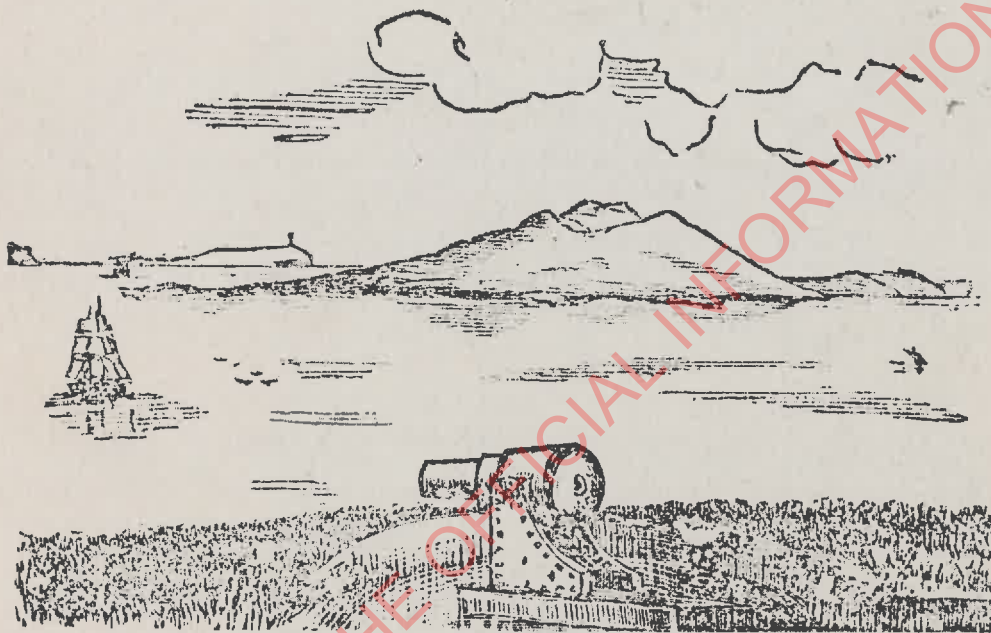


# NORTH HEAD: THE DEVELOPMENT OF A FORT



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SCIENCE AND RESEARCH INTERNAL REPORT NO. 79

NORTH HEAD: THE DEVELOPMENT OF A FORT

by

D G Veart

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Auckland Conservancy,  
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Science and Research Division  
P.O. Box 10-420  
Wellington, New Zealand

August 1990  
ISSN 0114-2798  
ISBN 0-478-01211-X

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## ACKNOWLEDGEMENTS

This project was funded by the Department of Conservation. Thanks are owed to the following people who willingly shared their knowledge:

J Earnshaw, J Mitchell, R M Nutsford, J de J Oswald, W Spring-Rice.

The use of their information is of course my responsibility alone.

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## ABSTRACT

Takapuna/North Head was a major part of Auckland's coastal defences from the 1860s until the period of the Second World War. Before this it was an area of Maori settlement in both the pre-European and historic periods.

During the time of its use as a fort, North Head underwent repeated modification as more installations were built and defences were upgraded. This modification was probably greater than that of any other of the remaining volcanic cones in Auckland.

This report attempts to place this change into a coherent sequence including the pre-European features, gun emplacements, roads, buildings, communication and earthworks.

Possible areas of survival of prehistoric features have been identified and a representative photographic sequence of the fort's development since the 1860s has been compiled.

The report concludes with a series of recommendations concerning management and future public use of the site.

### 1.0 INTRODUCTION

Takapuna/North Head (Fig. 1) has a long history of human occupation, both Maori and European. It has also been the site of extensive and repeated modification, mainly connected with its role as a fortification. It is the intention of this report to provide an archaeological reconstruction of North Head, and to relate the surface features and artefacts visible today to this sequence of modification.

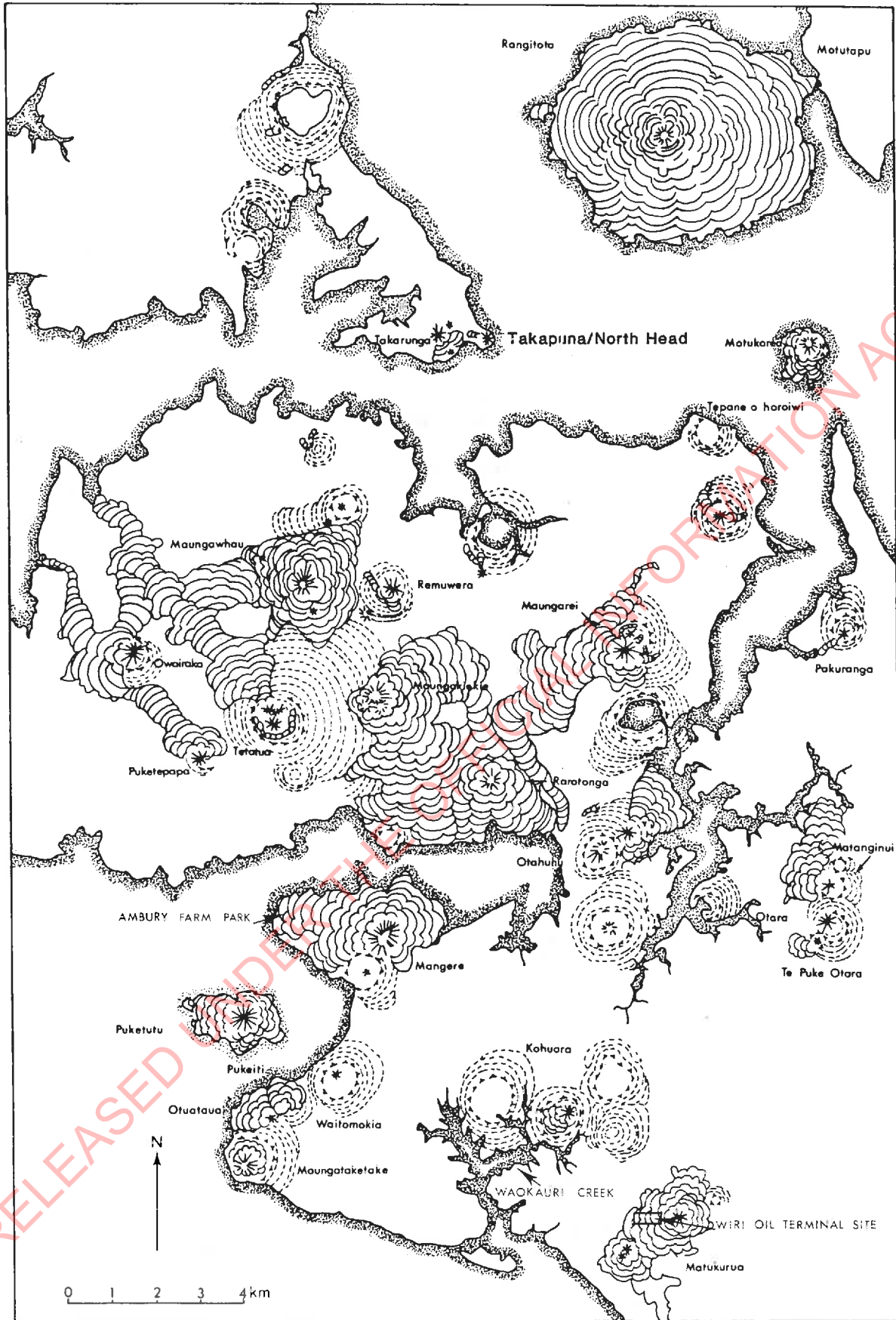
The major sources used are as follows: The Fort Record Books, the 1896 Admiralty Report on the coastal defences of the Australian Station, the 1908 Defence Scheme of New Zealand, the 1944 Camp Survey Map, the 1946 Forts and Works map and contemporary newspaper articles. As well as these written sources, extensive use has been made of photographs to fill in gaps in the written record. Where secondary sources have been used an attempt has been made to relate this information to the main sequence derived from the primary source material.

#### 1.1 Geological Background

The land form of North Head (Fig. 2) before settlement was determined by two factors; volcanic activity and erosion caused by altering sea levels. On North Head the volcanic activity consisted of the initial formation of a tuff cone with a later small, steep scoria cone almost burying the previous structure. Lava flows from the North Head eruption were small and feeble and did not extend much further than the cone itself (Searle 1981:76-7). These events occurred between 20,000 and 50,000 years ago (Searle 1981:46).

This rise in sea levels in post-glacial times badly eroded the North Head cone. At this time the coast was not protected by Rangitoto (Searle 1981:79-80). The results of this erosion can be most clearly seen on the eastern and northern sides where the volcanic material has been markedly undercut and indented.

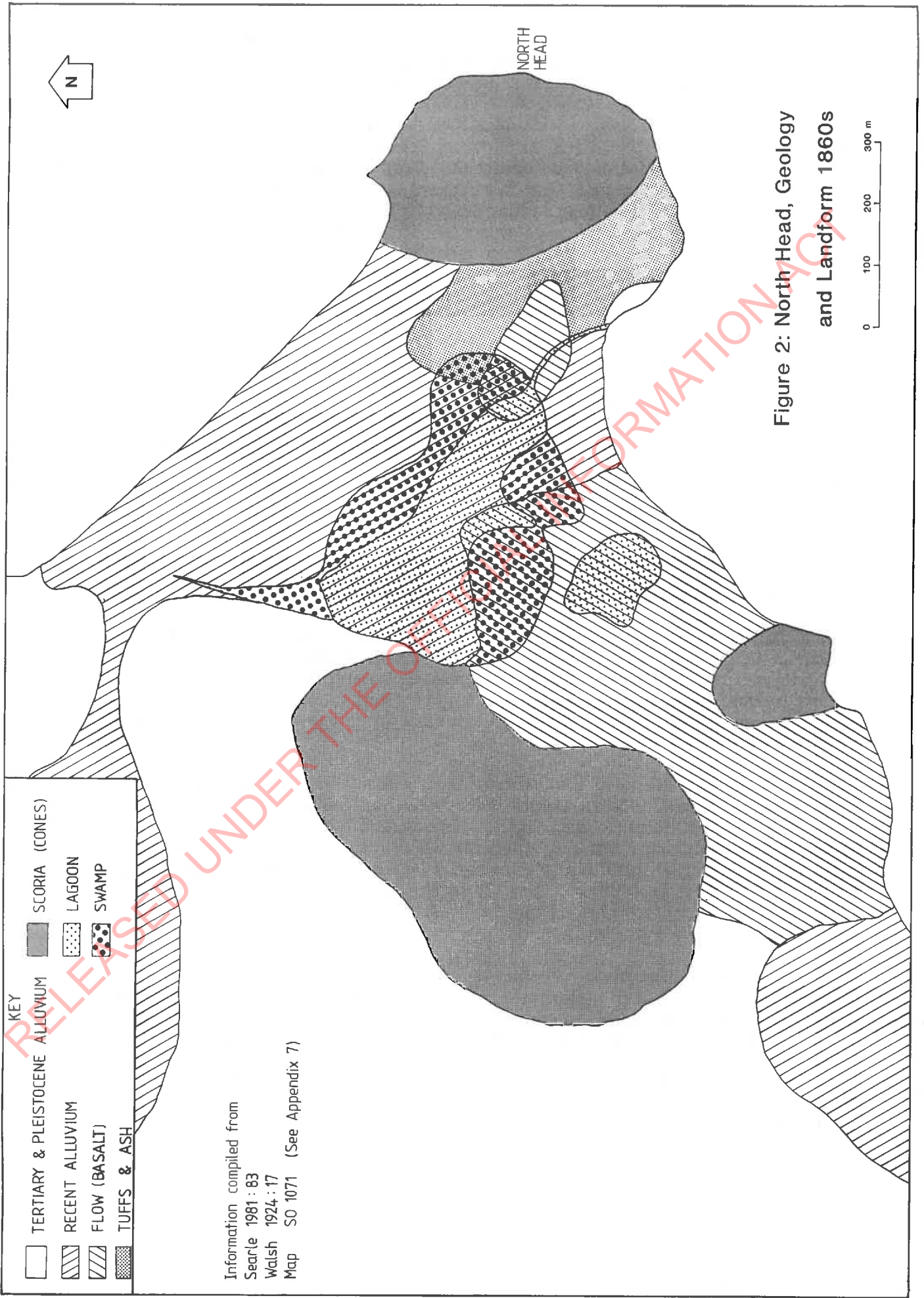




(After: Figure 4.4, E. J. Searle, 'City of Volcanoes' 1981) j. Roberts NZHPT 1986

**Figure1: Auckland showing location of Takapuna/North Head**

- |  |                  |  |               |
|--|------------------|--|---------------|
|  | Lava Flow        |  | Tuff ring rim |
|  | Tuff and lapilli |  | Shore line    |
|  | Cone with crater |  | Scoria cone   |



KEY

- TERTIARY & PLEISTOCENE ALLUVIUM
- ▨ RECENT ALLUVIUM
- ▧ FLOW (BASALT)
- ▩ TUFFS & ASH
- SCORIA (CONES)
- ▤ LAGOON
- ▥ SWAMP

Information compiled from  
 Searle 1981 : 83  
 Walsh 1924 : 17  
 Map SO 1071 (See Appendix 7)

Figure 2: North Head, Geology and Landform 1860s

0 100 200 300 m

NORTH HEAD



One aspect of the volcanic formation of North Head which has important implications in understanding later events is whether there was originally a crater on North Head. The summit area has been so extensively modified it is impossible now to determine the original landform.

Hochstetter's map of the volcanic landforms of Auckland drawn in 1859 indicates a small breached crater on North Head (Hochstetter and Petermann, 1864). Hochstetter visited North Head in 1859 and described the landform at that date as a regularly stratified tuff cone with a steeper scoria cone superimposed. The cone he says "... is closed up at its top but displays at its western declivity a flat indentation denoting the crater from which in a westerly direction a small stream of lava had issued forth" (Hochstetter 1867:251). In an attempt to further define this crater area the first legible survey ordinance map (SO 1071) was examined as often these maps have small watercolour panels showing landform in a schematic form. Although both nearby Mt Victoria and Mt Cambria are clearly shown, the painted area of North Head has faded or been removed. Examination of the original drawing however indicated that there may have been a crater shown with breached side orientated similarly to the Hochstetter map. There were unfortunately no surveyor's field notebooks available to check this information.

The early photographs of North Head taken before the major European earthworks started (Plate 1) are little help as they are taken from too low an angle to show the summit clearly. The 1939 aerial photographs (Plates 7 & 8) however show the buildings on the summit set down in a small hollow. Some of this is the result of the earthwork fortification but may also be an indication of the presence of a small crater, upon which the earthworks were based.

## 2.0 HISTORY OF OCCUPATION

### 2.1 Pre-European Settlement

The volcanic cones and associated fertile soils of the Auckland isthmus were an area of intensive settlement in pre-European times. Most of the cones in the Auckland area show signs of extensive terracing and fortification. Although these have been altered in European times, this damage is usually limited to the summits, where reservoirs or monuments have been built. None have undergone the extensive modification of almost the entire surface as has happened at North Head.

Traditional evidence recorded by Graham suggests that a pa did once exist at North Head - Takapuna pa. Graham (1924:10) describes the 'refortification' of North Head by the Ngati Paoa in the late eighteenth century when the pa was besieged by the Ngapuhi. This siege he states lasted several months and was only lifted when the Ngati Paoa escaped to Waiheke by canoe. After this he suggested that the pa was occupied by the Ngapuhi who then used it as a base for further attacks in the Hauraki Gulf area. In another account recorded by Graham (1918:86-89) the Ngati Paoa are described attacking the Ngati-tai pa at Takapuna (North Head), Takaranga (Mt Victoria) and Takararo (Mt Cambria).

Two attempts have been made to define remaining areas of Maori occupation on North Head (Walter 1985, Phillips n.d.). The most extensive survey was that prepared by Phillips who identified areas of possible Maori earthworks and middens on all sides of North Head. She was careful to try and differentiate between obviously European and possibly prehistoric features.

The study of photographs and paintings made of North Head prior to the major defence works of the 1880s (Plate 1) fail to show any of the usual signs of Maori occupation. There is no indication of either terracing or ditches and banks.

In all these views however the eastern side and the summit area are not shown clearly. It is at this point that the question of the extent of the crater becomes important. Any area of fortification may have been limited to the crater rim and this now destroyed area is not clearly visible in any of the early views. The most convincing areas of apparently prehistoric earthworks are all sited on the eastern side of North Head; the other area unsighted in the early photographs.

The eastern flank is the least modified area, the damage being limited to the roads linking North and South Batteries and the road associated with the 6" Mk VII Battery (see Fig 3 & 5 below). It is in this area that the terracing recorded by Phillips is the most likely to be of prehistoric origin. These terraces were recorded by Phillips as features 56, 57, 58, 69, 70, 71, 72 and 75 (see Fig 3). The other main area is on the north-east corner where features 14, 16, 17 and 27 may be of prehistoric origin (see Fig. 3). Another obvious sign of occupation at other cone pa in Auckland is the presence of shell midden. For example at R11/109 Takaranga pa (Mt Victoria) there is an extensive shell midden eroding from a road cutting near the summit. Phillips's survey located only four, possibly five small midden deposits features 35, 37, 47 and 84 (Fig. 3).

The problems of finding midden deposits on North Head however are compounded by a number of factors. Firstly, there is the problem of the huge amount of European earthworks. Secondly, throughout the European occupation paths have been surfaced with water-rolled shell from Cheltenham Beach and this later material may obscure prehistoric midden deposits exposed by the path construction. Thirdly, it appears to have been part of European fortification techniques to resurface the earthworks with selected finer soil to absorb shot and avoid splinters. While I can find no direct reference to this on North Head, 19th century manuals on fortification suggest this technique (Lendy 1857:78). If this procedure was followed at North Head then any cultural material exposed during the earthworks for the gun emplacements may have been obscured by this resurfacing.

Why then does North Head appear to have had such a small amount of visible habitation evidence in comparison with the other cones in Auckland?

One factor that must be considered is that North Head is closer, topographically, to an island than any of the other mainland cone pa sites. It is surrounded on three sides by the sea and, before the filling and draining of the extensive swamp on the western side, was connected to the rest of the Devonport peninsula by only narrow strips of land (Fig. 2). Therefore Takapuna Pa is probably best examined as an island or headland pa similar to, for example, Motukorea (Brown's Island), surrounded by sea and with a relatively small area of surrounding volcanic garden soil. Like Motukorea the area of defences may have been small in relation to total area and limited to a small defended area on the summit.

The type and density of settlement on the Auckland cone pa seems to relate to the extent of the volcanic soils surrounding the cone (Bulmer n.d.). The areas of volcanic soils immediately adjacent to North Head are small, although the large swamp to the west may have provided an additional garden area. The more extensively terraced area of the Takaranga Pa (Mt Victoria) appears to have had gardens surrounding it, as did the smaller now destroyed Mt Cambria. Early photographs indicate the presence of Maori garden walls and enclosures on Mt Cambria (Musgrove 1986:31). Similarly the 1870s photograph (Plate 1) shows what appears to be an area of prehistoric gardening structures in the area between Burgess Road and Domain Street.

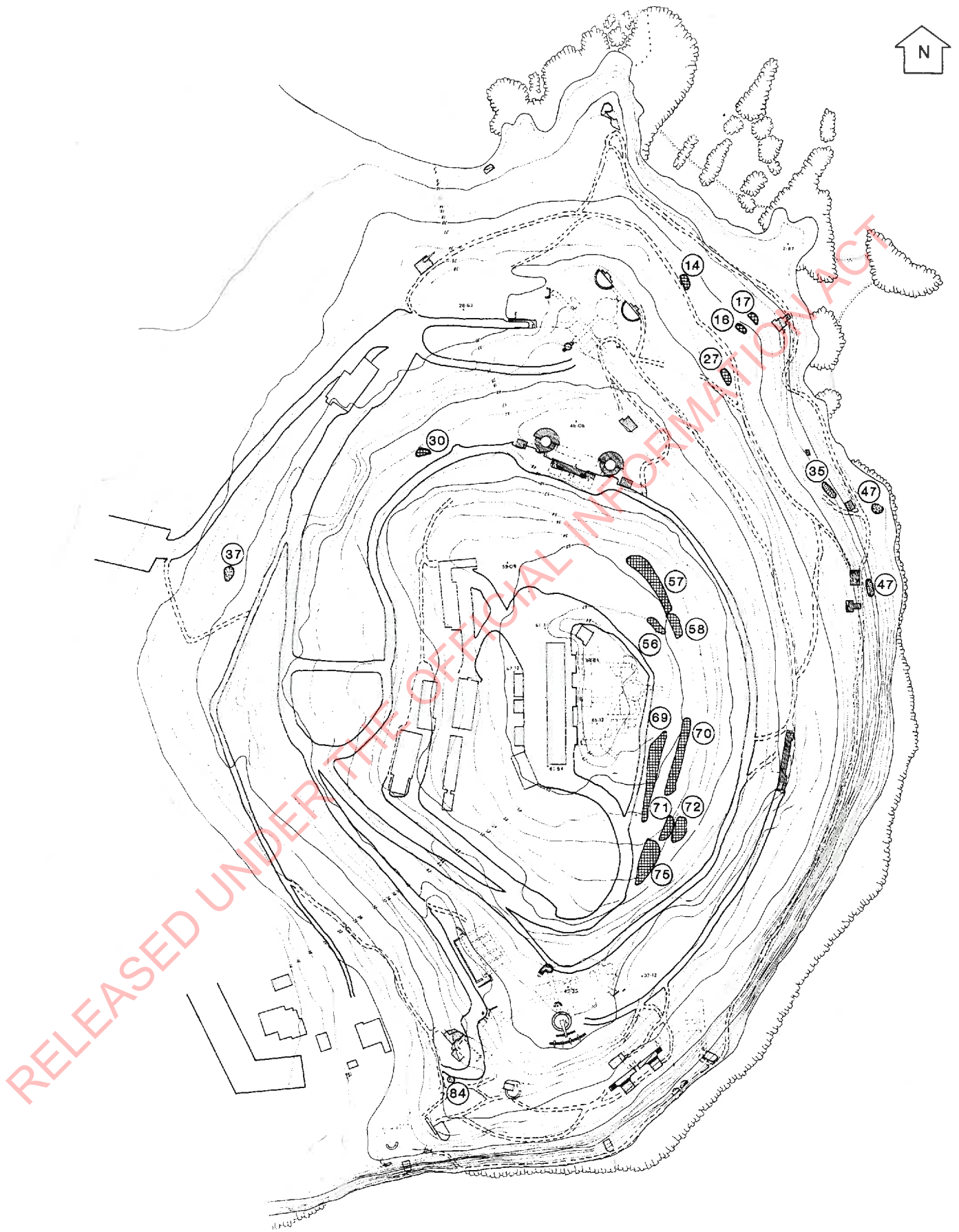
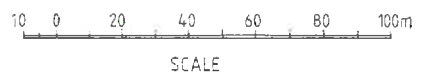


Figure 3: North Head showing areas where prehistoric features may remain.

 Terraces    
  Midden  
 Feature Nos. from Phillips n.d. (see Appendix)



In an account of early European settlement in Devonport by Captain Albert Duder (1976:1-2) there is a description of large heaps of stones in the Mt Cambria area. Duder assumed they were of natural origin but they sound more like the stone mounds and heaps associated with prehistoric Maori horticulture. On this evidence it seems probable that the major pre-European Maori settlement in Devonport was in the Mt Victoria/Mt Cambria area with its larger areas of fertile volcanic soils. The areas of prehistoric gardening visible in the early photographs have been indicated on Fig. 4.

From the available evidence it seems that if a pa existed it would have been small, probably consisting only of palisading with few earthworks, a refuge rather than a site of major permanent occupation. It is possible that the volcanic soils were used for gardens although no trace of garden structures at North Head are visible on the early photographs. These of course could have been cleared by the construction of the European stone boundary walls visible in the earliest photographs (see Plate 1).

## 2.2 The Post-Contact Period 1820-1885

This is the period after European contact but before the construction of major fortifications on the Head. After the intertribal wars of the late 18th century, North Head appears to have been abandoned (Graham 1924:10) and was not reoccupied until about 1835 when Hetaraka Takapuna resettled the North Head area. He was to remain here until 1863 (Walsh 1924:15). Early photographs show his settlement on the south-western side of North Head in Torpedo Bay (Walsh 1924:27). From the early title deeds this seems to be in the area of land registered as owned by the Superintendent of the Province and recorded as a recreation reserve (Lot 37, SO 1071).

When Hochstetter visited the North Shore in 1859 he described the Maori settlement of the area. This he says consisted of a few huts surrounding by gardens growing potatoes, cabbage and other vegetables. These gardens were surrounded by lava block walls four feet high with vines growing over them. Further away on the beach was a fish drying rack with fish and shark being dried (Hochstetter 1867:249-50). It is interesting that traditional walled plots were still being used although the crops are European, presumably being grown for sale in Auckland as well as for home consumption. It is difficult from Hochstetter's description to locate this settlement precisely, although it seems it was on the southern side of the peninsular in an area of volcanic soil, probably the settlement at Torpedo Bay.

There are a number of other European descriptions and illustrations of North Head in this period. A view from the southern side drawn by Lt. T. Godfrey in 1844 (Johnson 1988:75) shows North Head covered in scrub and trees. The same view clearly shows the terracing on Mt Victoria, indicating that at this time Mt Victoria was cleared. Similarly another drawing of "The town of Auckland, New Zealand" dating from approximately 1854 (Holloway, pers. comm.) shows North Head apparently still covered by trees and shrubs. This vegetation cover seems to have been present at the time of D'Urville's visit in 1827 as the area was described as an "immense natural garden" (Walsh 1924:2). Morton (in Musgrove 1986:17) suggests that North Head was originally covered in pohutukawa, griselinia, karaka, kohekohe, ngaio and mahoe. Von Hochstetter, during his visit in 1859, described the vegetation cover of North Head as consisting of manuka, ferns and "European high taper" (*Verbascum* sp.) (Hochstetter 1867:251). Larger areas of the rest of the peninsular were at this date still covered with fern (Hochstetter 1867:254).

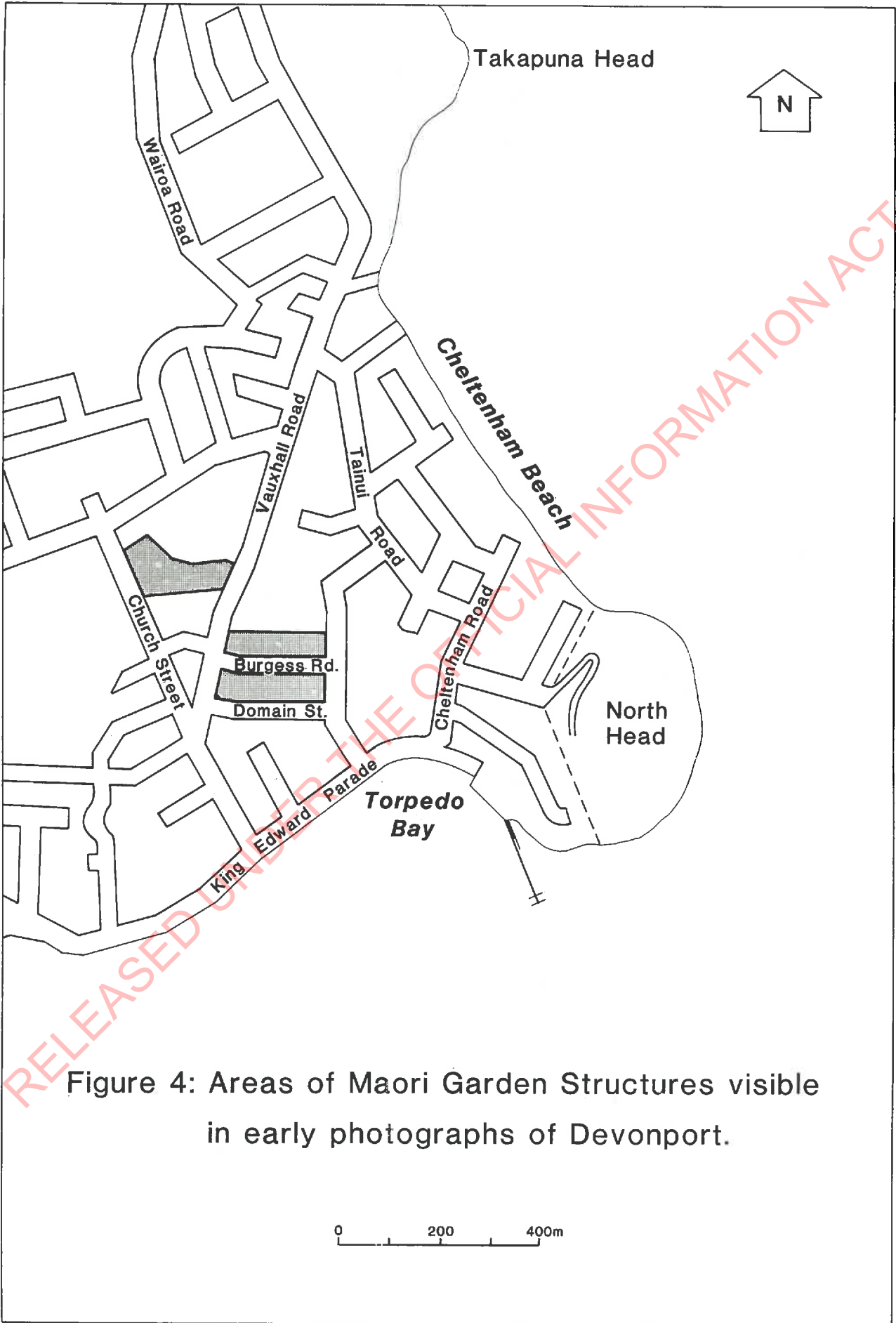


Figure 4: Areas of Maori Garden Structures visible in early photographs of Devonport.

Plan SO 1071, dating from the 1860s, has the notation "woody" pencilled in the North Head area. This may indicate the presence of scrub cover at this date also. The presence of this vegetation cover between the time of last Maori settlement and European clearance has important implications for the few remaining prehistoric features on North Head. The predominant vegetation cover of the Auckland isthmus at the time of European settlement was bracken fern and scrub (Millener 1979:35). Large areas of this secondary growth was cleared by the European settlers. If these early drawings and descriptions can be relied on, North Head was more densely covered with scrub for a longer period than the rest of the surrounding area. This suggests that any remaining prehistoric features may be in a damaged and very fragile condition and will have to be carefully monitored and managed in the future.

European impact on the landform and prehistoric features of North Head started with the arrival of Captain Rough, first pilot and harbour master for Auckland, and the purchase of the Mahurangi block by the government in 1841 (Ruffell 1982:13, HGMP 1983:4). In 1850 Devonport was subdivided for sale (Ferguson 1986:30) and part of North Head was reserved from sale as a defence reserve (Fig. 3) (Ferguson 1986:28) (NZGG 1878:630). A small reserve was allotted for a pilot station (HGMP 1983:4). The original purchasers of the non-reserve areas of North Head were Beetham, Burgess and Hammond, with a small area owned by the Auckland Harbour Board. The stone walls built on the boundaries of these properties on the western slopes of North Head are visible in a drawing for an auctioneer's sale plan of 1864 (Walsh 1924:27) and in the earliest photographs from the 1870s (Plate 1). There was also a rectangular, probably stone-walled, enclosure in the middle of the western slope (Plate 1). This may be an earlier form of the enclosure still visible c.1895 (see AIM Neg 14, 1946). This structure has been removed at the time of the 1900 Winkleman panorama (Plate 3). No trace of these early boundary walls is now visible.

### 2.3 European Fortification Prior to 1885

While this report deals mainly with the period after 1885 there were guns sited on North Head prior to this date. From the 1860s two 40 pr Armstrong guns were sited above Cheltenham Beach. The value of these was dubious and a report in 1871 (AJHR 1871:A-4) recommended that they be removed as they were almost useless and highly dangerous. One appears to have been removed as in 1880 only one 40 pr Armstrong is listed as being sited in Auckland at this time (AJHR 1880:H-10A). Similarly a report in the *Auckland Weekly News*, 2 May 1885, of a volunteer demonstration, describes the manning of the 40 pr Armstrong facing Cheltenham Beach suggesting that at this date, too, only one gun was present.

### 2.4 European Fortification since 1885

This period divides roughly into five major phases of activity:

#### 1885-1904

This period includes the building of the muzzle-loading and disappearing gun emplacements, the installation of the first searchlights, the early minefield installations, and the building of the 12 pr QF Battery, and concludes with the removal of the obsolete ML guns. (For abbreviations used here and elsewhere in this volume see Appendix 2.)



### 1904-1920s

This period starts with the beginning of construction of the 6" Mk VII emplacement which was to provide the main armament up until the beginning of World War II and ends with the scrapping of the 8" BL H-P (disappearing) guns in the 1920s.

### 1920s-1939

During this period little work occurred on North Head with the exception of updating generators and searchlights in the mid 1930s. It also appears that the remains of the summit earthworks were dismantled during this period.

### 1939-1945

During the Second World War the 6" Mk VII guns were removed to Whangaparaoa and 4" Noble guns installed in new emplacements in front of the old 8" BL H-P gun emplacement at North Battery. Numerous buildings were constructed and further earthworks completed to provide level surfaces to build on.

### 1945 to present day

This period saw the gradual decrease in the military use of North Head and the dismantling of defences. Today (1990) the Navy continues to occupy the summit area only, with the rest of the area used for public recreation.

## 3.0 HISTORIC BACKGROUND

### 3.1 1885-1904

It was during this period that the landform of North Head was the most substantially altered. Most of the subsequent defence works up to and including those built during the Second World War, were based on the batteries sited during this period, with their associated roads and earthworks.

The fortifications of this period are the product of two main factors. Firstly, they are, in form and equipment, the response to the development of the armoured warship, which one authority suggests, at this time, led to "an orgy of fort building all over the Empire" (Hogg 1987:28). Secondly the fortifications were a direct response to a perceived threat from an expanding Russian Empire.

From the 1850s onwards there was constant agitation for a strengthening of New Zealand's coastal defences, which were by long tradition seen as inadequate (Barratt 1981:77). Much of this agitation seems to have been orchestrated by the colonial press, with the most famous example being the 'Kaskowski' hoax printed in the *Daily Southern Cross* on 17 February 1873. This concerned the attack on Auckland by an armoured Russian vessel.

The image of attack by a Russian warship stirred strong emotions and the *Southern Cross* article was still being reprinted in the 1890s as a booklet to further promote defence issues (Luckie 1894). Throughout this period official reports were called for on the subject of defence, but usually New Zealand's 'traditional lethargy' on the subject of external defence prevailed (Barratt 1981:85).

Defence recommendations involving North Head had been made as early as 1860 by Captain Graham of HMS *Castor*. Subsequently Sir W. Jervois echoed these recommendations in 1871 and in 1878 the committee on the Defence of the Colonies recommended that Jervois' proposals be followed up. As a result the New Zealand government ordered 7" RMLs and three 64 prs. These guns arrived in 1879 but were put in store (Ruffell 1982:13-15).

After much vacillation the Russian scare of 1885 precipitated action as the North Head Fort Record Book states:

"The works were commenced in 1885 and pushed forward rapidly as diplomatic relations with Russia were at that time strained." (F.R.B. Chapter II).

During this early period four major batteries were built; Fort Cautley or the Summit Battery, North Battery, South Battery and later in 1900-1 the 12 pr battery. As well as the batteries, a number of other earthworks, roads and buildings were constructed. These will be discussed in detail in a later section.

The gun emplacements built during this period and the ordinance fitted are typical of other fortification elsewhere. For example, both Fort Scratchley in Newcastle, New South Wales (Carey and Mort, 1986), and Bare Island in Botany Bay, New South Wales (N.P. & W.L. n.d.), have emplacements for rifled muzzle-loading guns and disappearing guns similar to those sited at North Head. The rifled muzzle-loader was the response to the need for a larger charge to be fired to penetrate armoured ships. The technology of the time could not build breach loading guns to take these larger charges, hence the return to the use of muzzle-loaders (Hogg 1987:27-8). The disappearing gun stored the energy from the recoil hydro-pneumatically and used this energy to reposition the gun after each shot. This also enabled the gun to remain hidden while it was reloaded.

### 3.2 Historical Background - 1904-1945

While primary source material exists for this period, lack of time has meant that this could not be extensively consulted. Most of the following therefore comes from two unreferenced secondary sources, Ruffell (1982-3) and Langford (1979) and must be read with this in mind.

In 1906 the Colonial Defence Committee of the British War Office recommended the building of three new batteries at Auckland, Wellington and Lyttelton. The government of the day scrapped the Lyttelton recommendation and material for only Auckland and Wellington was ordered. These Batteries were built at North Head and at Point Dorset in Wellington (Langford 1979:21). No further new installations appear to have been built in the period, up to and including the first World War.

After the war coastal defences were scaled down with only Auckland and Wellington kept operational. North Head and Fort Dorset were the forts chosen as the most modern and their major function seems to have been to train a nucleus of men (Langford 1979:30). In 1925 the 8" BL H-P guns were scrapped (Ruffell 1983:53) and the only new equipment installed was generators and searchlights in the mid-1930s.

The Naval base at Singapore was seen in the 1930s as the major part of New Zealand's defence and the New Zealand government paid One hundred thousand pounds per annum towards its construction. This meant that there was even less funding available for coastal defence in New Zealand (Langford 1979:32). In 1933 the Committee of Imperial Defence suggested that the Singapore defences may not be complete in time. A subsequent report by Major General Sinclair Burgess recommended a 6 year programme of re-armament (Langford 1979:32). The first Labour government continued the re-armament programme and One hundred and thirty thousand pounds was voted to upgrade coastal defences (Langford 1979:34-40). One problem was the lengthy delivery period from the time of ordering new armament until its delivery. For example new 6 prs were ordered in the mid-1930s but the delivery time was 5 years on. The old 12 prs were therefore retained (Langford 1979:40).

North Head entered the war with upgraded searchlight systems, but with the main armament essentially the same as it had been in the first World War, the 12 prs and the 6" Mk VII battery. Changes in tactical thinking, however, meant that the function of North Head differed from that of the first World War. Coastal defences were being decentralised and moved away from the main centres (HGMP 1983:11). One outcome of this was to be the moving, in 1941, of the 6" Mk VII guns from North Head to Whangaparaoa.

North Head's function in this period changed from being a major central fortification to being a regimental H.Q. and fire command post. It was also the control centre for the Examination Service and part of the Boom Defences (HGMP 1983:11-12).

### 3.3 1945 Onwards

The military function of North Head has declined gradually since the second World War. The Army moved to Narrow Neck in 1947-48. The Coastal Artillery reoccupied the Head in 1953 and remained there until they were disbanded in 1958 (HGMP 1983:13). The Navy continues to occupy the summit although there are plans for their final departure in 1992.

In 1972 North Head became a recreation reserve as part of the Hauraki Gulf Maritime Park. It was gazetted as an Historic Reserve in 1980 and today is administered as part of the Department of Conservation estate.

## 4.0 THE GUN BATTERIES AND ASSOCIATED STRUCTURES

### 4.1 Fort Cautley or the Summit Battery(1)\* (Figs 5 & 6)

The basic plan for the fortification was proposed by Colonel Scratchley, but the actual work, with detailed siting of batteries, was undertaken by Major Cautley R.E after whom the fort was named (Barrett 1981:87). The date given in the Fort Record Book for commencement of work is 1885, but Barrett (1981:87) suggests it started in late 1884. The first drawings are of roads planned at this date (see Appendix 6). The initial work consisted of the excavation of the gun pits for the two 7" RML 7 ton Mark IV guns (Fig. 6). The foundations are recorded as being a kauri filled with concrete. Puriri-walled loading chambers were built at the same time and the area roofed with railway irons and planks and covered with asphalt (F.R.B. Chapter II). A brick magazine is described as being sited "in a centre position behind the crest of the hill". It is difficult to tell from this description if this was a freestanding building.

\* The numbers in brackets refer to locations shown in Fig. 5.



KEY

- 1 Fort Cautley/Summit battery
- 2 North battery
- 3 South battery
- 4 12pr battery
- 5 6" Mk VII battery
- 6 6 pr battery
- 7 Boom battery
- 8 Minefield defence battery
- 9 The Quarry
- 10 Tennis Court
- 11 Helicopter pad
- 12 Magazine
- 13 Test/Generator Room
- 14 Generator Room
- 15 Searchlights
- 16 Old Searchlights 1 & 2
- 17 Generator room foundation
- 18 Minefield defence control
- 19 Gunnery training area
- 20 Annies Cave



Figure 5: North Head, location of major installations.

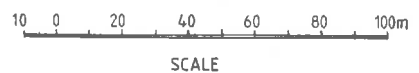
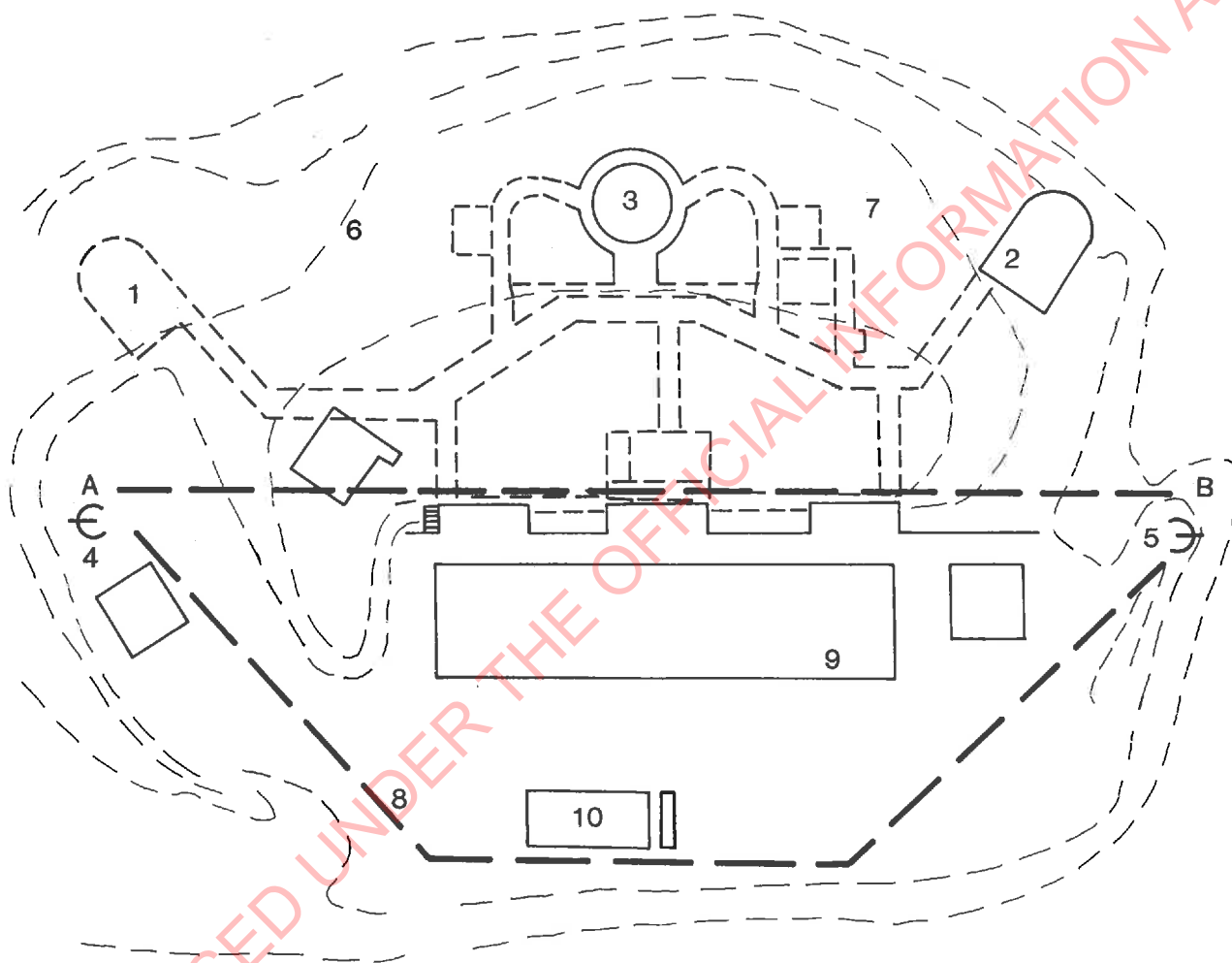


Figure 6: Plan of Cautley or Summit Battery



Cross-section 1899 after modification of earthwork



- — — — — Approximate trace of Earthwork 1880's
- 1 Probable location of 7" RML Emplacement
  - 2 7" RML Emplacement
  - 3 8" H.P. gun emplacement
  - 4 5 Probable locations of 6pr Nordenfelt flankguns
  - 6 7 Possible location of 1887 O.P.s
  - 8 Entrance through Earthwork
  - 9 1880s Barracks building
  - 10 Stone Building

The rear of the summit was levelled at this period and an earthwork with musketry parapet was built with a ditch encircling the whole fort. When complete this parapet was 12'5" (3.79 m) high (F.R.B. Chapter III). This earthwork is most clearly shown in Plates 3 & 4.

A report in the *Auckland Weekly News* of 25 April 1885 describes the work at this date. The 7" emplacements were complete with the guns ready to be mounted and the earthwork fortifications were near completion with almost 300 men working on the installations. The Fort Record Book states that the gun pit for the 8" BL H-P gun was begun in late 1885 (Fig. 6:3), together with associated magazines and stores to be sited behind the gun. Also at this time an open passage was excavated to connect the three summit gun emplacements. Rough stone retaining walls five feet thick were built bordering the passage. Work then stopped for a period and was recommenced in 1886, the Armed Constabulary taking over from the unemployed labour used previously. The 8" BL H-P gun pit was excavated in this year, associated magazines completed, and tramlines laid for moving the ammunition.

The 8" gun then had to be brought to the summit and a jetty from which to unload the gun was built on the eastern side of the Head. The location of this jetty is shown on Map DP 1009 of 1891 (Fig. 7). The remains of it are still visible. From the jetty a tramway was laid to the top of the hill, where a temporarily mounted steam engine winched the gun up to its emplacement. The Fort Record Book (Chapter II) states the steam engine and its temporary shed were sited "to the left rear of the 8" emplacement on the west side of the central passage" (Fig. 6). The gun and mounting were placed under cover for 9 months to allow the concrete in the emplacement to 'settle'. The gun was mounted in 1887. In the same year three observation stations, one for each gun, were built, one between each 7" RML and the 8" BL guns, and one on top of the 7" magazine (Fig. 6). (See also Drawing 1578, Appendix 6).

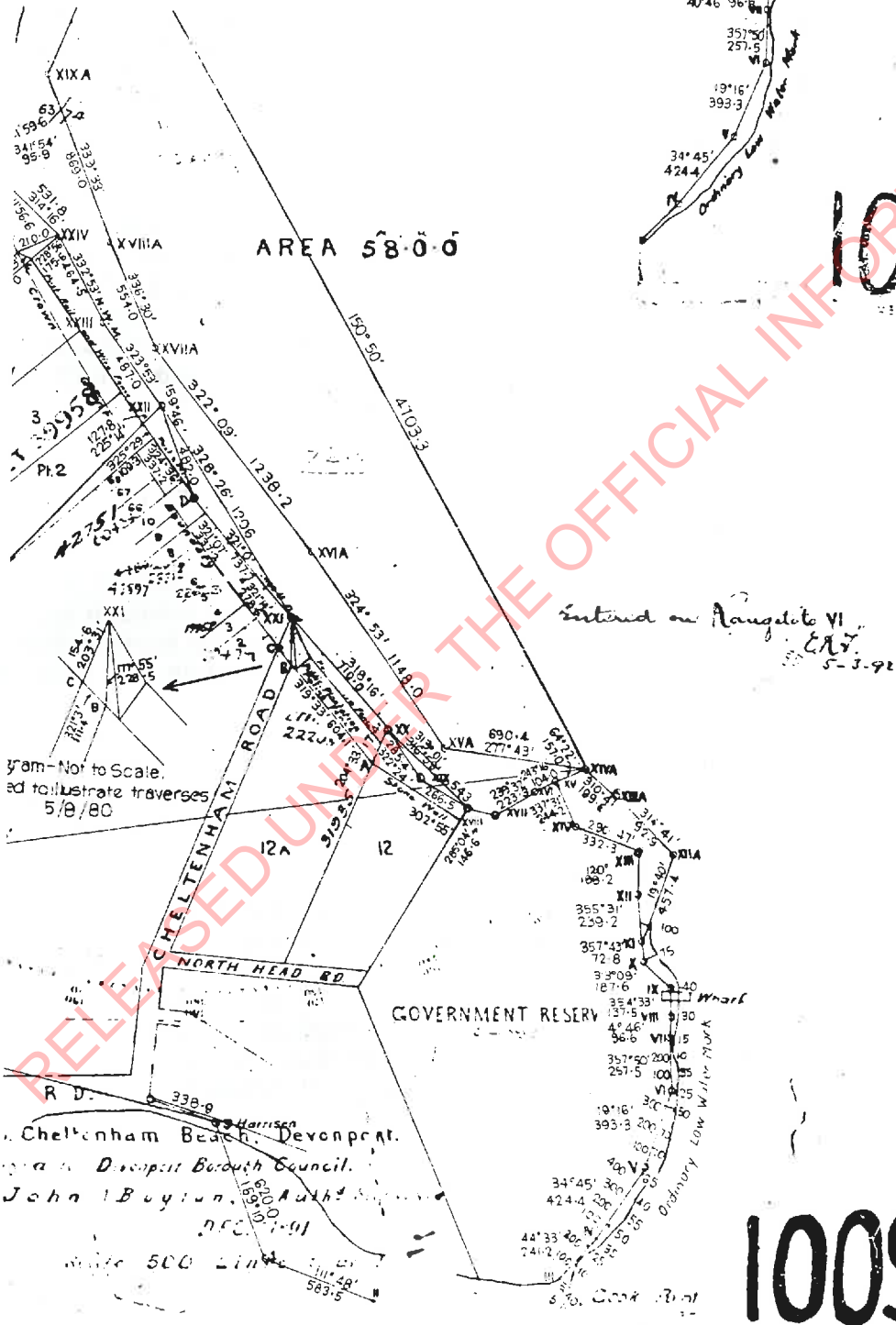
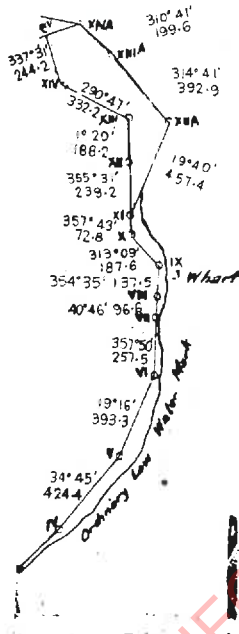
In 1888 prisoners from Mt Eden gaol were sent to the Head and housed in the Fort Cautley Barracks. They were involved in building a 20,000 gallon concrete water tank in the Barrack yard, and other works around the Head (Ruffell 1983:106).

In 1889 two Nordenfolt QF 6 pr guns arrived and were mounted on either flank of the main battery (Figs 5 and 6). As one gun arrived before the other, there was, for a time, a tramway between the two emplacements with the idea that the gun could be shuttled between them as need arose. The emplacements for these guns are shown in a cross-section of the Fort from 1899 (Fig. 6).

Between 1890 and 1891 the open passages were roofed with concrete and earth, the steps within removed, and the slopes graded and a new passage constructed for each gun next to the Barracks. The earthworks were also remodelled at this time with the ditch and the forward OPs being filled and the earthworks and crest of the hill altered.

It is difficult now to reconstruct the full extent of the Fort Cautley earthwork defences as no comprehensive map or plan of this period has been found and the photographs of the period do not show the summit clearly. Chapter II of the Fort Record Book describes the defences as more like a redoubt than a fort because the ditches were never flanked. It is also described as a closed earthwork of irregular trace crowning the top of the hill with a musketry parapet around almost the whole of the outline. This was also strengthened by barbed wire. A sketch of the outline with dimensions is included in the Fort Record Book. This is reproduced below.

Figure 7: Map DP 1009, 1891 showing site of wharf.



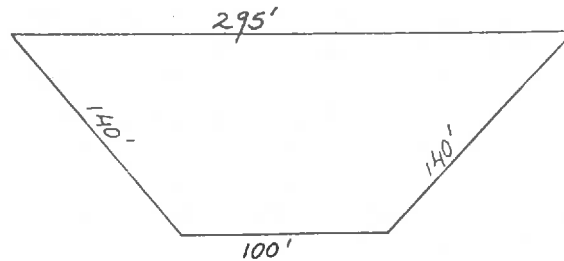
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4/7/80

1905A

1009



This was not drawn to scale, although presumably north is on the left hand side of the drawing. This part of the Fort Record Book (Chapter III) also states that the 8" BL H-P was mounted 70 feet in from of the front trace, the outside of the earthwork. It is possible, using the 1946 map (Fig. 8) and these dimensions together with the Winkleman panorama, the 1911 photograph and White's Aviation photographs (Plates 3, 4, 7 & 8), to approximate the outline of the earth work defences. (See Fig. 6.)

At this time the main entrance to Fort Cautley was on the north-west corner of the parapet and visible on the 1900 and 1911 Winkleman photographs (Plates 3 & 4). This entrance was protected by two loop-holed, bullet-proof doors (Fort Record Book Chapter III). Remnants of this earthwork on the northern side remained until the 1950s when they appear to have been finally cleared (Plates 9 & 10). In 1895 the 7" RML gun pits were remodelled as the older timber foundations had rotted and the old concrete was cracked (Fort Record Book Chapter II).

In 1893 a summary was prepared of New Zealand's defence works and armaments (RNZ DW-A, 1893:6). It states that at this date Fort Cautley held the 8" gun, the two 7" RMLs, 1 Nordenfelt 6 pr and a pillar mount for the other proposed gun. It also states that the magazines were sited between the guns and that there were musketry parapets and a non-continuous ditch. The report proposes that the 7" RMLs be removed to elsewhere in the harbour defences.

In 1896 a precis of existing and proposed coast defences of the Australian station was made by the British Admiralty (Admiralty Intelligence Department [No. 463] December 1896). This lists the existing defences at North Head and shows that in 1895 the 8" BL H-P, the two 7" RMLs, and the two QF 6 prs, were in place, confirming the Fort records. This early period of fortification and armament concludes with the removal of the obsolete 7" RML guns on 2 May 1904 (Fort Record Book Chapter IV). Also in 1904 the northern Nordenfelt 6 pr was removed in preparation for the excavation of Barbette emplacements for the new 6" BL Mk VII guns. This work was discontinued later in the same year as it was decided the location was unsuitable (Fort Record Book Chapter II). Remains of the damage done during this work was still visible in 1958 to the north of the main summit installations (Plate 9). This area was levelled at some time between 1958 and 1962 (Plates 9 & 10).



#### 4.1.1 Cautley Battery 1904-1945

This period represents a gradual change in the role of the summit area from one of being a major battery to being an area for control and administration. The 7" RMLs and one Nordenfelt had been removed in 1904 leaving only the 8" H-P gun and one Nordenfelt. The efficacy of the 8" BL H-P gun at this site may have been doubtful even in the early period. The 1896 Admiralty report (Admiralty 1896:109) notes that "hydro-pneumatic mountings are employed at Fort Cautley, though 200 ft above the sea". Whether this was a criticism or approval is unclear.

An article in the *New Zealand Herald* for 7 August 1912 entitled "A Defenceless Harbour" criticises the defences of Auckland and begs that something be done. The article states that the forts have only two modern gun types, the 6" Mk VIIIs and 12 prs at North Head, and that the rest of the 6" and 8" BL H-P guns and 6 pr Nordenfelts are obsolete. The suggestion is made that six new 6" guns are required. These were never purchased.

The article also states that there were only three searchlights installed in the harbour defences at this date, one at Bastion Point, one at North Head and one at Fort Takapuna. It is suggested that three more lights be installed.

Records of the first World War period are difficult to find. Presumably the 8" BL H-P gun was still operational and manned, as it is not recorded as deactivated until 1925 (Ruffell 1983:53).

Precise records of the Fort Cautley area are also scant for the World War II period, although a sketch plan in the Fort Record Book for 1941-2 shows the presence of an AA Light, a searchlight, and a light machine gun (Fig. 8). Some sort of route, perhaps a trench, is also indicated joining the AA light emplacement and the old southern 7" RML gun pit. An Observation Post is also shown above the southern entrance to the old Fort Cautley tunnel network. This structure is still visible on the 1958 aerial photograph (Plate 9). At about this time a concrete structure was built (Fig. 17). This is named as a Battery Observation Post in the Fort Record Book, and as a Fire Control Post on the 1946 map (Fig. 18 below). In the 1946 map (Fig. 18) the two 4" Mk VII guns sited at North Battery are referred to as "Cautley Battery" and B.O.P. may refer to these although another B.O.P is sited just behind the 6" Mk VIIIs.

#### 4.1.2 Fort Cautley Today

The area of the old fort is currently under the control of the Royal New Zealand Navy and is used for training purposes. The only trace of the old earthworks is the earth bank to the north of the old barracks building. The 7" RML gun pits have been filled in, the southern one relatively recently as it was still visible in the 1962 aerial photograph (Plate 10). No traces of the flank gun 6 pr emplacements are visible, the southern one being finally destroyed by roadworks at some time between 1958 and 1962 (see Plates 9 & 10). Remains of this emplacement, which may remain below the surface as faint traces, were still visible in the 1962 aerial photograph (Plate 10). The northern 7" RML gun pit, although filled, may still exist as the tunnel access remains and on the 1944 map (Fig. 17) traces of the emplacement are visible in the contours. The 8" H-P gun emplacement still exists and is sealed and used as a water tank.

ANTI-AIRCRAFT SEARCHLIGHT  
— NORTH HEAD —

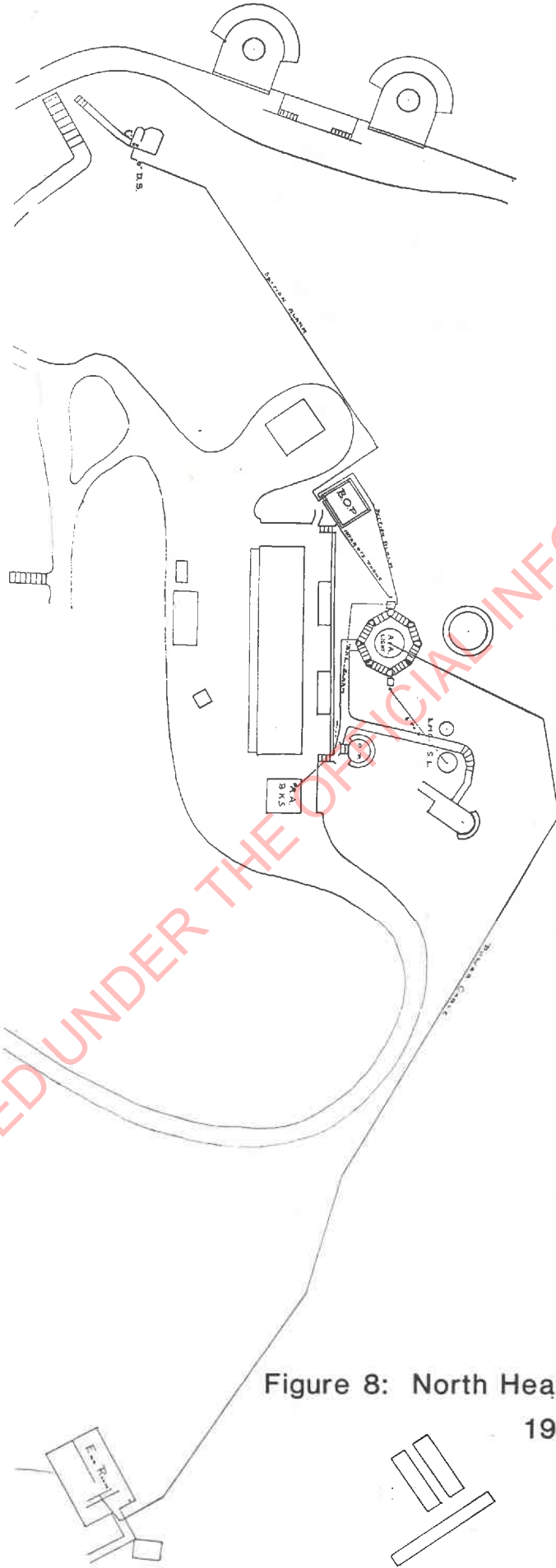
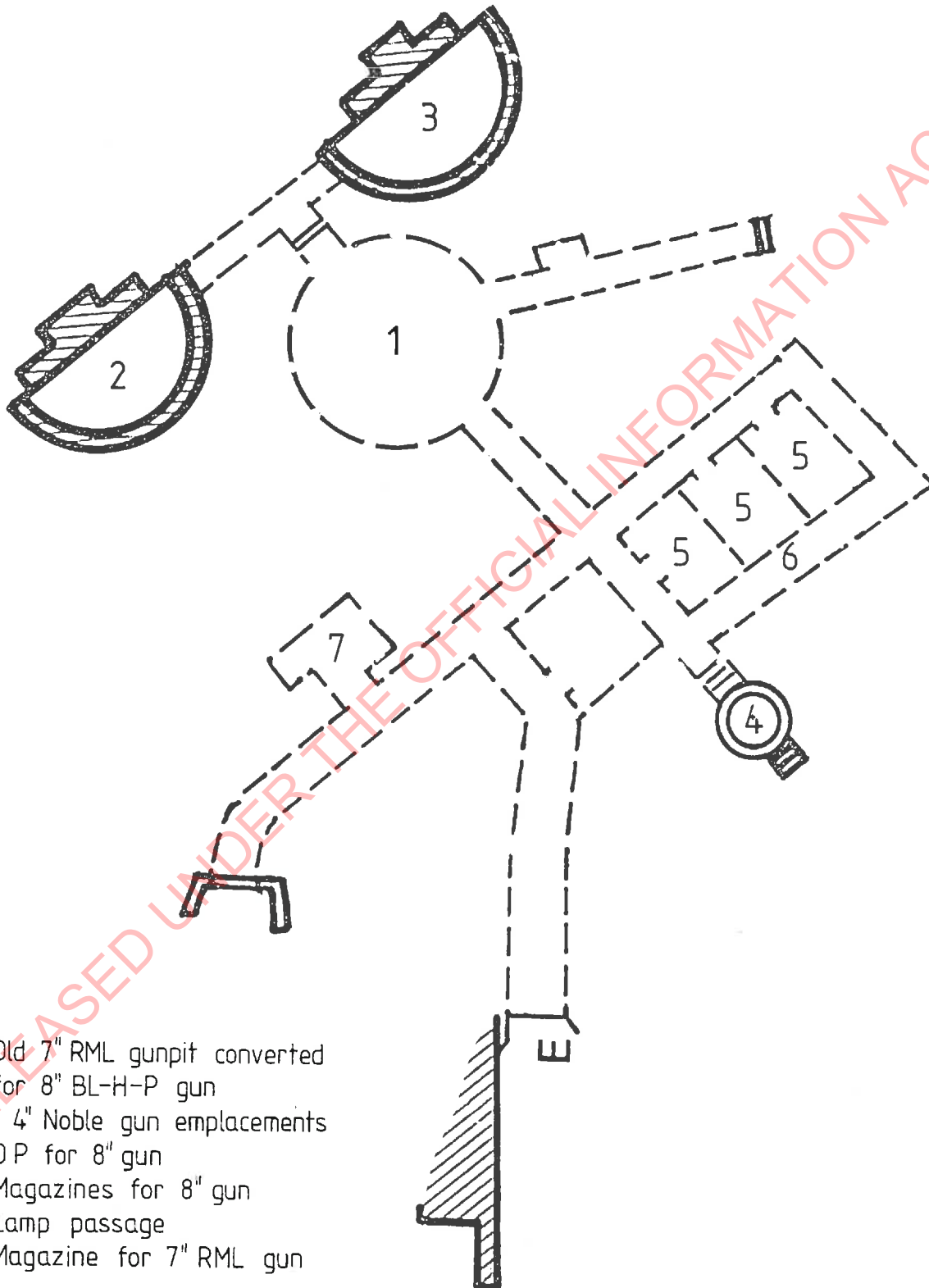
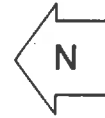


Figure 8: North Head Summit Defences

1941 - 42

Figure 9: Plan of North Battery.



KEY

- 1 Old 7" RML gunpit converted for 8" BL-H-P gun
- 2 & 3 4" Noble gun emplacements
- 4 OP for 8" gun
- 5 Magazines for 8" gun
- 6 Lamp passage
- 7 Magazine for 7" RML gun



The tunnels and rooms of the old magazine and store area are locked and used for storage. This area is anomalous. Thirteen rooms are listed in the Fort Record Book (Chapter 2) as present in this area. Only five currently are visible, eight if the gun pits are included. A map exists indicating a tunnel running from the east of the 8" gun pit. This map may have been prepared for a proposed Visitors' Centre as a copy appears in the architects' proposal (Athfield Architects n.d. 1 and 2). This map, as the most up to date, has been used as the basis for Fig. 5.

Of the original 19th century buildings the old Barracks remains as does the small stone building to the west of the Barracks. As described in a later section this structure is probably the remains of the much larger stone building visible in the early photographs. The rest of the structures on the summit area date from the second World War or later.

#### 4.2 North Battery, or Cheltenham Beach Battery(2) (Fig. 9)

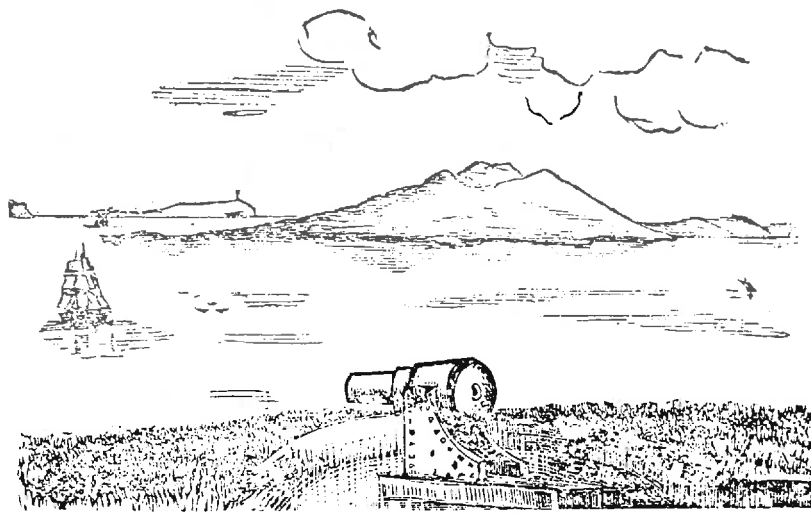
This battery has the longest and most varied sequence in terms of rebuilding and re-armament of all the batteries on North Head. This sequence lasts from before the period of major fortification until the period of the second World War. Two 40 pr Armstrong guns were sited near this battery from the 1860s (A.J.H.R. 1871:A4) and one at least was still present in 1885 (*Auckland Weekly News* 2 May 1885).

The major earthworks in the area began in 1885 for the siting of one of the 7" RML guns. The *Auckland Weekly News* article of 25 April 1885 describes this emplacement as almost complete with the gun due to be mounted any day. An illustration was also included in this article of the barbette mounting and of the view over the battery (Fig. 10). At the same time a magazine was constructed and a ditch dug in front of the gun (*Auckland Weekly News* 25 April 1885). The description of the volunteer demonstration in the *Auckland Weekly News* for 2 May 1885 describes the firing of the Armstrong gun on North Head facing Cheltenham Beach. At this date the 7" RML emplacement was almost complete so presumably the Armstrong was included as part of the North Battery defences. A drawing of North Battery dating from the late 1880s (Drawing ADO 1573-2, Appendix 6) shows an emplacement for a 40 pr Armstrong gun to the west of the main battery in the area of the present car park. Internal evidence suggests that this emplacement was already in use as the parapet in front of the gun is labelled to be "slightly remodelled" suggesting that it was already present. The 7" RML was not emplaced for long, and in 1888 a gun pit and extended magazines and tunnels were excavated for the emplacement of an 8" BL H-P gun, similar to those mounted at Cautley and South Battery (HGMP 1983:19; Ruffell 1983:106). A drawing of the planned emplacement for this gun is extant (PWD File ADO 1573 Sheet 7). This gun is listed as part of the Auckland defences in the 1896 *Precis of Coast Defences* (Admiralty 1896:109). The 8" BL H-P gun was removed and scrapped in about 1925 (Ruffell 1983:53).

The 1893 summary of Defence works (on NZ DW & A, 1893:6) states that at this date North Battery consisted of the 8" BL H-P gun with magazines in deep excavations with the left trace extended as a musketry parapet for a length of 50 yards with gun banks for field guns to flank Cheltenham Beach. This description fits the design shown in drawing ADO 1573-2 (Appendix 6).

In the 1930s stables and a harness room were sited at North Battery (HGMP 1983:20). The harness room was sited in the modern car park area in the vicinity of the showers and Light Aid Detachment building shown in the 1946 map (Fig. 18 below) (Nutsford pers. comm. 1989).

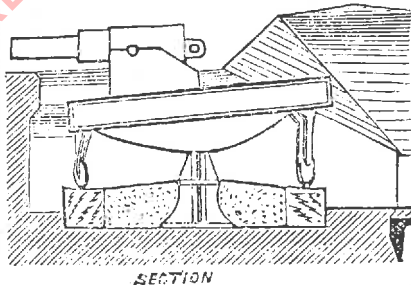
## AUCKLAND FORTIFICATIONS.



CHELTEHAM BEACH BATTERY.

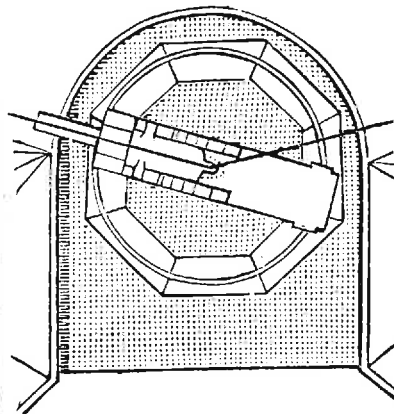
This view gives a general sketch of the 7-inch gun to be mounted in the position facing Cheltenham Beach. This, like all the other guns, is mounted "en barbette." This is a phrase which may be new to some of our readers, and we may explain that barbette is an earthen terrace inside the parapet of a rampart, serving as a platform for heavy guns. It has such an elevation that the guns may be fired over the crest of the parapet instead of through the embrasures, to give them freer scope by swivelling round into different directions. This class of battery has disadvantages and advantages. The former consist mostly in the fact that the gun is necessarily partially exposed, but on the other hand it has the advantage of a wider sweep, and greater command of space. Indeed its angle is so great that it may almost form the diameter of a circle. With stone work protections of course the gunners would be limited only to the embrasures. After the gun en barbette is discharged, it is run back, and the muzzle depressed for loading, after which it is again run out to the rampart ready for action. With these guns there are adequate appliances, winches, &c., and on a pinch six men can work the gun, although the complement is twelve. Our sketch is taken from the rear of the fortification on the side of the hill, and overlooking the Rangitoto Channel. The gun has full command of the Channel outwards through the Whangaparaoa Passage, and inwards to the point of Rangitoto Reef.

The second sketch is a section showing the gun on its carriage looking over the parapet, with the ammunition chamber and passage at the rear.



SECTION

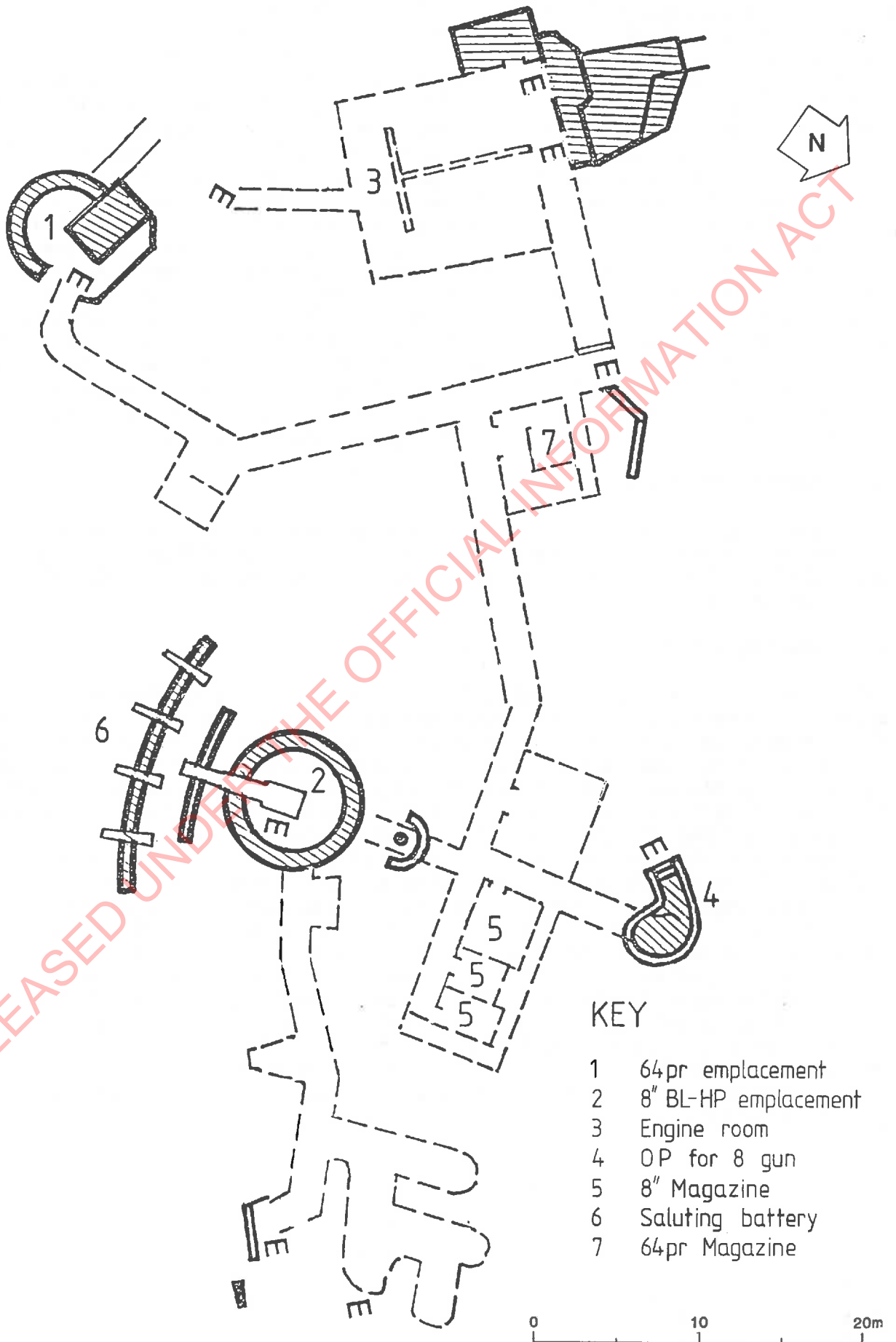
The third sketch is the most important, being the actual plan of the fortification. The two black lines, one running through the gun and the other at an obtuse angle from it, show the line of angles on which the gun can be brought to bear. The octagonal frame shows the platform, and the dotted ground inside and outside the platform is concrete. No better idea as to the great variety of range of those guns can be given than that which is conveyed in this cut, and in this respect its great advantage over casemate guns must be apparent. In regard to the present fortification works, no doubt as soon as the more important work is completed, the loose earthwork thrown out from the excavations and roads will be sloped off and planted with grass or sods, and this will be all the more necessary with respect to the fortifications themselves, so that there should be nothing to distinguish the position of the guns from any other part of the hill.



In regard to the torpedo defence, we understand that nothing has yet been settled. A good deal has been done in Wellington, and in all probability some torpedoes will be sent up ready to be sunk. Everything, however, will be settled before Major Cautley leaves. It seems likely that the Rangitoto Channel will be chosen as the place to be defended by torpedoes.

Figure 10: Auckland Fortifications from Auckland Weekly News 25 April 1885

Figure 11: Plan of South Battery and Engine Room.



In 1941 the North Battery, now called Cautley 4" Mk VII Battery, was rebuilt for the fourth time. Two 4" guns, originally from HMS New Zealand, were emplaced. These guns were sent to New Zealand after HMS New Zealand was paid off and were set up as a saluting battery at North Head in 1932. From here, Number 1 gun was sent to the artillery yard at North Head for instructional purposes, then in 1940 to Fort Takapuna, and finally to North Head in September 1941. The number 2 gun was erected at the Museum in 1932, Fort Takapuna in 1940, and at North Head in September 1941 (Fort Record Book 1941-2 Section). Separate casemates were erected for each of these guns connected by a short passage. This was connected to the old 8" emplacement and magazines (Fig. 9). The old gun pit was probably roofed at this time as it was still open in 1939 (see Plate 7). The casemates were adapted from the "Colchester" emplacement, a standard British War Office design. In these examples concrete was cast in situ for the rear and side walls as far as the mounting and a precast concrete lintel placed at the front. Precast beams spanned the area between the rear wall and the lintel and these in turn were covered with concrete slabs with 0.5 m of turfed spoil on top. Earthen banks were then constructed at the sides of the emplacements (Langford 1979:85). The small concrete building above North Battery is the Observation Post for this 4" Battery and contains a "restored" version of the original mural with grid bearings marked from the World War II period. The original Observation Post for the 8" BL H-P gun is still visible behind the 4" Mk VII emplacements. In 1959 the 4" guns were removed (HGMP 1983:13) and at present the old 8" gun emplacement and magazine is locked and the access from the 4" emplacements walled off.

#### 4.2.1 North Battery Today

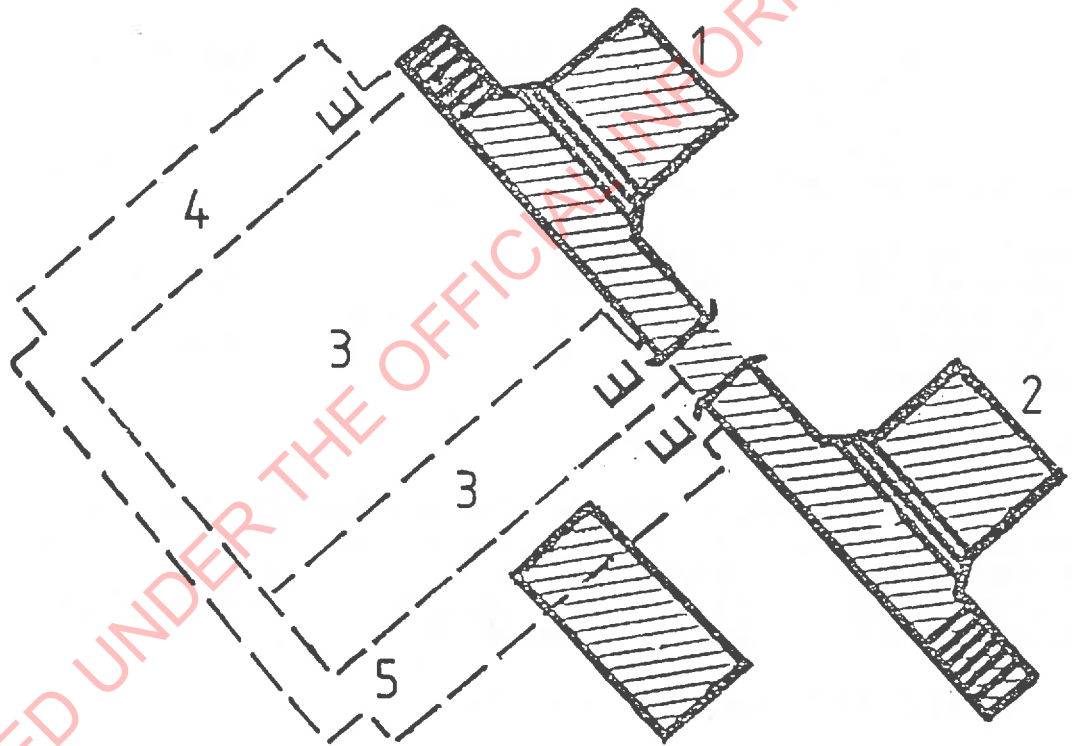
North Battery is currently locked and has been used until recently for storage. The 4" emplacements are open but the access to the magazine and old 8" BL H-P gun emplacement has been walled off. The old access to the sunken road on the eastern side and the O.P. for the 8" gun are also sealed.

#### 4.3 South Battery(3) (Fig. 11)

This is the third of the batteries sited by Major Cautley in the original defences of 1885. It appears to be unaltered and is the only emplacement with a gun still in place. This, however, is not the original gun, but a similar piece from the Summit Battery resited here in 1953 (Nutsford pers. comm. 1989). Originally this battery, like that at Cautley, consisted of a mix of the obsolete, a 64 pr ML gun, and the newer 8" BL H-P gun. Both these guns are listed as emplaced in the 1896 Admiralty Report (Admiralty 1896:109). The 64 pr emplacement appears to have been constructed first. The Fort Record Book is not clear as to the sequence of activity here. The *Auckland Weekly News* article of 25 April 1885 lists the 64 pr as "at" South Battery, although it is not clear if this was mounted or not. It is probable that it was not as the "Cheltenham Beach" (North) Battery is listed as the most advanced with the gun to be mounted "in a day or two". The 8" BL H-P gun site was probably constructed and the gun mounted in 1887-88 at the same time as the similar guns at Cautley and North Batteries. Presumably the magazines, rooms, tunnels, and observation post, were constructed at the same time. At the time of the 1893 Defence work report (RNZ DW & A, 1893:6) South Battery consisted of the 8" BL H-P gun with magazines and casemate for electric light in deep excavation, the 64 pr with a 50 yard musketry parapet on the right flank, and an emplacement for a 6 pr Nordenfelt. This last gun appears to be for the minefield emplacement (8). This report states that at this time neither the Nordenfelt nor the 64 pr were emplaced. The Nordenfelt to come from Takapuna and the 64 pr from the "drill shed".



Figure 12: Plan of 12pr Emplacement.



KEY

- 1 & 2 Gun emplacements
- 3 Magazine
- 4 Accomodation
- 5 Lamp passage





The 1896 Admiralty Report (Admiralty 1896:109) states that at this time the 64 pr was to be dismantled some time in the future, and this appears to have occurred in 1904 at the same time as the removal of the muzzle loader 7" guns from the summit (Ruffell 1983:51). The gun had definitely been removed by the 1908 as it is not listed in Defence Scheme of New Zealand for that date. The 8" BL H-P gun was scrapped in 1925 at the same time as those at Cautley and North Battery (Ruffell 1983:53), and no major armament appears to have replaced it. During World War II an Oerlikon was mounted below where the present saluting battery is located (Fig. 17) and a latrine built on the site of the old 64 pr emplacement (North Head Site Plan 1946 Fig. 18).

#### 4.3.1 South Battery Today

This is the only one of the three original main Batteries open to the public and is also the site of the only remaining emplaced piece of major ordnance. It is also the only site of any of Muzzle Loading guns still accessible. The tunnels, rooms, and magazines for both the 8" and 64 pr guns are in good condition and the area has a large amount of public use. Some areas have been sealed, for example the area excavated by J. Earnshaw, on the northern side.

#### 4.4 The 12 Pounder Battery(4) (Fig. 12)

This battery dates from 1899 and the QF guns emplaced were originally part of the minefield defences (Fort Records Book, Part 1). Associated structures include an excavated magazine with lamp passage and shelter accommodation for battery personnel. The observation post associated with this battery is sited behind it. This battery is listed as part of the Cautley armament in the 1908 Defence Scheme.

A concrete plinth located on the hillside between the battery and the observation post was for the depression range finder associated with these guns. The original Mk 1 guns were condemned in 1920 and replaced with Mk IIs which were still the armament of this battery during World War II (Fort Record Book 1941-42 Section). In 1959 one of the 12 prs was scrapped and the other retained to be restored (HGMP 1983:13).

##### 4.4.1 The 12 Pounder Battery Today

This battery has the appearance of an ancient romantic ruin rather than of an installation used during the second World War. The lining has been removed from the magazine and crew accommodation leaving the rock-cut walls exposed. Ferns grow over the doorways and around the gun emplacement. Access is difficult and potentially dangerous. Remnants of aircraft identification pictures are still visible on the walls of the observation post.

#### 4.5 The BL 6" Mk VII Emplacement(5) (Fig 13)

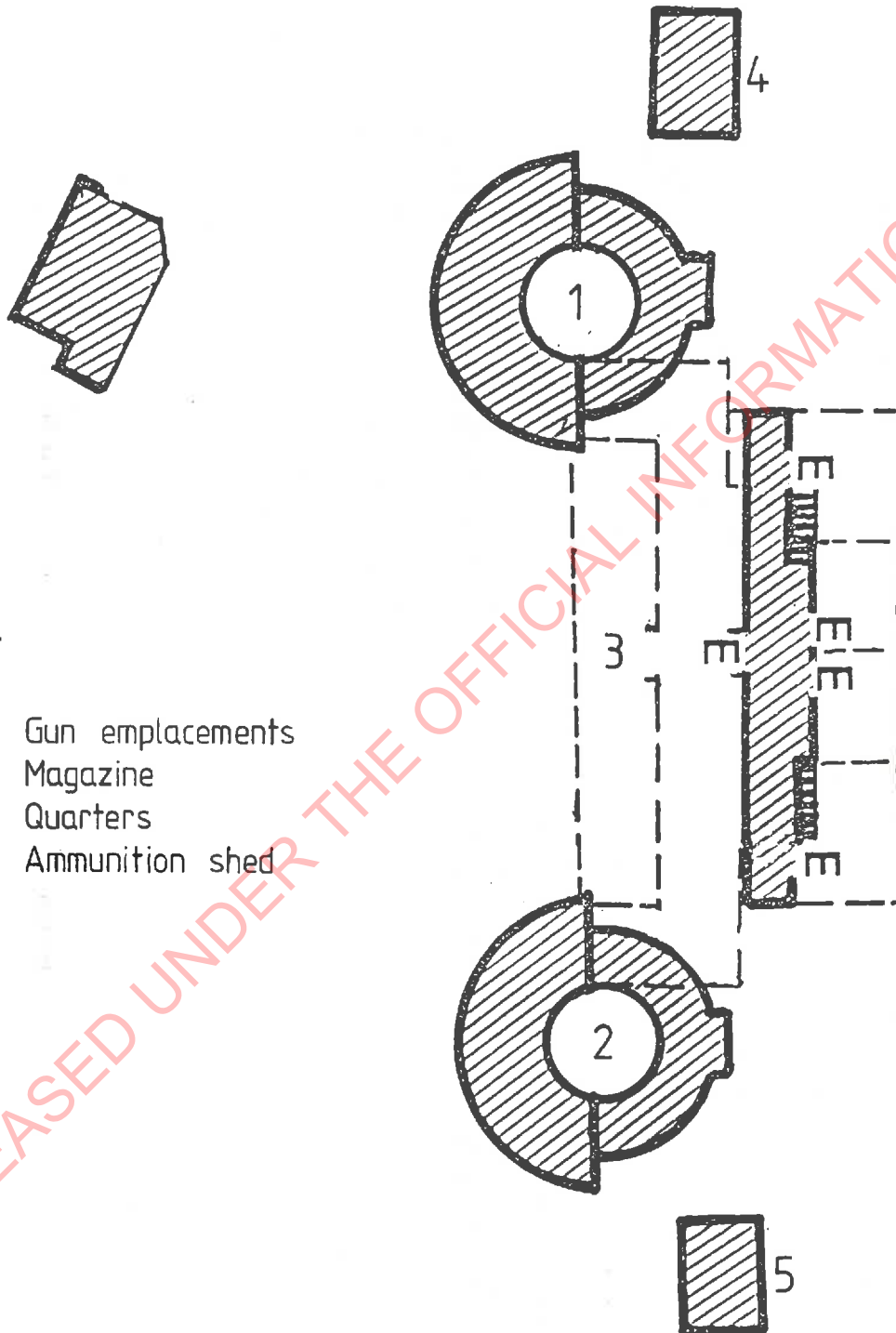
These guns were ordered on the recommendation of the Colonial Defence Committee of the British War Office (Langford 1979:21). In 1904 the northern 6 pr Nordenfelt at Cautley was removed to make room for construction of barbette emplacements for these guns. This work was discontinued in the same year as it was decided that the site was not suitable. The guns arrived on 21 August 1905 and the mountings in January 1910. Excavation at the new site was begun on 19 February 1908 and the guns ready to mount in February 1910 (Fort Record Book Chapter II). The guns were operational by 1911 (HGMP 1983:38). The guns were emplaced "en barbette", with concrete aproned emplacements angled so as to deflect incoming shells. There is a magazine under each emplacement with four powered hoists to deliver the ammunition to the guns. These guns remained the main armament on North Head until World War II. At this time



Figure 13: Plan of 6 Mk VII Emplacement.

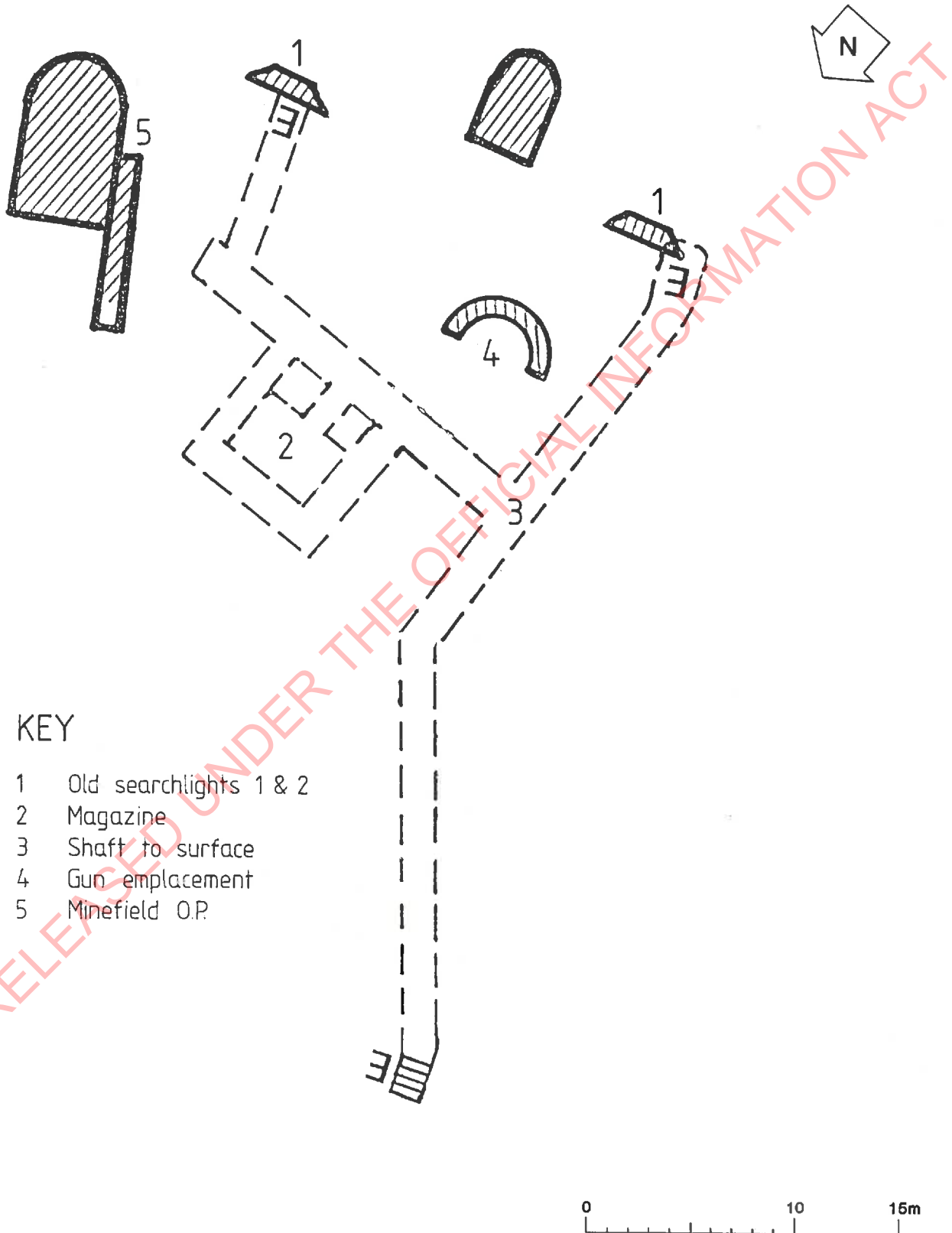
KEY

- 1 & 2 Gun emplacements
- 3 Magazine
- 4 Quarters
- 5 Ammunition shed



0 10 15m

Figure 14: Plan of old Searchlights 1 and 2, Magazine, Minefield Emplacement and Minefield O.P.



two concrete shelters were constructed at either end of the emplacement for reserve gun crews (Langford 1979:86). The eastern one is listed as "quarters", and the western as an "ammunition shed" in the 1944 map (Fig. 17 below). Also a row of pine trees were planted above the emplacement to provide a false crest, to obscure an attacking ship's view of the fall of shells (Langford 1979:86). In 1941 these guns were shifted to Whangaparaoa as the guns were no longer far enough forward to protect either the port or the dockyard (Langford 1979:86). After the war these guns were shifted back to North Head where they remained until scrapped in 1959 (HGMP 1983:38).

#### 4.5.1 The 6" Mk VII Battery Today

This battery and associated underground structures is in good condition with substantial remains of the ammunition hoist mechanism still in place. Remnants of the wooden barriers controlling access to the magazines also remain. There is a ruinous railing around the edge of the emplacement and remains of what appear to be davits are located at either end of the pit behind the emplacements. These presumably were used for lowering the shells to the magazines below. The iron stanchions of the railing are removable next to the davits to allow the davits to swing from side to side. The O.P. for this battery is sited in the hill above the emplacements, inside the perimeter fencing of the Naval area.

#### 4.6 Minor Gun Emplacements

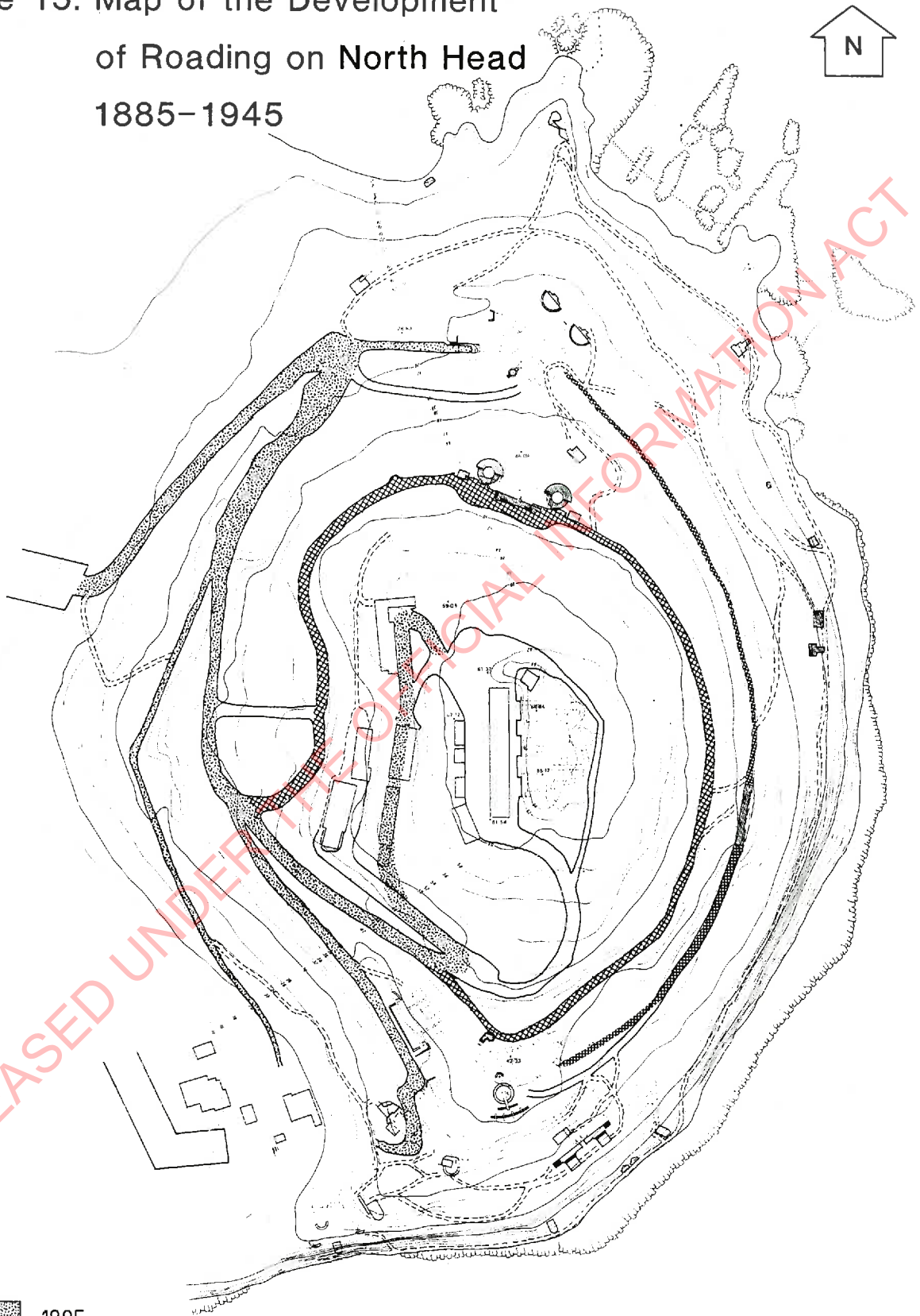
As well as the North, South, Summit, 6" Mk VII and 12 pr batteries, other guns have been sited on North Head at different times. Two smaller emplacements mounted 6 pr Hotchkiss guns, one on the small point overlooking Cheltenham Beach (Fig. 5), the other on the south side between Numbers 2 and 3 searchlights (Fig. 6) as part of the Boom Defences. Ruffell states that there were four of these guns borrowed from the Navy (Ruffell 1983:54), while another informant recalls that the guns were moved from the boom battery to the Anti Motor-Torpedo Boat emplacement overlooking Cheltenham Beach in about 1943 (Nutsford pers. comm. 1989).




The Fort Record Book (1941-42) states that the first anti motor-Torpedo Boat Battery on the north side of the Head, consisted of two 18 pr field guns on beach platforms, but that in October 1940 these were replaced by four QF Hotchkiss 6 prs which had come from a shore battery in Hong Kong. The emplacement for these was built near the 18 pr site (Fig. 5). The 1946 map (Fig. 18) shows a path leading to this emplacement with a small workshop attached.

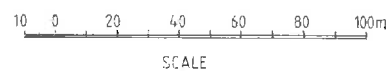
#### 4.7 Minefield Defence Gun Emplacement(8) (Fig. 14)

This structure is a mystery. It appears to be associated with the minefield control post situated to the north. There is no record of a gun ever being sited here. There is a vertical shaft behind the gun emplacement leading down to a magazine in the tunnels between the old number 1 and 2 searchlight emplacements. The size of the emplacement seems to indicate that it was intended for a gun similar to the 6 pr Nordenfelts. The magazine space, however, is very large for a gun of this calibre. There are three possible sources for the gun that may have been intended for this emplacement. There is one QF gun listed as part of the minefield defences in the 1896 Admiralty Report (Admiralty 1896:109). Also a drawing of Fort Resolution near Judges Bay and dating from 1891 has a note saying that the QF gun there was to be dismantled and transferred to North Head. (Drawing 1556/5 see Appendix 6). The 1893 report on Defence Works (RNZ DW & A, 1893:6) states that a Nordenfelt 6 pr was to be transferred to this emplacement from Takapuna. It seems that none of these alternatives was ever carried out.

Figure 15: Map of the Development of Roding on North Head 1885-1945



-  1885
-  Sunken road/Covered way 1885
-  1908-11 Associated with 6 Mk VII battery



## 5.0 ROADS (Fig. 15)

The earliest maps and photographs (Plates 1 & 2) show Takuranga Road running up to the boundary of the North Head Defence Reserve. At that time it was called North Head Road. No roads are visible on the Head itself although there may have been a track following approximately the route of the modern road to the summit.

Road building on North Head began in conjunction with major defence works in 1885. The Auckland Weekly News of 4 April 1885 states that at that time roads were being laid out to both North and South Batteries and that a 'covered way' is to be constructed around the face of the hill joining the two batteries. The earliest dates on the PWD drawings are all for roads, mainly dated 1884 (see Appendix 6). The photograph from the 1890s (Plate 2) shows the roads on the west face of the Head. Both the roads to North and South Batteries are shown clearly as is the road to Cautley on the summit. A number of paths and steps are also visible, the most notable being the flight of steps up the middle of the west slope between the barracks and stores. These steps appear to have been edged with white painted stones.

The covered way linking the North and South batteries seems to have been constructed as a sunken road (Fig. 15), and plans of it as such appear in PWD files (File ADO 1563 Sheet 1). The entrance of this sunken road at North Battery is still visible as is the stretch to the building referred to as 'the old Test Room/Generator Room'. On the northern side of this structure the access has been walled off and earth heaped up across the entrance. On the southern side of the 'test room' the sunken way has been destroyed or covered by subsequent earthworks. The entrance of the sunken way at South Battery appears to be in the area excavated by J. Earnshaw in 1988 (Earnshaw pers. comm.). This entrance has been refilled. It is probable that the sunken road at one time had some form of trolley/tram way incorporated. Rails are still visible in the 'test room' and these extend from one end of the building to the other and originally would have run out into the sunken road. The 'test/generator room' may have been associated with this tram way.

The most altered road access on North Head is the road to Fort Cautley on the summit. Originally, during the time of the earthwork fortification, the main entrance to the fort was in the north-west corner of the earthwork (Figs 6 & 15). This access and the other roads are shown on a sketch map drawn to show the position of telephone cables. This drawing dates from approximately 1904-7 as the northern 6 pr Nordenfelt on the summit has been removed to make way for the aborted 6" Mk VII emplacement, while the final position of the 6" Mk VII guns is not shown (Fig. 16). In this drawing the main road can be seen winding up to the summit in an S-shaped pattern. The original entrance can be clearly seen on the 1900 Winkleman panorama with the road curving to the east to enter the fort (Plate 3).

I have found no clear evidence as to when the earthwork was removed and the road access to the summit altered. By 1920 the profile of the summit had altered (Plate 5). Although the main access road still went in through the earthwork at the same position, the area to the north of the earthwork appears to have been changed, probably for the aborted construction of the Mk VII 6" battery. Examination of the 1939 aerial photographs (Plates 7 & 8) indicates that in 1939 the road to the summit was still the same as existed at the time of the 1900s Telephonic Communication map (Fig. 16). One source indicates that two hairpin bends were constructed during this period (Grattan 1948:474). It seems probable therefore that the road access was altered at this time. The remnants of the old entrance are still visible in the 1958 aerial photograph (Plate 9) and the old access road has been widened and cut off from the new access



road and used as a building platform. The only other major road construction between the initial work in the 1880s and the World War II period is that associated with the 6" Mk VII Battery. There is no sign of this road in the 19th century photographs so it seems probable that it was constructed at the same time as the battery, 1905-1911, to provide access for construction and transport of ammunition. It links that battery with both the main road from the west and South Battery installations.

The most obvious track system on North Head is that on the shoreline linking the searchlight emplacements. This was built in stages throughout the history of the military use of the Head (HGMP 1983:29). The 1946 Forts and Works map (Fig. 18, below) shows the state of the roads at that date, with the main road to the summit sealed, the western side access to North Battery, the 6" Mk VII Battery, sealed and the road from the 6" Mk VII Battery on the eastern side of the Head surfaced with scoria. While the lower part of the summit road in this map appears to follow the earlier alignment, the width may have been altered to accommodate and give access to the greater number of buildings on the site during this period.

## 6.0 BUILDINGS

These include freestanding buildings not immediately associated with gun emplacements. The 1870s photographs (Plate 1) show a few buildings on the lower slopes in similar positions to the houses sited today outside the original defence reserve. The only building on the upper slopes is a small white structure just below the summit on the western slope. It is not possible to make out exactly what this structure is.

The first main period of building is associated with the construction of accommodation and stores in the 1880s. The Fort Record Book (FRB Chapter 3, Section 2) lists the buildings present in the early 1900s. While most of the structures listed appear to be part of the underground magazine/storage system of that time, some freestanding buildings are described as well. Listed as number XIV is the Guard Room described as 20'2" x 12' x 9', it was a battlemented building close to the gate. It is described as being too damp to be used for its intended purpose and was at that time part of the prison accommodation. A clear view of this building can be seen in the 1911 Winkleman photograph (Plate 4). The Fort Record Book states that a good view was obtained from the roof (FRB Chapter 3).

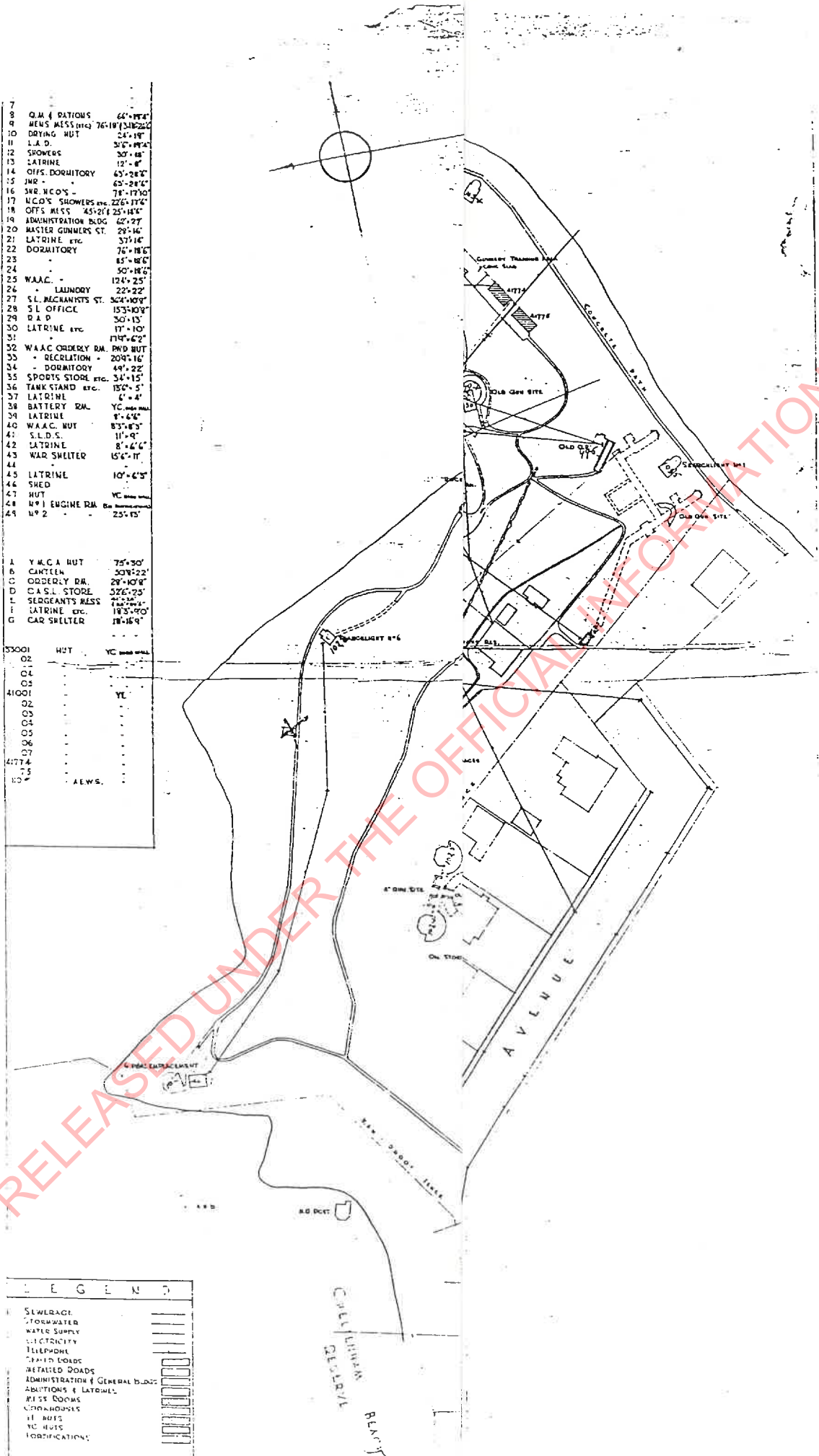
The records of other buildings on the summit are sparse. The main barrack building is listed as building XX in the Fort Record Book, but has no further information provided, presumably because at this date it was being used for prison accommodation. It is shown on the telephonic communications map (Fig. 16) as such. This building still exists. No other buildings except perhaps the battlemented Guard Room, are shown on this map, although they definitely existed at this date as shown in the photographs of the time. The 1900 panorama (Plate 3) and 1911 photograph (Plate 4) show a long stone building on the western side of the summit. This may be the origin of the small stone building still present. The south wall of this building is built of brick suggesting it is only part of an originally larger structure. It is listed in its present form as 1005 in the 1946 map (Fig. 18).

Another low, windowless building is visible in the 1900 panorama (Plate 3) to the west of the long stone-built building. This may have also been part of the prison establishment.



7		
8	Q.M. PATIENS	66'-11" x 4'
9	MEN'S MESS (etc)	76'-10" x 21'-2"
10	DRYING HUT	24'-11"
11	L.A.D.	36'-0" x 14'-4"
12	SHOWERS	30' x 48'
13	LATRINE	12' x 8'
14	OFFS. DORMITORY	65'-2" x 28'
15	JMR.	65'-2" x 28'
16	SNR. MCO'S	78'-17" x 10'
17	MCO'S SHOWERS etc.	226'-17" x 6'
18	OFFS. MESS	45'-2" x 25'-18"
19	ADMINISTRATION BLDG	62'-7" x 77'
20	MASTER GUNNERS ST.	29'-16"
21	LATRINE etc.	37' x 14'
22	DORMITORY	76'-18" x 6'
23		85'-18" x 6'
24		50'-18" x 6'
25	WAAC.	124'-2" x 25'
26	LAUNDRY	22'-2" x 22'
27	S.L. MECHANICS ST.	304'-10" x 9'
28	S.L. OFFICE	153'-10" x 9'
29	R.A.P.	30' x 15'
30	LATRINE etc.	17' x 10'
31		174'-6" x 2'
32	WAAC ORDERLY RM. RWB HUT	
33	RECREATION	209'-10" x 10'
34	DORMITORY	49'-2" x 22'
35	SPORTS STORE etc.	34'-15" x 5'
36	TANK STAND etc.	150'-5" x 5'
37	LATRINE	6' x 4'
38	BATTERY RM.	YC 100' x 100'
39	LATRINE	8' x 4'
40	WAAC HUT	83'-8" x 3'
41	S.L.D.S.	11' x 9'
42	LATRINE	8' x 4' 6"
43	WAR SHELTER	15'6" x 11'
44		
45	LATRINE	10' x 6' 5"
46	SHED	
47	HUT	YC 100' x 100'
48	Nº 1 ENGINE RM	On 100' x 100'
49	Nº 2	25' x 15'
A	Y.M.C.A HUT	75'-30" x 30'
B	CANTEEN	304'-22" x 22'
C	ORDERLY RM.	28'-10" x 8'
D	C.A.S.L. STORE	526'-25" x 25'
E	SERGEANT'S MESS	74' x 24'
F	LATRINE etc.	18' x 10' 0"
G	CAR SHELTER	18'-18" x 9'
33001	HUT	YC 100' x 100'
02		
03		
04		
05		
06		
07		
4774		
75		
100	AEWS.	

LEGEND	
SEWERAGE	
FRESHWATER	
WATER SUPPLY	
ELECTRICITY	
TELEPHONE	
GRAVEL ROADS	
RETAILED ROADS	
ADMINISTRATION & GENERAL BLDGS	
REARCTIONS & LATRINES	
OFFS. ROOMS	
WAREHOUSES	
RE HUTS	
YC HUTS	
MODIFICATIONS	



mp Survey Map 1944.

Further descriptions of the buildings on the western slope from the Fort Record Book read in conjunction with the 1900 Winkleman panorama (Plate 3), the telephone communications sketch map (Fig. 16), and the 1911 Winkleman view from Torpedo Bay (Plate 4) identify the buildings present until early this century. Building XV (Fort Records Book Chapter 3, Section 2) is described as a general store. It may be the upper building in the photographic panorama (Plate 3) on the right hand side of the path. The description, however, more closely fits the building just visible above the trees in the 1911 photograph (Plate 4). The building in the 1900 panorama (Plate 3) may be an earlier structure.

The double gabled building to the right of the store in 1911 (Plate 4) is the 'office' shown in the Telephonic communications map and described as "Garrison Artillery Volunteer Office" in the Fort Record Book (Chapter 3, Section 2).

The lower buildings in the 1900 panorama (Plate 3) and obscured by the trees in the 1911 photograph (Plate 4), are probably the 'Smith shop' shown in the Telephonic sketch map (Fig. 16).

The larger building of the left hand side of the central path is the Barrack Room, building XVIII in the Fort Record Book. This was designed to hold 20 men with a dining room and kitchen. The latrines associated with this building are visible in the 1900 panorama (Plate 3) to the left above Barracks.

The buildings visible in the photographs remain very similar throughout the period between the 1911 Winkleman (Plate 4) and the 1920 Winkleman photographs (Plate 5). The Barracks on the western slope remain, as does the cluster of stores and workshops on the right of the central path. A building has been sited in the quarry area to the left of the Barracks and the laboratory building, sited where the present day public toilet block is, has been constructed. This was a building of light wooden construction used for filling cartridges. The Park Board history (HGMP 1983:45) states that this building was constructed in the 1890s. It is, however, not visible in the 1900 panorama, suggesting a later date of construction.

By the time of the 1926 photograph (Plate 6), the buildings have been painted a drabber colour and the old Garrison Artillery Volunteers office has been rebuilt. Note also the bell tents visible in (Plate 6) on the north-west side, accommodation for a camp.

The 1939 White's Aviation aerial photographs (Plates 7 & 8) show the buildings at this date. Little appears to have changed since 1926. The long Barracks building on the summit, the stone building, and the small building to the south of the Barracks, remain. Most of the buildings on the western slope are still present with the exception of the smith shop and associated buildings to the south of the old Barracks, at this date converted into a house (Nutsford pers. comm.). The double gabled building in the quarry remains, although later photographs (Plate 9) indicate that this was replaced by other buildings, probably during the Second World War. These are listed as a canteen and orderly room in the 1946 map (Fig. 18).

The most detailed information on buildings on North Head is for the period of World War II. The 1944 map (Fig. 17) and the 1946 Forts and Works Branch map (Fig. 18) shows most of the surface structures present at those dates. Grattan (1948 Vol. 3:474) states that there were few permanent buildings on the site in 1939. The only buildings known to be present were the old Cautley Barracks, 1004, the stone building, 1005, the house, 976, (the old Barracks converted), and 980, listed as Officers quarters in the 1946 map. Also present were the laboratory, 991, and the Officers Mess, 984 (Nutsford pers. comm. 1989). (See Fig. 18).

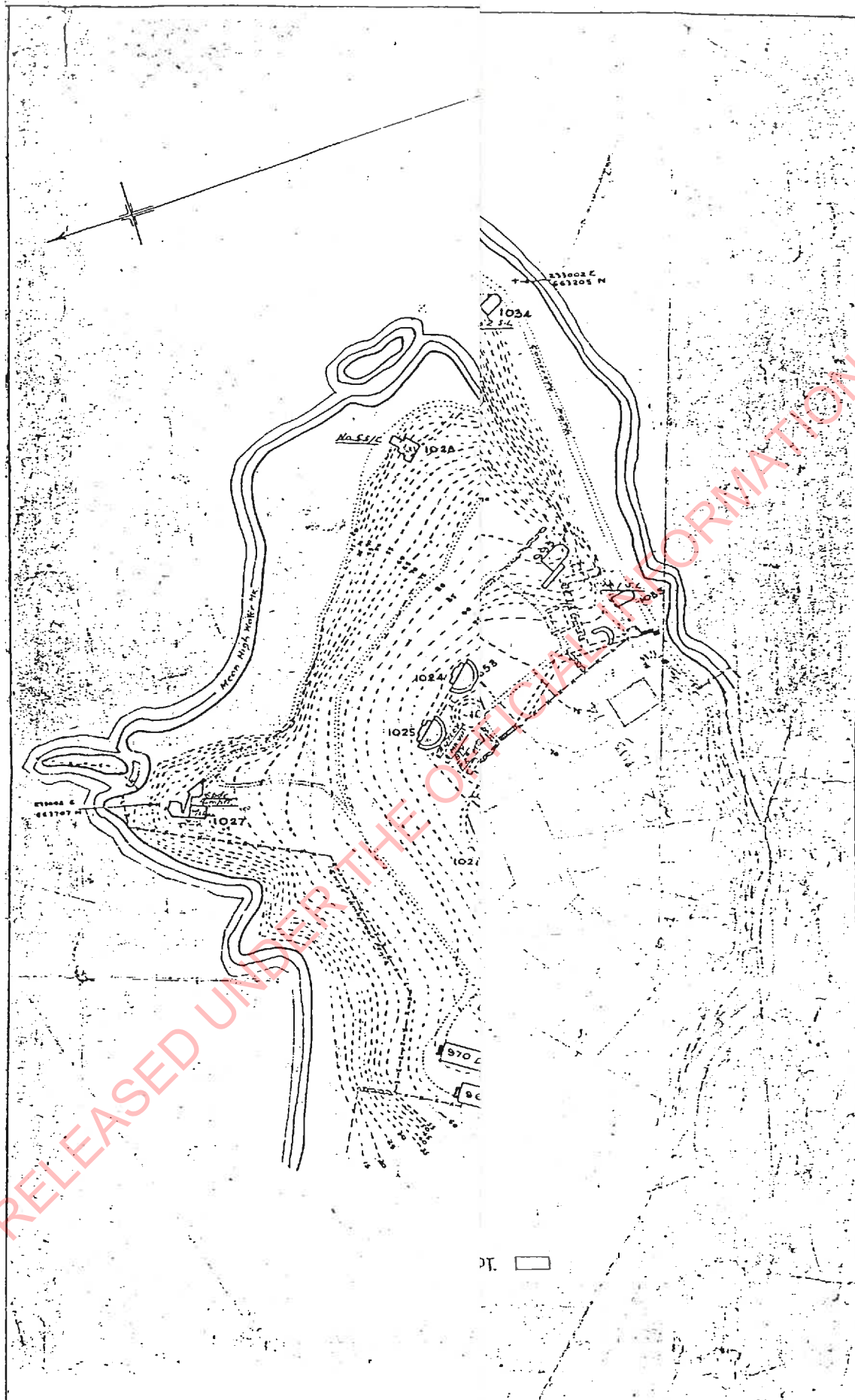


Fig 18  
 North Head Forts and Workurs Etc.

F.&W. PLAN  
 N.W. 1104  
 SHEET 1 OF 12 SHEETS

Grattan (1948:474) states that the hill was too steep for standard buildings and so smaller types were specially designed. Also more excavation of level platforms had to be made. These appear to have been mainly on the western slope on the area of 980, 981, 982, 983 and 984. A number of the specially designed buildings are recorded in the old PWD drawings held at Works and Development (see Appendix 2).

The history of the buildings on North Head since World War II has been with few exceptions, one of removal. A relocatable classroom has been erected on the north-west corner of the summit, and public toilets constructed on the site of the old laboratory. Building 979 (Fig. 18) has had another wing added on the northern side and Buildings 982 and 983 in Fig. 18 appear to have been joined together at some later date.

## 7.0 EUROPEAN TERRACING

Level areas have been created on North Head throughout its history as a fort. Discussed here are those areas not associated with the gun emplacements but rather building sites, quarries, car parks, and the tennis court.

### 7.1 The Quarry(9)

This area appears to be contemporary with the 1880s fortifications. It is visible on the earliest photographs of this period (Plate 2). It was next to the summit road and presumably was dug to provide material for roading and possibly fill.

The quarry site was still vacant at the time of the 1900 Winkleman panorama (Plate 3). A building appears on the quarry site in an undated photograph (AIM Neg. M341) which, from other buildings present, appears to be taken shortly after 1900. Similarly the same building appears in a photograph reproduced in the Devonport Centennial History (Musgrove 1986:94) dated at about 1900, so this structure was probably built circa 1901. The same building is present on the 1926 Winkleman view (Plate 6). In the 1946 Forts and Works map (Fig. 18) the buildings sited here are listed as a canteen and an orderly room.

### 7.2 The Tennis Court(10)

This is the extensive levelled area to the north of South Battery. It was built in the First World War for recreational purpose and used as a parade ground (HGMP 1983:37). A large amount of material has been moved to make this area and this may have been used for roading around North Head. It is recorded as an asphalted tennis court in the 1946 Forts and Works map (Fig. 18).

The six 4" BL Noble guns from HMS New Zealand were originally mounted on the seaward side of this area as a saluting Battery between 1932-37 (HGMP 1983:37). A photograph of these guns so mounted is reproduced in the Park Board History (HGMP 1983:37). What appears to be the remains of the mountings are visible on the 1939 White's Aviation photograph (Plate 8).

### 7.3 Building Sites

These are mostly sited on the western slopes of North Head. The earliest date from the 1890-1900 period and were constructed to provide level areas to build the Barracks and store buildings from this period. There are also level platforms on the north-west side where tents were pitched (see Plate 6). The major terracing work on the western slope occurred during the period of the Second World War. Both the 1939 and 1958 aerial photographs and the 1946 map (Plates 7 & 8), shows these areas clearly.

The area to the west of the old Barracks had been levelled further to provide sites for four buildings. The old summit road, now cut off from the new road by a scarp, was converted into a building site, as was the area directly below it. The area in the middle of the lower hairpin bend was further levelled and a building sited there. The older levelled areas on the north-west side, where tent encampments are visible in early photographs (Plate 6), also have buildings sited on them during the Second World War.

### 7.4 Car Parks

These are mostly sited on the old building sites, one next to North Battery and the other on the site of the old Barracks and stores area further up the slope. A further car parking areas has been constructed on the south side of the summit.

### 7.5 Helicopter Pad(11)

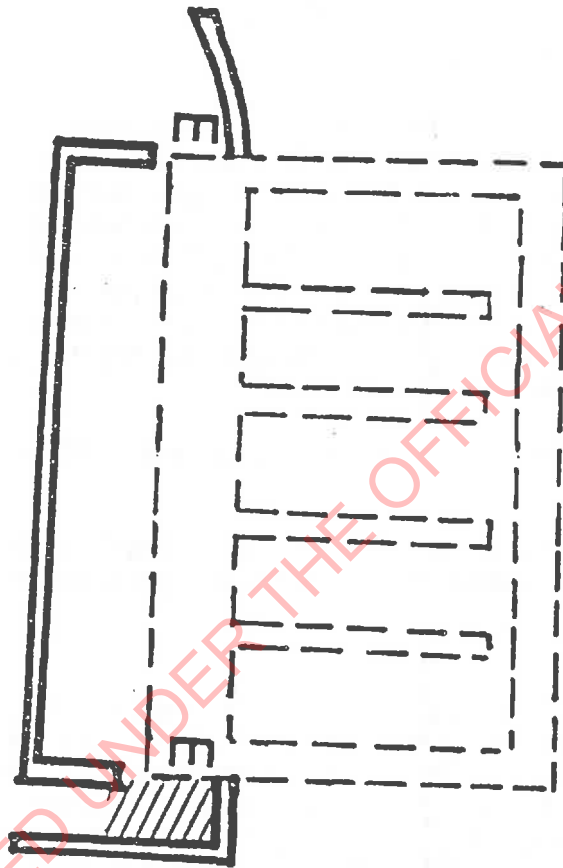
This is the most recent area of levelling and sealing. The building of this area removed the last evidence of the earthwork ramparts and levelled the area disturbed by the building of the aborted 6" Mk VII emplacement. These features are still visible in the 1958 aerial photograph (Plate 9) and had been removed by the time of the 1962 photograph (Plate 10). This area has been subsequently tarsealed to create the helicopter pad.

## 8.0 MISCELLANEOUS INSTALLATIONS

### 8.1 The Main Magazine(12) (Fig. 19)

The 1893 report (RNZ DW & A, 1893:6) states that at this time there was no main magazine although the presence of lamp passages suggest that this structure was built soon after this date. It is difficult to see on the 1900 panorama (Plate 3), however, there is a smoother patch of grass on the slope to the left above the engine room entrance which may be the camouflage over the magazine. The 1946 map (Fig. 18) shows the magazine complete with the lamp passages associated with the pre-electricity era magazines elsewhere on North Head. These are not accessible at present. The lamp passages allowed oil lamps to be set up to shine into the magazines through windows without exposing the ammunition to naked flames. It was in use during World War II and in the 1930s used to store reserve ammunition for the 6" guns (Nutsford pers. comm. 1989). Originally the magazine was camouflaged by being earth covered to match the contour of the hill. This camouflage was still present in 1962 (Plate 10), but appears to have been partially removed.

Figure 19: Plan of Magazine.



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## 8.2 Test Room and Old Generator Room(13)

This is a long building on the eastern slope discussed previously in connection with the sunken way between North and South Batteries. The Park Board history states that it dates from the 1890s and was originally intended as the generator housing for the minefield. This plan was discarded when the new generator engine room was built (HGMP 1983:37). It seems to be more closely associated with the sunken road and tramway and possibly was connected with storage of rolling stock or possibly storage of supplies brought up from the wharf below.

The southern entrance was the site of a rifle range during World War II. The firing mound was further to the south toward the tennis court. This is shown on a 1944 camp survey map (Fig. 17). Bullet scars can still be seen in the southern wall of the 'old engine room' from this period.

## 9.0 SEARCHLIGHTS AND ASSOCIATED STRUCTURES

### 9.1 The Generator Engine Room(14) (See Fig. 11)

This was built in 1895 to supply power to the searchlights and a 25 h.p. Soho steam engine was installed (Fort Record Book "electric lights" section). The Dynamo being a Victoria Brush D.3 (Admiralty 1896:110). The Fort Record Book description of the generating equipment in the early 1900s describes the generator as a "D2 Victoria" so this may be a later replacement. This engine was replaced after the First World War (Langford 1979:30) by two Hornsby-Ackroyd kerosene engines (HGMP 1983:32). The entrance as constructed in this period is clearly visible in the 1900 Winkleman panorama (Plate 3). This old entrance was demolished in approximately 1938-39 at the time of the installation of three Ruston-Hornsby diesel engines, and the present entrance dates from this period (Oswald pers. comm. 1990).

Today the remnants of the mountings for the engines and fuel tanks are still visible, as is the wrecked remains of the instrument panel.

Cables and the pipes in which they ran are still visible on parts of the Head, running up the cliffs behind searchlights 2 and 3 and along the tunnel walls and cliff sides by searchlight No. 5.

### 9.2 Searchlight Emplacements(15)

Little original documentation was easily available on these and so the following section comes mainly from the Hauraki Gulf Maritime Park history (HGMP 1983:24-29). As most of the installations for the searchlights are located on the coastline with little associated earth movement, or in well-defined tunnel installations, this lack of original documentation seems to cause few problems in reconstructing sequences of activity. The only sequential changes are with searchlights 4 and 5 which were modified in 1935 to take the new high current density lights. At this stage new emplacements were built, searchlights 1, 2 and 3, and the old searchlight positions 1 and 2, the tunnelled emplacements, were abandoned (Figs 5 & 14).

The other new emplacement was searchlight 4A.

The remains of a small independent generator room is still visible to the north of No. 4 searchlight (17 in Fig. 5). This consists of a small concrete slab floor. The construction of this independent generator room is probably the product of an acute shortage of electric cable necessitating the use of an independent generator room adjacent to the searchlight.

### 9.3 Minefield Defence Control Post and Minefield Defences(18)

This is a double thickness brick structure (Fig. 14) and housed the instruments used in controlling the minefield. It was probably built in the 1890s. The 1896 Admiralty Report (Admiralty 1896:110) states that in 1892 there were three lines of mines between North Head and Bastion Point, but that these were next to useless because they were incomplete (Admiralty 1896:106) and that in 1894 only on five days during the year was there any practise in laying mines (Admiralty 1896:103).

A map of the minefield is included in the Hauraki Gulf Maritime Park history (HGMP 1983 Appendix 3).

The small gun emplacement discussed earlier down the slope below the Minefield Control Post was probably built in conjunction with the minefield defences.

### 9.4 The Gunnery Training Area(19)

This is sited on a small levelled area just to the south of the 12 pr emplacement. It is recorded as such on the 1944 Camp Survey map (Fig. 17). Today little remains in this area apart from concrete slabs and foundations.

### 9.5 Annies Cave(20)

The origin of this structure is unclear. The pick marks on the walls suggest that it was excavated by hand. The Park Board history states that it was built by convict labour in the 1890s or earlier. It is suggested that it may have been used to house prisoners, store gun-cotton and to store ammunition (HGMPB, 1983:30).

## 10.0 TELEPHONIC COMMUNICATIONS

Remnants of the underground telephone cables are occasionally visible on North Head today. At the time of writing cables have been exposed in the old sunken road between South Battery and the old test room-generator room. Telephone communication appears to have been first installed in 1896-7 (FRB Chapter 11), connecting all the batteries then present on North Head. In 1898 underground wires were installed between Forts Cautley, Takapuna and Victoria (FRB Chapter 11). A schematic view of these installations is shown in the Telephonic Communications map (Fig. 16).

A telephone station was built in a small chamber excavated in the north traverse of Fort Cautley. This was entered by means of a manhole and ladder from the DRF Station above (FRB Chapter III). The FCP from the Second World War may be built above this.

At some time before the First World War this station was abandoned and the new telephone station established in the "central casemate" (FRB Chapter III, Section II). This communication system continued in operation, presumably with the new batteries being included in the network as they were built. A map from the 1941-42 Fort Record Book shows the telephone cables in this period on the summit area.



## 11.0 DISCUSSION

North Head is a unique site in terms of both its history and ease of public access. It contains a few remnants of Maori settlement and an almost complete set of coastal defence installations dating from the 1880s until the period of the Second World War. There is no other site of its type which is so complete and so accessible. At present it also represents an important grandstand area for the city. When there is any event on the harbour, North Head is the most favoured viewing area. This of course is a reflection of its older strategic importance in that both the inner and outer harbour are visible from North Head. Given its importance historically and this huge amount of public use, a number of factors must be considered.

At present there is little in the way of public presentation of the military history. This presentation will become increasingly important when the Navy vacates the summit area and the whole of the Head is available for public use. Plans have previously been prepared for a visitor's centre and display centred on the North Battery (Athfield Architects n.d.). With the use of the summit installations it will be possible to use the available buildings rather than build elsewhere. On the summit the old 1880s Barracks building remains. While structurally this building may need work it is important that it is retained as it is the only large remaining building from this early date. The other structure from this period is the small stone building on the western side of the summit. As argued previously this is probably a truncated remnant of a much larger building. This building should also be retained.

Public presentation and access should be improved and closed areas, such as North Battery and the main magazine should be re-opened. Control of public access, to prevent vandalism after hours, would seem to be a small problem in that all the installations, apart from South Battery, are easily lockable. With South Battery access through the top of the shield of the gun pit would be difficult to control, although internal doors could be used to limit this.

North Head has never been a stand alone fort and throughout its history has been part of a chain of defences. In the early phase Forts Victoria, Takapuna, Resolution and Bastion were part of a chain. In the Second World War, Whangaparaoa, Castor Bay, Takapuna, Motutapu, Rangitoto and Waiheke were used. These other installations and their interdependence should be taken into account in any presentation of North Head. Work should be undertaken to research and present what remains of these fortifications to the public as well.

Similarly the subject of the "missing tunnels" needs to be considered. Throughout this work I have concentrated only on structures and installations either visible on the ground or recorded by maps, documents, and photographs. There is, however, a body of evidence, mostly oral, that other installations exist on North Head and that these have been sealed off and covered. This information has been mostly assembled by Mr John Earnshaw as part of his proposed film on the Boeing aircraft from the old Kohimaramara Flying School, allegedly still stored at North Head. These aircraft are recorded as being moved to North Head in 1924 (AJHR, 1925:H19). Throughout my research for this work I have met a number of informants who have stated that other tunnels no longer visible existed on North Head at different times. As the present project was not primarily concerned with this material I have not followed up or attempted to collate this evidence.

However, there are some anomalies in the record. These are mostly associated with the summit area where recorded numbers of rooms and structures recorded do not fit what is visible today. There is also the tunnel from the east of the 8" emplacement shown in the maps used in the architects proposal for the visitor's centre (see Fig. 5). This tunnel, if it existed, seems an odd structure, exposing the emplacement on the vulnerable seaward side. There is no indication of its function. Is it an entrance to the 8" emplacement or does it lead elsewhere? One possibility is that it led to one of the old forward O.Ps mentioned in the Fort Record Book (FRB Chapter II).

The disappearing gun emplacement on nearby Mt Victoria may provide some comparative evidence. It is also a summit battery but is constructed differently to the visible parts of Fort Cautley. On Mt Victoria the magazine is situated below the gun emplacement with hoists, still visible, to bring the ammunition up to the gun. Fort Scratchley in Newcastle, New South Wales was built in the same period as Fort Cautley and armed with both muzzle loader and disappearing guns. This fort also has magazines at a level below the guns which are served by ammunition hoists (Carey, 1986:8,10). It is possible that something similar was once built at Cautley. While there are a number of drawings, in both the Works and Development files and at the Department of Conservation Regional Office, of planned and built emplacements for North and South Batteries, very little is available for the summit battery. These drawings must have once existed and may still be on file somewhere.

The 1893 Report on Defence Works states that the magazines at Cautley were sited between the guns (RNZ DW & A, 1893:6) although which rooms these may have been and where they were is unclear.

One other indication that the Fort Cautley installations are incomplete today is the small amount of apparent magazine space when compared with the other two contemporary batteries on North Head. North Battery has obvious magazines for both the 7" RML and the 8" BL H-P guns. Similarly South Battery has magazines for the 64 pr RML and 8" guns. At the peak of its armament, Cautley Battery had five operational guns; the 8", two 7" RMLs and two Nordenfolt QF guns. There does not appear to be sufficient magazine space in the present layout to store ammunition for this amount of ordnance. This area may have been modified at a later date.

When the Department of Conservation gains control of the summit area, a survey of the existing tunnels and rooms should be undertaken. This evidence could then be related to the dimensions and descriptions given in the Fort Record Book and an attempt made to reconstruct the original functions of this area.

There are some structures visible on earlier photographs that are no longer apparent on the ground. There is, for example, a possible tunnel entrance on the western slope visible in Plates 9 and 10. The presence of this structure was brought to my attention by Mr J Earnshaw from a much clearer photograph in his possession taken in 1968. Examination of the 1939 White's Aviation photographs (Plates 7 & 8) suggests that this entrance may have been present at that date although possibly in another form. The 1944 map (Fig. 17) shows some sort of structure in this area, listed as 1043, while the 1946 map (Fig. 18) shows no structure although there is a blurring on the map in this area with some faint lines still visible. Some structures originally present in the 1946 map have obviously been removed, probably because they had been demolished. For example the two sheds down the slope from the 'house' (976 in Fig. 18) have only been partially rubbed out. These two structures are visible on the 1944 map (Fig. 17) and shown as crossed out. These maps therefore should not be seen as representing everything that was or is present as they have been altered. It seems probable that some structure was originally

present on the 1946 map in the area of the possible tunnel entrance and that this has been removed. The entrance itself remained after this date as it is still clearly visible in the later aerial photographs (Plates 9 & 10).

Hints at the possible presence of other underground structures are seen in some of the old PWD drawings. A drawing of North Battery dating from the 1880s (Drawing 1573-2, Appendix 6) has had added to it at some time, a tunnel and underground structure immediately to the west of the gun emplacement. The entrance to the tunnel is shown approximately 20 m down the slope from the present car park and is labelled as "Tunnel 1 in 11". There is a room labelled "coals" and other enclosed spaces unlabelled. There also appears to be a road cutting entering this structure. It is unclear as to whether this structure was ever built or simply planned and abandoned.

The same drawing (1573-2) has a shaft in the floor marked outside the entrance of the 8" shell store (see Fig. 9) suggesting there may be something below this battery.

Enough circumstantial evidence exists therefore to make it worthwhile to follow up the claims of missing tunnels and installations.

Other archaeological work of a more mundane nature would be useful in any proposed public presentation of the site. On the summit it would be possible to re-open the 7" gun pits. The southern one at least was still present in the 1960s. The old forward O.P.s between the 8" and 7" emplacements probably still exist also. It would be possible to establish the exact location of the old earthworks by test excavation in selected areas. Also areas that may be prehistoric could be tested to establish their true origin.

One other problem that requires consideration is that of tree planting. A number of plans for this have been considered, for example Dyer and Tucker (1984). Archaeological sites and trees are not a good combination. Roots destroy deposits and obliterate surface features. Similarly it would seem that the public grandstand function of North Head would need consideration before any of the panoramic view of harbour and gulf were potentially obscured by plantings. As stated in the section on early history, North Head appears to have been covered with scrub and trees for longer than any of the other nearby volcanoes and this may mean that prehistoric deposits are already more disturbed than those elsewhere. These areas need special consideration. Study of the early photographs show that from the 1870s onwards trees were limited to the north-eastern side and the south-western boundary. A large stand of *macrocarpas* was originally present on the south-western boundary, but appear to have been thinned by 1926 and finally removed by 1939 (Plates 5, 6, 7 & 8). Any substantial tree cover is incompatible with the presentation of the site as a fort. The only trees associated with this function are the "false horizon" trees above the 6" Mk VII Battery.

Any planting should be restricted to small ground cover plants and these should only be used where the ground surface needs stabilising, for example, on the eastern slopes where privet now serves this function. There appears to be no problem with the coastal *pohutukawa* as these are growing in areas where there is no danger of obliterating or damaging historic or archaeological deposits and do not compromise presentation as a military installation.

## 12.1 RECOMMENDATIONS

### 1. Tree Planting

Trees damage archaeological sites and generally would interfere with the interpretation of the site as a fort. Therefore any tree planting should be limited to:

- (a) Pohutukawa and other suitable trees in selected areas around the base of the Head on the eastern and north-eastern and northern sides.
- (b) Low shrubs and plants no taller than 2 m on the western slopes in the areas now covered in privet. These should be selected to stabilise the steep slopes and only planted after archaeological assessment when the privet is cleared.
- (c) False Horizon Trees associated with the 6" Mk Battery.

### 2. Public Presentation

At present this is almost non-existent. Ideally this should be centred on the summit area based on existing historic buildings (see Recommendation 3). Until such time as the Navy vacates the summit an interim system of public presentation should be instituted. This should be based on a well signposted self-guided tour starting from North Battery.

North Battery should be re-opened although some assessment of the safety of the roof should be undertaken prior to this as large pieces of plaster and concrete are breaking away from the iron reinforcing. A similar situation exists in the galleries on the summit and these will need to be examined at such time as public access becomes possible.

### 3. Buildings

Most of the buildings currently on the summit are an integral part of the fort. However, it may not be economic to retain all of these. The old barracks building and the small stone building should be retained as the only remaining part of the 19th century summit buildings. A representative sample of the World War II buildings should be retained as part of the eventual public presentation. Architectural advice should be obtained on the Conservation strategies needed in dealing with these buildings and their use for public presentation of the site.

### 4. Archaeological Work

There are a number of structures which have been filled in which could be re-excavated. For example, the 7" ML gunpits and the old forward observation posts on the summit could be cleared. Excavation could be used to re-establish the outline of the old earthwork and possibly relocate the flank gun and abandoned 6" emplacements on the summit. The old sunken way provides an ideal link between North and South batteries and this could easily be cleared and the obstructing wall on the north side of the Test/generator room removed. The few remaining areas where Maori structures could exist could be tested to determine their origins.

Archaeological work could be used to give a boost to any opening of a public presentation centre.

## 5. The Missing Tunnels

I was initially sceptical of the claims of missing or hidden installations on North Head. However, the number of people to whom I have talked who have described seeing other tunnels suggests that there may be some basis for these stories. Little hard evidence is available. However, the presence of the apparent entrance on the western slope, visible in the 1958 and 1962 aerial photographs, suggests that other structures did exist which are now hidden. A number of people have described other tunnels connected to North Battery and the presence of an old drawing showing other tunnels here suggests that this is an area in need of further investigation.

Given the public fascination with mysteries, interest in these stories of hidden installations will not go away. It is therefore recommended that the Department of Conservation work together with the interested parties and institute a research project into finding and collating hard evidence of these installations. Initially attempts should be made to identify and relocate the possible western entrance visible in the aerial photographs. Any excavation work in search of this installation would generate great public interest and this could be used as part of a public presentation programme.

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**Plate 1: North Head 1870's**

**Prior to European Fortification.**

**Note absence of visible terracing and presence of stone wall boundaries on the Head.**



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Plate 2: North Head 1890's.



(Reproduced by permission of the Auckland Public Library)

Plate 3: North Head Panorama 1900.



(Reproduced by permission of the Auckland Institute and Museum)

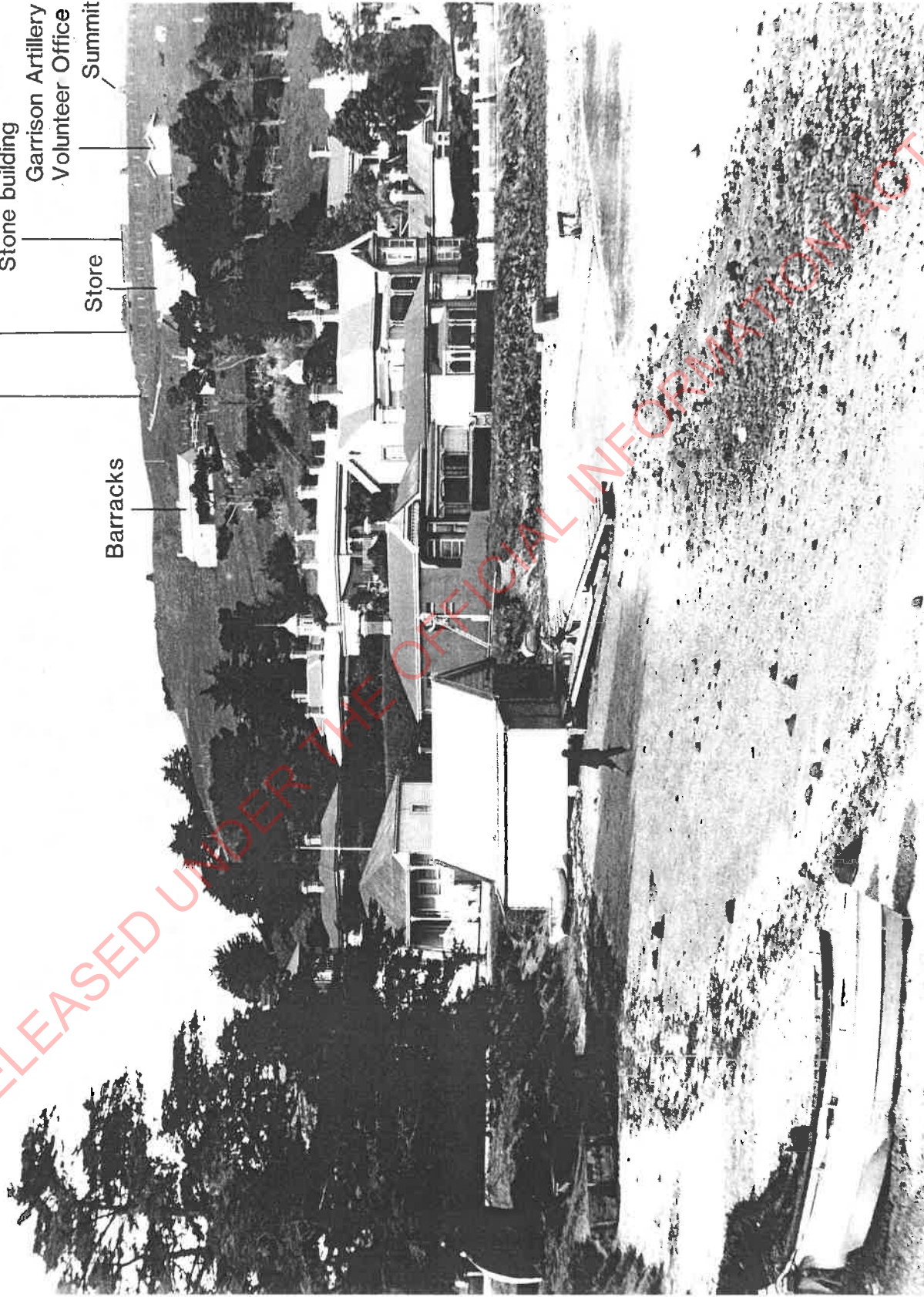


Plate 4: North Head from Torpedo Bay 1911.

Original entrance through earthwork  
Castellated guard room  
Stone building  
Garrison Artillery  
Volunteer Office  
Summit barracks

Barracks

Store



(Reproduced by permission of the Auckland Public Library)

Plate 5: North Head 1920.



(Reproduced by permission of the Auckland Public Library)

Plate 6: North Head 1926.



(Reproduced by permission of the Auckland Public Library)

Plate 7: North Head Aerial View 1939.

Old 8" BL H-P emplacement

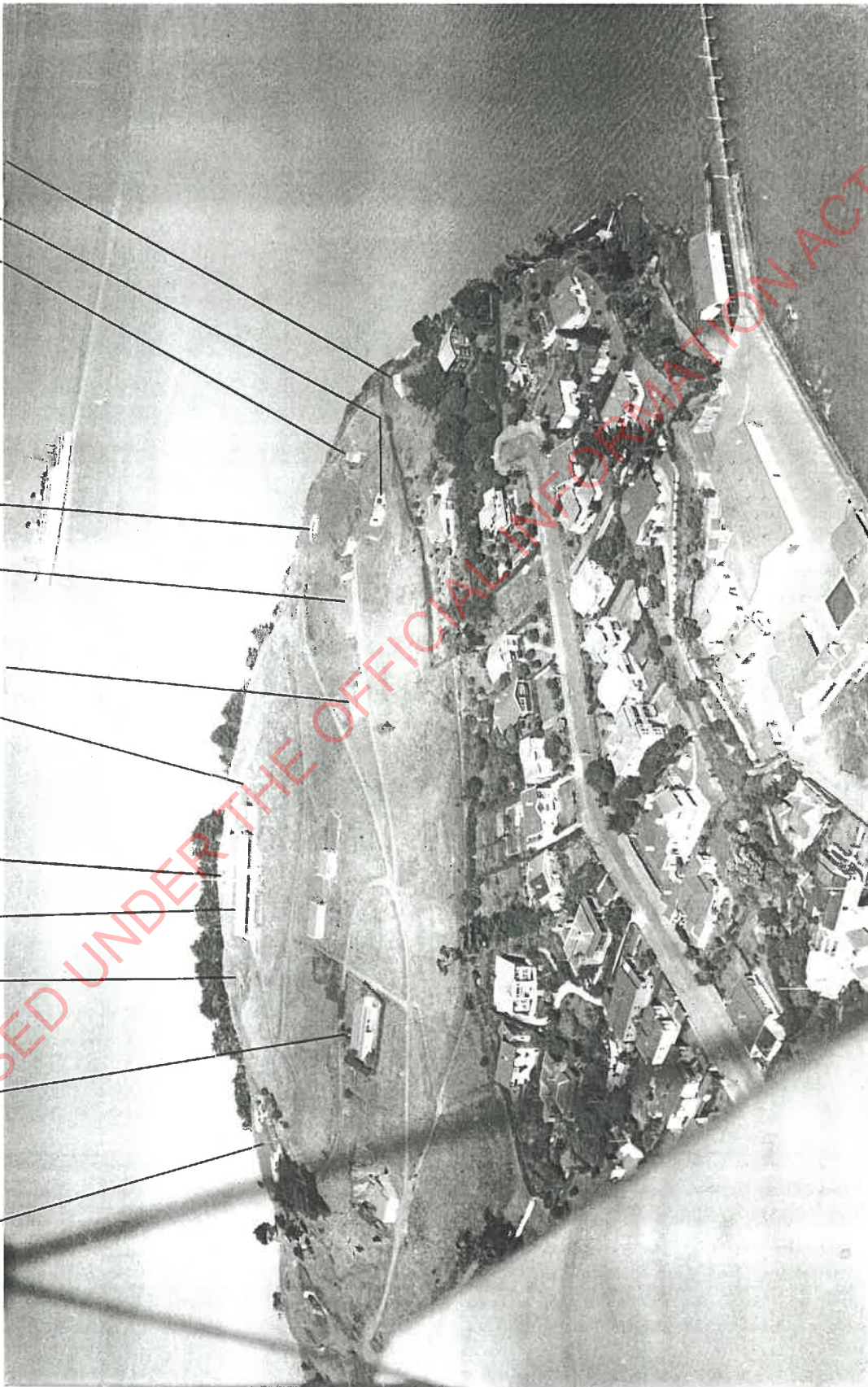
6" Mk VII gun emplacement



(Reproduced by permission of Whites Aviation)

Plate 8: North Head Aerial View 1939.

- Old north battery 8" BL H-P emplacement
- 6" Mk VII emplacement
- Old barracks now a house
- Area disturbed during construction of aborted 6" battery
- 1880s barracks
- 8" BL-H-P emplacement
- Lab
- 6pr flankgun emplacement
- Magazine
- Old south battery 8" BL-H-P emplacement
- Old 64pr ML emplacement
- Engine room entrance
- Minefield O.P.



(Reproduced by permission of Whites Aviation)

Figure 2: North Head Aerial View 1958, showing possible entrance and area of 8" summit emplacement



# Plate 10: North Head Aerial View 1962.

Note removal of remnants of earthwork, flankgun emplacement and original entrance also removal of W.W.II buildings



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## GLOSSARY OF TERMS USED

Barbette:

A gun mounting used in fortress artillery. The gun mounting was concealed in a pit with only the muzzle visible over the parapet (Hogg 1987:87).

Blindage:

A screen or other structure used in fortification as protection from enemy fire.

Boom defences:

These consisted of a line of piles from North Head to Bastion Point from which steel mesh nets were hung. The centre section was movable to allow the passage of ships. Built to defend the port against submarine attack.

Covered way:

In classical fortification terms this was a walkway outside the main ditch of the defences. It was used as a reconnaissance platform and a base from which to launch sorties. Usually protected by a low parapet and covered by defensive fire from the fort (Hogg 1981:110). At North Head the term used to describe the sunken road joining north and south batteries.

Disappearing carriage:

This was developed for use with artillery of position, most commonly coastal defence guns. The object was to have the gun concealed between shots so enemy ships could not fire at it. However, trials in Britain in the 1890s showed that it was extremely unlikely that ships guns could hit any gun on shore. As a result of this, combined with the disadvantages of slow rate of fire, the disappearing carriage was abandoned and mostly replaced by the barbette emplacement (Hogg 1987:126).

Elswick Ordnance Company:

The Company was set up by Sir William Armstrong to manufacture the Armstrong gun under contract to the British Army. It also made Rifled Muzzle Loading guns (Hogg 1987:133) and the disappearing guns mounted at North Head. At North Head the Fort Record Books use 'E-O' as a designation for the 8" disappearing guns.

Examination Service:

This was a system of checking all ships entering the port to prevent sneak attack by a raider. An examination battery covered the examination area.

Field gun:

Usually used with a mobile field army, not commonly mounted in fixed fortifications (Hogg 1987:136).

Flanked:

The protection of one part of a fortification by another with flanking fire (Prickett 1981:Appendix 1). The North Head earthworks were not completely flanked, therefore the earthwork was not completely covered by flanking fire from bastions.

Hotchkiss:

The French armament company which made the 6 pr Quick Firing gun commonly used in British and coastal defences in an Anti Motor Torpedo Boat role (Hogg 1987:169).

Hydro-Pneumatic:

System used on disappearing guns. The Elswick Ordnance Company system used a hydraulic pneumatic system to absorb and store the energy from the recoil which then could be used to return the gun to the surface for the next shot.

Lamp passage:

Narrow passages built or excavated on two or three sides of magazines with small apertures opening onto the magazine. Originally these had glass windows through which lamp shone illuminating the magazine without exposing the ammunition to naked flames.

Loophole:

A narrow vertical opening usually widening inwards through which defenders could fire. On North Head the fort doors were loopholed (Prickett 1981:Appendix 1).

Nordenfelt:

Swedish Arms Company whose successful 6 pr was used in coastal defences in an Anti Motor Torpedo Boat role (Hogg 1987:195).

Pallisade:

Timber built defences used in Maori fortifications.

Parapet:

The bank of a redoubt over which defenders fire (Prickett 1981:Appendix 1). On North Head the summit fortification is referred to as having a 'musketry parapet'.

Quick Firing Guns:

These were originally developed by the French army as a field piece. This weapon had a recoil system which meant the gun could move under control in the gun carriage without the carriage itself moving. There was also a quick acting breech mechanism. These features meant that the gun could be reloaded and fired rapidly (Hogg 1986:21). The 12 pr QF guns at North Head could fire at 20 rounds per minute by day and 15 rounds per minute at night (HGMP, 1983:55).

Redoubt:

Ditch and bank European fortification (Prickett 1981:Appendix 1).

Rifled Muzzle Loader:

An artillery piece used mainly in the 1850-1890 period. It was used, as a breech mechanism could not be developed to withstand the heavy charges needed to deal with armoured ships. Mainly used in coastal defence and naval guns (Hogg 1987:212).

Rifling:

Helical grooves cut into the interior surface of the gun barrel to impart spin on the projectile and therefore give gyroscopic stability (Hogg 1987:213).

Terrace:

A levelled area on a slope constructed for building houses, pits and other structures.

## LIST OF ABBREVIATIONS

A.A.	anti-aircraft
A.J.H.R.	Appendices to the Journal of House of Representatives
A.P.	Armour-piercing
BL	Breech Loading
B.O.P.	Battery Observation Post
D.R.F.	Direction Range Finder
D.S.	Directing Station
E.O.	Elswick Ordnance Co. - Manufacturers of the 8" BL H-P guns
F.C.P.	Fire Control Post
F.R.B.	Fort Record Book
H.G.M.P.B	Hauraki Gulf Maritime Park Board
H-P	Hydro-Pneumatic - The disappearing gun mechanism
M.T.B.	Motor Torpedo Boat
N.Z.G.G.	New Zealand Government Gazette
pr	pounder
P.W.D.	Public Works Department
Q.F.	Quick-firing
R.B.L.	Rifled Breech-loading
R.E.	Royal Engineers
R.M.L.	Rifled Muzzle-loading

## CHRONOLOGY

- 1850 North Head area subdivided at same time as rest of Flagstaff (Devonport) area.
- 1860 Recommendation by Captain Graham that North Head be fortified.
- 1871 Sir W. Jervis recommends fortification.
- 1877 North Head gazetted as government reserve.
- 1878 Government orders 7" RML and 64 pr guns.
- 1880 Col. Scratchley submits plans for North and South Batteries.
- 1882 Major Cautley surveys North Head and plans North, South and Summit Batteries.
- 1885 Tenders called for gun emplacements.
- 1885 Roads to three Batteries constructed.
- 1885 April/May, North Battery 7" RML mounted.
- 1885 Two 7" RML guns mounted at Summit.
- 1885 64 pr mounted at South Battery.
- 1885 Late in the year 8" gun pit begun on summit.
- 1886 Armed Constabulary complete 8" gun pit.
- 1886 Jetty built. 8" gun winched to summit.
- 1887 8" gun mounted.
- 1888 Prisoners from Mt Eden housed in summit barracks, build water tank.
- 1888 7" RML gun removed from North Battery, gun pit and magazine remodelled and 8" BL H-P gun emplaced.
- 1888 Probable date of mounting of 8" BL H-P gun at South Battery.
- 1889 Two Nordenfelt QF 7 prs arrived and mounted on summit as flank guns.
- 1890-91 Open passages on summit roofed with concrete and interior access modified. Ditch and forward O.Ps filled in.
- 1895 7" RML gun pits remodelled and repaired.
- 1895 Generator engine room built for powering searchlights.
- 1896-97 Telephonic communication installed.

- 1898 Underground cables to link Forts Cautley, Victoria and Takapuna installed.
- 1898 Telephone station excavated in North Traverse of summit earthwork.
- 1899 Barracks built on western slope.
- 1900 Winkleman photographs panorama of western slope showing barracks, stores, and original summit entrance.
- 1900 12 pr emplacement built.
- 1904 Northern 6 pr Nordenfelt on summit removed to construct barbettes for 6" Mk VII guns. This work abandoned.
- 1905 6" Mk VII guns arrive.
- 1908 New site for 6" Mk VII's started in present position. Road access to this battery probably from this period also.
- 1910 6" Mk VII mountings arrive.
- 1911 6" Mk VII guns operational.
- 1914-18 World War I, North Head armament consists of three 8" BL H-P guns, two 6" Mk VII guns, two 12 pr Q.F. guns and one possibly two Nordenfelt 6 prs.
- 1914-18 Tennis court area on eastern slope constructed.
- 1925 At about this time the 8" BL H-P guns scrapped.
- 1932 4" Noble guns from HMS New Zealand set up as saluting battery on tennis court.
- 1938 Rustan generator sets installed.
- 1939 18 pr field guns mounted above Cheltenham Beach.
- 1940 Quarters and ammunition shed built at either end of the 6" Mk VII emplacement.
- 1940 Four Hotchkiss 6 pr guns emplaced above Cheltenham Beach replacing 18 pr field guns.
- 1941 Boom defences installed to defend harbour from submarine attack.
- 1941 The 6" Mk VII guns removed and sent to Whangaparoa.
- 1941 Two ne Colchester emplacements built in front of old 8" gun pit at North Battery and two 4" Noble guns installed.
- 1942 AA light, searchlight and light machine gun installed on summit.
- 1940-45 Oerlikon emplaced to east of old South Battery.
- 1940-45 Fire control post built on summit.
- 1940-45 Numerous barracks, stores and other buildings constructed.

- 1940-45 Road access to summit altered.
- 1940-45 Boom defences removed.
- 1953 8" BL H-P gun moved from summit to old South Battery.
- 1959 6" Mk VII's returned to North Head after war scrapped.
- 1958-62 Summit remodelled - remnants of earthwork, aborted 6" Mk VII battery and south Nordenfelt emplacement destroyed.
- 1972 Hauraki Gulf Maritime Park Board takes over North Head. Summit remains under Navy control.
- 1980 Gazetted as Historic Reserve.

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**DRAWINGS HELD ON FILE BY WORKS & DEVELOPMENT SERVICES CORPORATION, BLEDISLOE BUILDING, AUCKLAND**

This collection of drawings, although incomplete, provides a good record of both planned and completed installations. Not all have clear titles and in these cases I have described the content. Some are dated while others do not have clear dates. The context, however, means that assigning approximate dates is usually not difficult.

A number of these drawings are also held at Department of Conservation, Auckland Office (see Appendices 5 and 6). These copies often have clearer titles.

<u>File Number</u>	<u>Neg./Sheet Number</u>	<u>Title/Description</u>
ADO 1198	Neg. 1	Map showing land boundaries and coastline of Government reserve.
ADO 1198	Neg. 2	Contour map with 64 pr emplacement.
ADO 1198	Neg. 3	Temporary emplacement for 64 pr RML gun.
ADO 1198	Sheet 4	Emplacement for 64 pr RML gun.
ADO 1260	Sheet 2	NZD North Head Magazine No. 1 and 4 guns 1885.
ADO 1281	Sheet 1	NRH Torpedo Shed contour plan.
ADO 1281	Sheet 2	Profile of cliff area at Torpedo Bay.
ADO 1563	Sheet 1	North Head sunken way survey with gun positions shown.
ADO 1563	Sheet 2	Sunken way - profiles of hillside where built.
ADO 1573	Sheet 1	Blindage engine and test room abandoned.
ADO 1573	Sheet 2	Contour map on plan of 8" Battery.
ADO 1573	Sheet 3	8" Emplacement North Battery.
ADO 1573	Sheet 4	Site plan for Left and Right Batteries (abandoned).
ADO 1573	Sheet 5	Battery fittings.
ADO 1573	Sheet 6	Left and Right Battery (cancelled).



ADO 1573	Sheet 7	Plan of North Battery 8" gun to replace 7" gun mountings showing scarp lines.
ADO 1573	Sheet 8	7" gun emplacement plan (cancelled).
ADO 1573	Sheet 9	General details of Battery North Head for 64 pr (cancelled).
ADO 1574		North Head, Auckland Harbour.
ADO 1564	Neg. 1	Submarine Mining Depot Shed B (All probably 1890s).
ADO 1564	Neg. 2	Submarine Mining Depot Shed B.
ADO 1564	Neg. 3	Fittings for Submarine Mining Depot.
ADO 1564	Neg. 4	Plans Testing Room.
ADO 1564	Neg. 5	Fitting details.
ADO 1564	Neg. 6	Gun cotton room.
ADO 1564	Neg. 7	Site plan of Submarine Mining Depot showing contours.
ADO 1564	Neg. 8	Appears to be a rough copy of above.
ADO 1564	Neg. 9	Submarine Mining Depot jetty details.
ADO 1564	Neg. 10	Mine store plan and elevation.
ADO 1564	Neg. 11	Less clear copy of above?
ADO 1564	Neg. 12	Store shed for Whitehead torpedoes.
ADO 1564	Neg. 13	Store shed for Whitehead torpedoes.
ADO 1564	Neg. 14	Pit for testing primers.
ADO 1564	Neg. 15	Pit for testing primers.
ADO 1564	Neg. 16	Pit for testing primers.
ADO 1564	Neg. 17	Sheds for Submarine Mining and Torpedo Depot.
ADO 1564	Neg. 18	Fittings.
ADO 1564	Neg. 19	Forge and chimney details.
AA 869	Sheet 1	Ordnance workshop Artillery yard 19/6/42.
AA 869	Sheet 2	Ordnance workshop Artillery yard 19/6/429.

AA 869	Sheet 3	Ordnance workshop Artillery yard 19/6/42.
AA 869	Sheet 4	Ordnance workshop Artillery yard 19/6/429.
AA 869	Sheet 5	Light AA Defences and women's latrine.
AA 869	Sheet 6	Recreation room and conversion of Signals building into laundry and drying room.
AA 869	Sheet 7	Conversion of men's dormitories into Naval dormitories.
AA 869/1		Diagram of gunpit and adjacent galleries.
AA 869/1A	Sheet 1	Plan and section of Operations room seaward Defence HA, HM Navy.
AA 869/1A	Sheet 2	Alternative timber roof Operations room seaward Defence HQ, Navy.
AA 869/1A	Sheet 3	As above with more detail.

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**PLANS AND MAPS IN BOUND VOLUMES HELD AT  
DEPARTMENT OF CONSERVATION, AUCKLAND REGIONAL OFFICE LIBRARY**

These all appear to be from the same series as the drawings held at Works and Development. However, few are duplicates suggesting they came from another source. Listed in same order as file.

<u>File Number</u>	<u>Neg./Sheet Number</u>	<u>Title/Description</u>
1573	14	Plan for North Battery. NZD Auckland Harbour North Head. Emplacement for 8" gun to replace 7" gun now mounted Numbered "1".
1573	13	As above but Numbered "2". Both these drawings are from the 1573 file but at Works & Development Sheet 9 is the highest number.
1554		Emplacement for QF gun at South Battery. There is no 1554 file at Works & Development.
1260	Drawer 15	Plan of lamp recess. This drawing is not in the 1260 file at Works & Development.
1568	Drawer 15	Emplacement for 6 pr Nordenfelt gun. Not in Works & Development file.
1570	Drawer 15	Plan for carriage of 8" gun. Not in Works & Development file.
559 or 485?		Plan of fencing and gate details. Not in Works & Development file.
1570	Drawer 15	Plan of emplacement for 8" BLR gun 17/7/85. Not in Works & Development file.
559 or 485?		7" and 64 pr not used. Not in Works & Development file.
"1211 attached and 485"	Drawer 15	North Head General Plan 1882. Not in Works & Development file.
1554	Drawer 15	South Battery Emplacement 30/3/95. Not in Works & Development file.

1563	Drawer 15	Survey plan showing sunken way and position of Cautley Battery 16/7/95; ADO 1563 Sheet 1 in Works & Development file.
1574		Interior fittings of Magazine at Summit 17/7/95. Not in Works & Development file.
1260		Plan of lamp recess details 18/3/85. Not in 1260 file at Works & Development.
1573		Details of Vent Ducts and fittings in Batteries. May be 1573 Sheet 5 at Works & Development file.
1578		Plan for observing station and shield 17/7/95. Not in Works & Development file.
1568		Emplacement for 6 pr Nordenfelt gun 16/7/95. Not in Works & Development file.
1260		Interior fittings of Magazine for 1 and 4 guns 18/3/85. On file Works & Development.
1198	Drawing 2	Site of 64 pr emplacement North face.
1573	Sheet	Plan of North Battery.
1565		Plan of Turntables 16/7/95. Not in Works & Development file.

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**DRAWINGS OF DEFENCE INSTALLATIONS HELD AT  
DEPARTMENT OF CONSERVATION OFFICE, AUCKLAND**

(All of North Head unless otherwise stated)

<u>File Number</u>	<u>Neg./Sheet Number</u>	<u>Title/Description</u>
485		Left Battery abandoned scheme showing 2, 7" and 1, 64 pr gun at North Battery, 21.7.84.
485		Fencing and gates, 21.7.84.
485		Right Battery showing South Battery with 1, 7" and 2, 64 prs, 21.7.84.
1063		Electric light emplacement engine shed, Fort Takapuna, 12.12.1898.
1198	Sheet 2	Emplacement for 64 pr RML gun for drill and practise at North Head.
1198	Sheet 3	Emplacement for 64 pr for firing practise, February 1885.
1198	Sheet 4	Temporary emplacement for 64 pr for drill and practise at North Head. Cross-sections and plan.
1211		North Head Auckland General Plan. Early unused plan showing right and left Battery with no summit Battery. 1882.
1211		North Head General Plan. Early unused plan with North Battery with two 7" guns and one 64 pr. South Battery with one 7" and two 64 prs. 21.7.84.
1260		Lamp Recess. 18.3.85.
1260		Magazines for No. 1 gun and No. 4 gun interior fittings, etc. 18.3.85.
1281		Site for Torpedo shed, North Head cross-sections.
1281		Site for Torpedo shed plan. 14.12.85.
1282	Sheet 6	Plan of lands taken at Takapuna Head. 5.10.85.
1282	Sheet 7	Plan of lands taken at Bastion Rock.

1284	Sheet 1	Emplacement for 6" BLR H-P gun. 21.12.85.
1284	Sheet 2	Barracks Takapuna Battery. September 1880.
1299	Sheet 3	Officers' Quarters, Armed Constabulary, North Head. 1.2.86.
1554		South Battery Emplacements for QF gun and electric light. 30.3.95.
1556	Sheet 5	Battery at Pt Resolution. Repairs and alterations. (Note on plan that QF gun to be dismantled and taken to North Head). September 1891.
1556	Sheet 6	Pt Resolution Battery. 30.3.95.
1561	Sheet 3	Flat Bottomed Wooden Boat with Derrick. (May be for servicing minefield -).
1563		Showing Route of Sunken Way in relation to the three main Batteries. 16.7.1895.
1563		Sections of Covered Way. 16.7.1895.
1564	Sheet 1	North Head Submarine Mining Depot fittings. 24.6.1886.
1564	Sheet 2	Sketch showing fittings of Testroom submarine Mining Depot. 24.6.1886.
1564	Sheet 3	Submarine Mining Depot sheds. Detail of fittings. 16.7.95.
1564	Sheet 6	Submarine Mining Depot Bastion Pt guncotton pit. 16.7.1895.
1564	Sheet 8a	Plan of submarine Mining Depot North Shore. 16.7.1895.
1564	Sheet 8	Site Plan of Submarine Mining Depot at North Shore. 16.7.1895.
1564	Sheet 9	Submarine Mining Depot, North Shore Jetty. 12.3.1886.
1564	Sheet 10	Submarine Mining Depot Bastion Pt Mine store shed. April 1886.
1564	Sheet 12	Submarine Mining Depot store sheds for Whitehead Torpedoes. 16.7.1895.
1564	Sheet 13	Submarine Mining Depot store shed for Whitehead Torpedoes. 16.7.1886.
1564	Sheet 14	Submarine Mining Depot pit for testing Primers. 16.7.1895.

1564	Sheet 16	Submarine Mining Depot pit for testing Primers. 16.7.1895.
1564	Sheet 17	Sheds for Submarine Mining and Torpedo Depot, Wellington. April 1885.
1564	Sheet 18	Submarine Mining Depot, Bastion Pt fittings. 16.7.1886.
1565		Turntables for 6" and 8" shells. 16.7.1895.
1566	Sheet 1	Plan of Magazine. 16.7.1895.
1566	Sheet 2	Magazines for 6" BLR gun. 16.7.1895. (Not North Head).
1566	Sheet 4	Details of Magazine Fittings. 16.7.1895.
1567		Shell Trolley for 6" 5 ton BLR gun. 16.7.1895. (Not North Head).
1568		Emplacement for 6 pr. Nordenfelt gun. 16.7.1895.
1569		8" 13 ton BLR gun. Plan showing tramway around gun pit for travelling stage. 16.7.1895.
1570		Emplacement for 8" 13 ton BLR gun showing recesses.
1570	Sheet 2	8" BLR disappearing gun racer foundation and pit. 17.7.95.
1571	Sheet 1	Plan for fixing of Emplacement racer 64 pr ML South Battery. 1891.
1511	Sheet 3	Timber platform with concrete bed for 7" RML gun. 31.8.1885.
1571	Sheet 4	Timber and concrete platform for 64 pr RML gun. 17.7.1895.
1571	Sheet 5	Traversing gear 7" RML gun. 17.7.1895.
1571	Sheet 6	Racer and bed plate for 64 pr and 7" RML guns.
1573	Sheet 1	Blindage Engine and Test Rooms. 17.7.1895.
1573	Sheet 2	North Battery showing 8" emplacement 40 pr and field gun emplacements. Also tunnel and another underground installation to the west of the gun emplacement.

1573	Sheet 3	Emplacement, etc. for 8" gun at North Battery. 1880s.
1573	Sheet 4	Batteries on North Head Site Plan showing mode of fixing position of pivots and lines of fire (cancelled) shows two Battery version of defences with no summit Battery.
1573	Sheet 5	Batteries sundry details of fittings and ventilation.
1573	Sheet 6	Right and Left Batteries.
1573	Sheet 7	Emplacement for 8" gun at North Battery to replace 7" gun now mounted.
1573	Sheet 8	Details of Emplacement for 7" gun.
1573	Sheet 9	Details of Emplacement for 64 pr guns.
1574		Magazine at Summit Interior fittings. 30.10.1885.
1574		Point Resolution Armed Constabulary Barracks. April 1885.
1578		Observing Station and Shield over 7" magazine 16 February 1889.

Drawings without file numbers:

Longitudinal Cross Section on Cart Road Right to Left Battery - 1884.

North head Cross-sections - 1884.

Longitudinal Section Right and Left Batteries - 1884.

Longitudinal Section on road from Left Battery - 1884.

Longitudinal Section on road from Left Battery - 1884.

Cross-section Right Battery - 21.7.84.

Cross-section Right Battery - 21.7.84.

Cross-section Left Battery - 21.7.84.

Fire Arcs of Auckland Defences for Hauraki Gulf - 1940s.

Appendix A to NC 005/2 of 27 October 1953.

Diagram of Gunpit and Adjacent Galleries.

Shows summit installations at this date and proposed ops room in 8" gunpit.



RELEVANT MAPS AND PLANS HELD BY  
DEPARTMENT OF SURVEY AND LAND INFORMATION

SO 00702

This is the earliest survey ordnance map of the area held. It is extremely torn and fragmentary. North Head is not visible, but Mt Victoria and Mt Cambria are shown.

SO 1071

The earliest complete survey ordnance map of North Head. Shows land ownership and has pencilled notation of gazettement of North Head as a Government reserve. Watercolour insert of North Head erased or faded, key and information panel torn, and date not visible but from internal evidence probably 1860s.

3779 26/1/85

North Head in a compass rose showing Government reserve and adjacent properties. Shows stone walls along boundaries with Government reserve and Takarunga Road (then known as North Head Road). Possibly prepared at commencement of 1885 fortifications.

DP 1009 December 1891

Shows position of wharf on east side of North Head.

Auckland Land District registered 30/7/12

"Taking land for defence purposes in Block VI Rangitoto SD under Section 19 of the Public Works Act 1908."

Prepared from DP 1009. Shows boundaries of Government reserve. Items shown include Submarine Mining Depot, land along North Head coastline vested in Devonport Borough Council and Auckland Harbour Board.

## ARCHAEOLOGICAL FEATURES

From Phillips n.d.

Features described by Phillips which are in areas where prehistoric features could have survived. Note that all midden is listed even if the prehistoric nature is dubious.

<u>Feature No.</u>	<u>Description</u>
14	Possible terrace 4 x 2 m. Overgrow in kikuyu.
16	Possible terrace 4 x 2 m. Very overgrown in kikuyu.
17	Possible terrace 5 x 2 m. Overgrown in kikuyu and weeds.
27	Terrace 5 x 1 possibly slumping, possibly pre-European. Long kikuyu.
35	Sloping shelter under vertical rock. Detritus and vegetation covered ground. Shell on surface. Possibly origin from above - it looks recent. Shell is spilling out onto Searchlight (9.4) steps. Shelter floor slopes from North down to South (by Searchlight). Floor is a euphemism - (it is not flat). Approximately 15 x 3 m.
37	Terrace 12 x 1 m. Very indistinct. Possible midden traces below in broken scarp - very broken and weathered shell. Possibly pre-European.
47	Occasional broken shell on platform (which is above high tide mark). Unclear whether eroding out of grass roots, or brought from natural or human sources in other ways. Not water-rolled. Species cockle.
56	Terrace. Eastern end uncertain. Pedestrian track crosses through it. 8 x 15 m. Origin uncertain.
57	Terrace leads on from track 7.11. Possible break half way - change in elevation. Total length 30 m, max width 7 m.
58	Track and possibly terrace stepped up 0.2 m from adjoining terrace and stepped up from track, 11 x 3 m.

- 69 Terrace, broad beneath summit fence line up to 7 m wide, 32 m long. Origin uncertain.
- 70 Terrace, narrow, leading to marker, probably a track, 35 x 3 m.
- 71 Terrace 13 x 4 m, possibly pre-European, possibly part of military constructions.
- 72 Terrace 9 x 3 m. Majority taken up with the irregular depressions. Tree root (macrocarpa) knocked over here may be one of the culprits. Depressions approximately 3 x 1 x 0.5 m and 1 x 1 x 0.3 m. Long grass, "wandering Jew" and other weeds make definition here and on Terrace above very difficult.
- 75 Terrace broadens out to 10 m wide. Possibly part of pre-European terrace, or part of earlier constructions on the hill top.
- 84 In scarp is shell, charcoal, black soil and glass. Presumably European fire. Shell is weathered and may be some track shell burnt with rubbish.

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## ARCHAEOLOGICALLY RECOVERABLE INSTALLATIONS

Summit -

2 - 7" RML gun pits  
2 Nordenfeld QF gun emplacements  
North, south and eastern earthwork ramparts  
Musketry parapet  
Ditch encircling fort  
Forward OPs  
OP above south entrance to magazine area  
Original entrance on north-west side of earthwork  
Aborted 6" Mk VII emplacement  
Access to 8" BL H-P gun emplacement

North Battery -

Ditch in front of 7" RML gun pit (now probably destroyed by 4" gun emplacements)

Open passage linking 7" gun pit to magazine

40 pr emplacements

Sunken Road -

Although partially filled in this feature would be largely recoverable by excavation.

Test room/Generator room -

This could be re-opened as part of the sunken road feature.

Western Slope -

Possible tunnel entrance visible in 1958 and 1962 aerial photographs.