with a concentration of larger excavated blocks to the north. No artifacts or midden were observed in the area. [Monahan et al. 2012:380]

SIHP # -28815 has been assessed as significant under Criteria d and e.

### 2.9.1 Data Recovery Effort

Data recovery fieldwork at SIHP # -28815 followed the Shideler et al. (2012:215) recommendations in the ADRP involving “100% areal excavation” of the *pāhoehoe* excavation floor. This required the excavation of two 1.0 m by 1.0 m excavation units (EU 2 and 3) in order to cover the entire floor (Figure 394 and Figure 395). For each excavation unit, two perpendicular profiles were documented, and the existing plan map was updated to depict the location of the units. The collection of radiocarbon samples was prevented by the lack of dateable organic material. A sub-meter accurate Trimble GPS unit was used to record the center point of each unit. EUs 2 and 3 were excavated to the undulating *pāhoehoe* bedrock (Figure 396).

Depositional stratigraphy consists of a thin aeolian silt deposit (14 liters total) overlying the natural *pāhoehoe* bedrock, which ranges in depth from 55–72 cmbd (Table 15). Both EU 2 and EU 3 yielded a culturally sterile matrix containing no cultural materials other than quarried *pāhoehoe* cobbles.

#### 2.9.1.1 EU 2

EU 2, a 1.0 m by 1.0 m excavation unit, was placed to encompass the southeastern half of SIHP # -28815 (Figure 397 and Figure 398). Profile drawings of the northeast and southeast walls (Figure 399) show a narrow void extending to the east. Sediment (Stratum I;



Table 14) consists of a thin layer of aeolian silt above the level *pāhoehoe* bedrock floor. Angular *pāhoehoe* cobbles and boulders covering the unit show wear consistent with being excavated.

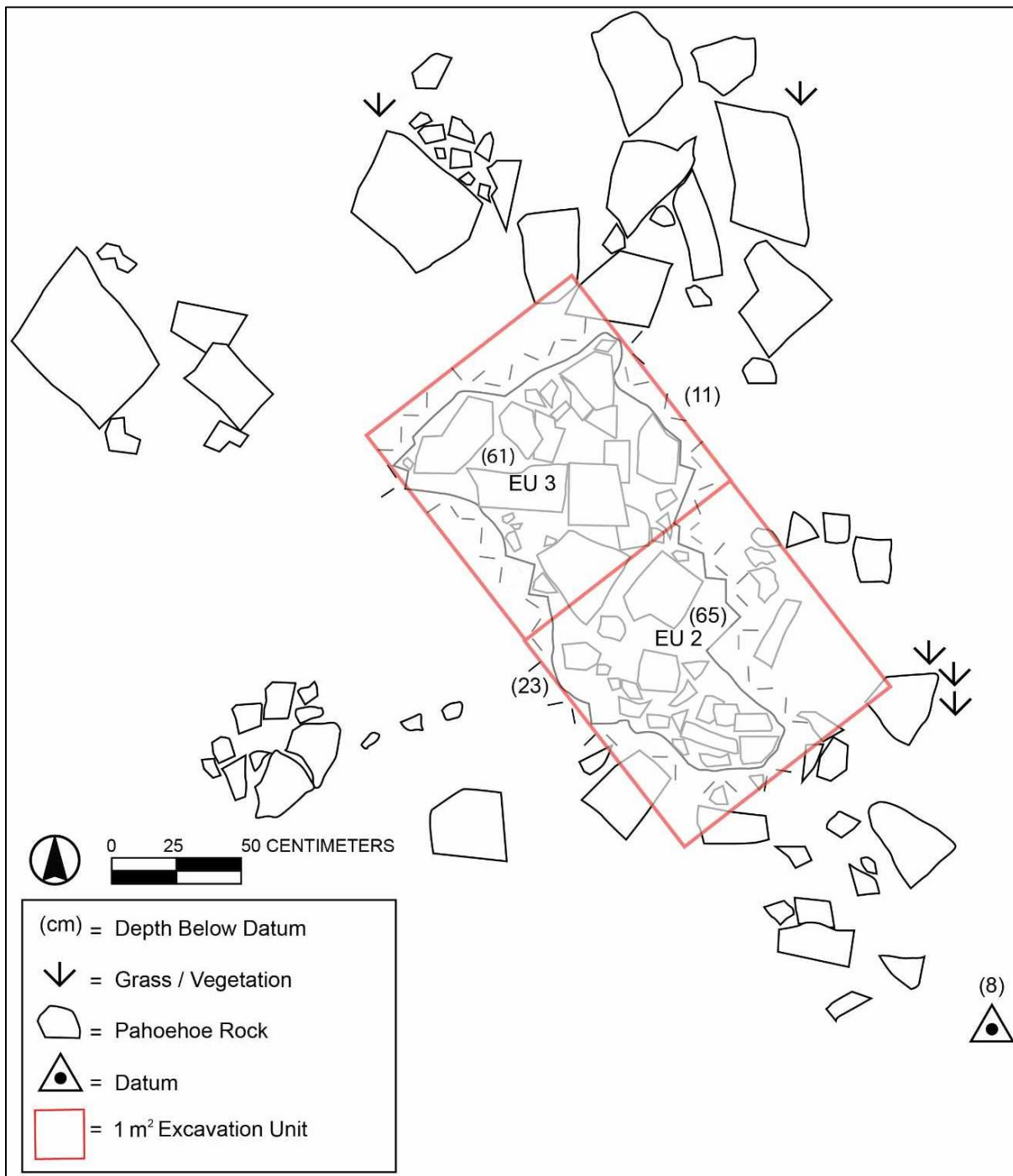


Figure 394. SIHP # -28815 plan view map showing EU locations



Figure 395. SIHP # -28815 pre-excavation overview, view to northeast



Figure 396. SIHP # -28815 post-excavation overview, view to northeast



Table 15. SIHP # -28815 EU 2 and 3 stratigraphy

Excavation Unit	Stratum	Depth (cmbd)	Description
EU 2	I	53–71	Natural; 10YR 4/2, dark grayish brown; silt; structureless (single-grain); dry, loose consistence; non-plastic; terrigenous origin; no roots observed; very abrupt, smooth lower boundary
EU 3	I	55–72	Natural; 10YR 4/2, dark grayish brown; silt; structureless (single-grain); dry, loose consistence; non-plastic; terrigenous origin; no roots observed; very abrupt, smooth lower boundary



Figure 397. SIHP # -28815 EU 2 northeast wall profile, view to east



Figure 398. SIHP # -28815 EU 2 southeast wall profile, view to south

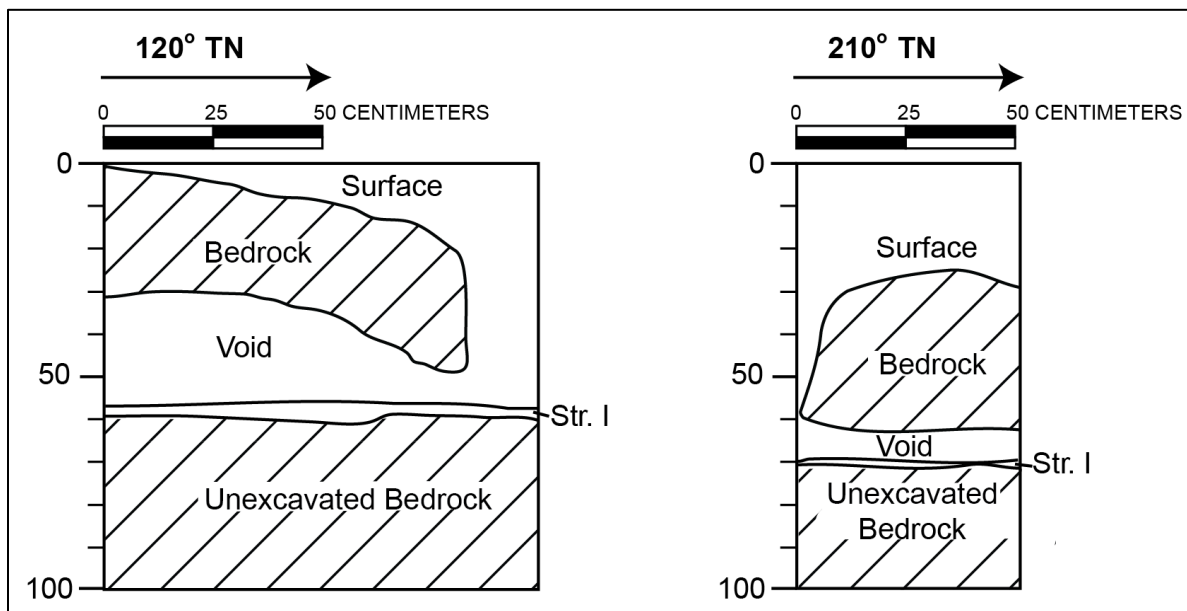


Figure 399. SIHP # -28815 EU 2, northeast and southeast wall profiles



### 2.9.1.2 EU 3

EU 3, a 1.0 m by 1.0 m excavation unit, was placed to encompass the northwestern half of the SIHP # -28815 (Figure 400 and Figure 401). Profile drawings of the southeast and northwest walls (Figure 402) show a narrow void extending to the east. Sediment (Stratum I) consists of a thin layer of aeolian silt above the level *pāhoehoe* bedrock floor. Angular *pāhoehoe* cobbles and boulders covering the unit show wear consistent with having been excavated.

### 2.9.2 Interpretation

Excavations at SIHP # -28815 were conducted to obtain sufficient data to address two research objectives regarding site function and temporal analysis, proposed in the ADRP by Shideler et al. (2012). Site function was listed as a research objective for those historic properties that were “indeterminate as to function and/or the currently available evidence regarding function is ambiguous or inconclusive” (Shideler et al. 2012:265). Temporal analysis was intended “to determine the absolute dates of occupation of the project area as may be available from data recovery sites . . .” (Shideler et al. 2012:265).

SIHP # -28815 was originally interpreted as a possible raw material quarrying locality, likely dating to the pre-Contact period (Monahan et al. 2012:156). Irregular, scalloped edges along the margins of the pit, as well as angular breaks on the excavated material, make it clear SIHP # -28815 was anthropogenically modified. During data recovery, a narrow lava tube was found to connect to the excavated pit; however, the opening is too small for a person to enter. No evidence of agricultural use or habitation was observed during data recovery efforts, and SIHP # -28815 was not located near any other constructed historic properties. The lack of compelling evidence for use and the presence of a narrow lava tube contacting the excavated pit suggest SIHP # -28815 may be associated with prospecting for subterranean openings in the lava (Monahan et al. 2013:25). Therefore, SIHP # -28815 is reinterpreted as a resource prospecting pit.



Figure 400. SIHP # -28815 EU 3 northwest wall profile, view to northwest



Figure 401. SIHP # -28815 EU 3 southwest wall profile, view to southwest



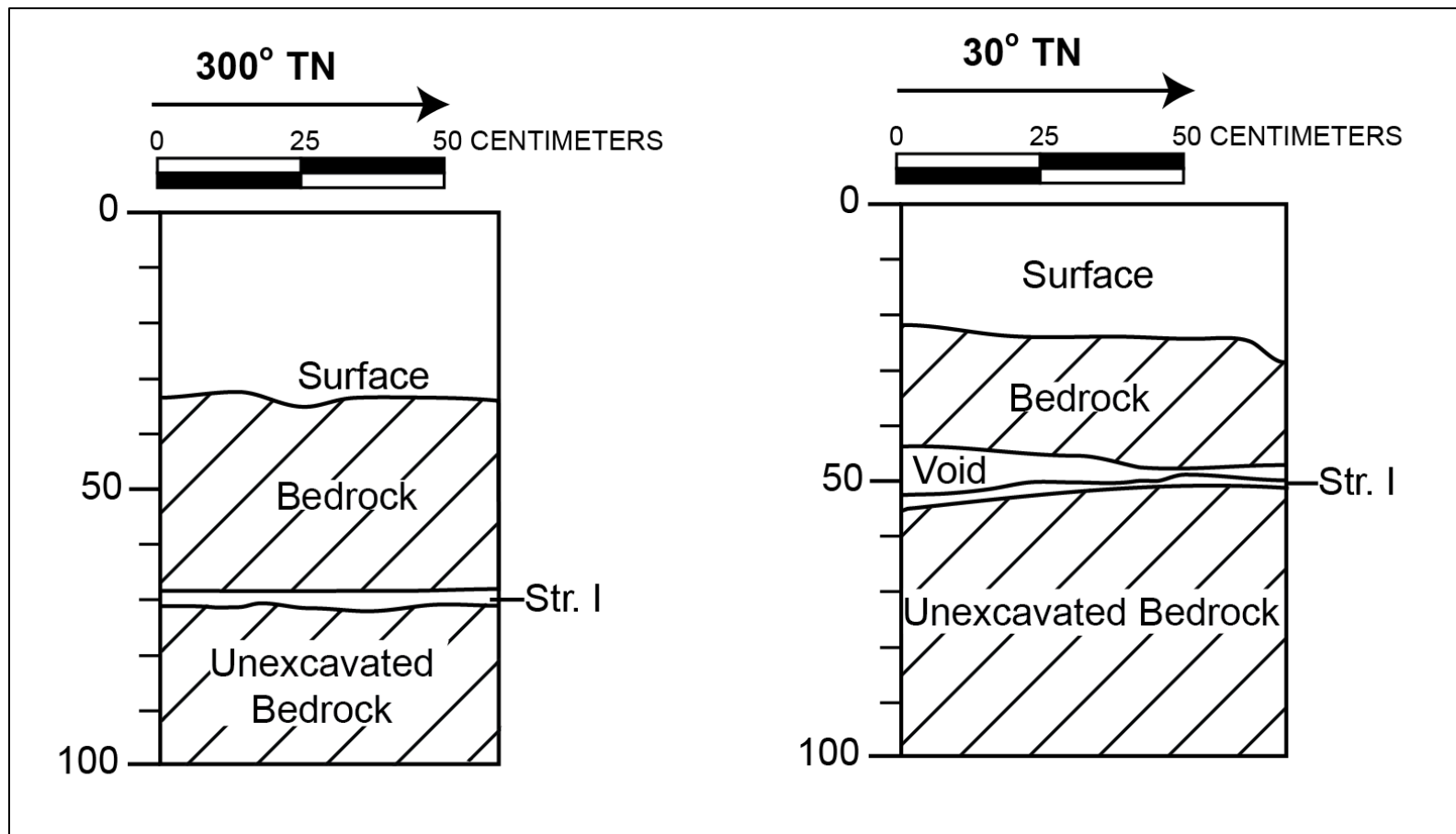


Figure 402. SIHP # -28815 EU 3 southwest and northwest wall profiles

## 2.10 SIHP # 50-10-27-29332

**CSH Site No.:** NPS 1 (Monahan et al. 2012)

**Formal Type:** Possible mound/paved area within natural *pāhoehoe* depression

**No. of Features:** 2

**Function:** Indeterminate

**Age:** Indeterminate

**Dimensions:** 7.0 m E/W by 2.5 m N/S

**Topography:** Undulating *pāhoehoe* flow sloping gently *makai*

**Elevation:** 12 m (39 ft) AMSL

**Description:** SIHP # -29332 is a mound/paved area within a naturally formed *pāhoehoe* depression approximately 15 m east of the National Park service road (see Figure 1 and Figure 2). The western end of SIHP # -29332 extends into the Kaloko-Honokōhau National Historic Park. Vegetation surrounding the *pāhoehoe* depression includes fountain grass (*Pennisetum setaceum*), *koa haole* (*L. leucocephala*), and the native *maiapilo* (*Capparis sandwichiana*). Lichen growth is present on some of the stones and bedrock exposures within the depression.

SIHP # -29332 was identified by NPS archaeologist Tyler Paikuli-Campbell on 1 May 2012 and described by Monahan et al. (2012) as follows:

The depression measures approximately 7.0 m long E/W by 2.5 m wide N/S. It reaches a maximum depth of 1.4 m along its southwest side, while the northern side of the depression is only 20 to 30 cm deep. A consolidated bedrock exposure runs across the central portion of the depression. The modifications consist of two filled areas, one on either end of the depression. The filled area at the eastern end of the depression (designated Feature A) is roughly 1.75 m long by 1.5 m wide, while the western-most filled area (Feature B) is approximately 1.0 m square. These features are low areas filled with medium- to large-sized *pāhoehoe* cobbles and small boulders. Some large *pāhoehoe* slabs are present within the depression but appear to represent natural breakage of the surrounding bedrock. Scattered cobbles in the center of the depression may or may not represent further modification. The feature is in generally good condition and no obvious disturbance was noted. No midden or artifacts are present. [Monahan et al. 2012:132]

SIHP # -29332 is not located within the project grading limits or construction limits; however, following consultation with the SHPD, this historic property was slated for excavation through a program of data recovery (Shideler et al. 2012:225).

### 2.10.1 Data Recovery Effort

Data recovery fieldwork involved the excavation of one 1.0 m by 1.0 m excavation unit (EU 1) in the southeastern portion of SIHP # -29332 (Figure 403 and Figure 404). In the ADRP, Shideler et al. (2012:224) recommended a 1.0 by 2.0 m excavation in the northwestern portion of SIHP # -29332, as well as a 1.0 by 1.0 m excavation in the southeastern portion (for a total of 3 sq m). However, only one excavation unit (EU 1) could be excavated due to spatial restrictions and a lack of sediment in the northwestern portion. Documentation included two perpendicular profiles of the excavation unit, as well as updating the existing plan map to depict the location of EU 1. The planned collection of samples for radiocarbon dating was prevented by the lack of



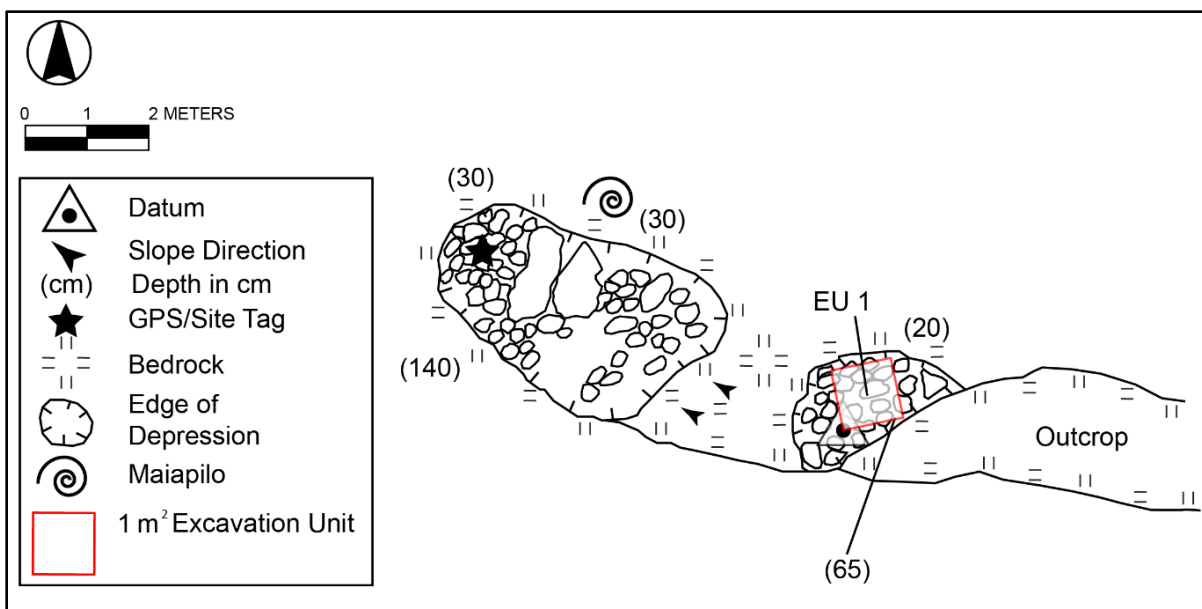


Figure 403. SIHP # -29332 plan view map showing EU 1 location



Figure 404. SIHP # -29332 overview showing *maiapilo* in bottom left, view to east

dateable organic material. A sub-meter accurate Trimble GPS unit was used to record the center point of each unit. EU 1 was excavated to an encountered undulating *pāhoehoe* bedrock.

Depositional stratigraphy at SIHP # -29332 consists of decomposing *pāhoehoe* bedrock cobbles and pebbles mixed with less than 2% aeolian fine silt, overlying irregular *pāhoehoe* bedrock. EU 1 yielded a culturally sterile matrix, with no evidence of anthropogenic/cultural modification. It is described in detail below.

#### 2.10.1.1 EU 1

EU 1, a 1.0 m by 1.0 m excavation unit, was placed in the area with the most potential to yield data (i.e., the area with the widest and thickest sediment concentration) (Figure 405 through Figure 407). Sediment (Stratum I) consists of cobbles and pebbles with less than 2% aeolian fine silt (Table 16), overlying irregular *pāhoehoe* bedrock. Profile drawings of the north and east walls (Figure 408) show a relatively thick deposit of decomposing bedrock. No cultural materials were observed.

#### 2.10.2 Interpretation

Excavations at SIHP # -29332 were conducted to obtain sufficient data to address two research objectives regarding site function and temporal analysis, proposed in the ADRP by Shideler et al. (2012). Site function was listed as a research objective for those historic properties that were “indeterminate as to function and/or the currently available evidence regarding function is ambiguous or inconclusive” (Shideler et al. 2012:265). Temporal analysis was intended “to determine the absolute dates of occupation of the project area as may be available from data recovery sites . . .” (Shideler et al. 2012:265).

SIHP # -29332 was originally interpreted as Indeterminate/Possible Burial. This functional interpretation was based on a letter dated 25 April 2012, in reference to the supplemental AIS work in the southern segment of the current project area (see Monahan and Yucha 2012). NPS archaeologists requested this historic property be inspected and evaluated as a possible burial; however, no human remains (nor any other cultural materials) were identified during data recovery excavation. Based on these data recovery results, SIHP # -29332 has been reinterpreted as indeterminate in function; however, the lack of evidence for cultural modifications or materials indicates the most likely interpretation of SIHP # -29332 is a natural formation.



Table 16. SIHP # -29332, EU 1 stratigraphy

Excavation Unit	Stratum	Depth (cmbd)	Description
EU 1	I	63–114	Natural; 10YR 3/3, dark olive brown; extremely cobbly silt; structureless (single-grain); dry, loose consistence; non-plastic; terrigenous origin; few, medium roots; very abrupt, irregular lower boundary



Figure 405. SIHP # -29332 EU 1 pre-excavation overview, view to east





Figure 406. SIHP # -29332 EU 1 post-excavation overview, view to east



Figure 407. SIHP # -29332 EU 1 north wall profile, view to north



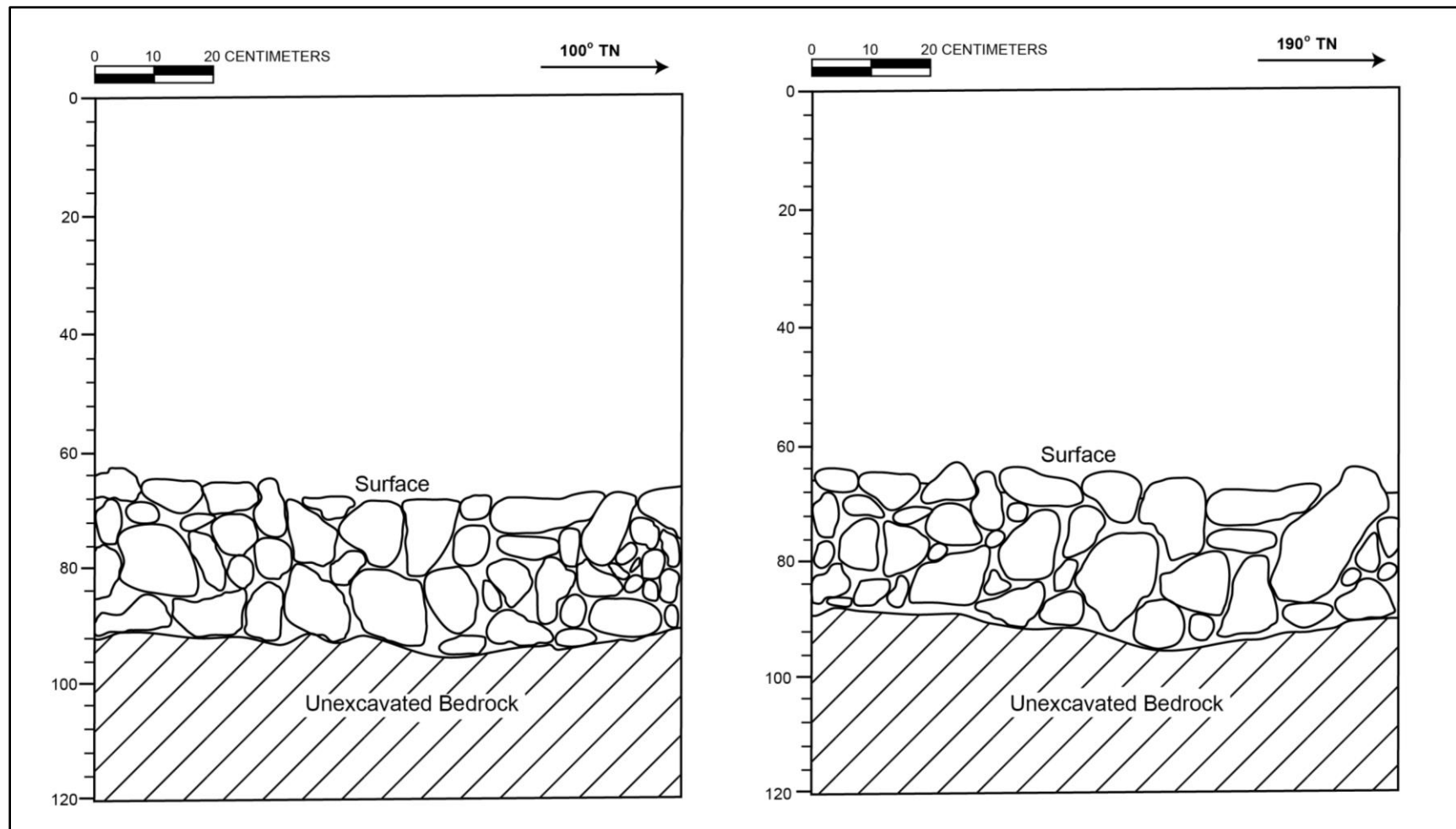


Figure 408. SIHP # -29332 EU 1 east and north wall profiles

## 2.11 SIHP # 50-10-27-29335

**CSH Site No.:** Wall 0 (Monahan and Yucha 2012)

**Formal Type:** Rock wall segment

**No. of Features:** 0

**Function:** Indeterminate, possibly agricultural

**Age:** Indeterminate

**Dimensions:** 30.0 m long N/S by 0.30–0.60 m wide by 0.10–0.70 m high

**Topography:** *Pāhoehoe* outcrop

**Elevation:** 8 m (26 ft) AMSL

**Description:** SIHP # -29335 is a segment of dry-stacked rock wall on a *pāhoehoe* bedrock outcrop. The wall is approximately 15 m east of the Kaloko-Honokōhau National Historical Park boundary and east (adjacent to) a National Park access road (see Figure 1 and Figure 2). It was identified by NPS archaeologists during the supplemental survey of the southern segment of the current project area (see Monahan and Yucha 2012) and was described in Monahan et al. (2012) as follows:

The wall is oriented in a roughly north-to-south direction along the bedrock outcrop very close to an area of heavy disturbance associated with the construction of the existing highway to the east. Vegetation in the area consists of introduced grasses.

The wall is constructed of *pāhoehoe* slabs, most of which are small boulder-sized, stacked up to three courses high. The wall measures approximately 30 m long N/S by 0.30–0.60 m wide by 0.10–0.70 m high. Modern rubbish including plastic grow bags and neoprene were observed at the south end of the wall.

There is a shallow soil-sedimentary deposition at and adjacent to the rock wall. No portable cultural materials, other than the stacked rocks and modern rubbish, were observed by CSH archaeologists. [Monahan et al. 2012:143]

SIHP # -29335 has been assessed as significant under Criteria d and e.

### 2.11.1 Data Recovery Effort

Data recovery fieldwork at SIHP # -29335 followed recommendations in the ADRP (Shideler et al. 2012:232) to place cross-section trenches in locations with the most potential to yield data (i.e., across the most intact portions of the rock wall). Two excavation units (EU 81 and 82) measuring 0.5 m north/south by 1.5 m east/west each were placed parallel with one another across the southern portion of the rock wall (Figure 409 and Figure 410).

For each excavation unit, two perpendicular profiles were documented, and the existing plan map was updated to depict the locations of the units (Figure 411). A lack of organic material prevented the planned collection of radiocarbon samples. A sub-meter accurate Trimble GPS unit was used to record the center point of each unit. EU 81 and 82 were excavated to the undulating *pāhoehoe* bedrock.

Depositional stratigraphy at SIHP # -29335 consisted of placed *pāhoehoe* cobbles and pebbles overlying a billowing *pāhoehoe* bedrock; no smaller grained sediment was present. Other than the rock wall, no cultural materials were encountered in EU 81 or 82.





Figure 409. SIHP # -29335 pre-excavation overview, view to south



Figure 410. SIHP # -29335 pre-excavation overview, view to west

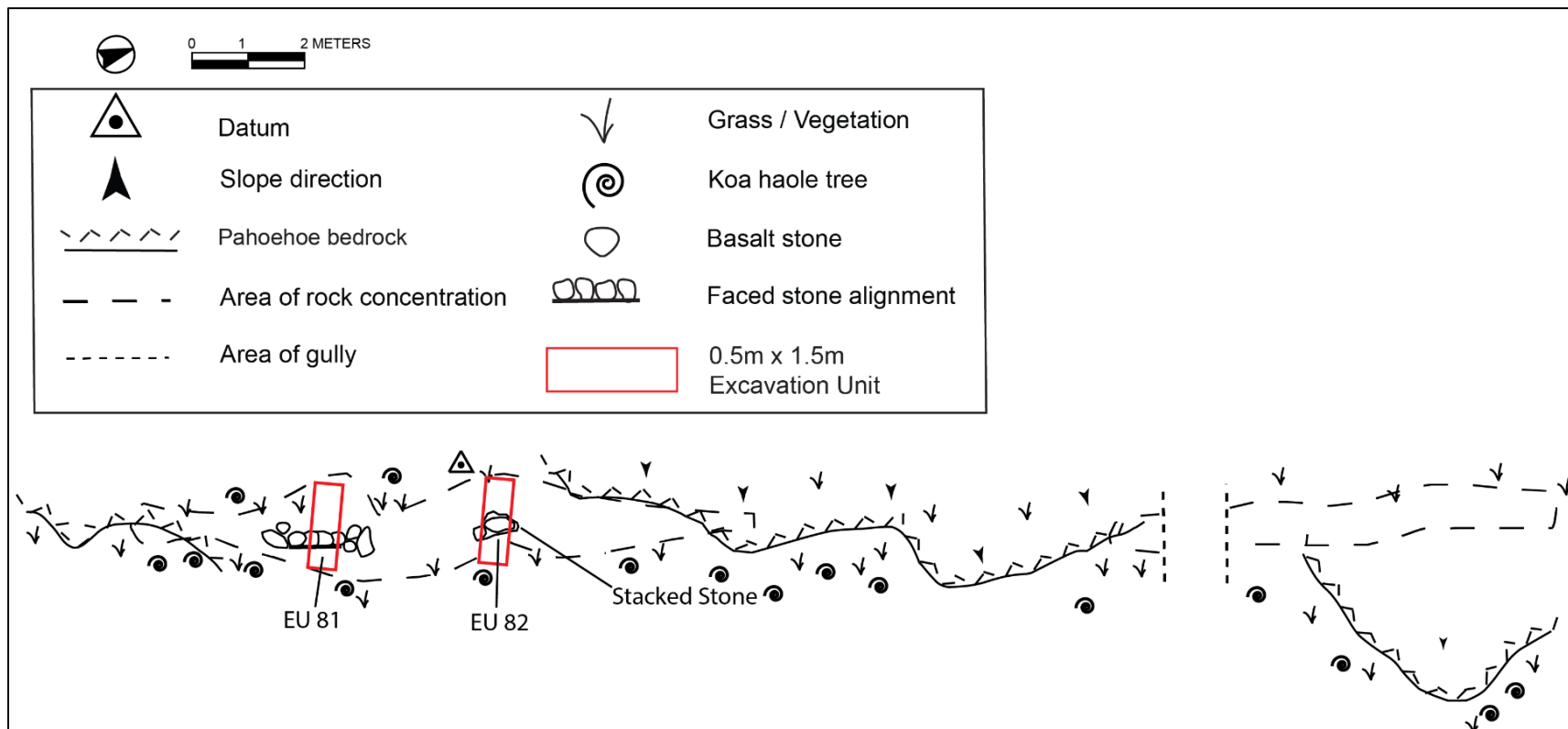


Figure 411. SIHP # -29335 plan view map showing EU locations



#### 2.11.1.1 EU 81

EU 81, a 0.5 north/south m by 1.5 m east/west excavation unit, bisected the faced stone alignment near its southern end (Figure 412 through Figure 415). Profile drawings of the west and north walls (Figure 416) show the stacked rocks above the level *pāhoehoe* bedrock. Sediment (Stratum I) consists of *pāhoehoe* cobbles and pebbles from 47–93 cmbd; no smaller-grained sediment was present. No cultural materials other than the rock wall were observed.

#### 2.11.1.2 EU 82

EU 82, a 0.5 m north/south by 1.5 m east/west excavation unit, was north of EU 81 and bisected the most intact portion of the stone alignment (Figure 417 through Figure 420). Profile drawings of the north and west walls (Figure 421) show the stacked rocks above the level *pāhoehoe* bedrock. Sediment (Stratum I) consists of *pāhoehoe* cobbles and pebbles from 55–93 cmbd; no smaller-grained sediment was present. No cultural materials other than the rock wall were observed.

### 2.11.2 Interpretation

Excavations at SIHP # -29335 were conducted to obtain sufficient data to address two research objectives regarding site function and temporal analysis, proposed in the ADRP by Shideler et al. (2012). Site function was listed as a research objective for historic properties that were “indeterminate as to function and/or the currently available evidence regarding function is ambiguous or inconclusive” (Shideler et al. 2012:265). The objective of temporal analysis is “to determine the absolute dates of occupation of the project area as may be available from data recovery sites . . .” (Shideler et al. 2012:265).

During the AIS, SIHP # -29335 was interpreted as older than 50 years based on appearance, although neither its precise age (i.e., historic or pre-Contact) nor function could be determined. In consultation with the SHPD, it was proposed that SIHP # -29335 may have had an agricultural function (Monahan et al. 2012:143); however, dismantling of the rock wall during data recovery yielded no additional cultural materials, while the lack of sediment and dateable organic material precluded pollen analysis or radiocarbon dating. Therefore, no new evidence was collected during data recovery that could dispute or confirm the interpretation of SIHP # -29335 as “Indeterminate/Possibly Agricultural,” as documented in the AIS (Monahan et al. 2012:390).



Figure 412. SIHP # -29335 EU 81 pre-excavation photo, view to northwest



Figure 413. SIHP # -29335 EU 81 post-excavation photo, view to northwest





Figure 414. SIHP # -29335 EU 81 north wall profile, view to north



Figure 415. SIHP # -29335 EU 81 west wall profile, view to west



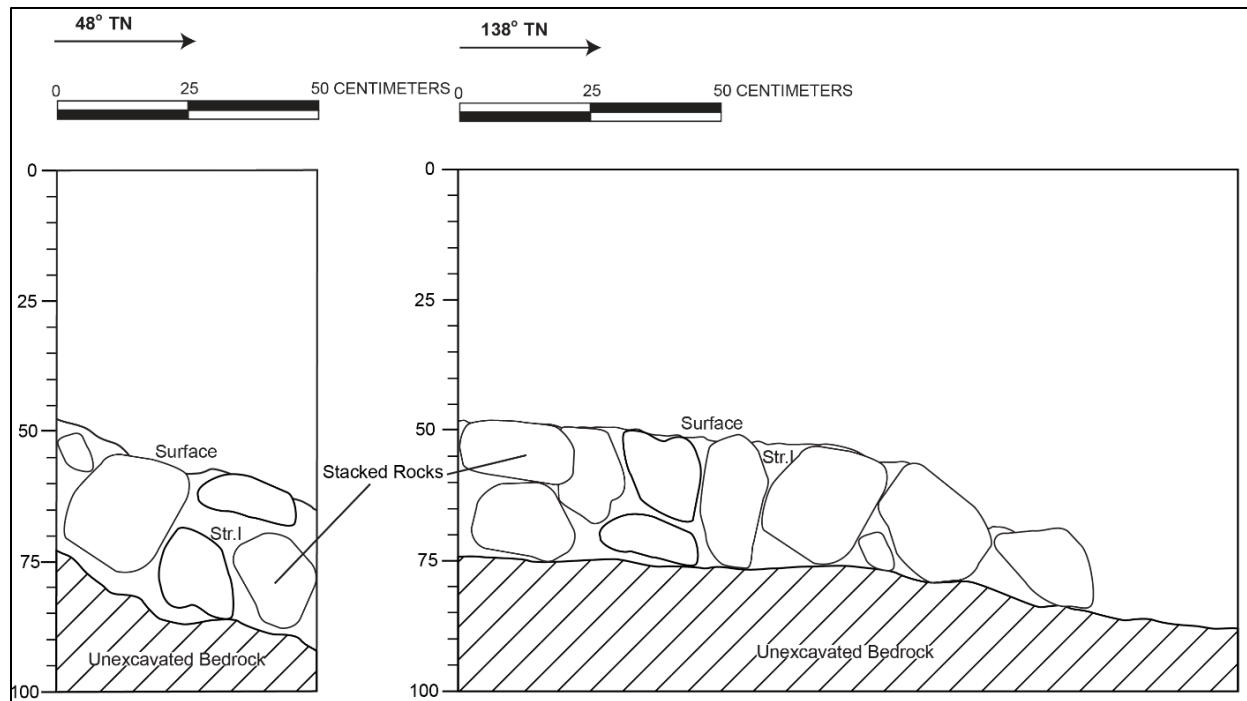


Figure 416. SIHP # -29335 EU 81, west and north wall profiles



Figure 417. SIHP # -29335 EU 82 pre-excavation photo, view to north





Figure 418. SIHP # -29335 EU 82 post-excavation photo, view to north



Figure 419. SIHP # -29335 EU 82 north wall profile, view to northwest





Figure 420. SIHP # -29335 EU 82 west wall profile, view to west

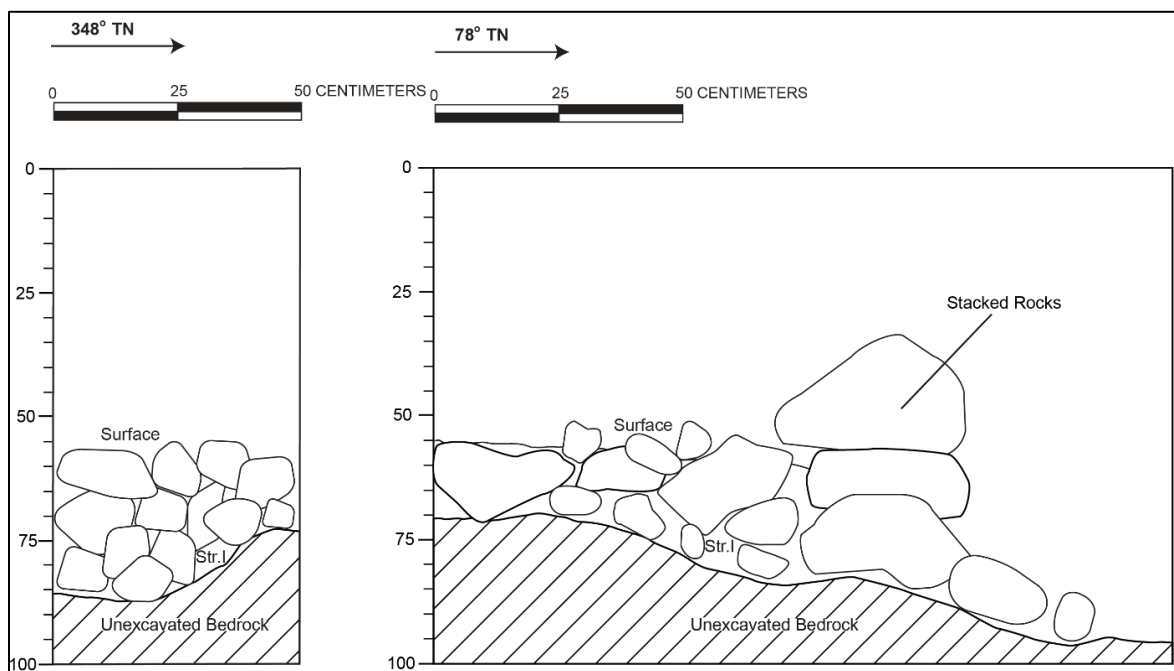


Figure 421. SIHP # -29335 EU 82 west and north wall profiles



## 2.12 SIHP # 50-10-27-29345

**CSH Site No.:** Coral Crevice (Harp 2011)

**Formal Type:** Coral-filled *pāhoehoe* crevice

**No. of Features:** 3

**Function:** Modern activity area

**Age:** Modern

**Dimensions:** 4.0 m N/S by 4.0 m E/W

**Topography:** Undulating and cracked *pāhoehoe* flow

**Elevation:** 31 m (101 ft) AMSL

**Description:** SIHP # -29345 consists of three discrete concentrations of coral fill inside natural crevices/fissures along a *pāhoehoe* tumulus. The coral-filled crevices are approximately 1 km south of OTEC Road and 60 m *makai* of the Queen Ka'ahumanu Highway (see Figure 1 and Figure 2). SIHP # -29345 was previously described in Monahan et al. (2012) as follows:

The uplifted section of lava [tumulus] reaches a height of over 2.0 m above the surrounding ground surface. The crevices containing coral run along the long axis of the flow in an essentially north-to-south direction. This site was pointed out to CSH by Isaac Harp, and was inspected and assessed as part of the supplemental survey of the north segment of the current project area (Monahan and Wilkinson 2012).

The somewhat rounded pieces of coral are typically small to medium cobble-sized, ranging from white to gray in color. The majority of corals are located in the westernmost, or upper, crevice. Some corals were also observed scattered here and there (one or two pieces) in other cracks and at the base of the uplifted section of lava. [Monahan et al. 2012:330]

SIHP # -29345 has been assessed as significant under Criteria d and e.

### 2.12.1 Data Recovery Effort

Data recovery fieldwork at SIHP # -29345 involved the excavation of three 1.0 m by 1.0 m excavation units (EU 52 through 54) to cover the largest coral concentration (Figure 422 and Figure 423). Because it was known that the depth of the coral within the narrow crevices would pose a challenge to dismantling of the historic property, the ADRP recommended “a good faith attempt at 100% areal excavation” (Shideler et al. 2012:249). Ultimately, the depth and narrowness of the two smaller crevices made them inaccessible, and the coral cobbles there had to be left in place.

For each excavation unit, two perpendicular profiles were documented, and the existing plan map was updated to depict the location of the units. The planned collection of radiocarbon samples was prevented by the lack of dateable organic material. A sub-meter accurate Trimble GPS unit was used to record the center point of each EU. EUs 52 through 54 were excavated to the irregular *pāhoehoe* bedrock.

Excavated material consisted entirely of manuport coral cobbles resting on the *pāhoehoe* crevice. The irregular *pāhoehoe* bedrock crevice surface was encountered between 0 and 148 cmbd. No sediment was encountered within the crevice, and no cultural materials or

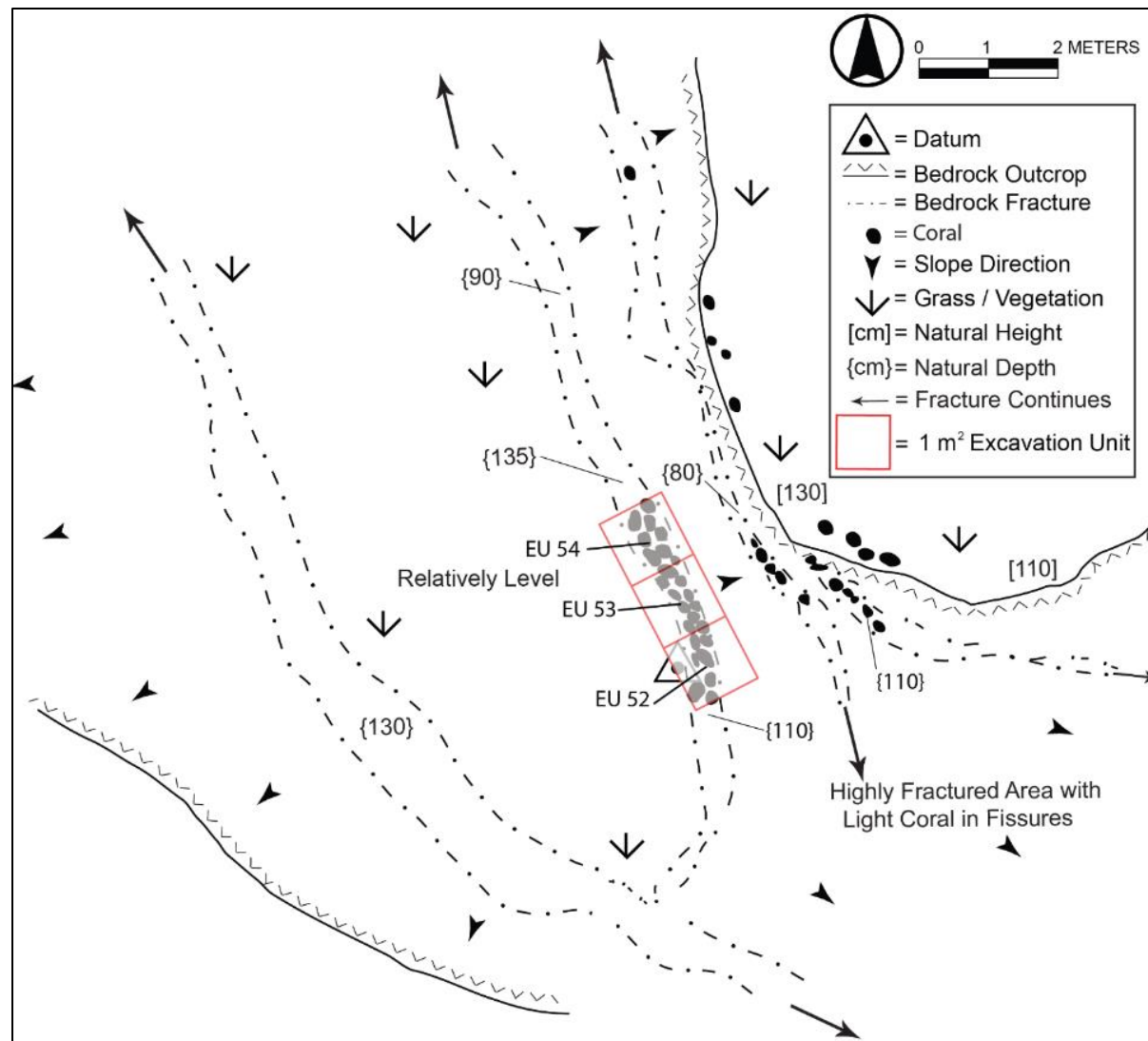


Figure 422. SIHP # -29345 plan view map showing EU locations





Figure 423. SIHP # -29345 pre-excavation overview, view to north

modifications were observed other than the coral cobble manuports.

#### 2.12.1.1 EU 52

EU 52, a 1.0 m by 1.0 m excavation unit, was placed to encompass the southernmost extent of the coral concentration (Figure 424 through Figure 427). Profile drawings of the southeast and northeast walls (Figure 428) show the depth of the crevice. Excavated material consists entirely of manuport coral cobbles resting on the irregular *pāhoehoe* bedrock. No finer-grained sediment and no other cultural materials were observed.

#### 2.12.1.2 EU 53

EU 53, a 1.0 m by 1.0 m excavation unit, was placed to encompass the center of the coral concentration (Figure 429 through Figure 432). Profile drawings of the southeast and northeast walls (Figure 433) show the depth of the crevice. Excavated material consists entirely of manuport coral cobbles resting on the irregular *pāhoehoe* bedrock. No finer-grained sediment and no other cultural materials were observed.

#### 2.12.1.3 EU 54

EU 54, a 1.0 m by 1.0 m excavation unit, was placed to encompass the northernmost extent of the coral concentration (Figure 434 through Figure 437). Profile drawings of the southeast and northeast walls (Figure 438) show the depth of the crevice. Excavated material consists entirely of manuport coral cobbles resting on the irregular *pāhoehoe* bedrock. No finer-grained sediment and no other cultural materials were observed.

### 2.12.2 Interpretation

Excavations at SIHP # -29345 were conducted to obtain sufficient data to address two research objectives regarding site function and temporal analysis, proposed in the ADRP by Shideler et al. (2012). Site function was listed as a research objective for those historic properties that were “indeterminate as to function and/or the currently available evidence regarding function is ambiguous or inconclusive” (Shideler et al. 2012:265). The objective of temporal analysis is “to determine the absolute dates of occupation of the project area as may be available from data recovery sites . . .” (Shideler et al. 2012:265).

The function of SIHP # -29345 was originally interpreted as “indeterminate” (Monahan et. al. 2012:327); however, the results of data recovery efforts suggest SIHP # -29345 represents a modern placement of corals, likely associated with nearby “Kona graffiti” (Figure 439). Kona graffiti refers to the placement of white coral pieces on Kona’s dark lava fields by locals, tourists, and artists to spell out names and other words. Removal of the coral cobbles at SIHP # -29345 during data recovery yielded no additional cultural materials beneath or in association with the coral. Additionally, a few other modern placements of coral were observed within the immediate vicinity (see Figure 363). SIHP # -29345 has therefore been reassessed as a modern activity area.





Figure 424. SIHP # -29345 EU 52 pre-excavation overview, view to southeast



Figure 425. SIHP # -29345 EU 52 post-excavation overview, view to southwest





Figure 426. SIHP # -29345 EU 52 southeast wall profile, view to southeast



Figure 427. SIHP # -29345 EU 52 northeast wall profile, view to northeast



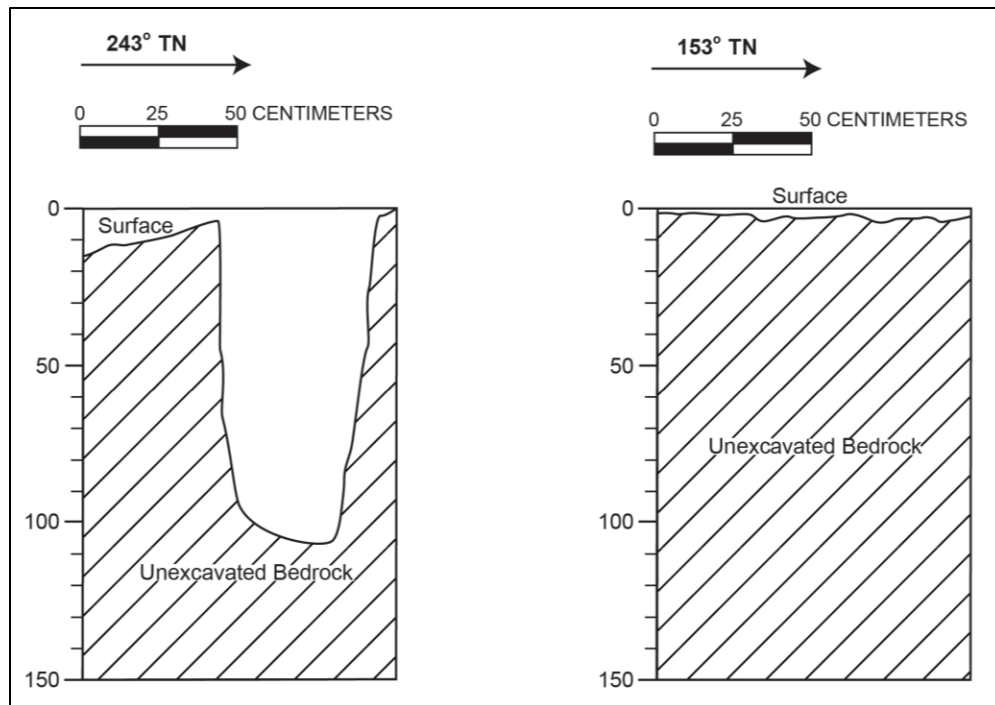


Figure 428. SIHP # -29345 EU 52, southeast and northeast wall profiles



Figure 429. SIHP # -29345 EU 53 pre-excavation overview, view to southwest



Figure 430. SIHP # -29345 EU 53 post-excavation overview, view to southwest



Figure 431. SIHP # -29345 EU 53 northeast wall profile, view to northeast





Figure 432. SIHP # -29345 EU 53 southeast wall profile, view to east

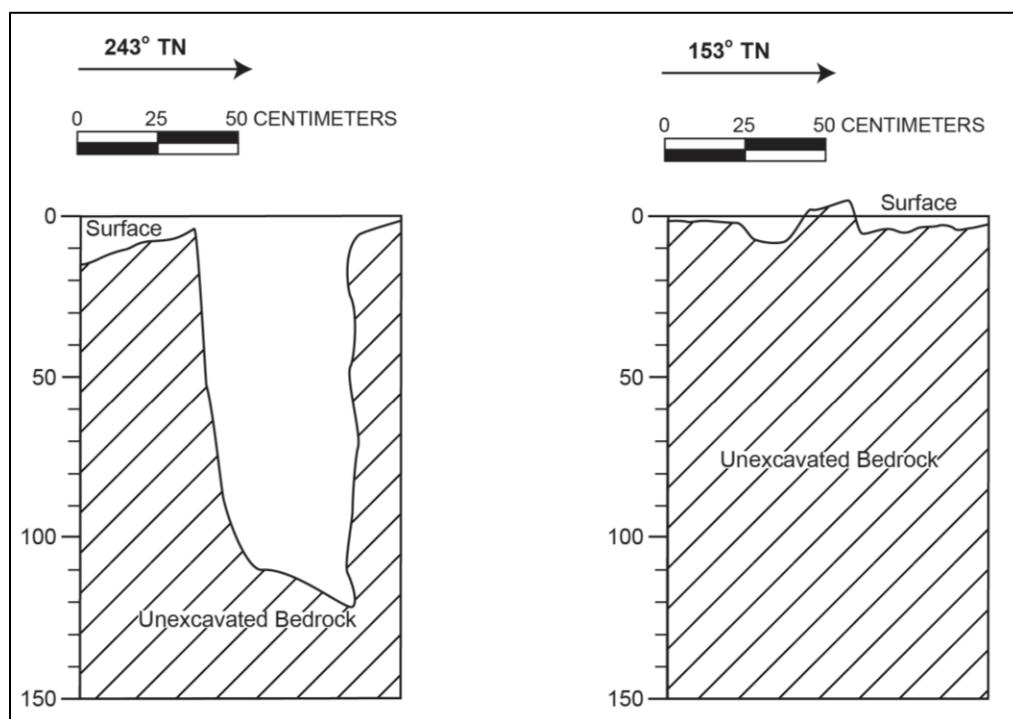


Figure 433. SIHP # -29345 EU 53, southeast and northeast wall profiles





Figure 434. SIHP # -29345 EU 54 pre-excavation overview, view to southwest



Figure 435. SIHP # -29345 EU 54 post-excavation overview, view to southwest





Figure 436. SIHP # -29345 EU 54 southeast wall profile, view to southeast

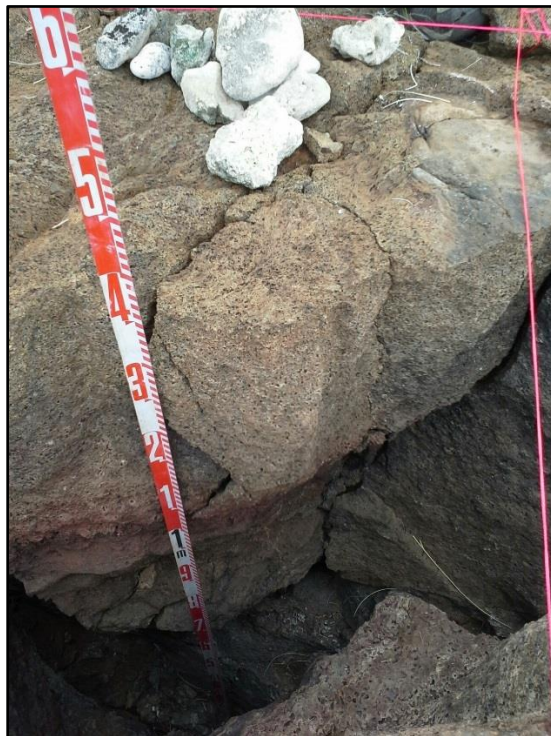


Figure 437. SIHP # -29345 EU 54 northeast wall profile, view to northeast

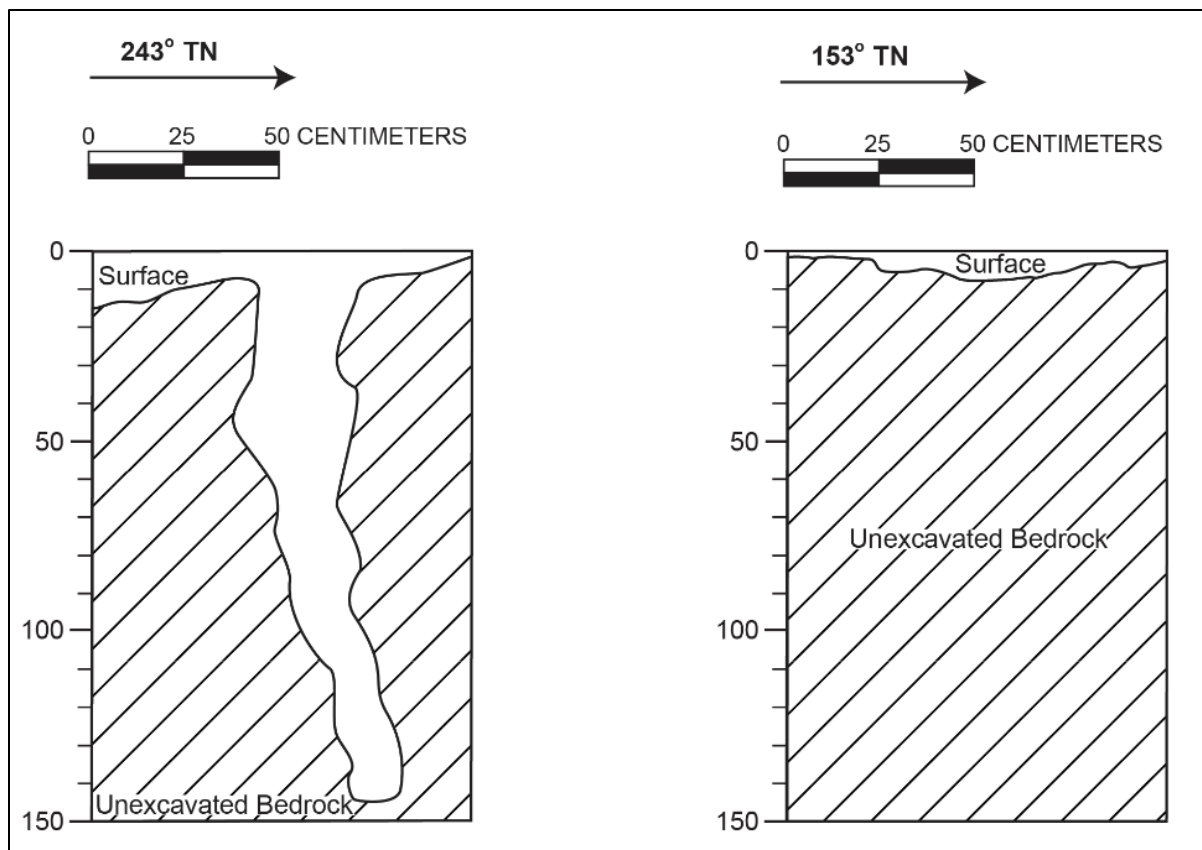


Figure 438. SIHP # -29345 EU 54 southeast and northeast wall profiles

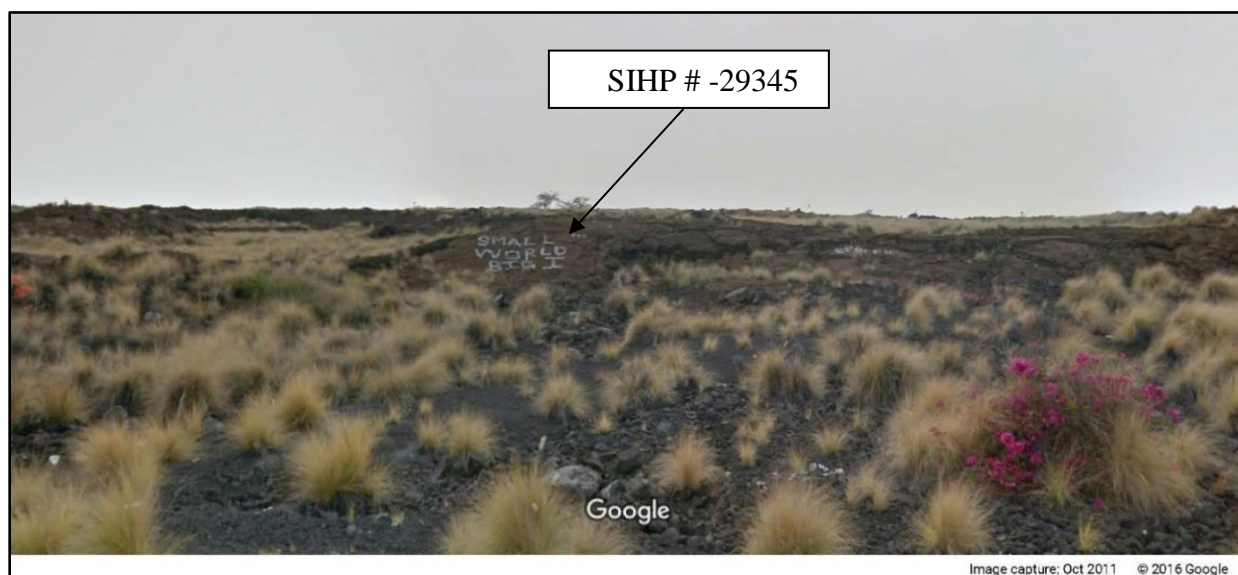


Figure 439. Overview from Queen Ka'ahumanu Highway showing "Kona graffiti" near SIHP # -29345, view to west (Google 2016)



## Section 3 Artifact Collection

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The 2015 data recovery efforts (following the Shideler et al. 2012 ADRP and the Hammatt and Shideler 2014 APMP) included artifact collection at two historic properties (SIHP #s -29348 and -29349). They are described in detail below.

### 3.1 SIHP # 50-10-27-29348

**CSH Site No.:** Rock 1 (Monahan and Wilkinson 2012)

**Formal Type:** Boulder (*pāhoehoe* basher) in excavated pit

**No. of Features:** 0

**Function:** Prospecting for voids (*pāhoehoe* basher)

**Age:** Pre-Contact

**Dimensions:** 2.0 m by 0.70 m (excavated pit dimensions)

**Topography:** Undulating *pāhoehoe* flow sloping gently *makai*

**Elevation:** 34 m (143 ft) AMSL

**Description:** SIHP # -29348 is an excavated pit in a *pāhoehoe* flow with a medium-sized, rounded, waterworn basalt boulder in its interior (Figure 440). SIHP # -29348 is located approximately 200 m south of Keāhole Airport Road and 60 m *makai* of the Queen Kaʻahumanu Highway (see Figure 1 and Figure 2). It was identified during the supplemental survey work in the northern segment of the current project area (see Monahan and Wilkinson 2012). The boulder and pit were also described previously in the AIS by Monahan et al. (2012) as follows:

Unlike the similar, nearby site described below (SIHP # 29349), the boulder at this site does not appear to have modification (bashing) damage. Vegetation in the area consists of introduced grasses. There is no soil-sedimentary deposition within or adjacent to the excavated pit.

The boulder, which measures approximately 52 cm by 24 cm by 12 cm, is a type not locally available in the project area; it must have been carried inland from the coast.

The excavated pit was dug into the edge of an outcrop creating an informal two-leveled pit floor. The boulder is placed in the upper, southern end of the pit. About 10 small extracted boulders and cobbles have been placed along the east and west sides of the pit, which is approximately 2.0 m long N/S by 0.70 m wide (E/S). The maximum depth of the pit is 45 cm at the northern end. No other pits were observed near this pit. [Monahan et al. 2012:390]

SIHP # -29348 has been assessed as significant under Criteria d and e.

#### 3.1.1 Data Recovery Effort

Data recovery fieldwork at SIHP # -29348 involved the collection of the waterworn basalt boulder, which was identified as a probable *pāhoehoe* basher, for artifact analysis and curation in accordance with the curation agreement in the final amendment to the MOA (Figure 441). Regardless of the final outcome of the curation agreement, the disposition of collections shall follow the stipulations of the final amendment to the MOA (Shideler et al. 2012:267).

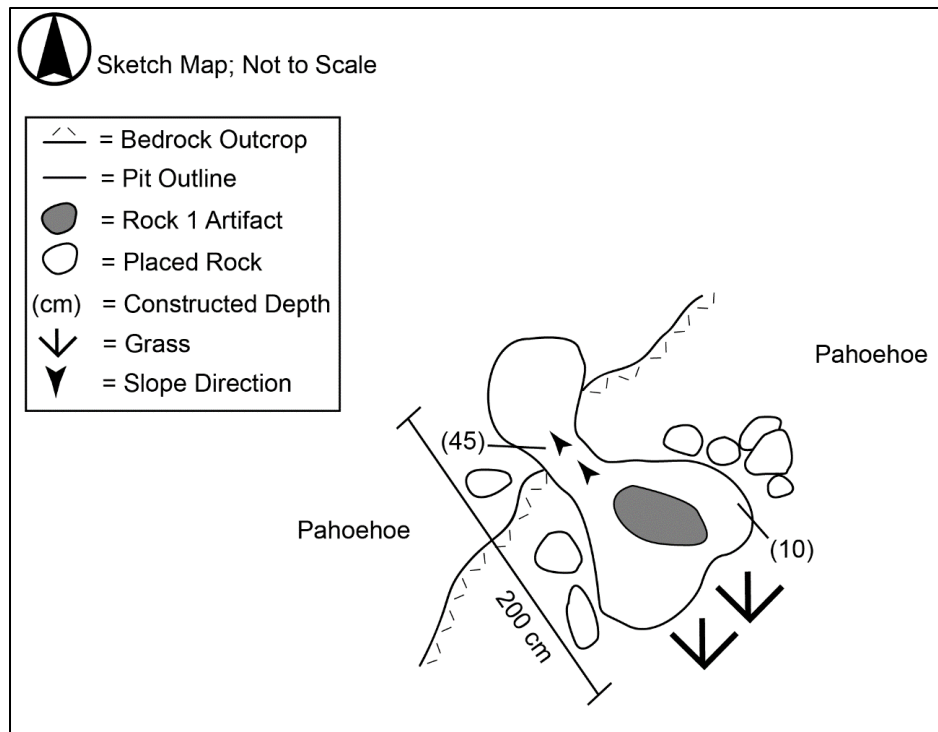


Figure 440. SIHP # -29348 plan view sketch map



Figure 441. SIHP # -29348 overview, view to east



### 3.1.2 Interpretation

SIHP # -29348 was originally interpreted during the AIS (Monahan et al. 2012) as follows:

. . . a location where Native Hawaiians were prospecting for voids in the *pāhoehoe* flow. Excavated pits are commonly found on volcanic flows that may contain subterranean openings and caverns. The discarded boulder may have been intended to be used for this general purpose, although there is no evidence of bashing on it.

Given all available evidence, this site most likely dates from prehistoric (pre-Contact) times. [Monahan et al. 2012:390]

Data recovery efforts included revisiting SIHP # -29348 and collecting the waterworn basalt boulder. SIHP # -29348 was found to be in the same condition as described in the AIS. No new evidence was collected that could dispute or confirm the original interpretation documented in the AIS (Monahan et al. 2012:390).

### 3.2 SIHP # 50-10-27-29349

**CSH Site No.:** River Rock (Harp 2011)

**Formal Type:** Boulder (*pāhoehoe* basher) and associated excavated pit

**No. of Features:** 2 (note additional excavated pits outside of project area)

**Function:** Prospecting for voids (*Pāhoehoe* Basher)

**Age:** Pre-Contact

**Dimensions:** 12.0 m NE/SW by 2.0 m NW/SE

**Topography:** Undulating *pāhoehoe* flow sloping gently *makai*

**Elevation:** 43 m (142 ft) AMSL

**Description:** SIHP # -29349 consists of an excavated pit in the *pāhoehoe* (Feature B; Figure 442 and Figure 443) approximately 12 m to the northeast of a small, rounded, waterworn basalt boulder (Feature A; Figure 442 through Figure 445) with use-wear evidence (i.e., evidence of bashing) on both ends. SIHP # -29349 is located approximately 150 m south of Keāhole Airport Road and 60 m *makai* of the Queen Ka'ahumanu Highway (see Figure 1 and Figure 2).

SIHP # -29349 was pointed out to CSH by Isaac Harp and was inspected and assessed as part of the supplemental survey of the northern segment of the current project area (see Monahan and Wilkinson 2012). The boulder and pit were previously described in Monahan et al. (2012) as follows:

The boulder, which measures approximately 21 cm by 15 cm by 6.5 cm, is a type not locally available in the project area; it must have been carried inland from the coast. CSH archaeologists also observed additional excavated pits *makai* and outside of the ROW. The excavated pit is roughly L-shaped and measures approximately 3.0 m long by 2.8 m wide by 0.20 m high. Cobble-sized rocks quarried from the pit are located in and around the feature. There is no soil-sedimentary deposition within or adjacent to the excavated pit. [Monahan et al. 2012:392]

SIHP # -29349 has been assessed as significant under Criteria d and e.

#### 3.2.1 Data Recovery Effort

Data recovery fieldwork at SIHP # -29349 involved the collection of the waterworn basalt boulder (Acc. # 0002; see Volume I Section 8.1) for artifact analysis and curation in accordance with the curation agreement in the final amendment to the MOA. Regardless of the final outcome of the curation agreement, the disposition of collections shall follow the stipulations of the final amendment to the MOA (Shideler et al. 2012:267).

#### 3.2.2 Interpretation

SIHP # -29349 was originally interpreted during the AIS (Monahan et al. 2012) as follows:

... a location where Native Hawaiians were prospecting for voids in the *pāhoehoe* flow. Excavated pits such as the one at this site are commonly found on volcanic flows that may contain subterranean openings and caverns. The discarded boulder, showing evidence of bashing on both ends, was clearly used for this general purpose. Given all available evidence, this site most likely dates from prehistoric times. [Monahan et al. 2012:390]



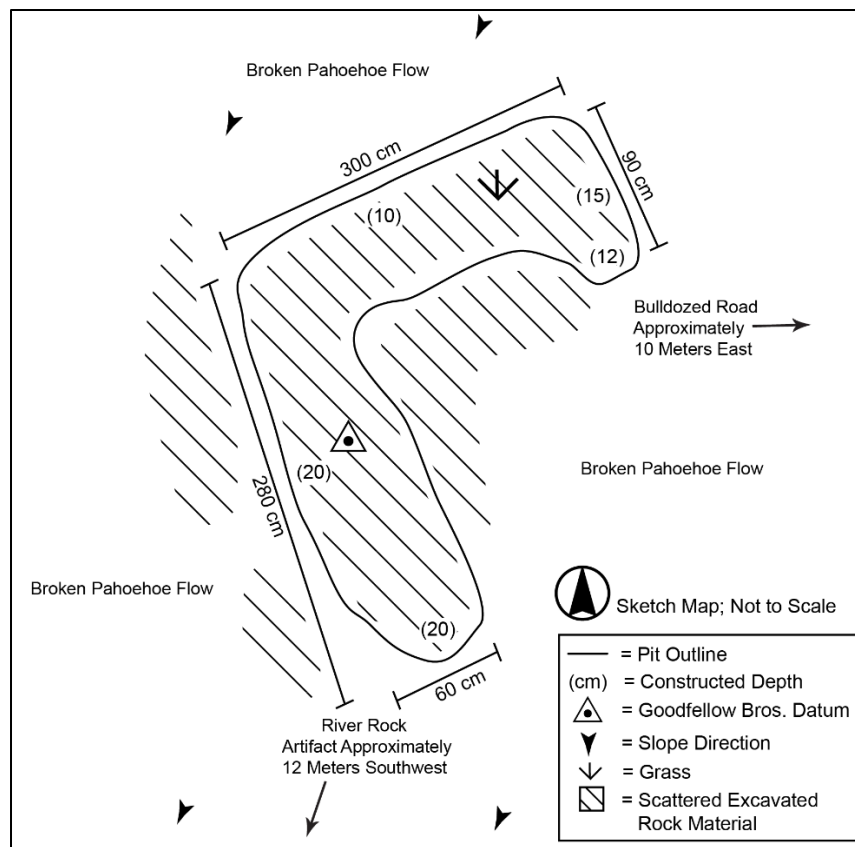


Figure 442. SIHP # -29349 plan view map

Figure 443. Overview of SIHP # -29349 Feature B (*pāhoehoe* excavation), view to southeast



Figure 444. SIHP # -29349 Feature A (waterworn rock), view to southeast



Figure 445. Shows bashing scars on SIHP # -29349 Feature A (waterworn rock)



Data recovery efforts included revisiting SIHP # -29349 and collecting the waterworn basalt boulder. SIHP # -29349 was found to be in the same condition as described in the AIS. No new evidence was collected that could dispute or confirm the original interpretation documented in the AIS (Monahan et al. 2012:390).

## Section 4 Relocation and Photo Documentation

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SHPD has accepted (via LOG NO.: 2012.3052, DOC. NO.: 1210MV25) the mitigation specifics for historic properties that will be relocated in a review of the mitigation plan by Shideler et al. (2012). Two historic properties (SIHP #s -29346 and -28808) were completely or partially relocated (i.e., moved) from within the grading limits to areas outside and west of the grading limits but still within the ROW. While it was previously agreed to relocate SIHP # -19947, a rework of the grading limits has facilitated preservation in place instead (Hammatt and Shideler 2014). As a result, SIHP # -19947 was subjected to photo documentation only during data recovery fieldwork.

### 4.1 SIHP # 50-10-27-19947

**CSH Site No.:** 7 (Walsh and Hammatt 1995)

**Formal Type:** Stacked rocks

**No. of Features:** 3

**Function:** *Ahupua'a* boundary marker (Kohanaiki and Kaloko)

**Age:** Pre-Contact

**Dimensions:** 5.0 m N/S by 5.0 m E/W

**Topography:** A low spot on gently undulating *pāhoehoe* terrain

**Elevation:** 26 m (83 ft) AMSL

**Description:** SIHP # -19947 comprises stacked rocks approximately 80 m north of the Kaloko-Honokōhau National Historical Park boundary (Figure 446). The stacked rocks were first formally described by Walsh and Hammatt (1995) as follows:

Site 19947 consists of three small cairns, designated Features A-C. The cairns are located within a low point of gently undulating pahoehoe terrain. They are constructed of loosely stacked pahoehoe cobbles and small boulders on top of slightly raised pahoehoe outcrops. Two of the cairns are aligned in a roughly north-south axis and the third is to the west of these, forming a triangle. The cairns are located at the approximate ahupua'a boundary between Kohanaiki and Kaloko, and are considered to be ahupua'a boundary markers. All three are in fair to good condition. [Walsh and Hammatt 1995:49]

SIHP # -19947 was subsequently revisited during the AIS by Monahan et al. (2012) and found to be in the same physical condition as in 1995. See Appendix B in Monahan et al. (2012) for descriptions and dimensions of the individual features at SIHP # -19947.

It was originally determined in the ADRP (Shideler et al. 2012:79) to relocate SIHP # -19947; however, in an effort to secure Advisory Council on Historic Preservation support, it was subsequently decided to move the *makai* edge of the project toward *mauka*. As a result, SIHP # -19947 was recommended for interim preservation with protection behind a continuous barrier on the highway (east) side during highway widening work, with a commitment to the previously agreed upon mitigation (relocation) prior to any future land disturbance in the immediate vicinity (Hammatt and Shideler 2014:51) (Figure 447).

SIHP # -19947 has been assessed as significant under Criteria d and e.



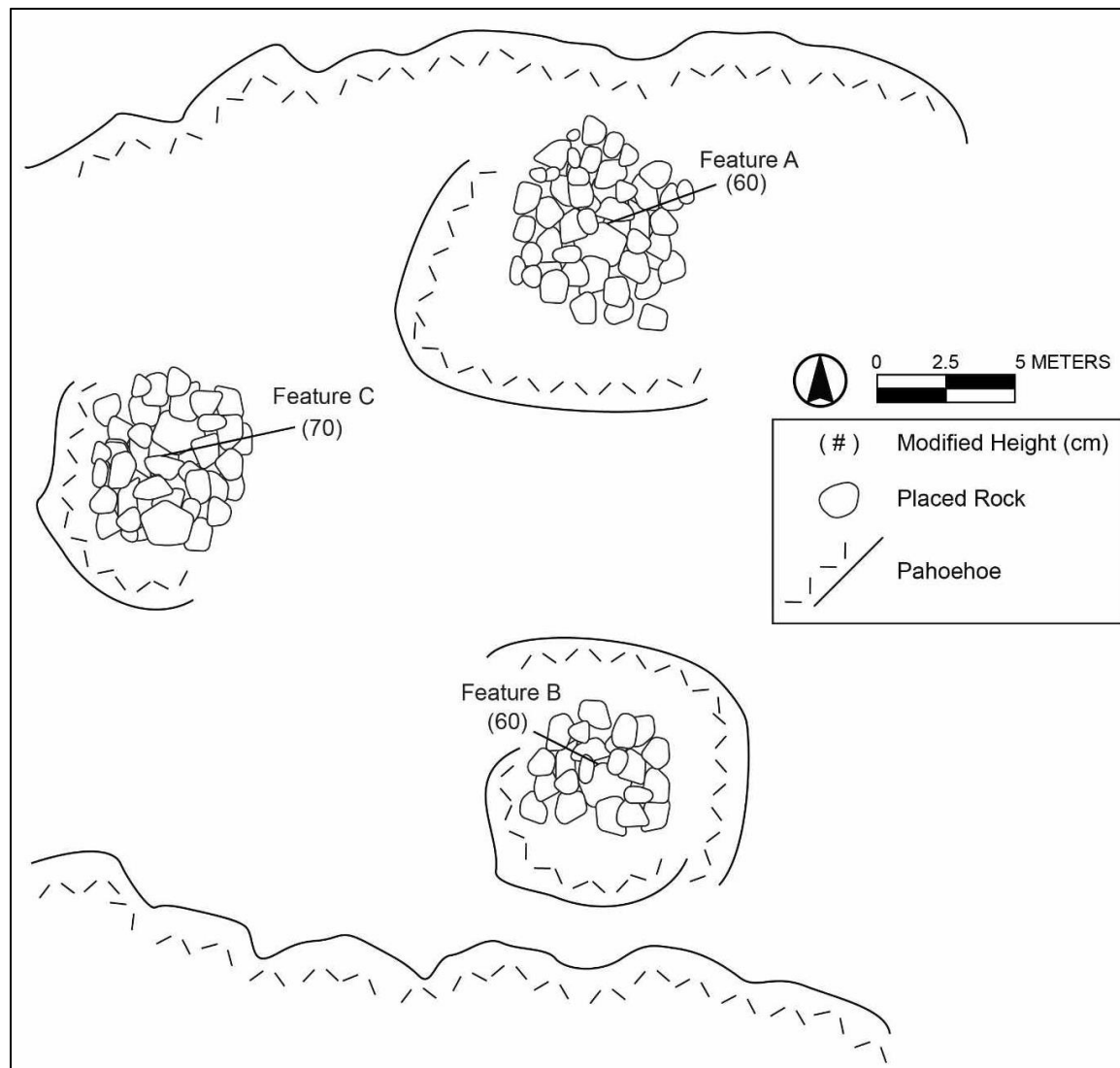


Figure 446. SIHP # -19947 plan map derived from Walsh and Hammatt (1995)

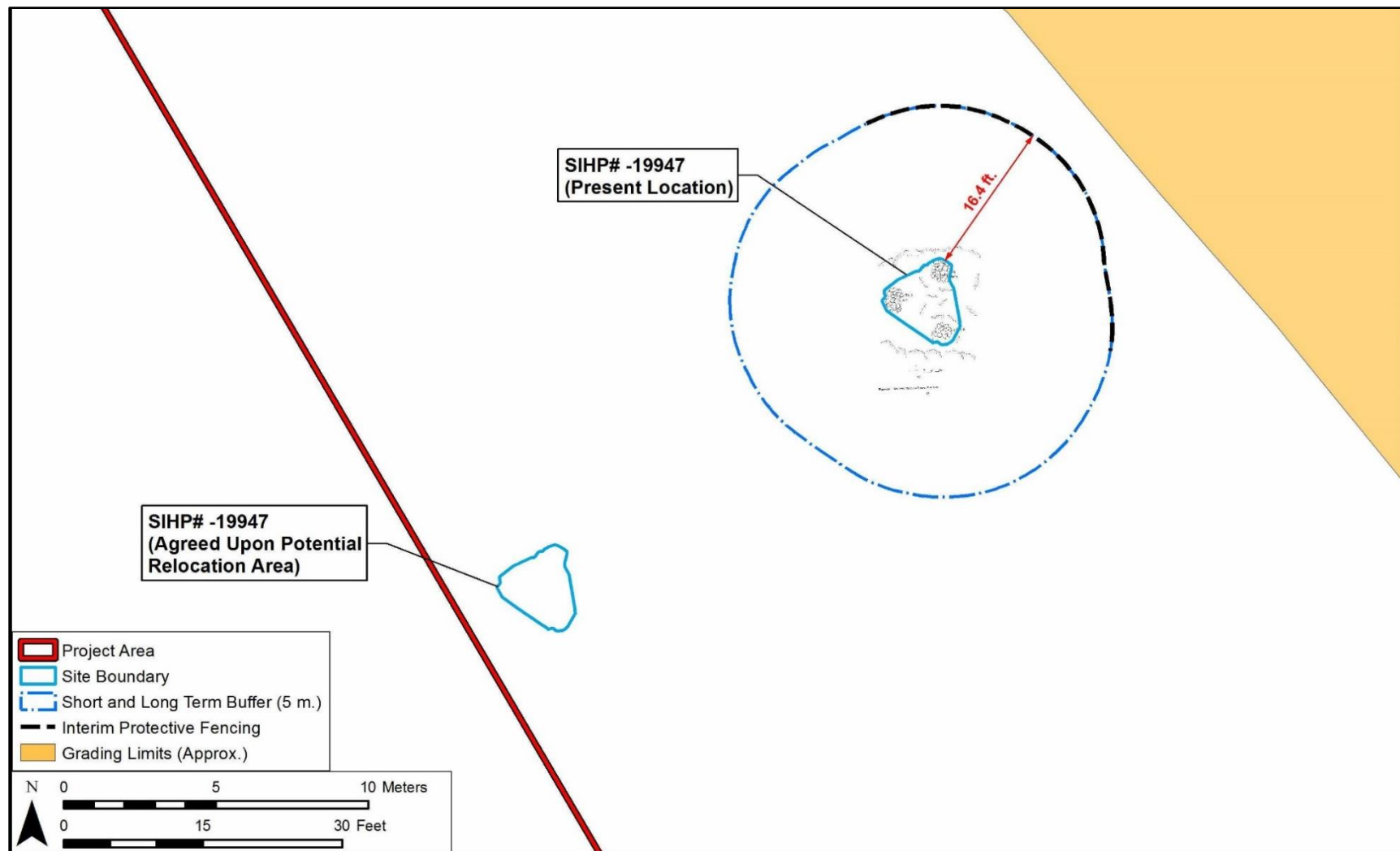


Figure 447. Preservation buffer for SIHP # -19947 (interim preservation and commitment to mitigation prior to any future land disturbance)



#### **4.1.1 Data Recovery Effort**

During the consultation process, NHO representative Ruby McDonald requested photographs of all three features from SIHP# -19947 be included in the documentation for this project (instead of the single, representative photograph included in the Shideler et al. 2012 ADRP). Therefore, all three features were photographed during data recovery fieldwork, and the photographs are presented below (Figure 448 through Figure 453).



Figure 448. SIHP # -19947 Feature A (cairn), view to west



Figure 449. SIHP # -19947 Feature A (cairn), view to south





Figure 450. SIHP # -19947 Feature B (cairn), view to north



Figure 451. SIHP # -19947 Feature B (cairn), view to east





Figure 452. SIHP # -19947 Feature C (cairn), view to southwest



Figure 453. SIHP # -19947 Feature C (cairn), view to south



## 4.2 SIHP # 50-10-27-28808

**CSH Site No.:** T-092110-7 (Monahan et al. 2012)

**Formal Type:** Mound complex

**No. of Features:** 5

**Function:** Markers

**Age:** Indeterminate

**Dimensions:** 15.0 m N/S by 10.0 m E/W

**Topography:** Level *pāhoehoe* flow

**Elevation:** 35–35 m (111–114 ft) AMSL

**Description:** SIHP # -28808 is a mound complex consisting of five features (Features A through F) approximately 735 m south of the intersection of OTEC Road and the Queen Kaʻahumanu Highway (see Figure 1 and Figure 2). During the original AIS (Monahan et al. 2012), SIHP # -28808 was documented as three features; however, during supplemental survey work with the NHOs (see Monahan and Wilkinson 2012), two additional, previously undocumented mounds were identified, bringing the total number of features to five. SIHP # - 28808 was described by Monahan et al. (2012) as follows:

Feature A to Feature C are mounds composed of upright, small boulder-sized slabs of *pāhoehoe* on top of a relatively level surface of exposed *pāhoehoe* bedrock. No soil formation has occurred within or beneath the mounds. Feature A, the southernmost feature, measures 0.8 m N/S by 0.9 m E/W with a maximum height of 0.4 m above the adjacent ground surface. Feature B, the easternmost feature, measures 1.4 m N/S by 0.8 m E/W with a maximum height of 0.4 m above the adjacent ground surface. Feature C, the westernmost feature, measures 1.0 m N/S by 0.9 m E/W with a maximum height of 0.3 m above the adjacent ground surface. The slabs that comprise each feature were likely quarried or collected from the immediate area. No artifacts or midden were observed in the area.

Feature D is constructed of approximately 10 small, loosely-piled slabs. Grasses are growing around the mound, which is situated on a broken-up section of *pāhoehoe* flow. This feature measures approximately 0.7 m long E/W by 0.6 m wide N/S by 0.5 m high.

Feature E is located just *mauka* of Feature D. This mound is constructed of 9-10 small, loosely-piled slabs. It measures approximately 0.5 m long E/W by 0.5 m wide N/S by 0.4 m high.

SIHP # -28808 is interpreted as a complex of markers. The proximity of the complex to the edge of Queen Kaʻahumanu Highway and the lack of sedimentation within and beneath the features suggests that the complex may be a modern construction or may be not much older than 50 years. Given all available evidence, however, it is not possible to unequivocally assign a date of construction to this site; therefore, CSH interprets its age as indeterminate. [Monahan et al. 2012:333]

SIHP # -28808 has been assessed as significant under Criteria d and e.

#### 4.2.1 Data Recovery Effort

Data recovery fieldwork at SIHP # -28808 followed the ADRP, wherein Shideler et al. (2012:325) recommended preservation in place of the three *makai* mounds (Features A through C), with photo documentation and relocation of the two *mauka* mounds (Features D and E; Figure 454 through Figure 458). Because only Features D and E were recommended for relocation, Features A through C are not addressed further in this report (for more information on Features A through C, see Monahan et al. 2012).



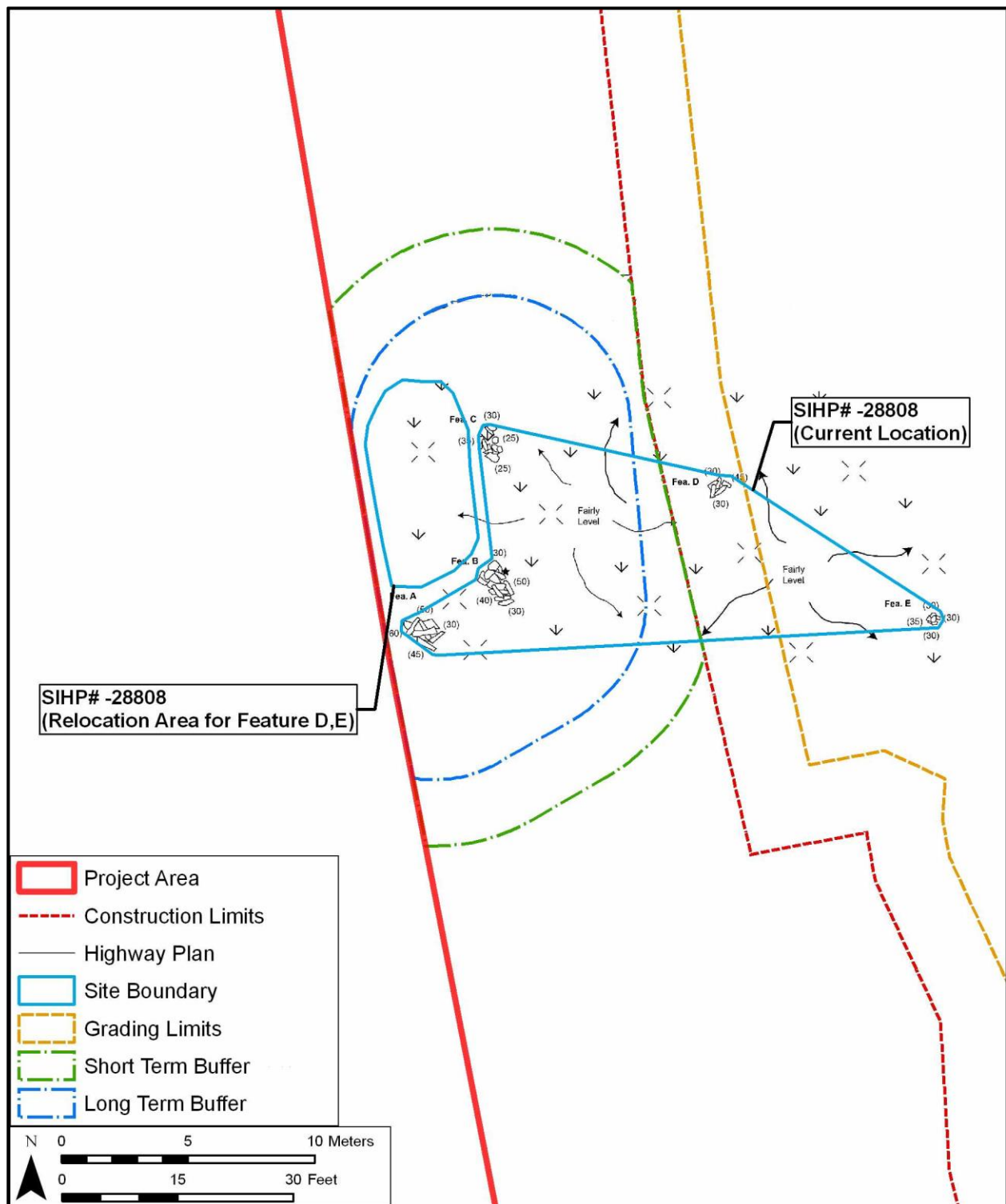


Figure 454. Preservation buffers for preservation in place portion (Features A through C) and relocated portion (Features D and E) of SIHP # -28808



Figure 455. SIHP # -28808 Feature D before relocation, view to north



Figure 456. SIHP # -28808 Feature D after relocation, view to north





Figure 457. SIHP # -28808 Feature E before relocation, view to northeast



Figure 458. SIHP # -28808 Feature E after relocation with Feature A in background, view to southwest

### 4.3 SIHP # 50-10-27-29346

**CSH Site No.:** Mound (Harp 2011)

**Formal Type:** Mound

**No. of Features:** 0

**Function:** Indeterminate, possible marker or quarrying

**Age:** Indeterminate

**Dimensions:** 0.5 m N/S by 0.4 m E/W by 0.35 m high

**Topography:** Level *pāhoehoe* flow

**Elevation:** 35 m (115 ft) AMSL

**Description:** SIHP # -29346 is a small rock mound on *pāhoehoe* approximately 0.5 km south of OTEC road and 30 m *makai* of the Queen Ka'ahumanu Highway (see Figure 1, Figure 2, and Figure 459). It was pointed out to CSH by Isaac Harp and was inspected and assessed as part of the supplemental survey of the northern segment of the current project area (see Monahan and Wilkinson 2012). The mound was previously described in Monahan et al. (2012) as follows:

The mound measures approximately 50 cm N/S by 40 cm E/W and is up to 35 cm high. The mound consists of 13-15 small *pāhoehoe* slab pieces informally piled on bare *pāhoehoe*. In many places, there is substantial space in between the piled rocks. The constituent slabs appear to be fairly old/weathered, similar to the surrounding flow. A few of the slabs have substantial chemical weathering (white appearance) on their bottom sides—one of these constituent white slabs was overturned. Some grasses surround the mound. There is no soil-sedimentary deposit at this site.

Because of uncertainties about the age of this mound, based on NHO concerns, and in cooperation with Isaac Harp, this mound was dismantled to check for evidence of recent/modern scarring of the underlying rock. None was found, and the mound was rebuilt according to its original structure. There are some bulldozer scars fairly close by (a few meters away), but none right at or under this mound. [Monahan et al. 2012:345]

SIHP # -29346 has been assessed as significant under Criteria d and e.

#### 4.3.1 Data Recovery Effort

Data recovery fieldwork at SIHP # -29346 followed the ADRP, wherein Shideler et al. (2012) recommended relocation and placement of short and long term buffers around the relocation (Figure 460), as well as photo documentation of the mound. Photographs of SIHP # -29346 before and after relocation are presented below (Figure 461 and Figure 462).



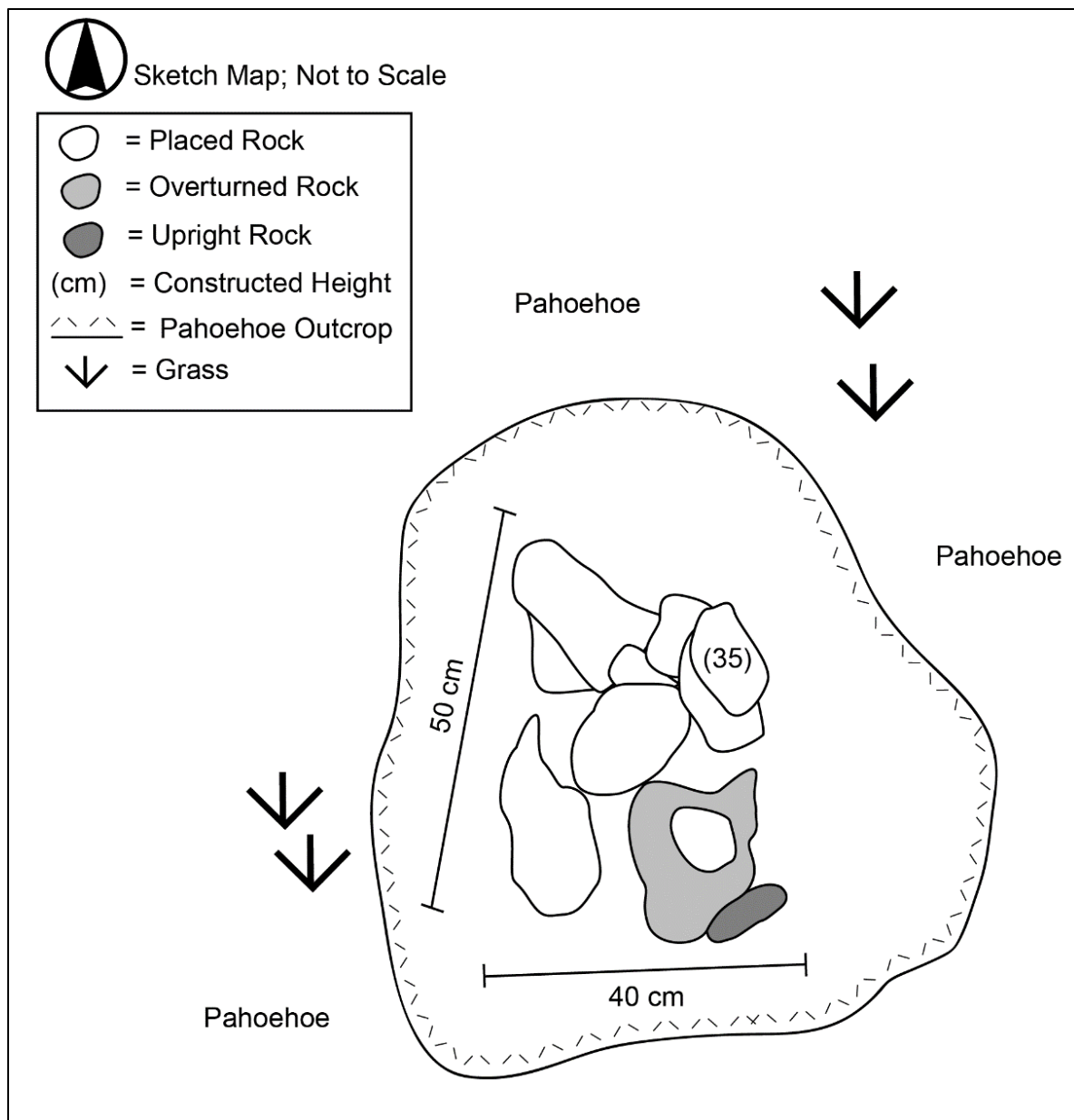


Figure 459. SIHP # -29346 plan view sketch map

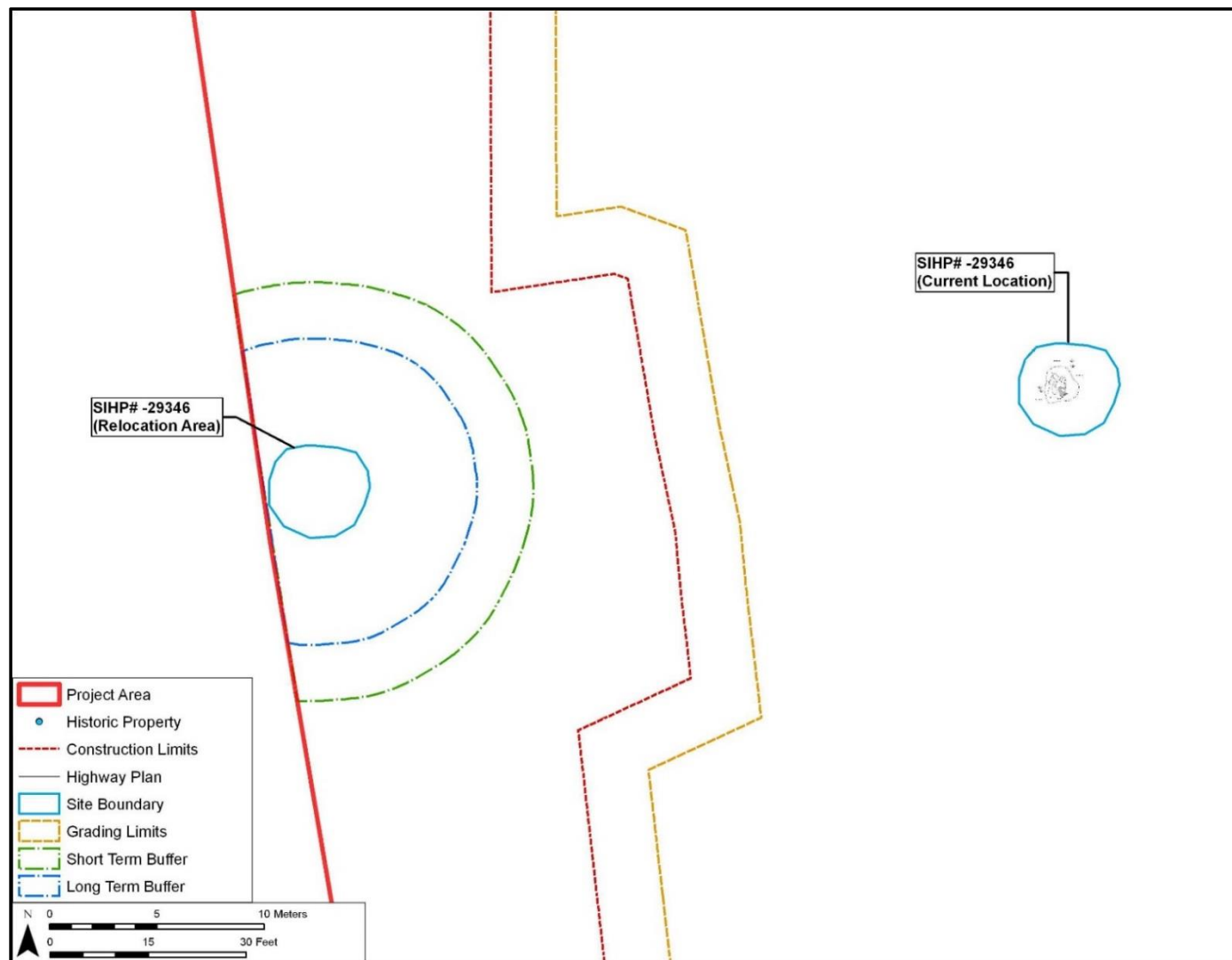


Figure 460. Preservation buffers for relocated SIHP # -28808





Figure 461. SIHP # -29346 before relocation, view to west

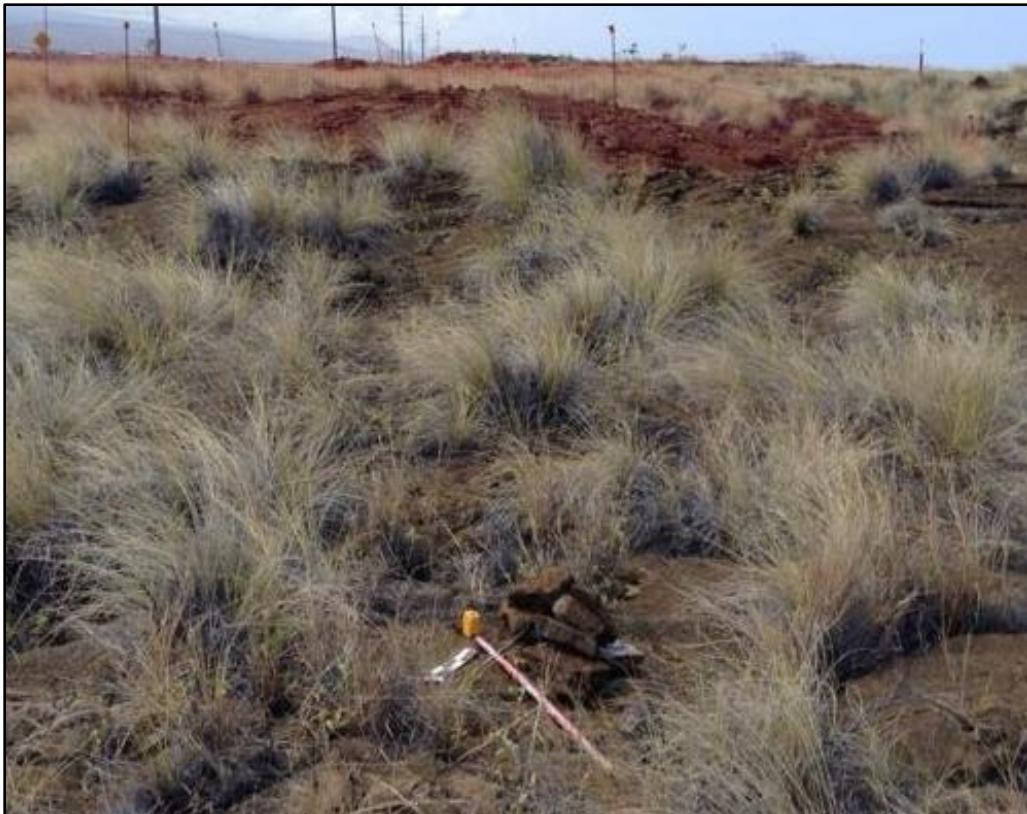


Figure 462. SIHP # -29346 after relocation, view to southeast

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