

**SCIENCE & RESEARCH
INTERNAL REPORT NO.40**

**REDISCOVERING FORT LIGAR:
ARCHAEOLOGY AT R11/1656,
AUCKLAND**

Volume One: Excavation and Site History

by

Ian Smith

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PREFACE

This is the first of two volumes describing archaeological investigations at Fort Ligar, a colonial redoubt in central Auckland.

This report outlines the objectives, methods and results of the excavations, summarises the history of the site, and considers its significance in the early development of Auckland city. It also defines the contexts from which artefact assemblages were recovered. Analysis of these assemblages is presented and discussed in volume two.

The Fort Ligar excavation is part of an Historic Urban Archaeology Programme to investigate the origins and development of the City of Auckland. The Programme began in late 1986 with an initial survey of the 1840 shoreline and the identification of archaeological sites associated with the establishment of Auckland City.

The first phase of excavation concentrated on those unique sites that were associated with Auckland as the capital of the new colony of New Zealand from 1840-1860 including the first Supreme Court, Crown prison and the first parliament. The excavation of Fort Ligar belongs to this category as a site associated with the capital.

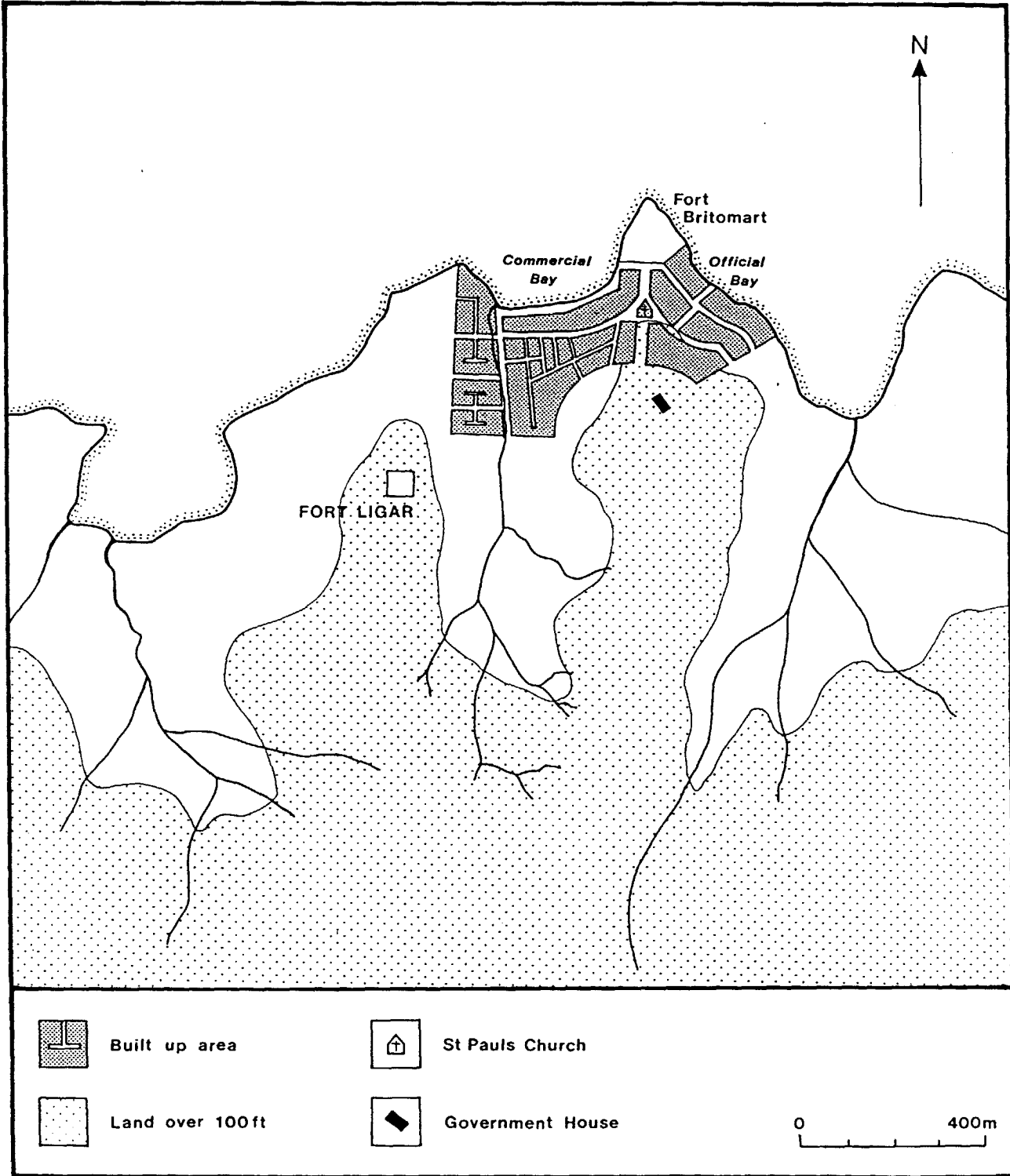
Further phases of the Programme will investigate the environmental impact of early European settlement and the socio-economic development of the colony. The material from the Fort Ligar excavation relating to later occupation of the site will also contribute to these subsequent phases of investigation.

INTRODUCTION

In 1845 Auckland was a small town of some 3,600 inhabitants. Approximately 2,000 of these people lived within 100 m of the shore behind Commercial Bay, Official Bay and on the Princes Street ridge in between (Fig. 1). The balance lived in Auckland's suburbs and outlying districts (McLean 1989). Fort Britomart, above cliffs on the point at the end of this ridge, was the fledgling capital's only defensive installation. Behind the ditch and bank of an earlier Maori pa, stone barracks had been constructed, providing accommodation for 200 men and stores (Cowan 1922:34).

At the beginning of March 1845 most of the 100 or so men of the 96th Regiment stationed there were absent on field duty in the Bay of Islands (Phillips 1966:71). When refugees from the fall of Kororareka arrived in Auckland on the 12th of that month local residents were thrown into panic, in fear of imminent attack from the north (Belich 1986:37). A militia was immediately enrolled, and further troops and ammunition requested from Australia. A guardroom and hospital were constructed at Fort Britomart, and the windows of nearby St Paul's Church were planked and loopholed to provide a refuge for some of the citizenry (Cowan 1922:34; Platt 1971:123).

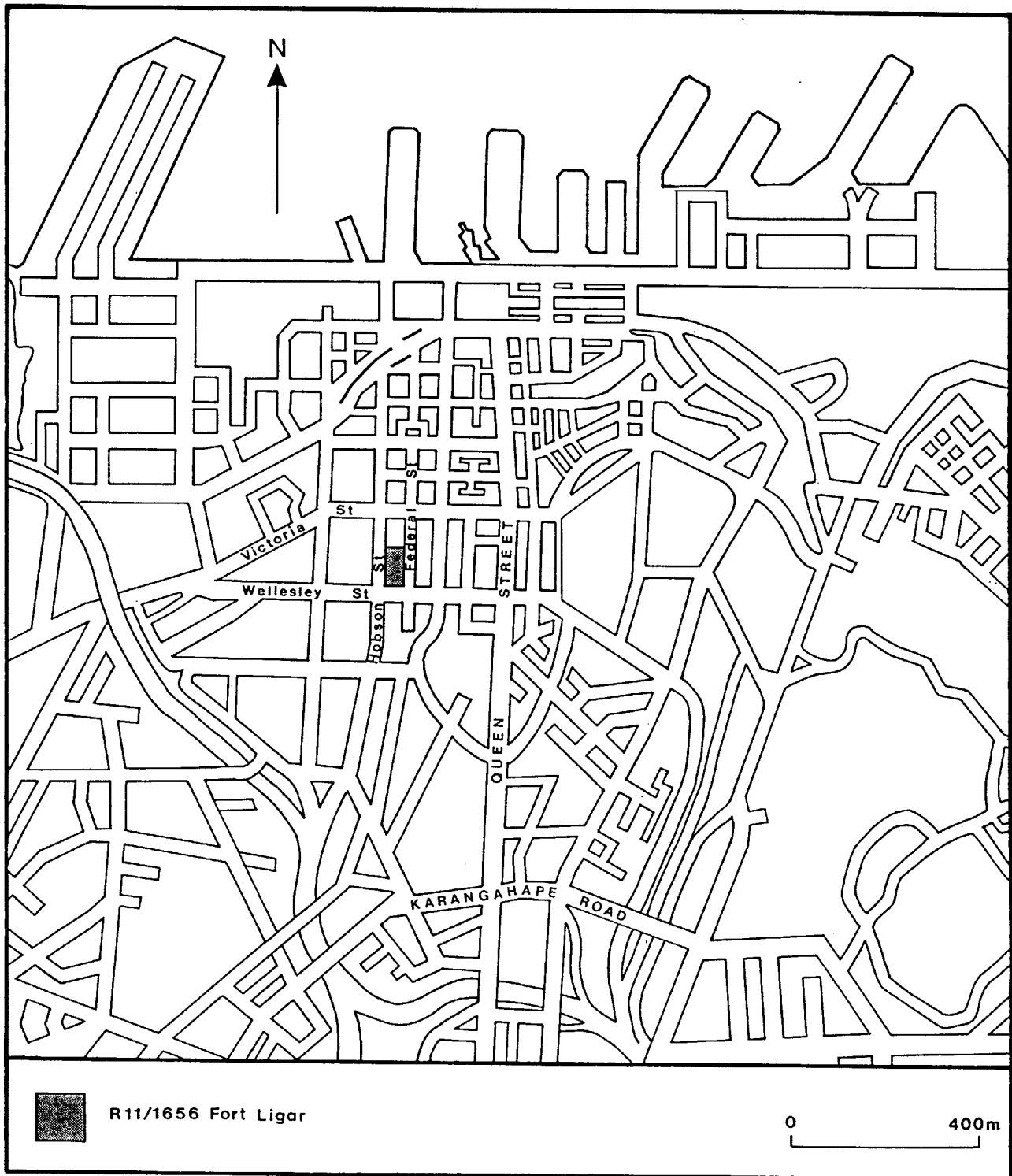
An entirely new defensive installation was also constructed, although this remains unreported in any known publication after 1690. It was an earthwork redoubt on the ridge commanding the western approaches to the town (Wallace 1890:703). Contemporary newspapers indicate that work was in progress "on the high ground at the back of the courthouse" (Southern Cross 19 April 1845:1), then known as Albert Hill (New Zealander 2 July 1845:3). It was constructed by local militia and named after its designer, the Surveyor-General C W Ligar. Subsequent references (see below) fix its location on: the block bounded by Hobson, Wellesley, Chapel (later Frederick) and Victoria Streets (Fig. 2).



B. Maingay, Regional Archaeology Unit, D.O.C., Auckland, 1989
(after: Duder et al. 1969: Fig 5. McClean in prep.)

CENTRAL AUCKLAND 1988, SHOWING SITE LOCATION

FIG. 2



B. Maingay, Regional Archaeology Unit, D.O.C., Auckland, 1989

Fort Ligar was one of only six earthworks built by New Zealand colonists in the 1840s. After the Wairau incident in 1843 two were constructed in Wellington and one in Nelson (Cowan 1922:93-95). Two more were built in Wellington in April 1845 (Wards 1966:233-234). Plans are available for two of the southern examples, a sketch of the third, and descriptions of the size and form of the two others. No such evidence was known for Fort Ligar.

Proposed development of the Mid City Transport Centre on the block in question provided the last opportunity to recover information about the site (R11/1656). The investigations reported here (NZ Historic Places Trust Permit 1988/12) were conducted in June 1968 after existing buildings on the central portion of the block were demolished to make way for a temporary carpark. They were funded by the owners, the Auckland City Council, as a condition of the NZ Historic Places Trust Authority (1988/10) to undertake the necessary ground levelling operations.

These investigations involved both historical and archaeological research. The former was directed towards recovering evidence about the redoubt from primary documentary sources, and establishing what activities took place on the site before and after 1845. Excavations were undertaken in two phases: the first to establish whether evidence of Fort Ligar still remained in the ground; and the second to recover that information before its final destruction.

SITE HISTORY

The 1845 newspaper accounts (above) provide only vague and ambiguous indications of the location of Fort Ligar. The reference to Albert Hill appears to have misled Platt(1971:124-5, 128), who suggested that defensive works were undertaken in 1845 on the ridge to the east, subsequently occupied by Albert Barracks. However, several later newspaper references clearly apply this name to the hill above Albert Street, and confirm the presence of Fort Ligar there (New Zealander 28

June 1841:1, 16 August 1849:1, 6 March 1852:1, 13 July 1853:1). The only published reference to its precise location is in the Southern Cross Extra (25 October 1855:1), which states "Allotments Nos. 15 and 16, Section 22, Town of Auckland were taken in April 1845, to build a fort for public safety." This information also appears on the respective Title Deeds.

The Title Deeds held in the Land and Deeds Registry, Auckland, show that the western half of City Section 22 was first subdivided in 1843, and most of the allotments granted or sold in the following two years. In 1844 Lots 14 and 15 were purchased by Thomas Cassidy of Hokianga, and Lot 16 by Alexander Kennedy, Manager of the New Zealand Banking Company. Lots 17 and 18 appear to have remained with the Crown. No evidence could be found for construction of any buildings there in 1844-45.

Confusion about the location of Fort Ligar was not confined to modern times. As one contemporary correspondent noted (New Zealander 26 July 1845:3), the panic of 1845 was so great that "... the authorities could not even wait the necessary time to enquire whether they were building on their own ground or that of private individuals ...". The latter proved to be the case and compensation was paid, but not without some scandal. Mr (later Sir) Frederick Whitaker was accused of purchasing one of the sections immediately after construction of the redoubt, then demanding compensation (Southern Cross Extra 25 October 1855:1). Dates of transactions on the Title Deed seem to bear this out. What Mr Whitaker accepted in return for his newly acquired section was title to "a small rock" adjacent to Kawau Island on which he developed a highly productive copper mine (McDonald 1865:14-16).

There is only one known reference to the size and form of Fort Ligar. During construction it was reported that the redoubt was to be "... surrounded by a stone wall and deep ditch, with a Martello tower of stone in the centre, on which will be mounted a piece of ordnance ... The interior will be capable of affording shelter ... to considerable

numbers; and the militia could well defend such works from any attacks . . ." (Southern Cross 19 April 1845:1).

Exactly how far work proceeded is not clear, because three months later a concerned citizen complained that "the workmen are withdrawn, the incipient fortifications left to go to ruin" (New Zealander 26 July 1845:3). A much later account indicates that it "maintained a rather ragged appearance for many years - being regarded as a grand monument to the engineering skills of former days" (McDonald 1865:15).

In 1850 Allotments 14-18 were granted by the Crown to the Trustees for College and Grammar Schools. However, they were not developed immediately. In 1853 a section for sale near the north end of the block was described as "remarkably healthy and open having Fort Ligar on one side and Mr Hobson's property on the other" (New Zealander 13 July 1853:1). The following year all four Allotments were leased to Connell and Ridings, Auctioneers, but only two buildings, on the eastern half of Allotment 18, appear to have been constructed there by 1857 (Figs. 6 and 7). Leases and mortgages over the remaining Allotments first appear in the Deeds Index at the Land and Deeds Registry (A1.253) in 1859, and show that each Allotment was subdivided into four sections. This year almost certainly dates the initial levelling of Fort Ligar, "the eastern entrenchments of which disappeared when the allotments were let in building sections by the Board of Education" (NZ Herald 24 December 1884). An 1860 photograph (APL 1403) certainly shows most of the area covered in buildings. The location of these and later buildings on the site are recorded on the Vercoe and Harding (1866), Hickson (1882) and Wrigg (1908) plans of Auckland City.

SITE DESCRIPTION

At the time of investigation all but one of the buildings occupying the southern and central portions of the block had been demolished. This cleared area covered Lots 12, 14, 15, 16 and 17 of the original

(1843) subdivision. A layer of demolition rubble intermixed, in places, with the upper soil layers was virtually continuous over the exposed ground surface. Nevertheless some aspects of predemolition topography were apparent (Fig. 3). Three scarps divided the area into four terraces (I - IV) which all appeared to relate to activities after abandonment of the redoubt. The long scarp running in a northerly direction midway between Hobson and Federal Streets follows a line of subdivision apparent on the 1882 plan, and presumably reflects progressive levelling of sections since they were first let in 1859. The two shorter scarps in the western half of the site are probably more recent. Remnants of concrete and brick wall footing were apparent at the foot of each scarp, suggesting that terraces II and III had been formed during excavations for building foundations.

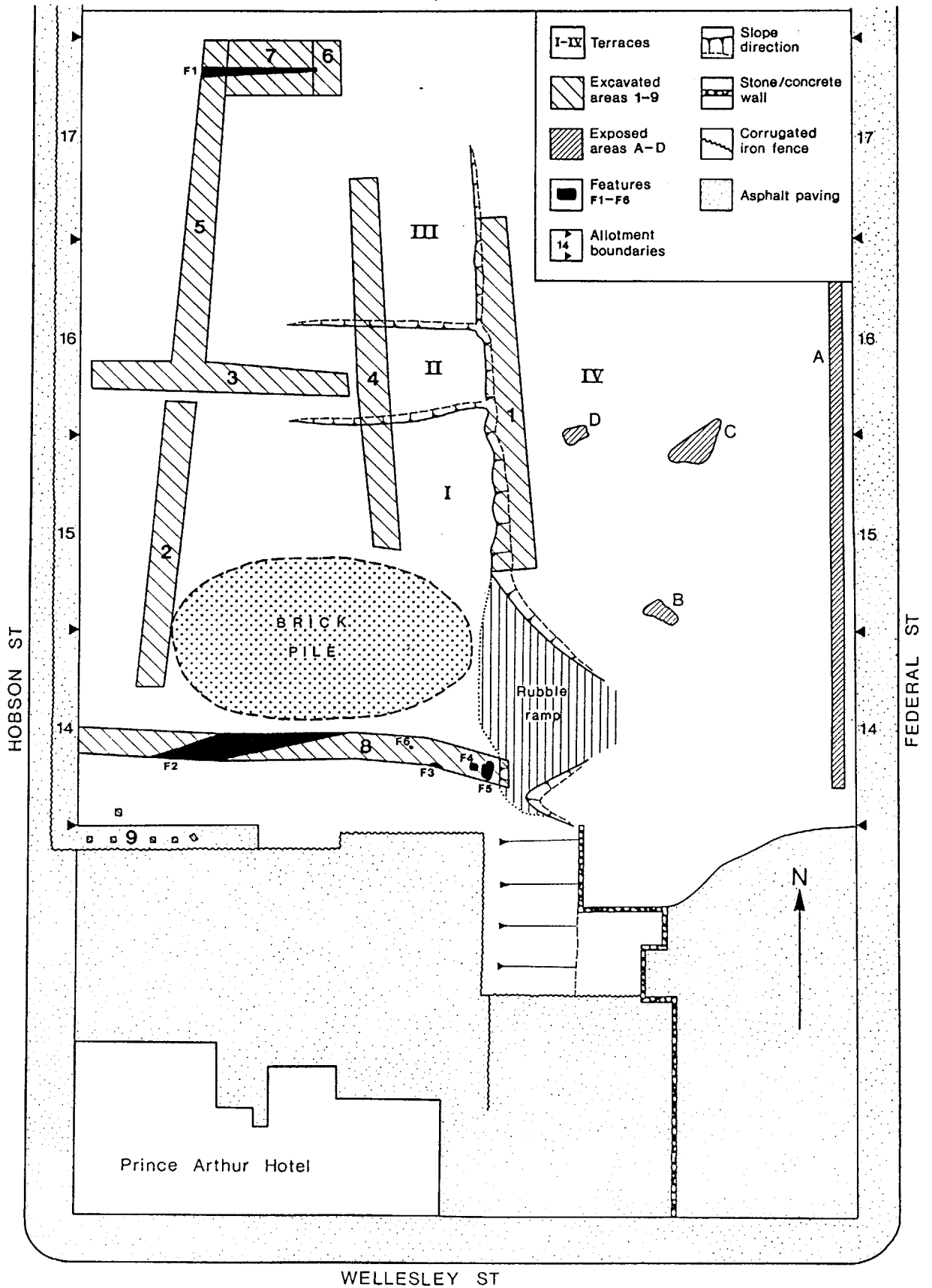
The ground surface was totally obscured in two areas. A large pile of bricks salvaged from the demolished buildings had been stockpiled on the higher ground near the south-west end of the site. Access to these was provided by a ramp of demolition rubble which buried the southern end of the long scarp.

PHASE ONE - EXPLORATORY INVESTIGATION

Objectives and Methods

The initial phase of investigations was designed to establish whether evidence of Fort Ligar survived, where it occurred on the site, and if it warranted further investigation. Five days (8 - 14 June 1988) with five archaeologists were spent on the site. The approximate position of lot boundaries from the original subdivision were marked on the ground surface to guide the investigations.

A machine excavator with 2 m wide straight-edged bucket was used to clear overburden from the long scarp (Fig. 3: Area 1), and excavate six trenches (Areas 2 - 6, 8) to depths ranging from 0.2 m to 1.5 m below ground surface. The machine also cleared demolition rubble from



the ground surface (Area 7) between two of the trenches, and a series of six test pits (Area 9) was excavated by hand. Four further areas (A - D) were identified where service trenches or demolition machinery had exposed the stratigraphy of Terrace IV.

All exposed surfaces were cleaned down and examined for traces of subsurface features. The positions of foundations and drains of recent buildings were noted, but efforts were concentrated on other, potentially earlier evidence.

Results

Trench sections showing natural soil profiles were exposed in Areas 1 and 4, south of the scarp separating Terraces I and II. Beneath demolition rubble these revealed:

Layer 1 - Black loam topsoil (0 - 20 cm), with artefacts.

Layer 2 - Brown weathered clay (20 - 50 cm) with occasional artefacts in the upper 10 cm, grading into

Layer 3 - Yellow compact clay with mottled patches of white and orange. Very sticky below ca.70 cm.

North of the scarp down to Terrace II layers 1 and 2 were totally absent and the surface of layer 3 was very sticky. Similarly truncated profiles were evident throughout Areas 2, 3, 5, 6 and 8, and in the exposures in Areas A - D. Examination of these sections showed both brick and concrete wall footings within layer 3, indicating that the upper layers had been removed during levelling of these areas for building foundations.

Other than these foundations, and associated drains, only one subsurface feature was observed in the northern and eastern parts of the site. This was a ditch (Feature 1) approximately 1 m wide, 15 -

20 cm deep, with cleanly cut straight sides and filled with light grey silty sand. It appeared in both east and west baulks at the northern end of Area 5. It was also exposed in plan in Area 7, and in section in the west baulk of Area 6. Here it had narrowed to just less than 50 cm in width and showed a shallow U-shaped profile. It did not appear in the east baulk of Area 6.

Subsurface features were more common in the south-western portion of the site. Four promising-looking "ditch" or "pit" like features were exposed in section along the Area 1 scarp. However, investigation of these indicated that they were either footing trenches for building foundations or scoops dug and then refilled by demolition machinery.

The most substantial finds were made in Area 8. Near its western end this machine trench cut through a deep ditch (Feature 2). This feature was marked by a dark grey band some 2 m wide and 12 m long crossing the trench obliquely from south-west to north-east. Because of the angle at which the trench cut the ditch it was impossible to gauge accurately the original width and cross-sectional shape of this feature. Nevertheless examination of its elongated sections in the trench baulks indicated that the ditch had cleanly cut sloping sides, and that its fill comprised two basic components; a dark grey silty clay at its base (Fill A), and above that a mixed layer of grey and yellow clay (Fill B). These sections also indicated that the ditch had been dug and then refilled prior to lowering of the original ground surface. Excavation of a small transverse section across the dark grey fill remaining on the bottom of the machine trench (see Fig. 6:B, below), showed that the base of the ditch had a shallow U-shaped profile. Some clods of mottled yellow-brown clay lay in a heap across part of the ditch bottom, and beside these the lower half of Fill A was lighter in colour and with a sandy texture. At its deepest the base of the ditch was some 70 cm below the layer 3 surface. Its original depth must have been greater, as this surface had been lowered at least 20 cm - 30 cm by subsequent building activity.

Another group of features was exposed at the eastern end of Area 8, where the bottom of the trench had been excavated to between 25 and 45 cm below the truncated layer 3 surface. The most substantial of these (Feature 3) was partially sectioned by the machine trench. In the southern baulk its profile showed a black soil fill between near vertical sides, 1.15 m apart, cut into the compacted clay. The portion exposed on the bottom of the trench was semi-circular. It was partially excavated, until its narrow dimensions and constant flooding with water halted progress at a depth of about 60 cm. Considerable quantities of broken china, bottles, rotten wood, scoria stones and oyster shells were encountered in the upper 20 cm of the fill. Fewer artefacts and greater quantities of clay and soil were present below that level, suggesting that the feature was not, as initially suspected, a rubbish pit. This, in conjunction with the apparently circular shape of the feature and its obvious water-holding capabilities, indicated that it may have been a well.

Feature 4 did prove to be a rubbish pit. This was rectangular in plan (1.2 x 1 m) with near vertical sides extending 65 - 75 cm below the bottom of the trench. If originally cut from the layer 2 surface, its depth would have been approximately 1 m. The pit fill was a dark brown sticky clay, with several lenses of yellow clay where portions of the western edge had collapsed inwards while the pit was open. The fill contained numerous bottles, pieces of crockery, clay pipes, buttons, broken bricks, stones, rotten wood, bone, oyster shells and occasional peach stones. A dense layer of oyster shells covered the bottom of the pit. The good preservation of many fragile items in the fill suggest that they were in primary deposition. It seems likely that they were discarded there over a short period of time as there was no noticeable change with depth in the character of the fill.

Feature 5, immediately west of the rubbish pit, was a rectangular (75 x 50 cm) patch of black soil on the bottom of the trench. Excavation showed that this was only 20 cm deep and contained only a small number of glass and china fragments. It is possible that this was a shallow rubbish pit, largely removed by excavation of the machine trench.

The final feature (6) in this area was a rectangular posthole (20 x 24 cm) which extended 30 cm beneath the bottom of the trench. The butt of the post occupying this hole had been removed when the machine excavated the trench.

Discussion

Exploratory trenching showed that most of the ground surface from the period of the redoubt had been removed by subsequent activities. However, remnants of this surface, and partially truncated subsurface features were present on the higher ground at the southern end of the site.

One of these features was clearly part of the redoubt. The ditch (Feature 2) encountered in Area 6 was in a position clear of any buildings or section boundaries recorded on the 1866, 1882 or 1908 plans. Furthermore its orientation was out of alignment with the parallel arrangement of the recorded features, suggesting that it predates the development of those sections.

The ditch had been dug into compact clay to a depth of at least 1 m. With a breadth of about 2 m just above its base it would have been large enough to function as a defensive ditch. The composition of its fill suggested that some of the material dug from the ditch had fallen back in soon afterwards, but it had then remained open long enough for a silty deposit to develop at its base. The upper component of the fill suggested infilling in a single episode with redeposited clay. This may have been the material originally dug from the ditch, which had presumably been formed into a defensive parapet paralleling the ditch.

It was less clear whether the other features in the vicinity related to the redoubt. With only a small, partially truncated portion of the ditch exposed, it was not possible to be sure if they were inside or outside the perimeter. Preliminary assessment of material from the

rubbish pit and the excavated portion of the well suggested that these features were filled some two decades after the redoubt was abandoned. However, the well, at least, could have been constructed at an earlier date.

The only subsurface feature encountered at the northern end of the site did not appear to relate to the redoubt. This ditch was irregular in size and shape, and much narrower at its eastern end than would be expected if it had had a defensive function. Comparison with Wrigg's (1908) plan of Auckland showed that it fell precisely on the boundary between the two sections into which the northern half of lot 17 had by then been subdivided. Thus it seems likely that this was a boundary ditch, and postdates the redoubt.

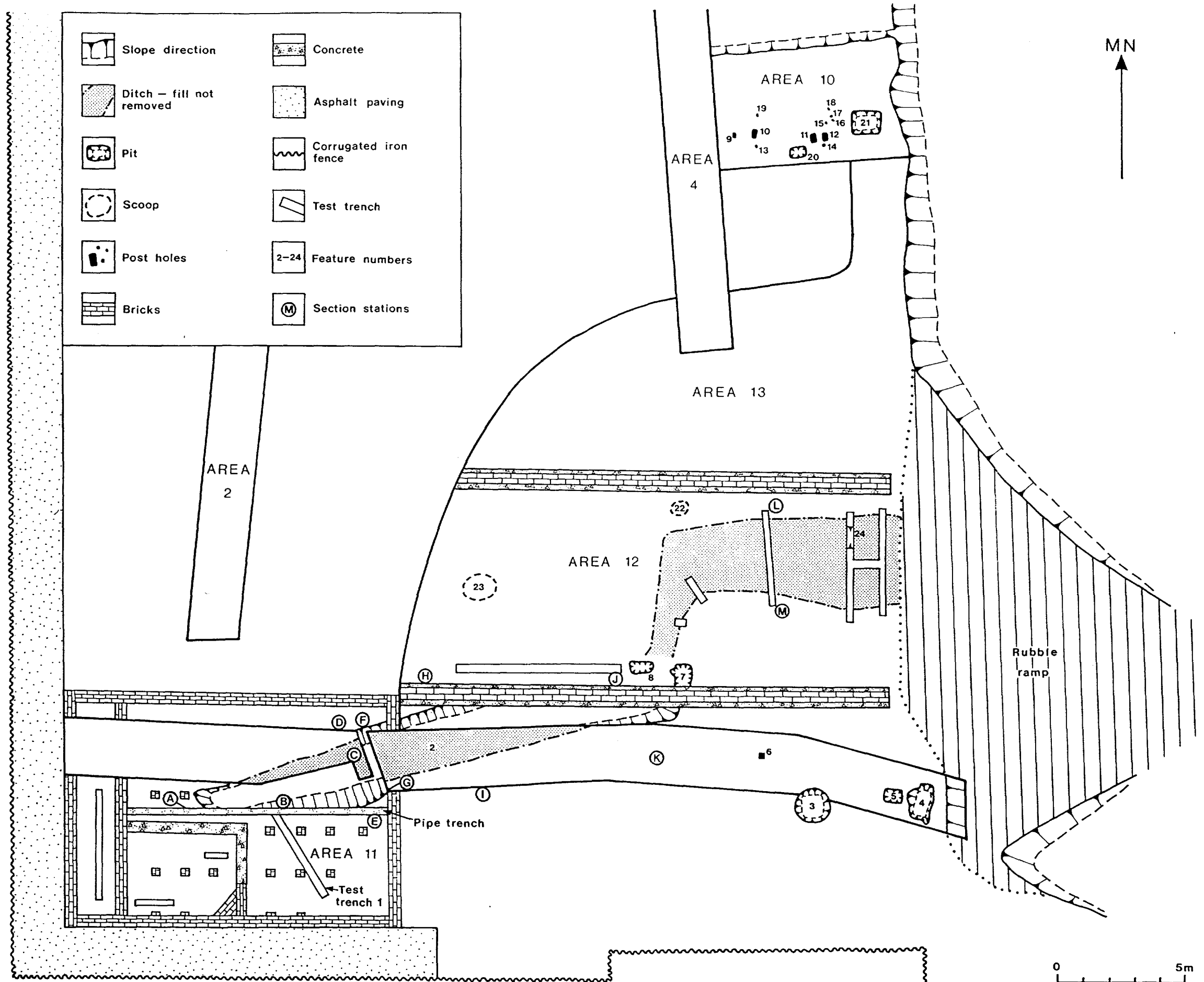
In terms of its objectives the exploratory phase of the investigation was successful. Clear evidence for the existence of the redoubt was recovered. The survival of remnants of original ground surface and numerous subsurface features in the south-western portion of the site indicated a high likelihood that further evidence of the redoubt could be discovered there, and justified further, more intensive investigation.

PHASE TWO - AREAL EXCAVATION

Objectives and Methods

The principal objective of the second phase of investigation was to define, as far as possible, the size and shape of the redoubt. It was also intended to locate subsurface features in the general vicinity and establish whether any of these related to the redoubt.

Ten days (20 June - 1 July 1988) with a team of 5 - 7 archaeologists were spent on this phase of the excavation. Efforts were concentrated in four areas (Fig. 4: Areas 10 - 13) and in the vicinity of the well (Feature 3). The sequence in which these were investigated was



determined largely by the speed with which demolition contractors removed the large pile of bricks north of Area 8 (Fig. 3).

Except in the case of the well, each area was investigated by first utilising the machine to remove demolition rubble from the ground surface. Each area was then scraped down with spades and trowels to expose subsurface features in plan. Test trenches were excavated to confirm the presence of such features and define their limits. Selected features were then partially or completely excavated. Artefactual remains were retained only where they derived from clearly definable features.

Demolition rubble above and surrounding the well was removed by careful spading in the hope of defining the surface from which this feature had originally been cut. Fill within the well was excavated by hand, using a pump to control water level. Artefactual material from the fill was bagged according to the depth at which it was recovered.

Results

(a) The Ditch: Investigations were conducted initially where the defensive ditch extended south-westward from Area 8. Clearing of Area 11 (Fig. 4) revealed remnant foundations of the brick building occupied until recently by Broady's Coal Stove Company. These consisted of brick walls set on reddish concrete footings, brick footings for wooden piles and a drainage pipe which sloped westward from the rear of the building towards Hobson Street. They were set into the truncated layer 3 surface.

The only signs of disturbance to this surface were to the north, between the pipe trench and Area B. Four test trenches confirmed this impression. In section, ditch fill was apparent only at the north-west end of test trench 1 where it extended beyond the pipe trench, and in the northern baulk of the pipe trench itself.

Examination of the latter profile (Fig. 5:A) showed that the ditch came to an end within Area 11. The base of the ditch rose abruptly at this point, and distinct banding in the sandy grey fill indicates repeated ponding of water here while the ditch was open, or only partially infilled.

Excavation of the ditch revealed the same two basic fill components as recognised in Area 8, along with several small brown lenses of what appeared to be rotted organic material and charcoal on the surface of the lower deposit. Within Fill A were found occasional scatters of bottle glass, a clay pipe stem and a few fragments of china. Several small scoria stones were also recovered.

Once excavated it became clear that the ditch narrowed and rose gently from Area 8 towards its end point in Area 11 (Fig. 5:B).

Removal of the fill revealed parts of both the southern and northern sides of the ditch. A small portion of the southern side remained intact at the east end of Area 11 and showed a steeply sloping profile (Fig. 6:A). Westward of this point the edge of the ditch had been partially destroyed by the pipe trench. However the surviving remnant suggested that the ditch had been shallower with less steeply sloping sides towards its western end. The small surviving portion of the northern side of the ditch had a similarly shallow profile.

Both sides of the ditch were also encountered immediately north of the machine trench, in the Area 8/12 baulk. This was a strip approximately 1 m wide between the machine trench and another set of building foundations (Fig. 4). Clearance of rubble from the baulk showed layer 3 truncated to the same level as in Area 11. Both ditch edges were clearly marked on this surface by narrow bands of dark grey silty clay. Removal of the fill between revealed the site's two most complete profiles of ditch sides (Fig. 6:C and D). Fill A again yielded scattered glass, crockery and stones.

The first of two corners in the ditch was discovered at the east end of Area 8/12. Here the ditch turned abruptly northward, only centimetres before disappearing into the southern foundation trench of Area 12.

Area 12 was delineated by the brick and concrete foundations of a large building (Fig. 4) which was constructed at some time between 1908 and about the 1930s (Note 1). Beneath its concrete floor was about 10 cm - 15 cm of black, artefact-rich soil. Test trenches through this layer showed that it was redeposited. Everywhere it lay upon a sticky yellow clay surface, obviously lowered when this building was constructed.

As would be expected, this levelling had its greatest impact on the uphill side of the area. No trace of the ditch was apparent in test trenches close to the southern wall footing. However, obliteration of this portion of the ditch was not entirely due to levelling and foundation trenching. Two rubbish pits (Features 7 and 8) also cut through the expected line of the ditch (see below).

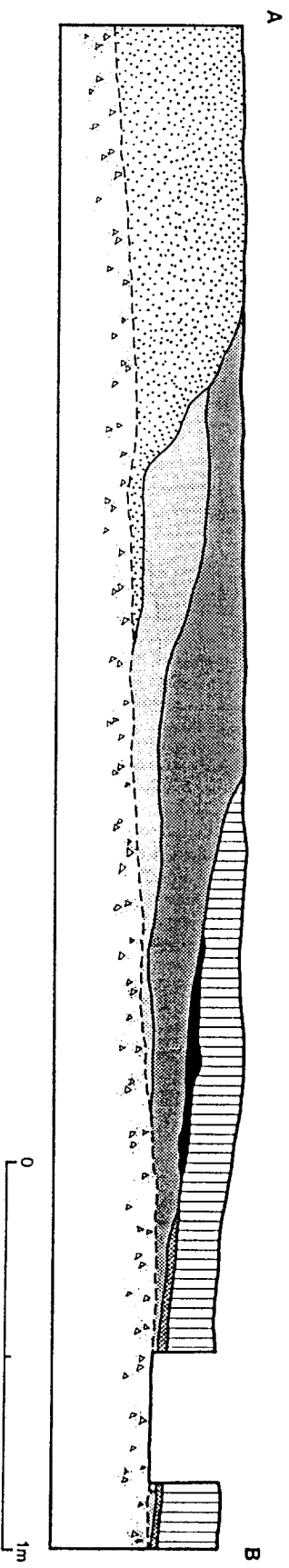
A second corner in the ditch was exposed in the eastern half of Area 12. Beyond it the surviving width of the ditch broadened, suggesting that much less of the original ground surface had been removed in this area. The trenches across this portion of the ditch (e.g. Fig. 6:E) certainly showed the closest to a full ditch profile encountered anywhere on the site. Once again clods of mottled yellow-brown clay had fallen across the base of the ditch before the development of Fill A.

Unfortunately, just where some indication of the original dimensions of the ditch might have been found, all evidence of the feature was obliterated, cut away by the scarp (ca. 1.5 m) down to Terrace IV. The maximum width of the ditch at its deepest (easternmost) point was about 3.5 m. It could not be measured precisely because the southern ditch edge had been cut through by a trench for a brick wall, perhaps

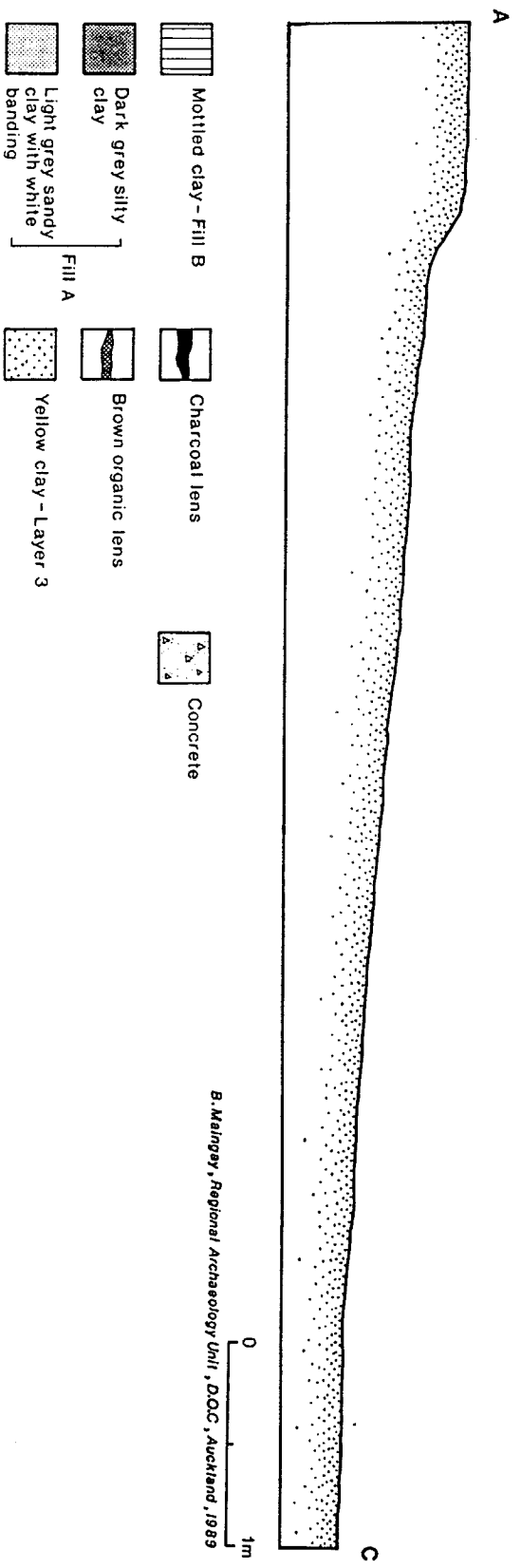
R11/16566, DEFENSIVE DITCH-LONGITUDINAL SECTIONS
 (see Figure 4)

FIG. 5

A. Area 11-north baulk of pipe trench



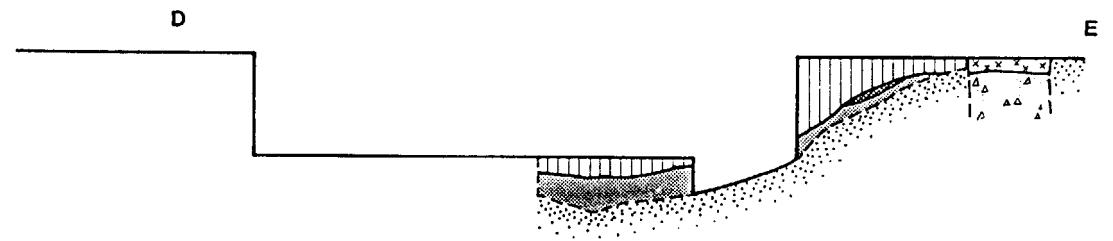
B. Areas 8/11-ditch profile after excavation



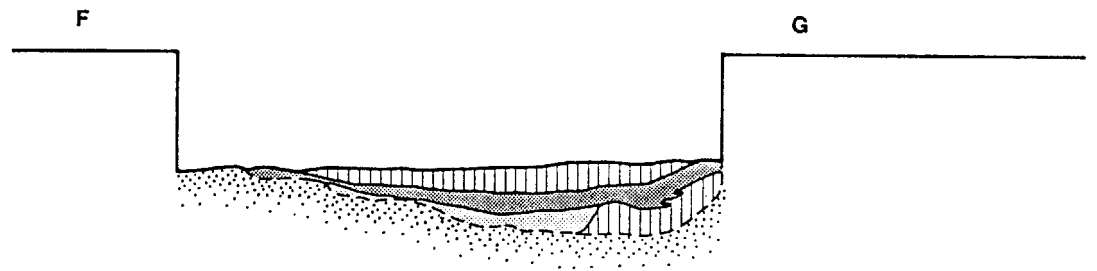
R11/1656, DEFENSIVE DITCH-CROSS SECTIONS
(see Figure 4)

FIG. 6

A. Areas 8/11



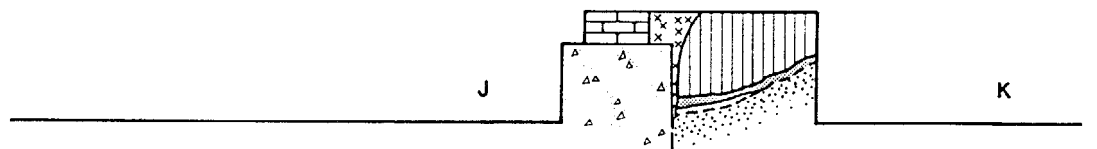
B. Area 8



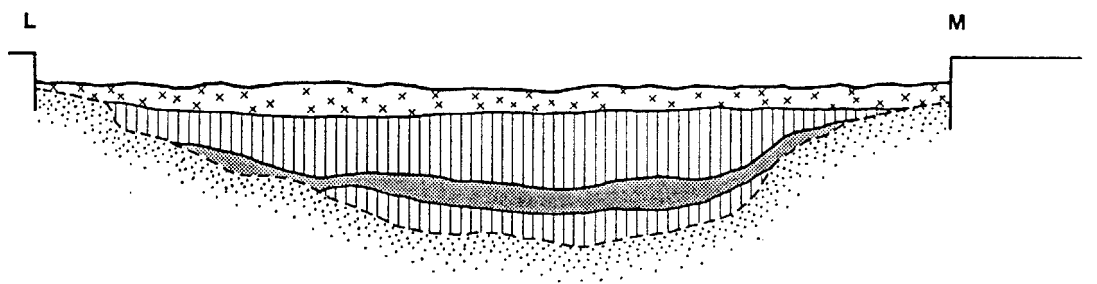
C. Areas 8/12



D. Areas 8/12



E. Area 12



Bricks



Concrete



Recent fill



Mottled clay - Fill B



Dark grey silty clay



Light grey sandy clay

Fill A



Brown organic lens



Yellow clay - Layer 3

0 1m

a buttress for the single-storied brick building that had stood immediately below the scarp since at least 1908.

Area 13 was cleared down to the clay surface in the hope that the ditch would re-enter Terrace I further northward along the scarp, or that remnants of the original ground surface would have survived in the area presumed to be inside the redoubt. Neither proved to be the case.

(b) Old Ground Surface

The only intact remnant of the original ground surface was found in Area 10 (Fig. 4), between the two natural soil profiles identified in Areas 1 and 4 during Phase One. Eleven post and stake holes were apparent on the surface of the clay subsoil. Four of these (Features 9 - 12) were large - lengths 20 cm - 45 cm x breadths 15 cm - 32 cm x depths 20 cm - 40 cm - and followed a section boundary first recorded on the 1882 plan. The smaller (6 cm - 9 cm x 5 cm - 7.5 cm x 6 cm - 12 cm) stakeholes (Features 13 - 19) showed no clearly discernible pattern.

Two concentrations of rubbish (Features 20 and 21) were also uncovered. The former was no more than a shallow scoop about 10 cm deep, containing glass and ceramic artefacts, oyster shells and brick fragments. Feature 21 was more substantial, measuring 1 x 1.2 m, with sides cut vertically some 25 cm into layer 3. It contained glass, ceramic and metal artefacts in a black soil matrix. Once again preliminary assessment of these remains suggests that both features post-date the redoubt.

As already indicated the original ground surface did not survive in Areas 12 and 13. However, remnants of subsurface features were apparent in the former area. Two of these (Features 22 and 23) were shallow scoops in the truncated layer 3 surface, containing glass, ceramic and metal artefacts in a black soil matrix. This fill could

not be distinguished from the redeposited soil underlying the concrete floor of Area 12. Thus it was not clear whether these features were simply clusters of material compressed into the clay during the levelling process, or truncated remnants of earlier rubbish pits.

The three remaining features (7, 8 and 24) clearly fell into the latter category. Feature 7 was a rectangular pit, 60 - 70 cm wide, at least 1 m long and 50 cm deep. Its southern end extended under the brick and concrete wall footing at the south edge of Area 12, indicating that it predated construction of that building. Black soil mixed with clay sods filled the pit, and contained bottles, china, shoes and bones. Similar material was recovered from Feature 8, a trench-like pit (1.0 m x 0.5 m x 0.3 m) immediately to the west.

Feature 24 was partially sectioned by a test trench near the eastern end of Area 12. It appeared to be a rubbish pit that had been dug through the infilled defensive ditch. Where it cut through Fill A and the base of the ditch it had vertical sides about 70 cm apart and contained black soil mixed with sods of clay. The upper part of the pit was less clearly definable as its clay fill was indistinguishable from Fill B of the ditch.

(c) The Well

A 2 m x 2 m extension of Area 8 was opened to expose the top of the well. Some 40 cm of demolition rubble intermixed with heavy black soil was removed, exposing a possible old ground surface. This was covered, in places, with a thin layer of red scoria chips. However, it was not the original ground surface. The 15 cm of black soil beneath this level contained broken bricks and other building materials, presumably from an earlier phase of building demolition. Furthermore, the underlying clay lacked the weathered upper horizon (layer 2) indicating truncation of the original ground surface.

The sides of the well were apparent only below this level. They were vertical and formed a circular hole 1.3 m in diameter. The fill comprised two components. In the upper 60 cm was a heavy, mixed clay soil containing bands of oyster shell, and scattered scoria, broken bricks, window glass and rotted pieces of wooden joinery. Below this level building materials were absent and the matrix was a lighter, more friable silty brown soil. This appeared to contain rotted organic material and showed signs of banding, suggesting that this deposit accumulated while the base of the well contained water. Ceramic, glass, metal and leather artefacts were present throughout both components of the fill.

Total depth of the well was 1.15 m below the truncated layer 3 surface. About 50 cm above the base, the shape of the hole changed from circular to rectangular. From here the sides sloped inwards slightly, giving basal dimensions of 70 x 88 cm. The bottom of the well was almost perfectly flat. The shallow depth of this feature, and the impervious clay into which it was dug, show that it was a storage tank for rainwater rather than an aquifer-fed well.

DISCUSSION

Fort Ligar

The second phase of investigations uncovered some 35 m of infilled ditch. This was clearly part of the perimeter defences of Fort Ligar. With two near right angle corners it cannot be a natural feature, nor does its orientation align with any buildings or boundaries recorded on early plans. Its stratigraphic position, beneath the levelling and trenching for building foundations, demonstrates that the ditch predates all other recorded activities on the block. The only possible cause for doubt is the location of the ditch on Lot 14, as only Lots 15 and 16 were specified in the 1855 newspaper account (see above). However, subsequent checking of Title Deeds showed Lots 14 - 16 were all returned to the Crown in 1845.