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# Archaic Storage Pits at N44/97, Hahei, Coromandel Peninsula, New Zealand

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## ABSTRACT

This paper describes and discusses a number of storage pits revealed during the recent excavation of an Archaic working floor in a coastal, sand-dune site, N44/97, at Hahei on the east coast of the Coromandel Peninsula. A brief comparison of these pits with those excavated during the late 1950s and 1960s at Skipper's Ridge (N40/7, N40/73) and Sarah's Gully (N40/9, N40/10) is made and some similarities between the open settlements at Hahei and that at Skipper's Ridge I noted.

*Keywords:* NEW ZEALAND, EAST COAST COROMANDEL PENINSULA, HAHEI, ARCHAIC, STORAGE PITS.

## INTRODUCTION

During the late 1950s and early 1960s, intensive archaeological fieldwork was carried out on the Coromandel Peninsula, particularly on the east coast near Opito Bay. Here, the excavation of a number of subsurface pit structures at N40/7, Skipper's Ridge I (Parker 1962) and N40/9, Sarah's Gully Settlement (Golson 1959a:45) stimulated considerable discussion on the possibility of agriculture in the early Archaic period in New Zealand. Central to the debate was the question of whether the pits had been used as dwellings or for storage and if, in fact, they were Archaic. While the structures at N40/7 were associated with Archaic artefacts, the pit complex at Sarah's Gully contained neither diagnostic artefacts nor datable material.

The publication of a detailed site report for the Skipper's Ridge site (Davidson 1975) and a single radiocarbon date for the lowest level (Davidson 1974), together with the work done in the past decade or so on early agricultural field systems in New Zealand, has clarified the issue and it is now generally accepted that the pits at Skipper's Ridge I, at least, are Archaic and were used for the storage of agricultural surpluses.

Additional evidence for gardening activities in the Archaic period on the Coromandel Peninsula is provided by a site at Hahei. In 1979 the salvage excavation of N44/97, a coastal dune site, uncovered a number of Archaic storage pits. These structures, which have many features in common with those from the Opito Bay area, are the subject of this report.

## THE SITE

Hahei is a long, sandy, exposed beach, 12 kilometres south of Opito Bay (Fig. 1). N44/97 is situated in the sand dunes at the eastern end of the beach, beside a small tidal creek. The site was formerly more extensive, possibly 3-4 hectares in extent, but most has now been destroyed through subdivision and roading. At various times during development, midden deposits, burials and areas of the working floor were exposed and a previous investigation of the site was carried out by Edson and Brown in 1976. This excavation, which followed the reporting of a disturbed burial with associated grave goods, was restricted to the disturbed area and no structural features were found (Edson and Brown 1977:26-27).

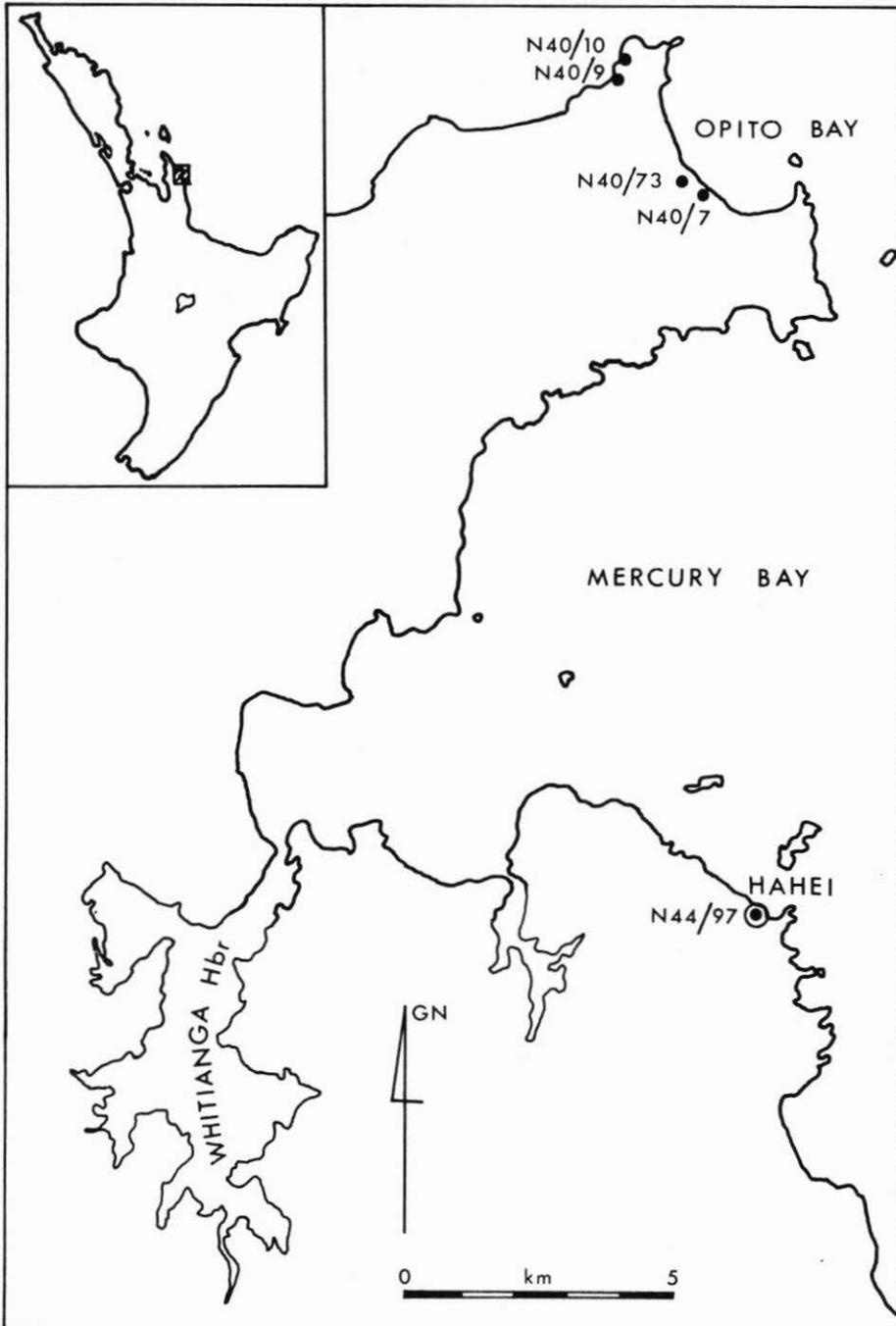


Figure 1: Location map showing site N44/97 and the Opito Bay sites.

In 1979 one of the few remaining intact areas of the site came under threat and a two week salvage excavation was undertaken on behalf of the New Zealand Historic Places Trust. A further three days were spent at the site in December 1981. In all some 72 square metres were excavated (Fig. 2).

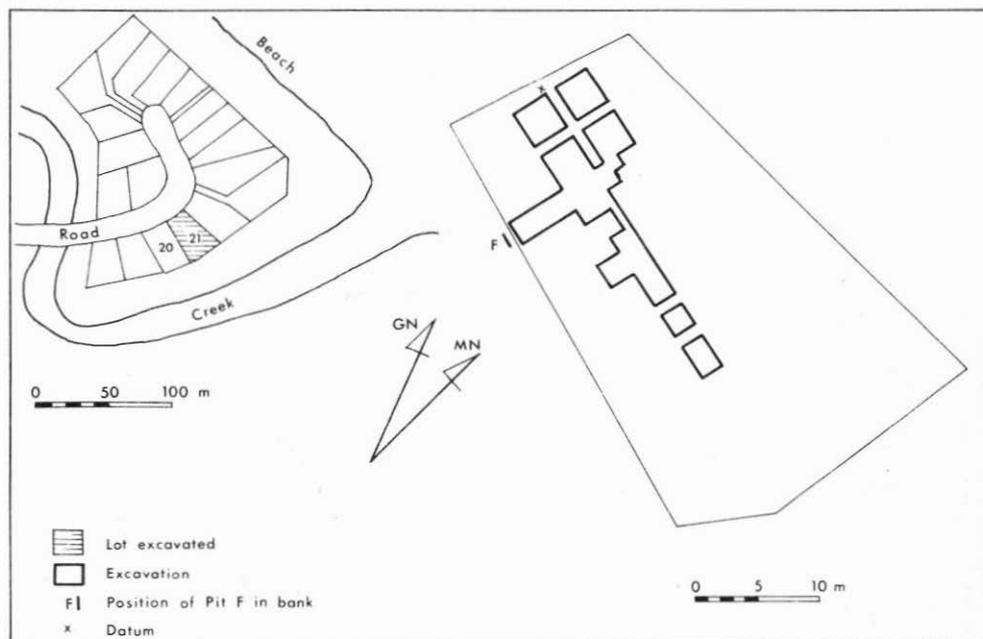


Figure 2: Location of excavated area.

### STRATIGRAPHY AND DATES

The overall stratigraphy of the site (Fig. 3) was determined as follows:

- Layer 1: Sand and humus.
- Layer 2: Loose, grey sand with humus and some cultural material, derived from the underlying layer.
- Layer 3: Friable, brown sandy soil, containing large numbers of artefacts and small amounts of charcoal, pieces of shell and pebbles.
- Layer 3a: Friable, light brown mottled sand, discontinuous over the site. Cultural material was absent from this layer in the eastern area of the site but present in the western area.
- Layer 4: Compacted red/brown, sandy soil containing cultural material in the upper few centimetres only.
- Layer 5: Sterile, coarse-grained, yellow sand.

The transitions between layers 2 and 3 and layers 3 and 4 were gradual. The interfaces between the layers were difficult to define in section and are not considered to be significant layers in themselves. In the west part of the site, layers 3 and 4 merged, were mixed with yellow sand and became indistinguishable from each other.

Four charcoal samples obtained from firescoops were submitted for dating. The results (Harsant 1983:60) indicate that a reasonable estimate for the date of occupation is the mid fourteenth century.

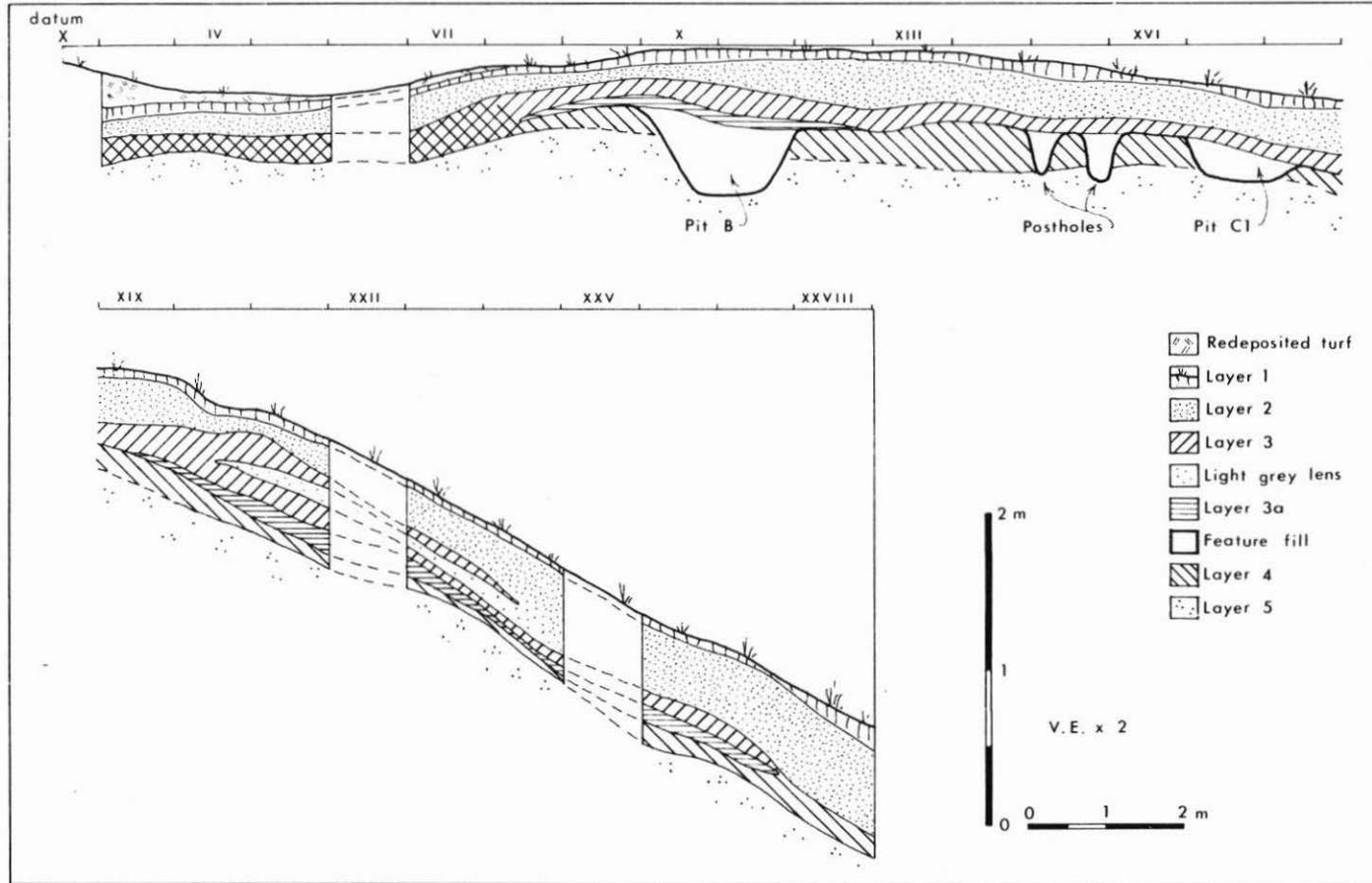


Figure 3: Section through site showing stratigraphy of north baulk, L squares.

### STRUCTURAL FEATURES

Five pits and several other features were found in the excavated area (Fig. 4). Unfortunately time did not allow the full excavation of all the pits uncovered, or indeed, the removal of all of layer 4 from the site. All the storage pits, except pit D, had been cut into layer 4 and the natural sand below. Pit D had been cut into the fill of pit E.

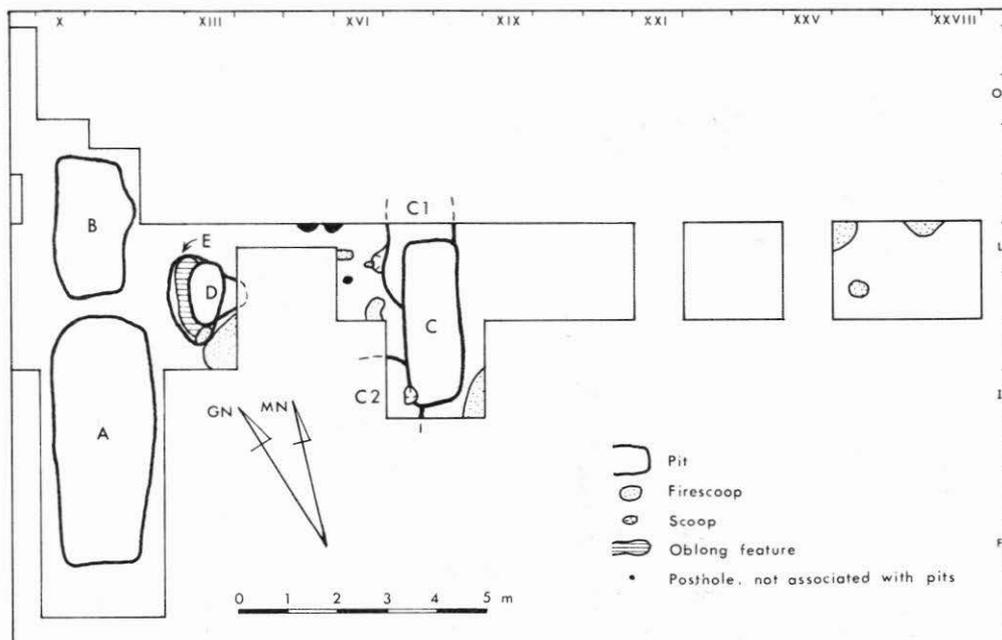


Figure 4: Location of pits and other features.

#### PIT A

A rectangular pit, slightly rounded at one end (Fig. 5a). The floor measured 4.84 x 1.56 m and was 68 cm deep (0.73 m below site datum), sloping to 92 cm at the south end. At a depth of 38 cm from the pit rim, a narrow, sloping ledge, 8 cm wide, followed the curve of the southwest corner, while a similar ledge, at a depth of 42 cm, ran along 1.40 m of the southern end of the east wall. The rim of the south wall was less curved than those of the southern end of the east and west walls and raised slightly above them (6 cm and 4 cm respectively).

Of the eight postholes, five were aligned longitudinally down the centre of the pit, a further two were evenly spaced along the east side and the final one had been cut into the west wall. The fills were removed from only three—all were broad and deep (Fig. 5a).

The walls of the pit were clean and straight with no slumping apparent, suggesting that the pit had been back filled immediately after it was no longer required for storage. The lower fill was a loose, almost sterile mottled yellow sand; it was relatively deep at the south end but lensed out towards the northern end. An artefact rich, compacted, dark brown, sandy soil containing occasional patches of clean white sand and charcoal-enriched areas, formed the main fill. Overlying this, layer 3a varied in depth according to the amount of sagging of the main fill.

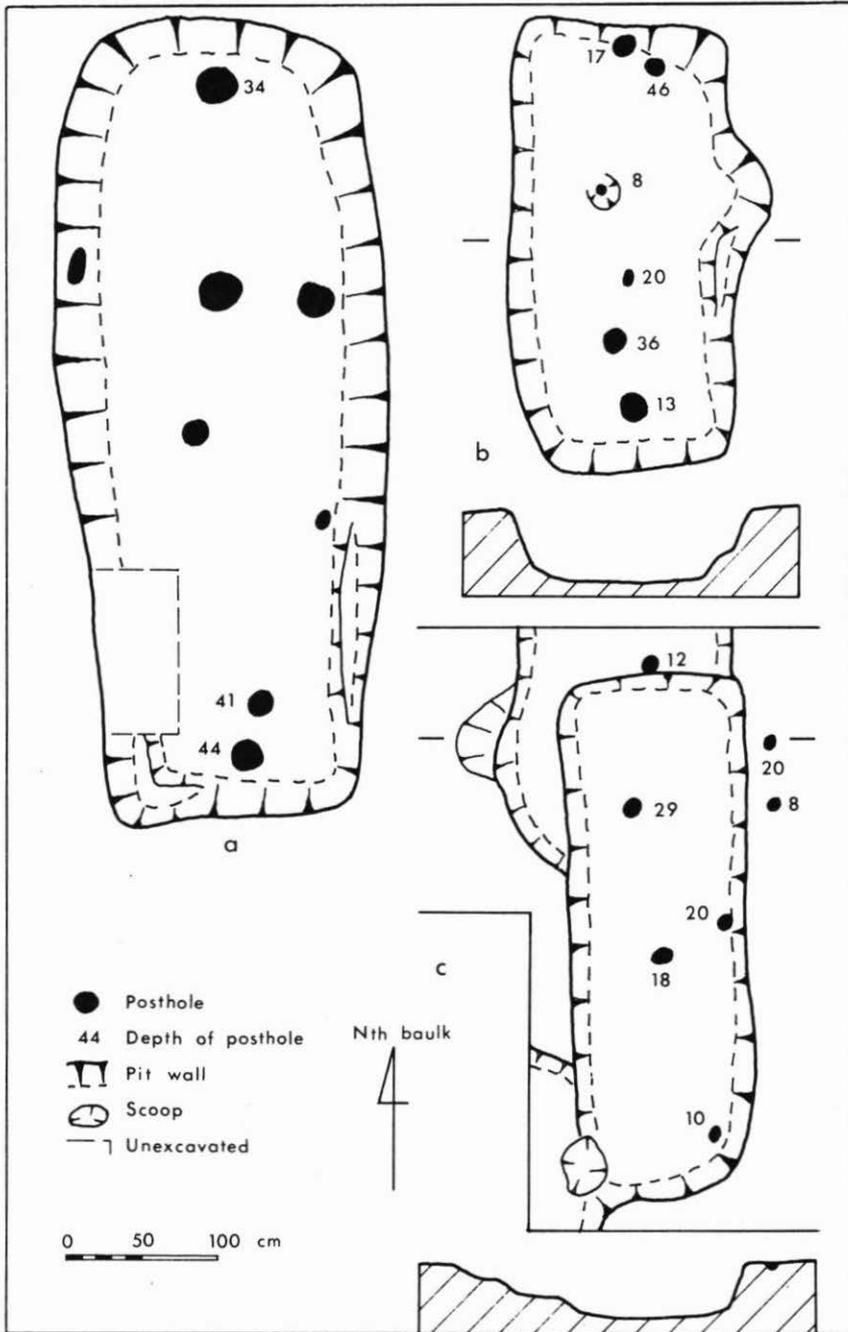


Figure 5: Pits A to C. a. Plan of pit A. b. Plan and cross-section of pit B. c. Plan and cross-section of pit C.

## PIT B

A rectangular pit, the floor of which measured 2.62 x 1.16 m and was 52 cm deep (0.55 m below site datum). A semi-circular bulge and a ledge, 12 cm wide and at a depth of 28 cm from the pit rim, on the east wall, probably indicate an entrance. A shallow posthole, which had a slight depression around three sides, lay directly opposite the bulge and may be related to it in some way. The five other postholes were all deep (Fig. 5b) and were aligned longitudinally down the centre of the pit. With the exception of a patch of sterile yellow sand, close to the surface at the south end of the pit, the fill was a uniform compacted brown sandy soil, very similar to the upper fill of pit A. No slumping was apparent and it seems that this pit, also, was filled immediately after use.

## PIT C

This was a shallow rectangular pit (C) with an "annex" (C1 and C2) at either end (Fig. 4). It was not possible to determine, with any certainty, whether C1 and C2 were separate features or a part of the same structure.

Pit C was rectangular with a floor 3.24 x 0.94 m in area and 38 cm deep (0.75 m below site datum). The southern 1.05 m of the west wall had slumped on to the floor of the pit prior to filling. A part of the slumped area had been removed by the construction of C2. Unfortunately neither C1 nor C2 were fully excavated. The floor of C1 was 20 cm deep. Its walls were parallel, and aligned with pit C with the west wall extending southwest in a semi-circle and curving into the rim of C (Fig. 5c). A scoop in the west wall edge may have been caused by slumping during construction or use of the pit. Only a small portion of C2 was exposed. Its floor was 28 cm deep. The east edge was aligned with the west wall of C and intersection of the two features was complicated by the slumped western wall of C and the presence of an oval scoop cut from the floor of C2. This was 19 cm deep, the indentation on the west side suggesting that it may well have supported two posts angled over C2.

During excavation, the fill in the three features was identified as having two components—an upper, compacted, charcoal-enriched, grey, sandy soil (Ci) and a lower fill (Cii) which was very similar to Ci but had a greater concentration of charcoal as well as occasional lumps of clay and small pockets of clean sand. Small fragments of burned wood were found between the two fills in one area, although in general the boundaries were poorly defined and unable to be clearly identified in section. Both were present in pit C although Ci lensed out at the northern end. The upper fill appeared to be absent from C1 while the lower fill was absent from C2. The fill in C2's scoop could not be distinguished from either Ci or Cii.

Since there was no sign of accidental infilling, apart from the slumped area of the west wall of C, it is possible to propose the following sequence. C1 was either constructed first or was contemporary with C; in either case they were filled at the same time, C1 completely, C partially, with less fill being put in the southern area. Before filling, however, the southern part of the west wall slumped. C2, along with the scoop, were then constructed, removing part of the slumped area in the process. If this is correct, the incompletely filled south end of C may have provided access into C2. C2, when no longer required, was filled and C levelled. Since the boundaries between fills Ci and Cii could not be distinguished precisely, this sequence must remain tentative only.

Four postholes had been cut into the floor of pit C. Two of them, together with a posthole in C1, were aligned down the centre of the pit. The other two were on the east side, close to the wall, with the northernmost angled towards the wall. One of

these postholes contained remnants of the original stake or post. This was identified as having been cut from the trunk of a gymnosperm (R. Wallace: pers. comm.). Immediately to the east of the pit were a further two holes which were probably associated with it, while another posthole, 55 cm to the west, was not.

#### PIT D

This was a vertical sided, oval pit, with an entrance adit on the east side which was not fully exposed during excavation (Fig. 6). The pit measured 87 x 52 cm and was 60 cm deep. The storage area of the pit had been cut, almost entirely into the fill of pit E and, at the west edge, into an oblong feature overlying part of pit E, while the adit had been cut into layer 4. A later firescoop intercut the southern rim of the pit. No postholes were found.

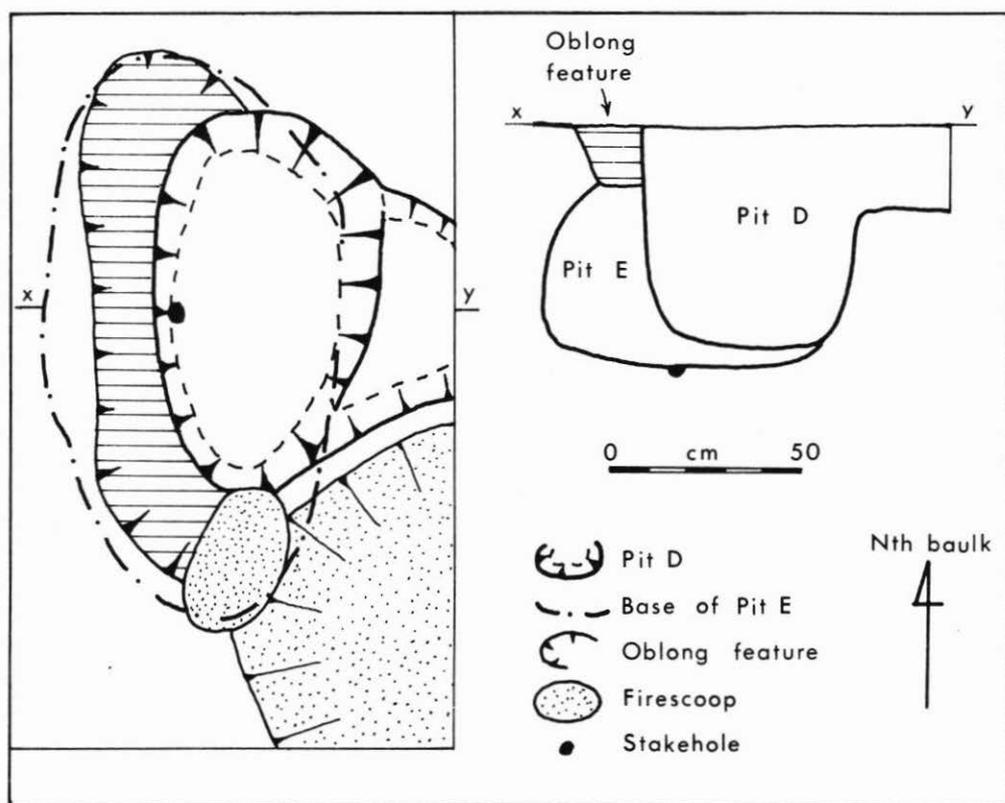


Figure 6: Plan and cross-section of pits D and E and associated features.

The fill of the pit and adit was a soft, coarse-grained gold sand which contained occasional pieces of charcoal and artefacts; these, however, were largely confined to the top of the fill.

#### PIT E

An oval shaped, underground pit, represented by fill only. This was the most problematical pit in the site and its entrance and precise relationship to the oblong

feature which overlay it were not able to be clearly established.

The walls and the roof formed a continuous curve on the west side and intact areas of the north and south sides (Fig. 6). The floor of the pit was 64 cm deep and measured 1.45 x 0.84 m. A 5 cm deep stake hole was located slightly west of centre. The fill was an almost sterile, coarse-grained brown sand. The oblong feature varied in depth from 12 to 18 cm and was almost equal in length to, and probably half the width of, the pit and was positioned slightly to the west of centre (Fig. 6). It was later than pit E and had been cut by the construction of pit D.

As mentioned, the entrance into this pit presents difficulties since much of it had been destroyed through construction of pit D. That the adit to pit D also provided access for the earlier pit E is, I think, unlikely. One possibility is that a door was located on the east side in a manner similar to that reported for a rua at Skipper's Ridge I. In this rua (R, assigned to layer 2 by Davidson 1975:16), entry was via a small step at the top of a vertical wall. Another alternative is that the pit was bell-shaped with a vertical entrance. Pits of this shape were found at Sarah's Gully Pa phase I (Birks 1960:18). It would seem likely that the construction and use, in sand, of an underground pit with a central, vertical entrance would lead to roof collapse. This was not apparent. However, since the part of the oblong feature left intact by the construction of pit D followed closely the shape of pit E, it is possible that this feature represents an upper fill of pit E deposited after roof collapse. The fill and contents of the oblong feature were similar to that of other firescoops and it may well be that it was a rake-out area or fire pit used before the construction of pit D.

#### PIT F

Another pit was seen in a driveway cutting to the south of the excavated area (Fig. 2). Its western edge was aligned to the western edge of pit A and it was at least 1.02 m distant from pit A. It was 1.20 m wide and 0.36 m in depth.

#### OTHER FEATURES

Three postholes, thought to be unrelated to the storage pits, were found (Fig. 4). All were broad and deep. The one to the west of pit C had been cut from layer 3 while the other two had been cut into layer 4.

Several firescoops were close to, or intercut, the storage pits (Fig. 4). Two were large, relatively shallow scoops, probably circular in shape (neither were fully exposed during excavation) and had been cut into layer 4. The edge of one of these followed closely the edge of pit D, suggesting that the two features were related and contemporary. It was 24 cm in depth and contained a number of fist-sized stones. The other scoop was shallower and without stones. A small oval pit, 11 cm in depth, contained a number of stones and had a small rake out area on the northeast side. This also had been cut into layer 4.

The small, oval scoop which intercut pit D was 20 cm in depth and had been cut from layer 3. It was difficult to determine whether two further shallow, oval scoops found had been cut from layer 3 or layer 4.

Down the slope of the dune, in the eastern end of the site, were three areas of concentrated charcoal deposits, several centimetres in thickness, and heat shattered stones. Two of these were in layer 3 and the third was in layer 4.

#### OTHER EVIDENCE

A large number of artefacts were recovered from the site. Numerically the vast majority were Tahanga basalt waste flakes, although D'Urville Island argillites, greywacke,

chalcedony, chert and sinter were also present. Analysis of this material, not yet completed, indicates that the retouching of Tahanga basalt adze blanks and the manufacture of drill points and bone fish hooks were the major activities being carried out on the site.

No concentrated midden deposits were found. Small amounts of shell and non-industrial bone were, however, scattered throughout the excavated area.

## DISCUSSION

Storage pits have been found in a large number of New Zealand sites and several typologies based on pits have been proposed (Parker 1962, Fox 1974). Today, pit typologies are not considered to be valid as cultural markers (Bellwood 1969, Davidson 1975). However, given the similarities between the open settlements at Hahei and Skipper's Ridge I and the geographical proximity and Archaic dates of N44/97, N40/7, Sarah's Gully settlement N40/9 and Sarah's Gully Pa, N40/10, phase I and II, some comparison of the pits found in each site seems worthwhile.

Unfortunately, full site reports have not been published for N40/9 and N40/10. The data presented in Table 1 for these two sites have been taken from Green (1972a, 1972b) and various other reports such as Birks (1960), Birks and Birks (1970), Groube (1965) and Golson (1959a).

TABLE 1  
PIT TYPES REPRESENTED AT N40/7, N40/9, N40/10 AND N44/97

Site	Age	Rectangular with side buttresses	Underground rectangular	Underground bell-shaped/rua	Rectangular	Bin	Oval
N40/7							
Layer 4	Late 12C	x	x				
Layer 3/4					x	x	
Layer 3					x	x	
Layer 2				x			
N40/9	Late 14C				x	x	
N40/10							
Phase I	13C			x	? x (straight sided, grave shaped)		
Phase II	16C				x		
N44/97	Mid 14C			x	x		x

Davidson (1975:38) has shown that layers 4, 3/4 transitional and 3 at N40/7 represent continuous or repeated occupation of the site and that there was a change in pit construction from the buttress pits and rectangular underground pits of layer 4 to the shallow rectangular and bin pits of layers 3/4 transitional and 3. This preference for rectangular and bin shaped pits is also seen in the later sites in the area – N40/9 and N40/10 phase II (see Table 1) as well as the eighteenth century site at Skipper's Ridge II, N40/73 (Bellwood 1969:201).

Rectangular and bin pits are common in New Zealand sites (see Bellwood 1969:202) and the absence of the latter from Hahei is surprising. It may well be that their omission is due to sampling.

It has been suggested above that pit E at Hahei has a parallel in either the bell-shaped underground pits at N40/10 phase I or the rua at N40/7 layer 2. Pit D, however, appears to be unrepresented in the Opito area pit complexes. None of the six circular

pits, which were of similar dimensions to pit D, excavated at N40/73 had adits and it seems improbable that the soft fill into which pit D had been cut would be suitable for the roof of an underground pit.

There are at least six distinctive pit types present in the Archaic sites at Opito Bay and Hahei. Within each pit type there are considerable differences in size and number and arrangement of postholes. This variation in pit design is also found in other New Zealand Archaic pit complexes and probably indicates experimentation during the early development of pit storage technology (Leach 1979:245).

The rectangular pits at Hahei were all shallow, and pits A and C were narrow relative to their lengths. Pit B had a single row of six postholes; this number seems excessive and no doubt indicates post replacement (Fox 1974:143). Pits A and C had a central longitudinal row of postholes also, as well as an additional two postholes on the east side. These were 1.30 and 1.13 m apart respectively and may indicate doorways.

In a study of rectangular storage pits, Fox (1974:149) suggests that they all had longitudinally symmetrical, ridged roofs and were entered from the gable end. Side entry, using the buttresses as steps, however, was not ruled out by Davidson (1975:18) for several of the rectangular pits at Skipper's Ridge I. Of the three rectangular pits at Hahei, only pit B falls readily into Fox's typology (as type 1). Both pits A and C had two rows of postholes but these were not placed to form a central aisle, as with Fox's type 2 pits (Fox 1974:144). The placement of the two extra posts close to the east wall probably indicates a different style of roof structure and it may well be that these posts were related to doorways. The narrowness of the pits supports the idea of side, rather than end, entrances. The bulge and ledge in the east wall of pit B is difficult to interpret and it is possible that this too represents a side entrance.

The first occupants at Skipper's Ridge I built their structures around an open space, a plan that was adhered to during the later periods of pit construction and occupation (Davidson 1975:18). Similar organisation has not been found in other Archaic open settlements on the Coromandel Peninsula and cannot be postulated for Hahei on the limited evidence available. However, the plan of the pits and firescoops excavated at N44/97 certainly does not refute the idea. Structural features are concentrated around the centre of the site with pits F, A and B located in a line, oriented northeast-southwest (north-south excavation baulks), and pit C (together with C1 and C2) is to the east and oriented in the same direction. If the postholes on the east side of pits A and C and the bulge in the east wall of pit B do, in fact, indicate doorways, each pit is entered from the east. No differences in the stone and bone working activities between the east and west areas of the site are noticeable, although the analysis of the material is in the preliminary stages only.

The Archaic beach middens on the east coast of the Coromandel Peninsula, from Port Jackson in the north to Kauri Point in the south, have recently been reviewed by Davidson (1979) and Law (1982). All are located in the sand dunes, near streams or river mouths, are close to other habitation sites (Davidson 1979:186), and are rich in faunal and artefactual material. Most contain evidence for the manufacture and maintenance of a wide range of bone and stone tools and for extensive and unspecialised hunting and collecting (Davidson 1979:199-200, Law 1982:53). Individual sites have been variously interpreted as either seasonal camps or specialised activity areas within a larger settlement (Davidson 1979:200).

That horticulture and the storage of kumara were also components of this settlement pattern has long been accepted. Green (1972a, 1972b), for example, proposed a localised pattern of undefended pit complexes on low ridges immediately behind Archaic (and Classic) beach middens for the Opito area.

However, the direct association of kumara storage pits with these Archaic beach middens has been, until now, equivocal. The Skipper's Ridge site, N40/7, is located on a ridge behind the beach; Sarah's Gully Pa, N40/10, is a headland; and the stratigraphic relationship between the midden deposits and the pit complex (which, in any case, is located on an adjacent ridge) of Sarah's Gully Settlement, N40/9, is by no means certain. (See Golson 1959a, Bellwood 1969 and Green 1972a). Unfortunately, details of the small pit found in the Archaic midden at N40/9 (Golson 1959b:14) remain sketchy. The Hahei pit complex shows, for the first time, that in addition to tool manufacture and food procurement and consumption, the storage of kumara was also being undertaken in the Archaic sand dune sites on the Coromandel Peninsula.

Very little faunal material was recovered from N44/97. Several firescoops were found but no evidence of cooking shelters or huts. Such domestic activities were either conducted at another nearby site or in a separate area of N44/97. Midden deposits and burials have been found at the site (Edson and Brown 1977:26), but their stratigraphic relationship to the pit complex and working floor remains unknown. Certainly some of the middens were composed largely of soft shore shellfish species, suggesting that they are likely to be later deposits, whereas at least one of the burials (Edson and Brown 1977:25) unquestionably belongs to the early Archaic period. Only one of the Coromandel Peninsula Archaic beach middens, Tairua, has specialised activity areas within it. Site N44/97 may well have been another, but any evidence for this has probably been destroyed through the commercial development of the site.

## CONCLUSIONS

The occupation of N44/97, during the mid-fourteenth century, appears to have been continuous, although occupation did not always extend down the eastern slope of the dune. The storage pits were dug, used and filled during the initial stages of occupation.

The finding of the storage pits at Hahei adds evidence to that from Skipper's Ridge I and other Opito Bay sites for the existence of gardening during the early settlement of the region. In addition, the site is unique among the Archaic sites of the east coast of the Coromandel Peninsula since it provides the only evidence at present available that activities associated with the practice of horticulture were not always carried out away from the sand dune midden/working floor sites.

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