Codfish Island/Whenua Hou Archaeological Project: Preliminary Report

Ian Smith and Atholl Anderson

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Introduction

Codfish Island/Whenua Hou is a small island situated just west of Stewart Island near the southern end of New Zealand (Figure 1). It played a significant role in the 19th century history of southern New Zealand, with sealing gangs landed there in 1808 and 1809, and one of New Zealand’s first mixed-race communities founded there in ca 1825-26 by former sealers and their Maori partners (Smith 2002:46). The island is now managed by descendants of this community in conjunction with the Department of Conservation, primarily as a protected habitat for endangered birds.

A programme of historical and archaeological research was instigated by Rachael Egerton (DoC) to assist with preparation of a conservation plan for the historic heritage of the island. This included the preparation of a history of the past two centuries of human settlement on the island (Middleton 2007) and a two-week archaeological investigation. This report provides a preliminary summary of the archaeological work conducted during January 2007 under the direction of Ian Smith (University of Otago) and Atholl Anderson (Australian National University). Prior to this there had never been a proper assessment of archaeological evidence on the island. Three sites had been recorded: one (D48/5) based on references in the historical literature; the second (D48/21) after reports by non-archaeological observers with only minimal direct field observation by experts; and the third (D48/23) a chance find of human skeletal remains adjacent to a track on the southern side of the island.

Our archaeological investigations were focused on Sealers Bay, location of the first two previously recorded sites, but included reconnoissance of other potential site locations. Specific objectives of the project were to: (a) determine the location and extent of archaeological deposits at Sealers Bay; (b) confirm which parts of these deposits were remains of the 19th century Sealers Bay settlement; (c) establish whether there were remains of any earlier occupation there; and (d) determine as far as possible the age and purpose of any earlier settlement.

Figure 1  Southern New Zealand showing location of Codfish Island/Whenua Hou
Methods

Investigations were undertaken from the 12th to 24th January 2007 by a team of twelve. Exposed and eroding surfaces were inspected for archaeological evidence, and in places a metal detector was used to assist locating areas of human activity during the historic period. In selected locations subsurface deposits were sampled using 75mm diameter sand augers, and/or restricted test pitting by spade and/or trowel. A log of these observations is included in Appendix 1. Locational data was recorded with differential GPS (Trimble GeoXT) and analysed using ArcGIS 9.2 with the assistance of Moira Jackson. Excavations were undertaken in seven locations using standard archaeological procedures.

In conjunction with our work Mike Hilton and Teresa Konlechner of the Geography Department, University of Otago completed their detailed topographic mapping of the Sealers Bay dunes, plotting in most of our archaeological data points.

Sites

As far as we can establish, Sealers Bay is the only place that people have ever lived on Codfish Island, although no doubt they visited every part of it in the course of fishing, fowling and other activities. We visited North West Bay and Roderiques Anchorage, the only other landing places, and found no signs of former occupation. Nor were there any at potential rock shelters near Observation and Summit Rocks. Some 22 de-barked totara trees in a zone ca 0.75km to 1.5km inland were the only evidence recorded beyond the confines of the bay (Figure 2). In Penguin Bay, at the western end of Sealers Bay, we recorded two sites: PB1 is an area of metal debris, at least partly from shipwrecks, at the back of the beach while PB2, on the clifftop above the western end, is the remains of what appears to be a still.

![Figure 2 Codfish Island/Whenua Hou, showing archaeological sites and debarked totara trees](image-url)
Figure 3  Sealers Bay and Penguin Bay, showing the location of archaeological sites.
At Sealers Bay we identified four sites (Figure 3). Most of our attention was focussed on SB1, which we were able to confirm as location of the 19th century village already recorded as D48/5. The other previously recorded site (SB2, D48/21) was relocated, but appears to be mostly eroded away. SB3 is an area of exposed archaeological deposits midway along the beach which we sampled with small test excavations. SB4 includes a series of scattered observation points within the vicinity of the modern hut and helicopter pad.

**Sealers Bay 1 (D48/5)**

The sheltered western end of Sealers Bay has generally been presumed to be the location of the 19th century village. Fragments of glass, ceramics and stone tools eroding from a deep layer of charcoal-stained soil at the junction of Sealer’s and Hydro Creeks provided the first archaeological signals of its presence (Figure 4). A series of auger transects across the flat ground between these creeks showed that large parts of the flat were much too damp to ever have been occupied, but they identified two zones of archaeological deposits on bands of drier ground (Figure 5). One of these lay along the foot of the hill rising at the western edge of the flat. We sampled part of this with our largest excavation SB1:Area 1. The second zone occupied a band of sandy soil beside Sealers Creek and was sampled in SB1:Area 4.

Archaeological remains that we included within this site were also located on low sloping ground above the shore at the northwestern edge of the bay where a track leaves the beach to cross a low saddle to Penguin Bay. This was sampled as SB1:Area 2. Augering showed that the site did not extend into this saddle or onto the headland north of it. However traces of occupation were located on the top of the hill immediately west of SB1:Area 2. Between Areas 1 and 2 part of the site has been lost to erosion, as there were remnants of ovens exposed in the creek bed beside Area 1, and *in situ* deposits eroding from the bank in SB1: Area 3.

Figure 4   Sealers Bay 1. The layer of dark sand visible in the south bank of Hydro Creek contains fragments of glass, ceramics, clay pipes and flaked stone tools
Figure 5  West end of Sealers Bay showing Sealers Bay 1, Sealers Bay 4 and Penguin Bay 1
SB1: Area 1

Area 1 was located on a flat terrace about 3m above mean high water immediately south of the eroding deposits at the confluence of Hydro and Sealers creeks. Midden and charcoal-stained sediments in auger cores HC1-05 to HC1-12, HC2-01 to HC2-03 and HC3-01 to HC3-05 defined the extent of this deposit, and a rectangular arrangement of stones protruding from the ground suggested the presence of a fireplace. Undergrowth was cleared from this area and an 8 x 1m trench was initially opened. This was later extended to a total of 16m² (Figure 6), and three layers were identified (Figure 7).

Figure 6 Sealers Bay 1: Area 1. Plan showing features in Layer 2 Spits 1 & 2

Figure 7  Sealers Bay 1: Area 1. North-South profile
Layer 1 was a brown humus intermixed with grey-brown sand, generally 8-10cm deep. It contained a few scattered bird bones, along with metal and glass artefacts and several planks of wood. The latter were lying across the stones which formed the sides and back of a chimney base at the northern end of the excavation.

Layer 2 was a grey sand, lighter in colour at the northern end (rows 1-4) while at the south (rows 5-8) it was darker and charcoal stained. It ranged in depth from about 20cm to just over 40cm and was excavated in 10 cm spits.

Removal of spit 1 from within the chimney base revealed a clearly defined central area of ash with a cobblestone hearth immediately in front, and wide side spaces of ashy-sand, perhaps forming an inglenook. At the base of spit 1 south of the fireplace was a series of wooden planks that were lying more or less horizontally and oriented north-south. They appear to have been about 25mm (1 inch) thick, and although now very soft and rotten, had clearly formed a house floor in front of the fireplace. Upright slabs formed a discontinuous wall at the southern end (Figure 8a), and in the northwest corner part of the wall slab had been bent over the floor planks (Figure 8b), presumably by soil spilling from the hillslope to the west. Postholes were apparent at both northwest and southwest corners. A single long piece of much heavier timber (ca 12 x 5cm) running through squares E-F/7-8 was presumably a roof beam. Below the floor in squares C-D/3 was a patchy lens of clay, perhaps packing during construction, but for the most part the floor lay directly on grey sand. Ceramic, glass and metal artefacts were found in spits 1 and 2, especially at the northern end (rows 1-3) and the south east corner (D-F/8).

The lower spits were almost entirely devoid of European items, and instead dominated by midden which was extremely dense in squares C/6-8 spits 3-5 (Figure 9). This was comprised almost entirely of bone, including fish and marine mammals but with birds extraordinarily well represented. Artefacts included three large blades, two of silcrete, one of porcellanite, and fragments from argillite adzes. The density of this deposit limited the extent to which we were able to sample it. A single posthole filled with this midden protruded into the underlying surface in sq C6, although from where it was cut could not be established. Its fill contained both stone artefacts and a single piece of glazed earthenware.

Layer 3 was a clean beige sand.
The upper component of this area (L1 + L2sp1) can be interpreted as a dwelling house from the early 19th century village, while the lower component (L2sp3-5) derives from what appears to be an Archaic period Maori settlement. Layer2sp2 may be a zone of intermixing between the two.

We suspect there may be another house site like this in the vicinity of auger cores HC4-01 to HC4-03.

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Figure 9  Sealers Bay: Area 1. Plan showing features in Layer 2 spits 3 & 4

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SB1: Area 2

Area 2 was located just above the shore at the northwestern edge of Sealers Bay where a track leaves the beach to cross a low saddle to Penguin Bay (Figure 10). A total of 5 m² was opened, although only part of this was excavated to natural. Initially, square A1 (= Testpit A in fieldbook) was opened and two 10 cm spits excavated over the whole square, then another five spits excavated in the NE quadrant of the square. Spits 1 and 2 comprised grey sandy soil with charcoal and a rich assortment of artefacts including several pieces of shell-edged blue pottery, about 8 iron nails, pieces of pipe bowls and stems, bottle and window glass, some argillite and quartz flakes and fish and bird bone, plus some pieces of dog or seal bone. Spit 3 was represented by a yellow clay and gravel surface, below which was a yellow-grey sand with charcoal lenses. Spits 3-7 had abundant bone midden, mostly fish but significant quantities of bird and some mammal bone. Shell was scarce and mostly very degraded and soft. There was virtually no historical material, so these lower spits probably represent a prehistoric site.
Square A2, immediately south, was excavated only to the depth of the yellow clay-gravelly lenses which define the top of the probable prehistoric levels in A1 (Figure 10d). Amongst abundant fish bone were pieces of clay pipes, bottle glass, window glass, iron and copper nails, and one piece of blue and white pottery. There were also quartz and argillite flakes and cores and the base half of a bone barracouta lure point.

Square J4 (= Excavation R in Fieldbook), at the base of the slope to the north disclosed no cultural material in excavation to 0.3m, then a spade hole to 0.9m. To the west a 2m x
1m trench ( = Excavation Q in Fieldbook ) was opened, but only the northern square (H2) was excavated ( Figure 10b, c ). This revealed an oven at 0.4m. Above it was abundant bone midden and charcoal. Historical material was relatively abundant: a pipe bowl, broken and then used as a ceramic core for flakes, bottle glass, iron nails and a four-hole bone button. There were also quartz cores and flakes, and argillite flakes and a core.

These excavations were located at the foot of a slump ( Figure 11 ), and we consider it likely that the historic material in the upper part of the deposits had been carried downslope over an earlier prehistoric site. Traces of occupation were evident on the top of the spur above the slump, in the form of charcoal-stained soil ( Core SX-11 ) and hoop iron ( Test Pits SBH-01 and SBH-02 ). Furthermore, careful inspection of two 1844 illustrations by Selwyn ( Middleton 2007: Figure 16 and 17 ) indicates that they were drawn from the top of this hill, and that they show two dwellings located about the head of the slump. An impenetrable patch of flax bushes prevented detailed survey there.

Figure 11  Sealers Bay 1: Area 2. The excavations and track to the saddle are just behind the person in a red coat. Bracken covers the slope that we interpret as a slump that redeposited historic period material from house sites on the ridge top down over an earlier prehistoric site on the shore.

SB1:Area 3

Between Areas 1 and 2, the left bank of Sealers Creek is eroding and occupation material is exposed in several places. At one of these part of a basalt adze was recovered and a testpit ( 0.5m x 0.5m ) was cut into the exposed face. Other than some pieces of charcoal beneath the adze findspot there was no other cultural material. About 1 m to the south an oven was eroding from the bank. The exposed face here was cleaned and then charcoal collected from around and beneath the ovenstones.
Both of these observations indicate that at least the prehistoric component of the site identified in Area 1 formerly extended north of Hydro Creek. It probably also extended further east, as what appeared to be the bases of two ovens were exposed in the bed of Sealers Creek immediately east of Area 1 (Figure 12).

SB1:Area 4

Occupation deposits covering an area of about 20m x 25m was defined by augering (Cores HC1-19, SC-01, -02, -04, -05, -08, -09, -11, -13, -14) on the low flat forming the eastern part of SB1 (Figure 5). A 3m x 1m trench (= Excavation C in Fieldbook) was opened here. Four layers were identified (Figure 13) which were excavated in 10 cm spits.

Layer 1 was a grey sandy soil, quite deep and homogenous, and possibly gardened. Spits 1 and 2 were entirely within this band while spit 3 was transitional with Layer 2. Few artefacts or bones were found above spit 3. Layer 2 (spits 4 & 5) was a darker grey soil interspersed with charcoal and bone, clearly oven rakeout, while Layer 3 (spits 6 and 7) was a very dense layer of bone midden adjacent to and partly overlying oven pits. Layer 4 was the clean yellow sand on which occupation intially took place.

Historic period items were scarce and found mostly in Layer 1. The site also produced a broken one-piece baithook of bone, the blade section of a rectangular green argillite adze – subsequently used as a core – and numerous stone flakes of argillite, quartz, and chert. There was also a large argillite preform flake with cortex and a piece of a large silcrete blade. This appears to be primarily the oven and midden area of a small prehistoric settlement of some age. The artefactual range and types (rectangular adze, large one-piece hook, silcrete blade), and the diversity of material, suggest an Archaic site, perhaps more than 500 years old. There are no structural remains from the 19th century, but the soil that developed on top of the earlier occupation may have been gardened at that time.
Sealers Bay 2 (D48/21)

Archaeological remains at the eastern end of Sealers Bay were first recorded following a Lands and Survey visit in 1981 (NZAA Site Record Form). These comprised an eroding layer of charcoal, burnt bone and oven stones exposed in a blowout about 110 m from the end of the beach. About 200 m to the north was a second long blowout with a lot more bones but no other cultural evidence. In 2007 we observed an old blowout at about 110m from the end of the beach (Figure 14). It is partially filled by a parabolic dune advancing eastward along the dune ridge, which will have been active for some time (Mike Hilton pers. com.) making it unlikely that either of the hollows observed in 1981 is still visible.

Furthermore it is clear that the front of the dune has retreated significantly. In 1981 the eroding midden layer was 20m inland from the front of the dune. By 1992 it was only 10m back and the following year all that remained was a thin lens of midden slumping from the front of the foredune. In 2003 a further 15m were lost from the foredune in a single storm (Mike Hilton pers. com.). It seems likely, then, that most of the deposits previously recorded have been eroded and either reburied or weathered away.

Reported contents include a fluted clay pipe bowl, hobnail boot and hoop iron along with fish, bird and marine mammal bone, mussel shells and charcoal, indicating occupation from the
historic period and possibly earlier. Human bones were noted in 1992, although they are not otherwise reported on the Site Record Form. However further evidence of burials has recently been collected (Middleton 2007:64) and this vicinity is recognised as an *urupa*. Respecting this, we made no intrusive investigations here.

The defined site area for SB2 (Figure 3) is made up predominantly of the erosion zone encompassing the previously reported observations. However we have extended the site to include an area eastward and inland of the erosion in which there could be further intact deposits. We did not test this area, beyond observing that there was no visible evidence in the dune cutting where the New Forest/Loop track descends to the beach. Two cores and one spade hole (SV-01 to SV-03) on flats either side of the track showed that the site did not extend up the hill.

**Sealers Bay 3 (D48/30)**

About midway along the dune crest, close to the old Lands & Survey 500m peg, we located a small blowout with old soil horizons eroding from both its eastern and western sides, and a thin scatter of midden and stone on the loose sand below (Figure 3). The western face was cleaned, exposing a section about 2m high and 8m long with a 10cm deep band of bone midden about 1.5m below the crest (Figure 15). A 1.5m x 1m test trench (=Excavation A squares A1 and A2 in Fieldbook) was excavated from the top of the cultural deposit in four 10cm spits. These contained fish, bird and mammal bones and a few shells. No historic period items were located.
The eastern face was sampled by Rachael Egerton to collect soils samples for landsnails analysis.

**Sealers Bay 4 (D48/31)**

Archaeological deposits were also found in the vicinity of the modern helipad, hut and service areas (Figure 16). Earthworks, such as digging rubbish pits, have from time to time uncovered items including four adzes (Middleton 2007: 66-67), a copper kettle, clay pipes and ceramic fragments. Although it is now difficult to establish the precise locations of these finds, general find localities include the dune swale between the hut and generator shed, and along the track from the hut to the bridge across Sealers Creek. None appear to have been inland of the modern hut, and our test pits along the Valley Track further inland found no evidence of occupation (Appendix 1). Seaward of the hut auger surveys located three areas of buried deposits (Area D; Area E; Core SD-08), two of which were tested further.
SB4: Area D

A series of cores were taken in the vicinity of the helicopter pad as it had been indicated to us that improvements to this facility may be required, and it provided an excellent opportunity to sample an intact portion of the dune crest. Cores SD-01, -02, -09, -15, -16, -17 and -19 suggested the presence of a band of occupation material about 7m wide running along the dune ridge for ca 22m.

Adjacent to SD-01 a 1.5m x 1m test pit was excavated (=TestPit D in Fieldbook). This disclosed a thin cultural layer at about 70 cm, rich in charcoal and ovenstones but with relatively sparse bone midden. Some dog coprolites were also recovered. Artefacts were also scarce, but included two fragmentary bone points from composite fish hooks, which may indicate a late prehistoric age. There were no historic period items.

This occupation deposit was at depths ranging from 0.7m to 2.0m below the ground surface indicating that it should not be regarded as a major constraint on re-modelling the helicopter pad.

SB4: Area E

Core SE-03 located a buried deposit several metres from a thin lens of bone midden eroding from a bank beside the track leading from the hut towards the bridge across Sealers Creek. Adjacent to the core a spade test pit (=TestPit E in Fieldbook) 0.8m x 0.6m disclosed a 10 cm thick layer of abundant charcoal, ovenstones and sparse shell and bone midden at a depth of 0.5m, sloping down to 0.9 m.
Penguin Bay 1 (D48/32)

Penguin Bay was examined during the course of determining the boundaries of the Sealers Bay 1 site. As noted above, the latter did not extend onto or beyond the low saddle between the two bays, and two spade testpits (PBB-01, PBB-02) showed only natural soil profiles. However metal detecting on the gently sloping ground behind the beach located a number of large pieces of railway iron and several smaller metal items. Middleton (2007:66) records that Euan Kennedy noted an historic site in this vicinity from which short sections of railway iron were recovered for use in diving. We also observed two fragments from a trypot amongst the large boulders at the back of the beach (Figure 17), and several pieces of iron, wood and fibreglass that clearly derived from shipwrecks. Although the limited nature of our investigations make it difficult to be sure, it is possible that this site is nothing more than an accumulation of flotsam and jetsam.

Penguin Bay 2 (D48/33)

On the cliff top above the western end of Penguin Bay, adjacent to the Mephistopheles Track we relocated a heap of bricks first observed by Robert Wilson (1959) in 1934. Middleton (2007: 65) notes that these have been identified as the remains of a rum still, likely to derive from rum running pre-1933.
Preliminary Interpretation

Because Sealers Bay, and particularly its western end, have been the haven for human settlement on the island, our investigations have probably recovered evidence of the full sweep of human occupation on the island. The bone midden in the lower horizon of our main excavation (SB1:Area 1) has one of the key diagnostic characteristics of an ‘initial occupation’ site in Oceania — a huge abundance of bird bones. Coupled with this are typically early artefacts: blades and Archaic styles of adzes. We have submitted charcoal samples from the top and bottom of this horizon for radiocarbon dating. Other deposits that are potentially of similar age, on artefactual grounds, include the lower spits of SB1:Area 2 and SB1:Area 4. Two charcoal samples from each of these contexts have also been submitted for dating.

Later prehistoric use of Sealers Bay may be represented under the helipad in SB4. This interpretation is based primarily on two fragmentary fish hook points, although the sparser midden represented in both testpits in SB4 is typical of late prehistoric sites in southern New Zealand. A charcoal sample from each of these excavations has been submitted for dating. The eroding deposits sampled at SB3 might be of similar age, although we have not yet sorted sufficient material from this area to enable selection of a sample for dating. If our inferences about the age of these deposits along the crest of the main dune are correct, they suggest that late prehistoric use of the bay was mainly for brief small campsites, rather than the more settled character of the early occupation.

Historic period occupation is also concentrated at the western end of the beach. SB1:Area 1 provided outstanding evidence of the form of housing during the 19th century settlement phase (ca. 1825-1850). Our survey observations strongly suggest another house site about 35m further south, and we propose that the huts sketched by Selwyn in 1844 stood around about the top of the slump face above SB1:Area 2, making it likely that the upper horizon in our excavations there derives from those dwellings. Historic items were also present in the upper spits of SB1:Area 4, but in very small numbers and we suggest that this area may have been a garden, rather than a housing area. It is certainly the area in which the mint introduced in the early 19th century is most common today (Figure 18).

The historic period deposits in SB1:Area 1 also showed that while European artefact types such as ceramic plates, pipes and glass bottles were present, they were not common compared to later historic period sites. Maori artefact types were present in similarly low numbers, and included a small bowenite pendant (Figure 19) recovered just below the floorboards of the Area 1 house.

It is more difficult to place the deposits at the east end of Sealers Bay into a chronological framework. Earlier reports of items seen amongst the eroding deposits there include both prehistoric and historic period artefacts, but it is not possible to determine whether these derived from dwellings, temporary camps or were predominantly associated with use of the area as an urupa.
Figure 18 Western end of Sealers Bay, showing located archaeological deposits and the distribution of mint plants.

Figure 19 Front and back views of a small tangiwai (bowenite) pendant from Sealers Bay 1: Area 1.
Analysis of Archaeological Assemblages

Prior to our investigations it was anticipated that we would recover a relatively small quantity of material, and that analysis of this would be well advanced by the time this preliminary report was written, and completed by the end of 2007. As it transpired, we discovered an extraordinarily rich midden in the lower layer of SB1:Area 1 which has required reconsideration of the timescale for the analysis. Both the quantity of material recovered and its scientific importance mean that analysis is unlikely to be completed before the end of 2008. An application is being made to the University of Otago for research funding to assist in meeting this revised target.

References


Appendix 1: Coring and Test Pit Log

Sealers Bay 1

(a) Transects on Flat between Hydro Creek and Sealers Creek, encompassing SB1:Area 1 and SB1:Area 4 (NB: SB1:Area 4 = Excavation C in fieldbook).

HC1  From Hydro Creek S to HC1-13, then WSW to HC1-19
HC1-01 1m from creek edge. Darker horizon begins 0.8 m and cultural material at 0.9m.
HC1-02 3m from creek edge. Dark sand to 0.5m grading to clean sand; darker and damper at 1.2m rock at 1.46m.
HC1-04 Rock at 1.8 m, no cultural material.
HC1-04 Rock at 2.0 m, no cultural material.
HC1-05 Black sand with bird sacrum at 0.72m.
HC1-06 Rock at 2.25 m, no cultural material.
HC1-07 Black sand and fishbone 0.6m.
HC1-08 Black sand and bone at 0.2m.
HC1-09 Black sand and bone at 0.2m.
HC1-10 Scarce black sand and bone at 0.2m, then clean sand to 2.5 m.
HC1-11 Grey sand and charcoal flecks at 0.2m, then clean sand to water table at 2.4 m.
HC1-12 Black sand, charcoal and bone at 0.2m.
HC1-13 Nothing to 2.5 m.
HC1-14 Nothing to water table at 1.8 m.
HC1-15 Wet grey sand to 0.3m then nothing to sloppy wet sand at 0.8 m.
HC1-16 Wet grey-brown sand at 0.2m then to sloppy brown sand below.
HC1-17 Wet dark brown sand at 0.3m and then sloppy brown sand below.
HC1-18 Dark brown damp sand at 0.4m and sloppy brown sand at 1.5 m.
HC1-19 Dark grey sand and fishbone at 0.15m, then yellow-grey sand, sloppy at 1.65m.

HC2  E to W; Sealers Creek to base of hill; crosses HC1 8.5m S of HC1-01
HC2-01 5mE of HC1. Clean sand to 1.18m; light grey sand with charcoal lumps and fishbone.
HC2-02 3m E of HC1. Light grey sand with fishbone at 1m.
HC2-03 1m W of HC1. Dark grey sand 0.6m to 0.8m; clean sand to 2.25m.
HC2-04 3m W of HC1. Clean sand to rock at 1.75m
HC2-05 5m W of HC1. Clean sand to rock at 0.85m.
HC2-06 7m W of HC1. Clean sand to rock at 0.75m.

HC3  W to E; Base of hill to Sealers Creek; crosses HC1 18m S of HC1-01
HC3-01 6m W of HC1. Grey sand, fish and bird bone at 0.5m.
HC3-02 4m W of HC1. Grey sand, fish and bird bone at 0.42m.
HC3-03 2m W of HC1. Grey sand, fishbone and charcoal at 0.78m.
HC3-04 on HC1 line. Grey sand, charcoal, fish, bird and mammal bone at 0.65m.
HC3-05 2m E of HC1. Grey sand, sparse fish bone at 0.73m.
HC3-06 4m E of HC1. Nothing to 2.5m.
HC3-07 6m E of HC1. Clean sand, one fish bone at 1.03m, rock at 2.18m.

HC4  SW-NE; On NorthWest Bay track, beginning at base of hill
HC4-01 Burnt brick or stone and charcoal at 0.15m.
HC4-02 Burnt brick or stone and charcoal at 0.15m.
HC4-03 Scarce burnt stone and charcoal to 0.6m and grey sand to 0.8m.
HC4-04 Charcoal and bone to 0.8m then yellow-grey sand to water table at 2.0m.

HC5  NE-SW; On flat at base of hill, ca 20m? south of NorthWest Bay track
HC5-01 Brown sand to 0.4m, then yellow-grey sand to water table at 2.0m.
HC5-02 Black sand and charcoal at 0.8m to 0.95m, water table at 1.5m.
HC5-03 Grey-brown to yellow-brown sand and water table at 2.5m.
### SC

**Cores on flat S of W-E reach of Sealers Creek**

<table>
<thead>
<tr>
<th>Core</th>
<th>Description</th>
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<tbody>
<tr>
<td>SC-01</td>
<td>Dense charcoal and cultural material to 0.5 m.</td>
</tr>
<tr>
<td>SC-02</td>
<td>Dense charcoal and cultural material to 0.5 m.</td>
</tr>
<tr>
<td>SC-03</td>
<td>Yellow-grey to brown sand at 1.2m, then wet grey sand at 1.4 m.</td>
</tr>
<tr>
<td>SC-04</td>
<td>Charcoal, bone and black sand at 0.5 m.</td>
</tr>
<tr>
<td>SC-05</td>
<td>Occupational material at 0.6 m.</td>
</tr>
<tr>
<td>SC-06</td>
<td>Grey-brown sand to wet grey sand at 0.7m.</td>
</tr>
<tr>
<td>SC-07</td>
<td>Grey-brown sand with no observable occupational material to yellow-grey sand at 0.65 m.</td>
</tr>
<tr>
<td>SC-08</td>
<td>Occupational material and black sand at 0.6 m.</td>
</tr>
<tr>
<td>SC-09</td>
<td>Occupational material and black sand at 0.4 m.</td>
</tr>
<tr>
<td>SC-10</td>
<td>Grey sand to 0.5 m with no observable cultural material, the yellow-grey sand.</td>
</tr>
<tr>
<td>SC-11</td>
<td>Mottled black sand and charcoal at 0.4 m.</td>
</tr>
<tr>
<td>SC-12</td>
<td>Grey sand to 0.5 m with no observable cultural material, the yellow-grey sand.</td>
</tr>
<tr>
<td>SC-13</td>
<td>Grey sand to 0.5 m; black sand to 0.65m; yellow-grey sand.</td>
</tr>
<tr>
<td>SC-14</td>
<td>Grey sand to 0.6 m, black sand to 0.64m; yellow-grey sand.</td>
</tr>
<tr>
<td>SC-15</td>
<td>Dark grey sand to 0.5m; brown sand to 1.4m; wet gluggy sand.</td>
</tr>
<tr>
<td>SC-16</td>
<td>Dark grey sand to 0.5m; brown sand to 1.5m; wet gluggy sand.</td>
</tr>
<tr>
<td>SC-17</td>
<td>Dark grey sand to 0.5m; brown sand to 1.4m; wet gluggy sand.</td>
</tr>
</tbody>
</table>

### SF

**Cores on southern part of flat**

<table>
<thead>
<tr>
<th>Core</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SF-01</td>
<td>Wet brown sandy soil to water table at 1.4m.</td>
</tr>
<tr>
<td>SF-02</td>
<td>Wet beige sand to water table at 1.8m.</td>
</tr>
<tr>
<td>SF-03</td>
<td>Wet brown sandy soil to water table at 1.4m.</td>
</tr>
<tr>
<td>SF-04</td>
<td>Wet brown sandy soil to water table at 1.4m.</td>
</tr>
<tr>
<td>SF-05</td>
<td>Clean brown sandy soil to 2.1m</td>
</tr>
<tr>
<td>SF-06</td>
<td>Wet brown sand to water table at 1.4m.</td>
</tr>
</tbody>
</table>

*(b) Auger and spade testpit survey in northern part of site, encompassing SB1:Area 2, saddle to Penguin Beach, headland north of saddle and spur top west of SB1:Area 2.*

**NB SB1:Area 2 = Testpits A and A2, Excavations Q and R in fieldbook**

### SX

<table>
<thead>
<tr>
<th>Core</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SX-01</td>
<td>ca 5m W of TPA. Dark sand with charcoal to 0.53m; beige sand to 0.85m; grey-brown sand to 1.1m; yellow-orange gritty sand, impenetrable.</td>
</tr>
<tr>
<td>SX-02</td>
<td>ca 15m W of TPA. Grey sand to 0.75m; grey-brown sand with bone flecks to 0.85m; gritty sand, impenetrable.</td>
</tr>
<tr>
<td>SX-03</td>
<td>ca 5m S of TPA. Grey brown humic topsoil to 0.5m; grey-brown sand to 0.6m; yellow-grey; sand with birdbone, fishbone and charcoal to 1.15m; yellow-brown sand to 1.3m; impenetrable.</td>
</tr>
<tr>
<td>SX-04</td>
<td>ca 20m SW of TPA. Humus to 0.25m; light grey sand to 0.5m; dark grey sand and charcoal to 0.65m; yellow-brown weathered sand to 1.3m; impenetrable.</td>
</tr>
<tr>
<td>SX-05</td>
<td>Just below top of slope W of TPA. Grey humic sand to 0.65m; brown sandy silt to 0.85m, grades into reddish-brown weathered sand to 1.3m; impenetrable.</td>
</tr>
<tr>
<td>SX-06</td>
<td>Top of saddle to Penguin Beach. Dark grey-brown humic sand to 0.9m; damp reddish-brown sandy soil to 1.4m; dry brown gritty sand, impenetrable.</td>
</tr>
<tr>
<td>SX-07</td>
<td>Top of saddle to Penguin Beach. Dark grey-brown humic sand to 0.9m; damp reddish-brown sandy soil to 0.9m; dry brown gritty sand, impenetrable.</td>
</tr>
<tr>
<td>SX-08</td>
<td>In depression near top of saddle. Brown humic sandy soil to 0.7m; dry reddish brown sandy soil to 0.8m; brown gitty soil, impenetrable.</td>
</tr>
<tr>
<td>SX-09</td>
<td>Top of headland north of saddle, near seaward edge. Dark grey-brown humic sand to 0.85m; dark reddish-brown campct sandy soil to 0.95m; impenetrable.</td>
</tr>
<tr>
<td>SX-10</td>
<td>Top of headland north of saddle, near inland edge. Friable grey sandy soil to 0.3m; compact dark grey-brown sandy soil to 0.75m; brown sticky soil to 0.9m; brown muddy soil to 1.03m; orange-brown anaerobic mud.</td>
</tr>
<tr>
<td>SX-11</td>
<td>On top of spur south of saddle. Brown humic sandy soil to 0.3m; black charcoal-stained soil to 0.5m; damp brown sticky soil to 0.7m; wet reddish-brown weathered soil to 0.9m; impenetrable.</td>
</tr>
<tr>
<td>SX-12</td>
<td>On top of spur south of saddle. Brown humic sandy soil to 0.4m; Brown gritty soil to 0.5m; damp brown soil to 0.7m; wet, hard reddish-brown soil to 0.8m; impenetrable.</td>
</tr>
</tbody>
</table>
SX-13  On top of spur south of saddle. Dark grey soil to 0.4m; brown soil, increasingly damp with depth, to 0.75m; tree root, impenetrable.
SX-14  On top of spur south of saddle. Dark grey sandy soil to 0.3m; compact dark grey soil with white grit to 0.6m; compact brown soil to 0.9m; impenetrable.

**SBH**  Spade testpits on top of spur south of saddle (Sealers Bay Heights)
SBH-1  Spade testpit 15m S of SX13. Dark brown sandy soil to 0.25m, strip of hoop iron.
SBH-2  Spade testpit 20m SE of SX11. Dark grey-brown sandy soil to 0.2m, strip of hoop iron.

**PBB**  Spade testpits on low sloping ground north of saddle (Penguin Bay Beach)
PBB-1  Spade testpit ca 10m W of stream. Dark brown damp soil to 0.3m, reddish brown damp soil to 0.4m, boulders.
PBB-2  Spade testpit ca 4m E of stream. Dark brown damp soil to 0.25m, boulders.

**Sealers Bay 2**

*Cores and testpits on flats either side of New Forest/Loop track at E end of Sealers Bay*

SV-01  On flat terrace W of track. Core: forest soil on clean beach sand to 1.5m.
SV-02  Spade testpit 5m W of SV1: forest soil on clean beach sand to 0.8m.
SV-03  On flat terrace E of track, above creek. Core: forest soil on clean beach sand to 1.5m.

**Sealers Bay 4**

*(a) Test pits in old dunes along Valley Track*

**Alcove A:**
Along the Valley track are four shade houses, used here as reference points. The one furthest from the Sealers’ Bay Hut is labeled “4 Mattman and Robyn’s Cave” and has a plastic tag, 028031. Dune sand can be observed to extend about 30m inland of this point along the track. About 87m back towards the hut from shadehouse 4 (32m hutside of shadehouse “3 Luke and Richard’s battery”) there is an alcove cut into the side of the dune. I called this ‘Alcove A’. It is a 3m x 3m cut which exposes about 0.8m depth of the dune. Face cut down to 1.3 m and stratigraphy recorded: grey-brown sandy forest soil to 0.15m; chocolate-brown, semi-compact sand to 0.7m; semi-compact orange sand to 1.1m and then a looser, light-orange to yellow sand to 1.3m. This looks like an old weathering horizon with soil staining as well – possibly thousands of years old.

**Alcove B:**
About 51m N along the track (towards hut) from alcove A is ‘Alcove B’, a 3m x 1.5m cut into the side of the dune. It shows: 0.1m of grey-brown forest soil; semi-compact light to mid-brown sand to 0.7m depth; semi-compact brown-orange sand to 1.3 m.

**Testpit C:**
About 52 m further N along the track (25 m hutside of shade house 2), is the swale between the old and younger dune (which the New Forest track traverses). At this point dug a hole 0.5m through light yellow-brown sand to semi-compact dark chocolate brown sand. Cored this to 1.5m where it was lighter in colour – rocks prevented further penetration.

Looks like an old dune, which is too old to have sites within – though they could be on its surface – which passes at least partly under the high ‘New Forest’ dune. Could be sites within as well as on the latter.

*(b) Auger transects between Helicopter Pad and Sealers Creek*

SD-01  Light yellow-grey sand to 2.5 m, but a 3-5 cm band of grey sand with charcoal flecks and fish and bird bone at 70 cm below a thin brown soil horizon – probable paleosol.
SD-02  Same stratigraphy as above but the grey sand layer, with part of a dog jaw was at 1.4m.
SD-03  Yellow-grey sand with no cultural material to 2.5 m.
SD-04  Yellow-grey sand with no cultural material to 2.5 m.