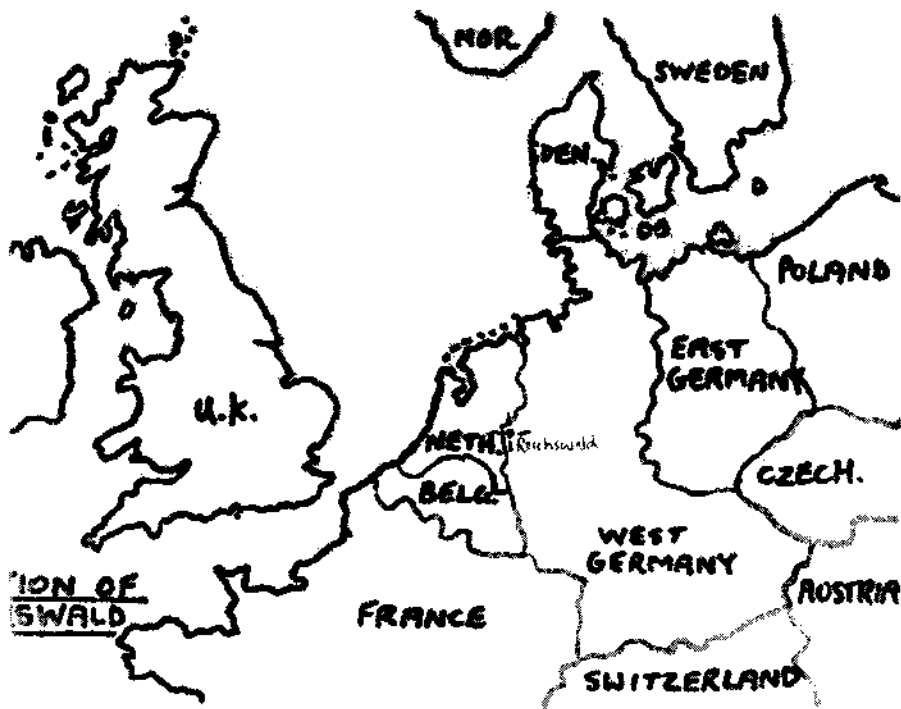




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A31


L. S. French
619 Te Atatu Road
Te Atatu Peninsula
PH 8347834
2nd December 2003

Mrs. Lynn Ashton
4/8 Tuscany Way
Te Atatu Peninsula

Dear Mrs. Ashton,

My name is Len French. I am 91 years of age, and have lived in Te Atatu since 1915. I knew Whelan Hazard when his family came to Te Atatu in the 1920's. Whelan and I worked together to raise money for the Kings Patriotic Fund, around 1940. Whelan was a very dedicated voluntary worker for the fund, which was used to send parcels to troops serving overseas. I left New Zealand in 1942 for the war in the Pacific. Whelan left for the war in Europe in 1943, and served in the Air Force. He was shot down, and died in Europe. His name is recorded on the honours board, on display in the Te Atatu RSA. As far as I am aware, he was the only serviceman to leave Te Atatu to serve in the 2nd World War, who did not return. I fully support your submission to the council to have a reserve in Te Atatu named after Whelan. Your suggestion that the anti-aircraft battery site in Te Atatu be that reserve, seems very fitting. I wish you luck, and sincerely hope you are successful.

Yours Faithfully



Len French

A32



ROYAL NEW ZEALAND AIR FORCE

Te Hokowhitu o Kahurangi

Air Staff

Headquarters, New Zealand Defence Force, Wellington, New Zealand

Telephone: +64 4 496 0500, Facsimile: +64 4 496 0506, Email:

Air 1145/1

20 April 2004

Mrs L. Ashton

4/8 Tuscany Way

Te-Atatu Peninsula 1008

Waitakere City

NEW ZEALAND

Dear Mrs Ashton,

Thank you for your letter dated 10 February 2004. In it you request that the RNZAF provide a letter of support to the project of naming a reserve after your uncle, Flying Officer Whelan Hazard, and the mounting of a commemorative plaque, which can be forwarded in a submission to the Waitakere City Council. The RNZAF Air Command post has been disestablished but your letter reached the Commanding Officer, Air Base Wing, RNZAF Auckland and he forwarded it to me for consideration.

I must say I am very impressed with the thoroughness you have displayed in not only providing details of your uncle's service history and sad demise but also the approach you have taken to have the proposed reserve on the Te Atatu Peninsula named after him.

On behalf of the RNZAF I welcome this opportunity to pay tribute to the memory of Flying Officer Hazard and all the other aircrew who paid the ultimate sacrifice during World War II operations over enemy territory. You may use this letter as an indication of my support to your project.

I note that your family, along with the Te Atatu Memorial Returned Services Association, are willing to pay for a plaque detailing Flying Officer Hazard's services to New Zealand and the RNZAF to be put in place in the reserve. If the plaque is to show a reproduction of the RNZAF Badge I wish to see and approve it before you proceed further. A copy of the RNZAF Badge is enclosed.

Please keep me informed of the progress with your project so that I can arrange for RNZAF representation at the dedication ceremony.

Yours sincerely

J.H.S. HAMILTON

Air Vice-Marshal

Chief of Air Force

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Enclosure:

1. Copy of RNZAF Badge.

THE RNZAF BADGE



IN FRONT OF A CIRCLE INSCRIBED ROYAL NEW ZEALAND AIR FORCE AND ENSIGNED WITH THE ROYAL CROWN AN EAGLE VOLANT AFFRONTÉE THE HEAD LOWERED AND SINISTER. BENEATH THE WHOLE UPON A SCROLL THE MOTTO 'PER ARDUA AD ASTRA'.

A34



**TE ATATU MEMORIAL R.S.A.
INCORPORATED.**

1 Harbour View Road, Te Atatu Peninsula

Welcome - Haere Mai

16 December 2003

Renée Lambert,
Service Manager
Landscape Development
Waitakere City council
Private Bag 93 109
Henderson

Dear Ms Lambert,

We understand that the World War II gun emplacements on the Peninsula are to be preserved as a significant part of the region's history. We would appreciate a copy of the draft plan, when available.

Our executive committee wholeheartedly support the proposal by his niece Lynn Ashton that her uncle Flying Officer Whelan F Hazard killed in action over Germany during the Second World War be remembered by name within the area.

If Council decides in favour of this proposition, we would welcome the opportunity to contribute towards the cost of a suitable memorial plaque.

Yours faithfully

Ian Gibson
President

c.c. Lynn Ashton
4/8 Tuscany Way
Te Atatu Peninsula

A35

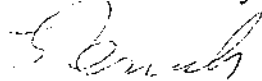
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PH 8347834
2nd December 2003

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Te Atatu Peninsula

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Yours Faithfully



Len French

A36

I would like to make a submission on the Te Atatu Anti-Aircraft Battery.

My submission today regards the naming of the Te Atatu Anti-Aircraft gun emplacement Battery. I would like my Uncle the late Flying Officer Whelan Hazard remembered on this sight. I also have the support of Air-Vice Marshal Hamilton Chief of the New Zealand Air Force Wellington and of the Te Atatu Memorial R.S.A.

Whelan's parents Arthur and Olive had a small farm at Warf Road, Te Atatu. Along with Whelan they had two daughters, Andre and Wanda.

Whelan joined the Air Force and left to train in Canada in 1943. He was a very bright young man and gained his commission as a Pilot Officer at the age of 19, a remarkable feat. After training he was sent to England to be a navigator on a Lancaster plane with other young New Zealand men. On the night of the twelfth of August 1944 the plane was shot down over Germany, seven of the crew died when the plane crashed. Whelan was the only one who managed to parachute to safety. It seems he traveled some distance from the crash site, to where he landed alive in a pine tree. He died shortly afterwards, when he was discovered. This was in 1944. In 1947 some three years later my Grandmother received a letter, one of many, from the Missing Research and Enquiry Service stating they had exhumed a young air-man from a communal grave in Ouren. He had had a photo in his pocket that the Cure or Minister of the village had retrieved before burial. The letter asked if the photo was of Whelan. I still have this photo and letter. It was and some time later he was re-interred in the Reichwald Forest British Cemetery, plot 1 row D grave No 14, Germany.

The family had to sell the farm during the war, my Grandfathers health failed him and he was hospitalized, never to recover. My Grandmother shifted to Westmere with her daughters. Andre joined the air force from Westmere. Shortly after the war my parents, Wanda and Charlie, moved back to Te Atatu, my Mother lived there the rest of her life, passing away last year. My Grandmother followed us back to Te Atatu and passed away in 1998 aged 96.

Why name a reserve after an unknown person who is just a name you could well ask. To find out more about Whelan, the young man, I read all his letters home, and there were many, all his records on his service and the many letters from the Air Department after he went missing. I talked to three

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local people and heard from one other who still live in the area and knew Whelan as a young schoolboy and youth. I really got to like and admire him. What made a bright young man of twenty go to his certain death, on the other side of the world that night. And believe me being an airman in 1944 your chances of survival were next to none. From his letters home he believed he was making a difference, fighting for his country. To keep it safe for future generations, us.

Whelan was one of quite a few men who left Te Atatu to fight overseas in the Navy, Air force or the Army. He was the only one who did not return. He didn't get a chance to have his life remembered on a headstone in New Zealand.

I would like Whelan's life to be remembered not on a headstone in a foreign country on the other side of the world but on a piece of land with connections to WW2 near his home farm.

In closing I would like to say I believe war is a sad and terrible thing. But the men and women who went away to fight for what they believed in and to defend our country New Zealand whether it be WW1, WW2, Korea, Vietnam or any other conflict were good people. They helped shape our country. The ones who returned injured physically or mentally deserve our appreciation. The ones who paid the ultimate sacrifice need to be remembered, even after 60 years.

**TE ATATU
ANTI-AIRCRAFT BATTERY
WAITAKERE CITY**



**A
CONSERVATION PLAN**

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**TE ATATU
ANTI-AIRCRAFT BATTERY
WAITAKERE CITY**



SALMOND REED
ARCHITECTS

DRAFT

MARCH 2003
Job no. 2071

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INTRODUCTION

EXECUTIVE SUMMARY

The Te Atatu Anti Aircraft Battery was constructed in 1943 to a New Zealand Public Works Department design modification of a British War Office standard gun emplacement. The battery is one of a group of similar structures deployed throughout the Auckland Isthmus. The battery was constructed to protect the western airfields, in particular the Hobsonville Airbase, from aerial attack. It was active for only a year but is now the only one of its type remaining.

Because of its association with the WWII defence of Auckland's the Te Atatu Anti Air Craft Battery is identified in the schedule of historic buildings appended (Part 3) to the Proposed Waitakere City District Plan (CH1113) as Category 1.

PURPOSE OF THIS REPORT

This document is a Conservation Plan, and is a statement about the significance of the Te Atatu Anti Air Craft Battery as an historic place, and is intended to assist with the conservation, condition and maintenance of the building as well as its reuse. The complex is remarkably intact, with some original elements remaining in place.

This plan outlines a range of policies for the conservation of the complex and for the management of change to improve its suitability as a historic site and building code matters where these arise. The plan identifies appropriate procedures for this purpose and encourages the preservation of existing original parts of the complex which have special significance due to their association with those who built and used it.

The battery is fundamentally sound and has been poorly maintained but it in reasonable condition, apart from some changes over time which have, in some respects, diminished elements of its intrinsic character. It is also clear that the complex is now regarded as a historic site and some practical respects are required to maintain and manage the structures to an appropriate standard.

Waitakere City Council has commissioned this report of the battery complex, to assist with its management and conservation as part of a historic site within the newly established coastal park, *Harbourside Peoples Park*, in such a way that there will be minimum loss of its cultural heritage values. It is a presumption of this process that serious consideration will be given to the preservation of the complex and its immediate site as a historic site.

BRIEF

Salmond Reed Architects was commissioned to prepare a conservation plan in October 2001. The brief requires a conservation plan to be professionally prepared to meet a standard acceptable to statutory authorities and to provide guidance on its refurbishment so that it can function as an integral part of any proposed redevelopment.

METHODOLOGY

This document is modelled on the method developed in Sydney by Dr J.S. Kerr for the preparation of conservation plans. In particular, the method of establishing cultural heritage significance and the articulation of conservation policy, have been influenced by Dr Kerr's most recent work.¹ Guidelines prepared for such work by the New Zealand Historic Places Trust have also been consulted. The plan adopts a discursive approach to the development of policy, which is intended to identify specific actions required to address conservation requirements. The conservation plan sets out to examine conservation issues which will affect the future of the building.

The study approaches this through an examination of the building's past and an assessment of cultural heritage values. The investigation has been limited to primary spaces and service areas within the building itself and does not include spaces not able to be inspected during the site visit. Statutory and District Plan requirements are reviewed, along with obligations under the Building Act and other code compliance issues. In the light of these inquiries, a set of policies is advanced for the conservation of Australis House in a commercial environment, dealing with physical change to the building and its future management as a heritage property.

IDENTITY OF CONTRIBUTORS

This study is the work of Salmond Reed Architects, practising as conservation architects in Devonport, Auckland, New Zealand. Historical research for the project has been carried out by Peter Corbett and additional site research by Kate Hill which has been incorporated in the present historical narrative. The assessments of significance and the architectural analysis of the complex was been undertaken by Bruce Petry.

ACKNOWLEDGEMENTS

Assistance has been provided by others in the preparation of this report. We are grateful for permission to reproduce photographs from the collection of Whites Aviation. The practice also acknowledges the assistance of the National Archives and The NZ Historic Places Trust and Waitakere City Council (WCC).

Particular thanks is due to Peter Corbett who undertook historical research and prepared the historical narrative on which this document.

¹ Kerr J. Preparation of Conservation Plans, 1996.

HISTORICAL ACCOUNT

AUCKLAND'S ANTI AIRCRAFT DEFENCES 1939-45

The development of Auckland's anti aircraft defences shares many similarities with the development of its anti ship coast defence batteries. Defences which developed from a sudden although not entirely unexpected threat which expanded on a large scale, like the coast batteries they were not fully implemented because the threat they were built to face rapidly faded and as manpower was at a premium the gunners to man the guns were reallocated elsewhere. Twelve Heavy Anti Aircraft batteries were eventually built in Auckland others were planned but not constructed; usually they comprised four concrete gun emplacements forming an arc with a concrete command post to its centre. Although primarily intended for defence of the naval dockyard, bulk fuel installation, civilian port and airfields, against air attack, a number of these batteries that could bear on the harbour and its approaches had a secondary anti-ship capability.

The first anti aircraft guns arrived in Auckland in February 1936 and were based at the Northern Military District School of Artillery at Narrowneck, part of the army base at Fort Takapuna. The Royal New Zealand Artillery Cadre based there trained on the guns, predictor, height and range finding equipment, sound detection equipment and searchlights that came with them. They were fired in a public display in January 1938 and took part in the King's Birthday Military Review in the Auckland Domain later in the year, and also in the next years one where they were inspected by His Excellency the Governor General, the Right Honourable Viscount Galway.¹ Positions for the guns and searchlights were prepared on Mt Victoria in Devonport where concrete pads had been poured for them. They were manned there when the Second World War broke out on 3 September 1939. The outbreak of the war saw no direct threat to Auckland. Air attack was seen as quite unlikely; perhaps a single

aircraft launched from a raider like the one carried by SMS *Wolf*, which operated off the New Zealand coast in late 1917.² After an immediate flurry of activity after the outbreak of war, the guns were then used for training gunners preparing to embark for overseas service with the 2nd New Zealand Expeditionary Force while still remaining on Mt Victoria. The threat of air attack on Auckland that seemed a distant threat on the outbreak of the war suddenly became a distinct possibility in June November 1940 when it became apparent that German raiders were operating around New Zealand in the Tasman and South Pacific. Especially when a mine sank RMS *Niagara* on 9th June 1940 only a few hours after leaving Auckland and RMS *Rangitane* on 27th November 1940 by gunfire and torpedo attack less than two days after leaving the same port.³ As an interim measure three 3-inch guns held in store to defensively arm merchant ships at the Navy's Armament Depot at Kauri Point were hurriedly emplaced there to supplement the guns already mounted on Mt Victoria. Machine guns were also mounted on the roofs of two buildings in the Auckland dock area the Auckland Farmer's Freezing Company Building and the King's Wharf Power Station. These few guns were obviously inadequate, against the foray of a single spotting aircraft, such as one from a single raider, let alone any concerted form of attack. A major program would have to be undertaken to upgrade the anti-aircraft defences of the port and environs.

The Military Advisor to the New Zealand Government General Sir Guy Williams, in his preliminary investigations for his report: *Appreciation of the Defence Requirements of New Zealand in the Event of War With Japan* in mid 1941, recommended that the anti aircraft defences of Auckland be increased to eight heavy anti aircraft guns (either 3-inch or the newer 3.7-inch then entering service, lighter guns and 24 searchlights).⁴ Accordingly the first of a number of requests are made to the War Office in London, via the New Zealand Military Liaison Officer

attached to the New Zealand High Commission in London.⁵ It should be noted that the allocation of these (and other) requests would be based on the priority accorded to them by the War Office, not the New Zealand Government or Army. The order for delivery of Auckland's guns, and of those areas of the country seen as needing anti aircraft defence by Williams was acknowledged, but no delivery schedule was forthcoming. With the removal of the five 3-inch guns Auckland's anti aircraft defences went from bad to worse. First to go were the three mounted at Kauri Point which were transferred to the naval dockyard at Devonport and mounted as defensive armament upon merchant ships. When 'B' Force of the New Zealand Army went to reinforce the garrison on Fiji, the two remaining guns at Mt Victoria went with the reinforcements (as well as the two forming Wellington's anti aircraft defences). In official correspondence the General Officer Commanding the New Zealand Army; Lieutenant General Sir Edward Puttick KCB wryly commented no doubt voicing his concern over the lack of any anti aircraft guns in the country or any en rout 'equipment in New Zealand . . . nil 3.7-inch.'⁶ With the political situation in the Far East deepening following the United States oil embargo imposed on the Japanese Empire the number of guns requested by the New Zealand Army dramatically increased, as did the urgency of

these requests with the outbreak of war in December 1941.

Number of 3.7-inch guns requested by New Zealand 1941-42:

Year	No of Guns Requested
1941	16
1942	138
1942	200
1942	216

Finally the guns began to arrive in dribs and drabs and by late in 1942 92 heavy anti aircraft guns had arrived in the country, now came the problem of allocating them between the four main defended ports: Auckland, Wellington, Lyttelton, Port Chalmers; and other areas in the country deemed to require heavy anti aircraft defence: the Arapuni Hydro Scheme, Dunedin City, Nelson.⁷ By this time the selection of the sites for Auckland's batteries had to be made.

When in August 1941 advice was finally received from the War Office that the first shipment of 3.7-inch guns was en rout to New Zealand detailed reconnaissances were made to decide on the best positions for the guns. The areas deemed of military and strategic importance were the naval dockyard at Devonport, the fuel tank installation on the Western Reclamation, the two airbases at

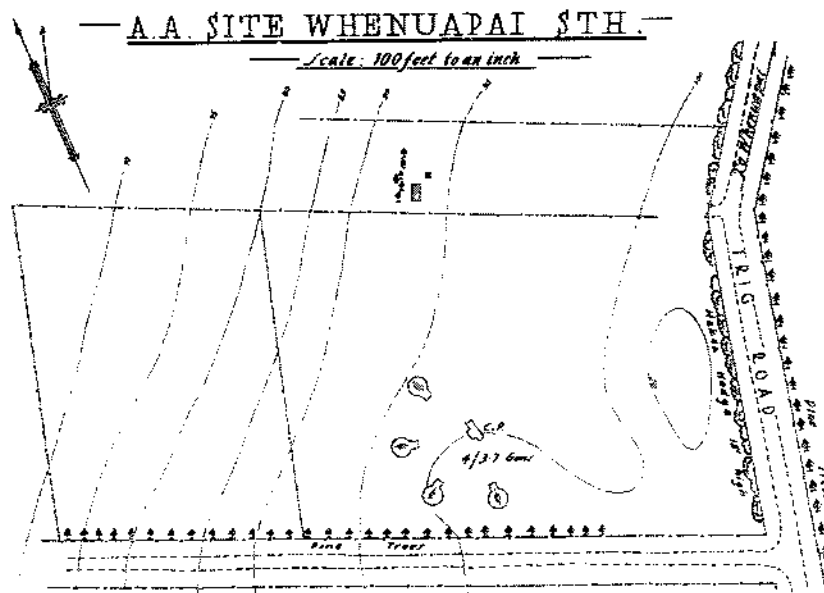


Figure 1 Site Plan of Whenuapai Battery c1942, National Archives

Hobsonville and Whenuapai.(Fig.1) The civilian port on the other side of the harbour despite its strategic importance as the Dominion's main port was considered secondary to the others.

Battery organisation was standardised as four guns, and associated fire control equipment. (Fig.1) The siting of the gun batteries was based around the calculation of a 'vulnerable area' in other words the area to be protected; the intention was to surround it with gun batteries to prevent enemy aircraft over flying it and carrying out bombing attacks. The depth of the area was based an enemy aircraft approaching Auckland from the East in a Westerly direction with a speed of 150 miles per hour in the final 30 seconds of approach to the vulnerable area. The 30-second period was the minimum calculated that an aircraft needed to make a bombing run, where it would aim and release its bombs on the target. (Fig.2)

Based on this calculation and an assumption that 24 guns were allocated and en rout for Auckland the locations for six four gun batteries were chosen to be built in the order of:

- Belmont [Takapuna]
- Orakei
- Mt Eden [Northern aspect of the summit]
- Te Atatu or Point Chevalier
- Northcote

However, in January 1942 advice was received that the number of guns en rout was far less than anticipated with only eight guns actually coming to Auckland. The above objective was quickly changed to one four gun battery, one two gun, and two one gun:

- Orakei 4
 - Mt Eden 2
 - Belmont 1
 - Northcote 1
- This was soon changed to:
- Belmont 4
 - Mt Eden 2
 - Auckland Domain 2

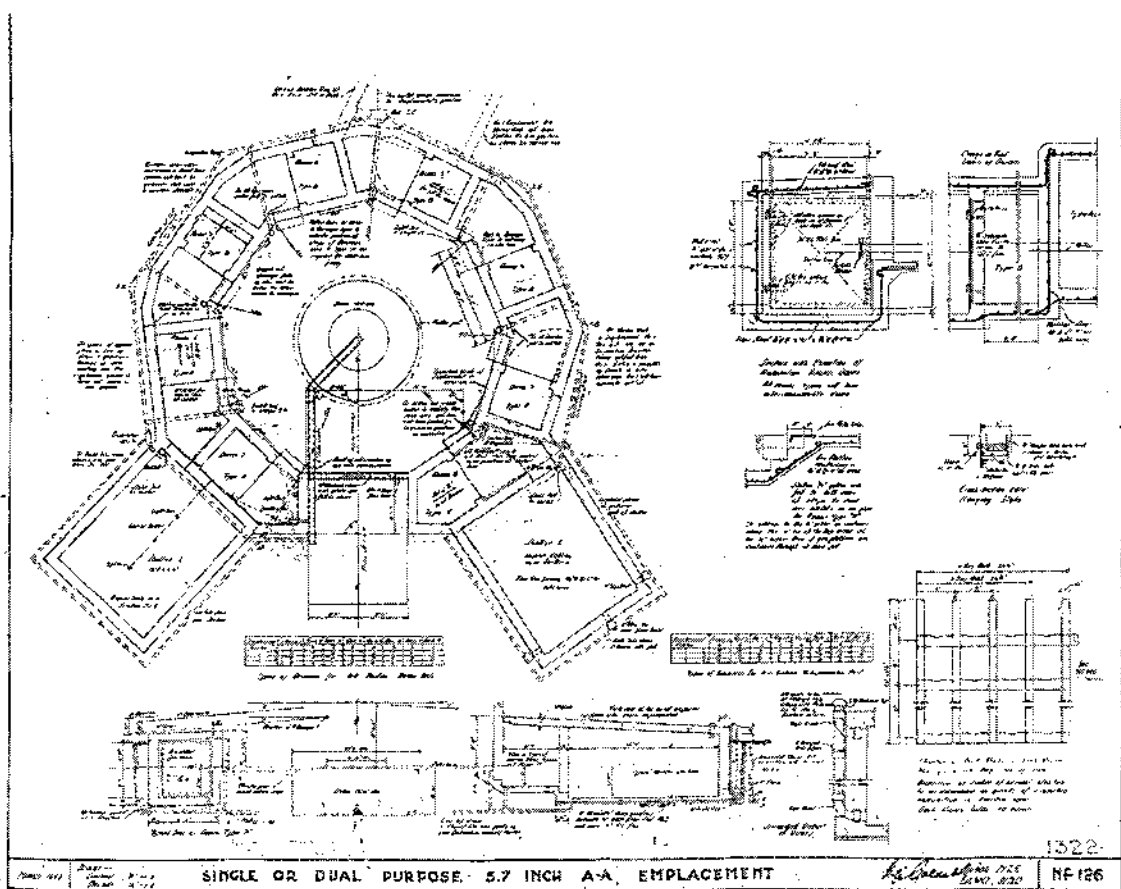


Figure 2 Type A & B Enplacements, March 1942, National Archives

No construction work could begin on the batteries until the guns arrived, the New Zealand Army were told to re calculate the vulnerable area based on observations of recent Japanese air attacks in the Far East - especially Hong Kong and Singapore; the approach was now changed from North to West with a speed of 200 miles per hour in the final 30 seconds of approach to the vulnerable area.

This caused a major rethink in the battery locations and by April 1942 with the delivery schedules becoming more definite the army planners finally settled on the locations for twelve four gun batteries, along with associated fire control equipment and accommodation and facilities for personnel and these were emplaced and completed by mid 1942 to early 1943 - as follows:⁸

- Alexandra Park
- Auckland Domain
- Bayswater
- Belmont
- Chamberlain Park
- Hobsonville Aerodrome
- Northcote
- Orakei
- Ponsonby
- Te Atatu
- Stanley Bay
- Whenuapai Aerodrome

Of these batteries, the two at Belmont and Orakei had the gun emplacements altered to allow the guns to bear upon areas of the harbour and its approaches so they could act in a secondary anti-ship role. Orakei battery was also the overall fire command post for the anti-aircraft defences of Auckland. The need for these defences was reinforced when in March and May 1942 the Hauraki Gulf and Auckland Harbour were over flown by seaplanes operating from Japanese submarines.⁹ Work quickly began and by May 1942 work was underway at Belmont, Hobsonville, Orakei, Ponsonby, Te Atatu and Whenuapai. Progress was by and large swift, but with some difficulties which will be covered in the section Battery Design and Construction (see below). By June 1942 the position was:

Completed with number of guns mounted	Belmont 4 Chamberlain Park 3 Stanley Bay 3
Construction Completed	Orakei
Half Completed	Hobsonville Ponsonby
Work Commenced	Northcote
Work Temporarily Abandoned	Three sites
No Progress	Two sites

By May 1943 the initial construction programme of the twelve batteries was completed and Auckland's anti aircraft defences were at their peak. By then however, the threat of air attack had receded to the point that some of the batteries were reduced to reserve status even before they were completed. At this time only seven batteries were fully manned and capable of action at one minutes notice; the others, while still manned were noted as in reserve and would take an hours warning to come to action.

Active	Reserve
Bayswater	Alexandra Park
Belmont	Auckland Domain
Hobsonville Aerodrome	Chamberlain Park
Northcote	Ponsonby (for Territorial training)
Orakei	Te Atatu
Stanley Bay	
Whenuapai Aerodrome	

An expansion program to further upgrade the 3.7-inch batteries from 48 to 64 guns was proposed, but as part of the program of reductions in fixed defences it was not proceeded with. They were to be in combinations of four and two gun batteries.

Four gun batteries were proposed for:
Paremoremo
St. Heliers

Two gun batteries were proposed for:
Mount Hobson
Mount Victoria
Parnell
Western Reclamation

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Lighter batteries comprising 40mm, 20mm and machine guns were emplaced at:

- Auckland Farmers Freezing Company Building (Quay Street)
- Castor Bay Battery
- Devonport Dockyard
- Eastern Tide Deflector
- Endean's Building (Quay Street)
- King's Wharf Power Station
- Hobsonville Aerodrome
- Kauri Point Naval Armament Depot
- Melrose
- North Head
- Prince's Wharf
- Takapuna Battery
- Western Reclamation
- Whangaparaoa Battery
- Whenuapai Aerodrome

Searchlight batteries were located at:

- Belmont
- Mount Eden
- Mount Victoria

- Orakei
- Parnell
- Stanley Point

By the end of 1943 most batteries were placed into 'care and maintenance'¹⁰ and the crews reallocated to other duties, with only two of the remaining batteries still fully operational, they soon would be taken out of service. The guns and equipment however, were held at the District School

of Artillery at Narrow Neck and Papakura Military Camp, and could be redeployed in an emergency.

BATTERY DESIGN AND CONSTRUCTION

The first designs for the gun emplacements were direct copies of plans sent out to New Zealand by The War Office, and were built in New Zealand in two variants that only differed in small details these were known as Type A and B emplacements.¹¹ (Fig.3) The gun emplacement was an eight-sided reinforced concrete structure recessed into the ground, with the gun bolted into its centre. Around the sides of the emplacements were recesses for ammunition and a telephone cupboard. On the Type A and B emplacements, two rectangular crew shelters were incorporated into their sides. These were intended as rest quarters for the crews on duty, but were soon abandoned, as they were unpopular with the crews, the Public Works Official History describing them as 'unsatisfactory'.¹² The emplacements were placed in an arc with the command post, also of reinforced concrete in the centre. Soon

after construction of Type A and B emplacements were underway the Public Works Department was instructed to revise the War Office Design and implement five main changes;¹³ remove the crew quarters, reposition the shell recesses which it was thought may be vulnerable to enemy fire, improve the drainage which was found to be insufficient in the Type A and B,

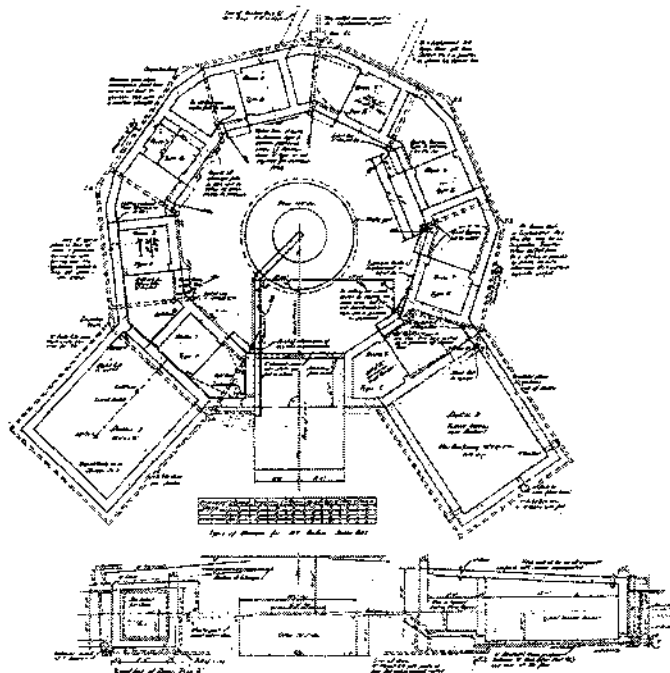


Figure 3 Type A & B Enplacements, March 1942. National Archives

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simplify the design to speed up construction time and reduce materials used, thus reducing cost. The fifth and most obvious change was the replacement of one of the sides by a sloping ramp. The gun on its four-wheel travelling mount would be wheeled down the ramp and positioned in the centre of the emplacement. The wheels were then removed and the gun elevated to its firing position. The majority of Auckland's 3.7-inch batteries were completed to this design. This enabled the guns to be mounted or removed within hours, instead of the day it took to remove the static mounting bolted into the centre of the emplacement. This local design was designated the Type C (Fig.4) or Mobile Emplacement, and it was considered much better than the Types A and B. The design reduced construction costs well in excess of 25 per cent of those for the two other types; the repositioning of the shell recesses actually increased the stowage of shells at each emplacement from 296 to 378 rounds. The command post contained a telephone room, plotting room, command post, crew shelters, accumulator room (battery room to power the equipment and provide lighting) and open platforms for the predictor and rangefinder. Construction of the first two batteries at Belmont and Orakei was begun by the Army but later taken over by local contractors, supervised by the Public Works Department. At Alexandra Park,

Auckland Domain, Ponsonby and Te Atatu, the Army construction work continued, but they were not sufficiently experienced in heavy civil engineering work and soon experienced difficulties. Eventually they requested that the Public Works Department take over supervision of the jobs. It was found that the excavations for all of the emplacements had by now been largely completed, but in the wrong positions. These had to be refilled and construction began anew. The Public Works Department Official History, amusingly observes that: 'the excavated material had been carefully removed and inconspicuously disposed of - in most cases some distance away, additional excavation became necessary - also a goodly distance away, to enable the holes to be filled in'.¹⁴ All the other batteries were built entirely by private contractors supervised by the Public Works Department.¹⁵ At Bayswater, Belmont, Chamberlain Park, Hobsonville,

Northcote and Orakei extensive excavation and levelling work were done to provide areas for both the battery camp and radar installations. Stanley Bay was even more austere with the guns mounted on concrete slabs surrounded by sandbags. Work on constructing Auckland's anti-aircraft batteries began with great haste in April 1942, and was largely completed by May 1943, the official history noted the total cost at £ 270,365.¹⁶

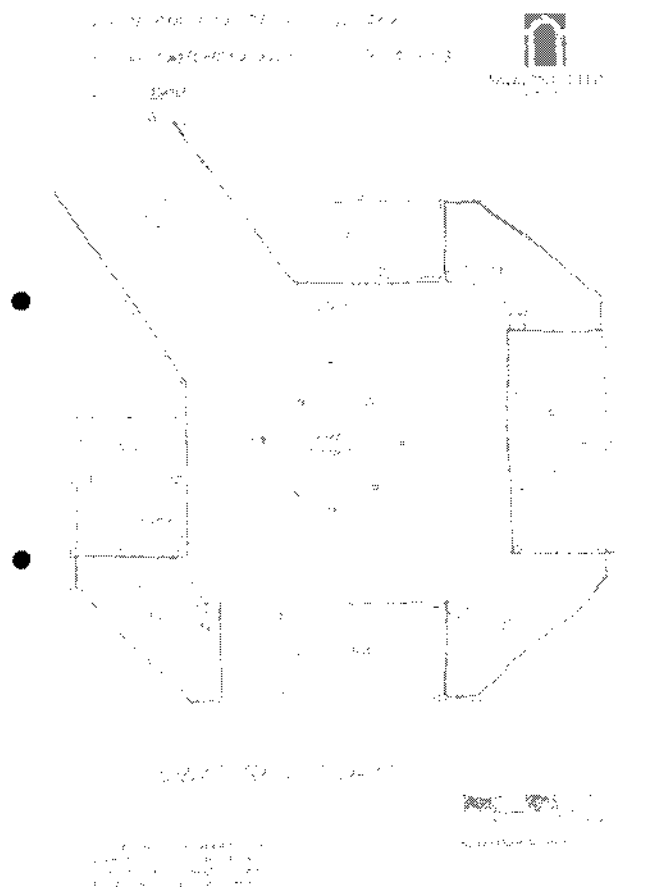


Figure 4 General plan and layout of the Te Atatu mobile gun emplacement, *Salmond Reed*

Over the years the anti-aircraft

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