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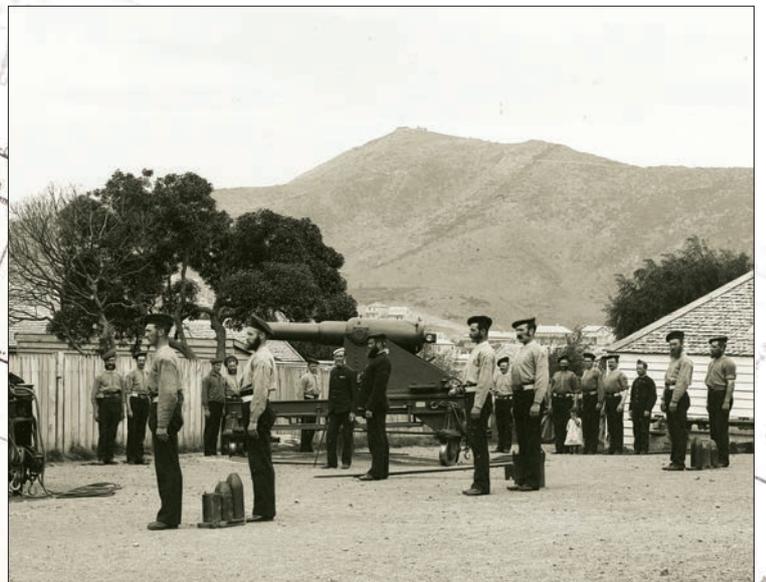
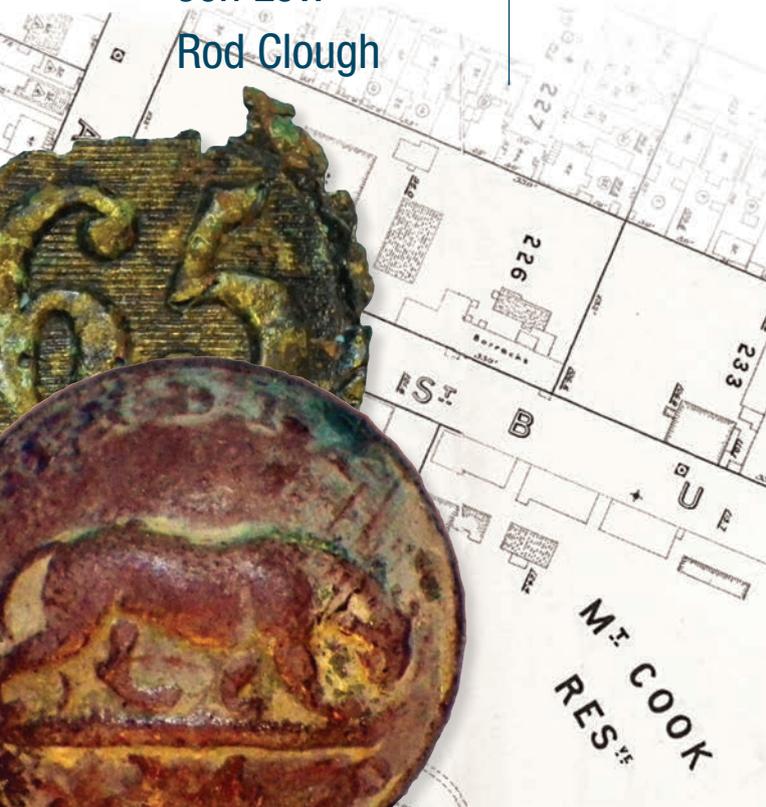
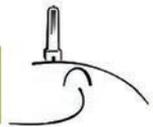
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## ARCHAEOLOGICAL INVESTIGATIONS OF THE PUKEAHU NATIONAL WAR MEMORIAL PARK, BUCKLE STREET, WELLINGTON

### Volume 1: Excavation of Town Acres 226 and 233 – Lower Mount Cook Barracks

By Richard Shakles  
with Sarah Phear  
Zarah Burnett  
Jen Low  
Rod Clough

Report prepared for  
the Memorial Park Alliance  
and Manatū Taonga  
Ministry for Culture and Heritage



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Under HNZPT Authority Nos. 2013/92 & 2016/360

## Volume 1: Excavation of Town Acres 226 and 233 (R27/464 & R27/550) – Lower Mount Cook Barracks

Prepared for the Memorial Park Alliance and Manatū Taonga  
Ministry for Culture and Heritage

February 2017



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## EXECUTIVE SUMMARY

The Memorial Park Alliance (MPA) has created the Pukeahu National War Memorial Park, on the northern flank of Mount Cook above Wellington and its harbour. Development of the park was a key component of the Ministry for Culture and Heritage's commemoration of the centenary of the First World War, and in conjunction with the New Zealand Transport Agency (NZTA), the Memorial Park Alliance (MPA) was formed to undertake the works. The completed park was in place for Anzac Day 2015, the 100th anniversary of the Gallipoli Landings.

In order to create a single unified park, it was necessary to underground Buckle Street (State Highway 1), which bisected the site, utilising the 'cut and cover' tunnel method. To achieve this, and the formation of the wider memorial park, the construction of a temporary State Highway 1 diversion road, the relocation of the Home of Compassion Crèche, and the removal and re-routing of a number of utilities and communication services were also required.

To enable the \$120-million-dollar project's completion by April 2015, the National War Memorial (Pukeahu) Empowering Bill was passed by Parliament on 3 October 2012. The Bill guaranteed the granting of the necessary statutory authorisations within a time frame that would enable the Park to be completed in advance of Anzac Day April 2015. The archaeological authorities necessary for the works are covered under schedule 4 and 5 of the Act. The New Zealand Historic Places Trust (NZHPT, now Heritage New Zealand Pouhere Taonga) granted an archaeological authority for the works on Buckle Street to proceed without delay.

The archaeological investigation of the Pukeahu National War Memorial Park works was the largest urban archaeological investigation ever undertaken within New Zealand, incorporating excavations and monitoring across seven of Wellington's Town Acre sections, as well as elements of Mount Cook Reserve, and encompassed a total area of more than 20,000m<sup>2</sup>. The principal archaeological excavations were focused on the State Highway 1 Diversion Road, the Arras Underpass and the sites of St Joseph's Roman Catholic Church and the Home of Compassion Crèche. The remainder of the works consisted of smaller scale excavations and monitoring of associated works.

During the works a significant number of archaeological features and deposits were exposed across the footprint of the park, with particularly dense concentrations present in Town Acres 226, 256 and 263. In the western half of the site within Town Acre 226, a substantial number of archaeological features were exposed which related to the military occupation of the Lower Mount Cook Barracks from the 1840s to the early 20th century. The remains of 12 structures dating from the late 1840s through to the first decade of the 20th century were represented by sections of brick and masonry walling, a large volume of postholes, and several beam-slots. These structural remains related to three phases ranging from the initial Imperial military occupation of the site (1843-1867), through the Armed Constabulary period (1867-1886), to the NZ Permanent Militia/Artillery and later Permanent Force period (1886-1914). Structural remains relating to the Imperial military included timber-built barracks buildings, a stone masonry-built powder store, ancillary storage structures/workshops, and a brick-lined well; while brick walls and a quantity of postholes related to the 1867/8 Stables and 1879 Drill Hall of the Armed Constabulary. The remaining building remains consisted of elements of the brick 1907 Garrison Hall including its basement rifle range, and the 1909 Gunnery Annexe. Other features found consisted of brick-lined drains, other drainage features and several rubbish pits. The

artefacts retrieved during the excavation of the military precinct reflected the recorded history of the site, with all the known military phases well represented within the assemblage.

A clear sequence of demolition, levelling and made ground deposits which related to the three military phases were present across much of the site, which enabled a secure understanding of the stratigraphic phasing. Subsequently, during the post-excavation analysis stage a clear concordant relationship between the stratigraphy and the detailed historic research and artefactual material emerged which ultimately led to structures and features being dateable to sub-decade periods, and in certain cases, to within less than two years. It also allowed in some instances the cause of demolition and subsequent rebuilding phases to be defined, with two structures displaying clear signs of having been impacted by either (or by both) of the large earthquakes that struck Wellington in 1848 and 1855. This extraordinarily secure and nuanced understanding, while by no means unique to an historic archaeological site, is certainly unusual, and likely to be an aspect of the highly structured military nature of the site.

Unequivocal evidence relating to pre-European Maori activities on Pukeahu was not found, with none of the surviving archaeological features being attributable to Maori occupation of any period. However, while the site was certainly dominated by remains relating to the military, small residual assemblages of worked historic bottle glass and re-deposited shell midden found in some of the earliest military features in Town Acre 226 provide glimpses of the pre-European occupation of Pukeahu by Maori. The small shell midden assemblage likely derived from middens situated on terraces or the original Mount Cook summit, and was either redeposited naturally via erosion, or during the 1848 lowering of the hill by military engineers. As none of the shell was recovered from primary depositional contexts, it is not possible to either date the shell or determine whether it originated from the pre-European settlement or post-Contact periods.

The worked bottle glass consisted of both flaked and expedient tools, as well as reduced bottle base cores, and is significant in that it provides evidence of the influence of newly introduced materials on a traditional lithic technology. The small assemblage is likely to reflect Maori activity on Pukeahu during the late post-European contact period in Wellington (1820s to 1840), a time of profound social and political change amongst Maori in response to increased interaction with European settlers and land agents of the New Zealand Company.

In Town Acre 233 the investigations demonstrated that most of the area had been severely vertically truncated during the 20th century, with the outcome that the majority of archaeological horizons had been completely removed. However, some isolated and modest remains related to both the Imperial and Armed Constabulary periods as well as to the 1877 Mount Cook Infant School.

In the east of Town Acre 256 the investigations identified structural remains relating to St Joseph's Roman Catholic Church along with the remains of three buildings located to the north and east of the church that had been built and subsequently demolished prior to the production of the 1891 Ward Plan. At the eastern end of the site on land to the rear of the Home of Compassion Crèche, evidence of large-scale mid-19th century earthworking was exposed. These works consisted of the infilling of a gully with the redeposition of large volumes of natural Holocene sands and gravels almost certainly derived from the 1848 lowering of Mount Cook by military engineers. This material had also been used to recontour the slopes and create a terrace to enable the construction of at least three phases

of 19th century buildings. The investigation also demonstrated that the western half of Town Acre 256, had been almost entirely truncated by several 20th century developments.

The archaeological excavation of the Crèche area within Town Acre 263 identified a significant number of structural and depositional features relating to at least three phases of 19th century domestic activity. The excavation to the rear of the crèche also established the original topography of the area, including the presence of a gully that incised the eastern flank of Mount Cook and illustrated 19th century modifications/re-contouring of the natural topography in the form of deposition of material likely to have derived from the 1848 lowering of Mt Cook. In the north-western extent of Town Acre 263 at least three 19th century structures were identified of either brick or timber construction. The remains of the largest of these structures represented a large timber building erected sometime between 1892 and 1900.

The archaeological investigations and monitoring of the Memorial Park works were undertaken over several stages from 3 October 2012 to 11 November 2014, in accordance with Heritage New Zealand Pouhere Taonga Authority number 2013/92. Additional works monitored at 175 Taranaki Street and 51-71 Martin Square took place between 1 December 2015 and 2 March 2016 under Authority number 2016/360.



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# 1 INTRODUCTION

## 1.1 Project Background

The Pukeahu National War Memorial Park is located on either side of Buckle Street on the northern flank of Mount Cook, above Central Wellington and its harbour (Figure 1.1). Plans for a National War Memorial in the central suburb of Mount Cook were first set out in 1919 when the Government voted £100,000 for the creation of a National War Memorial. In 1931 the Alexandra Barracks were demolished to make way for the National Art Gallery and Dominion Museum building, and the National War Memorial Carillon. The carillon was dedicated in front of a crowd of 50,000 on Anzac Day, 25 April 1932. At the time of its dedication, the National War Memorial was highly visible from most of the capital, and it was proposed that a boulevard would be created to link the memorial to Courtenay Place. This never eventuated and, while the Carillon itself remained highly visible, the memorial became isolated in a semi-industrial zone as the city developed around it.

In 2005 the Crown acquired land on behalf of the Ministry for Culture and Heritage on Buckle Street, to create a national war memorial park across the road from the National War Memorial (Figure 1.2). This park was to join the adjacent National War Memorial and the Tomb of the Unknown Warrior to create a unified National Memorial precinct to serve as a major focal point for New Zealanders to commemorate sacrifice during time of war. On 7 August 2012, the government announced it was proceeding with the creation of the Pukeahu National War Memorial Park, including the undergrounding of Buckle Street to remove the traffic that would separate the park from the National War Memorial. Development of the park was a key component of the Ministry for Culture and Heritage's commemoration of the centenary of the First World War and, in conjunction with the New Zealand Transport Agency (NZTA), the Memorial Park Alliance (MPA) was formed to undertake the works. The Alliance contractors consisted of Downer NZ and HEB Construction, along with engineering consultants Tonkin and Taylor and URS, and the completed park was in place for Anzac Day 2015, the 100th anniversary of the Gallipoli Landings.

To create the unified memorial park precinct, the 'cut and cover' tunnel method was utilised to underground Buckle Street (State Highway 1) (Figure 1.3 – Figure 1.5). To facilitate traffic management during the tunnel construction, a temporary diversion road located to the north of the original Buckle Street alignment was constructed for SH1 city-bound traffic (Figure 1.6). Other works undertaken included the moving of the Home of Compassion Crèche, and the removal and re-routing of several utilities and communication services.

NZTA commissioned OPUS International Consultants (OIC) to undertake an assessment of archaeological effects for the proposed roading works in the Buckle Street area (Hudson 2012). The assessment noted that within the proposed project area between Taranaki Street and Cambridge Terrace, there was a high potential for archaeological sites to be exposed and/or impacted upon by works associated with the diversion and undergrounding of Buckle Street (Hudson 2012). The assessment identified that the area of Mt Cook to be affected by the works contained sites associated with Imperial, Colonial and later New Zealand Armed Forces, as well as with educational, ecclesiastical and residential activities dating from the mid-1800s (Hudson 2012).

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To enable the \$120-million-dollar project's completion by April 2015, the National War Memorial (Pukeahu) Empowering Bill was passed by Parliament on 3 October 2012. The Bill guaranteed the granting of the necessary statutory authorisations within a time frame that would enable the Park to be completed in advance of Anzac Day April 2015. The archaeological authorities necessary for the works are covered under schedule 4 and 5 of the Act. The New Zealand Historic Places Trust (NZHPT, now Heritage New Zealand Pouhere Taonga) granted an archaeological authority for the works on Buckle Street to proceed without delay.

As the works were considered likely to result in the destruction of all surviving archaeological material within the project area, a stipulation of the Authority was that a thorough archaeological investigation must be undertaken in accordance with a Research Strategy and Archaeological Management Plan submitted with the authority application (Barr 2012; Phear & Clough 2012).

The archaeological investigation of the Pukeahu National War Memorial Park works involved excavations across seven Town Acre sections as well as elements of Mount Cook Reserve, and was the largest urban archaeological investigation ever undertaken within New Zealand, covering a total area of over 20,000m<sup>2</sup>. The principal archaeological excavations were focused on the State Highway 1 Diversion Road, the Arras Underpass and the sites of St Joseph's Roman Catholic Church and the Home of Compassion Crèche. The investigation exposed multiple phases of occupation relating to the military occupation of the Lower Mount Cook Barracks; remains relating to educational and ecclesiastical establishments; and remains relating to cottage industry and residential activities within the Buckle Street area. Additionally, the investigation produced a variety of artefactual and ecofactual materials, and a large amount of archaeological data was generated. Post-excavation analysis, cataloguing, research and reporting by the Clough & Associates team and a number of external specialists was undertaken between 2012 and 2015.

The archaeological investigation and monitoring of the Memorial Park works reported on here, were undertaken in several stages from 3 October 2012 to 11 November 2014 in accordance with HNZPT Authority No. 2013/92. After the commencement of the main phase of works, the decision was taken to extend the western end of the park northward in the Martin Square area (Figure 1.2). This additional area of works required archaeological monitoring of the area from 175 Taranaki Street in the west to 51-71 Martin Square in the east, which was undertaken between 1 December 2015 and 2 March 2016. The works were monitored under a new Authority (No. 2016/360). This final report in three volumes presents the results of the Pukeahu National Memorial Park archaeological investigation.

1. Introduction



Figure 1.1 General location map of Wellington CBD with the Memorial Park works areas outlined

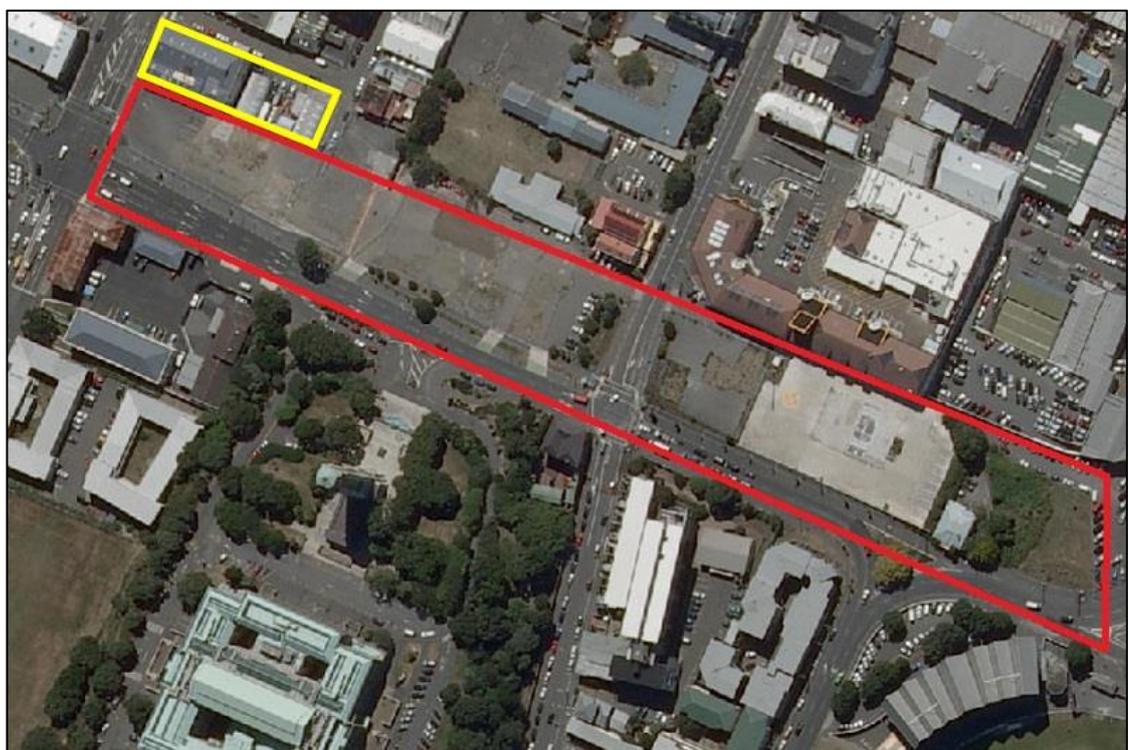


Figure 1.2 General location of main works area (red outline) from Taranaki Street in the west to Cambridge Terrace in the east prior to start of works. The extension area to the north is outlined in yellow

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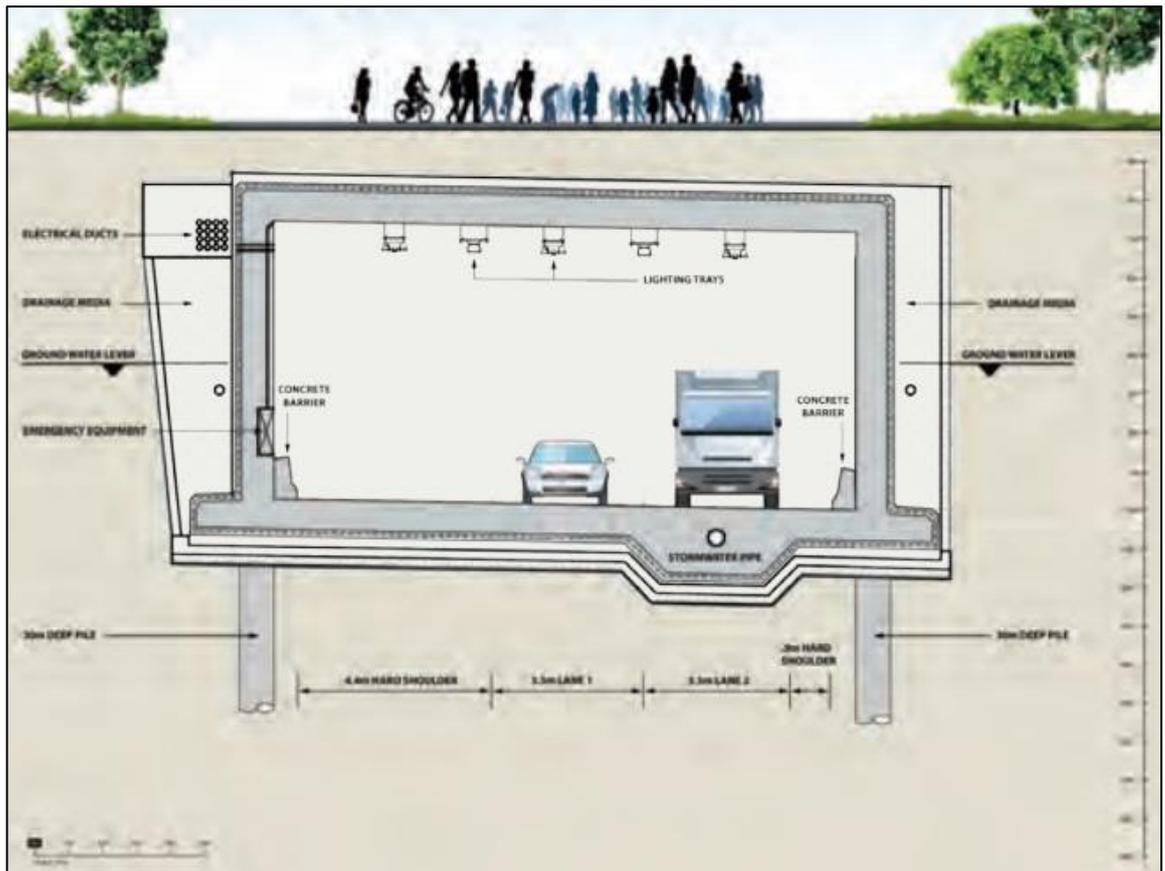


Figure 1.3 The completed cut and cover tunnel design for Buckle Street with the Memorial Park



Figure 1.4 View west across the central and western area of the completed Pukeahu National War Memorial Park



Figure 1.5 East facing view across the eastern end of the completed Memorial Park



Figure 1.6 The diversion road for SH1 (arrowed) with the red outline defining the tunnel excavation area

## 1.2 Excavation Methodology

The excavations were undertaken over several stages from 3 October 2012 to 27 May 2014, and followed the construction programme, with the temporary State Highway 1 Diversion Road being constructed first. The route of the diversion road was divided into four areas, with Areas 1 and 2 based on the 1840 Town Acre 226 and 233 boundaries respectively; while Area 3 occupied the western half of Town Acre 256; and Area 4 encompassed the eastern half of the same Town Acre as well as the western part of Town Acre 263 (Figure 1.7). The other major work areas were the Arras Tunnel cut and its approaches, and the

area occupied by and surrounding the Home of Compassion Crèche (Figure 1.7). Locations outside the main park area that were subject to archaeological monitoring rather than open area excavation are discussed in detail in Volume 3.

Preceding the main archaeological investigations, several exploratory trenches were excavated utilising mechanical excavators to assess the stratigraphy and ascertain the nature of subsurface archaeological deposits and features present on the Memorial Park site. This was followed by the stripping of overburden by mechanical excavator until archaeological deposits and features were exposed. For the most part surviving archaeological horizons were present within 1m of the existing ground surface and sometimes considerably less. However, within the western half of Town Acre 226 in the west of the project area, a large amount of mechanical excavation was required to remove extensive fill layers that sealed the archaeology at depths of up to 4.6m. The archaeological features and/or deposits present were assessed, investigated, recorded and sampled in accordance with accepted archaeological practice and within the framework of the research strategy and requirements of the HNZPT authority. Excavation by machine proceeded until either natural, sterile deposits were reached, or the impact level for construction had been exceeded – whichever was relevant for the particular area of investigation. As all archaeological horizons within the works footprint of the Diversion Road, Arras Tunnel and Crèche area would be truncated, comprehensive open-area salvage excavations were undertaken within these areas. Detailed descriptions of the archaeological excavation methodologies for Town Acres 226 and 233 are presented in Sections 4.2 and 5.1.



**Figure 1.7 Aerial view of the Memorial Park Investigation Area divided per works element. NB. The Diversion road was undertaken first, followed by the Arras Tunnel Underpass and lastly the Home of Compassion Crèche. NB. Area 1 = Town Acre 226; Area 2 = Town Acre 233; Areas 3 & 4 = Town Acre 256; and Crèche = Town Acre 263**

### 1.3 Report Methodology and Structure

This report presents the results of the archaeological investigation of the Memorial Park. This detailed report across three volumes complies with condition 17 of the HNZPT Authority No. 2013/92 and Authority No. 2016/360. The excavation results are discussed in relation to occupation phases, the date ranges of which have been derived from stratigraphic interpretation, artefact dating and historic research. The artefacts are not discussed in full, but a representative subset is discussed in relation to the archaeology, in particular those used to date archaeological layers and/or deposits, as well as to highlight the composition of the assemblage recovered.

The three report volumes are structured based on the 1840 Town Acre Section boundaries. Volume 1 contains the background to the project and the results from investigations within Town Acres 226 and 233 (see Table of Contents above). The contents of Volumes 2 and 3 are as follows:

#### **Volume 2: Town Acres 263 and 256 – Home of Compassion Crèche and St Joseph’s R.C. Church**

- 1. Introduction
- 2. Town Acre 263
- 2.1 Historical Background
- 3. Town Acre 263 Archaeological Investigation Results
- 3.1 Excavation of Town Acre 263
- 3.2 Excavation Results
- 4. Town Acre 256
- 4.1 Historical Background
- 5. Town Acre 256 Archaeological Investigation Results
- 5.1 Excavation of Town Acre 256
- 6. Artefact Analysis
- 7. Environmental Analysis
- 8. Discussion
- 9. Conclusions
- Appendices: including Context Records and Harris Matrix

#### **Volume 3: Town Acres 234, 257, 90, Mt Cook Reserve and Town Acre 227 – Mt Cook Boys’ School, Armed Constabulary Barracks, Mount Cook Prison and Upper Mount Cook Barracks**

- 1. Introduction
- 2. Town Acre 234
- 2.1 Historical Background

## 1. Introduction

- 2.2 Archaeological Monitoring Results
- 2.3 Artefact & Environmental Analysis
- 3. Town Acre 257
- 3.1 Historical Background
- 3.2 Archaeological Monitoring Results
- 3.3 Artefact & Environmental Analysis
- 4. Town Acre 90
- 4.1 Historical Background
- 4.2 Archaeological Monitoring Results
- 4.3 Artefact & Environmental Analysis
- 5. Mt Cook Reserve
- 5.1 Historical Background
- 5.2 Archaeological Monitoring Results
- 5.3 Artefact & Environmental Analysis
- 6. Town Acre 227
- 6.1 Historical Background
- 6.2 Archaeological Monitoring Results
- 6.3 Artefact & Environmental Analysis
- 7. Discussion
- 8. Conclusions
- Appendices: including Context Records and Harris Matrix

Note that artefact catalogues will be provided in digital form with copies of the three-volume report on a CD accompanying Volume 3.

### **1.4 Research Strategy**

A research strategy incorporating a range of research questions was originally developed in August 2012 by OPUS International Consultants as part of the Archaeological Research Strategy – Memorial Park Stage One: Temporary Relocation of Buckle Street and Construction of Tunnel (Barr 2012). Following the archaeological project tender process in which Clough & Associates were appointed as the project archaeologists, the research framework developed by OIC was adopted by Clough & Associates.

The research design was formulated following the completion of the Archaeological Assessment of Effects (Hudson 2012), which included both detailed historical research and an assessment of the archaeological potential of the project area. Pre-European Contact archaeology (should any evidence of such sites be exposed), and Historic Period investigations were treated separately within the research framework. The research design

ensured that the archaeological investigation focused on genuine research needs and would either contribute to, or further develop, current knowledge. Specifically, the research design considered that surviving archaeology present across the Memorial Park site would have the potential to contribute to the knowledge of the Historic Period in Wellington. The Thomas Ward Survey Maps of Wellington City produced in 1891 and 1900 were a key component in the production of the research strategy. Thomas Ward, was a licensed surveyor and civil engineer who in 1889 was contracted to produce a detailed map of Wellington central city.

The archaeological investigation of the Memorial Park established that survival of archaeological horizons varied significantly across the site, which resulted in limitations in addressing some of the research questions posed, such as those pertaining to education. However, the results of the archaeological investigation have contributed significantly to knowledge of the early military phase of Town Acre 226, with valuable information also produced relating to residential activity within Town Acre 263. There were no surviving archaeological features or deposits that related to Maori occupation in the areas excavated due to 19th century earth working activities associated with the military, such as various demolition and levelling events that had occurred across the site, as well as later 20th century development. Therefore, the research questions relating to pre-European Contact Maori occupation could not be pursued. However, a small assemblage of culturally modified bottle glass dating to the period of European contact does provide limited evidence of European influence on Historic Period Maori material culture.

### **1.4.1 Research Themes**

Within the framework of the general research objectives for the Historic Period outlined above, four specific research themes were identified relating to the known function of the four town acres as follows:

#### **Military Occupation of Town Acre 226**

- Is there evidence of any structures existing prior to the buildings recorded on the 1891 Ward plan, which can cast light on the use of this site for military purposes?
- What is the relationship between the changing socio-political environment of pre-1900 Wellington and the development of military features on the site?
- How does the material culture contribute to understanding of the daily lives of soldiers living at the site?
- How does the structural and material culture evidence from the site compare to that recovered from other military sites from New Zealand or other contemporary colonies?
- How does this site contribute to an understanding of military technology and concepts of warfare and defence in a colonial outpost?

#### **Educational Institutions in Town Acre 233**

- Children are often overlooked and are somewhat ‘invisible’ in the archaeological record. The concept of what childhood is and should be has changed through different periods of history. Are children visible in the archaeological record of the study area, and if so, how can this information contribute to the social history of childhood in New Zealand?

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- Can any insight into the pre-1900 philosophy of education be made from analysis of the structure of the institution or the material culture recovered from the site?
- Can any parallels or contrasts be drawn between the structures or material culture assemblages from the military and the educational institutions?

### **Ecclesiastical Activity in Town Acre 256**

- What insight, if any, does the archaeology of the clergymen's residences provide as to how this sector of society lived in pre-1900 Wellington?
- How is the ecclesiastical use of this Town Acre reflected in the archaeological record?

### **Nuns and Charity in Town Acre 263**

- Historic archaeology often focusses on building biographies of an individual or groups of individuals – can the archaeology of this site add to the 'biography' of the Reverend Mother Suzanne Aubert or her fellow sisters?
- Does the archaeology of this site contribute to understanding the social history of philanthropy in late 19th and early 20th century Wellington?

### **Residential Properties in Town Acre 263**

- What can we learn about the residential properties that were on the site?
- Is there evidence of economic and social change within the area over time as may be evidenced by structural and artefactual material?

In addition, one aspect of the research questions relating to Maori occupation was relevant:

### **Historic Maori Activity on Pukeahu**

- Does the material culture and faunal record reflect relationships and interactions between Maori and Europeans during the contact period?

## **1.5 Statement of Archaeological Significance**

A statement of archaeological significance was originally produced in 2012 by OPUS as part of the archaeological assessment of effects (Hudson 2012). The statement was produced in regard to criteria identified in Section 23 of the then Historic Places Act 1993, as well as utilising criteria for assessing heritage sites outlined in the Greater Wellington Regional Council Regional Policy Statement. In establishing the archaeological values of the Memorial Park project area, the following criteria were assessed: condition, rarity, contextual value, information and amenity values, and cultural associations.

Overall the archaeological values of the Memorial Park project area were considered to be of high significance. While parts of the project area have been modified with the removal of 19th century buildings and subsequent 20th century development, a large proportion of the area had suffered relatively little ground disturbance. As a result, the potential to

recover information from the site was considered to be high. It was also noted that there are strong cultural and social associations with the area.

The archaeological investigation of the Memorial Park has confirmed the original conclusions that while parts of the project area had indeed been modified, large areas contained intact and significant archaeological deposits. This was principally the case in Town Acre 226 and also in the east and west of Town Acres 256 and 263 respectively. In particular, Town Acre 226 contained several phases of military occupation, including substantial structural remains, relating to Imperial and Colonial Forces, some of which is directly associated with the New Zealand Land Wars of 1845 to 1872. The archaeological discoveries have helped illuminate the occupation of the Lower Mount Cook Barracks during the period of the Wars which are, perhaps, the most significant events in the history of New Zealand.

Within Town Acres 233, 256 and 263, the excavations also uncovered structural remains relating to previously unidentified buildings that pre-dated the 1891 Thomas Ward Plan, as well as recovering a range of artefactual evidence relating to ecclesiastical, educational, philanthropic, residential and cottage industrial activities within the area. The artefacts relate to Catholic Clergy, the urban poor, and the Home of Compassion Crèche and children. The investigations have provided significant information on the mid-late 19th century occupation of the Mount Cook suburb, ranging from the initial European settlement of the area to a period of dynamic urbanisation.

The investigation demonstrated that the majority of archaeological deposits and features once present within Town Acre 233 and the western half of Town Acre 256, had been truncated by 20th century demolition and development. Within the eastern extent of the project area evidence of large-scale earthworking was present in the extensive deposits of Holocene sands and gravels used to re-contour the slopes in the area to create land for urban expansion. The material was almost certainly derived from the 1848 lowering of Mount Cook by the Imperial military.

Overall, the investigation of the Memorial Park has provided a large amount of archaeological data related to the 19th century military occupation and the associated transformation of the Mount Cook landscape into an urban suburb of Wellington. The Memorial Park site has made a significant contribution to knowledge of the 19th century European settlement and expansion of Wellington.

## 1.6 Project Personnel

The archaeological excavations were undertaken over several stages from 3 October 2012 to 27 May 2014 and involved more than six Clough & Associates field archaeologists. Additionally, several services and stormwater trenches were excavated in three Town Acre sections and Mount Cook Reserve. The trenches were situated along the periphery of the principal park works area, and were monitored between 4 January 2013 and 14 November 2014. A number of Clough & Associates staff and external specialists were also involved in the post excavation analysis and reporting stage of the project. The following table provides a full list of personnel involved in the project:

<b>Clough &amp; Associates Excavation Team</b>	<b>Responsibilities</b>
Dr Rod Clough	Director – overall direction of project
Dr Sarah Phear	Co-Director and project manager
Richard Shakles	Lead archaeologist in field & report authorship
Dave Carley	Field archaeologist
Andy Dodd	Field archaeologist
Neil Dudley	Field archaeologist
Glen Farley	Field archaeologist
Victoria Grouden	Field archaeologist
Joss Piper-Jarrett	Field archaeologist
Ben Thorne	Field archaeologist & total station survey
<b>Clough &amp; Associates Post-Excavation Analysis</b>	
Zarah Burnett	Historic research
Jen Low	Artefact analysis – glass, ceramic, tobacco pipes, metal, miscellaneous
Richard Shakles	Historic research, artefact analysis – metal, miscellaneous
Bernie Larsen	Faunal analysis
Sarah Macready	Editor
<b>External Specialists</b>	
Jack Fry	Metal conservation
Jaden Harris	Artefact analysis – ceramic, tobacco pipes
David Rudd	Artefact analysis – militaria
Dr Rod Wallace	Wood identification
Tom MacDiarmid	Illustrations & Harris Matrix reproduction

### 1.6.1 Report Authorship

Several members of the Clough & Associates team as well as external specialists were involved in the production of this report. The introductions, archaeological excavation results, environmental analysis, discussions and conclusion were written by Richard Shakles. The historical background and individual Town Acre histories were written by Zarah Burnett with contributions by Richard Shakles. The artefact analyses were written by Jen Low with contributions from Jaden Harris, David Rudd and Richard Shakles. Other contributions include Bernie Larsen for elements of the faunal analysis, and Sarah Phear contributed to the archaeological background, artefact analyses and conclusions. Lastly, all three volumes were edited and reviewed by Sarah Macready.

## 1.7 Acknowledgments

Special appreciation is extended to all the excavation team who worked very long hours, often in the face of an extremely bitter Wellington southerly, and yet excavated

meticulously and tirelessly to retrieve as much archaeological information as possible from the site. Particularly, much gratitude is due to Dave Carley, Neil Dudley and Joss Piper-Jarrett for seeing the project through from beginning to end. We are also grateful to the Central Regional Office of Heritage New Zealand, and appreciation goes to David Rudd, Kathryn Hurren and Kiri Sharpe for advice and logistical support. The Clough & Associates team would also like to thank all the Memorial Park Alliance staff who helped during the Pukeahu National War Memorial Park archaeological investigations. Special thanks are given to those who went out of their way to provide invaluable assistance to the archaeology team. They are, in alphabetical order:

Ed Breese, Michelle Brock, Tony Chester, Steve Christensen, Scott Hockly, Duncan Kenderdine, Brent Maguire, Brian McConkey, Lynsey Morgan, Ian Pringle, Bruce Symmons, Ian Taylor, Sven Thiele, Ollie Van Rooyen, and lastly, Felise Soane, who frequently went above and beyond, always with a smile, good grace and the requisite patience for working with archaeologists.

## 1.8 Mount Cook Pukeahu Historical Background

### 1.8.1 Maori Settlement

Puke Ahu was a prominent feature in the pre-European landscape of central Wellington. Situated between the ridgelines of Te Ranga o Hiwi (from Orua-kai-kuru (Point Jerningham), across Te Matairangi (Mount Victoria) to Island Bay) to the east, and Tawatawa to the west, the hill was named by Maori in reference either to its use for gardening, as a mound of cultivated soil, or a sacred mound.<sup>1</sup> The flat expanse of land to the north, between Puke Ahu and Te Whanganui-a-Tara (Wellington Harbour), was named Huriwhenua, including what is now Te Aro flat, and immediately to the east was an area of swamp called Hauwai, in the vicinity of the Basin Reserve.<sup>2</sup> Fresh water sources were provided by two streams which ran either side of Puke Ahu – the Waitangi Stream to the east and the Waimapihi Stream (Te Aro Stream) to the west (Figure 1.8).<sup>3</sup>

While large stands of native trees covered much of the land between Te Whanganui-a-Tara and the southern coast, including totara, tawa, northern rata and pukatea, areas such as Te Aro (or Te Aro Flat) were predominantly covered with toi toi, raupo and flax (Figure 1.9).<sup>4</sup> A description of the early Wellington landscape was later provided by Charles Heaphy, New Zealand Company draughtsman, who recalled his first visit with the following:

‘The site of the City of Wellington was, in 1839, covered at the Te Aro end with high fern and tupakihi, save about the upper part of Willis Street and Polhill’s Gully, where there were high pine trees, partly felled for native cultivations. Wellington Terrace was timbered chiefly with high manuka, some of the trees forty feet high. Thorndon Flat, about Mulgrave and Pipitea Streets,

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<sup>1</sup> Massey University Wellington, Puke Ahu. Cultural Impact Report prepared by Raukura Consultants in association with Wellington Tenth Trust & Port Nicholson Block Settlement Trust. n.d., pp.6 & 15; also see: G. Leslie Adkin, *The Great Harbour of Tara: Traditional Maori Place-Names and Sites of Wellington Harbour and Environs*, Wellington, 1959, p.69.

<sup>2</sup> Massey University Wellington, Puke Ahu. Cultural Impact Report prepared by Raukura Consultants in association with Wellington Tenth Trust & Port Nicholson Block Settlement Trust. n.d., pp.16-17.

<sup>3</sup> Ibid., p.12.

<sup>4</sup> Ibid., p.6; Gavin McLean, *Wellington: The First Years of European Settlement, 1840-1850*, Auckland, 2000, p.20.

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was fern-covered, but with high trees towards the Tinakori Road. The native cultivations were along what is now Hawkestone Street, Tinakori Road, and the base of Tinakori hill, the sides and summit of which were densely timbered, the rata, with its crimson flowers, being conspicuous.<sup>5</sup>

The rich natural resources of early Wellington made the area a highly desirable location for settlement. The first tribal group to establish themselves was likely to have been Ngai Tara (later Muaupoko), from the eponymous ancestor Tara (Tara-ika), whose area of occupation was bounded ‘by the Tararua Ranges in the east and the Tasman Sea in the west, and from Rimurapa (Sinclair Head) in the south to the Rangitikei River in the north’.<sup>6</sup>

The iwi constructed the principal pa of Te Akatarewa on the slopes of Mount Alfred, near to the site of the present-day Wellington College, and utilised the Hauwai swamp as a mahinga-kai (food-gathering area) with cultivations around the perimeter.<sup>7</sup> Numerous ngakinga (gardens) were established in the area, including on Puke Ahu, whose cultivations were thought to have been less formal than in some regions where stone walls were a feature.<sup>8</sup>

Later groups also claimed association with the Wellington area and by 1800 Ngai Tara were sharing their traditional lands with ‘Ngati Apa Rangitane, Ngati Kahungunu, Ngati Hamua and Ngati Ira.’<sup>9</sup> Ngati Ira, descendants of Ira-kai-putahi, are thought to have resided in Huriwhenua and around Te Whanganui-a-Tara. They were later displaced by migrating iwi from Taranaki, firstly Ngati Mutunga and Ngati Tama, and then Te Ati Awa and other Taranaki groups, following intertribal musket wars with parties of Ngapuhi and Ngati Whatua from around 1818.<sup>10</sup>

In 1824 Ngati Mutunga constructed Te Aro Pa, which was situated near what is now the intersection of Courtney Place and Manners Street (Figure 1.10).<sup>11</sup> Positioned on flat land and with a frontage to the harbour, the Te Aro Pa covered an area of around 2 hectares and held the largest Maori community in Wellington until the 1880s.<sup>12</sup>

Following Ngati Mutunga’s migration to the Chatham Islands in the 1830s the pa was occupied by the various whanau and hapu groups of Ngati Ruanui, Te Atiawa and Taranaki iwi.<sup>13</sup>

Resident Maori in the Wellington area engaged in trade with early European traders, sailors and settlers throughout the early 1800s; however, from the 1840s Maori came under

<sup>5</sup> *Transactions and Proceedings of the New Zealand Institute*, 1879, Vol.12. p.36.

<sup>6</sup> Waitangi Tribunal. 2003. Te Whanganui a Tara me ona Takiwa, Report on the Wellington District, Waitangi Tribunal Report, Wai 145, p.8; Massey University Wellington, Puke Ahu. Cultural Impact Report prepared by Raukura Consultants in association with Wellington Tenth Trust & Port Nicholson Block Settlement Trust. n.d., p.18.

<sup>7</sup> Massey University Wellington, Puke Ahu. Cultural Impact Report prepared by Raukura Consultants in association with Wellington Tenth Trust & Port Nicholson Block Settlement Trust. n.d., p.3.

<sup>8</sup> *Ibid.*, pp.11-12.

<sup>9</sup> Darren Reid, ‘Muaupoko’, in Te Ara – the Encyclopedia of New Zealand, Ministry for Culture and Heritage New Zealand, Maori Peoples of New Zealand, Nga Iwi O Aotearoa, Auckland, 2006, p.101

<sup>10</sup> Massey University Wellington, Puke Ahu. Cultural Impact Report prepared by Raukura Consultants in association with Wellington Tenth Trust & Port Nicholson Block Settlement Trust. n.d., p.18.

<sup>11</sup> Te Aro Pa’, taken from Port Nicholson Block Settlement Trust website: <http://www.pnbst.maori.nz/what-we-do/cultural-well-being/history/te-aro-pa/>

<sup>12</sup> Chris Maclean. ‘Wellington region - Early Māori history’, Te Ara - the Encyclopedia of New Zealand, updated 14-Nov-12. URL: <http://www.TeAra.govt.nz/en/artwork/13194/te-aro-pa>; ‘Te Aro Pa’, taken from Port Nicholson Block Settlement Trust website: <http://www.pnbst.maori.nz/what-we-do/cultural-well-being/history/te-aro-pa/>

<sup>13</sup> Waitangi Tribunal. 2003. Te Whanganui a Tara me ona Takiwa, Report on the Wellington District, Waitangi Tribunal Report, Wai 145, pp.26-7; ‘Te Aro Pa’, taken from Port Nicholson Block Settlement Trust website: <http://www.pnbst.maori.nz/what-we-do/cultural-well-being/history/te-aro-pa/>

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increasing pressure to relinquish their land. In 1855 a severe earthquake in the region raised the level of the land and drained the low-lying and swampy areas of Te Aro along with the former mahinga-kai at Hauwai.<sup>14</sup> The new landscape deprived Maori of their formerly abundant trading resources such as eels, shellfish and flax and the population subsequently went into decline.<sup>15</sup>



Figure 1.8 Detail from Map III (third part) of Island Bay to Lambton Harbour based on a 1927 County map of the Wellington Harbour District, showing Maori place names in the wider area around Puke Ahu (arrowed). Source: Adkin 1959: 119

<sup>14</sup> Waitangi Tribunal. 2003. *Te Whanganui a Tara me ona Takiwa*, Report on the Wellington District, Waitangi Tribunal Report, Wai 145, p.461.

<sup>15</sup> 'Te Aro Pa', taken from Port Nicholson Block Settlement Trust website, see above.



**Figure 1.9** Watercolour by John Pearse, dated 1852, showing two Maori figures on a road leading to the Mount Cook Barracks. The mature flax bushes on either side of the road give some indication as to the nature of vegetation in Wellington prior to the large-scale settlement of Europeans. Source: Pearse, John, 1808-1882: Wellington Harbour - from road leading to the Barracks (1852?). Alexander Turnbull Library (ATL) - Pearse, John 1808-1882: Album 1851-1856. Ref: E-455-f-034-1



**Figure 1.10** Pencil drawing by John Alexander Gilfillan, dated 1840-1845, showing Te Aro Pa, Wellington. Source: Gilfillan, John Alexander, 1793-1863. Norman, Edmund, 1820-1875. Attributed works: Pa, Te Aro, Wellington looking towards the Hutt River [1842 or 1843?]. ATL Ref: A-049-001

### 1.8.2 Early European Settlement

The European settlement of Wellington was planned by the representatives of the New Zealand Company who arrived at Te Whanganui-a-Tara in 1839.<sup>16</sup>

The company's intent was to purchase and survey the land and to promote town sections to prospective British emigrants. In September 1839, a deed of purchase for 160,000 acres, known as the Port Nicholson Block, was signed by William Wakefield (New Zealand Company) and 16 local chiefs, including Te Puni and Wharepouri of Te Ati Awa.<sup>17</sup> The deed outlined payment of goods including 100 red blankets, two dozen spades, 120 muskets, 20 jackets, one dozen umbrellas, 200 pencils, 21 kegs of gunpowder and 50 steel axes and promised:

'...a portion of the land ceded by them equal to a tenth part of the whole, will be reserved by the said Governors, Directors and Shareholders of the New Zealand Land Company of London their Heirs, Administrators and Assigns,

<sup>16</sup> Louis E. Ward, *Early Wellington*, Christchurch, 1975, pp.11-12 & 14.

<sup>17</sup> Wellington was initially named Port Nicholson by the New Zealand Company. Waitangi Tribunal. 2003. *Te Whanganui a Tara me ona Takiwa*, Report on the Wellington District, Waitangi Tribunal Report, Wai 145, p.xvii; H. Hanson Turton, *Maori Deeds of Land Purchases in the North Island of New Zealand: Volume Two*, Wellington, 1878, pp.95-6.

and held in trust by them for the future benefit of the said Chiefs, their families and heirs for ever.<sup>18</sup>

The legality of this purchase was later contested; however, plans for the subdivision and sale of the land were advanced regardless.<sup>19</sup> A survey trig was placed on Puke Ahu (renamed Mount Cook by European settlers after Captain James Cook) to assist development and in August 1840 William Mein Smith, surveyor general of the New Zealand Company, produced the first plan of the town (Figure 1.11). A total of 1100 suitable one-acre lots were initially mapped out for purchase, with reserves set aside for public purposes and for Maori (the latter were named ‘Native Reserves’ or ‘tenths’).<sup>20</sup> At the foot of Puke Ahu two sections (Town Acres 89 and 90) were designated ‘Native Reserves’ and the nearby area of Hauwai (now the Basin Reserve) was earmarked for the creation of a lagoon, with a canal leading between Cambridge and Kent Terrace, to provide safe anchorage for ships. Smith also recognized the strategic advantages of Puke Ahu (Mount Cook) itself, and the hill was set aside in its entirety as a reserve for use as a military post (Figure 1.12).

### 1.8.3 Military Occupation of Mount Cook

#### 1.8.3.1 Imperial Forces

The earliest Imperial troops stationed at Mount Cook were likely to have been elements of the 96th Regiment of Foot who arrived in Wellington in 1843 and were ‘marched pas[t] the Te Aro swamps to the hillock.’<sup>21</sup> The soldiers were housed in tents at the foot of the hill, which was lightly palisaded in case of Maori attack.<sup>22</sup> The arrival of the 96th was in response to conflict at Wairau, near Nelson, where tension between Ngati Toa chiefs and New Zealand Company settlers over the purchase of land led to the deaths of at least four Maori and 22 Europeans, including Captain Wakefield.<sup>23</sup> The skirmish marked the first significant armed conflict since the signing of the Treaty of Waitangi, in 1840, and news of the event led to the formation of a Volunteer Corps in Wellington and calls for greater military presence.<sup>24</sup>

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<sup>18</sup> Turton, p.96.

<sup>19</sup> *Te Whanganui a Tara me ona Takiwa*, Report on the Wellington District, Waitangi Tribunal Report, Wai 145, pp. xvii-xix.

<sup>20</sup> Ward, p.56.

<sup>21</sup> E.B. Bestic, ed., *End of an Era: An Informal History of the Military in the Mt. Cook Area of Wellington, 1846-1979*, Wellington, 1979, p.3; Peter Cooke, ‘Headquarters, NZ Military Forces: The Military Home at Mt Cook’, *Forts and Works*, 20, January 2006, p.1.

<sup>22</sup> Cooke 2006, p.1.

<sup>23</sup> See Supplement to the *Nelson Examiner* and *New Zealand Chronicle*, 23 December 1843, pp.1-10.

<sup>24</sup> Ward 1975, p.118; ‘The Wairau incident’, URL: <http://www.nzhistory.net.nz/war/wairau-incident> (Ministry for Culture and Heritage), updated 23-Oct-2014.

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Figure 1.11 Detail from Mein Smith’s Plan of the Town of Wellington, dated August 1840, showing ‘Native Reserves’ (coloured green), the area of Mount Cook and the proposed canal leading to what is now the Basin Reserve. Source: Alexander Turnbull Library – Map Collection 832.4799gbbd 1840 316-8

Soldiers of the 96th remained encamped at the base of Mount Cook until 1846, when they were reinforced by the 65th (2nd Yorkshire, North Riding) Regiment of Foot, also known as the ‘Royal Tigers’ for their service in India; in New Zealand they were nicknamed the ‘Hickety-pips’, after the Maori mispronunciation of 65th – ‘hikete piwhete’ (Figure 1.13).<sup>25</sup> The 65th arrived in Wellington via Australia, where they had functioned as a convict guard, and participated in fighting at Pauatahanui and the Hutt Valley.<sup>26</sup> The conflict was principally carried out between British troops, local Militia, and Ngati Toa – led by chief Te Rangihaeata – following mounting opposition to European land claims.<sup>27</sup> Hostilities eventually ended in August 1846 when Te Rangihaeata abandoned his pa at ‘Battle Hill’ and retreated north into Horowhenua.<sup>28</sup>

<sup>25</sup> Cooke 2006, p.2; Bestic 1979, p.3; National Army Museum – ‘65th (2nd Yorkshire, North Riding) Regiment of Foot’ URL: <http://www.nam.ac.uk/research/famous-units/65th-2nd-yorkshire-north-riding-regiment-foot>

<sup>26</sup> Cooke 2006, p.2; Bestic 1979, p.3; *Wellington Independent*, 24 June 1846, p.3.

<sup>27</sup> Peter Cooke and John Crawford, *The Territorials: The History of the Territorial and Volunteer Forces of New Zealand*, Auckland, 2011, pp.22-27.

<sup>28</sup> *Ibid.*; 27; ‘War in Wellington’, URL: <http://www.nzhistory.net.nz/war/wellington-war> (Ministry for Culture and Heritage), updated 5-Aug-2014.

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**Figure 1.12** Detail from copy of Mein Smith’s Plan of Wellington, dated c.1843, showing ‘Native Reserves’ (coloured green), with the area of Mount Cook coloured pink to denote its selection as a government or public reserve. Source: Town of Wellington – Government reserves, immigration reserve, native reserve, sections, place names, AAFV 997 132/WT1, Archives New Zealand

During the conflict increasing numbers of troops arriving in Wellington boosted the population to around 4,000 residents, with an estimated one in six employed as a soldier.<sup>29</sup>

Temporary accommodation was made ready at Mount Cook in the form of wooden barracks; however, these soon proved inadequate.<sup>30</sup>

The posting of further contingents throughout 1847-8, including a permanent garrison of the 65th Regiment of Foot and Royal Engineers and Artillery, necessitated the construction of further accommodation on Mount Cook and the entire hill was set aside for military use at this time. Additional barrack buildings were constructed at the top of the hill and at the base, including along Buckle Street and on two former ‘Native Reserves’ (Town Acres 89 and 90), leading to the distinction of ‘Upper’ and ‘Lower’ Mount Cook.<sup>31</sup>

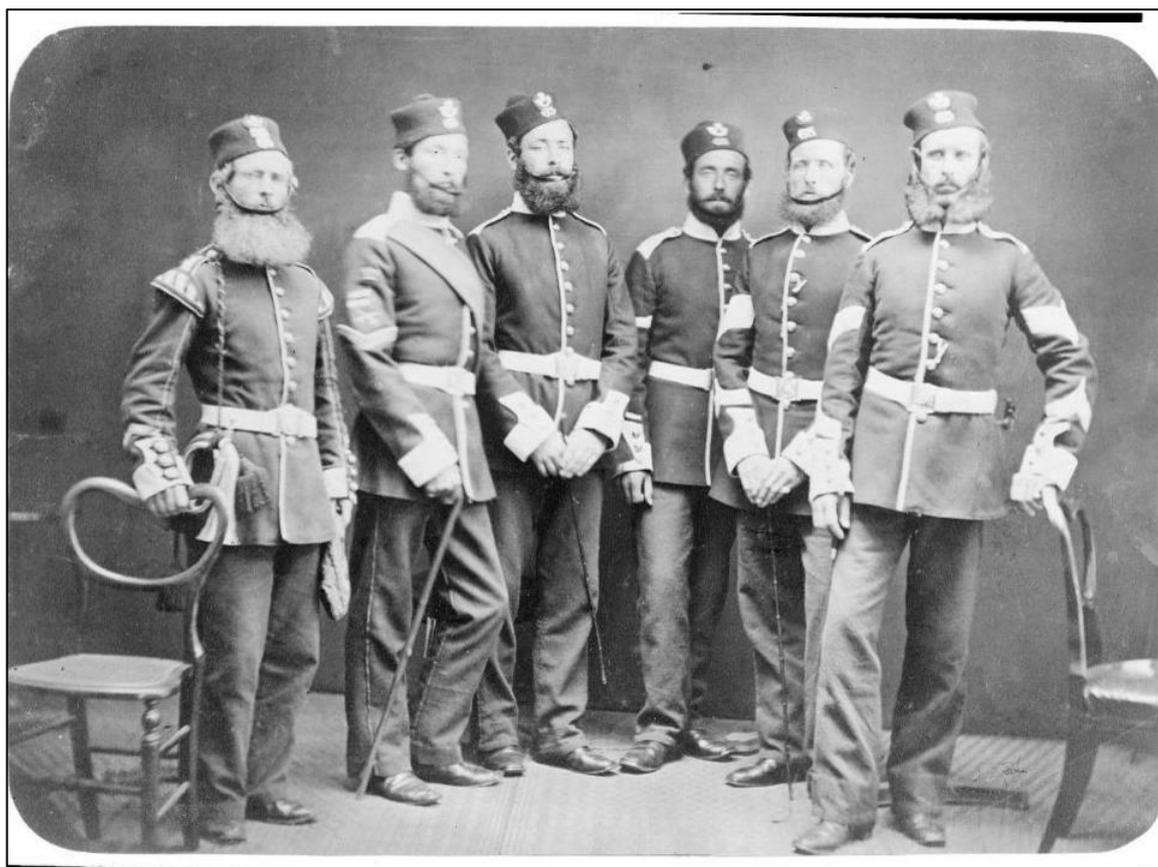
Elements of the 65th Regiment were garrisoned at Wellington until 1861 when they were replaced by the 14th (Buckinghamshire) Regiment of Foot 2nd Battalion, nicknamed ‘The Old and the Bold’, who marched to the Mount Cook Barracks ‘headed by their fifes and drums’ (Figure 1.14).<sup>32</sup>

<sup>29</sup> Cooke 2006, p.2.

<sup>30</sup> *Wellington Independent*, 14 July 1847, p.2.

<sup>31</sup> Cooke 2006, p.2.

<sup>32</sup> *New Zealander*, 26 September 1860, p.2; *Wellington Independent*, 8 January 1861, p.5 and, 15 January 1861, p.5.



**Figure 1.13** Photograph, dated c.1860s, showing six soldiers of the Light Infantry Company, 65th Regiment (Yorkshire, North Riding). Source: ATL - Ref: 1/2-025608-F.

A detachment of the regiment resided at the barracks until 1865 when they were sent to Whanganui, and later departed for Australia in 1867.<sup>33</sup> In the absence of British troops, local Militia and Volunteers were called upon to take up duties at the barracks and in February 1865 the *Wellington Independent* reported:

‘Yesterday the hon Mr. Weld, Colonial Secretary, issued official instructions to Major Gorton, requiring him with all convenient speed to draw out for actual service the men of the Volunteers and first-class Militia of the town of Wellington, and a proclamation requiring them to parade to-day at Mount Cook Barracks, at 10 o'clock, was accordingly printed and circulated...Yesterday, fourteen of the Volunteers went on Garrison duty at the Mount Cook Barracks, and to-day a number of the Militia will be told off for the same purpose. These steps are rendered necessary by the departure of the detachment of the 2nd battalion 14th Regiment, for the Front.’<sup>34</sup>

The Mount Cook military base was subsequently used by the administration office for New Zealand’s militia rolls and volunteer corps; however, the majority of the buildings remained vacant and newspaper sources noted: ‘...there was talk of troops once more occupying the empty barracks on Mount Cook, and the Deputy-Assistant Commissary

<sup>33</sup> *Wellington Independent*, 16 February 1865, p.2; *New Zealand Herald*, 30 May 1867, p.5.

<sup>34</sup> *Wellington Independent*, 4 February 1865, p.2.

General advertised for tenders to supply rations; but somehow the soldiers didn't come, the barracks still remained dreary and tenantless...'.<sup>35</sup>



**Figure 1.14** Photographic portrait (c.1860s) of Captain George Buck, 14th Regiment of Foot taken by William James. Source: Alexander Turnbull Library - Harding, William James, 1826-1899: Negatives of Wanganui district. Ref: 1/4-004498-G

### 1.8.3.2 Armed Constabulary and New Zealand Constabulary Force

Extant buildings within the lower barracks area were later recommissioned as a depot for the Armed Constabulary (A.C.), whose formation under the Armed Constabulary Act 1867, saw recruits trained in Wellington for deployment throughout the colony (Figure 1.15).<sup>36</sup> Under the terms of the Act recruits were expected 'to suppress all tumults riots affrays or breaches of the peace and all public nuisances and offences against the law in any part of

<sup>35</sup> Cooke 2006, p.3; *New Zealand Herald*, 7 January 1867, p.4.

<sup>36</sup> The Armed Constabulary was formed as New Zealand's principal fighting force following the passing of The Armed Constabulary Act 1867, and is considered to be the forerunner to the present-day New Zealand Army and New Zealand Police. Bestic 1979, p.13; Cooke 2006, p.3; Hudson 2012.

the Colony where they may be on duty.’<sup>37</sup> By 1870 the A.C. Depot at Mount Cook provided accommodation and training for those involved in the pursuit of Te Kooti and his followers across the central North Island.<sup>38</sup> Training comprised three months of rifle, company and skirmish drill and in April 1870 an inspection of constabulary exercises was published by the *Daily Southern Cross*:

‘Yesterday afternoon the Armed Constabulary recently enrolled here were inspected by Mr. Commissioner Branigan, on the parade-ground, Lower Mount Cook Barracks...The parade was held for testing the efficiency of the men in their drill, previously to proceeding to Patea today. There were 25 of all ranks present. They were put through sword and bayonet exercise, the mounted men being drilled by Sergeant Marshall, and the foot by Sergeant Chandler. The manner in which they performed their several exercises reflected great credit upon their instructors, and also upon themselves, for their efficiency, showing, as it did, that they must have paid great attention to their drill, to have acquired so much proficiency in so short a time. After drill the men were formed in line, and addressed by the Hon. W Gisborne. He said – “I am very glad, my men, to have heard from the Commissioner a good account of you, and to have seen your creditable appearance and excellent drill on parade. This is the third time that I have seen a detachment of this force about to embark for other stations, and I have been gratified to witness the steadiness and discipline displayed on each occasion...” The men were then dismissed to their barracks.’<sup>39</sup>

Following the abolition of the provincial governments in 1876 the Armed Constabulary was merged with the provincial police and renamed the New Zealand Constabulary Force in 1877.<sup>40</sup> The new force comprised two main parts – the Policing Branch, which was active in urban areas, and the Reserve Division (Field Force), which took a paramilitary role. It is estimated that around 600 men remained in the Reserve Division following amalgamation, and in 1881 they played an active part in military action against Te Whiti and his followers at Parihaka (Figure 1.16).<sup>41</sup>

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<sup>37</sup> The Armed Constabulary Act, 1867.

<sup>38</sup> Cooke, 2006, p.3.

<sup>39</sup> *Daily Southern Cross*, 28 April 1870, p.4.

<sup>40</sup> See: *Otago Daily Times*, 25 August 1877, p.1; Malcolm McKinnon. 'Colonial and provincial government - Julius Vogel and the abolition of provincial government', Te Ara - the Encyclopedia of New Zealand, updated 13-Jul-12 URL: <http://www.TeAra.govt.nz/en/colonial-and-provincial-government/page-4>

<sup>41</sup> Cooke and Crawford 2011, p.78; 'Colonial Defence Force, Special Forces, and the Armed Constabulary', from An Encyclopaedia of New Zealand, edited by A. H. McLintock, originally published in 1966. Te Ara - the Encyclopedia of New Zealand, updated 22-Apr-09 URL: <http://www.TeAra.govt.nz/en/1966/defence-armed-services-army-new-zealand/page-3>

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**Figure 1.15** Photograph, dated 1870, showing a division of the Armed Constabulary parading at Mount Cook Barracks (source: Bestic 1979: 13)



**Figure 1.16** Photograph, dated November 1881, showing officers of the New Zealand Constabulary Field Force at Parihaka. Source: James Cowan, *The New Zealand Wars: A History of the Maori Campaigns and the Pioneering Period: Volume II: The Hauhau Wars, 1864–72*, Wellington, 1956, p. II

### 1.8.3.3 New Zealand Permanent Militia and New Zealand Permanent Force

The military functions of the constabulary were transferred to the New Zealand Permanent Militia by the Defence Act 1886.<sup>42</sup> The militia comprised a number of troops including Torpedo Corps, Engineers, and Rifles, and formalised a Permanent Artillery branch which provided training for both volunteer field gunners and coast defence gunners.<sup>43</sup> The force took over the former constabulary depot and the extent of their facilities at Lower Mount Cook were detailed on a Public Works Plan, dated September 1893, which shows a number of stores, offices, barracks, drill shed, stables, and even a garden area.<sup>44</sup>

In 1897 the militia were renamed the New Zealand Permanent Force and following the outbreak of the South African ‘Boer’ War (1899-1902) they were used to train volunteer mounted riflemen.<sup>45</sup> Both the Upper and Lower Mount Cook Barracks were used to accommodate various contingents prior to their embarkation and from December 1902 the building formerly known as the Mount Cook Gaol (at the apex of Mount Cook) was renamed the Alexander Military Depot (commonly known as the Alexandra Barracks; Figure 1.17).<sup>46</sup> The front offices were used as the General Headquarters (GHQ) and later

<sup>42</sup> Defence Act 1886; Cooke and Crawford 2011, p.96.

<sup>43</sup> ‘The New Zealand Permanent Force’, by W.L. Ruffell, accessed via: <http://www.riv.co.nz/rnza/hist/pf/pf2.htm>; Cooke 2006, p.4.

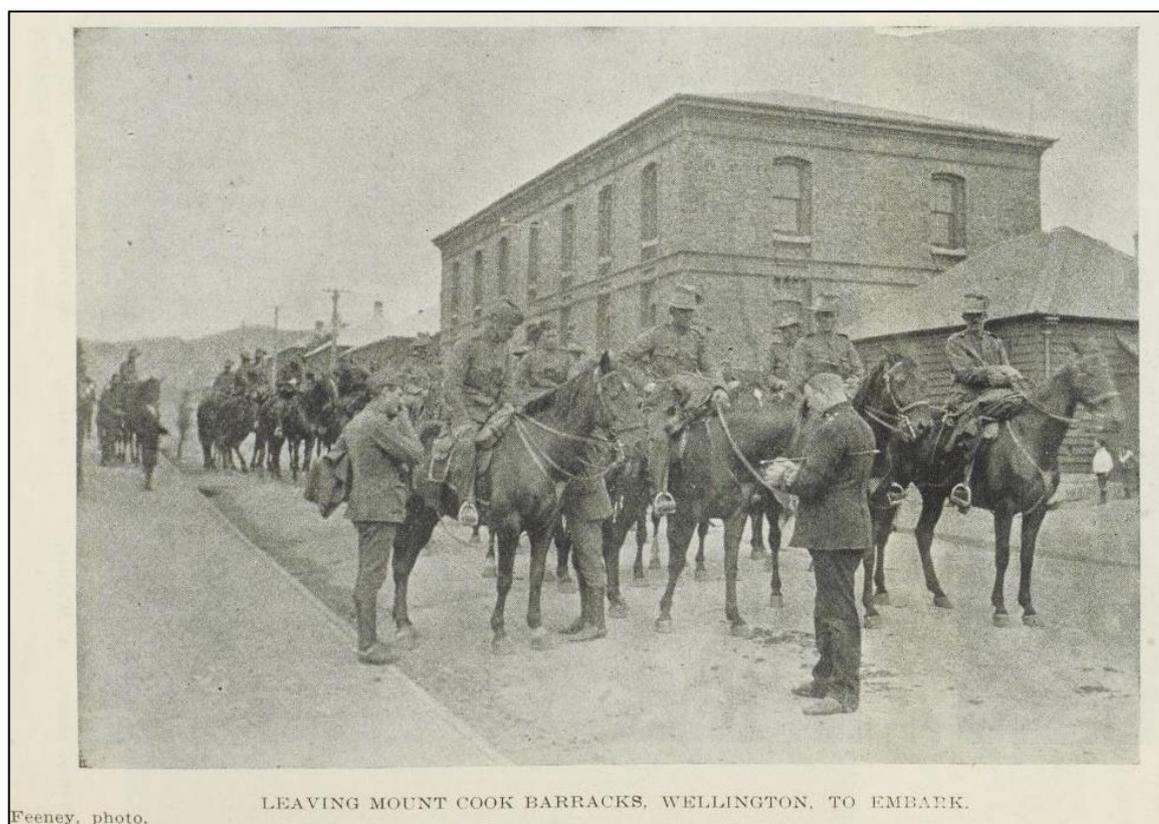
<sup>44</sup> Defence Act 1886; Cooke and Crawford 2011, p.96.

<sup>45</sup> ‘The New Zealand Permanent Force’, by W.L. Ruffell, accessed via: <http://www.riv.co.nz/rnza/hist/pf/pf2.htm>

<sup>46</sup> *Evening Post*, 9 February 1900, p.6; Press, 6 February 1901, p.5; The depot was so named after Alexandra of Denmark, who married Albert Edward, the Prince of Wales in 1863 and became Queen consort following his coronation as Edward VII in 1902. ‘Buildings – Alexandra Barracks’, AD1 687 3/587, Archives New Zealand; Cooke 2006, p.6.

housed the Council of Defence.<sup>47</sup> During this time the companies of the Permanent Force were given the prefix ‘Royal’ and were known as the Royal New Zealand Artillery and the Royal New Zealand Engineers.<sup>48</sup>

The Alexandra Barracks continued to serve as the General Headquarters into the 1910s and the military depot was the scene of a stand-off between striking seamen and the Mounted Special Constables during the infamous 1913 Waterfront Strike.<sup>49</sup> The special police, also known as ‘Massey’s Cossacks’ were temporarily accommodated at the barracks (some were encamped in tents which were erected around the Upper Barracks area) and their horses were tethered in rows across the Mount Cook hillside (Figure 1.18).



**Figure 1.17** *New Zealand Graphic* photograph, dated 10 March 1900, showing mounted troops on Buckle Street prior to embarkation for the South African War. Source: Sir George Grey Special Collections, Auckland Libraries, NZG-19000310-441-2

#### 1.8.3.4 World War I and Later 20th Century

During World War I (1914-1918) the barracks played host to a variety of groups, including: troops enlisted with the Expeditionary Force, military police, military prisoners (including conscientious objectors), prisoners of war, those on home service, and military horses.<sup>50</sup> Military staff included the Minister of Defence, General Officer Commanding the Forces,

<sup>47</sup> Cooke 2006, p.6.

<sup>48</sup> Bestic 1979, p.13.

<sup>49</sup> *Nelson Evening Mail*, 5 November 1913, p.5.

<sup>50</sup> See: *Wairarapa Daily Times*, 18 June 1914, p.5; *Colonist*, 12 August 1914, p.7; *Evening Post*, 19 August 1914, p.8 and 30 January 1915, p.8; *Press*, 28 September 1916, p.8; *Maoriland Worker*, 13 June 1917, p.6; *NZ Truth*, 23 February 1918, p.5.

Chief Clerk, the Chief of General Staff, Director of Military Operations, Director of Equipment and Stores, and the Director of Ordnance and Artillery.<sup>51</sup>

Following the cessation of World War I proposals for the conversion of the summit and northern end of the Mount Cook Reserve into a site for a National Museum and Art Gallery and National War Memorial were developed. The Army GHQ remained in the Alexandra Barracks until 1930, when they relocated to the former Defence Stores Office building on the corner of Buckle and Taranaki Streets (within Town Acre 90).<sup>52</sup> Demolition of the Upper Mount Cook Barracks was undertaken from 1931 and the redevelopment of the site culminated in the opening of a War Memorial Carillon in 1932, and Dominion Museum and Art Gallery in 1936.<sup>53</sup>



**Figure 1.18 Photograph, dated 1913, showing mounted special constables at Mount Cook Barracks during the Waterfront Strike. Source: ATL - Mounted White, Hugh Macalister, 1893-1917: Photographs relating to Hugh Macalister White. Ref: PAColl-8431-5**

<sup>51</sup> Bestic 1979, p.47.

<sup>52</sup> Registration Proposal – Historic Place, General Officer Commanding (GOC) Building, Heritage New Zealand Building File 12003-025, Volume 1, ‘Plans’, Heritage New Zealand Wellington Office; Cooke, 2006, p.6.

<sup>53</sup> *New Zealand Herald*, 31 March 1931, p.8; Chris Maclean, *For Whom the Bells Toll: A History of the National War Memorial*, Wellington, 1998, pp.22 & 27.

Defence Headquarters remained at the corner of Buckle and Taranaki Streets until 1938, when they moved to Featherston Street, before eventually relocating to the purpose-built Departmental Building in Stout Street, in 1945.<sup>54</sup>

Throughout the Second World War (1939-1945) the former GHQ Building was used as the headquarters of the Army's Central Military District (CMD) and then subsequently as army offices.<sup>55</sup> The Dominion Museum and Art Galley were also appropriated for defence purposes and refurbished at a cost of more than £26,000.<sup>56</sup> During this time a number of air raid shelters (both tunnel and surface trenches) were dug into Mount Cook to shelter local residents and staff in case of attack. Entrances to these shelters are still visible along Tasman Street and Taranaki Street.<sup>57</sup> The Air Force occupied the greater part of the museum until mid-1946, when the building was fully restored to its former use.<sup>58</sup>

The military continued to make use of the remaining army property, now centred within the former Lower Mount Cook Barracks area, until the late 20th century when, rendered surplus to requirements, portions of the land were sold and subsequently redeveloped. The army conveyed ownership of the two-storey brick Defence Stores Office (or GHQ), constructed c.1911 to the Ministry of Works in 1962; however, in 2002 it was transferred back to the Defence Force.<sup>59</sup> The GHQ building and a neighbouring three-storey brick structure (c.1940s), both situated within Town Acre 90, remain the only military buildings on the Lower Mount Cook site, with the latter currently used by the Royal Naval Volunteer Reserve and named HMNZS Olphert. The site now borders the newly developed Pukeahu National War Memorial Park.

## 1.9 Physical Environment & Geology

The Memorial Park project area covers the northern flanks of Mount Cook and is situated above Central Wellington and its harbour. Soils present in the area are characterised as orthic brown soils which consist of dark grey-brown topsoil overlying yellow-brown subsoil. The soils are strongly weathered and occur in clay or sandy clay material and are derived by the alteration of quartz-rich rocks over extended periods of time, and are common in the Wellington region (Landcare Research Manaaki Whenua n.d). The underlying geology of the project area consists of undifferentiated poorly sorted Holocene sands, silts and gravels consisting of weathered colluvium and alluvium. These in turn overlie blue-grey Pleistocene deposits in the form of weathered alluvium and colluvium, and typically consist of dense silty sandy gravels with interbedded stiff silts and organic clays (Semmens et al. 2011: 1). The Pleistocene deposits lie unconformably above greywacke bedrock which is present at a depth of approximately 27m below ground level (mbgl) across the majority of the project area. The greywacke is composed of late Triassic to early Jurassic quartzo-feldspathic sandstone and mudstone sequences of the Rakaia Terrane (Begg & Mazengarb 1996; Begg & Johnston 2000, quoted in Semmens et al. 2010:

<sup>54</sup> Registration Proposal – Historic Place, General Officer Commanding (GOC) Building, Heritage New Zealand Building File 12003-025, Volume 1, 'Plans', Heritage New Zealand Wellington Office; Evening Post, 16 April 1938, p.8.

<sup>55</sup> Bestic 1979, pp.40-1.

<sup>56</sup> Cooke 2006, p.7.

<sup>57</sup> Ibid., p.8.

<sup>58</sup> Ibid.; *Press*, 15 September 1945, p.6.

<sup>59</sup> Registration Proposal – Historic Place, General Officer Commanding (GOC) Building, Heritage New Zealand Building File 12003-025, Volume 1, 'Plans', Heritage New Zealand Wellington Office.

659). The northern slopes of Mount Cook form an outcrop of greywacke mudstone and sandstone within the project area to the north of the Carillon.

Prior to European settlement, the immediate landscape was dominated by Mount Cook, which was many metres higher than it is today, with its slopes vegetated with lowland podocarp/broadleaf forest dominated by Rimu that descended northward to Te Aro Flat, and eastward to the low-lying Hauwai swamp area now occupied by Cambridge Terrace and the Basin Reserve.

During the course of the 20th century the area developed into a semi-industrialised urban environment. Much of the area has witnessed successive phases of building activity since the mid-19th century, and today the ground surface is a typical urban landscape defined by tar-seal roads, concrete paths and buildings constructed of varied materials.

## 1.10 Archaeological Background

The nature of pre-European Maori occupation activity on Pukeahu/Mount Cook is unknown and it is unclear whether there was an undefended settlement (kainga) or a defended pa on the hill (O’Keefe 2014: 1). Puke Ahu, or the Mount Cook area of Buckle Street, has a long association with the Te Atiawa/Taranaki Whanui tangata whenua, and it is thought that much of the hill’s slopes were covered with traditional garden sites (Ministry for Culture & Heritage (MCH) n.d.). Puke Ahu was an important garden site supporting the ancient pa, Te Akatarawa, a major pa for the Ngai Tara iwi which was located in the vicinity of the area now occupied by Wellington College, located approximately 600m to the southeast of the project area (MCH n.d.).

The earliest gardening practice was the cultivation of bracken fern, whose edible root was an important supply of starch for Maori, and consisted of forest clearance to promote bracken regrowth (ibid.). Larger scale horticulture subsequently developed as the hills and slopes were terraced for the cultivation of kumara (sweet potato). The cultivations were also later utilised by the Taranaki iwi who occupied Te Aro pa from the later 1820s (MCH n.d.). Besides kumara cultivation, European introduced cultivars such as potatoes and maize were grown from the early 19th century and the gardens extended into Aro Valley and Newtown, where they were still in use when the New Zealand Company surveyors arrived in 1839 (ibid.). Besides gardening, the Hauwai Swamp that occupied the area of the present Basin Reserve was an important mahinga kai (food-gathering area), with an abundant supply of eels and other freshwater fish (ibid.).

There are a number of archaeological sites recorded on the NZAA ArchSite Database in the wider Central Wellington area, which relate to both Maori and European settlement of the area (Figure 1.19).

The vast majority of recorded sites relate to 19th century European settlement and vary from buildings (residential, commercial, industrial, administrative and military) to historic rubbish pits and harbour reclamation and even a 20th century anti-aircraft battery. The only recorded sites relating to Maori settlement consist of the site of Te Aro Pa, at the intersection of Taranaki and Manners Street, the traditional location of Akatarewa Pa in the vicinity of Wellington College and the Mount Victoria Tunnel, and Pipitea Pa at Thorndon.

A total of five archaeological sites was recorded on the New Zealand Archaeological Association (NZAA) ArchSite database located either within, or encompassing, the Memorial Park works area prior to the commencement of the archaeological investigation.

Two of these sites were recorded prior to the archaeological assessment for the Memorial Park works by OPUS International Consultants in 2012 (Hudson 2012). These consisted of a military (non-Maori) site (R27/265) which incorporates the area occupied by Imperial and later New Zealand Armed Forces, including: the sites of both the Lower and Upper Barracks; the 1882 prison; and the 1894 Mount Cook Police Station. The other site, recorded as a historic land-parcel (R27/270), covers the whole of Wellington City as depicted on the 1900 Thomas Ward Plan, including the area of the Memorial Park project. The main purpose of recording such a large site is that it serves as a prompt to would-be developers and planners that the area within its boundaries was densely settled from the 1840s onwards, with the likelihood of archaeological remains extant in the area.

Subsequent to the archaeological assessment stage of the Memorial Park project and the issuing of the archaeological authority, three further archaeological sites were recorded on the NZAA ArchSite database. Two of the sites were recorded as a result of geotechnical trial pits undertaken by OIC as part of Section 18 investigations (NZHPT Authority Number 2012/323) for the proposed Memorial Park works (Bowron-Muth & Mitchell 2013). Brick remains exposed in one trial pit within Town Acre 226 were recorded as site R27/464, and interpreted as elements of the 1880s Drill Hall. The site record form for R27/464 has now been updated to incorporate the results of the archaeological excavation of Town Acre 226 and has been recorded as the site of the Mount Cook Lower Barracks, to distinguish it from the Mount Cook Upper Barracks. The site record form for R27/265 has also been updated so that it refers exclusively to the Upper Barracks and Prison site.

The other site recorded at this time (R27/463) was located to the rear of the Home of Compassion Crèche situated in the west of Town Acre 263 and was recorded as ‘historic-domestic’, comprising a rubbish pit (Bowron-Muth & Mitchell 2013). During the current investigations, the feature considered to be a rubbish pit was found to be the infilled lower level of the split two-level 19th century house situated to the rear of the crèche that was excavated during the Stage 1 Crèche excavation. The site record form for R27/463 has now been updated to incorporate the results of the Crèche excavation, including archaeological remains exposed in the remainder of the eastern area of Town Acre 263 that were impacted by the Memorial Park works.

Lastly, and also in 2012, works undertaken by the Wellington Tunnels Alliance and monitored by Bruce McFadgen at 44-46 Buckle Street in the eastern half of Town Acre 256 exposed five wooden posts that were interpreted as structural remains of St Joseph’s Roman Catholic Church (McFadgen 2012). The site was recorded on the NZAA ArchSite database as R27/462 and described as a religious site.

Three additional archaeological sites have been recorded as a result of the Pukeahu National Memorial Park works: R27/550, remains relating to the Mount Cook Infant School in Town Acre 233; R27/559, St Patrick’s College in Town Acre 257; and R27/560, a posthole and other potential domestic residential archaeological remains beneath the playing field of Mt Cook School in Town Acre 257.

### **1.10.1 Previous Archaeological Work**

Prior to the Wellington Inner City Bypass Project (WICBP) undertaken by CFG Heritage, there had been few historic archaeological excavations of historic period sites in Wellington, with those undertaken tending to focus upon discrete individual sites (Furey 2010).

## 1. Introduction

The WICBP archaeological investigation was undertaken in 2005, and involved the excavation of a number of historic house sites situated across five Town Acre sections located primarily between Taranaki and Cuba Streets, close to the western end of the Memorial Park project area. The investigation was one of the most extensive archaeological projects undertaken in New Zealand and, at that time, the largest historic period urban archaeological investigation.

The investigations of the yards of 15 houses produced structural evidence of numerous phases of construction, demolition, subdivision and building developments, as well as associated artefacts and faunal remains from rubbish pits, over a 40-year period dating from the 1860s to 1900s (Furey 2010).

The majority of archaeological works undertaken since the WICBP have, as before, consisted of either monitoring or the excavation of discrete individual sites. The sole exceptions are the archaeological investigations around Chews Lane by Clough & Associates, and the investigation undertaken by CFG Heritage at 1-15 Pipitea Street.

The Clough & Associates archaeological investigation around Chews Lane approximately 1km to the north of the Memorial Park, undertaken between September 2006 and May 2007, focused upon nos. 29-55 Willis Street and 42-60 Victoria Street (McFadgen & Clough 2009). The excavations incorporated an area of 4,139m<sup>2</sup> and uncovered part of the pre-1855 earthquake harbour foreshore, and reclamation layers dating to both before and after the earthquake (McFadgen & Clough 2009: 36). The later reclamation (Carter's Reclamation – 1857 to 1863) produced a tightly dated assemblage of pre-1864 historic artefacts consisting of china, glassware, and other discarded items of a domestic and possibly commercial nature (ibid.: 39-40).

The CFG Heritage archaeological investigations in the vicinity of Pipitea Pa were undertaken during May and June 2008, and situated some 2.5km to the north of the Memorial Park project area (Campbell 2009). The investigation uncovered evidence of pre-1840 Maori occupation associated with occupation of the pa, that consisted of a gardened soil and a storage pit (Campbell 2009). These features were interpreted as being associated with contact period Maori gardening activities (ibid.). European Historic Period settlement remains consisted of structural remains of houses, one displaying three successive construction phases, and the recovery of historic artefacts and faunal remains from rubbish pits (ibid.).

1. Introduction

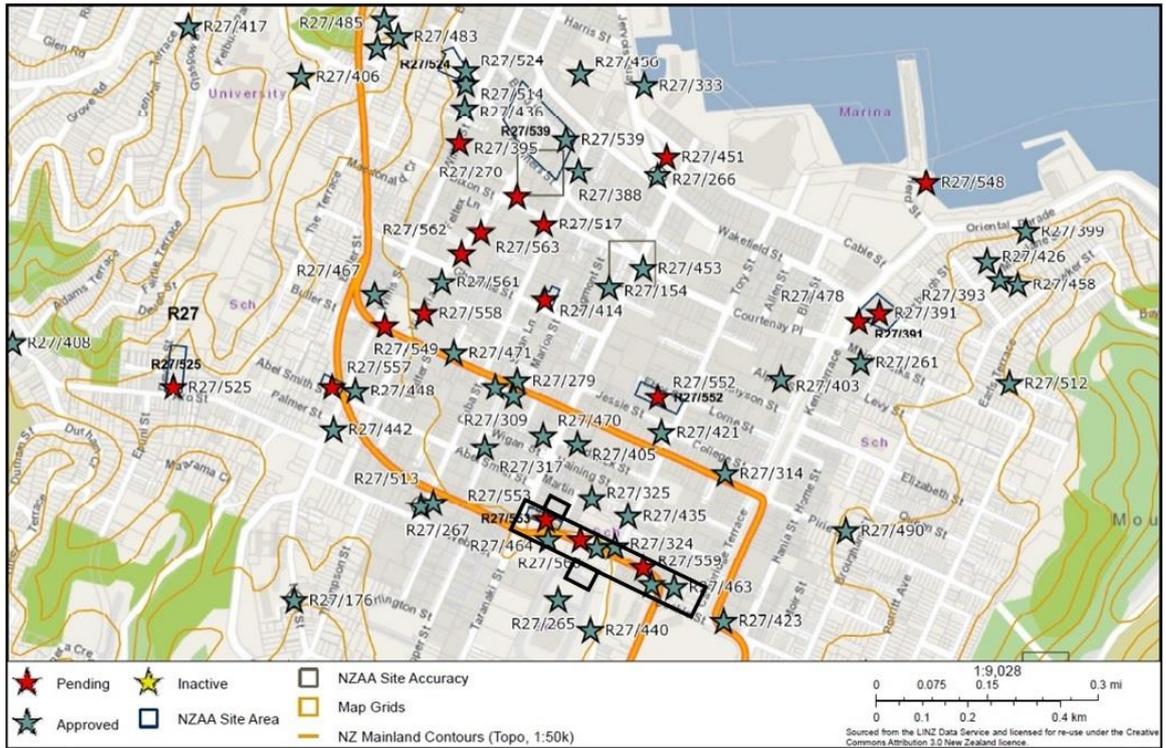


Figure 1.19 Map showing the distribution of archaeological sites in Central Wellington with the Memorial Park Project area outlined. Source: NZAA ArchSite

## 2 TOWN ACRE 226

### 2.1 Historical Background

Bounded to the south by Buckle Street and to the west by Taranaki Street, Town Acre 226 was reserved by the Crown for military purposes and a Crown Grant was issued to the Secretary of State for War on 31 May 1858 (Figure 2.1).<sup>60</sup>

#### 2.1.1 19th Century Military Activity

Military occupation of the land was established from the early-mid 19th century as part of the Lower Mount Cook Barracks and the site was reputedly used as an early military parade and camping ground for Imperial soldiers.<sup>61</sup> By the late 1850s a number of buildings had been erected on the land and these can be seen on Spyve’s plan of the Mt Cook Barracks, showing structures as built by 1852, and in a photograph of the Te Aro area taken by the Reverend Arthur Henry Stock in 1858 (Figure 2.2 – Figure 2.4). Changes to the buildings are noted in a later photograph, dated c.1868, which indicates the removal of small stone structures at the western end of Town Acre 226 (as shown in Figure 2.3 and Figure 2.4) and the construction of several large buildings towards the eastern end (Figure 2.5 and Figure 2.6).



Figure 2.1 Close-up of SO 10295 (5), dated 1870s, showing Crown Grantee for Town Acre 226 (outlined in red). Source: Quickmap

<sup>60</sup> Mount Cook Reserve, 1880-1917, LS1 1400 57607/1, Archives New Zealand.

<sup>61</sup> *Dominion*, 4 June 1908, p.7.

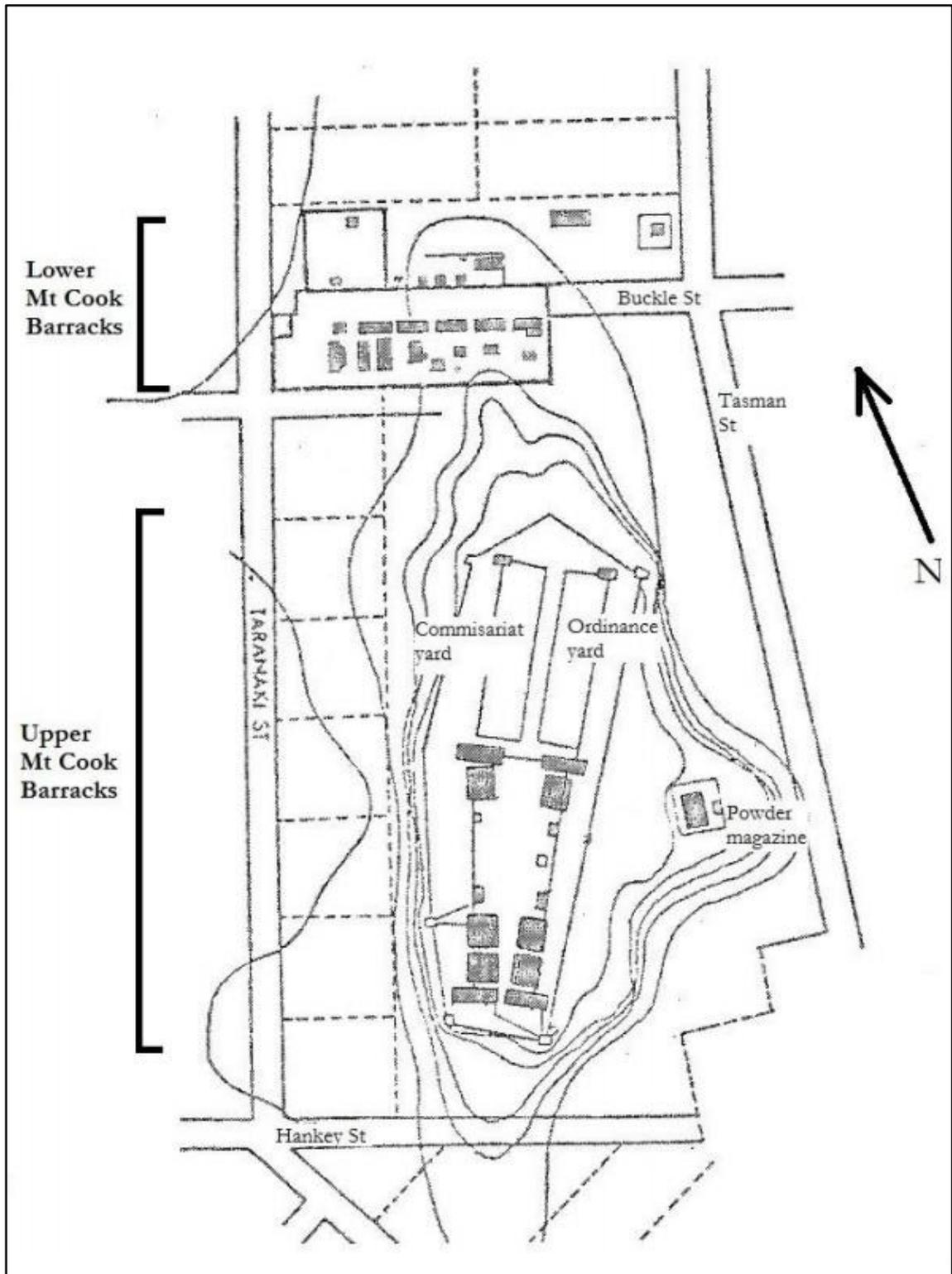


Figure 2.2 Plan of Mount Cook Barracks, as planned c.1845 and largely as built by 1852. Source: Spyve 1983, as shown in O’Keeffe, M. 2014. Puke Ahu Archaeology. Teaching resource prepared for Massey University by Heritage Solutions, p.9



**Figure 2.3** Photograph, dated 1858, showing the Te Aro area, Wellington. The Upper Mount Cook Barracks are visible on the hill in the background, at right, (arrowed in blue) and the Lower Mount Cook Barracks (including Town Acre 226) are shown at background centre-left (arrowed in red). Source: Stock, Arthur Henry (Rev), 1823-1901. ATL - Crawford Family Collection. Ref: PA1-f-019-17-3

Following the departure of the British forces in 1865 the Mt Cook Barracks were used as a base for New Zealand's permanent militia, the Armed Constabulary (A.C.), whose recruits were trained in Wellington for deployment throughout the colony.<sup>62</sup> The A.C. depot spanned both sides of Buckle Street and a Town Survey plan, dated 1877, shows a sizeable building situated within the south-eastern corner of Town Acre 226 (Figure 2.7). Expansion at the western end of the section occurred in 1879 with the construction of a sizeable volunteer drill shed.

The shed was erected by local contractors Townsend & Co., at a cost of £847, and the following year Colonel William Leckie, Inspector of Volunteers, remarked: 'The drill-shed at the Constabulary Barracks, Wellington, is the best in the North Island; but what I admire most, is the gravelling, which does away with the noise made by the tramping of feet, which is so disagreeable on a wooden or asphalted place.'<sup>63</sup>

<sup>62</sup> The Armed Constabulary was formed as New Zealand's principal fighting force following the passing of The Armed Constabulary Act, 1867. Peter Cooke, 'Headquarters, NZ Military Forces: The Military Home at Mt Cook', *Forts and Works*, 20, January 2006, p.3; Beatrice Hudson. August 2012. 'Transportation Improvements around the Basin Reserve, Wellington: Stage One – Taranaki to Cambridge Terrace', Assessment of Archaeological Effects. Unpublished Opus International Consultants Limited report prepared for New Zealand Transport Agency, p.21; The Armed Constabulary Act 1867.

<sup>63</sup> Note: End of an Era states that: 'The Drill Hall side of Buckle Street became military property by proclamation in 1877 for the purpose of erecting an Artillery Drill-Shed'; however, no such proclamation could be located from the primary



**Figure 2.4** Close-up view of Stock's 1858 photograph, showing buildings within the area of the Lower Mount Cook Barracks (background centre). Source: Stock, Arthur Henry (Rev), 1823-1901. Alexander Turnbull Library - Crawford Family Collection. Ref: PA1-f-019-17-3

A neighbouring barracks provided billets for members of the police force and militia volunteers when they visited Wellington for drill instruction, and defence stores and quarters for staff were also established on the northern side of Buckle Street. These buildings are visible on Thomas Ward's Map of the City of Wellington, dated 1891, which shows a number of structures, although only the drill shed and a 'barracks' are labelled (Figure 2.8).

A fuller description of the various buildings within Town Acre 226 is provided by a Public Works plan, dated September 1893, which identifies the drill shed and shows the position of sewers and pipes, stables, a fives court, defence store, and the residence of Captain Coleman, instructor of mounted volunteers for the Colony (Figure 2.9).<sup>64</sup> To the north and west of the drill shed the map depicts a small fowl house and a large area labelled 'garden'.

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sources consulted for this project. E.B. Bestic, ed., *End of an Era: An Informal History of the Military in the Mt. Cook area of Wellington, 1846-1979*, Wellington, 1979, p.15; *Appendices to the Journal of the House of Representatives (AJHR)*, 1880, H-10a, p.8; *Evening Post*, 22 August 1879, p.2 & *Evening Post*, 17 August 1880, p.3; *AJHR*, 1879, E-02, p.6.

<sup>64</sup> Cyclopedia Company Limited, *The Cyclopedia of New Zealand [Wellington Provincial District]*, Wellington, 1897, p.327.



Figure 2.5 Photograph, dated c.1868, showing the Te Aro area, Wellington with the Lower Mount Cook Barracks visible in centre background. Source: Alexander Turnbull Library *Mundy, Daniel Louis*, circa 1826-1881. Ref: 1/2-052466-F

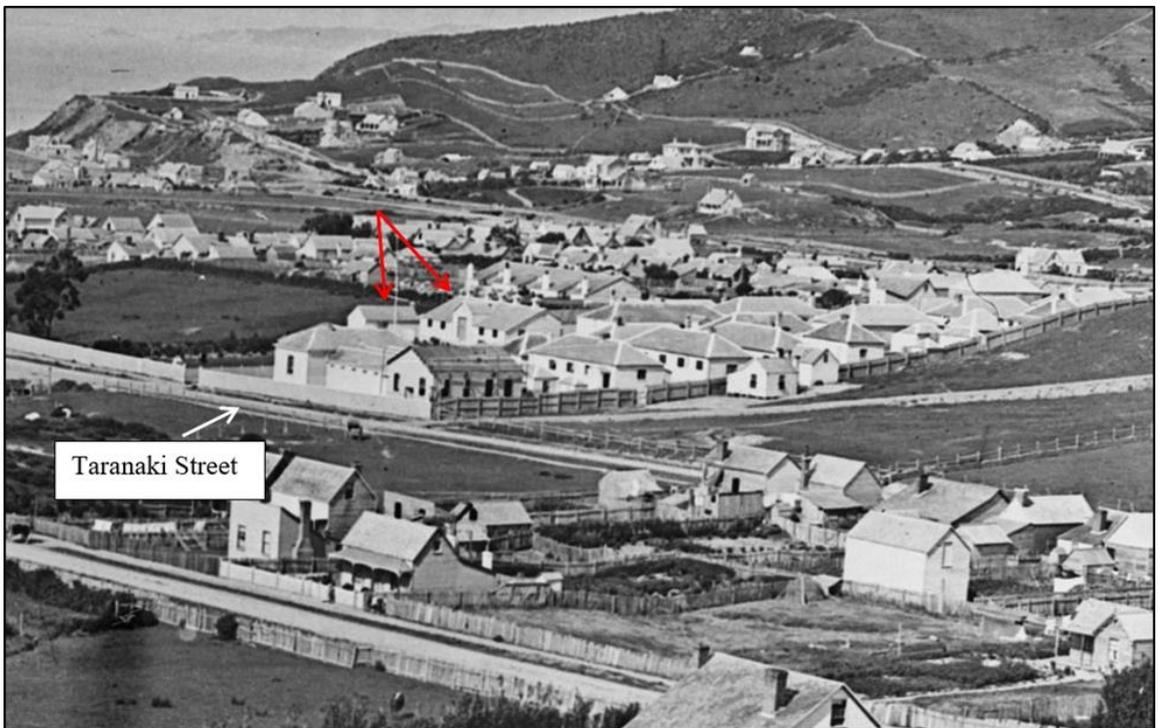


Figure 2.6 Close-up view of Mundy's c.1868 photograph, showing buildings within the area of the Lower Mount Cook Barracks (centre). Buildings within Town Acre 226 are arrowed in red. Alexander Turnbull Library - Ref: 1/2-052466-F

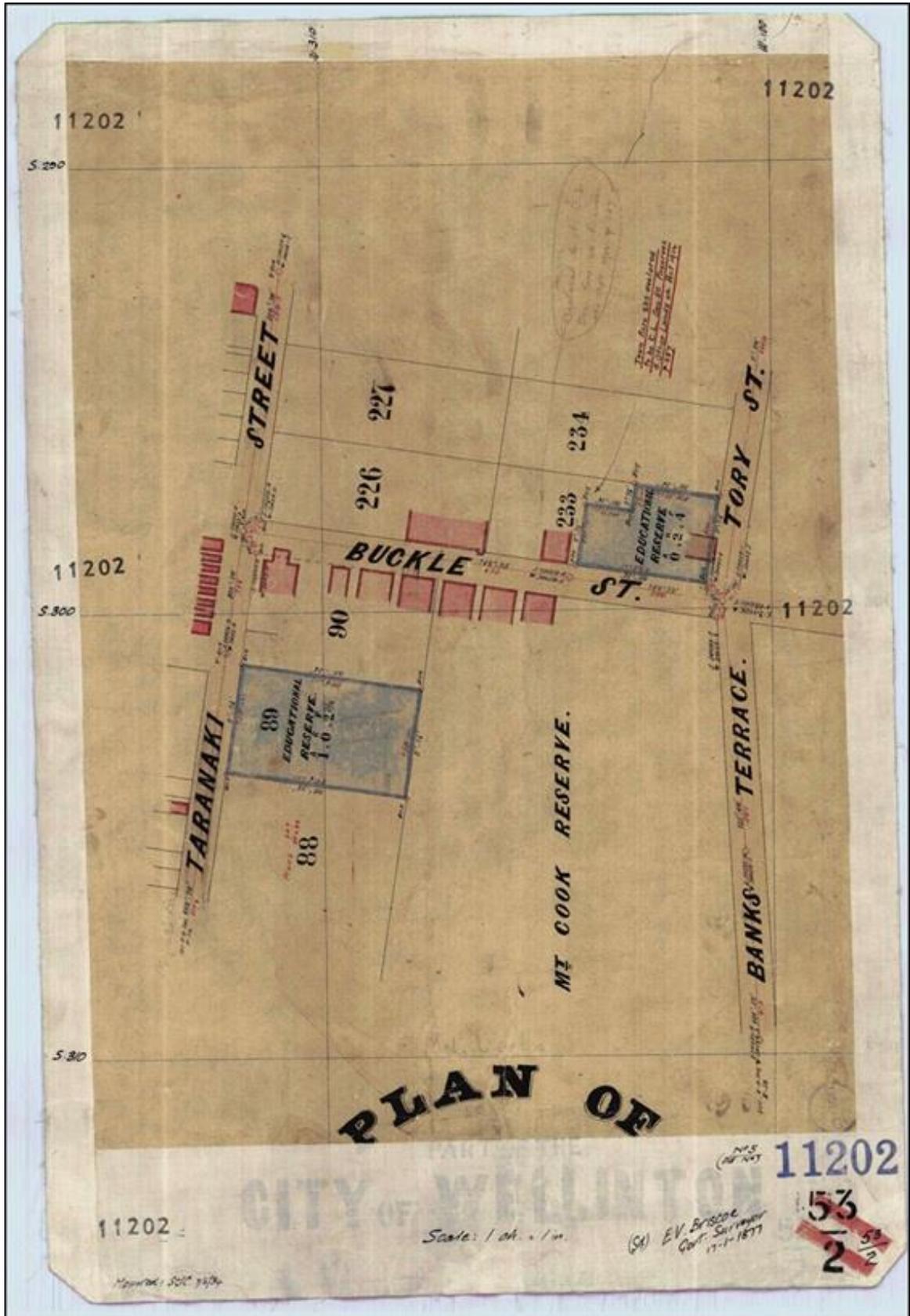


Figure 2.7 SO 11202, dated 1877, showing an extant structure (arrowed) along the Buckle Street perimeter of Town Acre 226. Source: Quickmap

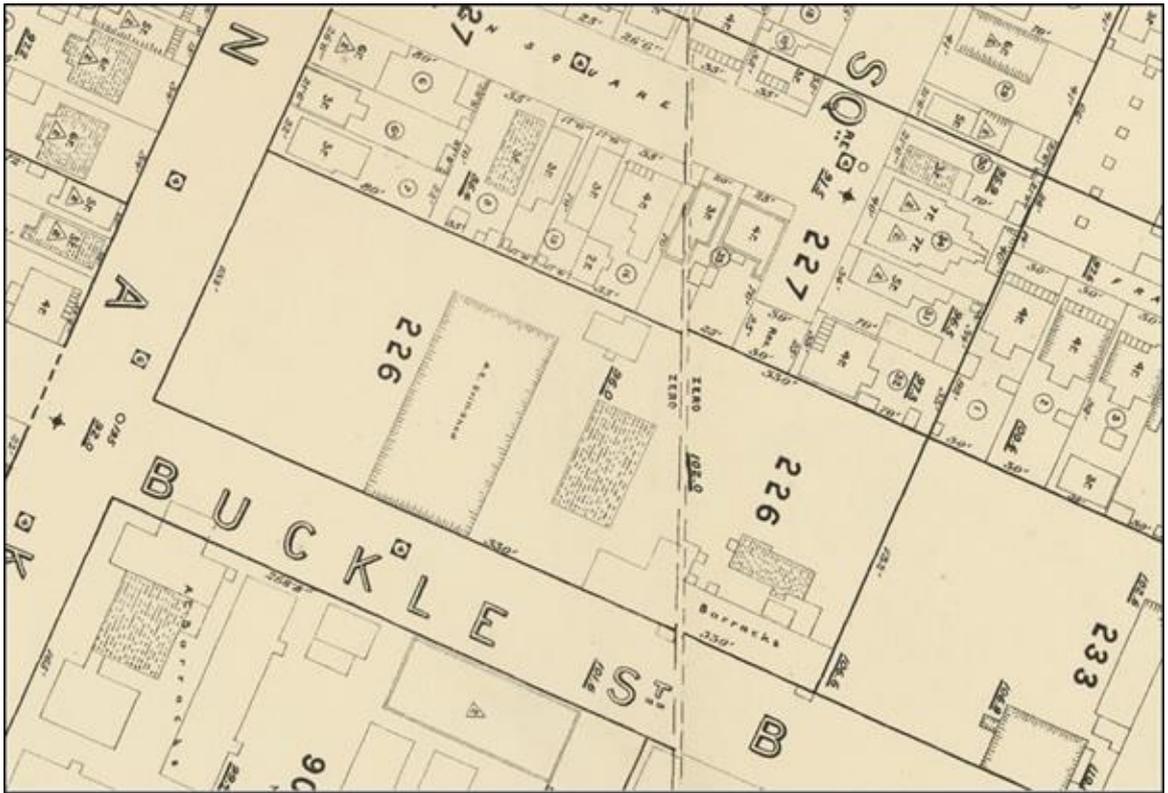


Figure 2.8 Detail from Thomas Ward's survey map of Wellington City, dated 1891, showing buildings within Town Acre 226. Source: WebMap, Wellington City Archives

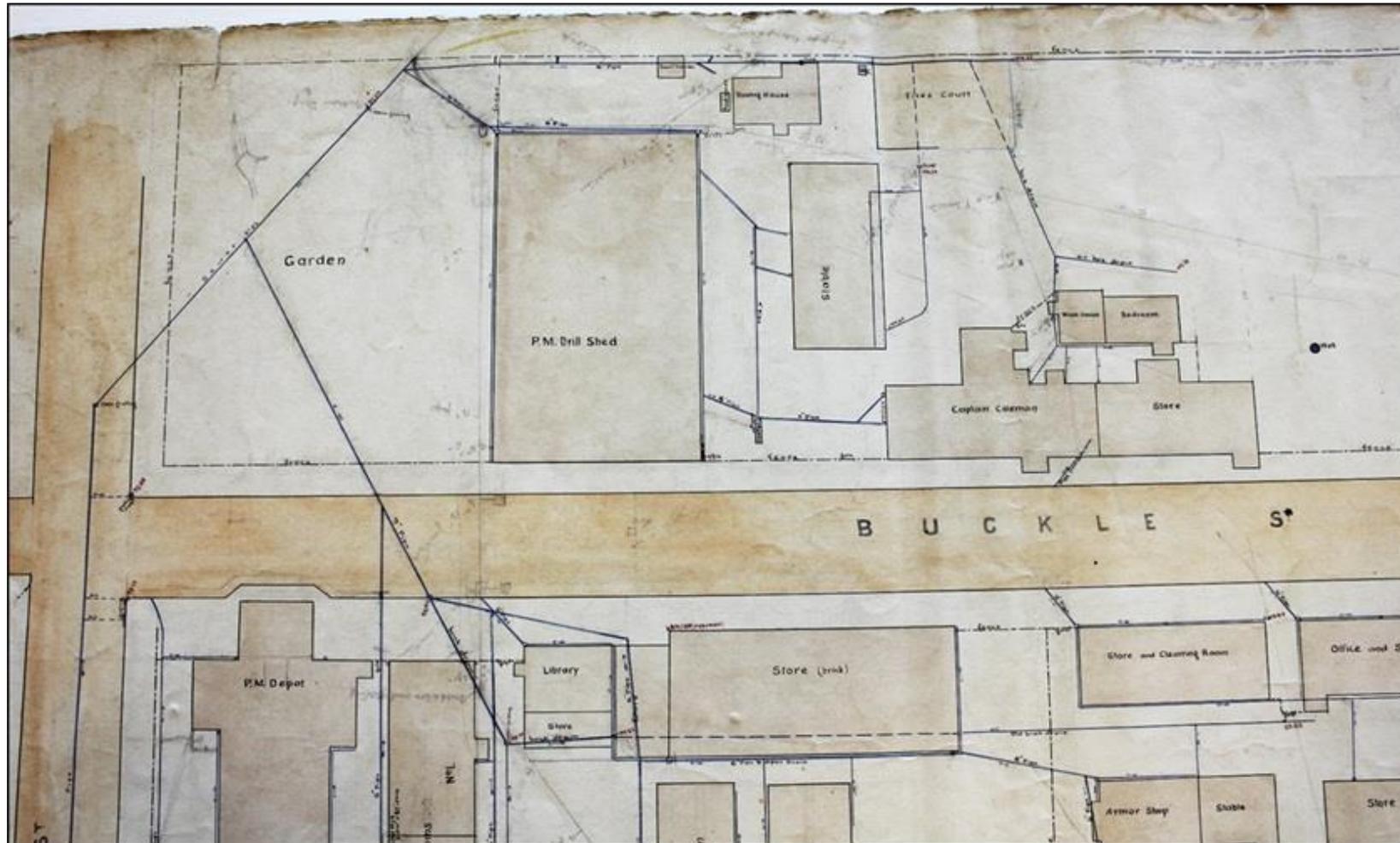


Figure 2.9 Close-up detail of plan of Mount Cook Barracks, dated 1893, showing identified buildings within Town Acre 226. Source: Mount Cook Police Barracks, 1893, AAOD W3273 Box 10 WDO 131, Archives New Zealand

### 2.1.2 Early 20th Century Military Activity

Updates to the Ward map, dated 1900, show few changes to structures situated within Town Acre 226, and a later survey plan, dated 1903, makes note of the drill shed along the Buckle Street frontage and describes the barracks as an ‘old building’ (Figure 2.10 to Figure 2.12).

The Buckle Street drill shed (Figure 2.13) was utilised for a range of purposes, including as a dance hall, bowling green, for socials, and even as a circus arena, although its primary function was for artillery training exercises.<sup>65</sup> In 1903 the building was equipped with two dummy six inch and one eight inch BL (breech loading) guns, along with quick-firing guns on a standing mount, leading the *Evening Post* to remark: ‘The shed at Mount Cook, in fact, is now furnished with all details, so that the drill and Morris-tube practice can be made an efficient preparation for the actual manning of the forts...a lecture-room with stores in use at the forts has also been supplied, as well as a room for the signalling detachment, which is instructed in flag, semaphore, and lamp signalling, the telephone, and orderly duties.’<sup>66</sup>

Despite improvements, the condition and repair of the old drill shed and neighbouring barracks were in decline by the early 1900s and calls for additional facilities, including accommodation for the rapidly increasing numbers of volunteers, and a larger drill space at Buckle Street led to plans for a new Garrison Hall.<sup>67</sup>

The formerly undeveloped land to the west (and partially to the north) of the old drill shed, at the corner of Buckle and Taranaki Streets, was proposed as the site of the new hall and a survey plan, dated 1906, shows the area of development alongside the extant drill shed (Figure 2.14). On 1 June 1907, the foundation stone for the new complex was laid by His Excellency the Governor, Lord Plunket, in front of a large gathering of military forces and general public (Figure 2.15 and Figure 2.16). Following the ceremony details of the proposed Garrison Hall design were published by the *Evening Post*:

‘The new Garrison Hall, the foundation-stone of which was laid on Saturday, will have a frontage of 127ft to Taranaki-street and 105ft to Buckle-street, and will be of brick, the angles of the building being emphasized by towers having battlemented parapets surrounded by flagstaves. It will contain a drill hall 102ft by 82ft, one large lecture-room 36ft by 20ft, and three small rooms, an orderly room for the Wellington Rifle Battalion, and a smaller one for the Garrison Artillery. Special provision will be made for club-rooms for the officers, and non-commissioned officers. On the upper floor will be fifteen orderly rooms – one for each corps in the garrison, and in the basement will be commodious quarters for the Submarine Miners and Engineers, and a miniature rifle range. Provision is also made for an extension to the rear of the present Permanent Militia Drillshed, affording accommodation for the field guns, thus leaving the present floor space entirely free for drill purposes. Over this extension will be a large band practicing room and orderly rooms for the bands. The contractors are Messrs. Howie and Matthews, of Wellington; the contract price is £6900,

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<sup>65</sup> See: *Dominion*, 4 June 1908, p.7.

<sup>66</sup> *Evening Post*, 29 September 1903, p.5.

<sup>67</sup> According to the 1906 annual report on Drill Halls and Rifle Ranges by Major-General J.M. Babington, Commandant of the New Zealand Defence Force, plans had been drawn up for the new hall in Wellington by August 1906. *Appendices to the Journal of the House of Representatives (AJHR)*, 1906, H-19, p.12. Also, see: Artillery instructional appliances in Drill Shed, Buckle Street, 1905-1908, AD1 521/n D1908/1024, Archives New Zealand; *Evening Post*, 3 June 1907, p.3; *Dominion*, 20 January 1908, p.8.

2. Town Acre 226

and the buildings are expected to be completed early in next November. Plans were prepared by the Public Works Department from the designs of Mr. J. Campbell, Government Architect.’<sup>68</sup>

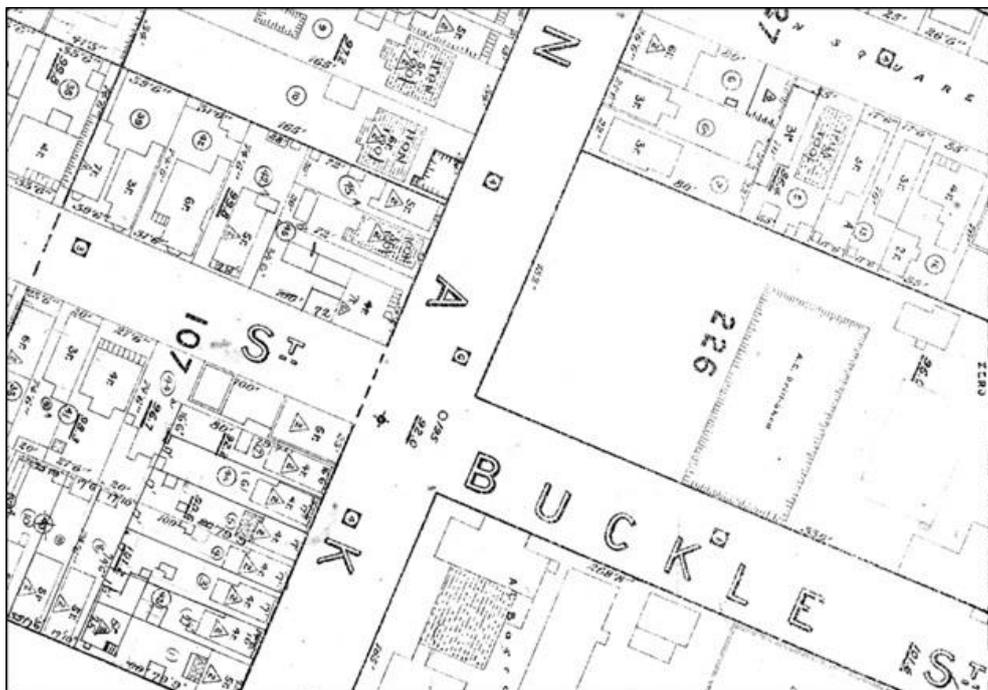


Figure 2.10 Close-up of Thomas Ward’s updated survey map of Wellington City, dated 1900, showing buildings at the western end of Town Acre 226. Source: 00514:7:1, Wellington City Archives



Figure 2.11 Close-up of Thomas Ward’s updated survey map of Wellington City, dated 1900, showing buildings at the eastern end of Town Acre 226. Source: 00514:7:1, Wellington City Archives

<sup>68</sup> *Evening Post*, 3 June 1907, p.6.

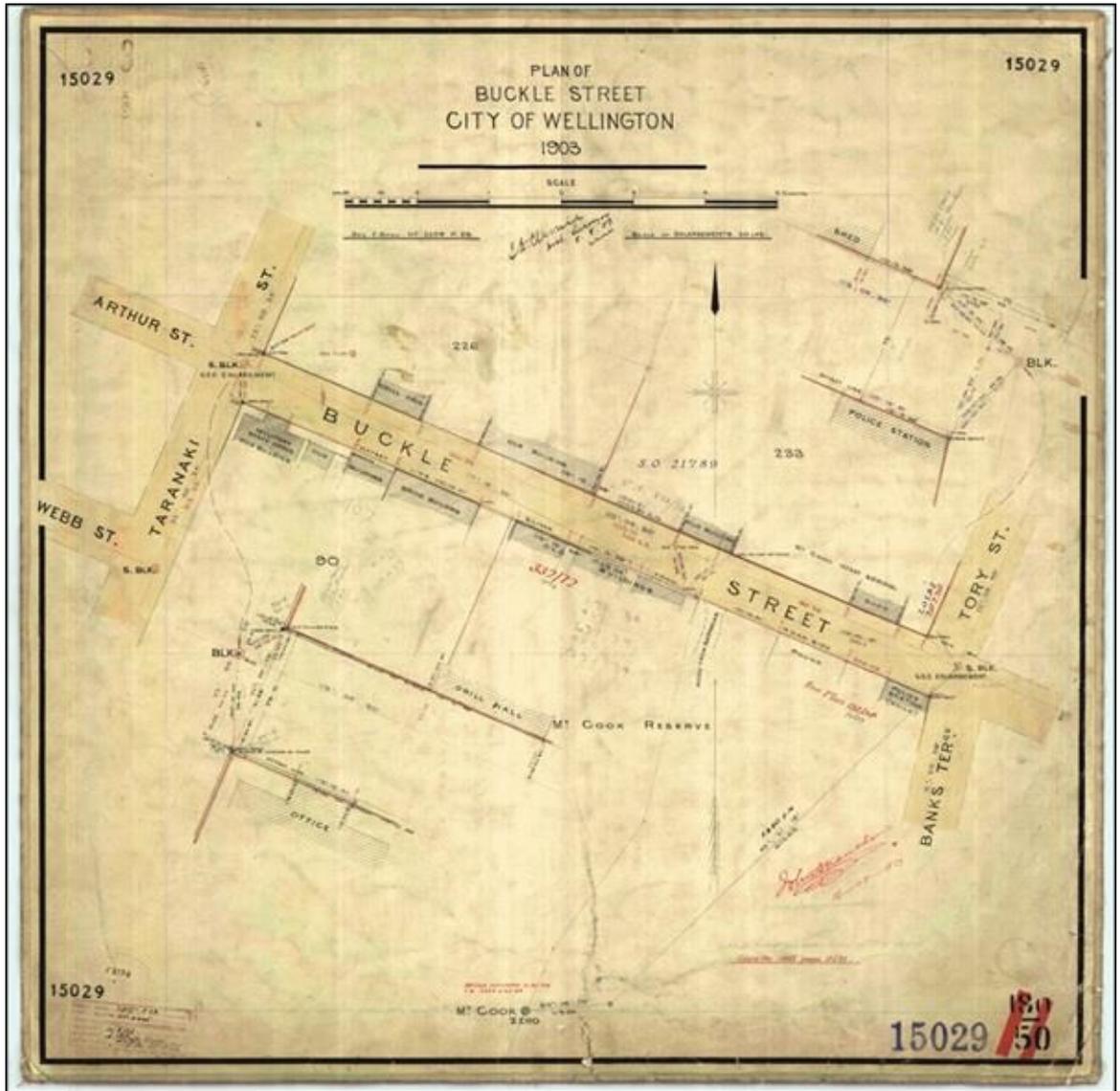


Figure 2.12 SO 15029, dated 1903, showing buildings along the Buckle Street perimeter of Town Acre 226. Source: Quickmap



**Figure 2.13** Close-up view of photograph, dated early 1900s, looking south over the Te Aro area and showing the Buckle Street Drill Hall (arrowed in red) within Town Acre 226. Source: Alexander Turnbull Library - *Photographs of New Zealand Collection*; Part 2 of a 2-part panorama of Wellington, looking south from the vicinity of the Terrace Gaol. Smith, Sydney Charles, 1888-1972. Ref: 1/1-020268-G

Work on the garrison compound, which incorporated the footprint of the old drill shed, progressed throughout 1907 and by January 1908 was nearing completion. A correspondent for the *Dominion* visited the Buckle Street site prior to the end of construction and wrote the following article outlining its layout:

‘By way of preface...it is necessary to explain that the galvanized iron walls of the old drillshed have been demolished, and a new structure in brick has been erected on the same site, and forms part of the whole building. The concrete floor of the old shed will not be removed. In the general description of the new building, therefore, this addition will be taken into account. The building itself is a solid structure, with no claims to architectural beauty, although the white-sand bricks, which enter very largely into the construction of the new hall, give it a smart appearance. The reconstructed position is in red brick. The Taranaki Street front is 127 feet in length, while the frontage to Buckle Street is 157ft. 6in.

The basement part of the hall, which is reached by a sub-way at the far side of the reconstructed portion, does not extend over the whole area of the site. There is a room measuring 83ft. by 20ft. for the Mining Corps; another, 75ft. by 28ft., for the Engineers; and a Morris-tube gallery 76ft. by 6ft. The lavatories are also situated on the basement.

On the main floor are the two drill halls, the lecture and orderly rooms, and the gun shed. The big drill hall, which is floored, measures 102ft. by 82ft., while the lesser hall is 100ft. by 50ft. Both halls run right up to the roof. The gun

2. Town Acre 226

shed, 50ft. by 24ft., is situated at one end of the lesser hall. Situated along the Taranaki Street and Buckle Street sides of the larger hall are the lecture and orderly rooms. Beginning at the lower end on the Taranaki Street frontage there are three lecture rooms, each 21ft. 6in. by 16ft. One of these is reserved for the Artillery. The Officers' Clubroom, which comes next, is a good-sized room, being 36ft. by 16ft. The next two rooms are each 20ft 4½in. by 20ft., one being reserved for the Garrison Artillery Volunteers, and the other as a battalion orderly room, the latter being situated at the corner of Taranaki and Buckle Streets. Facing Buckle Street is a large room, 31ft. 7in. by 20ft., for the non-commissioned officers, and adjoining that is the officers' orderly room, 28ft. by 20ft. The main entrance is 12ft. wide, and forms a hall 20ft. long. Above the main floor are a number of orderly rooms, access to which is by a gangway running round the walls of the big hall. In the reconstructed portion above the gun shed are two rooms for the bandsmen, a practice room and an orderly room.<sup>69</sup>

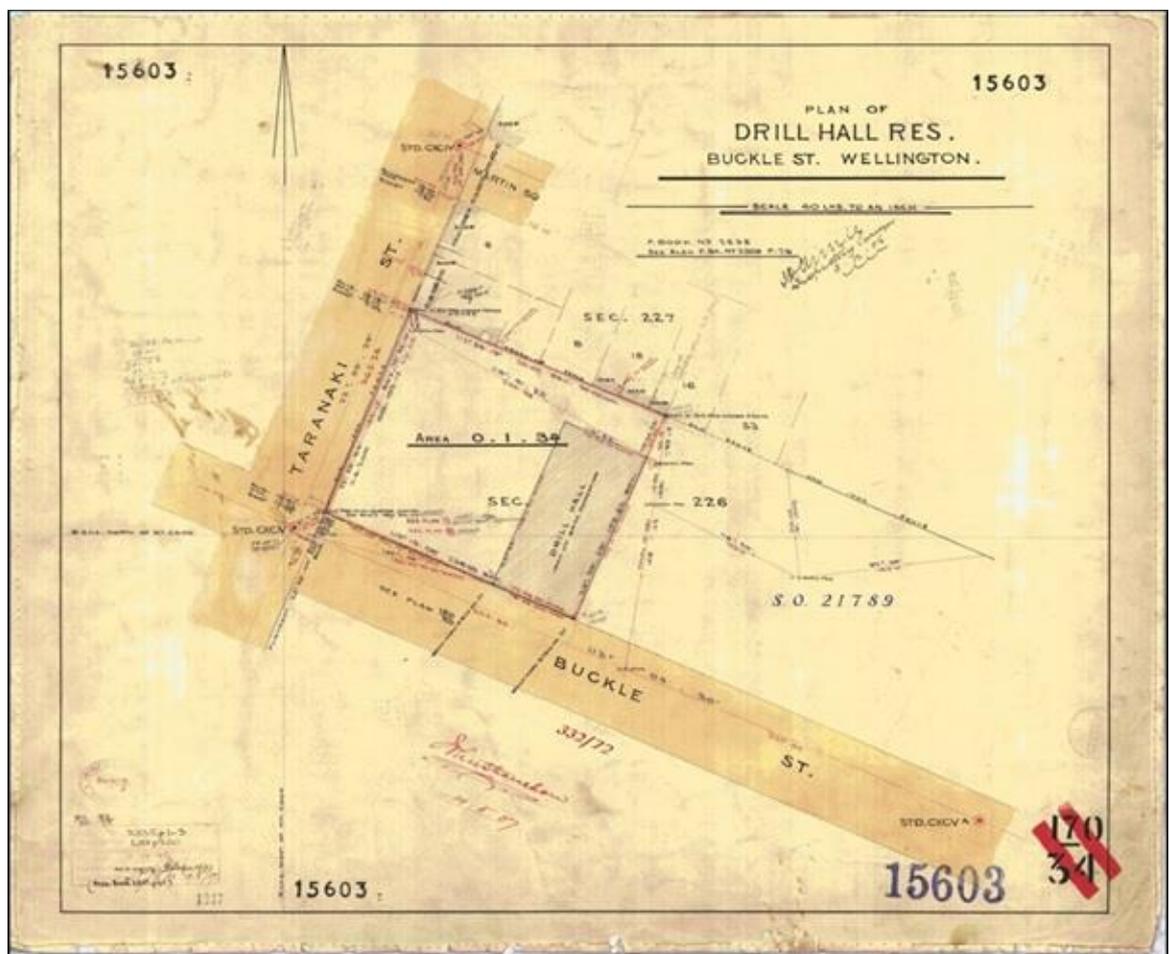


Figure 2.14 SO 15603, dated 1906, showing the area of Town Acre 226 to be developed for the new Garrison Hall, including the extant Drill Hall building. Source: Quickmap

<sup>69</sup> While not detailed in this article, it is noted that ‘prison bricks’ were used in the construction of the Garrison Hall. The bricks were made by prisoners at the brickworks located on Mt Cook and often featured an inscribed arrow for identification. *Evening Post*, 14 October 1981, np; *Dominion*, 20 January 1908, p.8.



Figure 2.15 Photograph, taken on 1 June 1907, showing the crowd present at the laying of the foundation stone for the new Garrison Hall, corner Buckle and Taranaki Streets. The old Drill Shed can be seen at centre left. Source: Sir George Grey Special Collections, Auckland Libraries, AWNS-19070613-7-4



Figure 2.16 Photograph, dated 13 June 1907, showing the foundation stone of the new Garrison Hall, corner Buckle and Taranaki Streets, laid by Lord Plunket on 1 June 1907. Source: Sir George Grey Special Collections, Auckland Libraries, AWNS-19070613-7

The complex was eventually completed by mid-1908 and was officially opened on 3 June by the Hon. R. McNab, Acting-Minister for Defence (Figure 2.17). The management of the new Garrison Hall was vested in trustees who instated a number of rules for the premises including that ‘the upkeep of the hall – lighting, etc. – will be met by levies upon corps using the hall, such sums to be a charge on the capitation allowances of the corps.’<sup>70</sup> Ownership of the land on which the hall stood was retained by the British Government until its transfer to the Governor of the Dominion of New Zealand, under the New Zealand Fortifications Order of 1909.<sup>71</sup>

Although the official opening of the Garrison Hall took place in 1908, it remains unclear whether the original plans for a rifle range, situated in the basement of the complex, were completed at that time. In January 1909, the *Evening Post* noted ‘it has been decided that a miniature rifle range shall be constructed at the Buckle-street drill hall for the use of volunteers’ and a date for its completion was fixed for August that same year.<sup>72</sup> The opening of the range, on 21 August 1909, was celebrated by an officers’ and ladies’ match which was recounted by the *Dominion* with the following:

‘A sport of which very little was heard in Wellington two or three years ago, but which is rapidly coming into favour, not only with volunteers, but also with enthusiastic civilians, is miniature rifle shooting. During the winter months, when the state of the weather offers a bar to target shooting in the open range, an excellent indoor substitute is the miniature range, for Morris tube and miniature rifles. The trustees of the Garrison Hall have recently had a couple of miniature rifle ranges installed in the basement of the Drill Hall, and for the last few weeks’ odd matches have been fired from time to time. It was deemed fitting, however, to officially declare the ranges open, and on Saturday afternoon, in the main drill hall, an officers’ and ladies’ match was fired, the targets being improvised in the big hall in order to have the advantage of the daylight.’<sup>73</sup>

The construction of an annexe to the Garrison Hall was also carried out in 1909. The structure was described as a ‘fort in miniature’ and served the training needs of the garrison gunners.<sup>74</sup> A description of the form and function of the building was provided by the *Dominion*, which noted:

‘A brick annexe, 75ft. long and 25ft. wide, is now being constructed on the eastern side of the Artillery Hall. It will be divided into three compartments, and fitted up on the lines of a miniature fort. In the central compartment the big 8-in. E.O.C. B.L. drill gun will be mounted on a pivot standard, and in one corner a D.R.F. station is to be installed. The front compartment, facing Buckle Street, will be used and fitted up as a 6-pounder battery, while the rear-

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<sup>70</sup> *Dominion*, 6 June 1908, p.14.

<sup>71</sup> Mount Cook Reserve, 1880-1917, LS1 1400 57607/1, Archives New Zealand.

<sup>72</sup> *Evening Post*, 19 January 1909, p.5; *Dominion*, 13 August 1909, p.4.

<sup>73</sup> *Dominion*, 23 August 1909, p.11.

<sup>74</sup> The need for an annexe had become apparent once space was at a premium in the old Artillery Hall and gunners were obliged to travel to Mahanga Bay in order to simulate ‘conditions more approximate to the real thing.’ The *Dominion* noted: ‘The Artillery Hall has served for the purposes of 6-in. 12-pounder, and 6-pounder gun drill up to the present, but owing to the space taken up by the big 6-in. B.L. gun and several minor arms is rendered unsuitable for general purposes, especially the drill work of the field artillery.’ *Dominion*, 16 July 1909, p.6.

compartment is to be the 12-pounder battery. A “loading teacher” i.e., a breech-loading device for drill work in loading 6-in. guns, will also be provided.<sup>75</sup>

Buildings at the eastern end of Town Acre 226, including the old residence of Captain Coleman and defence store, remained standing until at least 1907 when they can be seen in a photograph taken from the corner of Buckle and Taranaki Streets at the laying of the foundation stone for the new Garrison Hall (see Figure 2.15). Demolition of the structures is likely to have taken place during the construction phase of the hall, and a later photograph, dated 1913, shows what appears to be vacant land where the buildings formerly stood (Figure 2.18).

That same year Buckle Street was the scene of a stand-off between the Mounted Special Constables and striking seamen, during what was known as the 1913 Waterfront Strike. The façade of the Wellington Garrison Hall featured in a number of photographs of this event and the interior was converted into sleeping quarters for the constables with piles of straw spread throughout the hall floor (Figure 2.19 to Figure 2.21).

During World War I (1914-1918) the Garrison Hall served as the first point of contact between civilians and the military, and was the site of the recruiting office until 1915:

‘The main doors of the barracks in Buckle Street, a rather out-of-the-way part of Wellington, are closed most of the time, but in one of them there is a small door through which one may climb. There is not as much as a khaki badge to show that the recruiting office is inside. The man who climbs through the little door finds himself in the drill hall, and if he tries the various rooms that open from it he will discover that one of them – the furthest from the entrance – is the Dominion’s chief recruiting office.’<sup>76</sup>

The hall was also used for compulsory parade, drill competitions, the issuing of arms, and as a point of assembly for recruits before heading to training camps.<sup>77</sup>

Following the end of the war, the Garrison Hall continued as a venue for both military and community events, including commemorative occasions, such as the awarding of posthumous decorations to the families of fallen soldiers by the Governor-General in 1918 (Figure 2.22).<sup>78</sup>

From the early 1920s plans for the redevelopment of the neighbouring Town Acre 233 were put forward by the Education Board which proposed to build a combined Mount Cook School using a portion of the eastern end of Town Acre 226. In August 1923 the Evening Post reported that the Mt Cook boys’, girls’ and infant schools, all located in different places, were to be brought together in a new c.3 acre site around the existing infant school at the corner of Tory Street and Buckle Street (in Town Acre 233); this was achieved by including a portion of the Defence Department’s drill ground fronting Buckle Street, and

<sup>75</sup> Ibid.

<sup>76</sup> Sun, 27 November 1915, p.3.

<sup>77</sup> *Dominion*, 19 September 1914, p.8, *Dominion*, 5 April 1915, p.7, *Dominion*, 17 July 1915, p.7, *Dominion*, 12 October 1915, p.6, *Dominion*, 2 February 1916, p.6.

<sup>78</sup> *Dominion*, 10 September 1918, p.4.

allowing the Defence Department to take 1¼ acres of the site of the boys' school in exchange.<sup>79</sup>

Extant buildings on the parade ground area, including a small garage and stable, were cleared in 1924 and the foundation stone for the new brick school was laid by the Minister of Education, Hon. Sir James Parr, on 15 July 1925.<sup>80</sup> The contractor for the work was a Mr E.S. Knight and the school was officially opened in 1926.<sup>81</sup>



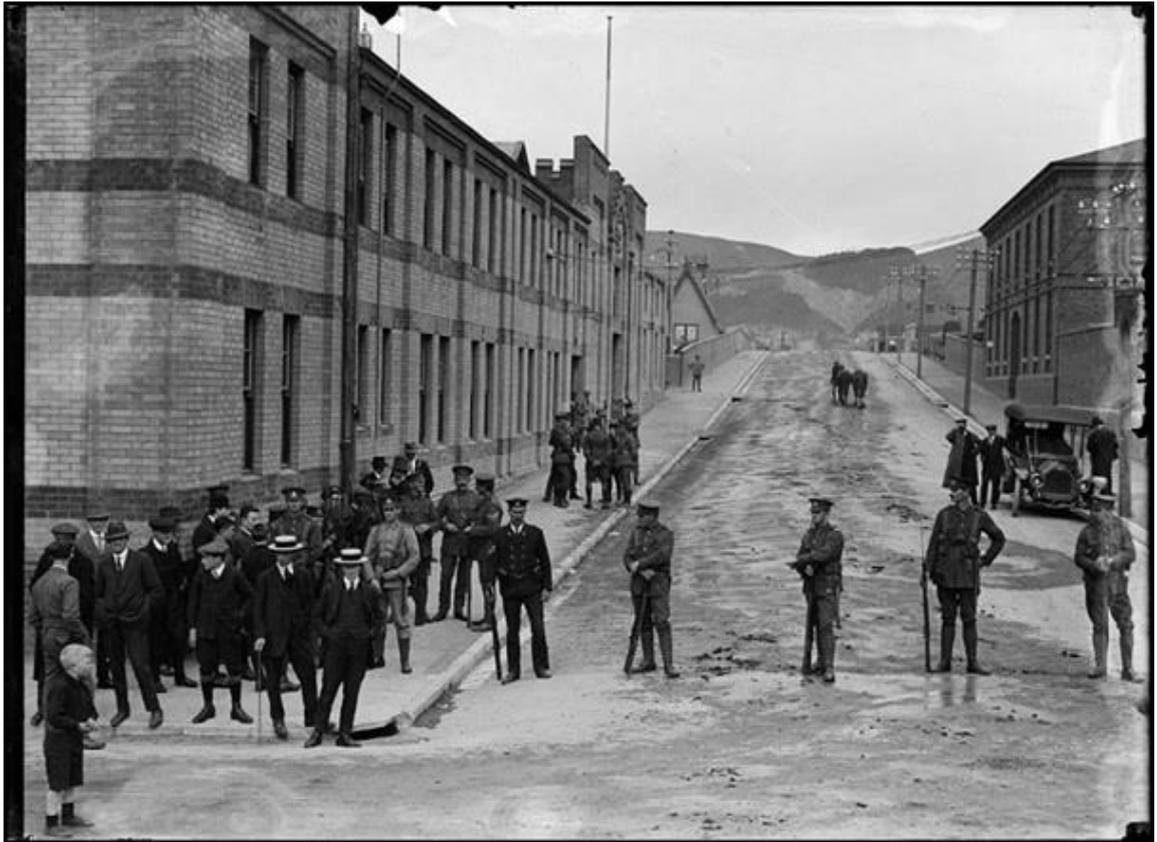
**Figure 2.17** Photograph, dated 18 June 1908, showing the Wellington Garrison Hall shortly after its official opening. Source: Sir George Grey Special Collections, Auckland Libraries, AWNS-19080618-6-1

The Mt Cook School building is visible on a later survey plan, dated 1948, which showed the layout of the school over both Town Acres 226 and 233 (Figure 2.23). Concrete latrines and a shelter shed are shown within the school grounds (on the Town Acre 226 portion) and two adjacent sheds are visible within the grounds of the Army Service Corps (A.S.C.) yard, alongside the Garrison Hall. The plan omits to show the brick Gunnery Annexe adjacent to the eastern wall of the drill hall which was in place by 1909.

<sup>79</sup> *Evening Post*, 15 August 1923, p.6.

<sup>80</sup> Reserves – Military Reserve – Wellington – Buckle Street (Garrison Hall site) and Taranaki Street (old school site), AD1 698 5/162, Archives New Zealand; *Evening Post*, 16 July 1925, p.9.

<sup>81</sup> *Evening Post*, 27 January 1926, p.2.



**Figure 2.18** Photograph, dated 1913, showing soldiers outside the military barracks along Buckle Street during the Waterfront Strike. The façade of the Garrison Hall is shown at left, alongside what appears to be a vacant section where the original barracks buildings once stood. Source: Soldiers outside military barracks on Buckle Street, Wellington, during the 1913 Waterfront Strike. Smith, Sydney Charles, 1888-1972. Alexander Turnbull Library - *Photographs of New Zealand Collection*, Ref: 1/2-049064-G



**Figure 2.19** Photograph dated 1913 taken by Sydney Charles Smith (1888-1972), showing soldiers on Buckle Street during the Waterfront Strike. The façade of the Garrison Hall is shown at left. Source: Alexander Turnbull Library - Photographs of New Zealand Collection. Ref: 1/2-049061-G



**Figure 2.20** Photograph, dated 1913, showing horses tethered on Town Acre 226 during the Waterfront Strike. The eastern side of the rear of the Drill Hall is visible along with the Gunnery Annexe in the background (at left). Source: Bestic 1979: 31



**Figure 2.21 Photograph, dated 3 November 1913, showing the interior of the Wellington Garrison Hall converted into sleeping quarters for a contingent of special constables during the Waterfront Strike. Source: Kete Horowhenua, Horowhenua Historical Society Inc., 2000.018.0091**

In 1923 a sketch plan was submitted to the City Engineer of Wellington which proposed the demolition of the small iron structure and the construction of a substantial brick extension over the entirety of the A.S.C. yard. A council bylaw regarding the proposed widening of Buckle Street to 66 feet necessitated the southern boundary of the addition to be constructed in wood, and although the request was acceded to, photographs and survey plans of the site suggest that the original iron building remained in place until at least the late 1950s (Figure 2.24 to Figure 2.26).<sup>82</sup>

The buildings at the eastern end of Town Acre 226 can also be seen on plans drawn up by A.R. Currie, Chief Engineer of the N.Z. Army, dated August 1955, which identified stores alongside the eastern wall of the Garrison Hall, along with a toilet block, garage, battery and engine rooms, and the position of the access ramp into the basement of the drill hall. To the west, the plans detailed the internal layout of the Wellington Garrison Hall and

<sup>82</sup> Note: the planned widening and lowering of Buckle Street did not take place until 1930 when relief workers reduced the crown of the road some seven or eight feet between Taranaki and Tory Streets, and extended it to a width of 50 feet. Despite initial plans to cut back the facades of the buildings situated along both sides of the street, the removal of some army structures on the southern side to make way for the Dominion Museum, art gallery and Carillon, allowed widening to occur along the southern side of Buckle Street. *Evening Post*, 11 April 1930, p.10; Additions to Drill Hall. Buckle Street, 1923, 00233:458:1923/2360, Wellington City Archives.

provided one of the only known illustrations of the basement portion, including the rifle range (Figure 2.27 and Figure 2.28).

The exterior of the garrison complex underwent little modification from the time of its construction to the 1930s; however, extensive reconstruction and repairs were undertaken following an earthquake in 1944, which included the removal of the battlemented parapets, and rendering of the entire outer façade with concrete plaster (Figure 2.29).<sup>83</sup>



**Figure 2.22 Photograph, dated 1918-1939, showing the Territorial Force Artillery on parade in the Buckle Street drill hall. Source: Bestic 1979: 37**

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<sup>83</sup> *Evening Post*, 16 September 1944, p.6; E.B. Bestic, ed., *End of an Era: An Informal History of the Military in the Mt. Cook area of Wellington, 1846-1979*, Wellington, 1979, p.34.



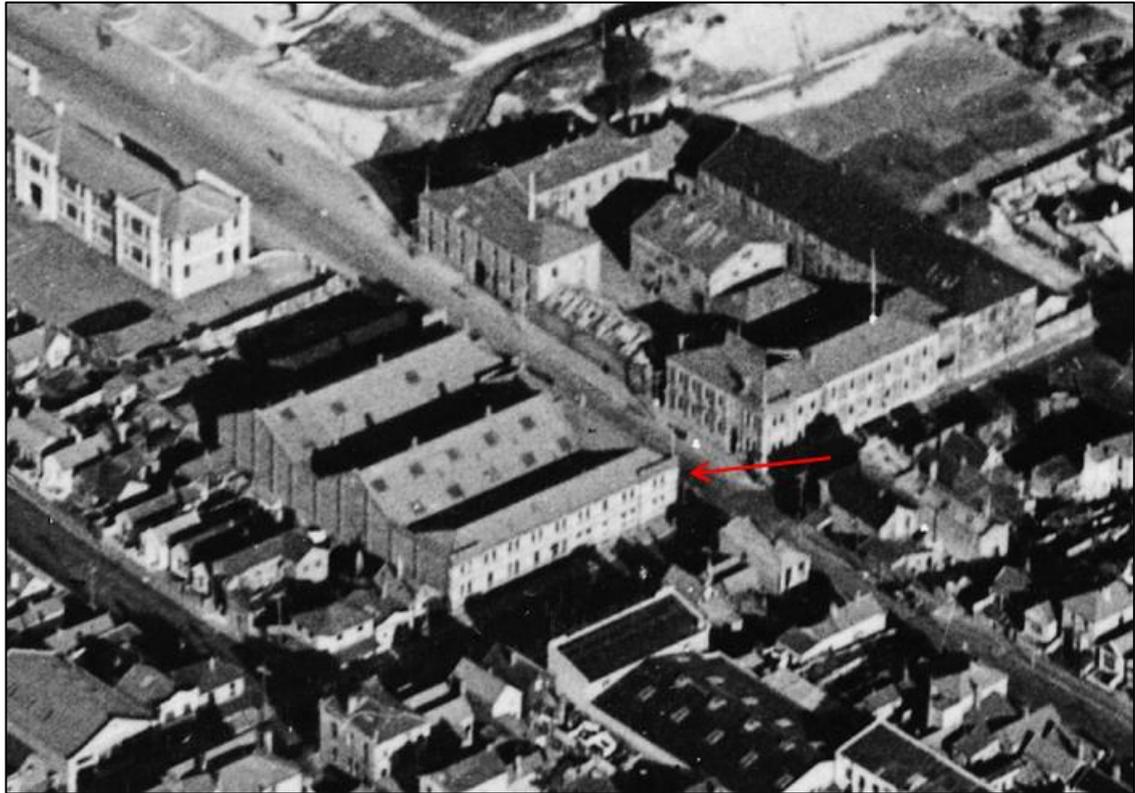


Figure 2.24 Close-up of aerial photograph, dated 1934, showing Buckle Street (centre left to right diagonal) and the Wellington Garrison Hall complex (arrowed in red). Source: Mount Cook, Wellington. *Evening Post* Newspaper. 1865-2002. ATL - *Evening Post* Newspaper Collection. Ref: PAColl-6301-59

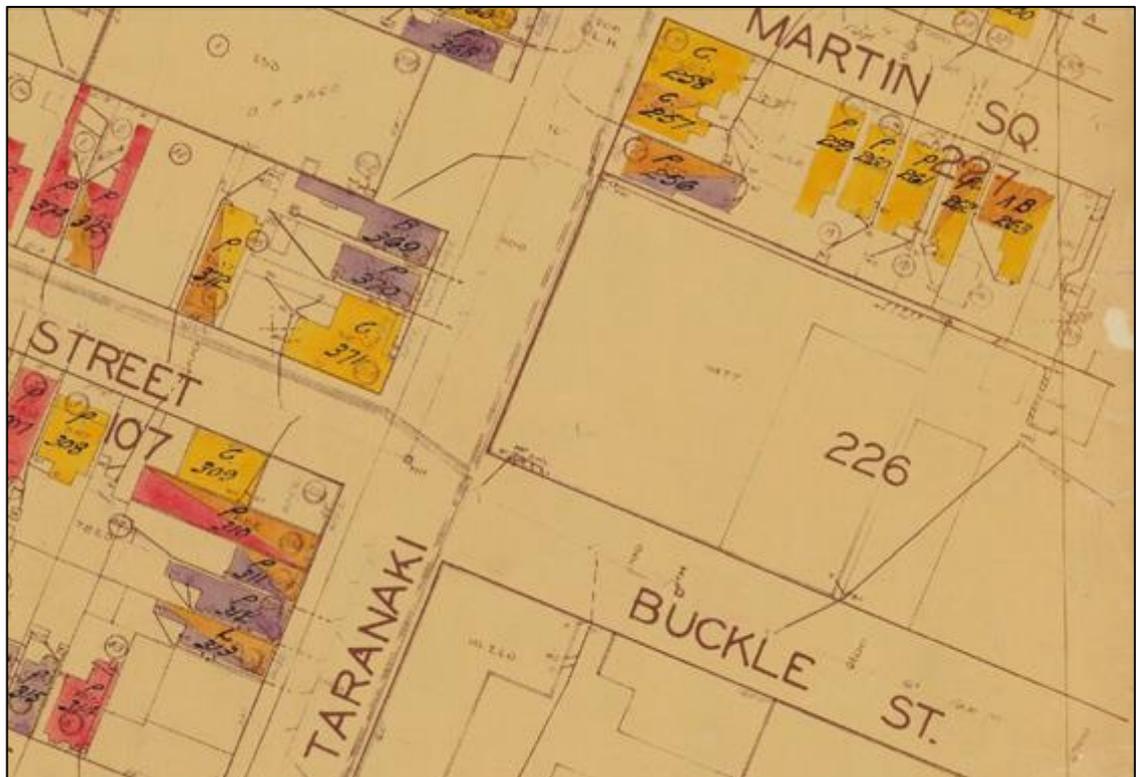


Figure 2.25 Close-up of housing survey plan of Wellington City, dated 1937, showing buildings within the western end of Town Acre 226. Source: 00515:5:4, Wellington City Archives

2. Town Acre 226

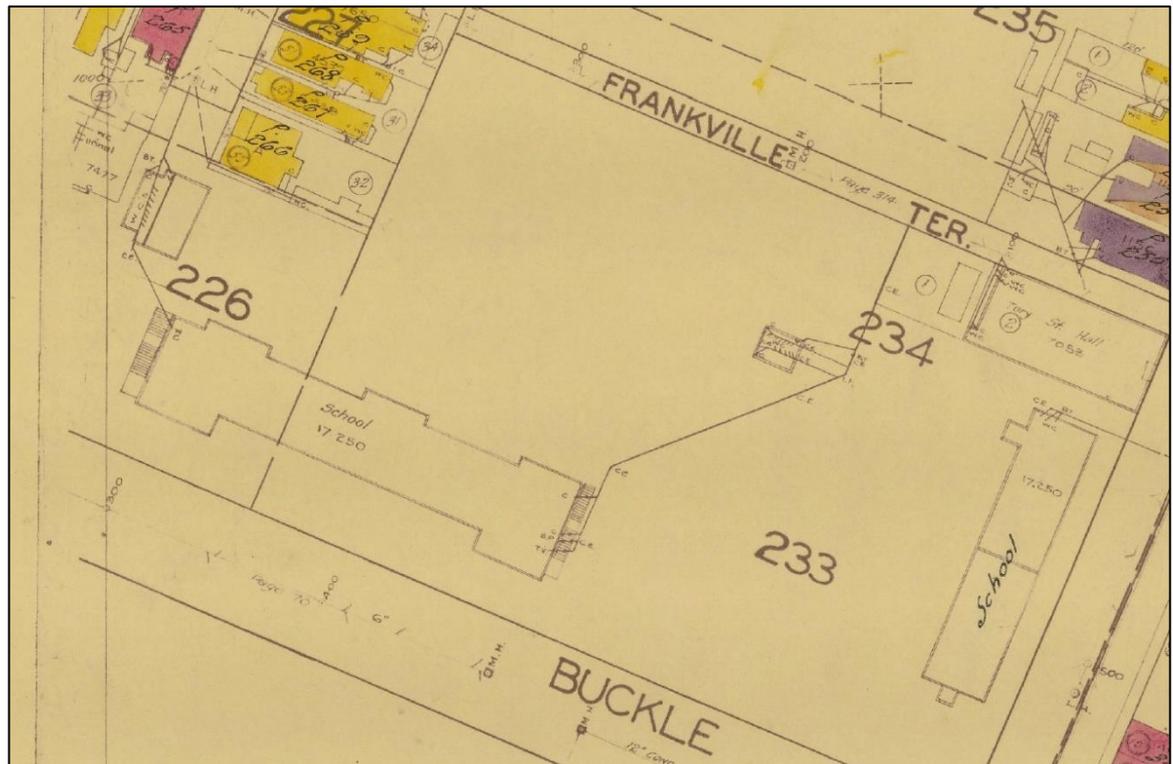


Figure 2.26 Close-up of housing survey plan of Wellington City, dated 1937, showing buildings at the eastern end of Town Acre 226. Source: 00515:5:5, Wellington City Archives

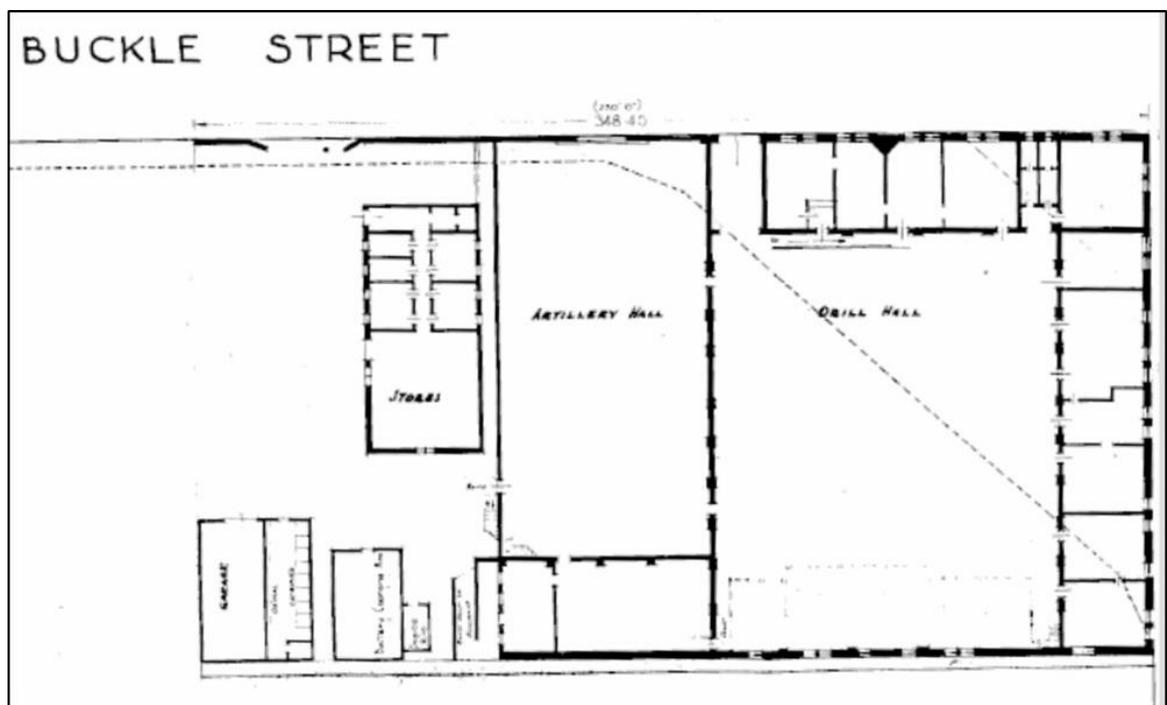


Figure 2.27 Plan G.2788 Sheet 3 of 4, dated 30 August 1955, showing the ground floor interior layout of the Wellington Garrison Hall, on the corner of Buckle and Taranaki Streets. Source: New Zealand Defence Force Archives

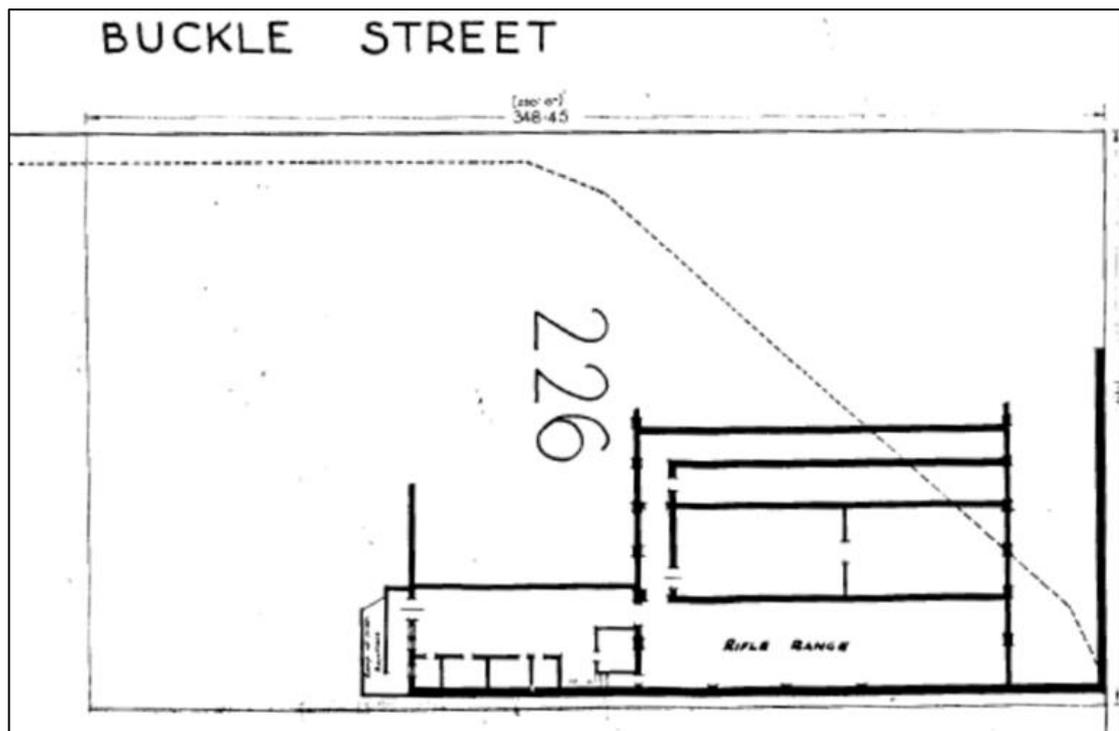


Figure 2.28 Detail from plan G.2788 Sheet 2 of 4, dated 30 August 1955, showing the basement interior layout of the Wellington Garrison Hall. Source: New Zealand Defence Force Archives

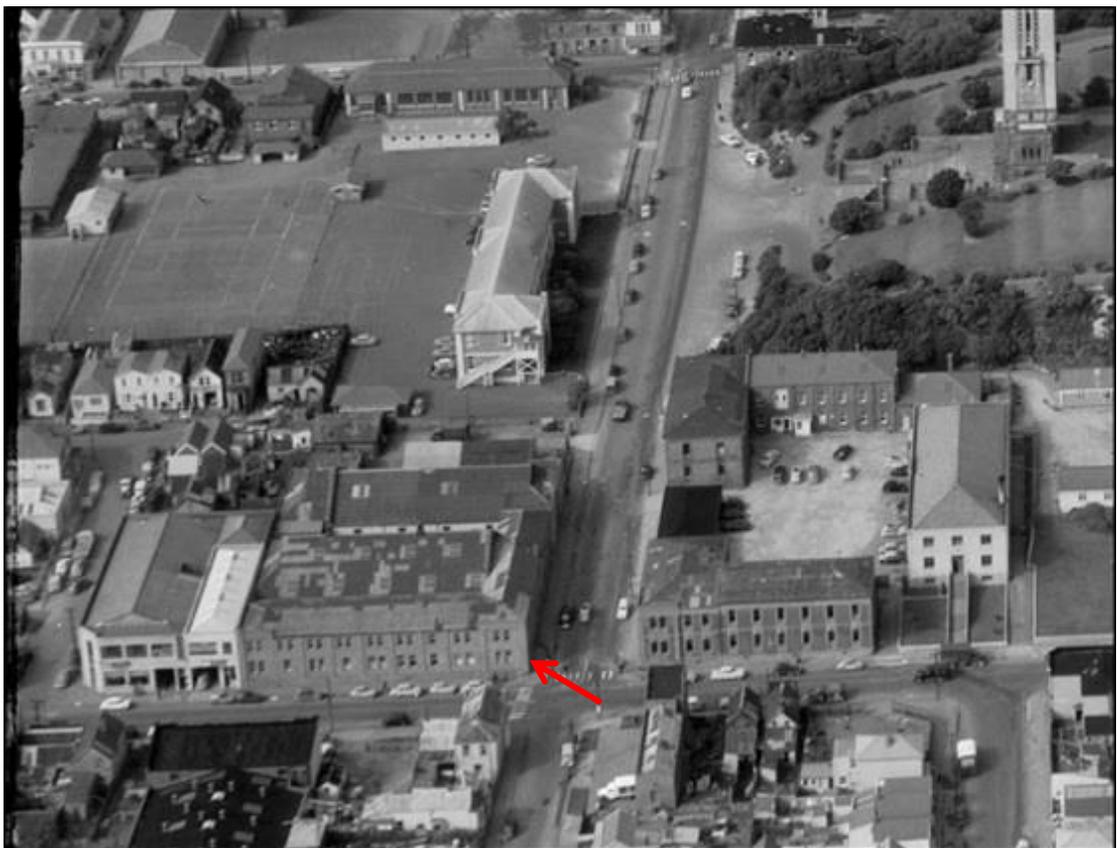


Figure 2.29 Close-up of aerial photograph, dated 27 August 1958, showing the newly rendered exterior of the Wellington Garrison Hall at the intersection of Buckle and Taranaki Streets (arrowed), Town Acre 226. Source: Alexander Turnbull Library - Whites Aviation Photographs Collection. Ref: WA-47253-F

### 2.1.3 World War II and Later 20th Century Military Occupation and Abandonment

The Garrison Hall continued as a popular venue for a range of events throughout the mid-1900s, and during World War II (1939-1945) the hall was utilised for the medical examinations of recruits, parades of the Women's War Service Auxiliary, first-aid competitions, drill practice, and as a training facility for various rifle clubs (Figure 2.30 to Figure 2.32).<sup>84</sup> In 1942 guardsman R.B. McIntyre was stationed at the Mount Cook Barracks and described the various buildings on Town Acre 226 with the following:

‘Across the road [Buckle Street] the Drill Hall stood and was occupied by the Pay Office mainly, except that the Medical Section and GVP (Guard Vital Point) had the rooms where the Film Section and Medical Section were latterly. A long counter ran from Colin Andrews corner to 2/3 length of the long hall with a cashier's pay box on it. Across the back of the hall was an enclosed office area – part of the pay office. Below was, as is, the rifle ranges and black holes full of all sorts of junk and mouldy files and mysterious openings which looked like tunnels. Alongside this hall was a yard area fenced in with a high fence with huge shells for gate posts. On this area were another huge urinal, a cookhouse and battery charging room and basement doors from the Drill Hall opened on to this area. It was a pretty grim place all round.’<sup>85</sup>

During the 1960s-1970s the eastern side of Town Acre 226 was redeveloped to include a large car-port or garage structure with room for several vehicles; however, by the late 20th century the Garrison Hall complex was rendered surplus to military requirements (Figure 2.33). The building remained on the corner of Buckle and Taranaki Streets until the early 1980s when it was dismantled, along with the adjacent garage, by Ginty's Demolition Contractors. The basement portion of the structure was left in situ and backfilled with rockfill and basecourse.<sup>86</sup> Following demolition of the Garrison Hall and other military buildings on Town Acre 226 the land was used for a variety of purposes, including a trucking contractor's yard and equipment hire yard with associated buildings (Figure 2.34 to Figure 2.35). All buildings were removed from the site by 2007, and the area remained vacant until its incorporation into the Pukeahu National War Memorial Park in 2015.<sup>87</sup>

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<sup>84</sup> *Evening Post*, 5 September 1938, p.14; *Evening Post*, 14 September 1939, p.9; *Evening Post*, 25 September 1940, p.7; *Evening Post*, 3 October 1944, p.6; Victoria University Students' Association, *The Spike: or, Victoria University College Review* 1945, Wellington, 1945, p.82.

<sup>85</sup> Bestic 1979, pp.41-2.

<sup>86</sup> Contract for Demolition of Drill Hall and Garage at 2 Buckle Street (Contractor: Ginty's Demolition Contractors), 1982-1983, AATE W4485 12 5/686/8, Archives New Zealand.

<sup>87</sup> Hudson 2012, p.23.



**Figure 2.30** Photograph, dated 1938, showing participants at the annual Dominion and inter-district competitions of the St John Ambulance Brigade, held at the Buckle Street Drill Hall. Source: Evening Post, 5 September 1938, p.14



**Figure 2.31** Photograph, dated 1939, showing recruits for New Zealand's special military force undergoing medical examinations at the Buckle Street Drill Hall. Source: Evening Post, 14 September 1939, p.9



**Figure 2.32** Photograph, dated 1940, showing members of the Women's War Service Auxiliary on parade at the Buckle Street Drill Hall. Source: Evening Post, 25 September 1940, p.7

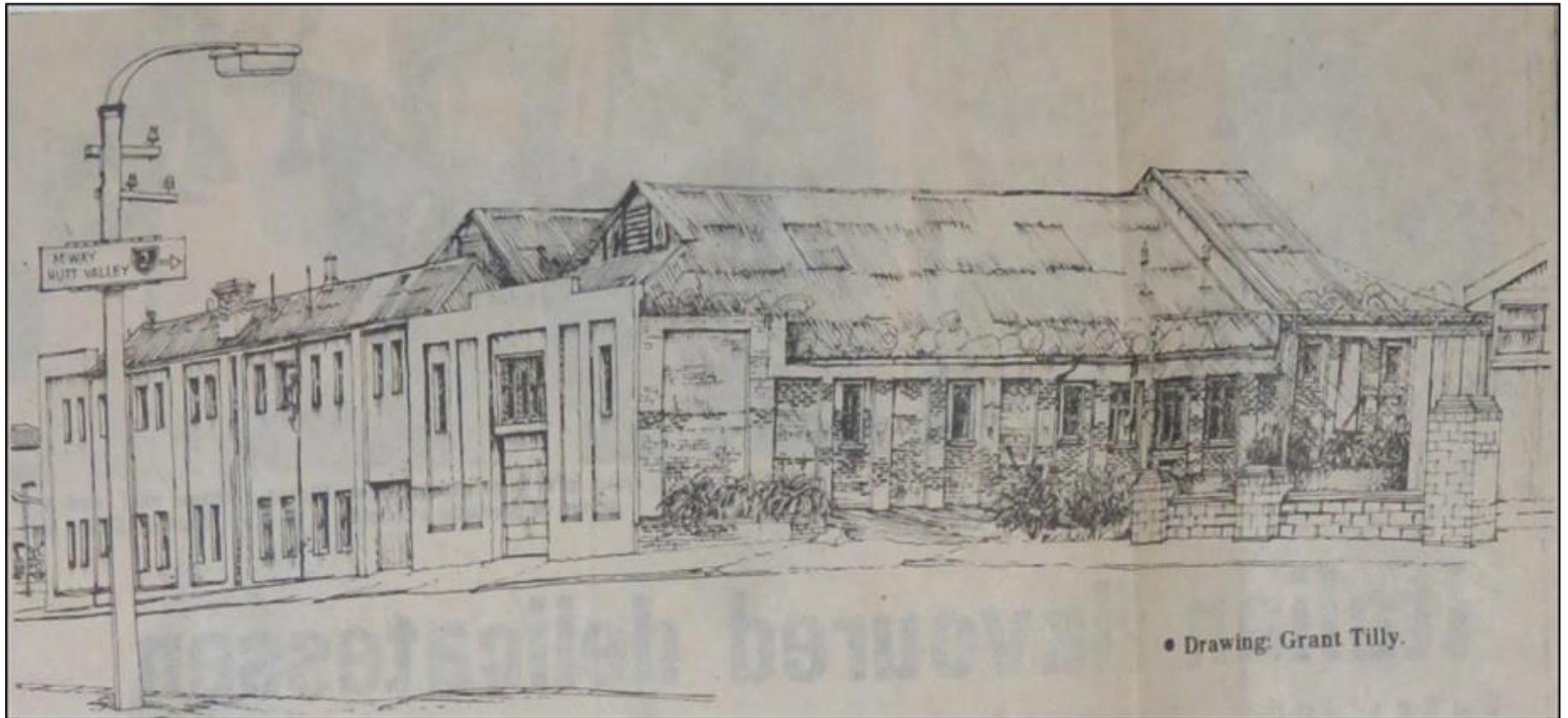


Figure 2.33 Sketch drawing, dated 1981, showing the Garrison Hall building on Buckle Street shortly before its demolition. Source: Evening Post, 14 October 1981, np



**Figure 2.34** Close-up of aerial photograph, dated 1990, showing car parking area and commercial premises at the corner of Buckle and Taranaki Streets, Town Acre 226 (note: eastern end not depicted, see Figure 2.35). Source: 00462-1-381, Wellington City Archives



Figure 2.35 Close-up of aerial photograph, dated 1990, showing car parking area and commercial premises at the corner of Buckle and Taranaki Streets, Town Acre 226. Source: 00462-1-382, Wellington City Archives

### 3 TOWN ACRE 233

#### 3.1 Historical Background

Bordered by Buckle Street to the south and Tory Street to the east, Town Acre 233 was reserved by the Crown for military purposes and a Crown Grant was issued to the Secretary of State for War on 31 May 1858 (Figure 3.1).<sup>88</sup>

##### 3.1.1 Military Occupation

Military occupation of Town Acre 233 was established from the early-mid 19th century as part of the Lower Mount Cook Barracks, and early buildings erected on the land can be seen on Spyve’s plan of the Mt Cook Barracks, showing structures as built by 1852, and in a photograph of the Te Aro area taken by the Reverend Arthur Henry Stock in 1858 (see Figure 2.2 and Figure 3.2). The western portion of Town Acre 233 was converted into a parade ground and utilised for the training and exercise of local militia and volunteers. The ground also hosted a number of cricket matches, including New Zealand’s first representative match played between Auckland and Wellington in 1860, prior to the formation of the Basin Reserve in 1868. Town Acre 233 was relatively clear of buildings in the mid-19th century and a Town Survey plan, dated to the 1870s, shows only two extant buildings situated along the Buckle and Tory Street frontages of the section (Figure 3.3).

In 1877 the eastern portion of Town Acre 233, comprising 2 roods and 4 perches, was granted to the Wellington Education Board, while the western end of Town Acre 233 was retained for military purposes to become an artillery installation.

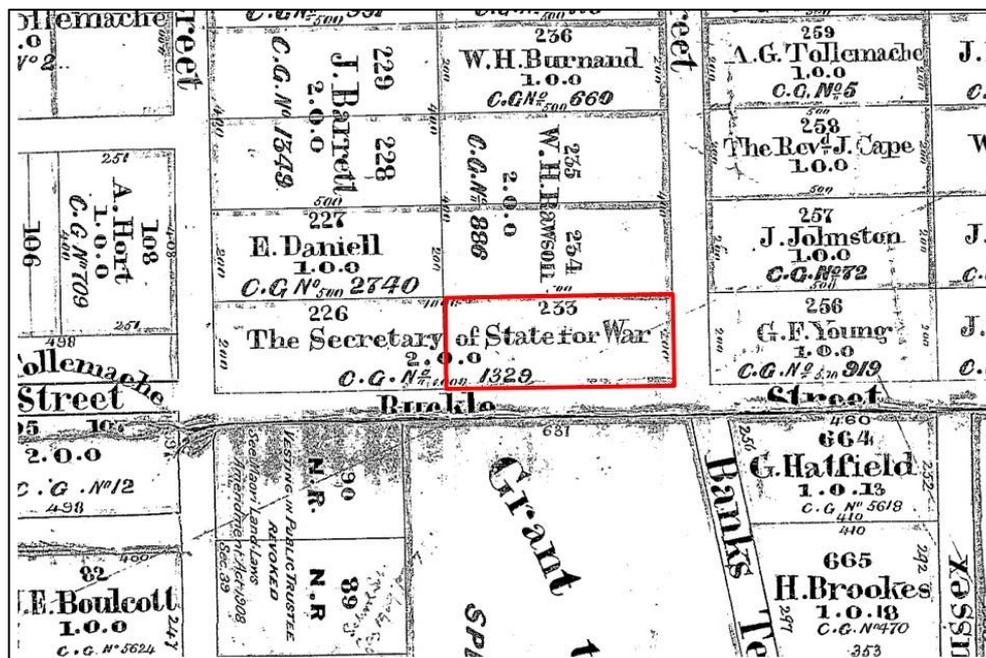


Figure 3.1 Close-up of SO 10295 (5), dated 1870s, showing Crown Grantee for Town Acre 233 (outlined in red). Source: Quickmap

<sup>88</sup> Mount Cook Reserve, 1880-1917, LS1 1400 57607/1, Archives New Zealand.

3. Town Acre 233

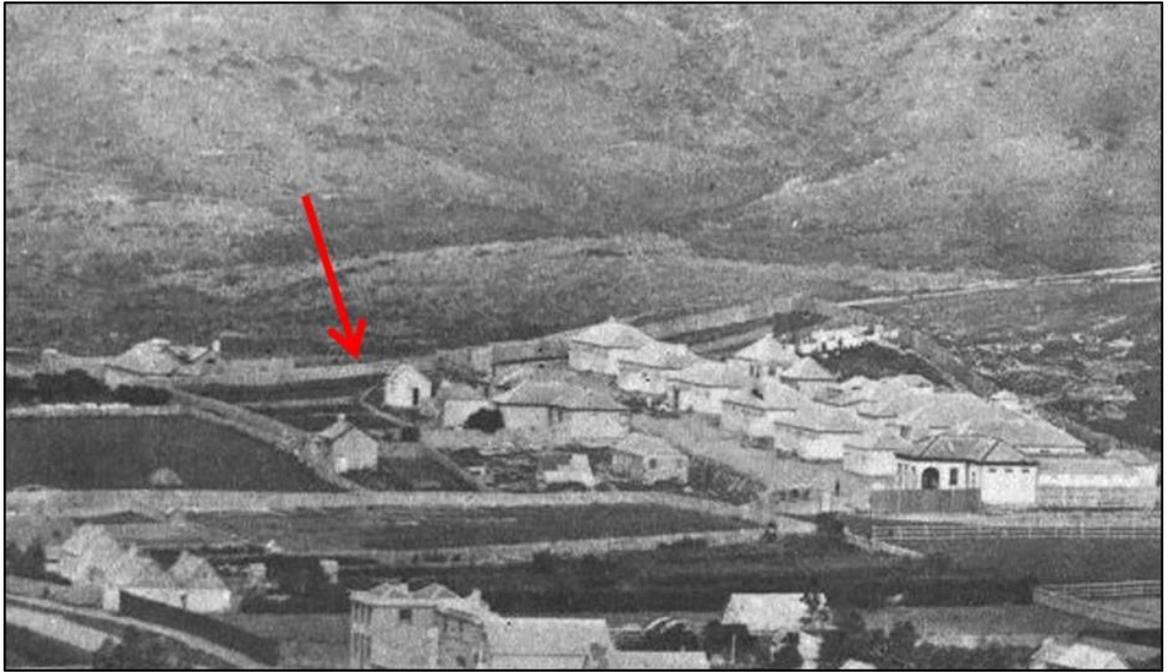


Figure 3.2 Close-up detail from Stock's 1858 photograph of Te Aro Wellington, showing buildings within the area of the Lower Mount Cook Barracks (background centre). Approximate area of Town Acre 233 is indicated by the red arrow. Source: Stock, Arthur Henry (Rev), 1823-1901. Alexander Turnbull Library - Crawford Family Collection. Ref: PA1-f-019-17-3.

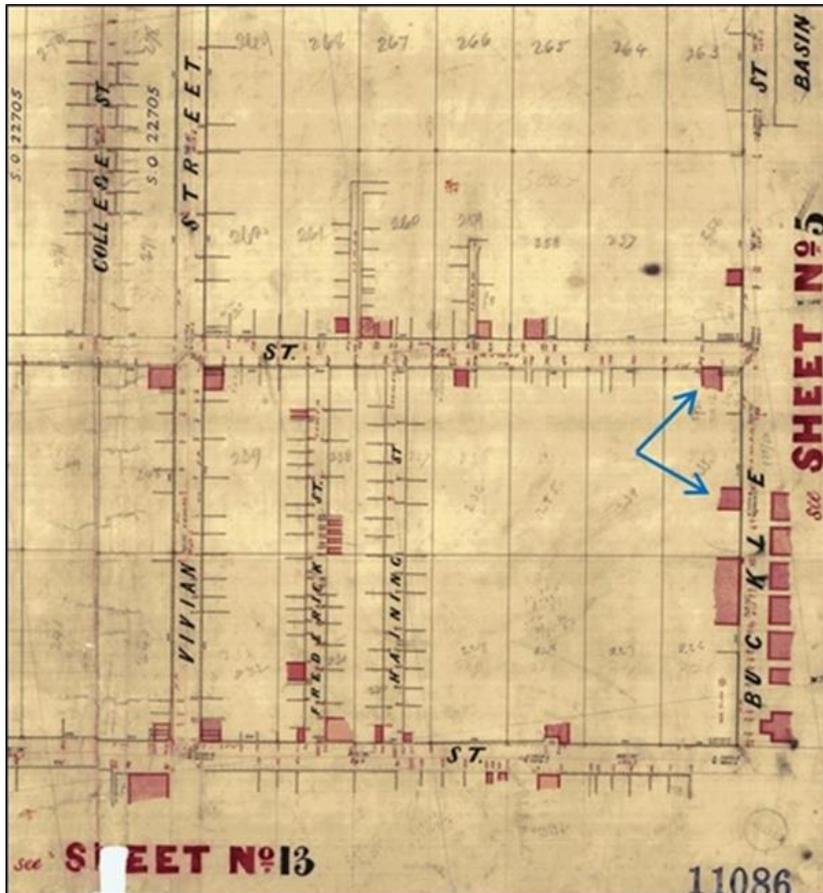


Figure 3.3 SO 11086, dated 1870s, showing extant buildings along the perimeter of Town Acre 233 (both arrowed in blue). Source: Quickmap

### 3.1.1.1 The 'Russian Scares' of 1873 and 1885 and the Armed Constabulary

From the 1850s onwards there had been almost constant agitation for a strengthening of New Zealand's coast defences, which had for some time been seen as inadequate, in the main by the colonial press.<sup>89</sup> These agitations increased during a period of Russian colonial expansion in the aftermath of the Crimean War that strained relations with Britain. Tensions in Britain increased as it was perceived that Tsarist Russia posed a direct threat not only upon Britain itself, but also on the Empire as a whole, New Zealand included.<sup>90</sup> In New Zealand, these tensions manifested into fears that the country was vulnerable to an invasion by Russian forces, primarily due to perceived weaknesses in troop numbers, artillery, and Naval and coast defences. These fears were given further fuel in 1873 by a hoax newspaper report by the editor of the Daily Southern Cross, David Luckie, and printed in the 17 February 1873 edition, that gave a fictitious account of a Russian Invasion of Auckland by the cruiser Kaskowski ('cask of whisky').<sup>91</sup>

By 1878 in the fallout of Russia's declaration of war against Turkey, the 'first Russian Scare' occurred, in response to which, the New Zealand Government purchased eleven each of the 64-pounder rifled muzzle loader 64-cwt (64 hundredweight) and 7-inch 7-ton guns manufactured by the Elswick Ordnance Company of England. However, by the time the ordnance arrived in New Zealand in 1879, tensions had diminished sufficiently for the guns to be placed into storage, apparently surplus to requirements.<sup>92</sup>

The situation ultimately resulted in the full-blown 'Russian Scare' of 1885, a result of which, was that the Minister of Defence John Balance (who also held responsibility for the Harbour Defences of New Zealand), and acting upon the advice of Major Edmond Tudor Boddam<sup>93</sup>, ordered 13 Breech Loading (BL) 6-inch and ten BL 8-inch Armstrong hydro-pneumatic disappearing guns from Britain. These new guns were to replace the obsolete rifled muzzle loaders (RMLs) (including the 64pdr RMLs ordered in 1878 and either already in use or being mounted at installations around the four main ports of Auckland, Wellington, Dunedin and Christchurch (Table 3.1 and Table 3.2)).<sup>94</sup> Table 3.1 is an estimate of total expenditure for the purchase of the artillery pieces and associated items, and shows that the cost of guns to be situated in Wellington was £18,045, with a total enterprise cost of £40,470 (Table 3.1 – outlined). The majority of this ordnance would have been destined for Forts Ballance and Buckley located on the Miramar Peninsula and at Kaiwharawhara respectively, protecting Wellington Harbour.<sup>95</sup>

From 31 March 1885, all members of the Armed Constabulary Field Force were to be posted either to Wellington (Buckle Street Barracks) to undergo coastal artillery training under Royal Artillery NCOs (non-commissioned officers), or to the four main ports to

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<sup>89</sup> Barratt, G. 1981: *Russophobia in New Zealand 1838-1900*. Palmerston North, Dunmore Press, quoted in Veart, D. 1990. *North Head: the Development of a Fort*. Department of Conservation Science & Research Internal Report 79, p. 10.

<sup>90</sup> Barratt, G. 1976. 'The Enemy that never was: The New Zealand 'Russian Scare' of 1870-1885', *New Zealand Slavonic Journal*, No. 1 (1976), p. 15.

<sup>91</sup> *Daily Southern Cross*, Issue 4829, 17 February 1873, P. 3.

<sup>92</sup> Ruffell, W.L. 1999. The Gun - Rifled Ordnance: New heavy RML equipments. New Zealand Artillery. Available from: <http://riv.co.nz/rnza/hist/gun/rifled5.htm>

<sup>93</sup> Edmond Meyer Tudor Boddam was transferred to New Zealand from command of the Tasmania Torpedo Corps and promoted to lieutenant-colonel and made NZ Engineer of Defences. Henderson, A. et al. 2008. *The Gunners - A History of New Zealand Artillery*, pp 54.

<sup>94</sup> Ruffell, W.L. 1999. The Gun - Rifled Ordnance: New heavy RML equipments.

<sup>95</sup> 1885 New Zealand. Harbour defences (Table showing amount required for). Laid on the Table by the Hon. Mr Ballance, with the Leave of the House. Appendix to the Journals of the House of Representatives, 1885 Session I, B-19.

3. Town Acre 233

prepare emplacements for the mounting of the guns which had been in store (64pdrs), plus the newly ordered ones.<sup>96</sup> Two of the 64 pound RML guns were set up in the parade ground at Buckle Street within Town Acre 233 for use in such drills (Figure 3.4 to Figure 3.6).

Table 3.2, dated 31 March 1885, refers to ‘works in progress and to be completed in connection with 7in and 64-pounder guns’, with the works in Wellington totalling some £17,031, and it is almost certain that the 64 Pounder guns seen mounted on Moncrieff Carriages close to the northern boundary of Town Acre 233 in Figure 3.4 to Figure 3.6 are two examples of those guns referred to (Figure 3.4 to Figure 3.6; Table 3.2 – outlined).<sup>97</sup>

Also of note within Table 3.2 is the total cost of Armed Constabulary labour at £41,000 for the two and a half years it was envisaged would be required to install the guns around the country (Table 3.2 – outlined). The labour costs, when considered together with the expense of the ordnance, shows that this was an extremely expensive venture for the time.

**Table 3.1 Land Defence - Estimate of total expenditure for guns and materiel from 31st March 1885. (Major Boddam's Return, 24th June, 1885).<sup>98</sup> The Wellington gun costs and total expenditure are outlined**

Item. No.	Description.	Auckland.	Wellington.	Canterbury.	Otago.	Totals.
		£	£	£	£/s./d.	£/s./d.
1 10	Guns, 8in., 12½ tons, BL on HP carriages, with 50 rounds per gun, delivered in London	18,045	18,045	12,030	12,027	60,147
2 18	" , 6in., 5½ tons, "	13,600	10,200	6,800	13,600	44,200
3 20	" , machine, with carriages and pivots, and 200 rounds per gun	3,320	3,000	3,000	2,400	11,720
4 12	Range-finders for batteries	75	75	50	94	294
5	100 rounds per gun Ammunition, practice for 7in. and 64-pounder	970	970	645	962	3547
5A	50 rounds per gun Ammunition extra for BL guns	3,200	2,870	1,910	2,545/15/9	10,525/15/9
6 6	9-pounder field-guns, complete	330	170	330	170	1,000
7 2,000	Martini-Henry rifles, with 1,000,000 rounds	2,300	2,300	1,840	2,743/6/8	9,183/6/8
8 ..	Miscellaneous valise equipment (2,000)	250	250	200	300	1,000
9 ..	Freight a on items 1, 2, and 5A	2,200	2,100	1,400	1,700	7,400
	Freight b on item 3	180	150	150	120	600
	Freight c on item 5	260	260	170	250	940
	Freight d on item 8	65	35	65	35	200
	Freight e on item 7	45	45	30	60	180
		44,840	40,470	28,620	37,007/2/5	150,937/2/5
10 20	Whitehead torpedoes and freight					13,100
11 ..	Contingencies					2,462/17/7
	Total					166,500

<sup>96</sup> A Short History of the NZ Permanent Force Old Comrades' Association - The New Zealand Armed Constabulary 1846-85. Available at: <http://www.riv.co.nz/rnza/hist/assoc/ch1.ht>

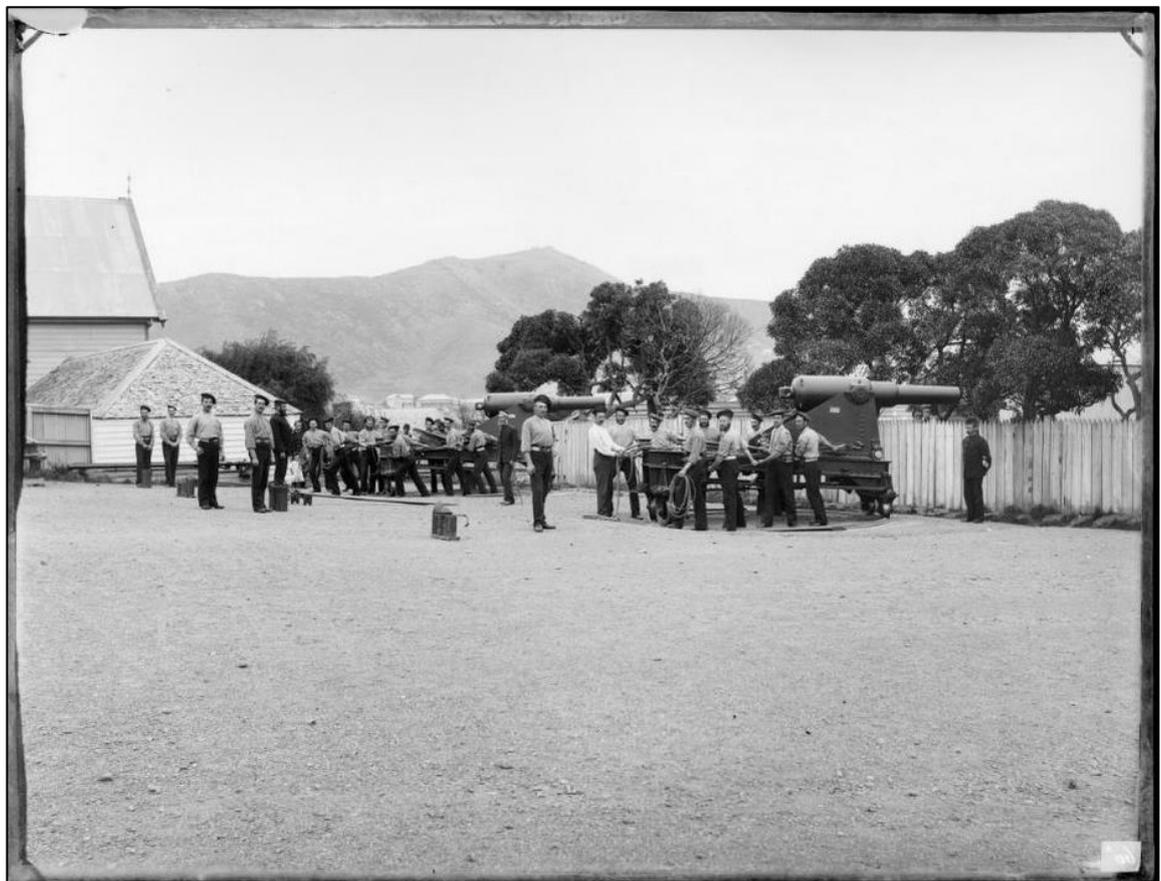
<sup>97</sup> Captain Moncrieff's Protected Barbette Traversing Carriage enabled a gun to be lowered beneath the parapet after firing to protect the gunnery crew.

<sup>98</sup> Source: 1885 New Zealand. Harbour defences (Table showing amount required for). Laid on the Table by the Hon. Mr Ballance, with the Leave of the House. *Appendix to the Journals of the House of Representatives*, 1885 Session I, B-19.

3. Town Acre 233

**Table 3.2 Land Defence - Estimate of total expenditure for cost of works from 31st March, 1885 (Major Boddam's Reports, L.B., pp. 105 and 123)<sup>99</sup>**

Item.	Description.	Auckland. £	Wellington. £	Canterbury. £	Otago. £	Totals. £
1	Works in progress and to be completed in connection with 7in and 64-pounder guns	13,160	17,031	5,169	9,550	44,910
2	Works contemplated: Emplacements and magazines for 8in guns	7,800	7,800	5,200	5,200	26,000
	" Emplacements and magazines for 6in guns	8,000	6,000	4,000	8,000	26,000
	" Barracks and buildings	1,700	1,300	1,300	1,700	6,000
	" Enclosing works	1,750	1,500	1,000	4,750	9,000
3	Lands purchased for works	2,000	2,300	700	1,800	6,800
		34,410	35,931	17,369	31,000	118,710
	Deduct for Armed Constabulary labour for two and a half years	..	..	..	..	41,000
	Total cost of land defence	..	..	..	..	77,710



**Figure 3.4 Photograph, likely to be dated 1885, showing members of the Armed Constabulary Field Force during a drill with 64 pound rifled muzzle loading guns, Town Acre 233, Lower Mount Cook Barracks, Wellington. Note: this photograph appears in reverse – the shed, Mount Cook Infant School and Mount Victoria, all shown in the background, should appear to the right. Source: Williams, Edgar Richard, 1891-1983. Alexander Turnbull Library, *Negatives, lantern slides, stereographs, colour transparencies, monochrome prints, photographic ephemera* Ref: 1/1-025891-G**

<sup>99</sup> *Appendix to the Journals of the House of Representatives, 1885 Session I, B-19.*



**Figure 3.5** Photograph, likely to be dated 1885, showing members of the Armed Constabulary Field Force during a drill with 64 pound RML guns, Town Acre 233, Lower Mount Cook Barracks, Wellington. Note a portion of the Mount Cook Infant School and Mount Victoria in the background. Source: Williams, Edgar Richard, 1891-1983. Alexander Turnbull Library, *Negatives, lantern slides, stereographs, colour transparencies, monochrome prints, photographic ephemera*. Ref: 1/1-025889-G

Following the 31 March posting for the members of the Armed Constabulary training regimes were introduced to operate the guns, and in 1885 the *Otago Daily Times* reported:

‘At the present time...85 members of the Armed Constabulary force are receiving instruction in artillery work at the Mount Cook barracks. The course of drill is somewhat severe, and every man is earning every penny he receives from Government. The daily drills occupy seven and a half hours. There are four instructors. All of them are thoroughly qualified men, and the force to whom they are imparting instruction is making very satisfactory progress. Fifty-five out of the 85 are learning to work big guns, the remainder being instructed in the use of the gin, a contrivance employed to move cannon about. By means of the gin in use at the barracks one man finds no difficulty in lifting a piece of artillery weighing nearly a ton and a-half.’<sup>100</sup>

<sup>100</sup> *Otago Daily Times*, 24 April 1885, p.4.



**Figure 3.6** Photograph, likely dated 1885, showing members of the Armed Constabulary Field Force as they pose with one of the 64 pound rifled muzzle loading guns at Town Acre 233, Lower Mount Cook Barracks, Wellington. Source: Williams, Edgar Richard, 1891-1983. Alexander Turnbull Library, Negatives, lantern slides, stereographs, colour transparencies, monochrome prints, photographic ephemera. Ref: 1/1-025720-G

### 3.1.1.2 Later 19th Century and Early 20th Century Military Activity

Buildings associated with the barracks on Town Acre 233, along with the area of the parade ground, are visible on Ward's 1891 map of the City of Wellington which shows a number of wood and iron structures alongside the Mount Cook Infant School (Figure 3.7).

A Public Works plan, dated 1893, identifies these buildings as a field gun shed and shed (unspecified), and attributes a large square structure along the Buckle Street frontage to 'Captain Anderson' (Figure 3.8). Irish-born Sam Cosgrove Anderson (1841-1899) arrived in New Zealand in 1863 and joined the Defence Department where he remained in active service until 1869. Following his transfer to Wellington, Anderson was made Head of the Stores Department (Defence) and in 1897 *The Cyclopaedia of New Zealand* noted that 'his office is situated at the Mount Cook Barracks in Buckle Street'.<sup>101</sup> In addition to these larger structures the plan also indicates a well, situated near the western boundary of Town Acre 233, along with a portion of the eastern end (school grounds) including part of the school building, a cart shed to the north, and two W.C.s (not shown on Ward's maps). Updates to the Ward map, dated 1900, indicate minimal alterations to the buildings, with the exception

<sup>101</sup> The Cyclopaedia Company Limited, *The Cyclopaedia of New Zealand [Wellington Provincial District]*, Wellington, 1897, p.327.

of a new wood and iron structure situated along the western boundary of the section (Figure 3.9).<sup>102</sup>

Following Captain Anderson's death in 1899 his residence and office became vacant and in January 1900 the *Evening Post* published an article outlining the conditions of lower Buckle Street:

‘A correspondent signing himself “Te Aro” writes: - “The conditions are opportune at the present for attending to and lowering Buckle-street. By the death of Captain Sam Anderson, the house on the top of the hill is vacant. Major Coleman, who occupied the building lower down, is also retiring to settle on his farm. These houses are very old and should be pulled down. The footpath from the top of the hill in Buckle-street to Tory-street is positively dangerous, the drift sands having caked, making a ridge in the centre of it. A pipe leading into the school grounds across this path is culpably exposed and dangerous to passengers’ day or night, it is absolutely out of the straight line, doubtless from frequent concussion with wayfarers’ boots’.<sup>103</sup>

Despite calls for improvements to the Buckle Street area, few modifications were made and by 1903 a survey plan identified the buildings along the southern (Buckle Street) perimeter of Town Acre 233 as a ‘shed’ (within the school grounds) and an ‘old building’, which was likely to have been Captain Anderson's former office (Figure 3.10).

Anderson's office remained standing until at least 1907, when it can be seen in a photograph taken from the corner of Buckle and Taranaki Streets at the laying of the foundation stone for a new garrison hall (see Figure 2.15). A later photograph, taken during the 1913 Waterfront Strike, shows what appears to be vacant land where Anderson's building formerly stood (see Figure 2.18). This empty land, along with the parade ground, was used to accommodate the horses of the mounted special police during the strike which were tethered alongside the Mount Cook Infants' School grounds (Figure 3.11). Following the outbreak of the First World War in 1914, the parade area was used by a number of troops, including the first contingent of New Zealand's Expeditionary Force who were marshalled at the Lower Mount Cook Barracks prior to embarkation to the Front (Figure 3.12).

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<sup>102</sup> Note: the position of the new building as shown on Ward's updated 1900 plan appears to be over the location of the old well as shown on the Public Works 1893 plan.

<sup>103</sup> *Evening Post*, 3 January 1900, p.4.

3. Town Acre 233



Figure 3.7 Close-up detail of Thomas Ward's survey map of Wellington City, dated 1891, showing buildings within Town Acre 233. Source: WebMap, Wellington City Archives

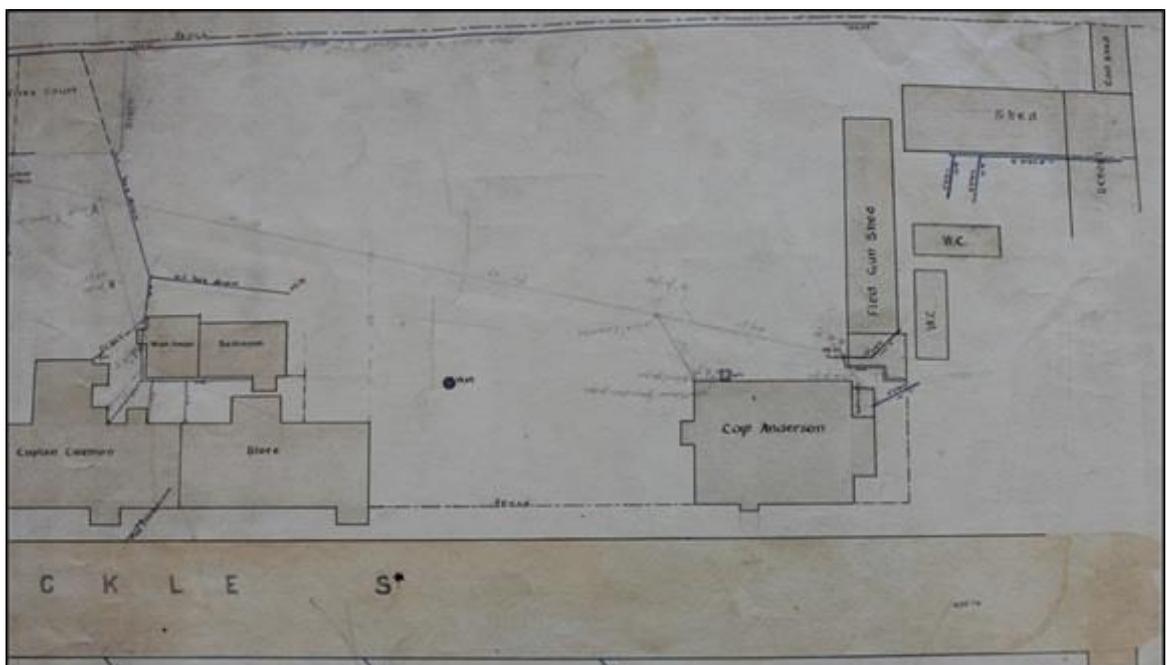


Figure 3.8 Close-up of plan of Mount Cook Barracks, dated 1893, showing identified buildings within the western portion of Town Acre 233. Source: Mount Cook Police Barracks, 1893, AAOD W3273 Box 10 WDO 131, Archives New Zealand

3. Town Acre 233

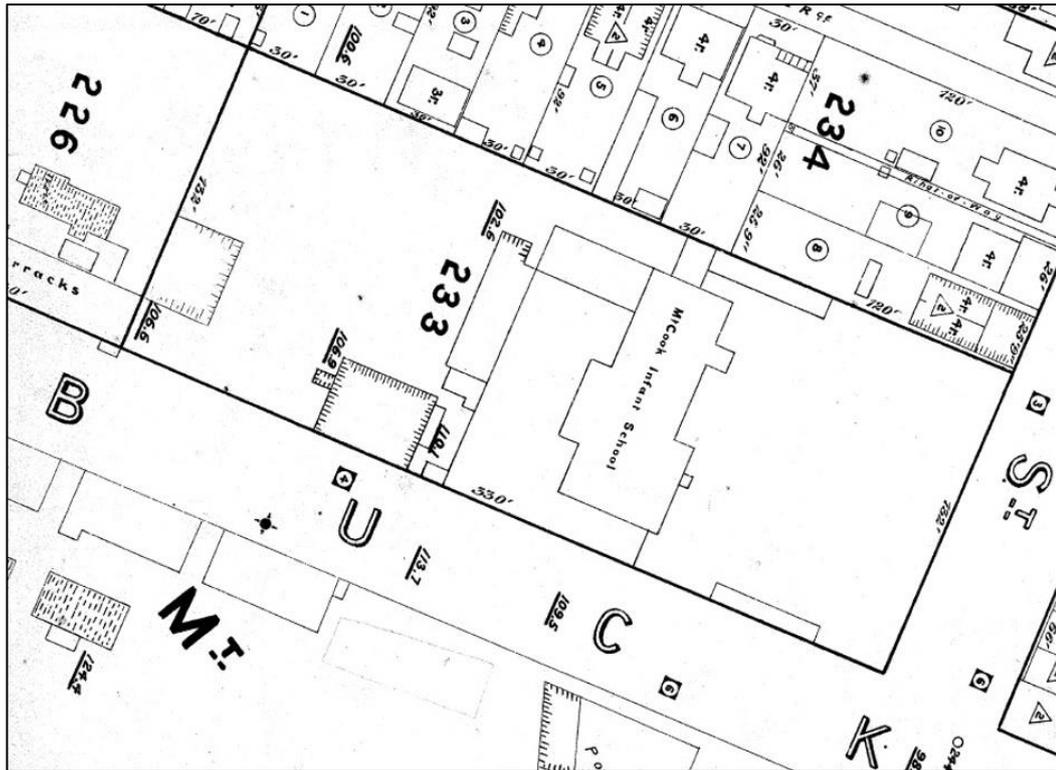


Figure 3.9 Close-up of Thomas Ward's updated survey map of Wellington City, dated 1900, showing buildings within Town Acre 233. Source: 00514:7:1, Wellington City Archives



Figure 3.10 Detail from SO 15029, dated 1903, showing buildings along the Buckle Street perimeter of Town Acre 233. Source: Quickmap



Figure 3.11 Photograph taken by Sydney Charles Smith, dated 1913, showing the horses of the mounted special police tethered on Town Acre 233, Lower Mount Cook Barracks, during the Waterfront Strike. Note the Mount Cook Infant School building in the background. Source: Alexander Turnbull Library - Smith, Sydney Charles, 1888-1972, *Photographs of New Zealand Collection*. Ref: 1/2-048784-G



Figure 3.12 Photograph, dated 1914, showing the first contingent of New Zealand's Expeditionary Force assembled over the parade ground, Town Acre 233. The troops were marshalled at the Lower Mount Cook Barracks prior to leaving for the Front. Note the Mount Cook Infant School building in the background. Source: *NZ Truth*, 15 August 1914

### 3.1.2 Educational Establishments & Later 20th Century Developments

As stated above, the eastern portion of 1877 of Town Acre 233, comprising 2 roods and 4 perches, was granted to the Wellington Education Board for the purposes of erecting New Zealand's first infant (kindergarten) school. The area of the grant is depicted on a survey map, dated January 1877, which shows the designated school land overlying an existing structure along the Tory Street frontage (Figure 3.13). Construction of the new school building was undertaken throughout 1877 and in January 1878 the Inspector of Schools announced its official opening with the following notice:

‘All the City Schools under the Education Board, including the new schools in Taranaki and Tory-streets, will be opened on Wednesday, the 23rd inst. The new Mount Cook schools will afford accommodation for 500 boys in the boys’ school, Taranaki-street, for 300 girls in two senior and junior departments in the Buckle-street school-rooms, and for 400 infants from three to seven years of age in the new school at the junction of Tory and Buckle-streets. The education is quite free of charge, except for books.’<sup>104</sup>

The first appointed headmistress of Mount Cook Infant School was a Mrs Francis, who received £200 per annum with house rent.<sup>105</sup> Around 350 children were enrolled at the school in its first year and a photograph, dated c.1878, shows teachers and pupils arranged outside the impressive wooden façade of the new building (Figure 3.14).<sup>106</sup> A later photograph, dated c.1884, also shows the position of the school and indicates an area of playing fields at the corner of Buckle and Tory streets, along with the close proximity of the Mount Cook Barracks (Figure 3.15).

From the early 1920s plans for the redevelopment of Town Acre 233 were put forward by the Education Board and in August 1923 the Evening Post reported:

‘One of the oldest and worst situated schools in Wellington is the Mount Cook School, with its threefold site, Boys’ School, Girls’ School, and Infant School, all in different places. In the rebuilding of Wellington’s oldest schools, Mount Cook has been held to be the most urgent case, and efforts have been made by the education authorities to obtain a suitable site for a combined school. These efforts have been rewarded with success, and a plan of the site was laid before the Wellington Education Board today. The new site of approximately three acres has for its nucleus the present Infant School and its playground at the corner of Tory street and Buckle street [Town Acre 233]. This, first of all, has been extended to one acre by the inclusion of a portion of the Defence Department’s drill ground fronting Buckle Street. The Defence Department in exchange takes the 1¼ acres site of the present Boys’ School. This will give the new school a very fine frontage to Buckle street. On this will be erected an infant school of four rooms at the corner, and a mixed school of twelve rooms,

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<sup>104</sup> *Evening Post*, 16 January 1878, p.3.

<sup>105</sup> *Evening Post*, 30 January 1878, p.2.

<sup>106</sup> *Evening Post*, 16 September 1878, p.2.

3. Town Acre 233

in two stories of six each, alongside. This will cover the whole frontage, with a fine aspect.<sup>107</sup>

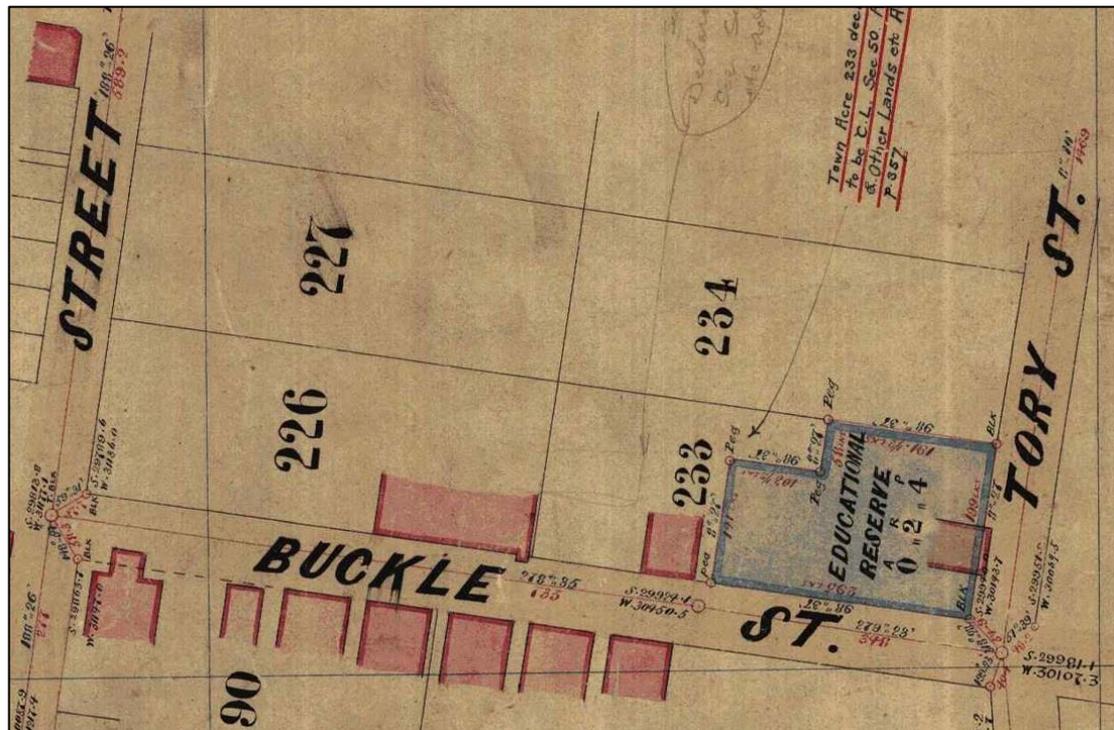


Figure 3.13 Detail from SO 11202, dated 1877, showing the area of Education Reserve within Town Acre 233. Source: Quickmap

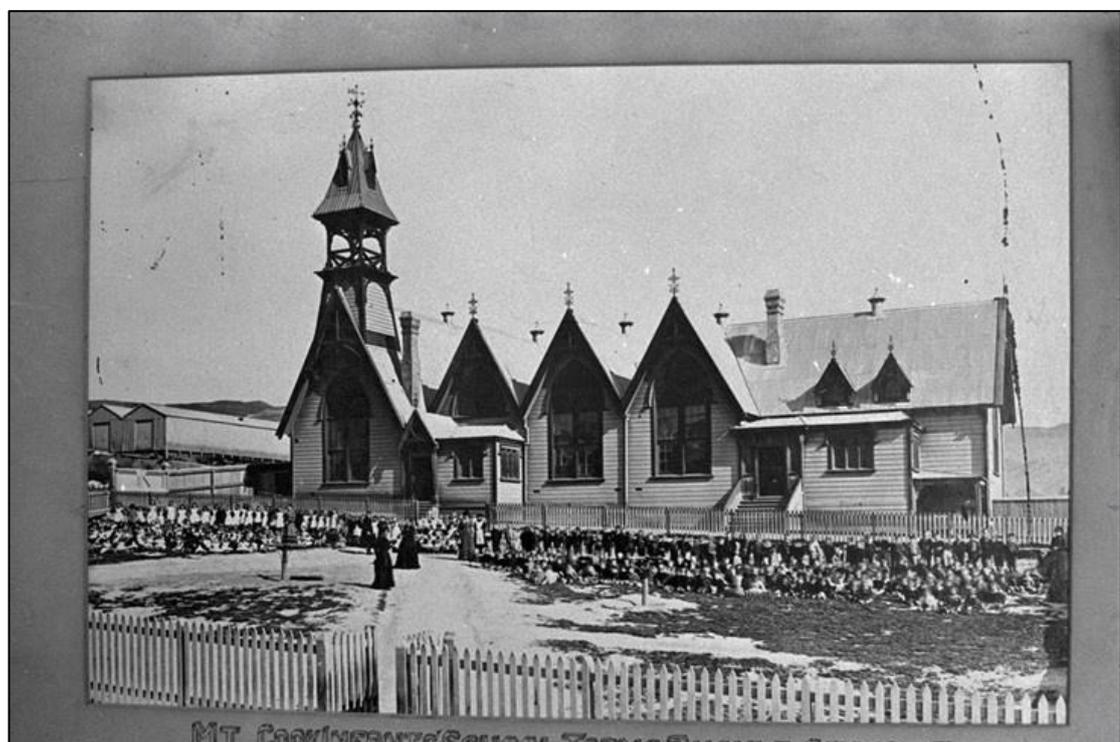
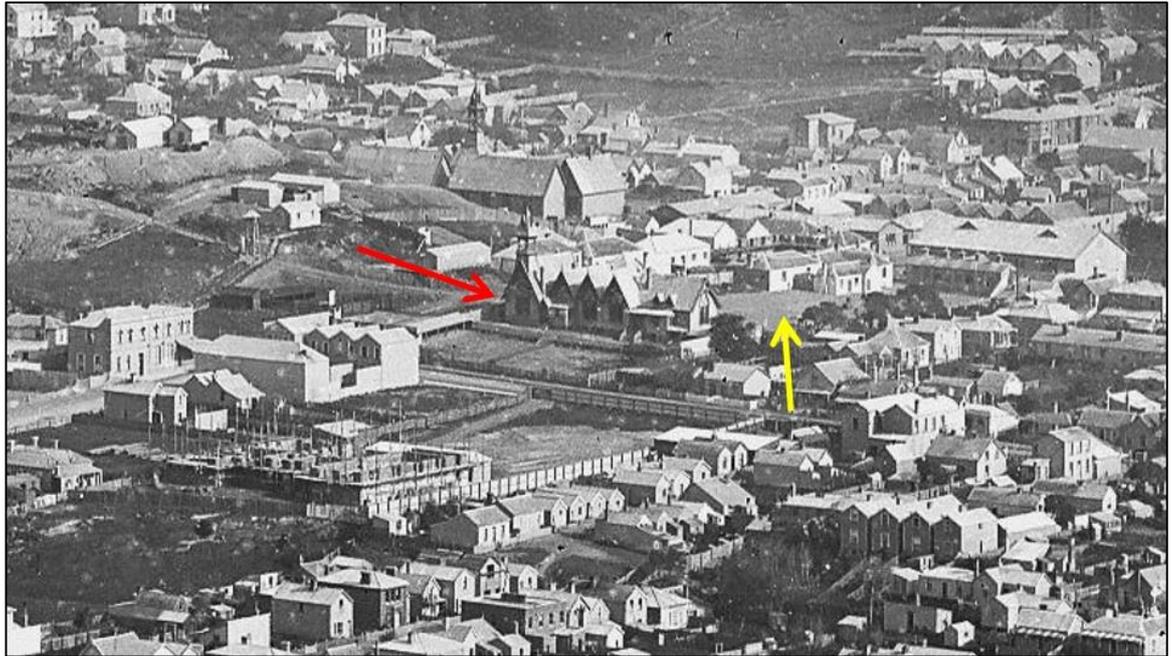


Figure 3.14 Photograph, dated c.1878, showing pupils and teachers outside the Mount Cook Infant School on the corner of Buckle and Tory Streets. Source: ATL - Ref: EP/1975/3057/21

<sup>107</sup> *Evening Post*, 15 August 1923, p.6.



**Figure 3.15** Detail from Burton Brothers photograph dated c. 1884 and titled ‘Overlooking Wellington City, showing Mount Cook Infants’ School and playgrounds at the corner of Buckle and Tory Streets (arrowed in red). The Military parade ground area on the western end of Town Acre 233 is arrowed in yellow. Source: Alexander Turnbull Library, Burton Bros. Ref: BB-2235-1/1-G

All extant structures within Town Acre 233 were subsequently demolished and the foundation stone for the new brick school was laid by the Minister of Education, Hon. Sir James Parr, on 15 July 1925. The contractor for the work was a Mr E.S. Knight and the school was officially opened in 1926.<sup>108</sup>

In 1930, Ako Hill, the steep gradient in the road in front of the school, was reduced in the interest of improving the route between the eastern and western suburbs of Wellington. A newspaper article of the time notes that:

‘A gang of a dozen men is now working on Buckle street, the crown of which is to be lowered some seven or eight feet between Tory and Taranaki streets. The street will be widened to its full wirth [sic] of fifty feet between those streets. This is apart from the work that will be necessary to widen the road in front of the National War Memorial on Mount Cook. The work on Buckle street is a relief work.’<sup>109</sup>

Improvements to Buckle Street, along with the new Mount Cook School, are visible in a photograph, dated 1934, which shows the extent of the school buildings and grounds (Figure 3.16). A housing survey of Wellington City, dated 1937, and survey plan SO 21789, dated 1948, also provide layouts of the Mount Cook School, whose site overlapped portions of Town Acres 226, 233 and 234 (Figure 3.17 and Figure 3.18). The school remained on the site until the late 1970s when it was demolished to make way for commercial developments. A petrol station was later constructed on the Tory Street/Buckle Street end of the section. Associated with this was the installation of underground tanks

<sup>108</sup> *Evening Post*, 16 July 1925, p.9; *Evening Post*, 27 January 1926, p.2.

<sup>109</sup> *Evening Post*, 11 April 1930, p.10.

which in all likelihood destroyed evidence of some of the earlier buildings at this location (Figure 3.19).<sup>110</sup>



**Figure 3.16** Close-up of aerial photograph, dated 1934, showing the Mount Cook area with the Mount Cook School and playgrounds visible (lower centre). Source: Alexander Turnbull Library - PA Coll. Ref: 6301-59

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<sup>110</sup> Hudson, Beatrice. August 2012. 'Transportation Improvements around the Basin Reserve, Wellington: Stage One – Taranaki to Cambridge Terrace', Assessment of Archaeological Effects. Unpublished Opus International Consultants Limited report prepared for New Zealand Transport Agency, p.29.

3. Town Acre 233

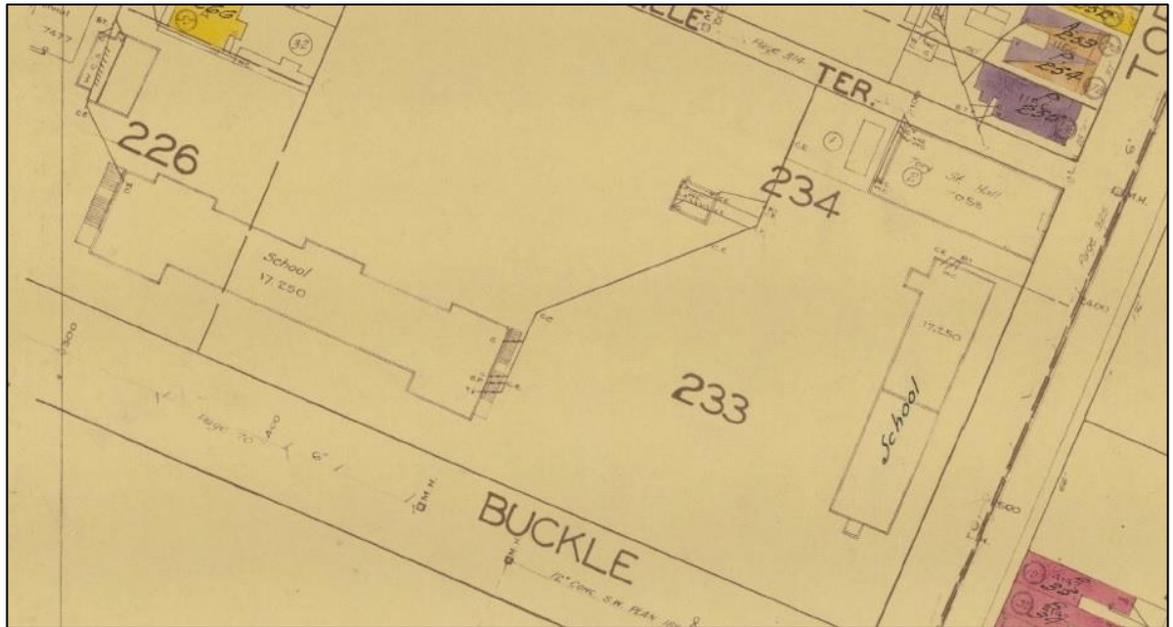


Figure 3.17 Close-up of housing survey plan of Wellington City, dated 1937, showing buildings within Town Acre 233. Source: 00515:5:5, Wellington City Archives

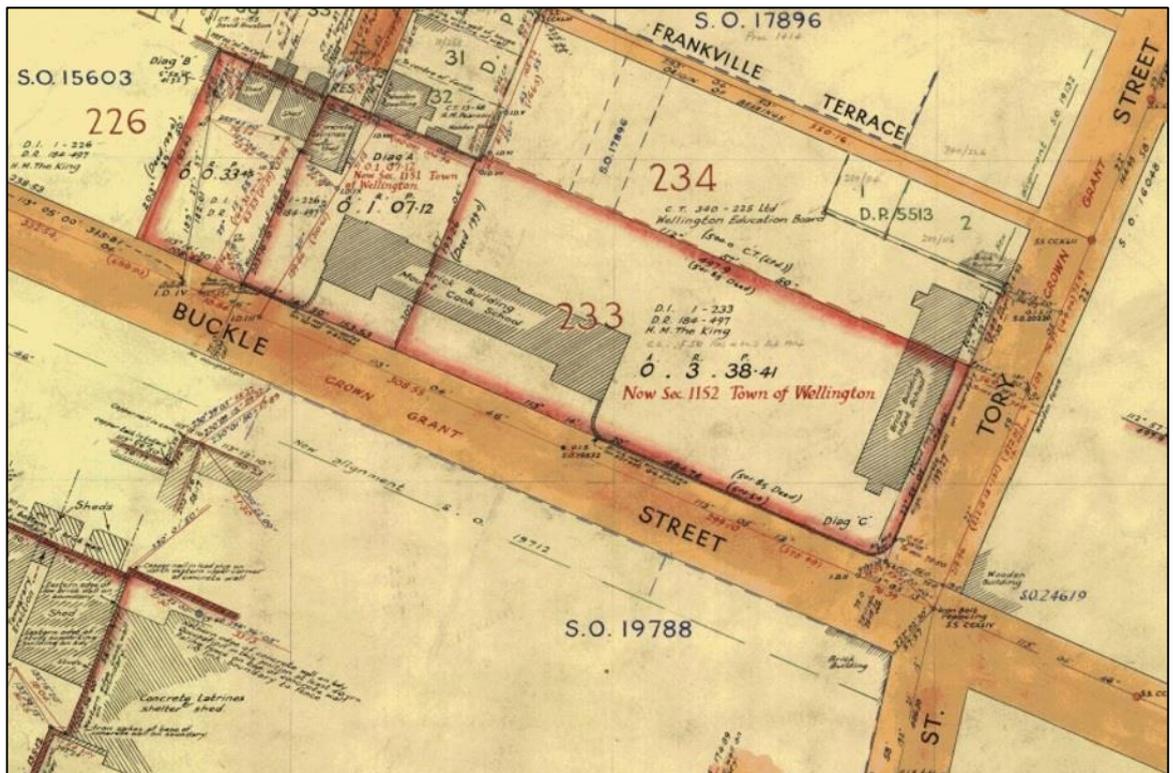
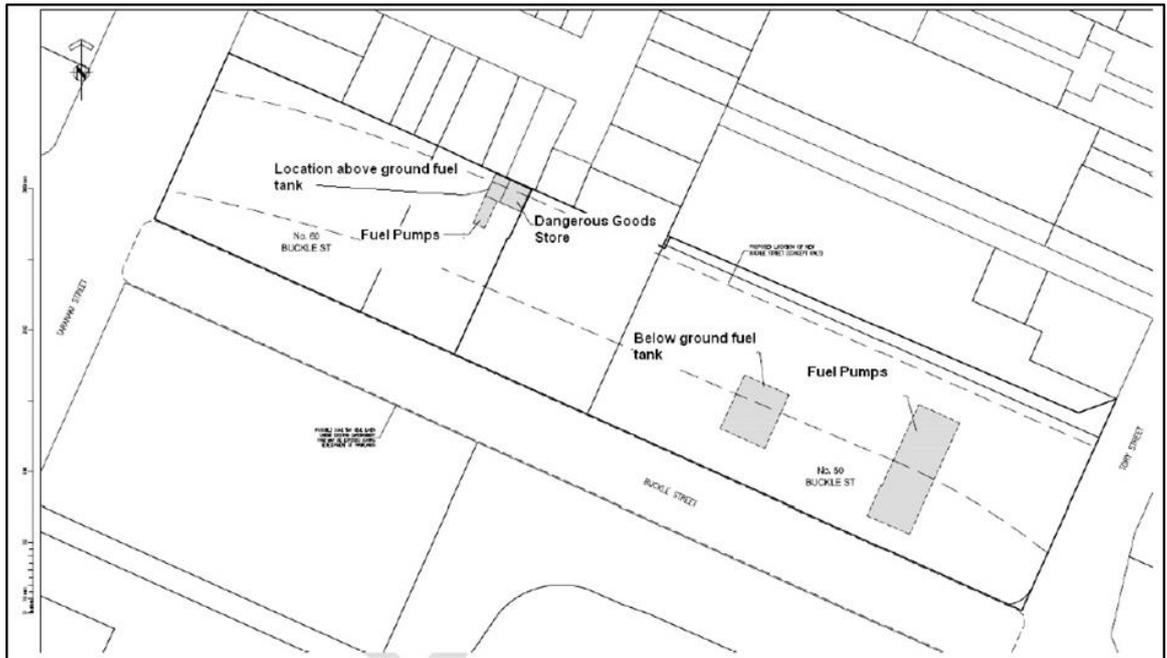


Figure 3.18 Detail from SO 21789, dated 1948, showing the position of the Mount Cook School buildings and grounds over Town Acre 233 and parts of Town Acres 226 and 234. Source: Quickmap



**Figure 3.19 Plan of the project area showing the location of underground tanks and structures associated with the operation of hire facility (Town Section 226 / 60 Buckle St) and petrol station (Town Section 233 / 50 Buckle St). Source: Hudson 2012: 30**

## 4 ARCHAEOLOGICAL EXCAVATION RESULTS TOWN ACRE 226

### 4.1 Excavation Areas and Sequence of Works

At the outset, the development site was divided into four main areas that corresponded to the historic Town Acre boundaries set out by the New Zealand Company in 1840. Due to the requirement that the archaeological investigation follow the construction programme, the Town Acres were not fully excavated in one episode. The main phase of the archaeological excavation of Town Acre 226 took place between 12 October 2012 and 17 January 2013. The excavations were undertaken in two stages corresponding to the construction programme. Firstly, the majority of the Town Acre north of the Buckle Street footpath, and within the footprint of the SH1 Temporary Diversion Road and associated easement area was excavated. The second stage of archaeological excavations, consisting of the Arras Tunnel works area, was undertaken between 8 May and 6 June 2013, and was located to the south of the Diversion Road, including the northern footpath and Buckle Street road reserve.

### 4.2 Site Phasing

Detailed historical research was undertaken to provide context for the archaeological results and aid in the interpretation of the site. Four main phases of military occupation were discerned that apply to Town Acres 226 and are as follows:

- **Phase 1 - Imperial Forces & NZ Militia & Volunteers Office 1843-1867**
- **Phase 2 - Armed Constabulary 1867-1886**
- **Phase 3 - NZ Permanent Militia/Artillery 1886-1897 & NZ Permanent Force 1897-1918**
- **Phase 4 - Post World War I – Modern**

It is also worthwhile to note that two educational establishments had operated within Town Acre 233, and partly within Town Acre 226, in the later 19th and early 20th century. These consisted of Mount Cook Infant School (1877-1923), and the later Mount Cook School (1926-1970s), and as such educational activities span all of Phase 3 as well as parts of Phases 2 and 4. However, as only very limited archaeological remains relating to Mount Cook Infant School were found, and only within Town Acre 233, educational activity is discussed separately in the Town Acre 233 section.

The archaeological excavation results of Town Acre 226 are therefore, presented within this chronological framework.

### 4.3 Excavation Methodology

Prior to the removal of the modern overburden across Town Acre 226, three 2m x 2m test pits were excavated by a 7-ton mechanical excavator to assess the depth, stratigraphy and

nature of archaeological deposits present in the area (Figure 4.1). While much of the stratigraphy present in the test pits was dominated by modern deposits of 65mm aggregate base-course beneath concrete or tar seal, a cultural layer was present at a depth of approximately 1.5m in Test Pit 1 and at 0.80m in Test Pit 3. The cultural layer consisted of a dark grey compacted clay, which contained frequent inclusions of charcoal, and moderate inclusions of 19th century bricks (both whole and fragmentary) with metal and wood also present in the matrix.

The removal of the majority of non-archaeologically significant overburden present across the investigation area was undertaken by two 20-ton tracked mechanical excavators utilising toothless grading buckets. All machine work was carried out under continuous archaeological supervision until archaeological levels were reached. Archaeological surfaces and features were then cleaned with hand tools by the team of archaeologists in advance of excavation.

The excavation of archaeological features was undertaken for the most part by trowel, mattock and spade, and in some cases, was facilitated by a 7-ton mechanical excavator (this was particularly utilised when exposing substantial remains of walls and foundations and dealing with widespread demolition layers and deep made-ground deposits). When depths of excavation extended beyond 1.5m, the excavation was stepped or battered in order to continue the excavation safely.

In accordance with condition 10 of the HNZPT authority (2013/92), and utilising a sampling strategy, archaeological features, surfaces and/or deposits were assessed, investigated, recorded and sampled in accordance with accepted archaeological practice and within the framework of the research strategy and the requirements of the HNZPT authority. Subsequently, excavation by machine then proceeded until either natural, sterile deposits were reached, or the impact level for construction had been exceeded – whichever was relevant for any particular area of investigation.

The single context recording system was used, with each cut, deposit, layer and structure given an individual context number and recorded on a pro-forma context sheet, which enabled the determination of occupation phasing on site and the production of a site Harris matrix (Appendix 1 and Appendix 3). Individual cuts were planned at scales of either 1:20 or 1:50, and cuts and deposits were drawn in section or profile at scales of 1:10 or 1:20. A selection of the drawings are presented as Appendix 5. A photographic record was compiled of all deposits and features with a digital SLR camera.

All 19th century and early 20th century artefactual material (pre-1930) was collected, sorted and labelled according to context number on site and retained for specialist analysis. In the main, diagnostic items and/or a representative sample of artefact types were retained. All artefact categories and types including discarded non-diagnostic pieces were recorded on context sheets. Faunal material and timber derived from 19th century features were also retained for specialist analysis.

Additionally, a site survey of all the archaeological features exposed by the Memorial Park works was undertaken utilising both a total station and GPS system using the real time kinematic method. The excavation and monitoring was led by Richard Shakles assisted by Dave Carley, Neil Dudley, Glen Farley, Joss Piper-Jarrett, Ben Thorne, Andy Dodd, Sarah Phear, Victoria Grouden, and Karolyn Buhring and was carried out under the overall direction of Sarah Phear and Rod Clough.



**Figure 4.1** The location of the test pits excavated within Town Acre 226 prior to the commencement of the diversion road works

## 4.4 Excavation Results

After the stripping of the tar seal, and removal of overburden comprising aggregate base-course and modern clay fills within the footprint of the SH1 Diversion Road works, a significant number of structural and cut features consisting of brick walls, postholes, open brick drains, and linear features on various alignments were observed across the excavation area. Additionally, beneath the pavement and northernmost traffic lane of Buckle Street within the Arras Tunnel Underpass works area, a number of structural and cut features including brick walls, stone walls, postholes, beam-slots, earthen and brick-lined drains were also exposed (Figure 4.2).

The structural features consisted of sections of brick and stone walling; beam slots; brick post-pads, and a large volume of postholes, relating to 11 buildings which clearly represented several phases of military occupation. Other archaeological features present within Town Acre 226 comprised a number of linear drainage features (on various alignments) including ditches, brick-lined drains; and ceramic drain pipes; a brick-lined well; rubbish pits and a post-pit.

#### **4.4.1 Pre- European Settlement Landscape**

No archaeological deposits relating to the pre-European use of the area by Maori were encountered anywhere within the archaeological excavation area of Town Acre 226. It was evident that any Maori garden soils and associated archaeological horizons that may once have been present in the area had been entirely truncated by earthworks relating to the military occupation of the site. No pre-European palaeosols were encountered and it is likely that truncation extended into the original subsoils. However, it was still possible to discern that the pre-European topography of the area had consisted of much more pronounced west and northwest trending slopes than at present. Drainage ditches cut during the first military phase increased substantially in both depth and width as the steep slopes gave out to low-lying, level ground in the west of Town Acre 226, which was probably to prevent overspill during periods of high rainfall.

4. Excavation Results – Town Acre 226

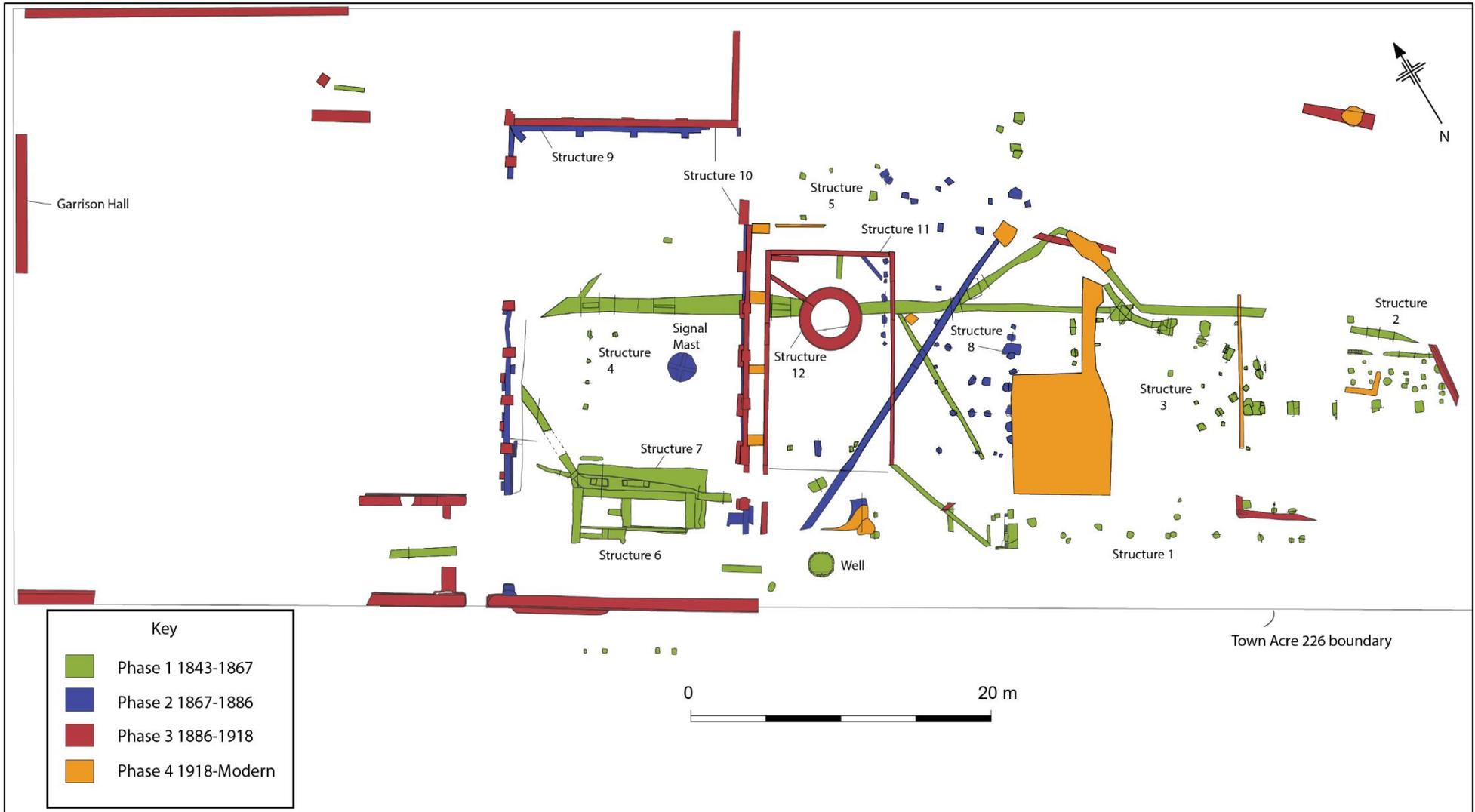


Figure 4.2 Phased survey plan of archaeological features within Town Acre 226

#### **4.4.2 Phase 1 - Imperial Forces & NZ Militia & Volunteers Office 1843-1867**

The archaeological excavations within Town Acre 226 exposed the remains of seven structures that related to the Imperial military occupation of the Lower Barracks site (Figure 4.2). Of these, six were timber buildings, while the other was of stone masonry construction, and only two of the structures could be related to buildings depicted on the 1891 Ward Plan. Additional structures were also suggested by a number of cut features such as postholes and beam-slots, but due to variable vertical truncation in some areas, it was not always possible to define a structure from the limited number of features present. Other remains relating to Phase 1 were exposed by both the Diversion Road and Arras Tunnel works, and consisted of drainage features (ditches and drains), a brick-lined well, and a small number of rubbish pits (Figure 4.2). With the exception of the remains of two structures in the east of the excavation area, the archaeological features relating to the Phase 1 occupation were sealed beneath a demolition / made-ground layer up to 0.34m thick, composed of mid to dark grey clay that contained frequent mid-19th century artefactual material. This layer represents the commencement of the Armed Constabulary occupation of the Lower Barracks in 1867.

##### **4.4.2.1 Structural Remains**

###### ***Structure 1 (Context 1470) - Imperial Army Barracks***

The remains of Structure 1 (context group 1470) were exposed within the Arras Tunnel excavation beneath the northernmost traffic lane of Buckle Street, and consisted of 21 rectangular postholes, a single brick post-pad, a section of greywacke rubble filled footings trench, and a single beam-slot (Figure 4.2; context group 1470 – Appendix 1). The features demarcated an area of at least 21.5m+ by 3.5m+, that represented the remains of a building of timber construction, aligned west-northwest to east-southeast, and which would originally have been situated along the Buckle Street frontage toward the eastern end of Town Acre 226 (Figure 4.3). Significant vertical truncation observed to the north, south and east of the main concentration of features had likely removed further remains of the structure (Figure 4.2). The postholes and beam-slot had been back-filled with intermixed re-deposited clay natural and topsoil, and were sealed by late 20th century aggregate road stone. All of the surviving features had been vertically truncated by later demolition and/or levelling activities, associated first with the Garrison Hall phase of the site (1907-1909), and latterly by 20th century roading activity, and modern services. The beam-slot (context 1684) together with three postholes (contexts 1763, 1766 and 1768) were off-set to the west of the exterior west facing wall of Structure 1, and formed a small rectangular addition with approximate dimensions of 1.5m (5ft) by 2.4m (8 ft). This small contemporary structure perhaps represents a workshop or storage shed (Figure 4.3). An overlay of the excavation survey upon the 1891 Thomas Ward Plan establishes that Structure 1 represents the remains of the Imperial soldiers' barracks dating from the late 1840s, and demolished between 1907 and 1909; Figure 4.4).

The remains of an associated covered brick box drain (context 1659), 'L' shaped in plan, abutted the southwestern corner section of the western facing wall of Structure 1, represented by the stone rubble filled trench that formed the wall's foundations (context 1681). The brick drain was constructed with dark orange-red bricks that were 200mm in length by 87mm wide and 57mm thick, that were bonded with a grey sandy mortar. The drain was filled by a silt deposit that contained small broken brick fragments (context

1751). The box drain consisted of a channel formed by a line of single bricks set in stretcher form, with bricks set on edge on either side forming the channel sides, as well as serving as the base for the brick covering (Figure 4.5). The drain had been truncated both in the north and west by modern services, and the surviving dimensions consisted of a 1.55m section (north-south) and 0.78m section (east-west). It is considered that brick drain 1659 was contemporary with the barracks building.

### ***Structure 2 (Context 1471) - Imperial Army Barracks Ancillary Building***

A concentration of features (context group 1471; Appendix 1) located in the east of Town Acre 226, to the northeast of Structure 1, consisted of 25 postholes and three beam-slots and represented the remains of a wooden building (Structure 2; Figure 4.3 and Figure 4.6). The features demarcated an area of 10.30m x 6.60m, although areas of severe vertical truncation down to natural clay were observed adjacent to the south, west and northwest. Additionally, some of the features also extended beyond the limit of excavation, and therefore it is likely that the original structure had much larger dimensions. The postholes were cut through the subsoil (1093), and into the natural clay (1052), and were predominantly either rectangular or square in plan. The features ranged in size from the largest example (context 1304), which was one of five large postholes recorded along the line of the structure's southern external wall and measured 1.07m x 0.91m in size by 0.72m deep, to as little as 0.20m square posts that are likely to have represented floor supports (see contexts 1548 and 1546 for example; Appendix 1). Posthole (1304) had been truncated by the cut of another large posthole (context 1302), and further along the same alignment, another posthole (context 1347) was also truncated by posthole 1349. It is interpreted that the later postholes represent repairs to an extant structure, possibly damaged during either the 1848 Marlborough or 1855 Wairarapa earthquakes. The three beam-slots (contexts 1507, 1514 and 1516) were all rectilinear and ranged in size from 1.61m in length x 0.30m wide and 0.08m deep (context 1516), to 4.56m in length x 0.50m wide and 0.18m deep (context 1507).

The postholes and beam-slots were filled in the main with intermixed topsoil and re-deposited natural clay and all had been vertically truncated and sealed beneath a compacted dark brown clay-silt loam layer (context 1500), that contained frequent inclusions of broken brick, 19th century bottle glass, timber fragments, as well as fragments of charcoal and coal. The removal by mechanical excavator of a large concrete slab covering an area of approximately 8m x 5m to the west of the main concentration of features revealed that the ground there had been vertically truncated down to the natural clay, with the result that no archaeological features survived within its footprint (Figure 4.3).

Dating for the structure is provided by a single 14th Buckinghamshire Regiment of Foot brass tunic/greatcoat button, retrieved from the backfill (context 1506) of the construction cut of a beam-slot (context 1507). The 14th Buckinghamshire Regiment were present in New Zealand from 1860 to 1866, and served at the Mount Cook Barracks between 1860 and 1865. As the button was present within the backfill of the beam-slot's construction cut, this provides a date range of 1860-65 for the construction of Structure 2, with the earlier part of the range being most likely.

An overlay of the excavation survey on the 1891 Thomas Ward Plan establishes that Structure 2 represents the remains of a timber building depicted to the northeast of the Imperial troops' barracks (Figure 4.4), while context 1500 represents a made ground layer formed by the demolition of the two structures during the Garrison Hall construction phase between 1907 and 1909.



4. Excavation Results – Town Acre 226

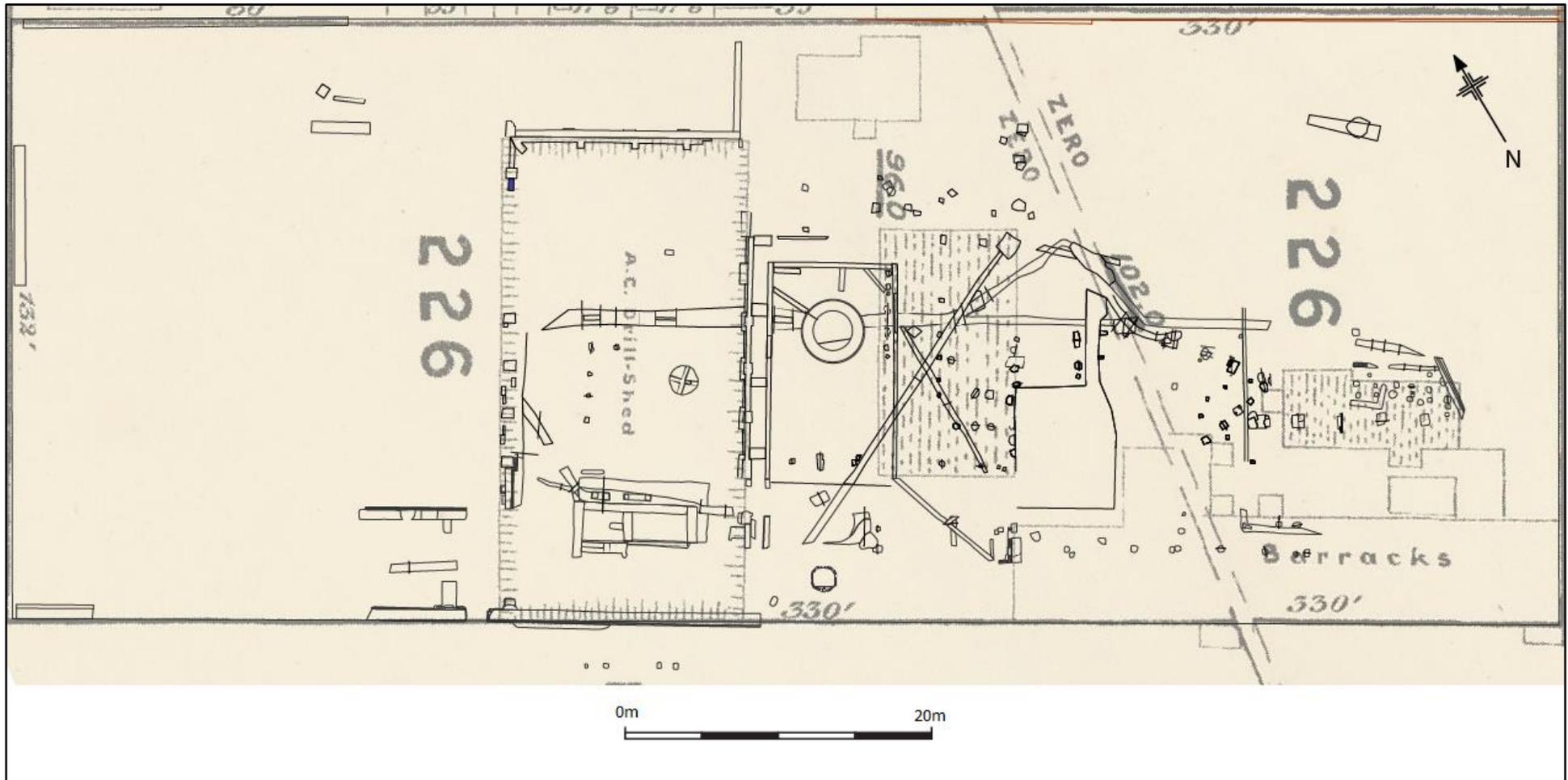


Figure 4.4 The archaeological survey plan overlaid on the 1891 Ward Plan



**Figure 4.5** The remains of a brick box drain (context 1659), that abutted the southwestern corner of the western facing wall of Structure 1. Scale: 1m and 0.5m



**Figure 4.6** Postholes and beam-slots comprising the remains of Structure 2 prior to excavation. Facing west-northwest. Scale: 2 x 1m

### ***Structure 3 (Context 1472) - Possible Barracks Building***

The location of a timber structure (Structure 3; context group 1472; Appendix 1) was indicated by a concentration of 40 postholes located to the north of the Imperial troops' barracks building (context 1470), and to the west of Structure 2 (context 1471; Figure 4.3). All of the postholes were cut through the subsoil (1093), and into the natural clay (1052) and demarcated an area of at least 12.30m (c. 40ft) by c. 7.15m (23ft 5in.; Figure 4.3). The postholes were predominantly rectangular in plan and ranged in size from large structural examples of up to 1.06m x 0.57m in size (posthole 1385), to small floor supports as little as 0.18m square (posthole 1328). All of the postholes had been backfilled with intermixed dark brown topsoil and re-deposited yellowish brown natural clay.

The features represented two building phases, with 27 postholes belonging to the original phase of construction and 13 postholes to a second building phase (Figure 4.3). A curvilinear earth cut drain (context 1357) ran adjacent to the northern wall of the original phase of the structure (Figure 4.2 and Figure 4.3). Two of three large postholes (contexts 1365 and 1404) situated in an outer alignment to the north of the original northern wall line truncated the drain, and the northern extent of two of the original alignment postholes (contexts 1367 and 1402; Appendix 1). The third large posthole on the same alignment (context 1385) truncated the northern part of posthole 1387, and together with the two other postholes formed a re-aligned northern wall (Figure 4.3). Additionally, a further earth-cut curvilinear drain 1419 ran adjacent to and respected this later northern wall alignment, and like drain 1357 also turned to the north at the corresponding point (Figure 4.3). This drain was subsequently expanded with the cut of an open brick drain on the same alignment (context 1140). Artefacts retrieved from the postholes were sparse, indicating that the postholes were excavated through relatively sterile deposits. Those features that did yield artefactual material consisted mainly of brick and roof tile fragments, while some features produced very limited quantities of ceramic such as blue and white transfer ware sherds (context 1355).

All the features were sealed beneath the demolition/levelling layer (context 1065), formed at the commencement of the Armed Constabulary occupation of the site in 1867, which provides a general *terminus ante quem* for the structure. Artefactual evidence allows the dating of the structure to be further refined, as clay tobacco pipe stems retrieved from both the fill of the construction cut (context 1420) and the fill (context 1142) of the associated brick drain (context 1141), bore the stamp 'Murray, Glasgow', which provides a date range of manufacture of 1826-1861/2. It is likely that the structure dates from the latter end of the date range. Even more robust dating is provided by a brass Royal Sappers and Miners Regimental jacket button retrieved from the fill of drain 1419 (context 1418), and which has a very narrow date range of 1855-56 (Rudd 2016; Vol. 3, Appendix 2). The structure is also absent on Stock's 1858 photograph depicting the Lower Barracks.

When the structural evidence of reconstruction/repair works to the northern wall of the building is considered alongside the artefactual and historical photographic evidence, it suggests a scenario whereby the structure was damaged, subsequently repaired, damaged again and finally demolished. Likely catalysts for such a sequence of events were the 1848 Marlborough and 1855 Wairarapa earthquakes. It is considered likely that Structure 3 was a barracks building for Imperial Troops.

***Structure 4 (Context 1473)***

A group of six postholes (Structure 4; context group 1473), five of which were part of a north-northeast to south-southwest alignment, was located within the footprint of the later Armed Constabulary Drill Hall (Figure 4.3). All the features had been vertically truncated, probably during the construction of the 1879 Drill Hall, and were either rectangular or square in plan, and had been excavated through the natural subsoil (1093) into the natural clay (1052). The postholes ranged in size from 0.19m x 0.20m (context 1746), up to 0.34m x 0.28m (contexts 1192 and 1193). No artefacts were present within the fills of the features, which consisted of intermixed re-deposited subsoil, clay natural and topsoil. The alignment extended over some 5.20m, with a return suggested by a single posthole (context 1185), offset to the east (Figure 4.3). Comparison with Stock's historical photograph of 1858 indicates that the structure is likely to relate to a modest structure with a pitched roof, that was situated to the west-northwest of the Barracks building (context 1470).

***Structure 5 (Context 1474)***

The remains of a timber structure (Structure 5; context group 1474) was indicated by 5 postholes and a beam-slot to the north of, and within, the footprint of the later 1909 Gunnery Annexe, to the northwest of Structure 3 (Figure 4.2). Postholes 1236, 1238 and 1242 formed a roughly east-west alignment approximately 5.30m in length, while postholes offset to the south at either end of the alignment suggest returns of walls in that direction (Figure 4.3). The beam-slot (context 1295) survived as a cut feature some 1.9m in length, 0.25m wide and 0.20m deep, and provides a length of approximately 7.2m for the structure (Figure 4.3). The feature had been truncated in the north by the construction cut (context 1478) for the northern wall of the Gunnery Annexe (context 1099), and modern vertical truncation along a 1.8m wide, 10m long strip to the north of the annexe is likely to have removed any further archaeological evidence of the structure (Figure 4.2).

All the features comprising Structure 5 had been excavated through the subsoil (1093), into the natural sterile clay (1052), and were sealed by the demolition/levelling layer (context 1065). The fills of the features consisted of mottled intermixed re-deposited topsoil and subsoil while artefacts consisted of broken bricks, corroded iron nails, occasional ceramic sherds consisting of willow pattern and other unidentified blue and white transfer wares. Ecofactual material retrieved from the postholes consisted of small fragments of animal bone and from the fill of the beam-slot (context 1296), a few fragmented pieces of cockle shell that may be residual evidence of the earlier truncated Maori settlement of the Mt Cook area.

Dating for the structure is likely to be between the late 1840s when the Barracks and associated structures were first built and 1858, prior to Stock's historical photograph in which no structure is shown in the area.

***Structures 6 and 7 - (Context group 1594) - Ordnance and Powder Store***

The remains of seven sections of stone rubble masonry walling represented a stone structure (Structure 6; context group 1594) located within the southern footprint of the 1879 Drill Hall (context 1077). The surviving archaeology indicated that there had been two building phases, with the stone building being replaced by a timber structure that both incorporated the original footprint as well as an extension further northward and eastward.

### ***Structure 6 - Stone Building Phase***

The stone walls demarcated an external area of 3.63m (approximately 12ft, north-northeast to south-southwest) by 8.07m (about 26.5ft, west-northwest to east-southeast), although the line of a large modern services trench had truncated elements of the structure's southern wall (Figure 4.2 and Figure 4.7). Four of the walls (three aligned north-northeast to south-southwest, with the other aligned west-northwest to east-southeast) were 0.60m (2ft) thick and composed of large angular rocks of local greywacke that were bonded with a light brownish-grey sandy mortar that contained frequent inclusions of crushed marine shell (context 1625). The remains consisted of rubble greywacke foundations bonded with mortar, overlain by up to two remaining courses of stone walling, that had been dressed to present a smooth flat face on both the exterior and interior faces (Figure 4.8). The mortared foundations occupied the whole of the construction trench, with the first course of walling consisting of irregular, dressed stones situated at ground level. The faces of both interior and exterior walls were composed of irregular stones, with individual stones measuring up to 0.40m x 0.25m x 0.20m in size. The walls were constructed with a rubble core, which consisted of smaller angular pieces of mortared greywacke, which would have provided greater solidity to the structure. The walls survived in the main to a height of 0.30m, though parts of the building's southern wall survived to a height of 0.45m (Figure 4.8).

An internal wall on a north-northeast to south-southwest alignment, that like the external walls was 0.60m thick, divided the building into two rooms (Figure 4.3). The western room comprised an internal area of 2.63m (approximately 9ft) by 1.98m (about 6.5ft), while the eastern was larger, being some 3.58m (about 11.75ft) by 1.98m in size (Figure 4.3). The stone of the eastern facing exterior wall was absent, with a cut (context 1639) located to the east of the wall's construction trench indicating that the stone had been 'robbed out', and survived only as a backfilled trench. The fill of the robber cut was rich with later 19th century artefacts such as bottle glass, iron objects, broken bricks, and leather items, as well as occasional oyster shell and animal bone (context 1627). This material was probably rapidly deposited within the trench as a single episode event soon after the stone had been extracted.

During excavation of the structure it was not possible to expose the entire footprint of the building concurrently, due to the presence of active power and communications services which were situated directly above the building's southern wall. After the services had been removed, the remains of the southern wall were exposed. The southern wall had an extension of 0.60m projecting to the south in the eastern area of the western room, where it was 0.72m thick, while to the south of the eastern room it survived only up to a thickness of 0.22m, due to truncation from the modern service trenching (Figure 4.9). The solitary artefact retrieved from the stone walls, was a wrought iron masonry nail retrieved from within the mortar (context 1625), of the southern wall (context 1640).

The western section of the southern wall of the western room was double skinned with the interior wall being 0.15m thick and the outer wall being 0.30m, forming a void 1.44m in length and 0.30m wide that is interpreted as a lightwell (Figure 4.10). The presence of a lightwell, when considered alongside the unusual thickness of the interior wall (0.60m - 2ft), lends to an interpretation that the western room may have served as a powder room (for the storage of gunpowder), with the lightwell constructed to facilitate illumination of the space in the absence of naked flames. It is likely that the building was constructed in 1847-8 and served as a small ordnance store for the Lower Barracks.

A drainage trench (context 1598) ran adjacent and parallel to the northern wall before turning to the north at the building's north-western corner (Figure 4.3). The feature, cut

with vertical sides and a flat base, was 0.53m wide and 0.31m deep and was observed for 10.10m, but extended beyond the excavation boundary (Figure 4.2). The feature contained a 'French drain' structure containing greywacke stones and was a continuation of the drainage ditch (context 1133) seen truncated by the construction cut (context 1063) for the western wall of the 1879 Armed Constabulary Drill Hall (Figure 4.11). A smaller earth-cut ditch (context 1609) with a 'V' shaped profile and lacking any French drain structure in its base, drained into ditch (1598) just north of the building's north-western corner (Figure 4.2 and Figure 4.3). The only artefacts retrieved from the two drains consisted of wrought iron nails and fragments of brick. The drains were contemporary with Structure 6 and would have been excavated at the same time as the construction trench for the building's northern wall. It is likely that the drain's function was to intercept groundwater to prevent water from penetrating the building's foundations to enable the building to be as free from moisture as possible, to prevent gunpowder stored within the building becoming damp and spoiled.

The surviving archaeology of Structure 6 illustrates that the building was demolished down to the first or second course of stone walling proper prior to the second building phase. This was likely as a result of the 1848 Marlborough Earthquake, an event which was recorded to have damaged nearly all the stone and brick built buildings within Wellington. As is consistent with other known Wellington buildings damaged by the 1848 earthquake, the building was replaced by a timber structure. This timber building utilised the stone structure's foundations and bottom-most wall course for its footings. It is likely that the stone structure stood for at most a year, but may have existed for as little as six months.

### ***Structure 7 - Timber Building Phase***

The second phase of building consisted of a timber structure built on the same alignment as the original stone structure, that encompassed both the original footprint as well as extensions to the north and east (Figure 4.3). The extension area to the north was 1.6m (5.25ft) wide and ran parallel for the length of the original structure, and also extended 0.76m (2.5ft) further east, before returning parallel to the original structure (Figure 4.3). The extended footprint was defined by a layer interpreted as a floor surface (context 1638) that consisted of a firmly compacted greyish brown clay that contained frequent gravel and small broken brick fragments and had been packed down to form a level floor surface that was 0.13m thick (Figure 4.12). The structure's footprint occupied an area approximately 8.8m (29ft) by 5.2m (17ft).

The timber structure utilised the foundations of the stone building and a brick repair (context 1740) made to the southern stone wall (context 1640) may have been necessitated due to damage sustained from the 1848 earthquake, and therefore required to create level footings for the replacement timber structure. Two beam-slots (contexts 1607 and 1619) were situated to the north of the original building and both housed two brick post-pad settings at either end (Figure 4.3). The brick post-pads consisted of unmortared shallow frogged bricks three courses deep, that were likely to have provided additional support to the sleeper beams within contexts 1607 and 1609, supporting timber uprights at either end of the beams. A further beam-slot (context 1642) offset to the north-western end of the structure may indicate the presence of an additional structure attached to the timber building, such as a modest lean-to (Figure 4.3).

The second structure is likely to date to 1848 or shortly after, and is visible on Stock's 1858 photograph depicting the Lower Barracks area as a rather squat building with a hipped roof

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(Figure 2.4). The structure was likely to have been in use until the end of the Imperial military occupation of the site and was sealed by the demolition layer (1065) formed at the start of the Armed Constabulary period in 1867, when it is likely that the building was demolished.



**Figure 4.7** Pre-excavation photograph looking east-southeast across Structure 6 taken during the tunnel excavation works with drains 1598 and 1609 visible at bottom left (arrowed). Scale: 2 x 1.8m



**Figure 4.8 East-northeast facing pre-excavation shot of the western room of the stone building with the modern services obscuring the southern stretch of wall. Scale: 2 x 1m**



**Figure 4.9 Remains of the western section of the southern wall of Structure 6 seen after the services had been removed. Scale: 2 x 1m**



**Figure 4.10 East-southeast facing photo of the western terminus of the southern wall of Structure 6 showing the lightwell (arrowed). Scale: 2 x 1m and 0.5m**



**Figure 4.11** The 'French' drain structure within drain 1598 and running adjacent to the northern wall of Structure 6. Scale: 0.5m



**Figure 4.12** The extended footprint of the timber building (Structure 7) demarcated by the compacted floor surface (context 1638)

## **Additional Structural Features**

### ***Posthole Group to East of Structure 5***

A group of five postholes was situated approximately 9m to the east of Structure 5 (Figure 4.2). Four of the postholes (contexts 1250, 1252, 1254 and 1256) were on a north-northeast to south-southwest alignment, with two postholes grouped together either side of a gap approximately 1.5m wide (Figure 4.3). It is likely that the two post groupings consisted of a timber upright supported by a bracing post and is interpreted as a gateway leading to the open area behind the barracks building (Structure 1) seen in Stock's 1858 photograph (Figure 2.3 and Figure 2.4). The remaining posthole (context 1248) was located 0.9m to the west of the northern grouping and may represent either the position of a hitching post for tethering horses, or a post to which the gate could be fastened to in order to remain open when required.

### ***Posthole Alignment South of Structure 6***

An alignment of four postholes was exposed beneath the northernmost traffic lane of Buckle Street within the Arras Tunnel cut, and located approximately 7.2m to the south of Structure 6 (Figure 4.2). The postholes were all rectangular in plan and were on a west-northwest to east-southeast alignment which extended for some 6.2m (Figure 4.3). However, due to vertical truncation from the original road construction only the bases of the features remained, and it is likely that the alignment continued in both directions. It is interpreted that the posthole alignment represents a boundary fence along the original northern Buckle Street frontage.

### ***Well (Context 1596)***

A brick-lined well (context 1596) was located within the footprint of the Garrison Hall (Figure 4.2 and Figure 4.3). Approximately 1.2m of the upper part of the structure had been vertically truncated by the same services trench that had obscured the southern wall of the stone building (Structure 6; Figure 4.13). The construction cut for the well had been made through the clay natural (1052) and extended into interbedded brown and yellowish brown Holocene sands, silts and gravels (context 1481) to its base at a depth of approximately 9 metres below the surface. The well was 1.52m in diameter (5ft) and constructed of brownish red sandstock handmade bricks, with a wide shallow frog that were bonded with a light brownish yellow sandy mortar that contained frequent inclusions of crushed and fragmented marine shell (Figure 4.14). A large cast iron pipe for pumping water from the well was still present on the south side of the feature (Figure 4.14). As the well was within the footprint of the Arras Tunnel, it was necessary to excavate the feature in its entirety. The first 2m was excavated by hand, then due to depth and related health and safety considerations, the remainder of the feature was excavated by machine under direction from an archaeologist.

The well contained two fills (contexts 1597 and 1606), with the lower fill (1606) consisting of a grey silt deposit formed during the feature's functional duration. Of note was a large hand forged folded wrought iron axe head and a portion of a cement base likely to have supported a circular upright timber such as a flagpole or similar, which were retrieved from the lower fill at the very base of the well. The upper fill (1597) consisted of a waterlogged bluish dark grey gritty silt that contained a moderate quantity of artefacts, many of which

consisted of building material. The building material is likely to have been deposited in a single event and was probably derived from the demolition of a nearby structure. This material predominantly consisted of whole and broken bricks, window pane shards, wrought iron nails and wooden board fragments, although glass fragments and bottle bases deriving from black beer, case gin and wine bottles, along with a tobacco tin which dates from around 1900, were also retrieved from the deposit.

When the nature of the upper fill is considered alongside the artefactual material it contained, it is evident that the well was deliberately infilled in the early 20th century, probably between 1907 and 1909 when the last remaining Imperial barracks building was demolished and the Garrison Hall and Gunnery Annexe built.

### *Miscellaneous Structural Features*

Two beam-slots (contexts 1580 and 1590; Figure 4.3) were situated within the Arras Tunnel cut, beneath the footpath on the northern side of Buckle Street. The features were rectilinear in plan and located in isolation and therefore a function cannot be ascribed to them. The fill of beam-slot 1590 (context 1591), produced a musket ball 0.694in. (17.6mm) in diameter.

Lastly, a rectangular posthole (context 1592) was located 0.95m to the south-southeast of beam-slot 1590, to which it perhaps relates. However, no structural function can be ascribed to the feature.



**Figure 4.13** The truncated upper part of the brick-lined well 1596. Scale: 2 x 1m



**Figure 4.14** Well 1596 after the surviving northern half of the upper truncated section of the structure had been removed prior to excavation. NB. The arrow indicates the remains of the cast iron pipe that enabled water pumping Scale: 2 x 1m

#### 4.4.2.2 Drainage Features

Twelve drainage ditches relating to the Phase 1 occupation were situated on various alignments across Town Acre 226, all of which were cut through the natural subsoil (1093) and into the clay natural (1052; Figure 4.2). The largest of these was a large drainage ditch (context 1102) which drained the site on an east-southeast to west-northwest alignment, while six further drains connected with it at various points along its course (Figure 4.3). All of the drainage features and their associated fills were sealed by the demolition/levelling layer (1065), which represented the establishment of the Armed Constabulary occupation of the site in 1867.

#### *Ditch 1102 and Associated Drains*

The main drainage ditch (context 1102), together with a small rubbish pit (context 1148), was the earliest remaining archaeological feature present within Town Acre 226, and was observed crossing the site on an east-southeast to west-northwest alignment for approximately 30m (Figure 4.2; Figure 4.15 and Figure 4.16). The ditch had smooth sloped sides that broke to a concave base and contained two fills (Figure 4.15). The ditch gradually increased in both width and depth as it descended from the higher ground in the east of the excavation area to the low-lying, level ground in the west (Figure 4.3). The lower fill (context 1101) consisted of angular greywacke sandstone rubble within a greyish brown silty clay matrix that is interpreted as a rubble drain structure placed in the base to negate rapid infilling by siltation and to maintain drainage (Figure 4.15). Artefacts from the lower

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fill were sparse and those retrieved consisted of two small sherds of ceramic, a base of a black beer bottle and a fragment of orange brick, along with a quantity of animal bone. It is probable that the ditch pre-dated the construction of the Lower Barracks and is related to the encampment of the 96th Manchester Regiment on the lower slopes of Mount Cook at some point between July 1843 and 1847.

In contrast, the upper fill (context 1100), was formed by the deliberate infilling of the feature, most likely in a single event. This deposit was composed of a light brown and yellow mottled silty clay, that consisted of intermixed re-deposited topsoil and subsoil, and in contrast to the lower fill, contained large amounts of cultural material. Notable artefacts recovered from the upper fill included two regimental buttons from a tunic or greatcoat (both of the 14th Buckinghamshire Regiment of Foot) and a copper alloy braces strap buckle, while other artefacts recovered consisted of bottle glass, stoneware and porcelain sherds, brick and roofing slate fragments, as well as a small quantity of animal bone. The material dates in the main from the 1850s to 1860s and was deposited within the ditch when the site was levelled at the start of the Armed Constabulary occupation of the site in 1867. The upper fill of ditch 1102 was also truncated by the construction cuts for the 1879 Drill Hall, the 1909 Gunnery Annexe and Gun Well (that housed the elevating mechanism for the 8-inch Armstrong Disappearing gun), as well as by several later ceramic drainage pipes.

Along its course, Ditch 1102 was intercepted by six rectilinear drains, which therefore were contemporaneous with the feature (Figure 4.3). Of these, two are considered to date to the late 1840s and consisted of the drainage trench that drained the stone building's foundations (context 1598 = 1133), and a narrow drainage trench on a northeast-southwest alignment that intercepted and fed into Ditch 1102 on its northern side (context 1188; Figure 4.3 and Figure 4.17). Drain 1133, which housed the French drain structure, was aligned southeast-northwest and was truncated by the construction cut (context 1063) for the western drill hall wall (context 1062; Figure 4.18). It is almost certain that drain 1133 would have emptied into ditch 1102. However, the area where drain 1133 was likely to have intercepted ditch 1102, was situated beyond the Diversion Road excavation boundary (Figure 4.2). The other drain (1188), was a vertical sided, flat based narrow trench and lacked a rubble drain. This drain connected with Ditch 1102 on the northern side of its channel and was visible only for some 2.09m before it extended beyond the northern limit of the Diversion Road excavation area (Figure 4.2).

The two open earthen drains (contexts 1357 and 1419) – discussed in relation to Structure 3 (above) – both drained into the eastern terminus of ditch 1102, as did the later open brick drain (context 1141) that replaced drain 1419 (Figure 4.2). The fill of drain 1419 (context 1418), in addition to producing two regimental buttons, also produced a number of pieces of knapped black beer glass. While other pieces such as green wine bottle and aqua coloured water bottle glass were also retrieved from the ditch fill, it was exclusively the black beer glass that exhibited evidence of knapping. It is probable that the worked glass is residual, originating from Maori occupation of Pukeahu during the post-contact period.

A further open earthen drain approximately 11.5m in length and aligned east-southeast to west-northwest (context 1206) intercepted and drained into ditch 1102 (Figure 4.3). The ditch was 0.53m wide and 0.12m deep and contained a single fill, a brown and yellow mottled clay (context 1207), that produced only undiagnostic corroded fragments of iron.

Lastly, a rectilinear drain (context 1136) 0.38m wide and 0.08m deep crossed the site for 10.95m on a south-southeast to north-northwest alignment before intercepting Ditch 1102, on its southern side just to the east of the eastern Gunnery Annexe wall (context 1030). The feature did not produce any artefactual material.

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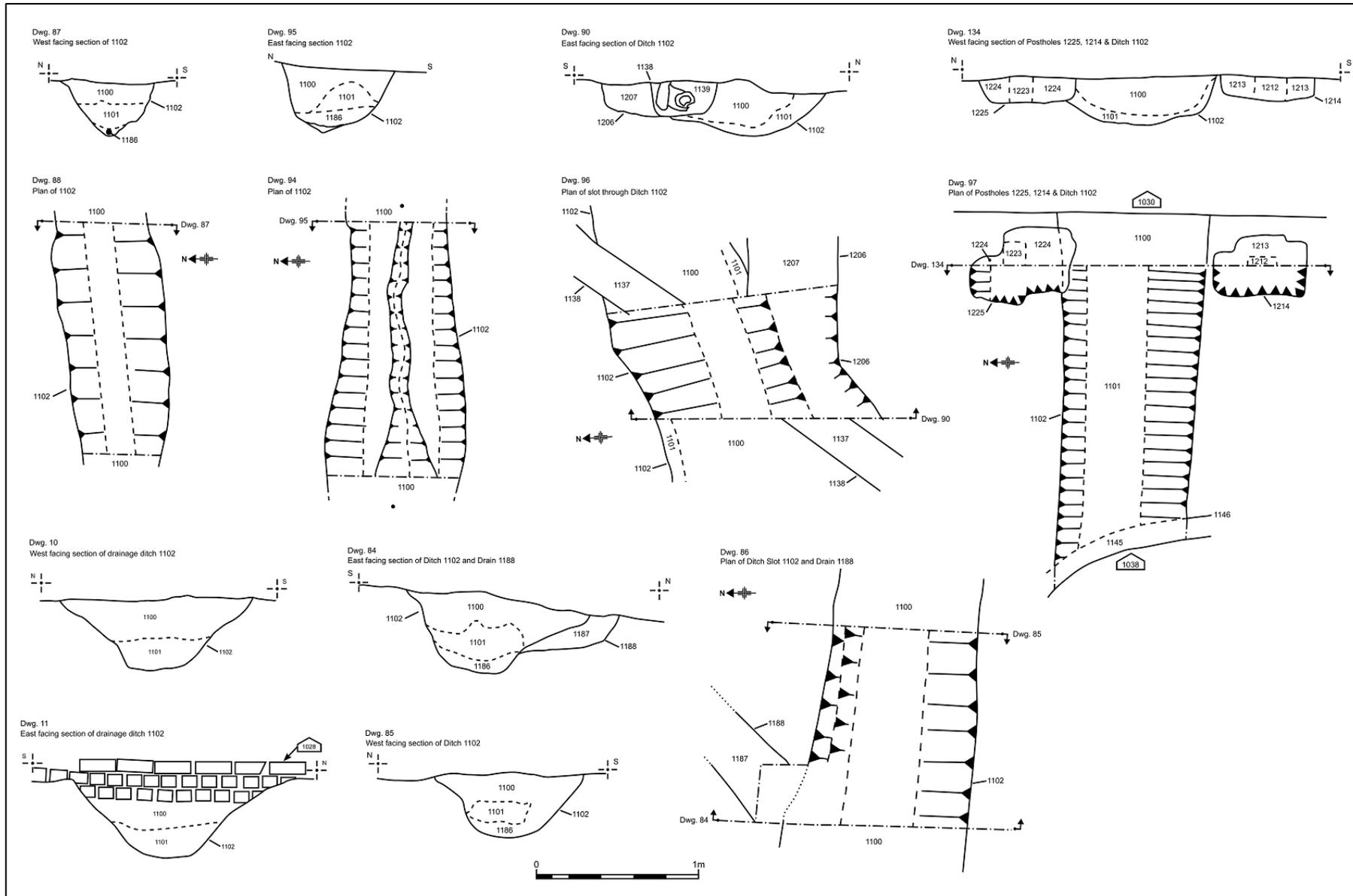


Figure 4.15 Plans and section profiles of slots excavated through Ditch 1102



**Figure 4.16** East-southeast view along the course of drainage ditch 1102 seen running beneath the eastern Drill Hall wall (context 1179). Scale: 3 x 1.8m



**Figure 4.17** Post-excitation photograph of slot excavated through ditch 1102 beneath the footprint of the 1879 Drill Hall, with drain 1188 seen intercepting at left. Scale: 0.5m



**Figure 4.18** West facing photo of slot excavated through drain 1133/1598 displaying the exposed French Drain containing greywacke rocks in the base, and south facing section. Scale: 1.8m and 0.5m

### *Additional Open Earthen Drains*

A drainage ditch (context 1431) was exposed in plan approximately 4m below the ground surface and beneath the footings of the Garrison Hall's basement rifle range, approximately 21m east of the Taranaki Street frontage in the north-western area of Town Acre 226 (Figure 4.19). The ditch's profile consisted of a gradual sloping cut through the subsoil and natural, before first steepening, and then vertically breaking to a narrow, flat, trench-like base (Figure 4.19). A slot excavated through the ditch established that the ditch contained four fills, the lower of which consisted of broken bricks and rocks at the base within a grey silty matrix, and is likely to have represented a rubble drain construction to assist drainage (Figure 4.20). The only cultural material present within the fills excavated consisted of undiagnostic pieces of ceramic and animal bone.

In a west facing section of ditch 1431, a truncation was visible on its northern side, made by the cut of another ditch (context 1447). Consequently, the width of ditch 1431 could not be determined, but it remained at least 1.06m wide, and with a depth of 0.48m (Figure 4.20).

Ditch 1447 had a sloping profile, likely to a shallow concave base, but as the feature was only partially exposed in section with the remainder extending northward into the trench wall, this is purely conjectural. The feature was at least 1.02m wide and 0.34m deep, and contained three fills (contexts 1448, 1449 and 1450; Figure 4.20). The only cultural material present consisted of broken red sandstock bricks (1449), and oyster shell from the upper fill (1450).

Both ditches would have originally drained into a stream, that crossed the northwestern corner of the Town Acre, that was subsequently culverted at some point during the latter 19th century, prior to the Garrison Hall phase of the site (Figure 4.2).

The upper fills of both ditches 1431 and 1447 were sealed by a made ground layer (context 1457), which was composed of brick fragments and small stones within a clay matrix, which in turn was sealed by a 0.12m thick layer that consisted of broken red bricks and crushed ceramic building material (CBM). This layer represented the footings for the concrete floor of the 1907 Garrison Hall basement floor (Figure 4.19 and Figure 4.20).

A short surviving 1.4m length section of a drain (context 1672), was aligned south-southwest to north-northeast and was 0.38m wide and had been excavated into the subsoil (1093). The feature was located within the Arras Tunnel excavation area, approximately 3.5m west of the western wall of Structure 1 (Figure 4.2). The drain had been completely truncated to the north and south by large modern services, but the small section that remained also illustrated that the feature had been truncated by another drain (context 1661) that crossed the area on a southeast-northwest alignment (Figure 4.2). This drain was visible as a linear feature 8.32m in length, 0.35m wide and survived to a depth of 0.07m. The feature contained one fill (context 1662) which consisted of a grey silty gravel and produced an unfired 1859 Pattern 0.55" calibre Minié ball.



**Figure 4.19 Northwest facing section of Ditch 1431 located beneath the footings of the basement rifle range of the 1907 Garrison Hall. Scale: 0.5m**

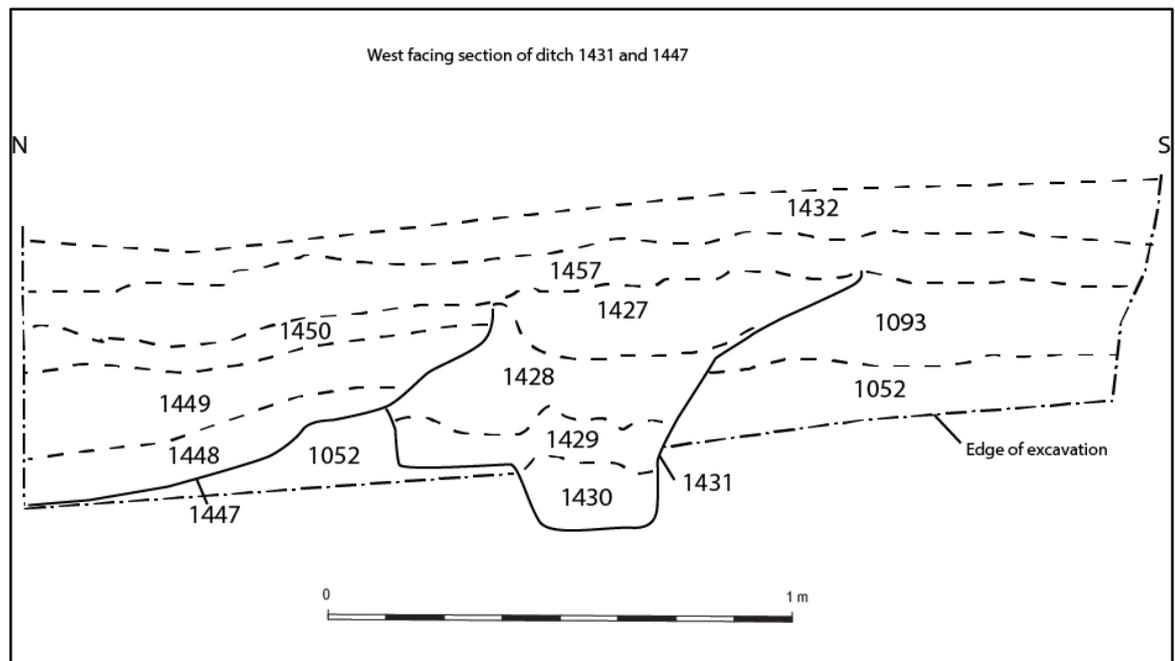


Figure 4.20 Northwest facing section of Ditches 1431 and 1447 beneath the basement rifle range

#### 4.4.2.3 Rubbish Pits - 1148, 1309 and 1656

Only three truncated refuse pits dating to the Imperial military occupation of the Lower Barracks site were exposed during the excavations (contexts 1148, 1309 and 1656). All the pits cut the subsoil and natural clay, and were sealed beneath the 1867 demolition/levelling layer (context 1065).

Pit 1148 was a small rectangular pit 0.54m in length and 0.32m wide. The pit was located within the footprint of the 1879 Drill Hall and therefore also the later 1907 Garrison Hall. The feature survived to a depth of just 0.07m, probably due to vertical truncation associated with the construction of those two buildings (Figure 4.2). The pit contained one fill (context 1149), that consisted almost entirely of bottle glass fragments within a silty grey matrix. Artefacts recovered consisted of glass related to black beer bottles and a case gin. One of the bottles carried the emblem of Tooth & Co. – a rearing Stallion), which derives from the county emblem of Kent where the company's Bakers Cross Brewery was located at Cranbrook. It is likely that this feature pre-dates the Lower Barracks complex and relates to the occupation of the site by the 96th Manchester Regiment of Foot, the first Imperial troops deployed to Wellington at some point between 1843 and 1847, and therefore has a likely date range of just four years.

Pit 1309 northwest of Structure 3 was a narrow rectangular pit 1.01m long and 0.34m wide and survived to a depth of 0.34m (Figure 4.3). The pit was filled with one deposit (context 1308) which was a dark brown clayey silt that contained a small quantity of black beer and wine bottle glass, ceramic, broken brick fragments, wood and a bone utensil handle. With such a paucity of inorganic artefacts it is likely that the pit was primarily used to dispose of organic waste which has not survived.

Lastly, Pit 1656 was located approximately 4m to the north of Well 1596, on the northern side of Buckle Street within the Arras Tunnel cut (Figure 4.3). The pit was rectangular in plan, 1.14m in length and 0.59m wide and had been vertically truncated (most likely from the construction of the 1909 Gunnery Annexe), and survived to a depth of 0.14m (Figure

4.2). The feature contained one fill (context 1657), a dark brown silty loam that produced glass relating to a black beer bottle, window pane glass and some pieces of frosted glass lampshade.

Dating of rubbish pits 1309 and 1656 cannot be further refined beyond the known date range of the Imperial military occupation of the Lower Barracks site from 1843 to 1867.

#### **4.4.3 Phase 2 – Armed Constabulary 1867-1886**

The archaeological excavations within Town Acre 226 exposed the remains of two structures relating to the Armed Constabulary occupation of the Lower Barracks site: a timber stables building and the brick built 1879 Drill Hall (Figure 4.2). Other features relating to Phase 2 exposed by both the Diversion Road and Arras Tunnel works, consisted of drainage features (drains both open and ceramic), a large post-pit, and a truncated cut semi-circular feature that may relate to a training gun (Figure 4.2). The beginning of the Armed Constabulary occupation was visible archaeologically by the presence of a made-ground deposit that covered the majority of the excavation area and sealed the features related to the Imperial occupation phase of the site.

##### **4.4.3.1 Demolition Layer / Made Ground (Context 1065)**

Context 1065 was visible across much of the excavation area as a mid-grey clay deposit, and was also present in section along the southern baulk, where it was observed to be up to 0.34m thick (Figure 4.21). The deposit contained frequent cultural material and produced a sizeable quantity of artefacts such as highly fragmented ceramic (both china and stoneware), bottle glass, clay tobacco pipe stems, metal items such as nails, and building material such as brick and roof slates dating from the mid-19th century. The deposit also contained frequent inclusions of charcoal, moderate inclusions of coal, and occasional pieces of wood, while marine shell (cockle, pipi and clam) was also present. Context 1065 is interpreted as a made ground layer containing refuse and building material derived from the Imperial military phase of the site, that was levelled across the site at some point during 1867 in preparation of the construction of the Armed Constabulary barracks.

##### **4.4.3.2 Post-pit (Context 1194) – Armed Constabulary Signal Mast**

A sub-circular post-pit (context 1194) cutting the natural (1052) was exposed in plan within the footprint of the Drill Hall, approximately 3m west of the eastern wall (context 1179) and some 14m north of the southern Garrison Hall wall (context 1558; Figure 4.2). The feature was partly obscured for much of the excavation period due to the presence of a geotechnical monitoring borehole situated immediately adjacent to, and partially above the western half of the pit. The post-pit had smooth, vertical sides and a flat base, and was 1.82m by 1.76m in size and 1.26m deep (Figure 4.2). Two totara sleeper beams (context 1760) each 1.5m (5ft) long, 0.20m wide and 0.19m thick, were positioned in the base of the feature. The beams were crossed-braced with the lower one having a notch cut out of its centre in order to fit beneath the upper beam, which was attached to the lower by an iron spike. The upper beam had two rectangular recesses cut through it, one positioned in the centre of the beam forming a mortise into which a large circular timber upright 0.29m in diameter and surviving to a height of 0.97m (context 1761) was attached by means of a tenon (Figure 4.22). The other recess housed a rectangular piece of wood that was likely to

have been driven through the outer recess to ‘pin’ the sleeper beam supports to the ground to aid stability. After the timber upright had been secured the pit had been backfilled with intermixed re-deposited natural and topsoil (context 1195). No artefactual material was retrieved from the backfill.

It is almost certain that post-pit 1194 and the timbers contained within the feature are the remains of the signal mast that is seen in Mundy’s 1868 photograph depicting the Armed Constabulary barracks (Figure 2.6). The signal mast would only have been in use for approximately 10 years, with the above ground portion of the structure removed prior to the construction of the Drill Hall in 1879.



**Figure 4.21** Stratigraphic sequence exposed in the northern excavation edge of the State Highway 1 Diversion Road within the footprint of the 1879 Drill Hall. The demolition / made ground layer (context 1065) is the dark grey layer at the base of the profile. Scale: 1.8m and 0.5m



**Figure 4.22** West facing images of Post-pit 1194 with the remains of the cross-braced large timber upright seen during excavation. Scale: 1.8m and 0.5m

#### 4.4.3.3 Structural Remains

##### *Structure 8 (Context 1475) – Armed Constabulary Stables*

The remains of a timber building consisting of 43 postholes (Structure 8; context group 1475) was exposed by the Diversion Road works (Figure 4.2). The features were present in six incomplete rows and demarcated an area of 18.3m (60ft) by 9.2m (30ft), representing a building on a north-northeast to south-southwest alignment. The postholes were mainly either rectangular or square in plan and varied in size from small square examples (contexts 1115, 1123, 1125; see Appendix 1) up to the largest, a rectangular feature (context 1307) measuring 1.03m by 0.70m (Figure 4.23). The remains of all four external walls were represented, though incomplete due to variable vertical truncation across much of the area and, in particular, along the course of the west facing wall which lay within the footprint of the 1909 Gunnery Annexe (context 1469).

All of the features were cut through the made ground layer (context 1065), subsoil (1093) and into the natural clay (1052). The postholes were filled with intermixed re-deposited natural and topsoil, with nearly all the fills containing refuse and demolition material likely to have been derived from the made ground layer (context 1065) through which they had been cut. The remains of degraded totara posts were present within the backfills of 10 postholes, while several others contained either post-pipes or post-moulds (Appendix 1).

An overlay of the excavation survey on the 1891 Ward Plan illustrates that the postholes are the remains of the Armed Constabulary Stables, probably erected in 1867, and likely to have been demolished in 1909 prior to the construction of the Gunnery Annexe (Figure 4.24).

##### *Structure 9 (Context 1077) – Armed Constabulary Drill Hall*

The remains of a brick building (Structure 9; context group 1077) were exposed by the Diversion Road and Arras Tunnel works, the latter beneath the northernmost traffic lane and footpath of Buckle Street, and consisted of seven sections of brick walling that relate to the 1879 Armed Constabulary Drill Hall (Figure 4.2 and Figure 4.25). The remains exposed within the Diversion Road consisted of four sections of wall aligned north-northeast to south-southwest (contexts 1062, 1179, 1369 and 1483), and one section aligned west-northwest to east-southeast (context 1435; Figure 4.2). Within the tunnel excavation area, the remains consisted of three short sections of wall of the eastern, western and southern walls (contexts 1645; 1570 and 1482 respectively), and were on the same alignments as those sections exposed by the Diversion Road works (Figure 4.2). The remains of the walls demarcated an area of 30.48m (100ft) by 15.24m (50ft), with the front wall of the building facing onto the original line of Buckle Street. The space enclosed by the walls had been infilled with up to 2.3m of yellowish light brown, sterile redeposited clay (context 1064) that was in turn sealed by modern 65mm aggregate (Figure 4.25).

The three surviving sections of the western wall were 11.97m (context 1062 = 1570), 3.46m (context 1483), and 0.74m (context 1482) in length respectively; while the three sections of the eastern wall were 17.22m (context 1179), 0.53m (context 1369) and 1.59m (context 1645) respectively (Figure 4.2). The surviving section of the northern rear wall (context 1435) survived more substantially than the other walls, and was 13.44m in length and up to 37 courses in height (three foundations courses included; Figure 4.26). The walls were approximately 0.26 thick (but somewhat distorted as a result of demolition), and had been constructed in the freestanding method within a construction trench which had been

4. Excavation Results – Town Acre 226

excavated through the dark grey made ground layer (context 1065), through the subsoil (1093) into the natural clay (1052). All of the walls were constructed of the same brick type (a reddish orange sandstock brick with a wide shallow frog) and bonded in the English Cross style with a light brownish yellow sandy mortar (context 1070).

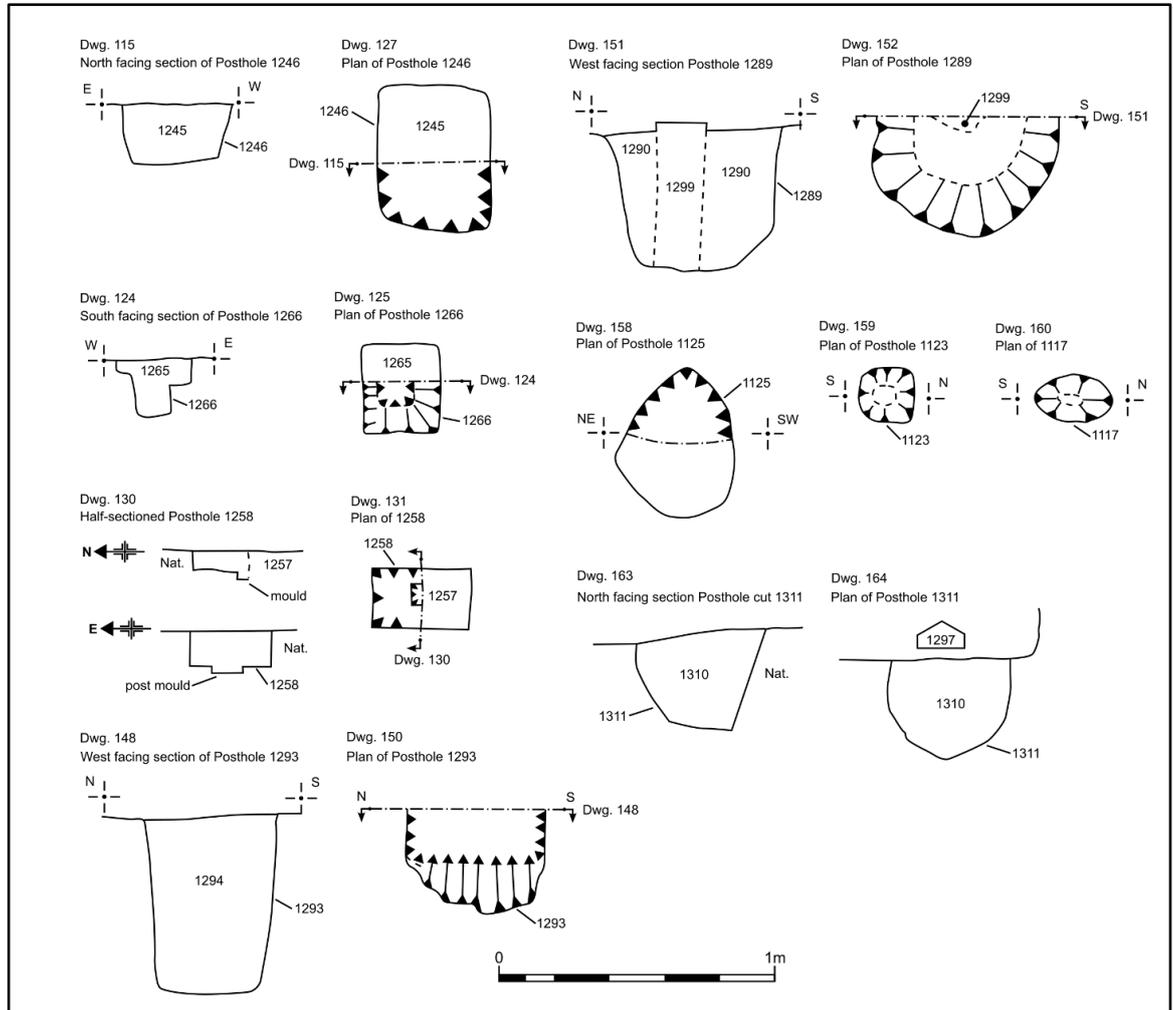


Figure 4.23 A selection of section profiles and plans of excavated postholes from the Armed Constabulary Stables building

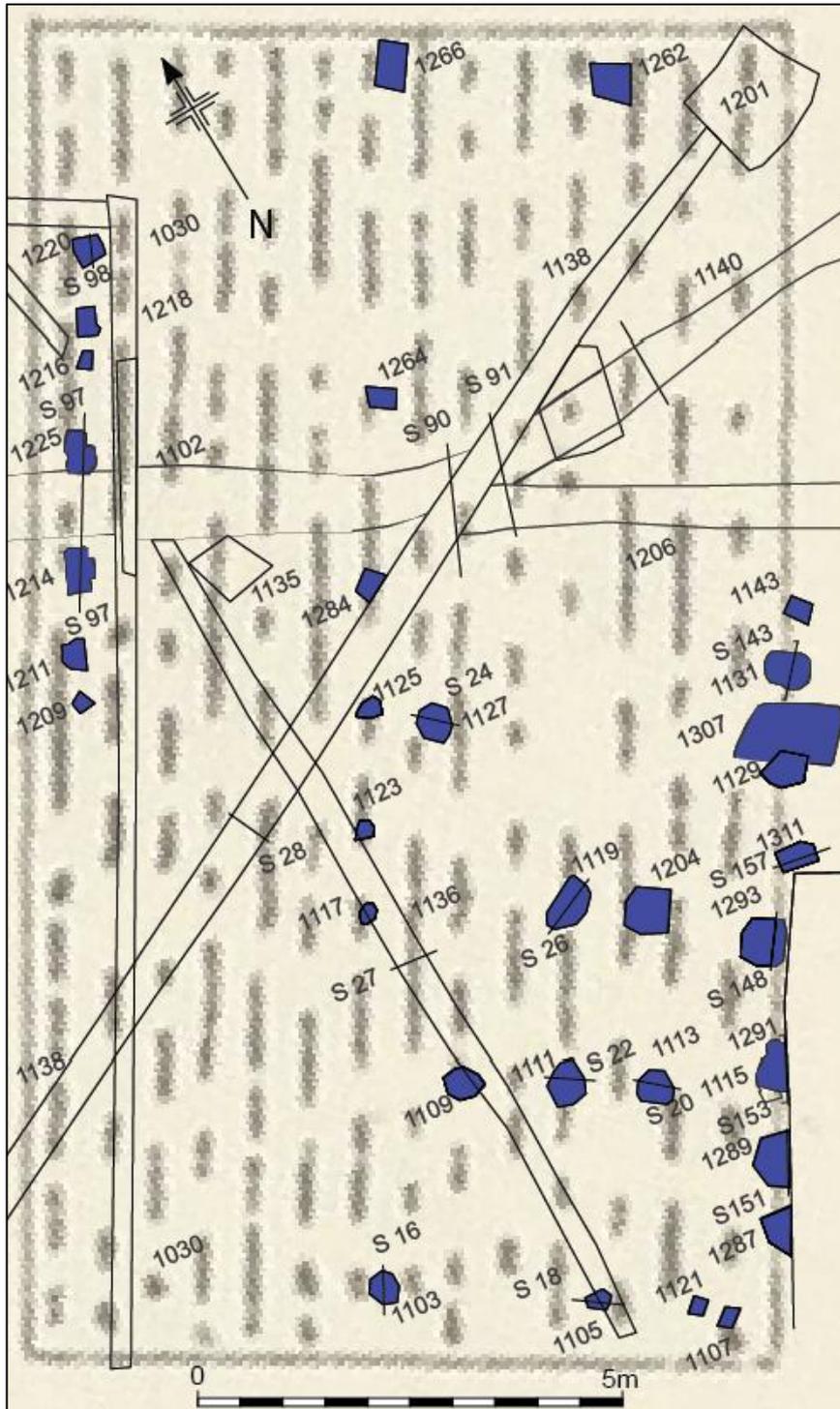


Figure 4.24 Detail from archaeological survey showing the postholes comprising the remains of the Armed Constabulary Stables overlaid on the 1891 Ward Plan

The section of western wall had two buttresses incorporated within it, while the rear wall had four, including an internal diagonal buttress where the western and northern walls adjoined, presumably as load bearing supports for the original iron roof (Figure 4.25 and Figure 4.27).

The remains of an open concrete drain abutted both the exterior faces of the western and eastern Drill Hall walls (contexts 1074 and 1654), and is likely to have formerly drained water shed from the original Drill Hall roof, though a number of recesses present in both

the eastern and western wall would also have allowed water to drain from the cleaning of the interior floor surface.

In addition to the contemporary buttresses, a further 12 buttresses had been constructed within cuts made to both the eastern and western walls, with seven on the eastern wall and five on the western (contexts 1076, 1089, 1092, 1161, 1164, 1167, 1170, 1173, 1176, 1440, 1579 and 1649; see Appendix 1). The buttresses were constructed in a different brick type to those of the Drill Hall, and were dark red in colour, stamped with the broad arrow (denoting government property), and were bonded with a whitish grey mortar that contained occasional inclusions of marine shell (context 1066). These later buttresses sat atop pebble concrete foundations and date to the Phase 3 construction of the Garrison Hall (context 1096) in 1907, and were necessary to support the weight of its more substantial roof (Figure 4.28).



**Figure 4.25 East-northeast facing photo showing the western wall (context 1062) and eastern wall (context 1179) of the 1879 Armed Constabulary Drill Hall seen during excavation and recording. NB. The column of fill in the centre of the image was left in place to protect a geotechnical monitoring borehole**



**Figure 4.26 Northwest facing post-excitation shot of the rear wall (context 1435) of the Drill Hall. Scale: 1.8m**



**Figure 4.27 North-northeast facing post-excitation shot of the rear wall of the Drill Hall with corner buttress seen at left. The wall seen abutting the drill hall to the rear is the southern internal wall (context 1437) of the first gallery of the Basement rifle range of the 1907 Garrison Hall**



**Figure 4.28** Looking east-southeast at one of the six buttresses (context 1167) constructed within cuts made through the eastern drill hall wall (context 1179) to provide support for the 1907 Garrison Hall roof. Scale: 2 x 1.8m

### ***Possible Flagpole (Context 1228)***

A rectangular slot cut into the natural clay (context 1052) was exposed within the footprint of the Gunnery Annexe building (context 1469), located approximately 6m north of the Phase 1 well (context 1596; Figure 4.2). The feature was 0.94m in length, 0.37m wide, and 0.25m deep and had been cut with vertical sides and a flat base. The feature had been vertically truncated as a result of the Gunnery Annexe construction and was backfilled with a single deposit consisting of a greyish brown and beige mottled clay (context 1226), from which a number of roof slate fragments were retrieved. The feature was excavated longitudinally in half section and the post-pipes of three timber posts were present in the southeast facing section (Figure 4.29 and Figure 4.30). The post-pipes represented a single upright post supported by cross-braced timber supports (context 1227) which were set at diagonal angles either side of the central upright (Figure 4.29). It is interpreted that the cross-braced timbers were required to support a timber that would be subjected to lateral forces from wind such as a flag pole. It is possible that a large fragment of a circular cement base with an internal circular aperture of 16.5cm (6 inches) retrieved from the lower fill (context 1606) of the nearby well (1596), may have been set around the post to provide additional stability. It is plausible that context 1228 and the cross-braced timber upright that it held represent the remains of the site of a flag pole and its supports, an item common to all military installations and one that would certainly have been situated within the Armed Constabulary barracks complex.

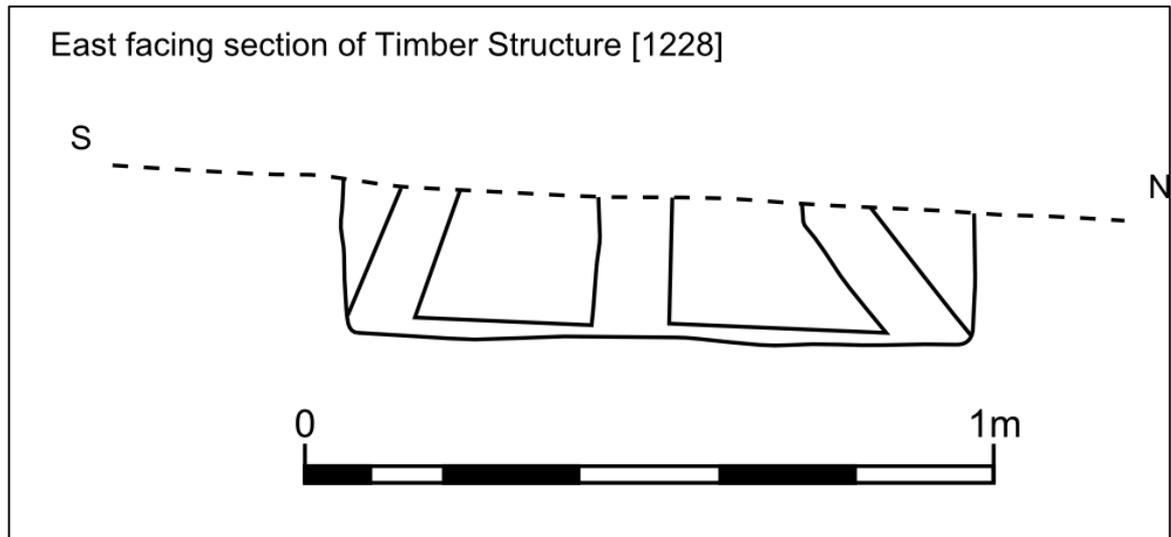


Figure 4.29 Half section profile drawing showing the remains of a cross-braced timber feature (context 1227) represented by post-pipes within a rectangular slot (context 1228) located beneath the footprint of the 1909 Gunnery Annexe



Figure 4.30 West facing post excavation photograph of rectangular slot feature (context 1228). Scale: 0.5m and 0.3m

#### 4.4.3.4 Drainage Features

In addition to the concrete drains associated with the Drill Hall (above), the remaining drainage features related to Phase 2 activity consisted of two linear drainage trenches cut for ceramic drain pipes (contexts 1275 and 1138 = 1669). Context 1275 consisted of a short section of linear trench located within the northeast corner of the Gunnery Annexe, and was 2.03m long, 0.36m wide and survived to a depth of 0.15m (Figure 4.2). The feature had been truncated in the north-west by the construction cut (context 1478) for the rear wall of the Gunnery Annexe (context 1099) (Figure 4.2). The drain was not observed to the north of the wall due to significant vertical truncation in the area. The drain trench

housed a brown ceramic drain pipe in its base that was 0.14m in diameter (context 1276), and had been backfilled with one fill consisting of a dark brown and yellow mottled clay (context 1277). No artefactual material was present within the deposit.

The remaining drain (context 1138 = 1669) consisted of a linear trench that crossed the site on a southwest to northeast alignment, and was truncated by the construction cut (context 1042) for the eastern wall of the 1909 Gunnery Annexe (context 1030), and was exposed within both the Tunnel and Diversion Road works (Figure 4.2). The trench remained as a linear feature 22.66m long, 0.53m wide and survived up to a depth of 0.23m, and contained a dark brown salt glazed ceramic drain pipe 0.14m in diameter in its base (context 1670 = 1752). The trench had been backfilled with mottled yellow brown and dark brown clay (context 1139 = 1671), and contained occasional inclusions of stones and brick and tile fragments. The feature truncated one of the Armed Constabulary postholes (context 1284; Figure 4.2), and was itself truncated at either end by a modern services trench in the southwest and by a modern cut that is likely to have been associated with the demolition of the Garrison Hall in the 1980s (Figure 4.2). Artefacts retrieved from the fill included building material such as brick and roof slate, stoneware and bottle glass including a ‘pig snout’ rim from a case gin bottle likely to have been produced prior to 1880.

#### **4.4.3.5 Possible Training Gun Emplacement – Context 1674**

A semi-circular cut feature (context 1674) was exposed within the Arras Tunnel works, approximately 3.3m northeast of the Phase 1 brick-lined well (context 1596; Figure 4.2). The feature was cut with smooth, steep sides, had a flat base and contained one fill (context 1675). The feature had been truncated both to the north and south, but retained a pronounced curve in plan on its unexcavated western side, while the cut on the eastern side also curved to the west. The feature survived as an arc 1.31m wide by 1.88m in length and survived to a depth of 0.55m (Figure 4.2 and Figure 4.31). From the remaining observable curvature, it is likely that had the feature not been truncated, it would have been circular in plan. The fill consisted of greyish brown clay that contained moderate inclusions of small rounded stones, mortar, and crushed marine shell, as well as occasional inclusions of animal bone, charcoal and ceramic burnt material. Some bottle glass and at least four bricks, as well as smaller brick fragments were retrieved from context 1675, and with the presence of mortar in the fill, this strongly suggests that a brick structure may have been constructed within the feature. The fill was probably deposited as a refuse dump in a single episode, perhaps soon after brick foundations had been removed.

It is not possible to ascribe an exact function to the feature, due to the severity of later truncation to its northern and southern sides. However, when its form and size is considered alongside its location within the Armed Constabulary parade ground, the possibility that the feature was excavated as a trench for brick foundations to support a rotating gun carriage, similar to the later gun well in the Gunnery Annexe for the 8-inch Armstrong disappearing gun, cannot be discounted. If the feature does indeed relate to the remains of a gun well, then it would probably mark the original location of the 8-inch Armstrong gun as the two 64 pounder rifled muzzle loader guns were mounted in the parade ground close to the northern boundary of Town Acre 233.



Figure 4.31 Post excavation photograph showing the truncated feature context 1674 – the possible gun emplacement. Facing northeast. Scale: 1m

#### 4.4.4 Phase 3 - NZ Permanent Militia/Artillery 1886-1897 & NZ Permanent Force 1886-1918

The archaeological excavations within Town Acre 226 exposed the remains of three brick structures relating to the occupation of the Lower Barracks site by the New Zealand Permanent Militia/Artillery. The structural remains relate to the 1907 Wellington Garrison Hall including elements of the underground rifle range; the 1909 Gunnery Annexe and an associated gun well/pivot standard located within its walls which housed the lifting mechanism for the 8-inch Armstrong Hydro-pneumatic disappearing gun (Figure 4.2). Other features relating to Phase 3 exposed by both the Diversion Road and Arras Tunnel works consisted of a number of made ground deposits, linear trenches housing ceramic drains, a refuse trench and a brick culverted stream (Figure 4.2).

##### 4.4.4.1 Structural Remains

###### *Structure 10 (Context 1096) – 1907 Wellington Garrison Hall*

Structural remains relating to the 1907 Wellington Garrison Hall were exposed within the footprint of the State Highway 1 Diversion Road, the Arras Tunnel, and in a trench excavated to facilitate earthquake strengthening of the MPA Office located in the northwest of Town Acre 226. Six sections of brick walling and one section of concrete foundations represented elements of the building's northern, western, southern, and eastern external walls (contexts 1362, 1380, 1558, and 1027 and 1286 respectively (see Appendix 1; Figure 4.2). A further six sections of walling related to the remains of internal walls and elements of the building's basement rifle range (contexts 1363, 1563, 1567, 1437), including the

entranceway (Figure 4.2 and Figure 4.32). All of the surviving walls were constructed of red brick, laid with a whitish grey mortar in the English Cross coursing bond, while many of the bricks displayed the stamp of the broad arrow, indicating that they had been manufactured at the nearby Mount Cook Prison brickworks.

Within the footprint of the Arras Tunnel works, approximately 24.30m of the south-southwest facing Buckle Street frontage of the Garrison Hall survived as two sections of brick walling (contexts 1558 and 1485), 17.74m and 6.50m in length respectively and 0.74m wide; and up to six courses of brick survived set on top of concrete foundations (Figure 4.2).

More substantial remains were exposed immediately to the north of the SH1 Diversion Road, where remnants of the southern internal wall (context 1437) of the first gallery of the basement rifle range, as well as the east facing exterior wall (context 1484) which contained the entranceway to the basement rifle range, survived (Figure 4.32 to Figure 4.35). The southern wall of the first gallery of the Basement Rifle Range (1437) survived as a section of wall 15.35m long, 0.47m wide with some 30 courses of brick (some 2.2m high), sitting on top of concrete footings, and retained white paint on its internal face (Figure 4.32 and Figure 4.34). The eastern external wall was only partially exposed (1484), with the visible section surviving as a 5.35m long section of wall which incorporated three windows (one of which retained wrought iron bars) and a 1.8m (6ft) high by 1.5m (5ft) wide doorway (Figure 4.33 and Figure 4.35). It was evident that at the time of the Garrison Hall demolition the roof of the basement had been removed and infilled with aggregate (context 1001).



**Figure 4.32 Looking west across the remains of the first gallery of the 1907 Wellington Garrison Hall Basement Rifle Range during excavation**



Figure 4.33 Looking east across the Basement Rifle Range during excavation



Figure 4.34 Detail from the section of the southern wall of the first gallery of the rifle range (context 1437) with the white paint visible still adhering to the brickwork. Facing south-southwest. Scale: 2 x 1.8m



**Figure 4.35** The internal face of the external eastern wall (context 1484) of the Garrison Hall Basement Rifle Range with entrance. Facing east-southeast. Scale: 2 x 1.8m

### *Structure 11 (Context 1469) – 1909 Gunnery Annexe*

Remains of the 1909 Gunnery Annexe (context 1469) consisted of the western, eastern and northern walls (contexts 1028 = 1654, 1030 and 1099; see Appendix 1), on the same alignment as the Garrison Hall, with only the south facing wall absent (Figure 4.2). With the exception of one short section of the western wall of the building (context 1654) exposed within the Arras Tunnel works, the building remains were located within the footprint of the SH1 Diversion Road (Figure 4.2). The construction cut for the walls had been cut through the grey cultural made ground layer (context 1065) and into the underlying natural clay (context 1052), with the eastern wall (context 1030) also cutting the upper fill (context 1100) of the large Phase 1 drainage ditch (context 1102). The walls had been constructed in the English Cross coursing bond and bonded with a light grey mortar. The remains of the western facing wall consisted of two separate sections 14.08m (context 1028) and 2.08m (context 1654) in length respectively and 0.26m thick; while the eastern section (1030) was 13.83m in length and also 0.26m thick; and lastly the northern rear wall (context 1099) was 7.73m long and 0.36m thick and survived to a height of 1.40m (Figure 4.2 and Figure 4.36).

Within the remaining footprint of the building two compacted fill layers were present (contexts 1046 and 1047) that represented made ground deposits. The lower of these layers (1047) consisted of a heavily compacted deposit of angular stones and brick fragments that was sealed by context 1046, itself composed of a compacted yellowish light brown clay that contained occasional rounded stones. It is probable that these layers were deposited to form the footings for the Gunnery Annexe floor.

***Structure 12 (Context 1038) – Gun Well / Pivot Stand for Armstrong Disappearing Gun***

Toward the rear of the Gunnery Annexe a circular brick-lined structure (context 1038) was situated in the centre of the building, equidistant from the eastern and western walls (Figure 4.2). The circular structure was constructed of brick in the English style (alternating courses of stretcher and header aligned bricks), bonded with a grey cement mortar and had an internal concrete floor (context 1486) sealing a brick base. The structure was 0.76m thick with an external diameter of 3.97m in diameter, which enclosed an internal diameter of 2.52m, and the remains stood to a height of 0.88m (Figure 4.2, Figure 4.36 and Figure 4.37).

The feature contained two fills, the lower of which (context 1035) consisted of a loose brownish-red clay that contained frequent inclusions of broken mid-red sandstock bricks representing a deliberate demolition backfill. The upper fill of the feature (context 1058) comprised brick rubble derived from the structure itself, intermixed with coarse sand and lumps of brownish-red sandy clay. A number of large cast iron/steel and brass artefacts were present within the deposit which included elements of a hydro-pneumatic elevating/lowering mechanism for an 8-inch Armstrong Disappearing Gun. These artefacts consisted of large sections of steel plate, a cast iron wheel and a brass graduated scale. A disappearing gun was usually moved down behind the gun parapet or into its protective housing by the force of its own recoil, which (on many models) lifted a counterweight. Before firing, the crew tripped a catch on the counterweight, causing it to fall into a well at the centre of the gun position and move the gun back up ‘into battery’ (firing position). It is considered that the structure represents the pivot stand for the gun with the housing or ‘well’ beneath it that the counterweight used to elevate and lower the gun would have dropped into.

The structure’s internal concrete floor (1486) had been constructed with ceramic drainage pipes incorporated to allow drainage of the well and sat on top of concrete foundations laid directly upon the clay natural, and had been ‘keyed’ into the ground in three places where the footings had been excavated approximately 0.30m deeper. This construction feature was most likely applied to prevent lateral force exerted from the Armstrong gun as it was rotated on its circular pivot standard, originally situated on top of the structure, from moving the gun well off its footings.



**Figure 4.36** The remains of the 1909 Gunnery Annex to the east of the 1907 Garrison Hall with the gun well for the Disappearing Gun seen at centre left. Facing north



**Figure 4.37** The remains of the gun well that housed the counterweight for the lifting mechanism of the 8-inch Armstrong Hydro-pneumatic Disappearing Gun. Scale: 2 x 1.8m and 0.5m. Facing south

#### 4.4.4.2 Miscellaneous Features

The earliest feature relating to Phase 3 activities was the brick culverted stream (context 1433) that was exposed beneath the Basement Rifle Range (Figure 4.2 and Figure 4.38). Prior to the culverting the two Phase 1 drainage ditches (contexts 1431 and 1447) had drained into the stream, and it is likely that this natural feature was culverted in the late 1890s. A wrought iron grate was still in situ which allowed the culvert to be inspected, revealing that the stream culvert was constructed of brick work skimmed with concrete (Figure 4.38).

The majority of features that related to the Phase 3 occupation of the barracks consisted in the main of linear trenches that had been excavated to house ceramic drain pipes (contexts 1041, 1199, 1408, 1578 and 1704; Figure 4.2; Appendix 1). Of note, the fill of drain 1704, a yellow and brownish grey mottled clay that contained occasional broken brick and roof tile inclusions (context 1706), produced three artefacts relating to the earlier Phase 1 occupation of the site by the Imperial Military. These consisted of an 1859 pattern 0.550" calibre Enfield Minié ball; an inscribed bone toothbrush, and a copper alloy (brass) shako chin strap hook mount in the form of a Tudor Rose.

Finally, two refuse pits (contexts 1025 and 1221) related to later Phase 3 activity (Figure 4.2; Appendix 1). Pit 1025 was only partially observed in section and the single fill it contained (context 1023), a mottled yellowish brown and grey clay, did not produce any artefactual material other than broken brick and ceramic tile. In contrast, Pit 1221 was a linear trench feature some 4.75m in length, 0.98m wide and despite significant vertical truncation survived to a depth of 0.30m (Figure 4.2). The feature contained one fill (context 1222) which consisted of intermixed redeposited natural clay and topsoil and contained artefacts ranging from willow pattern ceramic, black beer bottle glass, clay pipe tobacco fragments to .22" calibre Long Rifle rimfire cartridge cases manufactured in England that dated from 1887 to 1918. Some of the later examples are likely to have related to the use of the Garrison Hall Basement Rifle Range between 1907 and 1918.



**Figure 4.38** Left: the culverted stream (context 1433) with the wrought iron grate indicated and the earlier drainage ditch (context 1431) seen draining toward it (left). Right: the culvert brickwork can be seen after the removal of the iron grate with the stream visible flowing in the base. Scale: 1.8m (left) and 0.3m (right)

#### **4.4.5 Phase 4 - Post World War I (1918-2012)**

As the remains relating to Phase 4 activities that occurred within Town Acre 226 cover the period from 1918 to 2012, they need not be discussed in any detail within the framework of this report. The features and deposits that related to the Post World War 1 occupation of the site consisted in the main of a number of made ground deposits that demonstrate a sequence of demolition, clearance, levelling and later building activity connected to both the NZ military and later civilian private enterprises (Figure 4.2; Appendix 1). Some of the modern structures that post-dated the abandonment of the Barracks heavily impacted archaeological remains relating to the earlier military phases of the site by way of vertical truncation, and this was particularly the case in the eastern end of Town Acre 226.

## **5 EXCAVATION OF TOWN ACRE 233**

### **5.1 Excavation Methodology**

The removal of non-archaeologically significant overburden present within Town Acre 233 was undertaken by two 20-ton tracked mechanical excavators utilising toothless grading buckets. All machine work was carried out under continuous archaeological supervision until archaeological levels were reached. Archaeological surfaces and features were then cleaned with hand tools by the team of archaeologists in advance of excavation. The excavation of archaeological features was undertaken with trowel, mattock and spade, and as with Town Acre 226 was undertaken in accordance with condition 10 of the HNZPT authority (2013/92). The single context recording system was utilised for the Town Acre 233 investigations and context records and Harris Matrix are presented in the Appendices (see Appendix 2 and Appendix 4).

The archaeological investigation of Town Acre 233 took place in two stages between 7 and 20 November 2012 for the monitoring of the State Highway 1 Diversion Road, and for the Arras Tunnel works from 15 to 28 May 2013.

### **5.2 Archaeological Phasing**

Detailed historical research was undertaken to provide context for the archaeological results and aid in the interpretation of the site. Two main phases of military occupation and two phases of educational establishment were discerned that apply to Town Acre 233 and are as follows:

- **Phase 1 - Imperial Forces & NZ Militia & Volunteers Office 1843-1867**
- **Phase 2 - Armed Constabulary 1867-1877**
- **Phase 3 - Mount Cook Infant School 1877-1925**
- **Phase 4 - Mt Cook School & Modern 1925-2012**

### **5.3 Excavation Results**

After the stripping of the tar seal, and removal of overburden consisting of aggregate base-course and modern clay fills within the footprint of the SH1 Diversion Road works it was evident that most of the area had been massively truncated by 20th century building activities associated firstly with the 1926 Mount Cook School, beneath which a basement had been constructed, and later after its demolition in the late 1970s, with the petrol station and its associated large subterranean fuel tanks. The only in situ archaeology observed within the footprint of the Diversion Road was on the northern boundary of the site in the area of the temporary diversion road footpath close to the car parking area adjacent to the playing field of Mount Cook School (Figure 5.1). Archaeological features and deposits recorded in this area consisted of two old surfaces; an open brick-lined drain; a beam slot;

## 5. Excavation of Town Acre 233

a single posthole and two later linear features that truncated the drain on a southwest-northeast alignment (Figure 5.1). Although only a small area of intact archaeology remained in the area, it was evident that at least three occupation phases were represented.

A further two areas of archaeological remains that related to both Phase 1 and Phase 3 activities were present in the western half of Town Acre 233, and were exposed within the Arras Tunnel works close to the southern boundary and the original Buckle Street frontage (Figure 5.2). Archaeological features that had survived the widespread truncation in this area consisted of the remnants of a beam slot, three postholes and a demolition and made ground deposit.

### 5.3.1 Phase 1 - Imperial Forces & NZ Militia & Volunteers Office 1843-1867

Archaeological remains relating to the Phase 1 occupation of Town Acre 233 consisted of just three postholes and a single beam slot (contexts 2023, 2025, 2027 and 2029; Figure 5.2; Appendix 1). The features were sealed by aggregate road stone (context 2001) and located close to the original northern Buckle Street frontage. All of the features had been significantly vertically truncated, most likely by the later widening of Buckle Street in the 1930s. The features were aligned approximately east-southeast to west-northwest and ran parallel to Buckle Street for some 6.5m (Figure 5.2). The postholes were roughly square in plan, cut into the natural greyish to yellowish brown sterile clay (context 2015), and were filled with either an intermixed re-deposited clay and topsoil (context 2024) or with a dark brown silty topsoil fill (contexts 2026 and 2028). The beam slot (context 2029) was some 1.44m in length, 0.52m wide and survived to a depth of 0.09m. The only artefacts retrieved were from the fill (context 2030) of the beam slot and consisted of glass from a small alcohol vessel; a portion of emerald coloured glass from a decorative window or pane within a door panel; and small brick and roof slate fragments. The location of these structural features do not correspond with any buildings depicted on either the 1891 or 1900 Ward Plans or the 1893 plan of the Barracks (Figure 3.7; Figure 3.8 and Figure 3.9). It is likely that the features related to an unknown structure within the Lower Mount Cook Barracks in use during the Imperial Military occupation of Town Acre 233, and demolished.

### 5.3.2 Phase 2 - Armed Constabulary Occupation 1867-1877

The only archaeological remains relating to the Armed Constabulary occupation of Town Acre 233 was an open brick-lined drain (context 2012), and a surface (context 2014) exposed within the excavations for the State Highway 1 Diversion Road (Figure 5.1). The drain was aligned east-southeast to west-northwest and the remains were present for some 6.30m of brickwork in length and some 0.60m wide and formed a channel that was 0.16m deep (Figure 5.3). The brickwork sat on top of a friable brownish yellow sandy gravel bedding layer (context 2020) within a linear construction cut (context 2013) that was made into the natural clay (context 2015) and was at least 1.04m wide and 0.22m deep and backfilled with compacted yellowish brown, white and dark brown mottled clay containing occasional inclusions of brick fragments and charcoal (context 2011). Cultural material retrieved from context 2011 consisted of ceramic, bottle glass and marine shell. The drain had been truncated by two 20th century linear features, either ceramic drains or service trenches, both crossing it on a southwest to northeast alignment (Figure 5.1). The drain ran

5. Excavation of Town Acre 233

adjacent to and parallel with the northern boundary of Town Acre 233, and is almost certainly the remains of the ‘open drain’ depicted on the 1893 Public Works Plan of the Mount Cook Barracks and shown extending eastward toward Tory Street (Figure 5.4).

Abutting the drain to the south was an indurated dark brown gravel and clay layer consistent with a surface (context 2014; Figure 5.3). The surface had been formed by thin layers of clay with gravel rammed into it and built up to form a very hard, compacted surface. It is possible that the surface is the remnants of the Armed Constabulary parade ground, although it could also conceivably date from the Imperial Military occupation.

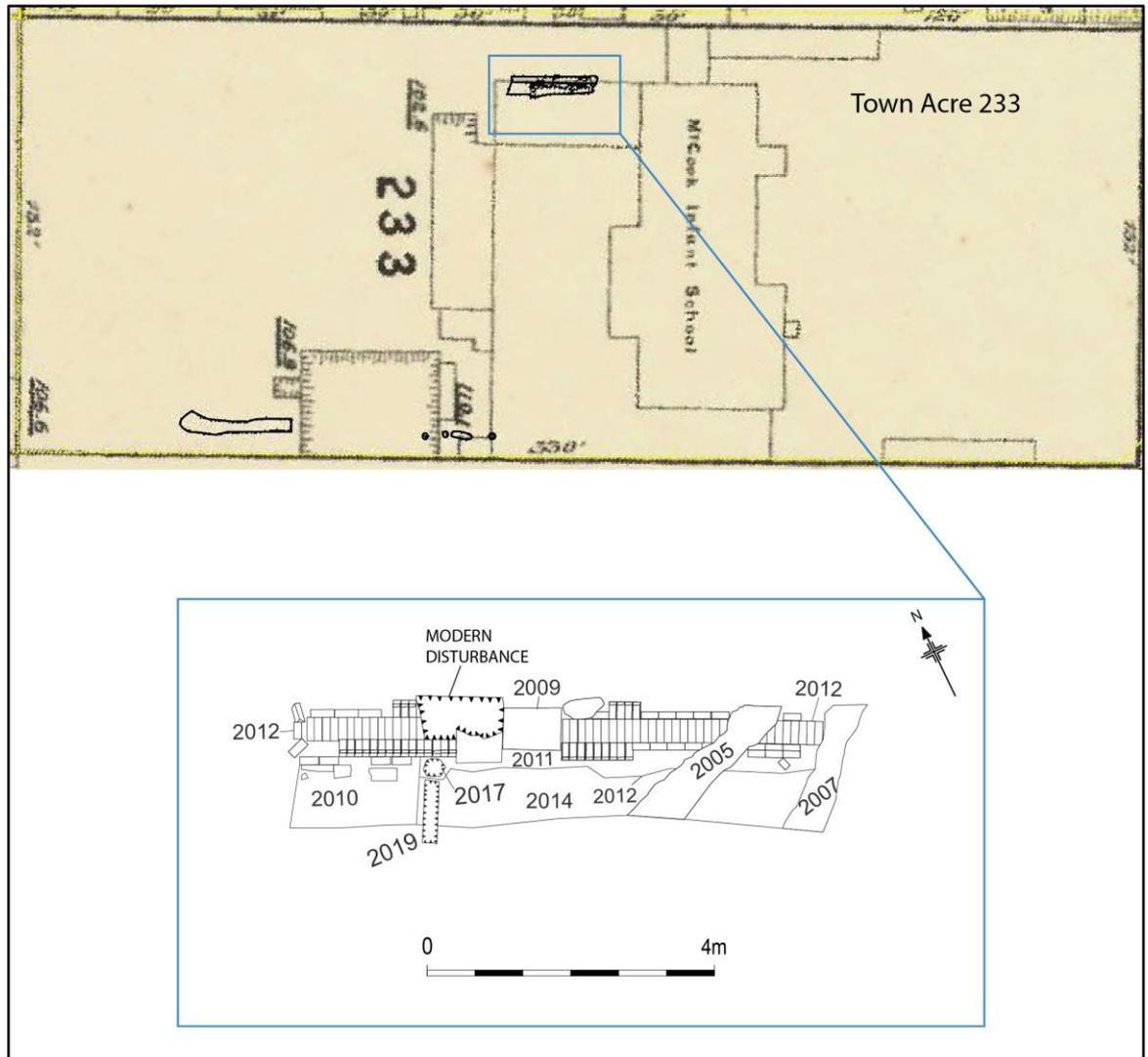


Figure 5.1 Survey plan of archaeological features within the north of Town Acre 233

5. Excavation of Town Acre 233

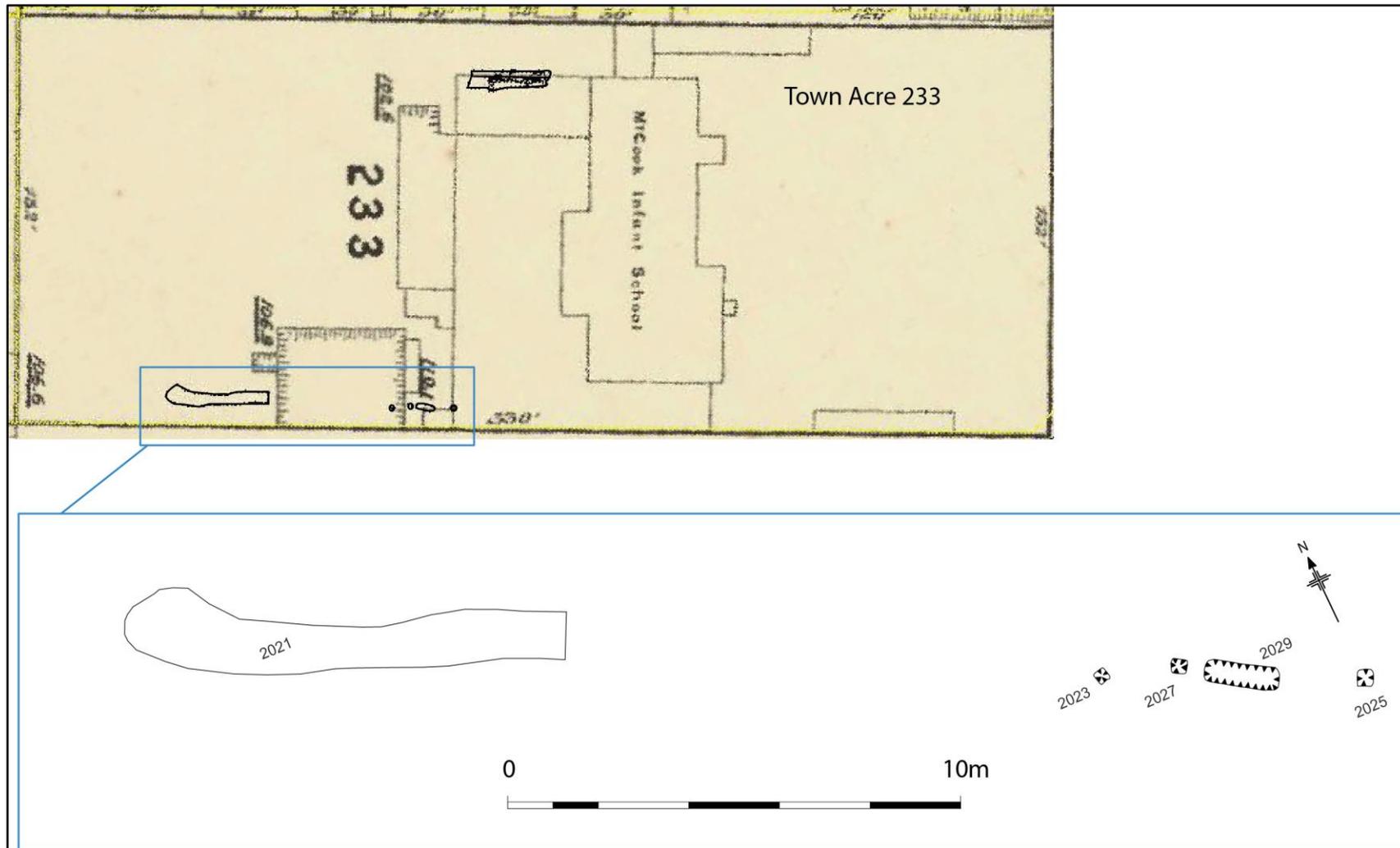


Figure 5.2 Survey plan of archaeological features within the south of Town Acre 233

5. Excavation of Town Acre 233



Figure 5.3 The open brick-lined drain (context 2012) in the north of Town Acre 233 with the gravel surface (context 2014) seen to the left of the drain indicated by the arrows. Facing west-northwest. Scale: 1.8m and 0.3m

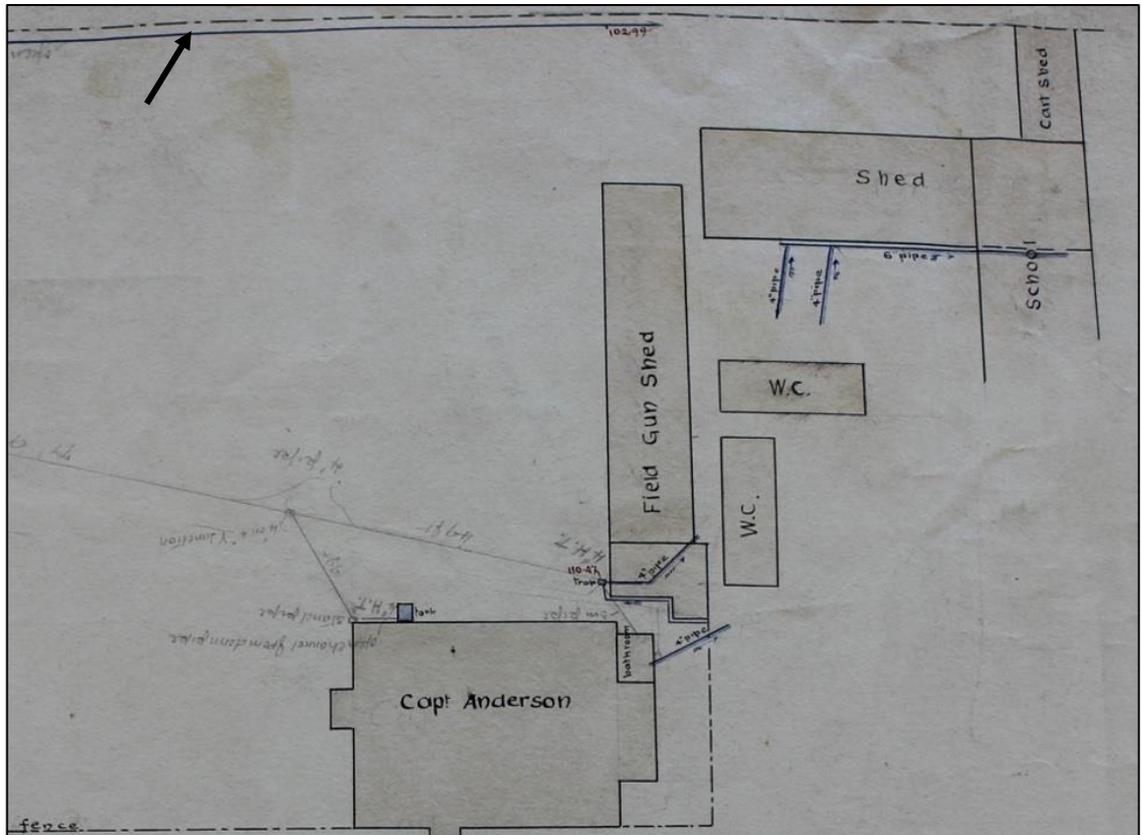


Figure 5.4 Detail from 1893 Public Works Plan illustrating the open drain running along the northern boundary of Town Acre 233 (arrowed) and extending toward the northern excavation area

### 5.3.3 Phase 3 - Mount Cook Infant School 1877-1925

Archaeological remains relating to Phase 3 activities within Town Acre 233 were present in the south-west and north of the town acre and consisted of made ground and demolition deposits; structural features (a single posthole and beam slot); and two floor surfaces.

In the southwest of Town Acre 233, approximately 12m to the west-northwest of the alignment of structural features relating to the unidentified Phase 1 structure, both a demolition deposit (context 2021) sealing the natural clay (context 2015), and a made ground fill layer (context 2022) were present exposed within the footprint of the Arras Tunnel works (Figure 5.2). Context 2021 was a thin, moderately compacted intermixed clay and topsoil deposit that was spread over an area of 9.90m (east-west) by up to 1.70m wide (north-south) and contained frequent demolition debris in the form of brick and roof tile fragments and window glass. The deposit may originally have extended further west but had been truncated by a modern service trench. The demolition deposit was sealed by a re-deposited natural brownish yellow clay layer that is likely to have served as a made ground deposit (context 2022) for later occupation activity. It is probable that the demolition deposit (2021) was formed at the time of the demolition of Captain Anderson's office at some point between 1907 and 1913, with the made ground deposit (2022) representing a fill levelling layer to facilitate later development.

The remaining features dating from Phase 3 activities were located in the northern excavation area, and all related to the Mount Cook Infant School phase of the site (Figure 5.1). The features consisted of two made ground fill layers (context 2008 and 2031); two associated surfaces (contexts 2009 and 2010); a posthole (context 2017); and a beam slot (context 2019). The made ground deposit filled the Phase 2 open brick drain in order to create a level surface. The deposit consisted of yellowish brown, white and dark brown mottled clay which contained moderate inclusions of gravel and sand. Artefacts retrieved from the fill (context 2018) included bottle glass, a clay tobacco pipe bowl, brick fragments and corroded iron pieces. Sealing the made ground deposit was the remains of a surface composed of sandstone flagstones (context 2009). Three flagstones survived, with one complete and two partial examples. The complete dimensions of the flagstones were 0.87m long, by 0.54m wide and 0.08m thick. Contemporary with the flagstones and forming a contiguous level surface with them was a further surface consisting of roof slates (context 2010) inlaid on a hard, dark greyish brown and black hard packed clay layer (context 2031; Figure 5.5). The remains of the surface covered an area of 1.86m by 1.15m to the south of the western end of the remains of the brick drain (context 2012; Figure 5.1), but the presence of a patch of indurated clay similar to context 2031 suggests that the surface was likely to have extended eastward. Posthole 2017 was observed cutting the backfill (2011) of the brick drain (2012) and it is considered probable that it is contemporary with the beam slot (2019) and the flagstone and slate surfaces (contexts 2009 and 2010; Figure 5.5 and Figure 5.6). It is likely that these structural features relate to the relatively long and narrow rectangular structure depicted on the 1891 Ward Plan to the rear of the Mount Cook Infant School main building, with the surfaces possibly representing the structure's internal floor (Figure 3.7 and Figure 5.7).



Figure 5.5 North facing post-excitation shot showing part of the slate surface (context 2010) laid on top of the packed clay layer (2031). Scale: 0.5m



Figure 5.6 North facing image showing part of the remains of the flagstone surface (context 2009) with the contemporary posthole (context 2017) also visible truncating the backfill of the construction cut of the brick drain (context 2012). Scale: 0.5m & 0.3m

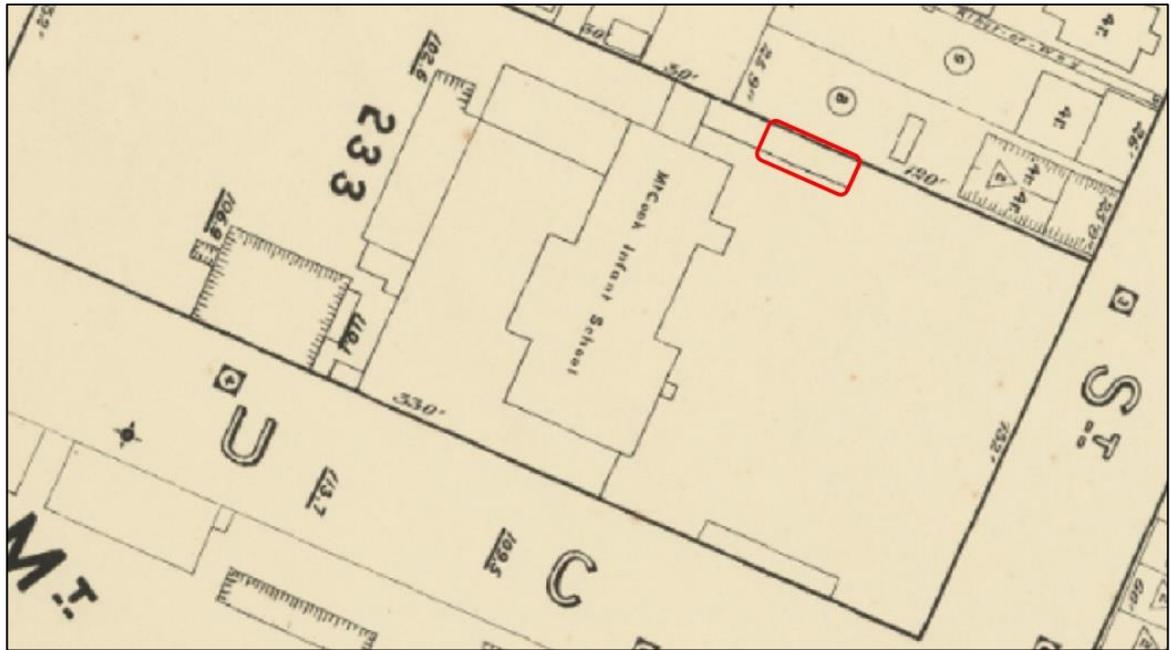


Figure 5.7 Detail from 1891 Ward Plan illustrating Mount Cook Infant School and showing the relatively long, narrow rectangular structure that was present to the north of the main school building and likely to be the origin of the Phase 3 archaeological remains in the north of Town Acre 233 (red outline)

#### 5.3.4 Phase 4 - Post Mount Cook Infant School 1925-2012

As stated above, the vast majority of archaeological remains once present within Town Acre 233 had been completely virtually truncated, and as such the majority of deposits and features present with the Town Acre date from either the 1925 construction of Mount Cook School and its 1970s demolition and later activities such as the petrol station (Figure 5.8 and Figure 5.9). For the most part the Phase 4 deposits consisted of made ground fill layers mainly consisting of either aggregate basecourse or introduced/redeposited sterile natural clay, or natural in situ clay where areas had been vertically truncated (Figure 5.9). As these remains relate to the second quarter of the 20th century onwards, they need not be discussed within the framework of this report.



**Figure 5.8 Facing east toward Tory Street illustrating sterile natural clay (context 2015) immediately beneath modern 20th century deposits and illustrating the vertical truncation of archaeological features within Town Acre 233**



**Figure 5.9 Looking south across Town Acre 233 toward the Carillon illustrating the massive truncation present across the site, with the subterranean fuel tanks relating to the 1970s petrol station visible, cut through redeposited natural clay and sealed beneath aggregate road stone**

## 6 ARTEFACT ANALYSIS

### 6.1 Town Acre 226

#### 6.1.1 Introduction

The artefact analysis was undertaken by Jen Low and Jaden Harris, with specialist analysis of military artefacts completed by David Rudd. The assemblage overall comprised a range of materials common to 19th century sites (bottle glass, ceramics, stoneware, metal objects, wooden items), although the presence of military artefacts is the direct result of the history of land use of Town Acre 226. Overall, despite a high degree of fragmentation, preservation of materials was good, with wooden and other organic artefacts surviving in good condition. However, as none of the characteristic large rubbish pits/trenches normally associated with military sites were exposed during the archaeological investigation, the number of artefacts (NISP 3108<sup>111</sup>) is actually quite low in relation to the substantial excavation area, with the majority of these being glass fragments.

The results are presented per material type, with a discussion following presentation of the results.

#### 6.1.2 Ceramics

A total of 578 fragments of ceramic were analysed representing a minimum of 209 individual vessels and items (Table 6.1). Ceramics were identified to fabric, vessel type, function, decorative technique and any manufacturers' marks or other information recorded. Minimum numbers were calculated by reviewing number of sherds present, vessel forms and decoration.

The ceramic assemblage collected from Town Acre 226 was highly fragmented, with the majority of ceramic patterns represented by less than three sherds. Patterns identified by name include Asiatic Pheasants, Fibre, Sprigged ware, Milan and Willow, all of which are typically associated with 19th century to early 20th century assemblages. However, 127 patterns were unidentified, which is perhaps due to the highly fragmented nature of the assemblage, with many of those unspecified patterns consisting of less than three small sherds.

Manufacturing date ranges could only be established for two items, both Holloway's ointment pots: context 1065 dating 1860s-1880s and context 1064 dating 1900-1910.

#### Context 1026

Context 1026 contained a partial handle of a jug or ewer, 31 pieces of a toilet bowl and one piece of the toilet cistern. The fragment from the cistern was impressed '...dless Glaze 07 11' and had a partial maker's mark where only the letter T was discerned, which unfortunately could not be identified.

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<sup>111</sup> Note that the NISP (number of individual specimens) is actually greater than this due to the collection of bulk .22 shells which were found, being recorded as 100+.

### Context 1035

Two rejoined pieces of a relief moulded plate edge were collected from the lower fill of the gun pit, a feature dating from 1909.

**Table 6.1 Summary of ceramic assemblage from Town Acre 226**

Context	NISP	MNV	Context	NISP	MNV
1026	33	2	1310	2	1
1036	29	13	1337	1	-
1037	4	1	1346	1	1
1040	1	-	1355	2	1
1041	7	5	1403	1	1
1042	10	4	1416	1	1
1043	1	-	1418	21	8
1044	2	1	1420	32	15
1046	4	2	1430	1	-
1061	4	1	1500	5	3
1064	13	7	1505	5	2
1065	70	27	1508	1	1
1069	7	6	1513	1	1
1093	10	5	1591	21	10
1100	152	28	1597	4	2
1101	2	2	1611	3	2
1139	3	2	1615	2	2
1142	12	8	1627	47	11
1148	1	1	1675	6	3
1158	4	1	1677	5	1
1222	6	5	1685	9	6
1232	4	4	1686	4	1
1235	1	1	1706	1	-
1239	1	-	Unstratified	17	9
1247	1	-	<b>Total</b>	<b>579</b>	<b>209</b>
1249	1	-			
1308	2	1			

### Context 1036

A collection of highly fragmented ceramics was recovered from context 1036 representing a minimum number of 14 vessels (Table 6.2). Only one pattern was identifiable (Willow), with nine unidentified patterns recorded (Table 6.3<sup>112</sup>). A purple printed partial teacup base (WI00032) might be related to an identical patterned example located in context 1093.

### Context 1037

Context 1037 contained two plate fragments decorated with the Asiatic Pheasants design, a saucer fragment decorated with raised relief Sprigged ware, and part of an unglazed slip cast ornament which may have depicted a cut branch with the knot of a tree.

<sup>112</sup> See Appendix CD accompanying Volume 3 for details of the unidentified ceramic patterns recorded for the project.  
February 2017 Pukeahu National War Memorial Park, Wellington

**Table 6.2 Vessel form and fabric minimum numbers from context 1036**

Vessel Form	Whiteware	Porcelain	Red-Body	Total
<b>Tableware</b>				(11)
Plate	3			3
Cup/Bowl	1			1
Teacup	5			5
Saucer	1			1
Teapot			1	1
<b>Bedroom/Bathroom</b>				(1)
Chamber pot	1			1
<b>Other</b>				(2)
Insulator		1		1
Vase/Ornament	1			1
<b>Total</b>	12	1	1	14

**Table 6.3 Ceramic patterns and marks from context 1036**

Pattern	Vessel	Marks/Notes	NISP	MNV
<i>Willow</i>	Plate		2	-
<i>WI00027</i>	plate	blue transfer print	1	1
<i>WI00028</i>	plate	blue transfer print	1	1
<i>WI00029</i>	saucer	relief moulded	1	1
<i>WI00030</i>	cup or bowl	blue/grey transfer print	4	1
<i>WI00031</i>	teacup	green transfer print	1	1
<i>WI00032</i>	teacup	purple transfer print	1	1
<i>WI00033</i>	teacup	dark blue transfer print	1	1
<i>WI00034</i>	teacup	dark blue transfer print	1	1
<i>WI00035</i>	teacup	dark blue transfer print	1	1

**Context 1041**

Context 1041 contained 7 sherds representing 5 vessels: 3 plates, 1 teacup and an unidentified item. None of the patterns were identified (Table 6.4).

**Table 6.4 Ceramic patterns and marks from context 1041**

Pattern	Vessel	Marks/Notes	NISP	MNV
WI00036	plate	blue transfer print	1	1
WI00037	plate	blue transfer print	1	1
WI00038	plate	blue transfer print	1	
WI00039	plate	blue transfer print	2	1
WI00040	teacup	blue transfer print	1	1
WI00041	unidentified	brown transfer print	1	1

**Context 1042**

Ten pieces of ceramic were collected from this context representing at least 6 vessels, 3 of which were unidentified (Table 6.5). Two fragments were decorated (Table 6.6).

**Table 6.5 Vessel form and fabric minimum numbers from context 1042**

Vessel Form	Whiteware	Yellowware	Terracotta	Total
<b>Tableware</b>				(1)
Plate	1			1
<b>Kitchenware</b>				(1)
Bakeware		1		1
<b>Other</b>				(1)
Flowerpot			1	1
<b>Unidentified</b>	3			(3)
<b>Total</b>	4	1	1	6

**Table 6.6 Ceramic patterns and marks from context 1042**

Pattern	Vessel	Marks/Notes	NISP	MNV
WI00042	unidentified	blue transfer print	1	1
WI00043	plate	blue transfer print	1	1

**Context 1043**

One small fragment of an unidentified thick walled vessel was recovered from this context.

**Context 1044**

A portion of a plain white ceramic kitchen or bathroom tile was noted along with a partial base of a plain white teacup.

### Context 1046

Context 1046 contained a large fragment of a Willow patterned side plate, and fragments from an undecorated chamber pot, a printed teacup, and a printed teacup or bowl (Table 6.7).

**Table 6.7 Ceramic patterns and marks from context 1046**

Pattern	Vessel	Marks/Notes	NISP	MNV
<i>Willow</i>	side plate	blue transfer print	1	-
<i>WI00044</i>	teacup	blue transfer print	1	1
<i>WI00045</i>	teacup or bowl	Purple transfer print	1	1
<i>Undecorated</i>	chamber pot		1	-

### Context 1061

Context 1061 contained four pieces of ceramic: a teacup fragment with a Chinoiserie flow blue design on the exterior and a floral design on the interior, a fragment of a Willow patterned side plate and two undecorated saucer fragments.

### Context 1064

This context contained 13 ceramic sherds representing 7 vessels (Table 6.8). A summary of decorations is provided in Table 6.9. The complete base and partial lid of a pharmaceutical preparation was collected (Figure 6.1), the lid decorated with a green transfer print of a man in a toga. This was used by Holloway's during the years 1900-1910 (Dale 1977). There was also a portion of a cobalt glazed candlestick holder decorated with gilt fleur-de-lis (Figure 6.2). Two fragments of Willow patterned plate and a fragment of a blue banded teacup were present. This context is a made-ground layer within the Garrison Hall footprint, so the mix of 19th and 20th century artefacts is not surprising.

**Table 6.8 Vessel form and fabric minimum numbers from context 1064**

Vessel Form	Whiteware	Total
<b>Tableware</b>		(5)
Plate	2	2
Teacup	2	2
Saucer	1	1
<b>Pharmaceutical</b>		(1)
Ointment	1	1
<b>Other</b>		(1)
Candle holder	1	1
<b>Total</b>	7	7

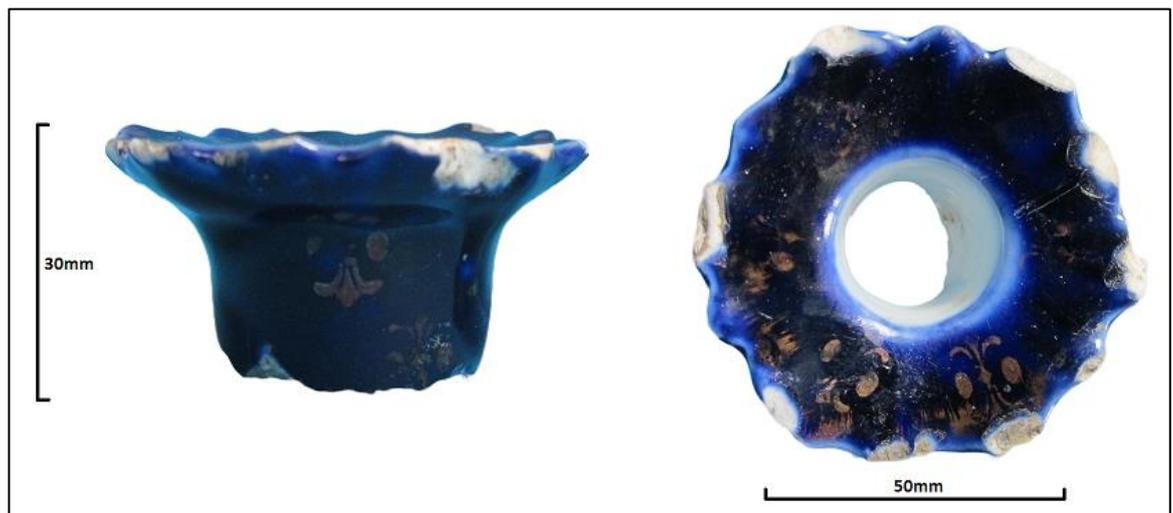
6. Artefact Analysis

**Table 6.9 Ceramic patterns and marks from context 1064**

Pattern	Vessel	Marks/Notes	NISP	MNV
<i>Banded</i>	teacup	blue banded	1	1
<i>Holloway's</i>	ointment	dated 1900-1910	2	1
<i>Willow</i>	plate	blue transfer print	2	-
<i>WI00046</i>	candle holder	blue with gold fleur-de-lis	1	1
<i>WI00047</i>	plate	blue transfer print	1	1
<i>Wi00048</i>	saucer	blue transfer print	1	1
<i>WI00049</i>	plate	brown transfer print	1	1
<i>WI00050</i>	teacup	green transfer print	1	1
<i>Undecorated</i>	plate		1	-
<i>Undecorated</i>	teacup		1	-
<i>Unidentified</i>	unidentified		1	-



**Figure 6.1** The lid of a Holloway's pot dated c.1900-1910 from context 1064 (left) and side profile of the pot and lid (right)



**Figure 6.2** Side profile view of the cobalt glazed candlestick holder decorated with gilt fleur-de-lis motifs from context 1064 (left) and view from above illustrating likely post-depositional damage (right)

### Context 1065

A sizeable quantity of highly fragmented ceramic was collected from Context 1065: 70 ceramic sherds representing at least 27 vessels, the majority being tableware items (Table 6.10). A summary of decoration is provided in Table 6.11.

The items included the partial base and body of a small Holloway's brand ointment pot. The transfer print in black read '...etor...Strand London...and all medicine...ers throughout the Kingdom'. The original script would have read 'Sold in pots 1s 1 ½ d – 2/9 4/6-1s 22 & 33 by the proprietor 244 Strand London and all medicine vendors throughout the Kingdom', dating 1860s-1880s (Dale 1977:47). The actual contents of the pot cannot be determined as Holloway's marketed a large number of preparations.

There was also approximately one half of the upper portion of a candlestick holder. The holder was relief moulded possibly in the form of a multi-layered flower with some leaves. The interior was marked with a gilt cursive 'S'.

### Context 1069

This context contained 7 fragments of ceramic representing 6 tableware vessels (Table 6.12). A summary of decoration is provided in Table 6.13.

**Table 6.10 Vessel form and fabric minimum numbers from context 1065**

Vessel Form	Whiteware	Total
<b>Tableware</b>		(23)
Plate	5	5
Teacup	10	10
Teacup or bowl	5	5
Bowl	1	1
Jug/Ewer	1	1
Serving Dish	1	1
<b>Pharmaceutical</b>		(1)
Ointment	1	1
<b>Other</b>		(2)
Candle holder	1	1
Flowerpot	1	1
<b>Unidentified</b>	1	(1)
<b>Total</b>	27	27

Table 6.11 Ceramic patterns and marks from context 1065

Pattern	Vessel	Marks/Notes	NISP	MNV
<i>Banded</i>	teacup or bowl	blue transfer print	1	1
<i>Holloway's</i>	ointment	black transfer print, 1860s-1880s	1	1
<i>Willow</i>	plate	blue transfer print	13	1
WI00005	teacup or bowl	blue/red/green sponged	1	1
WI00048	teacup	blue transfer print	1	1
WI00049	teacup	black/blue transfer print	1	1
WI00051	teacup	dark blue transfer print	3	1
WI00052	teacup	purple transfer print	3	1
WI00053	teacup	blue transfer print	1	1
WI00054	teacup	blue transfer print	1	1
WI00055	teacup or bowl	blue transfer print	1	1
WI00056	teacup or bowl	blue transfer print	1	1
WI00057	teacup or bowl	blue transfer print	1	1
WI00058	plate	blue transfer print	1	1
WI00059	teacup	purple transfer print	1	1
WI00060	teacup	blue transfer print	1	1
WI00061	unidentified	blue transfer print	2	1
WI00062	teacup	blue transfer print	1	1
WI00063	plate	blue transfer print	6	1
WI00064	bowl	flow blue print	1	1
WI00065	teacup	green transfer print	1	1
WI00066	plate	blue transfer print	6	1
WI00067	plate	blue transfer print	1	1
WI00068	candle holder	relief moulded	1	1

Table 6.12 Vessel form and fabric minimum numbers from context 1069

Vessel Form	Whiteware	Total
<b>Tableware</b>		(6)
Plate	1	1
Teacup	2	2
Saucer	3	3
<b>Total</b>	6	6

**Table 6.13 Ceramic patterns and marks from context 1069**

Pattern	Vessel	Marks/Notes	NISP	MNV
WI00069	saucer	blue transfer print	1	1
WI00070	plate	blue transfer print	1	1
WI00071	teacup	blue transfer print	1	1
WI00072	saucer	blue transfer print	1	1
WI00073	teacup	blue transfer print	1	1
WI00074	saucer	grey transfer print	1	1
Undecorated	teacup		1	-

**Context 1093**

Context 1093 contained 10 fragments of ceramic representing 5 tableware vessels (Table 6.14). A summary of decoration is provided in Table 6.15.

**Table 6.14 Vessel form and fabric minimum numbers from context 1093**

Vessel Form	Whiteware	Total
<b>Tableware</b>		(5)
Plate	2	2
Teacup	2	2
Saucer	1	1
<b>Total</b>	5	5

**Table 6.15 Ceramic patterns and marks from context 1093**

Pattern	Vessel	Marks/Notes	NISP	MNV
Willow	plate	blue transfer print	2	-
Willow	plate	blue transfer print	1	-
WI00075	plate	blue transfer print	1	1
WI00076	plate	green transfer print	1	1
WI00077	saucer	purple transfer print	2	1
WI00078	teacup	purple transfer print	1	1
WI00079	teacup	purple transfer print	1	1
WI00080	teacup	blue transfer print	1	-

**Context 1100**

152 fragments of ceramic representing 28 individual items were collected from context 1100 (Table 6.16). The patterns and marks are summarised in Table 6.17.

Twenty-five of the vessels were tableware items, and 13 pieces of Willow pattern ceramic related to at least two plates; 13 fragments originated from at least one plate decorated with the Asiatic Pheasant pattern; 1 fragment of an unidentified vessel was decorated with a

6. Artefact Analysis

purple Fibre design; and a small fragment of a blue sprigged ware ceramic was noted but could not be identified to a particular vessel form.

Forty-seven fragments of a round yellow-ware kitchen bowl were noted and one fragment of a terracotta flower pot was present.

**Table 6.16 Vessel form and fabric minimum numbers from context 1100**

Vessel Form	Whiteware	Yellowware	Total
<b>Tableware</b>			(25)
Plate	8		8
Side plate	1		1
Saucer	1		1
Teacup	8		8
Teacup or bowl	3		3
Cup or bowl	2		2
Bowl	1		1
Handle	1		1
<b>Kitchenware</b>			(1)
Kitchen bowl		1	1
<b>Unidentified</b>	2		(2)
<b>Total</b>	27	1	28

**Table 6.17 Ceramic patterns and marks from context 1100**

Pattern	Vessel	Marks/Notes	NISP	MNV
<i>Asiatic Pheasants</i>	plate	blue transfer print	13	1
<i>Banded</i>	teacup	blue/black print	1	1
<i>Banded</i>	cup or bowl	blue/black print	1	
<i>Fibre</i>	unidentified	purple transfer print	1	1
<i>Imitation Jasper</i>	unidentified	blue sprigged	1	
<i>Willow</i>	plate	blue transfer print	13	2
<i>Willow</i>	side plate	blue transfer print	1	
<i>Willow</i>	teacup or bowl	blue transfer print	1	1
<i>Willow</i>	unidentified	blue transfer print	2	
WI00038	plate	blue print	2	1
WI00081	side plate	red transfer print	5	1
WI00082	teacup or bowl	blue transfer print	1	1
WI00083	plate	blue transfer print	6	1
WI00084	teacup	blue transfer print	1	1
WI00085	teacup	black transfer print	1	1
WI00086	teacup	black transfer print	1	1
WI00087	saucer	purple transfer print	1	1
WI00088	plate	blue transfer print	1	1
WI00089	plate	brown transfer print	1	1

## 6. Artefact Analysis

WI00090	cup or bowl	blue/black hand painted	2	1
WI00091	teacup	blue transfer print	1	1
WI00092	teacup	brown transfer print	1	1
WI00093	teacup	brown transfer print	1	1
WI00094	teacup	blue transfer print	1	1
WI00095	unidentified	blue transfer print	1	1
WI00096	plate	blue transfer print	1	1
WI00097	bowl	blue transfer print	2	1
WI00098	handle	blue transfer print	1	1
WI00099	teacup	brown transfer print	1	1
Yelloware	kitchen bowl	yellow	47	1

### Context 1101

Two fragments of ceramic were recovered from this context; a portion of a pharmaceutical pot lid containing some lettering, ‘...each’ (WI000100) and a fragment of a saucer decorated with an unknown blue floral print (WI000101).

### Context 1139

One fragment of a relief moulded, salt glazed teapot was recovered from this context along with two fragments of a yelloware baking dish. Six pieces of salt glazed drain pipe were collected.

### Context 1142

Context 1142 contained 12 fragments of ceramic relating to 8 vessels, all tableware items (Table 6.18). Decorations are summarised in Table 6.19. One fragment originates from a side plate decorated with the Milan pattern.

**Table 6.18 Vessel form and fabric minimum numbers from context 1142**

Vessel Form	Whiteware	Total
<b>Tableware</b>		(8)
Plate	1	1
Side plate	2	2
Teacup	1	1
Saucer	3	3
Lidded dish	1	1
<b>Total</b>	8	8

**Table 6.19 Ceramic patterns and marks from context 1142**

Pattern	Vessel	Marks/Notes	NISP	MNV
<i>Milan</i>	side plate	blue transfer print	1	1
<i>WI00102</i>	side plate	black transfer print	1	1
<i>WI00103</i>	saucer	blue transfer print	1	1
<i>WI00104</i>	saucer	blue transfer print	1	1
<i>WI00105</i>	lidded dish	blue transfer print	1	1
<i>WI00106</i>	teacup	black transfer print	1	1
<i>WI00107</i>	saucer	blue transfer print	1	1
<i>WI00108</i>	plate	black transfer print	1	1

**Context 1148**

The lower body of a toothpaste or ointment pot was collected (Figure 6.3). The maximum base diameter was 77.77 and it stood 38.62mm high. There was no print identifying a product or manufacturer.



**Figure 6.3 Base of an unmarked toothpaste or ointment pot from context 1148**

**Context 1158**

One fragment from a plate was decorated with a black floral print (WI000109). Three pieces of at least one plain white bathroom tile were present.

**Context 1222**

Seven pieces of ceramic representing five vessels were collected from context 1222 (Table 6.20). Decorations are summarised in Table 6.21. One plate fragment was decorated in Willow print. A portion of a ceramic tap was collected. The flow was controlled by turning and exposing a channel which connected with the liquid in the flagon through a small hole.

Table 6.20 Vessel form and fabric minimum numbers from context 1222

Vessel Form	Whiteware	Semi-vitreous	Total
<b>Tableware</b>			(4)
Plate	2		2
Saucer	2		2
<b>Other</b>			(1)
Tap		1	1
<b>Total</b>	4	1	5

Table 6.21 Ceramic patterns and marks from context 1222

Pattern	Vessel	Marks/Notes	NISP	MNI
<i>Willow</i>	saucer	blue transfer print	1	1
<i>WI00110</i>	plate	blue transfer print	1	1
<i>WI00111</i>	plate	blue transfer print	1	1
<i>WI00112</i>	saucer	red transfer print	1	1
<i>Undecorated</i>	tap		1	1
<i>Undecorated</i>	plate		1	

### Context 1232

Context 1232 contained 4 pieces of ceramic representing 4 vessels (Table 6.22). The 4 tableware items were decorated (Table 6.23).

Table 6.22 Vessel form and fabric minimum numbers from context 1232

Vessel Form	Whiteware	Total
<b>Tableware</b>		(4)
Plate	2	2
Side plate	1	1
Teacup	1	1
<b>Total</b>	4	4

**Table 6.23 Ceramic patterns and marks from context 1232**

<b>Pattern</b>	<b>Vessel</b>	<b>Marks/Notes</b>	<b>NISP</b>	<b>MNI</b>
WI00113	side plate	blue transfer print	1	1
WI00114	teacup	blue transfer print	1	1
WI00115	plate	blue transfer print	1	1
WI00116	plate	relief moulded	1	1

**Context 1235**

A fragment from a saucer was decorated with a blue transfer print depicting a tree (WI000117).

**Contexts 1239 and 1247**

Contexts 1239 and 1247 (the fills of two postholes) each produced a small fragment from Willow patterned plates.

**Context 1249**

A large edge fragment of a Willow patterned side plate was collected.

**Context 1308**

A fragment from a black printed saucer was recorded (WI000118). A small portion of a plain white tile was collected. There was no indication of a manufacturer's name on the reverse.

**Context 1310**

Two fragments of ceramic were collected from this context including one plate fragment decorated with the Willow pattern and a saucer fragment decorated with a blue transfer print (WI000119).

**Context 1346**

A single fragment of a blue transfer printed teacup was identified (WI000120). The cup was decorated both internally and externally.

**Context 1355**

A fragment a teacup bearing a blue transfer print was collected (WI000121).

**Context 1403**

A small plate fragment decorated with a blue transfer print was collected (WI000122).

### Context 1416

A fragment of a blue transfer printed teacup was collected (WI000123).

### Context 1418

Twenty-one fragments of ceramic were collected representing 8 vessels (Table 6.24). Decorations are summarised in Table 6.25. Seven fragments of Willow pattern ceramic related to at least one plate. One further plate, two teacups and a saucer were also represented.

**Table 6.24 Vessel form and fabric minimum numbers from context 1418**

Vessel Form	Whiteware	Total
<b>Tableware</b>		(8)
Plate	2	2
Saucer	1	1
Teacup	2	2
Unidentified	3	3
<b>Total</b>	<b>8</b>	<b>8</b>

**Table 6.25 Ceramic patterns and marks from context 1418**

Pattern	Vessel	Marks/Notes	NISP	MNI
<i>Willow</i>	plate	blue transfer print	7	1
<i>WI00124</i>	saucer	black transfer print	5	1
<i>WI00125</i>	teacup	black transfer print	1	1
<i>WI00126</i>	teacup	blue transfer print	1	1
<i>WI00127</i>	plate	blue transfer print	1	1
<i>WI00128</i>	unidentified	blue transfer print	1	1
<i>WI00129</i>	unidentified	blue transfer print	1	1
<i>WI00130</i>	unidentified	relief moulded	1	1
<i>Yellowware</i>	bakeware		1	-
<i>Terracotta</i>	flowerpot		1	-
<i>Undecorated</i>	unidentified		1	-

### Context 1240

Thirty-two pieces of ceramic representing 15 vessels were collected from context 1420 (Table 6.26), the majority being tableware items. A number of items were represented by single sherds bearing patterns not seen elsewhere (Table 6.27). Identified patterns include four re-joining pieces of a Willow side plate and a fragment of a sprigged ware saucer. A small lid fragment originating from a toothpaste or ointment was noted.

Table 6.26 Vessel form and fabric minimum numbers from context 1420

Vessel Form	Whiteware	Total
<b>Tableware</b>		(10)
Plate	1	1
Side plate	3	3
Saucer	4	4
Teacup	2	2
<b>Bathroom/Bedroom</b>		(1)
Jug/Ewer	1	1
<b>Pharmaceutical</b>		(1)
Toothpaste/ointment	1	1
<b>Unidentified</b>	3	(3)
<b>Total</b>	15	15

Table 6.27 Ceramic patterns and marks from context 1420

Pattern	Vessel	Marks/Notes	NISP	MNV
<i>Banded</i>	teacup	Hand painted blue/gold	2	1
<i>Imitation Jasper</i>	saucer	blue sprigged	1	1
<i>Willow</i>	side plate	blue transfer print	4	1
<i>WI00131</i>	unidentified	blue transfer print	1	1
<i>WI00132</i>	side plate	brown transfer print	3	1
<i>WI00133</i>	unidentified	brown transfer print	1	1
<i>WI00134</i>	teacup	brown/blue transfer print	1	1
<i>WI00135</i>	jug/ewer	brown transfer print	1	1
<i>WI00136</i>	side plate	brown transfer print	2	1
<i>WI00137</i>	unidentified	blue transfer print	1	1
<i>WI00138</i>	saucer	blue transfer print	1	1
<i>WI00139</i>	saucer	blue transfer print	1	1
<i>WI00140</i>	saucer	blue transfer print	1	1
<i>WI00141</i>	plate	blue transfer print	1	1
<i>Undecorated</i>	toothpaste/ointment		1	1
<i>Undecorated</i>	unidentified		6	-
<i>Terracotta</i>	flowerpot		1	-

### Context 1500

Five ceramic sherds were recovered from context 1500, representing a minimum number of 3 vessels (Table 6.28). While the Java and Medici patterns (Table 6.29) would suggest a date for this layer no later than the 1860s, it is a demolition deposit dating from the early 20th century, so these sherds are redeposited.

**Table 6.28 Vessel form and fabric minimum numbers from context 1500**

Vessel Form	Whiteware	Total
<b>Tableware</b>		(3)
Cup	2	2
Jug	1	1
<b>Total</b>	3	3

**Table 6.29 Ceramic patterns and marks from context 1500**

Pattern	Vessel	Marks/Notes	NISP	MNV
<i>Java</i>	Cup	Blue transfer print	1	1
<i>Medici</i>	Cup	Blue transfer print	2	1
<i>WI0011</i>	Jug	Blue transfer print	1	1

**Context 1505**

Seven ceramic sherds were recovered from context 1505 representing a minimum number of 2 vessels (Table 6.30).

**Table 6.30 Vessel form and fabric minimum numbers from context 1505**

Vessel Form	Whiteware	Total
<b>Tableware</b>		(1)
Cup	1	1
<b>Household/Other</b>		(1)
Miniature Bowl	1	1
<b>Total</b>	2	2

**Context 1508**

Only one fragment from a non-diagnostic pattern flown blue transfer printed whiteware saucer was recovered from context 1508.

**Context 1513**

One small fragment from a whiteware blue transfer printed OS0001 pattern saucer was recovered from context 1513.

### Context 1591

Twenty-four ceramic sherds were recovered from context 1591 representing a minimum number of 10 vessels (Table 6.31). The transfer printed vessels from this feature were all represented by small fragments. They included Willow patterns and stylistically they date mid-19th century (Table 6.32).

**Table 6.31 Vessel form and fabric minimum numbers from context 1591**

Vessel Form	WhiteWare	Dyed-Body	Semi-Vitreous	Total
<b>Tableware</b>				(10)
Plate	3			3
Cup	3	1		4
Saucer	1		1	2
Bowl	1			1
<b>Total</b>	<b>8</b>	<b>1</b>	<b>1</b>	<b>10</b>

**Table 6.32 Ceramic patterns and marks from context 1591**

Pattern	Vessel	Marks/Notes	NISP	MNV
<i>Annular</i>	Bowl	blue slip banded	1	1
<i>Sprigged</i>	Saucer	purple sprigged	1	1
<i>Willow</i>	Plate	blue transfer print	5	1

### Context 1597

Four ceramic sherds were recovered from context 1597 representing a minimum number of 2 vessels (Table 6.33 and Table 6.34).

### Context 1611

Three ceramic sherds were recovered from context 1611 representing a whiteware blue transfer printed Asiatic Pheasants pattern plate and a plain semi-vitreous cup.

### Context 1615

Four ceramic sherds were recovered from context 1615 (Table 6.35) representing a minimum number of 3 vessels (Table 6.36).

Table 6.33 Vessel form and fabric minimum numbers from context 1597

Vessel Form	Whiteware	Total
<b>Tableware</b>		(2)
Plate	1	1
Serving Vessel	1	1
<b>Total</b>	<b>2</b>	<b>2</b>

Table 6.34 Ceramic patterns and marks from context 1597

Pattern	Vessel	Marks/Notes	NISP	MNV
<i>Willow</i>	Serving Vessel	blue transfer print	3	1
<i>WI0006</i>	Plate	green transfer print	1	1

Table 6.35 Vessel form and fabric minimum numbers from context 1615

Vessel Form	Whiteware	Total
<b>Tableware</b>		(2)
Plate	2	2
<b>Total</b>	<b>2</b>	<b>2</b>

Table 6.36 Ceramic patterns and marks from context 1615

Pattern	Vessel	Marks/Notes	NISP	MNV
<i>Abbey 2</i>	Plate	grey transfer print	1	1
<i>Willow</i>	Plate	blue transfer print	1	1

### Context 1627

Forty-seven ceramic sherds were recovered from context 1627 representing a minimum number of 11 vessels (Table 6.37). The presence of transfer printed patterns such as Canova and Versailles and the style of other unidentified patterns like WI0010 suggest a mid-19th century date for this feature (Table 6.38).

**Table 6.37 Vessel form and fabric minimum numbers from context 1627**

Vessel Form	Whiteware	Dyed-Body	Total
<b>Tableware</b>			(10)
Plate	3		3
Cup	4		4
Saucer	1		1
Bowl	2		2
<b>Household/Other</b>			(6)
Chamberpot	1		1
Jar		3	3
Penny Ink Bottle		1	1
Bottle		1	1
<b>Total</b>	<b>11</b>	<b>5</b>	<b>16</b>

**Table 6.38 Ceramic patterns and marks from context 1627**

Pattern	Vessel	Marks/Notes	NISP	MNV
<i>BR0084</i>	Cup	green transfer print	1	1
<i>Canova</i>	Plate	blue transfer print	1	1
<i>HM0198</i>	Chamberpot	blue transfer print	1	1
<i>Versailles</i>	Plate	blue transfer print	1	1
<i>WI0010</i>	Cup	red transfer print	5	1
<i>WI0013</i>	Cup	blue transfer print	2	1
<i>WI0014</i>	Cup	blue transfer print	1	1
<i>Willow</i>	Plate/Serving Vessel	blue transfer print	3	-
<i>Willow</i>	Saucer	blue transfer print	1	1

**Context 1675**

Six ceramic sherds were recovered from context 1675 representing a minimum number of 3 vessels (Table 6.39 and Table 6.40).

**Context 1677**

Five fragments from a plain whiteware mixing bowl were recovered from context 1677.

**Context 1685**

Twenty-one ceramic sherds were recovered from context 1685 representing a minimum number of 8 vessels (Table 6.41 and Table 6.42). Patterns included Asiatic Pheasants, Fibre and Willow.

Table 6.39 Vessel form and fabric minimum numbers from context 1675

Vessel Form	Whiteware	Total
<b>Tableware</b>		(2)
Plate	1	1
Cup	1	1
<b>Household/Other</b>		(1)
Chamberpot	1	1
<b>Total</b>	<b>3</b>	<b>3</b>

Table 6.40 Ceramic patterns and marks from context 1675

Pattern	Vessel	Marks/Notes	NISP	MNV
<i>UC0242</i>	Cup	purple/gold cut sponged/painted	1	1
<i>WI0006</i>	Chamberpot	green transfer print	1	1
<i>Willow</i>	Plate	blue transfer print	3	1

Table 6.41 Vessel form and fabric minimum numbers from context 1685

Vessel Form	Whiteware	Semi-Vitreous	Total
<b>Tableware</b>			(5)
Plate	1		1
Cup	2		2
Saucer	1		1
Cup/Jug		1	1
<b>Total</b>	<b>4</b>	<b>1</b>	<b>5</b>

Table 6.42 Ceramic patterns and marks from context 1685

Pattern	Vessel	Marks/Notes	NISP	MNV
<i>Asiatic Pheasants</i>	Serving Vessel	blue transfer print	1	-
<i>Banded</i>	Saucer	blue painted	2	1
<i>Fibre</i>	Cup	brown transfer print	1	1
<i>Willow</i>	Cup	blue transfer print	1	1
<i>Willow</i>	Plate	blue transfer print	1	1

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### Context 1686

Four ceramic sherds were recovered from context 1686 representing a minimum number of 1 vessel.

### Unstratified Ceramics

Thirty-seven unstratified ceramic sherds were recovered representing a minimum number of 17 vessels (Table 6.43). Fourteen out of the 17 vessels were decorated (Table 6.44). The majority of the vessels were tableware items, and most of the sherds appear to be 19th century in origin. One miscellaneous plumbing fitting or similar object is likely to be of 20th century date.

**Table 6.43 Vessel form and fabric minimum numbers – unstratified**

Vessel Form	Whiteware	Semi-Vitreous	Other	Total
<b>Tableware</b>				(16)
Bowl	1			1
Plate	7			7
Saucer	3			3
Teacup	3	1		4
Unidentified	1			1
<b>Household/Other</b>				(1)
Fitting			1	1
<b>Total</b>	<b>15</b>	<b>1</b>	<b>1</b>	<b>17</b>

**Table 6.44 Ceramic patterns and marks – unstratified**

Pattern	Vessel	Marks/Notes	NISP	MNV
<i>Willow</i>	bowl	blue transfer print	5	1
<i>Willow</i>	Plate	blue transfer print	1	1
<i>Willow</i>	Side Plate	blue transfer print	1	1
<i>WI00142</i>	saucer	blue transfer print	1	1
<i>WI00143</i>	saucer	blue transfer print	1	1
<i>WI00144</i>	unidentified	purple transfer print	1	1
<i>WI00145</i>	teacup	flow blue print	1	1
<i>WI00146</i>	plate	blue transfer print	1	1
<i>WI00147</i>	plate	blue transfer print	1	1
<i>WI00148</i>	plate	blue transfer print	1	1
<i>Asiatic Pheasants</i>	Plate	blue transfer print	2	1
<i>Banded</i>	Saucer	blue painted	1	1
<i>Rhine</i>	Plate	grey transfer print	1	1
<i>Sprigged</i>	Cup	purple sprigged	4	1

### 6.1.3 Stoneware

Eighty-six fragments of stoneware were collected from Town Acre 226 representing a minimum of 29 vessels (Table 6.45) including 5 beverages, 17 household products and 7 unidentified items (Table 6.46). Context 1100 contained the largest single deposit of stoneware and may indicate a primary deposit.

Date ranges were able to be obtained for the manufacture of three items. Context 1044 contained a ginger beer produced 1909-1922, context 1100 contained an unidentified item manufactured 1842-1863, and the unstratified ginger beer fragment dated 1893-1917.

**Table 6.45 Summary of stoneware from Town Acre 226**

Context	NISP	MNI
1036	3	1
1037	4	4
1042	1	-
1044	4	2
1061	1	-
1065	10	4
1069	3	1
1093	4	1
1100	33	9
1142	1	1
1158	5	1
1222	1	1
1271	1	1
1308	1	1
1361	2	2
1403	1	-
1418	1	-
1420	8	-
Unstratified	2	-
<b>Total</b>	<b>86</b>	<b>29</b>

#### Context 1042

The partial base and body of an unidentified bottle was collected.

#### Context 1044

Three small fragments of stoneware were not identified. A fourth piece originating from a ginger beer bottle was embossed ‘...Bacon/ Registered J.L.B. Trade... /...xtra...’ The bottle is likely that of Bacon’s Celebrated Aerated Water Company, which operated under this name from 1909 to 1922 (Wellingtonantiquebottles.org.nz, 2016 a).

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**Table 6.46 Minimum number of individual stoneware vessels from Town Acre 226**

Vessel Form	MNI	Total
<b>Beverages</b>		(5)
Ginger Beer	4	
Beer	1	
<b>Household</b>		(17)
Blacking	2	
Ink	8	
Ink/Blacking	1	
Jug/Vase	1	
Storage Jar/Jar	5	
<b>Unidentified</b>	<b>7</b>	<b>(7)</b>
<b>Total</b>	<b>29</b>	<b>29</b>

**Context 1061**

One small fragment of fawn coloured stoneware was collected and could not be identified with a particular product.

**Context 1065**

Ten fragments of stoneware representing 4 vessels were collected (Table 6.47; Figure 6.4). The partial base and body of an ink bottle was collected and stamped ‘Vitreous s.../warranted/J. Bo.../Pa.../...by & Cod...’ It is not possible to determine a specific date for this J. Bourne bottle as it is not clear whether the full name included ‘& Son’ (Figure 6.4). A complete blacking bottle and a penny ink were also collected (Figure 6.4).

**Table 6.47 Stoneware vessel forms from context 1065**

Vessel Form	MNI	Total
<b>Household</b>		(4)
Blacking	1	1
Ink	2	2
Storage Jar	1	1
<b>Total</b>	<b>4</b>	<b>4</b>

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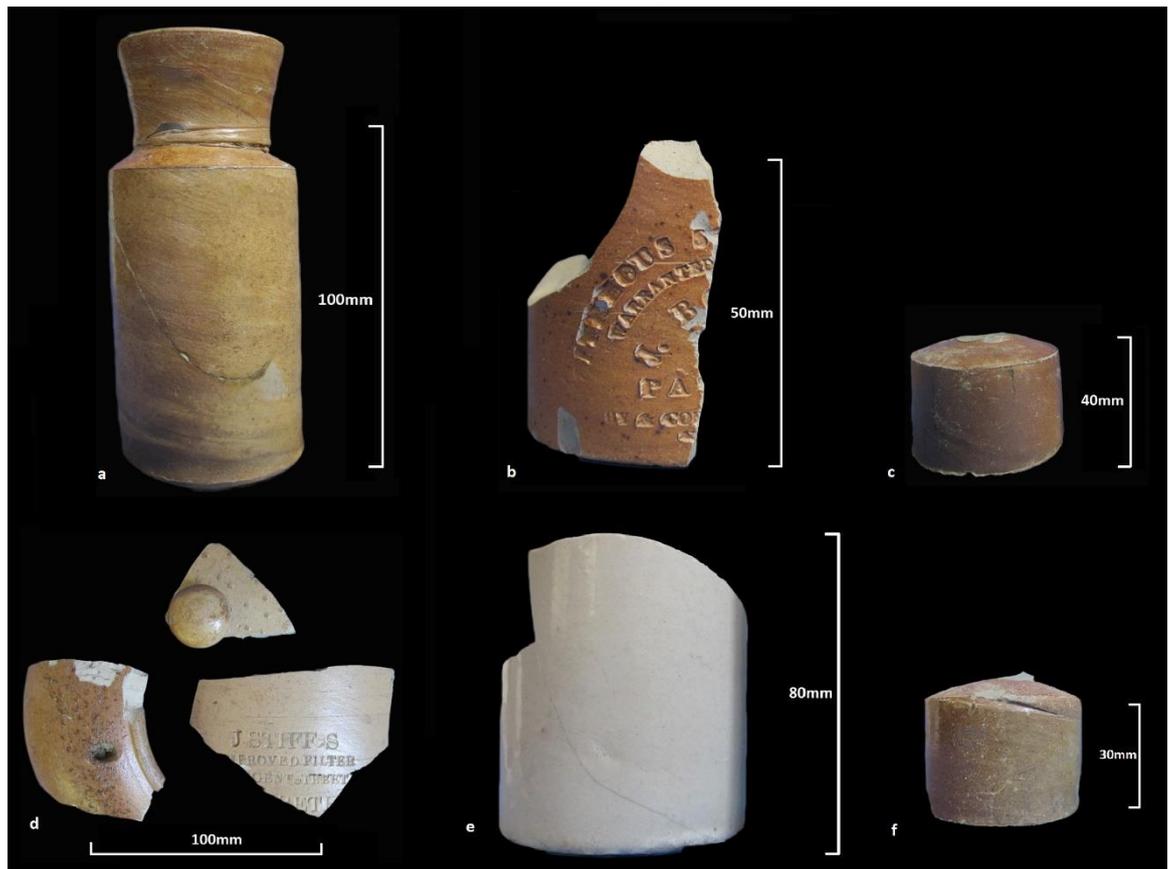


Figure 6.4 Stoneware collected from contexts 1065 (top) and 1100 (bottom): a) blacking jar; b) partial base of a J. Bourne manufactured ink bottle; c) unbranded penny ink; d) elements of lid and body of a J. Stiff's water filter; e) Ginger beer bottle base; and f) unbranded penny ink

### Context 1069

Two fragments of stoneware were collected from context 1069, one fragment related to an ink or blacking jar, and a partial base was associated with a beer or ginger beer.

### Context 1093

Four fragments of stoneware were collected, three of which re-joined to form the base and lower body of a cream coloured bottle. A small fragment of beige coloured bottle was not identified.

### Context 1100

Thirty-three pieces of stoneware representing 10 vessels were collected from context 1100 (Table 6.48). At least 2 ginger beer, 5 household consumables (including one penny ink) and 3 unidentified vessels were recorded (Figure 6.4). This deposit was the upper fill of the main early drainage ditch which traversed the site, one of the earliest dating features on the site. The upper fill represents the end of the Imperial military occupation of the Lower Barracks.

Thirteen pieces of a three-piece mould water filter were collected with two pieces stamped 'J. Stiff's ... mproved Filter...gent Street...beth'. The vessel had a lid with a knob handle at the centre and was decorated with small raised dimples (Figure 6.4). A filter ring with a

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vent would have sat below the lid and on top of the main body of the vessel. The filter is likely to date to 1840-63 (Godden 1991).

**Table 6.48 Stoneware vessel forms from context 1100**

Vessel Form	MNI	Total
<b>Beverage</b>		(2)
Ginger Beer	2	2
<b>Household</b>		(4)
Ink	1	1
Ink/Blackening	1	1
Jug/Vase	1	1
Storage Jar	1	1
Water Filter	1	1
<b>Unidentified</b>	3	(3)
<b>Total</b>	10	10

### Context 1142

One small piece of stoneware originated from a storage jar.

### Context 1158

A portion of the spout area of a cream coloured master ink was identified. Four pieces of at least two brown bottles were also noted.

### Context 1222

The partial upper body and neck of a master ink bottle was collected (Figure 6.5). The neck of the bottle had been shaped into a square on the exterior, with the interior retaining a round shape.

### Context 1271

A body fragment of a light brown coloured bottle was recorded.

### Context 1301

Two fragments of a thin walled stoneware vessel were noted. The vessel was two-toned brown in colour.

### Context 1308

A shoulder and neck portion of a light brown coloured penny ink was collected.

**Context 1361**

A portion of the rim and neck of a brown coloured blacking jar was noted. A neck fragment from a fawn coloured bottle was also collected.

**Context 1403**

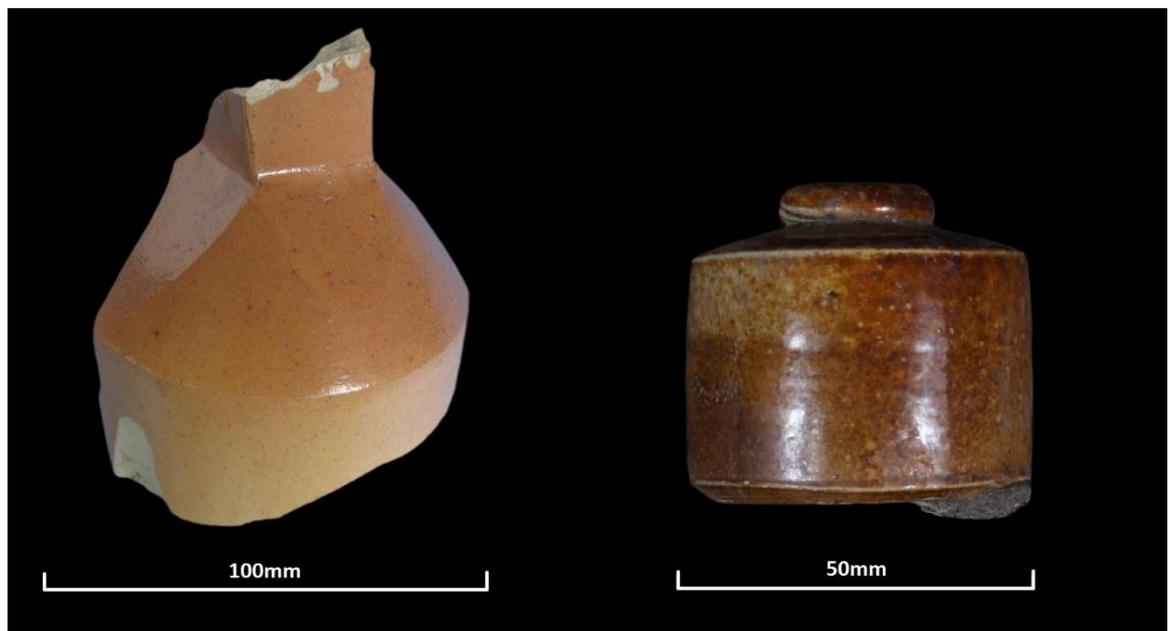
A body fragment of a brown coloured bottle may originally have contained a product such as ink or blacking.

**Context 1418**

One cream coloured body fragment of a bottle was collected. The fragment may have originated from a beer or ginger beer bottle.

**Context 1420**

Eight pieces of a cream coloured stoneware were collected from context 1420. Three of the pieces formed a partial base and the vessel was glazed on the interior. It is likely that the vessel contained a liquid such as beer or ginger beer.



**Figure 6.5** Fragment of the top of the square mouthed master ink bottle from context 1222 (left), and a brown salt glazed penny ink from context 1686 (right)

**Context 1591**

The Stephen Green & Co. (c.1820-1858) stoneware bottle and jar fragments recovered from context 1591 (Table 6.49) would appear to date this feature securely to the mid-19th century (Godden 1991: 289).

**Table 6.49 Stoneware from context 1591**

Vessel	Date	Marks/Notes	NISP	MNV
Bottle	c.1820-1858	Bristol Glaze. STEPHEN GREEN & CO/LAMBETH	1	1
Jar	c.1820-1858	Bristol Glaze ... GREEN & CO ...	1	1

**Context 1597**

One penny ink bottle was recovered from context 1597.

**Context 1615**

One fragment of a clear glazed and cream coloured stoneware bottle was recovered from context 1615.

**Context 1627**

Five bottles were recovered from context 1627: 3 jars, 1 penny ink bottle and 1 partial base of a cream coloured bottle bore the Powell/Bristol mark (Table 6.50).

**Table 6.50 Stoneware minimum numbers from context 1627**

Vessel Form	Stoneware	Total
<b>Household/Other</b>		(5)
Jar	3	3
Penny Ink Bottle	1	1
Bottle	1	1
<b>Total</b>	<b>5</b>	<b>5</b>
<b>Household/Other</b>		(5)

**Context 1685**

One penny ink, a toothpaste pot and one bottle base were recovered from context 1685. The bottle base bore the mark 'J. BOURNE & SON/PATENTEES, /DENBY POTTERIES/NEAR DERBY' (Table 6.51).

Table 6.51 Vessel form and fabric minimum number from context 1685

Vessel Form	Stoneware	Total
<b>Household/Other</b>		(3)
Ink Bottle	1	1
Bottle	1	1
Cosmetic/Toothpaste Pot	1	1
<b>Total</b>	<b>2</b>	<b>3</b>

### Context 1686

Four stoneware fragments were recovered from context 1686 (Table 6.52), including fragments of a large stoneware jar with the impressed mark 'SIEMENS BROS/LONDON' is more likely to be a battery case or similar object as this company produced electrical goods. A brown, salt glazed penny ink was also retrieved (Figure 6.5).

Table 6.52 Vessel form and fabric minimum numbers from context 1686

Vessel Form	Stoneware	Total
<b>Household/Other</b>		(4)
Jar	1	1
Penny Ink Bottle	1	1
Bottle	2	2
<b>Total</b>	<b>4</b>	<b>4</b>

### Unstratified Stoneware

A portion of a ginger beer bottle was collected. The bottle had transfer printed lettering, but only the first letters of words were extant. It is almost certain, though, that the bottle was Ye Olde Fashioned Ginger Beer manufactured by Thompson Lewis & Co. The company operated under this name from 1893 to 1917 in differing locations at different times. Without details of all the locations associated with the print on this particular bottle, it is not possible to determine a more accurate date range.

### 6.1.4 Tobacco Pipes

A total of 72 clay tobacco pipe fragments representing a minimum number of 18 pipes were analysed from contexts across Town Acre 226 (Table 6.53). None of the pipes were complete. Four manufacturers were identified and many of the stem fragments were unmarked.

**Table 6.53 Summary of tobacco pipe fragments from Town Acre 226**

Context	Pipe fragments	MNI
1046	5	2
1065	11	4
1069	1	-
1093	1	-
1100	6	1
1142	5	2
1222	1	-
1247	1	-
1418	4	1
1420	9	2
1500	3	1
1513	2	-
1517	1	-
1528	1	-
1591	3	-
1627	4	2
1611	2	-
1673	1	-
1685	2	1
1686	1	-
1688	1	-
Unstratified	6	2
<b>Total</b>	<b>72</b>	<b>18</b>

Four manufacturers were identified from markings on the stem, three from Glasgow and one from Edinburgh (Table 6.54). Murray of Glasgow was represented three times, Thomas White of Edinburgh twice, Miller of Glasgow and W. White of Glasgow once.

#### **Maker - John Miller, Glasgow, 1866-1868** (Oswald 1975: 205)

One stem with the marking 'MILLER//GLASGOW' was recovered from Context 1142 (Figure 6.6). A Miller pipe was also collected from context 1627 (Figure 6.7).

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Several pipe fragments also feature some form of relief moulded decoration, typically on the bowl. A bowl fragment from context 1420 was impressed 'T D' on the back of the bowl; these T D pipes being manufactured by all the major tobacco pipe makers. The partial bowl and stem of a pipe from context 1046 was decorated with the talons of a large bird of prey with a portion of the stem appearing as the rough skin surface (Figure 6.6). There was no indication of a manufacturer. One bowl fragment from context 1065 was decorated with two vertical rope-like patterns while a second was decorated with a square indent band just below the top of the bowl; this particular bowl had not been smoked. A fragment bearing the same square indentations was also collected from context 1142 and may have been associated. Part of a bowl with vertically ridged bands was recovered from an unstratified location.

**Table 6.54 Summary of marked and decorated clay tobacco pipe fragments from Town Acre 226 by context**

Context	Mark/Decoration	Pipe fragments	MNI
1046	Bird of prey talons	3	1
1065	Murra. // . asgow	1	1
1065	band of square indentations around top of bowl	1	
1065	Vertical rope on bowl	1	
1142	Miller//Glasgow	2	1
1142	...ay//Gla.	1	1
1142	band of square indentations around top of bowl	1	
1420	TD	1	
1420	Murray//Glasgow	2	1
1500	Sailing ship on right, Thistle on left	1	1
1627	Miller//Glasgow	1	1
1627	W White//Glasgow	1	1
Unstratified	T. W.//.N..	1	1
Unstratified	T White & Co	1	1
Unstratified	Vertical ridged bands	1	
<b>Total</b>		<b>19</b>	<b>11</b>



**Figure 6.6** Tobacco pipe stem from context 1142 made in Glasgow by John Miller (top) and the re-joined partial bowl and stem depicting bird of prey talons from context 1046 (bottom)

**Maker - William Murray, Glasgow, 1826-c.1861/2** (Burns 1988: 14; Walker 1983: 12-13)

Three stems were identified bearing the mark of Murray. One stem fragment from context 1065 marked 'MURRA. // ASGOW', a stem fragment from context 1142 marked 'AY//GLA.' and two re-joining stem pieces from context 1420 marked 'MURRAY//GLASGOW'.

**Maker - Thomas White (also T White & Co), Edinburgh, 1823-1876** (Walker, 1983: 20)

Two examples of Thomas White pipes were recovered, both from unstratified locations. One stem was marked 'T. W..' with 'N' on the other side, the second stem was marked 'T. WHITE & CO' (Figure 6.7).

**Maker - William White, Glasgow, 1805 – 1955** (Walker, 1983: 12)

A single stem with 'W. WHITE//GLASGOW' was collected from context 1627 (Figure 6.7).



Figure 6.7 Relief decorated bowl from context 1500 (top); William White, Glasgow, stem fragment, and Miller, Glasgow, stem fragment from context 1627 (bottom)

### 6.1.5 Glassware

A total of 1803 fragments of glass were analysed, representing a minimum number of 187 individual items, recovered from 63 contexts across Town Acre 226 (Table 6.55). Glassware was identified to product category and type, dimensional data recorded, and manufacturers' marks recorded. Minimum vessel counts were calculated across the assemblage (Table 6.56) on the basis of diagnostic pieces represented. Window glass is calculated within NISP count (individual fragments) but is not represented within MNI

Alcoholic beverages totalled 95, with a minimum of 67 black beer bottles. The greatest number of household items were drinking glasses, of which 14 were present. Twenty-six water bottles were noted, one of which was a Hamilton's 'torpedo' bottle. Twenty-five bottles contained embossing which allowed a date range of manufacture to be determined. The dates are summarised in Table 6.57.

Table 6.55 Summary of glassware from Town Acre 226

Context	NISP	MNV	Context	NISP	MNV
1026	74	6	1312	1	1
1036	57	7	1331	1	-
1037	19	7	1337	7	-
1041	25	1	1346	4	-
1042	13	2	1355	3	-
1044	28	5	1361	2	-
1046	28	15	1401	1	1
1061	8	-	1416	1	-
1064	24	4	1418	26	5
1065	75	7	1420	61	4
1069	26	2	1421	1	-
1093	8	1	1430	1	-
1097	5	1	1500	1	-
1100	205	6	1505	6	1
1101	2	1	1513	1	-
1110	3	-	1569	33	-
1122	8	1	1581	5	2
1139	1	1	1591	30	1
1142	19	-	1597	31	15
1149	284	15	1611	32	-
1156	1	1	1615	22	-
1158	13	2	1623	1	-
1208	4	1	1627	206	19
1210	3	-	1657	11	1
1219	3	-	1671	2	-
1222	5	1	1675	82	-
1263	1	-	1683	1	1
1298	2	-	1685	42	3
1301	1	-	1686	147	25
1303	2	-	1688	2	-
1306	1	-	1706	1	1
1308	4	-	Unstratified	86	20
			<b>Total</b>	<b>1801</b>	<b>187</b>

Table 6.56 Minimum number of individual glassware products from Town Acre 226

<b>Alcohol</b>	<b>MNV</b>	<b>Household</b>	<b>MNV</b>
Black Beer		Dish	2
Green Beer		Drinking Glass	14
Modern Beer		Wine Glass	1
Case Gin		Lampshade	2
Champagne		Bulb	1
Wine		Oil Lamp	1
White Wine / Brandy		Oil Lamp Chimney	1
Whisky		Photo frame	1
<b>Total</b>	<b>95</b>	Scent Dauber	1
		Stopper	6
<b>Food</b>		Marble (Toy)	1
Chutney	1	Ink	4
Milk?	1	Jug	1
Oil	1	<b>Total</b>	<b>36</b>
Olives	1		
Pickles	4	<b>Pharmaceutical</b>	
Salad Oil	4	Castor Oil	1
Vinegar	2	Chemical?	1
Worcestershire Sauce	2	Medicine	4
<b>Total</b>	<b>16</b>	<b>Total</b>	<b>6</b>
		<b>Water</b>	
		Mineral	23
		Soda	3
<b>Unidentified</b>	<b>8</b>	<b>Total</b>	<b>26</b>

**Table 6.57 Product manufacturing date range by context – Town Acre 226**

Context	Product	Manufacturer	Date
1026	Beer	ABC	post 1922
1026	Soda	The Wairarapa Aerated Water Co.	post 1938
1037	Food	Albion Glass Bottle Co.	c1880-1900
1044	Mineral Water	Thompson, Lewis & Co.	post 1893
1046	Whisky	P. Dawson	post 1897
1097	Soda	Thompson, Lewis & Co. Ltd	1917-1981
1100	Medicine	J. Manning	1866-1872
1149	Black Beer	Tooth & Co.	post-1839
1686	Mineral Water	Thompson, Lewis & Co.	1893-1907
1686	Mineral Water	A. G. Saunders	1907-1909
1686	Mineral Water	The Phoenix Aerated Water Co Ltd	1906-1959
Unstratified	Black Beer	Tooth & Co.	post-1839
Unstratified	Mineral Water	A. G. Saunders	1907-1909
Unstratified	Mineral Water	The Phoenix Aerated Water Co. Ltd	1906-1959
Unstratified	Mineral Water	Bacon's Celebrated Aerated Water Co.	1909-1922
Unstratified	Mineral Water	Thompson, Lewis & Co.	1905-1909

**Context 1026**

This fill layer contained 74 fragments of glass from at least 6 items plus window glass (Table 6.58). Two items contained information indicating possible date range of manufacture.

One modern amber beer bottle with partial embossing was identified as an ABC bottle. Although no date was located on the pieces it is likely to post-date c.1922.

Two crown top soda bottles were recorded, one embossed '...e Wairara.../...ated Water Co Ltd Sta.../Mastert..', identified as The Wairarapa Aerated Water Co. (WACO) of Masterton. This particular company did not exist until 1938 when company registration was completed with capital of £2000 (*Evening Post*, 29 November 1938:14). The addition of Sta... was not determined with certainty but may represent the brand Star, which the company did not purchase until 1971 ([Wellingtonantiquebottles.org.nz](http://Wellingtonantiquebottles.org.nz), 2016c).

**Table 6.58 Summary of glassware from context 1026**

Product	NISP	MNI
Modern Beer	13	1
Drinking Glass	9	1
Lightbulb	2	1
Window	23	-
Soda	23	2
Unidentified	4	1

### Context 1036

This fill layer contained 57 highly fragmented glass pieces from at least 6 items plus window glass (Table 6.59). A minimum of three black beer bottles, a whirly salad oil, and a castor oil bottle were identified.

**Table 6.59 Summary of glassware from context 1036**

Product	NISP	MNI
Black Beer	41	3
Case Gin	2	-
Salad Oil	1	1
Window	2	-
Castor Oil	1	1
Unidentified	10	1

### Context 1037

Nineteen pieces of glass were collected from context 1037, representing at least 7 items (Table 6.60). Two wine bottles, a black beer bottle and a whisky were identified in the alcohol category.

While two food bottles were not conclusively identified, one bottle was possibly a Worcestershire sauce. The base of an aqua bottle was embossed 'A G B Co.', identified by Toulouse (1971) as possibly being the Albion Glass Bottle Company operating from c.1880 to 1900.

Two mineral water bottles were recorded with one providing information on date of manufacture. The partial base and body of a mineral water bottle contained some embossing, which is interpreted as being that of George Dixon, and is likely to be a bottle dating to the period in which his wife ran the business following George's death in 1883 (The Cyclopedia Company Ltd 1897). Mrs Dixon shifted the long successful cordial and soda business from Cuba Street to 3 Dixon Street in 1886, operating from a large factory (The Cyclopedia Company Ltd 1897) until selling in 1897 to Bennett & Ready (Wellingtonantiquebottles.org.nz, 2016 b). Further embossing on the bottle shows the bottle maker was located in Barnsley and although the name is missing was determined to likely have been Dan Rylands who operated from 1884-1901 (Toulouse 1971). The second bottle was not identified to a particular soda manufacturer but embossing identified the bottle manufacturer as Dan Rylands. It is possible this bottle also contained a Dixon soda. A complete glass marble stopper was likely associated with one of these two bottles.

**Table 6.60 Summary of glassware from context 1037**

Product	NISP	MNI
Black Beer	2	1
Wine	9	1
Whisky	1	1
Food – unidentified	2	2
Mineral Water	3	2
Unidentified	1	-

### Context 1041

Nineteen fragments were collected from context 1041 representing 4 items plus window glass. Only one item contributed to overall MNI, being the rim and neck of a medicine bottle.

### Context 1042

Thirteen pieces of glass were collected in context 1042, originating from at least 5 items plus window glass. Two items contributed to MNI; the base of a black beer and a portion of a drinking glass.

### Context 1044

Twenty-eight pieces of glass were related to 8 items plus window glass (Table 6.61), 5 items contributing to MNI. Four pieces of glass were identified as originating from a Codd mineral water, one of the fragments embossed ‘...wis & Co/...Springs...’ This Thompson, Lewis & Co bottle cannot be dated with certainty, however the company began producing mineral waters, cordials and ginger beer from 1893. Nine pieces of aqua body glass were not identified to a particular product form but may relate to either the pickle or Codd bottles noted.

**Table 6.61 Summary of glassware from context 1044**

Product	NISP	MNI
Black Beer	1	1
Case Gin	2	-
Wine	4	-
Pickle	2	1
Stopper	1	1
Window	4	-
Medicine	1	1
Mineral Water	4	1
Unidentified	9	-

### Context 1046

At least 15 items from context 1046 were identified from 28 pieces of glass (Table 6.62), and included a complete whisky, an almost complete champagne bottle, and an almost complete drinking glass (Figure 6.8). The remainder were bases or fragments.

The complete dark olive green whisky bottle was embossed on the base ‘P. DAWSON DUFFTOWN GLENLIVET’ (Figure 6.8, left). This particular distillery was converted from a meal mill in 1896 and produced the first whisky in 1897 ([www.scotchwhisky.net](http://www.scotchwhisky.net)). Dawson (residing in Glasgow) was not the owner of the Dufftown Glenlivet Distillery, but rather selected the particular whisky to be bottled under his name.

**Table 6.62 Summary of glassware from context 1046**

Product	NISP	MNI
Black Beer	7	6
Champagne	1	1
Whisky	1	1
Pickles	11	2
Dish	1	1
Drinking Glass	3	2
Oil Lamp Shade	1	1
Oil Lamp Chimney	1	1
Pharmaceutical – unidentified	2	-



**Figure 6.8** The Peter Dawson selected Dufftown Glenlivet Distillery whisky (left) and the near complete champagne bottle both retrieved from context 1046

### Context 1064

Twenty-four pieces of glass relating to at least 7 items were collected from context 1064 (Table 6.63), four of which counted towards overall MNI. One black beer base was embossed ‘S & G / F © S’. This particular manufacturer or bottler could not be identified.

**Table 6.63 Summary of glassware from context 1064**

Product	NISP	MNI
Black Beer	8	1
Case Gin	1	-
Wine	2	1
Wine/Brandy	9	1
Drinking Glass	2	-
Medicine	1	1
Unidentified	1	-

**Context 1065**

Seventy-five pieces of highly fragmented glass were collected from context 1065, with diagnostic fragments identifying a minimum of 7 items (Table 6.64). A complete tall slender round pickle bottle was noted. Other items of note include a partial wide mouth stopper and the stem of a footed serving dish.

**Table 6.64 Summary of glassware from context 1065**

Product	NISP	MNI
Black Beer	35	2
Wine	11	1
Wine/Brandy	6	-
Pickle	1	1
Drinking Glass	1	1
Footed Dish	1	1
Stopper	1	1
Window	4	-
Medicine	1	-
Mineral Water	2	-
Unidentified	12	-

**Context 1069**

Twenty-six fragments were recovered from context 1069, related to 5 items plus window glass. Two of the items contributed towards overall MNI. These two items included the partial base and body of a case gin and the partial base of a wine glass.

**Context 1093**

A limited amount of glass was recovered from this context with at least one black beer represented.

**Context 1097**

Five pieces of clear glass re-joined to form the lower portion of a soda bottle were recovered from context 1097. The bottle was embossed just above the base: 'This bottle is

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the property of Thomson Lewis & Co Ltd New Zealand'. The company did not become a limited liability concern until 1917 and continued to operate under this name until 1981 (Wellingtonantiquebottles.org.nz, 2016e). Although the base of the bottle was embossed '1969' it is not clear whether this refers to the date of manufacture or a bottle maker's mould number.

### Context 1100

Two hundred and five pieces of glass were collected from context 1100 (fill of a ditch) representing 7 items plus window glass (Table 6.65). Two black beer bases were collected. A partial base and body of an aqua genie style salad oil was the sole product represented in the food category.

Four pieces of an ice blue coloured pharmaceutical bottle were embossed 'J Manning Chemist Auckland'. Joseph Nelson Manning had his store in Shortland Street opposite the new post office commencing in 1866 (*Daily Southern Cross*, 17 March 1866:1). The store was sold to J.C. Sharland who began advertising for custom in January 1872 (*Daily Southern Cross*, 2 January 1872:4). This drain fill is dated 1867, immediately prior to the Armed Constabulary taking over site and the construction of purpose built structures.

**Table 6.65 Summary of glassware from context 1100**

Product	NISP	MNI
Black Beer	72	2
Case Gin	13	-
Whisky	2	-
Wine	12	-
Salad Oil	1	1
Drinking Glass	2	-
Window	21	-
Medicine	4	1
Unidentified	78	2

### Context 1101

The base of a black beer bottle was collected from context 1101 which had probably contained a pint of ale.

### Context 1122

A partial stopper was identified from context 1122 with much of the top missing. The surviving portion suggests there was no embossing.

### Context 1139

A partial rim and neck of a champagne bottle was collected from context 1139. The rim had a ring seal finish.

### Context 1149

Context 1149 was almost entirely a glass deposit comprising the fill of a rubbish pit containing 284 pieces relating to at least 15 items (Table 6.66). At least four black beer bottles were recorded, including four rim and necks (Figure 6.9); at least four bases, and 112 pieces of glass related to the bodies of black beer bottles; three of these pieces contained some embossing, two refitting to form the letters ‘...PAT...’ and the third piece embossed with a partial registration diamond (Figure 6.10). The base and partial body of a pint sized black beer was reconstructed from three pieces of glass the bottle being embossed with a rearing horse within a wreath of hops and barley which encircles the horse (Figure 6.10). The word ‘REGISTERED’ is sited below. The three embossed pieces of glass described above were identified as a Tooth’s Ale.

The Kent brewery at Broadway, Sydney was founded in 1835 by John Tooth and his brother-in-law John Newnham, both experienced brewers from Kent, England (Bayley 2010; Walsh 2016). The brewery went on to become the largest brewery in New South Wales, operating for nearly 170 years (Walsh 2016). The Australian patent for Tooth’s Ale was registered in Australia on 9 November 1855. However, it is highly likely that the bottle found in the rubbish pit originated from the original Tooth’s brewery at Baker’s Cross, Cranbrook, Kent, England, where John’s brothers Robert and Edwin exported beer, hops, wines and spirits from premises on Little Tower Street, London (Bayley 2010; Walsh 2016). The first reference to Tooth’s exporting beer to Australia is in 1839, when it is recorded that beer produced by Robert Tooth Snr at the Baker’s Cross brewery was shipped to Sydney, almost certainly to be sold there by his brother John (Bayley 2010: 6). Later in 1843 after Robert Jnr had taken over the UK business, he and his brother Edwin leased the Australian brewery from their uncle John on 1 September 1843, and began the merchant and brewing company of R. and E. Tooth (Walsh 2016). As colonial beer was not widely consumed at this time, the majority of the successful businesses profits were generated by the importation of beer from the English Kent brewery, together with wines and spirits from elsewhere in Britain (Walsh 2016).

Two case gin bottles were accounted for from a complete rim and neck, base and 66 body sherds. The finish on the rim was of the pig snout variety and was complete with cork (Figure 6.9). The base measured 69mm x 69mm and was unmarked.

An almost complete vinegar bottle missing only the rim was collected. At least three drinking glass were noted. At least two medicine bottles were present with one contributing to overall MNI. A complete vial standing 77.95mm high is likely to have contained small pills or a powdered medicine.

**Table 6.66 Summary of glassware from context 1149**

Product	NISP	MNI
Black Beer	122	4
Case Gin	68	2
Pickle	6	1
Vinegar	1	1
Drinking Glass	38	6
Medicine	23	1
Unidentified	26	-



Figure 6.9 Examples of Black Beer rims (top) and Case Gin base and pig snout top with cork (bottom) retrieved from context 1149



Figure 6.10 Examples of Black Beer bases from context 1149 with the black horse Tooth's Ale at centre partially depicting the rearing stallion county emblem of Kent utilised by the Tooth Brewery at Bakers Cross, Cranbrook, Kent

**Context 1156**

A complete bottle stopper was collected from context 1156.

**Context 1158**

Thirteen fragments relating to at least 4 items were collected from context 1158, with two items contributing to overall MNI. The upper portion of what was likely to be a scent dauber from a perfume bottle was noted. The glass had partially slumped on cooling, producing an uneven finish on a portion of the stem. Four pieces of aqua glass may have originated from small glass milk bottles. The four pieces were embossed ‘...The P..., Property of..., ...s Register... and ...M...’ The manufacturer was not identified.

**Context 1208**

Four small fragments of glass were collected from context 1208 relating to at least two items. Three small milk glass fragments are likely to have originated from a square or rectangular shaped bottle with thin walls.

**Context 1222**

Five fragments of glass were collected from context 1222, the only notable fragment being an emerald coloured body fragment. The fragment may have originated from a number of product types including sarsaparilla, medicines, mineral water or sodas and food.

**Context 1312**

A small portion of the base of a black beer bottle was noted in context 1312.

**Context 1401**

The base of a clear glass bottle was recovered. The centre of the base retained rough glass indicating a snap pontil was used in the manufacture. Although the likely contents of the bottle were not determined it may have been used for a foodstuff or pharmaceutical product.

**Context 1418**

Twenty-six pieces of glass related to at least 12 items (Table 6.67), 5 of which contribute to overall MNI. These items include three black beer bases (Figure 6.11), a wine bottle base, and a rolled rim identified as likely to have contained a chutney or similar product. Three of the black beer bases demonstrated deliberate modification by knapping, with two displaying the characteristics of, and being consistent with, reduced bottle base cores (Figure 6.11, top). Several flake scars remaining on the outer walls of the bases and remaining sidewall portions indicate where flakes were removed by percussion knapping to be utilised for cutting activities (Figure 6.11, top left).

The other base exhibited signs of both percussion and pressure flaking, indicating that the bottle base had been utilised as a core and subsequently made into a tool (Figure 6.11). The base had been trimmed from the inner and outer bottle surface by removing large flakes via percussion flaking, leaving a 6cm wide triangular, pointed section of sidewall which

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extended 4cm upward from the base creating two cutting edges either side of the point (Figure 6.11 bottom). One side displayed clear percussive flake removal scars using the inner bottle as the striking platform during its use as a core. The other edge exhibited intensive parallel, fine pressure flaking retouch along the length of the edge, producing a narrow cutting edge that, while not as sharp as a clean break, would certainly have been far more durable for cutting tough materials (Figure 6.11, bottom). The bottle bases were retrieved from an early Phase 1 earthen ditch and it is likely that the worked bottle glass represents either contact or early historic period Maori activity on Pukeahu.

### **Context 1420**

Sixty-one pieces of glass were collected from this context, representing at least 8 vessels, four of which contribute to overall MNI (Table 6.68). These four items include remains of at least 2 black beers, one wine or brandy bottle and one vinegar.

### **Context 1505**

The partial base and body of a black beer bottle was collected from context 1505.

### **Context 1581**

Two black beer bases were collected from context 1581.

### **Context 1591**

A small fragment of clear, thin flat glass that may have originated from a photo frame or similar was recovered from context 1591.

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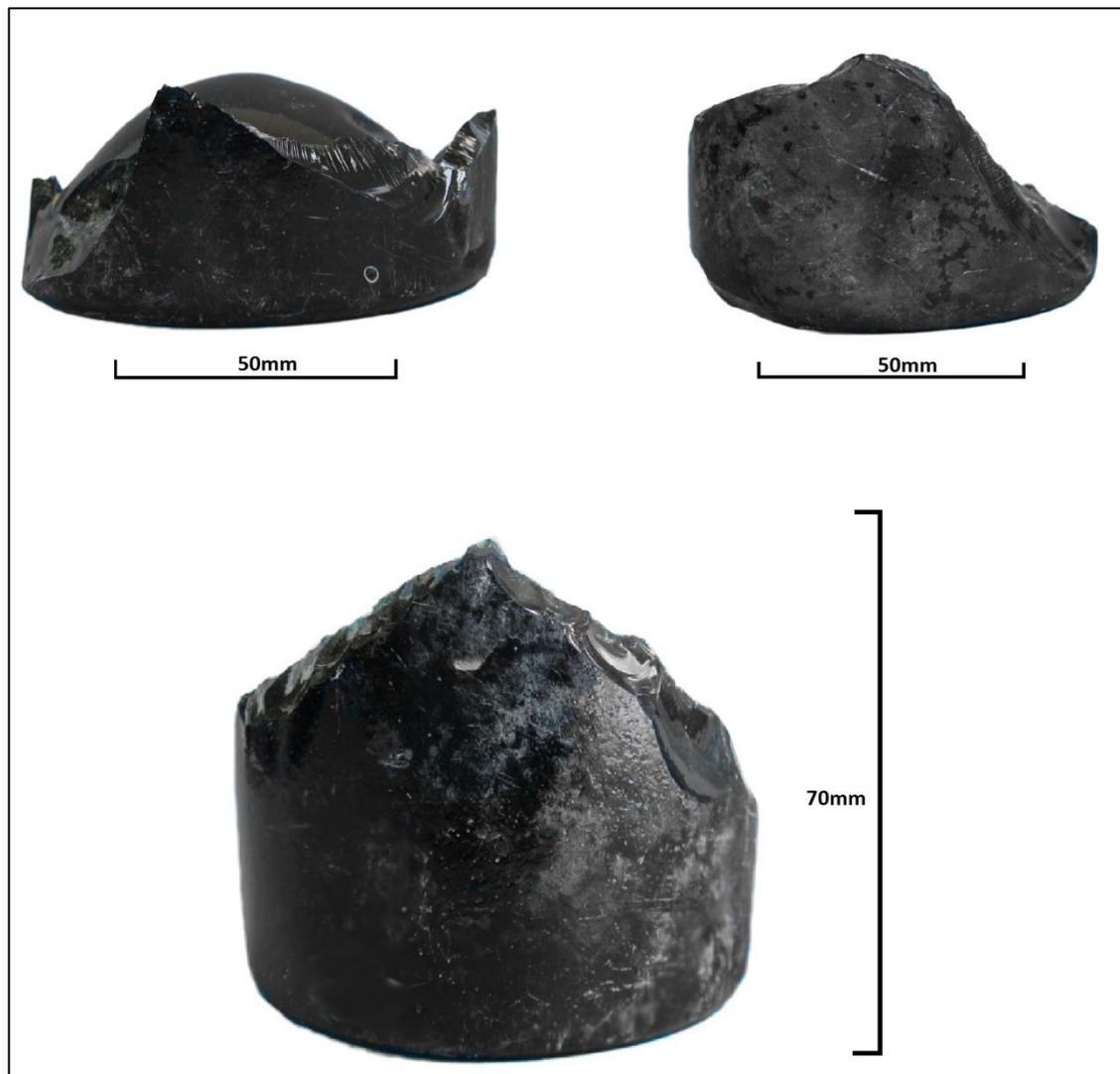


Figure 6.11 Black beer bases retrieved from context 1418. Top: Reduced bottle base cores discarded after being used for the production of flakes for cutting tools; and bottom: a black beer bottle base that after being used as a core has been modified into a cutting tool with the left side displaying fine parallel retouch produced by pressure flaking

Table 6.67 Summary of glassware from context 1418

Product	NISP	MNI
Black Beer	6	3
Wine	1	1
Wine/Brandy	2	-
Chutney	1	1
Food – unidentified	1	-
Window	2	-
Medicine	1	-
Pharmaceutical – unidentified	2	-
Unidentified	10	-

**Table 6.68 Summary of glassware from context 1420**

Product	NISP	MNI
Black Beer	24	2
Whisky	2	-
Wine/Brandy	1	1
Vinegar	3	1
Window	3	-
Pharmaceutical – unidentified	7	-
Unidentified	21	-

### Context 1597

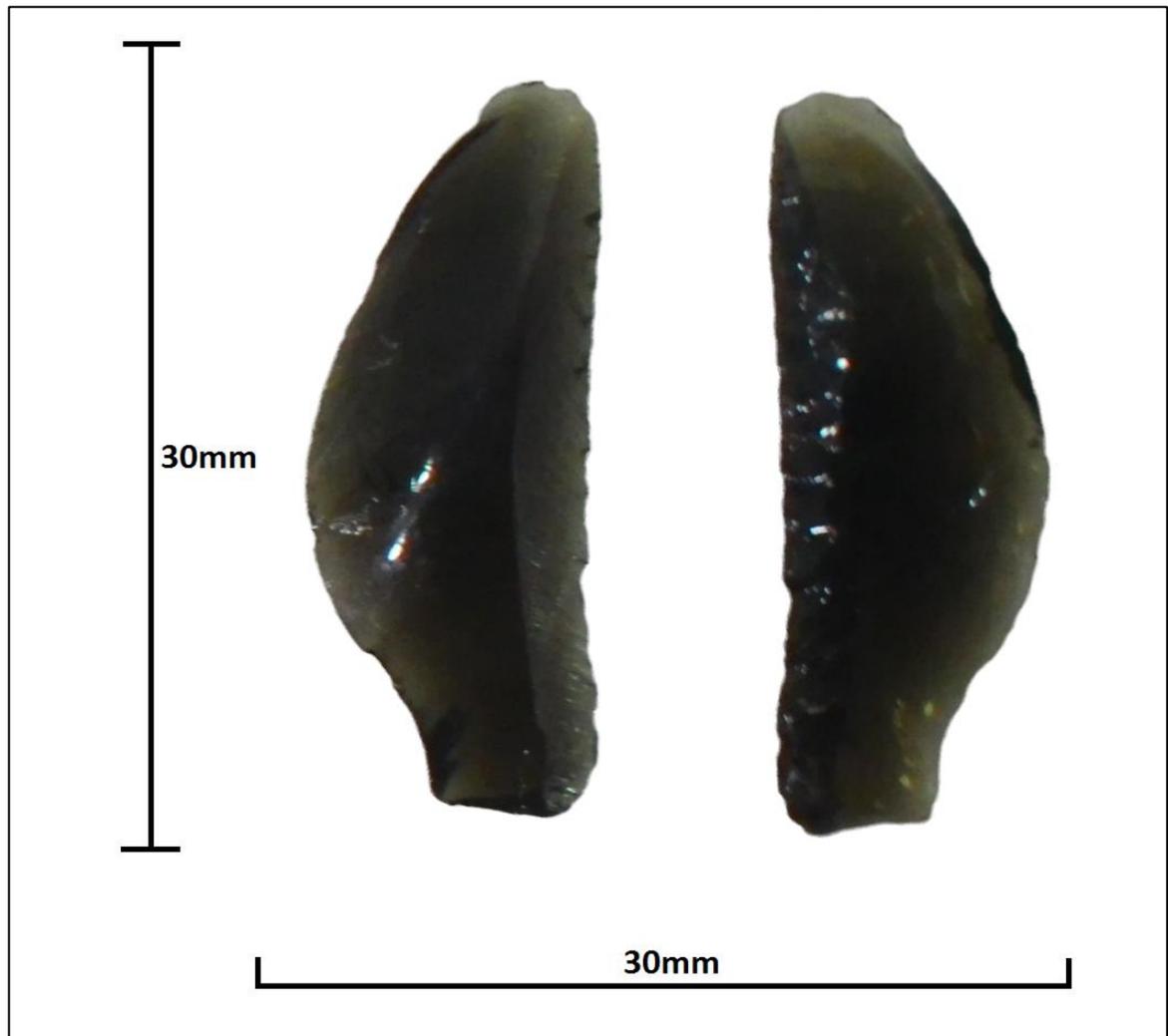
Thirty-one pieces of glass represented a minimum of 15 items from context 1597 (Table 6.69). A complete white wine or brandy bottle was collected along with a complete half whirly salad oil bottle.

**Table 6.69 Summary of glassware from context 1597**

Product	NISP	MNI
Black Beer	14	9
Case Gin	1	-
Green Beer	1	1
Whisky	1	1
White Wine/Brandy	1	1
Wine	3	1
Salad Oil	1	1
Drinking Glass	1	1
Lampshade	1	-
Unidentified	4	-

### Context 1611

A single struck flake of olive green bottle glass was retrieved from context 1611. The flake was small, measuring just 27.5mm in length and was 10.5mm wide and 2.5mm thick and weighed just 0.8g (Figure 6.12). There was with no sign of post-depositional modification along any sides of the flake. One edge of the ventral surface of the flake had been intensively retouched from the proximal to distal end, with usewear also evident along the edge (Figure 6.12). This indicates that the flake had been used as a tool, probably for cutting or carving a material such as wood or bone perhaps, and it is possible that this was either undertaken after the unretouched edge had dulled or that it was intentionally undertaken at the outset. The latter scenario would indicate that the tool was produced intentionally as a cutting implement that would be re-used rather than simply an expedient tool to be used once and discarded. The flake was retrieved from a layer dated to the first military phase of the site, and like the earthen drain that produced the worked bottle glass retrieved from context 1418, it is likely to owe its provenance to either contact or early historic period Maori activity on Pukeahu.



**Figure 6.12** Worked bottle glass flake from context 1611 with dorsal view (left) and ventral view (right). The ventral side displays intensive retouch along the left side extending from the proximal to distal end. Also of note are the striations on the dorsal side behind the retouch that are consistent with the use of an abrader to prevent the brittle glass from breaking during pressure flaking

### Context 1627

Two hundred and five pieces of highly fragmented glass representing 19 vessels plus window glass were collected from context 1627 (Table 6.70). Thirteen complete or partial black beer bases were noted, with at least 8 of these having contained a pint. An embossed portion of a Worcestershire Sauce bottle identified the manufacturer as Lea & Perrin's.

Also retrieved was a single piece of olive green black beer glass that was 51.75mm in length, 27mm wide, with a maximum thickness of 6.75mm thick at one end which thinned to 3.25mm at its other and weighed 10.1g (Figure 6.13). The characteristics and morphology of the glass indicates that it originated from the lower sidewall of a black beer bottle and the thickening at one end suggests that at least that part of the item related to a bottle base. The piece does not appear to be an intentionally flaked tool, and more likely represents an appropriately sized piece of broken glass selected as an expedient tool. One side of the specimen was relatively straight and uniform, while the other curved, forming an arc-like cutting edge (Figure 6.13). Along the arc on the inner bottle side of the glass, consistent parallel retouch was evidenced by a series of pressure flaking scars which served to both trim the glass to a narrow cutting edge and provide durability (Figure 6.13). On the

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opposite thicker outer edge, the glass had been blunted by the use of an abrading implement, most likely for safe hand prehension. There was evidence of usewear along the retouched edge and the piece would have been suitable for scraping or whittling wood.

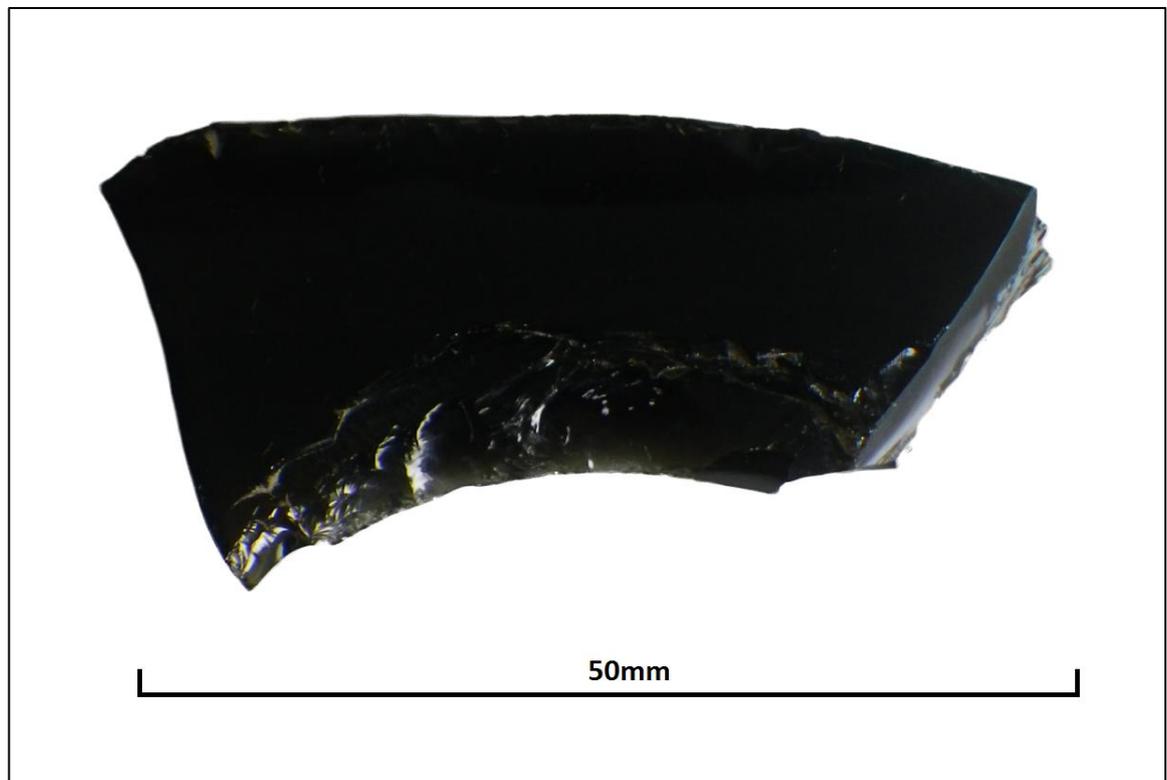


Figure 6.13 Worked bottle glass retrieved from context 1627 in the form of a retouched shard of black beer. Retouch is visible along the arced cutting edge at bottom left

Table 6.70 Summary of glassware from context 1627

Product	NISP	MNI
Black Beer	118	13
White Wine/Brandy	7	1
Wine	8	2
Oil	1	1
Worcestershire Sauce	4	1
Drinking Glass	1	
Unidentified	22	1

### Context 1657

Eight fragments of a frosted glass lampshade were identified from context 1657.

### Context 1683

A complete toy marble was collected from context 1683, possibly used in gaming or gambling.

### Context 1685

Forty-two pieces of glassware representing 6 products were collected from context 1685, 3 of which are recorded against MNI (Table 6.71). At least two Thomson Lewis & Co. mineral water bottles were identified, one being almost complete while the second was represented by embossed fragments. Embossing on the almost complete bottle read ‘Thomson Lewis & Co Crystal Springs Wellington Wanganui & Otaki’. These three names were embossed on bottles in the period 1885-1905 (Wellingtonantiquebottles.org.nz, 2016e). Fragments of embossed Worcestershire Sauce bottle identified the manufacturer as Lea & Perrin’s.

**Table 6.71 Summary of glassware from context 1685**

Product	NISP	MNI
Black Beer	12	-
Wine	5	-
Worcestershire Sauce	6	1
Mineral Water	10	2
Medicine	1	-
Unidentified	1	-

### Context 1686

A sizeable quantity of heavily fragmented glass was recovered from context 1686, with a minimum of 25 items contributing to the overall glassware MNI (Table 6.55 and Table 6.72). This deposit appears to date c.1893-1907.

At least eight Thomson, Lewis & Co. mineral or soda bottles were identified from a large amount of fragmented glass, seven of which were dated to 1895-1905 with one earlier bottle dating to 1893. Dating was classified based on the presence or absence of embossing denoting ‘Wanganui &...’ following the timeline stated by Wellington Antique Bottles (Wellingtonantiquebottles.org.nz, 2016 e). Two bottle manufacturers were identified: Cannington Shaw & Co. and Wm Barnard.

An almost complete dark olive green bottle was embossed ‘A. G. Saunders Late C W Brodie Wellington’ with a crossed key logo at the centre. Saunders purchased Brodie’s works in 1906, retaining the Brodie name until he expanded the company the following year, at which point the Brodie name was removed (Wellingtonantiquebottles.org.nz, 2016 c). Although the rim was not present it is likely this bottle had an internal screw finish as a stopper marked Saunders was also recovered.

Four ink bottles were collected, three of which were complete (Figure 6.14). The complete examples included a boat ink with a shear lip and two complete octagonal inks with shear lips. The fourth ink was identified from a partial base and body and as possibly boat shaped (Figure 6.14, right).

**Table 6.72 Summary of glassware from context 1686**

Product	NISP	MNI
Black Beer	1	1
Green Beer	2	1
Wine	21	4
Drinking Glass	4	3
Ink	4	4
Jug	1	1
Lampshade	2	
Stopper	1	
Mineral Water	101	12
Unidentified	9	



**Figure 6.14** The four ink bottles retrieved from context 1686: boat shaped left, two octagonal examples at centre, and partial base possibly representing another boat-shaped example at right

### Context 1706

A complete plain aqua glass stopper was collected from context 1706.

### Unstratified Glass

Sixty-four pieces of unstratified glassware were collected representing 14 items (Table 6.73). A Codd Patent mineral water bottle missing the rim (likely to have been removed to extract the marble) was embossed ‘A.G. SAUNDERS WELLINGTON & PETONE’ with a crossed key logo on the front and ‘Wm BARNARD & SONS LONDON’ on the rear and ‘A.G.S.’ on the base. Alfred George Saunders purchased a plant in Wellington in 1906 but it was not until 1907 that he purchased the second plant in Petone. The business appears to have been short lived as the Wellington Antique Bottle & Collectibles Club provides a conclusion date of 1909 (Wellingtonantiquebottles.org.nz, 2016 e). Based on these dates it is certain the bottle was produced 1907-1909.

Eight pieces of a single clear glass bottle were collected and reconstructed to form the majority of a mineral water or soda bottle missing the rim and neck. The bottle was embossed ‘THE PHOENIX AERATED WATER CO LTD WELLINGTON’ along with a large Phoenix logo. The company existed under the Phoenix name from 1895; however, it

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was not until 1906 that it became a limited liability company. The company continued operation under this banner until 1959 (Wellingtonantiquebottles.org.nz, 2016 d).

The lower portion of a Hamilton's Patent 'torpedo' mineral water bottle was collected. The bottle contained some embossing '...MAN/...TER/...RER/...ER' which was not identified. While the latter words may be suggested to read water manufacture and supplier the name of the manufacturer remains unknown.

Three pieces of an aerated water or soda bottle re-joined. The front of the bottle contained partial embossing: '...A.../CELEB./AERATED W.../WELLING' and the base was marked '3420', probably a mould number. The bottle is likely that of Bacon's Celebrated Aerated Water Company who operated under this name from 1909 to 1922 (Wellingtonantiquebottles.org.nz, 2016 a).

Three pieces of an aerated water or soda bottle were embossed '...on/ Wanga.../& P...' which may have read Wellington Wanganui Otaki & Petone, judging by letter placement on the bottle. Should this be the case the bottle was likely that of Thomson, Lewis & Co. who had a number of plants in the region. Bottles with this particular combination are likely to have been manufactured 1905-1909 (Wellingtonantiquebottles.org.nz, 2016 e). Seven plain body fragments of aerated water bottles may have been associated with either bottle.

**Table 6.73 Summary of glassware – unstratified**

Product	NISP	MNI
Black Beer	18	4
Case Gin	4	1
Champagne	2	1
Wine	4	1
Olives	1	1
Pickle	1	-
Salad Oil	2	1
Lampshade	45	1
Chemical	15	1
Medicine	2	-
Mineral Water	23	5
Unidentified	1	-

### **6.1.6 Metal**

One hundred and twenty-two metal items were collected from 20 contexts across Town Acre 226 and categorised by type and function (Table 6.74 and Table 6.75). The majority of items related to building and construction items such as nails, screws and bolts, although the low number would suggest either that small buildings were present on this Town Acre or that the land was well cleared at the time of demolition. Items such as window attachments, hinges and keys are included within the category Fixtures/Fittings. A Rockaway pattern axe head was placed within the Tool category, several items were categorised as Other, and seven items remained unidentified, three of which were similar in appearance (Table 6.75).

#### **Building/Construction**

Ninety-three items were identified within this category with 70 of these items being nails: timber to timber nails, timber to masonry wedge nails and lead headed roofing nails. Fifty-two generally corroded and often bent timber to timber nails were collected from 8 contexts with context 1686 containing 13, and context 1597 containing 12. It is possible some of these nails may originally have been associated with lead headed roofing nails where the head has separated.

A total of 15 timber to masonry nails were collected from 5 contexts, with context 1627 containing 10. It is likely that a brick or stone building was previously located in the vicinity. Lead headed roofing nails, typically used for attaching corrugated iron to timber framing, were collected from context 1046, where a complete example and a second lead head were recovered, and context 1686, where a single complete example was recovered. No flooring nails or copper nails associated with slate roofing tiles were recovered.

A total of 7 bolts were collected across the Town Acre, 4 of which were collected from context 1046. These bolts included three iron bolts, two having a dome head. The remaining bolt was 20cm in length with a square head and partial thread; this bolt is likely to have been utilised in either machinery mounting or for joining larger timber beams (such as rafters). Two galvanized iron bolts were collected from context 1597 and a single iron bolt from context 1611. Two screws were collected from context 1675.

Copper alloy flashing was collected from context 1597, while two pieces of lead flashing were recovered from context 1685. Two pieces of lead off cuts were collected from context 1627. Four fragments of iron strapping were collected from context 1597 and portions of single strand wire were collected from contexts 1065, 1597, 1675, 1677, 1685 and 1686.

**Table 6.74 Summary of metal items from Town Acre 226**

Context	NISP	MNI
1036	2	2
1037	3	3
1046	6	6
1065	5	2
1139	1	1
1513	1	1
1591	4	4
1594	1	1
1597	30	23
1611	2	2
1615	9	9
1623	1	1
1627	19	19
1675	3	3
1677	5	1
1683	1	1
1685	10	10
1686	42	32
1720	1	1
<b>Total</b>	<b>146</b>	<b>122</b>

### Fixtures/Fitting

Seven items were identified within this category. A portion of an iron key including part of the shaft, pin and bit was collected from context 1065. The bit appears to have been separated into two parts, the key probably associated with a lock on an external door. A rectangular copper plate with 8 small nail holes was collected from context 1513 and measured 7.5cm x 2cm. These copper plates are typically associated with use such as underfloor contact plates for door chimes or for blocking a former recessed area (such as a door lock). Three items were collected from context 1597, including a large, heavy door hinge, a portion of iron pipe, and a brass arm possibly relating to a window attachment.

Multi-strand electrical wire and a decorative brass pulley were collected from context 1686. The pulley included a tri-spoked wheel with a recess for a cord and a portion of a decorative arm. It was not determined what type of item the pulley may have been associated with, but possible items could include a variable position lamp, a clock or watchmaker's tools, or similar.

Table 6.75 Summary of metal items by category from Town Acre 226

Context	Building/Construction	Fixtures/Fittings	Tool	Other	Unidentified
1036					2
1037	3				
1046	6				
1065	1	1			
1139	1				
1513		1			
1591	4				
1594	1				
1597	18	3	1	1	
1611	1				1
1615	9	1			
1623	1				
1627	17				2
1675	3				
1677	1				
1683					1
1685	8			1	
1686	18	2		11	1
1720	1				
<b>Total</b>	<b>93</b>	<b>8</b>	<b>1</b>	<b>13</b>	<b>7</b>

### Tools

A complete axe head was collected from context 1597. The axe head had a triangular eye following the American pattern felling axe style (Gilmore 2011), a weighted butt for balance, a lip providing extra wood to metal contact, and a curved blade measuring 9cm from the toe of the blade to the heel. The cutting edge was corroded and techniques of sharpening could not be determined. The general pattern style of the axe head appears to closely resemble the Rockaway pattern, initially produced by the William McKinnon Axe Factory in New Jersey.

### Other

A portion of a brass spring was collected from context 1685; however it was not determined what type of item the small spring originated from. Eleven items were recovered from context 1686 including three iron pins and a brass split pin, a folded length of brass strapping, a cast iron crank handle from an unidentified piece of machinery and a possible

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door surround portion of a cast iron coal range. Items associated with gas supply included two brass flanges and a brass screw used to determine rate of flow.

A flattened lead disc was retrieved from context 1597, the upper fill of the military well (Figure 6.15). The lead disc was roughly circular in shape, perforated near one edge, and measured 36mm by 35mm and ranged in thickness from 2.88mm to a maximum of 3.76mm, and weighed 31g (Figure 6.15). At first glance there are a number of possible functions for the disc ranging from a bale seal, or a pendant to a gaming token. The absence of any engraving on either face of the disc negates a seal function. Similarly, the presence of the perforation would seem to preclude the gaming token explanation and suggests that it was suspended (either singularly or perhaps as part of a set), or attached to a larger object.

The disc's weight corresponds to that of the weight of a standard musket ball (31g), that was used in the New Land Pattern rifle, the standard issue firearm for Imperial troops serving across the Empire, including those serving in New Zealand during the early 1840s. So, a plausible and perhaps likely function of the disc was that it represents a raw resource that could be melted down while on campaign (over a campfire) and poured into a mould to make a musket ball. The fact that the disc was pierced is likely to indicate that it was one of a number of such items strung together so as to be easily portable during campaign. Alternatively, it could represent an intentionally flattened musket ball transformed into a pendant, an artefact type that has been found on colonial British military sites in the USA and Canada (Karklins 1981; Hanson and Hsu 1975). Its presence on the Lower Barracks site is likely to date it to an early phase of occupation, probably before the switch to the Enfield Rifle in 1853 (Roads 1964:68-69). It is possible that the item was lost during the early encampment phase of Mt Cook by the 96th Regiment, and subsequently moved and re-deposited during later activities on the site.



**Figure 6.15** The pierced lead disc retrieved from context 1597

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### Unidentified Metal

Two copper alloy discs cut in the rough shape of a truncated teardrop or raindrop were collected from context 1036. The function of use of these items was not determined.

### 6.1.7 Militaria (with David Rudd)

The military assemblage was analysed by David Rudd. One hundred and seventy-eight items relating to the military use of Town Acre 226 were recovered from both primary and secondary depositional contexts (Table 6.76). The assemblage, when categorised, comprised 69.1% munitions; 10.1% subsistence items; 7.9% clothing/uniform items; 4.5% artillery, and 8.4 % miscellaneous items (Table 6.76). The items are discussed below under the following headings: Uniform/Clothing, Munitions, Artillery, Miscellaneous.

**Table 6.76 Number of Individual Specimens of military artefacts recovered from Town Acre 226 by category**

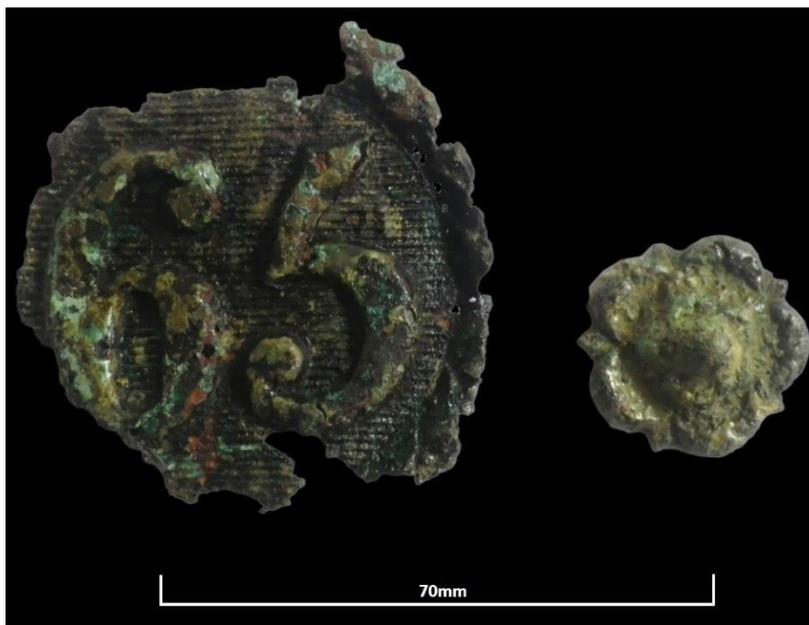
Context	Category	Date	NISP
1035	Artillery	1886-1930	4
1037	Subsistence	1880s -?	5
1058	Munitions	1887-1918	50
1061	Munitions	1884-?	1
1065	Munitions	1887-1918	1
1094	Subsistence	1903-1937	11
1100	Uniform/Clothing	1844-1867	5
1158	Miscellaneous	Post 1900	13
1158	Munitions	1887-1918	40
1210	Uniform/Clothing	Post 1855	1
1222	Munitions	1887-1918	11
1418	Uniform/Clothing	1855-1865	2
1506	Uniform/Clothing	1860-1867	1
1591	Munitions	1769-1870	2
1597	Subsistence	1866-1901	1
1611	Uniform/Clothing	1860-1867	2
1662	Munitions	1859-1885?	2
1685	Munitions	1889-1910	7
1686	Artillery	1885-?	4
1686	Uniform/Clothing	Post-1867	1
1688	Munitions	1885-?	1
1706	Munitions	1859-1870s	1
1706	Uniform/Clothing	1844-1855	1
Unstratified	Miscellaneous	Unknown	2
Unstratified	Munitions	1873-?	7
Unstratified	Subsistence	1918?	1
Unstratified	Uniform/Clothing	Post 1855	1
		<b>Total</b>	<b>178</b>

### Uniform/Clothing

Two copper alloy items associated with shako caps – tall cylindrical military caps worn by regiments from Britain as well as across Europe and the Americas since around 1800. A fragmentary 65th Regiment shako plate was recovered from context 1100 which would have adorned the front of an ‘Albert Pattern’ shako (Figure 6.16). The ‘Albert pattern’ shako was so named because Prince Albert was thought to have played a part in designing it, and it dates to between 1844 and 1855. The brass plate consists of an embossed ‘65’ and was in poor condition. The shako was the primary British military headgear from 1800 until 1878, taking various forms as fashion changed, and had become very ornate in the 1820s and 1830s (Kipling & King 2006:34-59). The Albert Pattern simplified the design and in many ways returned to the simple cylindrical hat that the original 1800 pattern ‘stovepipe’ shako had been. Shakos were large and cumbersome, and disliked by soldiers. In the New Zealand Wars after the Northern War, they were left with their red tunics at headquarters, and the smaller, more practical forage caps worn in the field. The designs that followed the Albert Pattern reflected this reality, and got increasingly smaller and more practical, until their replacement by the cloth covered pith helmet in 1878.

The large raised relief numerals ‘65’ on the plate indicates it belonged to a soldier of one of the centre companies of the 65th 2nd Yorkshire North Riding Regiment of Foot. The flank companies (grenadiers and light infantry) had either a grenade or a bugle on their Albert Pattern shako plates. The 65th Regiment served in New Zealand from 1846 until 1865, the longest serving British regiment to be stationed in the colony (Ryan & Partham 2002:160). This dates the plate to between 1846 and 1865, though it could be a bit later as it is likely to have taken some time for the new replacement shakos to get to New Zealand.

The other item consisted of a copper alloy shako chinstrap mount in the style of a Tudor Rose (Figure 6.16). The chinstrap mount was a pressed metal fitting used to attach the chin strap to the Shako (Figure 6.17). This brass fitting was used on all British regimental shakos of the period, and also dates to the period 1844-1865.



**Figure 6.16** The two artefacts related to regimental shako caps retrieved from Town Acre 226. The brass 65th Regiment Shako plate from context 1100 (left) and the chinstrap mount fitting from context 1706 (right)



**Figure 6.17** Example from a 75th (Stirlingshire) Regiment of Foot Shako illustrating how the Tudor Rose chinstrap was affixed to the cap. NB. The cap example above dates to the 1870s period and therefore is of a different design to the shakos worn by the Imperial soldiers at the Lower Barracks, but the chinstrap mount is unchanged

A number of copper alloy Regimental buttons were also retrieved during the archaeological investigation of Town Acre 226 (Figure 6.18). Tunic, jacket, and greatcoat brass buttons were often provided separate to the garments they belonged to, and sewn on by the soldier. Quality of stitching combined with physical activity while wearing crossbelts and other items that could catch on them resulted in the frequent loss of buttons, which would have to be replaced at the soldier's expense.

One-inch diameter brass buttons featuring regimental numbering and motifs on the front were used on the red dress tunics and the grey winter greatcoats worn by soldiers. Three 14th Regiment buttons of this type were recovered from contexts 1100, 1506 and 1611 (Figure 6.18). The 2nd Battalion 14th Buckinghamshire Regiment of Foot (nicknamed 'the Old and Bold') were stationed in New Zealand from 1860 until 1867, serving in all the major military campaigns of the 1860s. The button has the regiment number '14' emblazoned on the front with 'INDIA' above, and 'WATERLOO' below in recognition of battle honours the regiment had won during the respective campaigns. One of the buttons has a readable maker's mark on the back plate: 'FIRMIN & SONS LONDON'. Firmin & Sons was established in 1655, and received the first royal warrant for uniform buttons in 1796. The company still exists today, and still has a royal warrant for uniforms. It is one of the oldest companies in the world. (Firminhouse.com, 2016). A 65th Regiment other ranks tunic or great coat button was also found in context 1418. This copper alloy button has a raised '65' on the front and a raised border. The maker's mark on the reverse says 'Smith, Kemp & Wright Birmingham', and it still retains its shank. Smith, Kemp and Wright were founded in the 1840s and manufactured brass buttons for 'Other Ranks' (i.e.

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rank and file) of the pre-1871 patterns, and later in the early 20th century became part of Firmin & Sons (Oldcopper.org, 2016).

Three-quarter inch diameter brass buttons featuring regimental decoration on the front were used on the navy blue jackets worn by the Royal Navy and all other British military units in the field in New Zealand during the 1860s. The more elaborate red tunics of the army were kept for dress and garrison duty only. One button of this type was found in context 1418, a Royal Sappers and Miners jacket button (Figure 6.18). The copper alloy button was in poor condition, with only partial text remaining reading ‘..ERS & MINE..’ with the royal ‘R’ only partially visible. Text on the reverse side of the button is illegible but is likely to refer to the make, and the shank has broken off. The Royal Sappers and Miners were merged into the Royal Engineers in 1856, so therefore the button has a very narrow date range of use. An additional jacket button was also found in context 1611, but there were no discernible features on it.

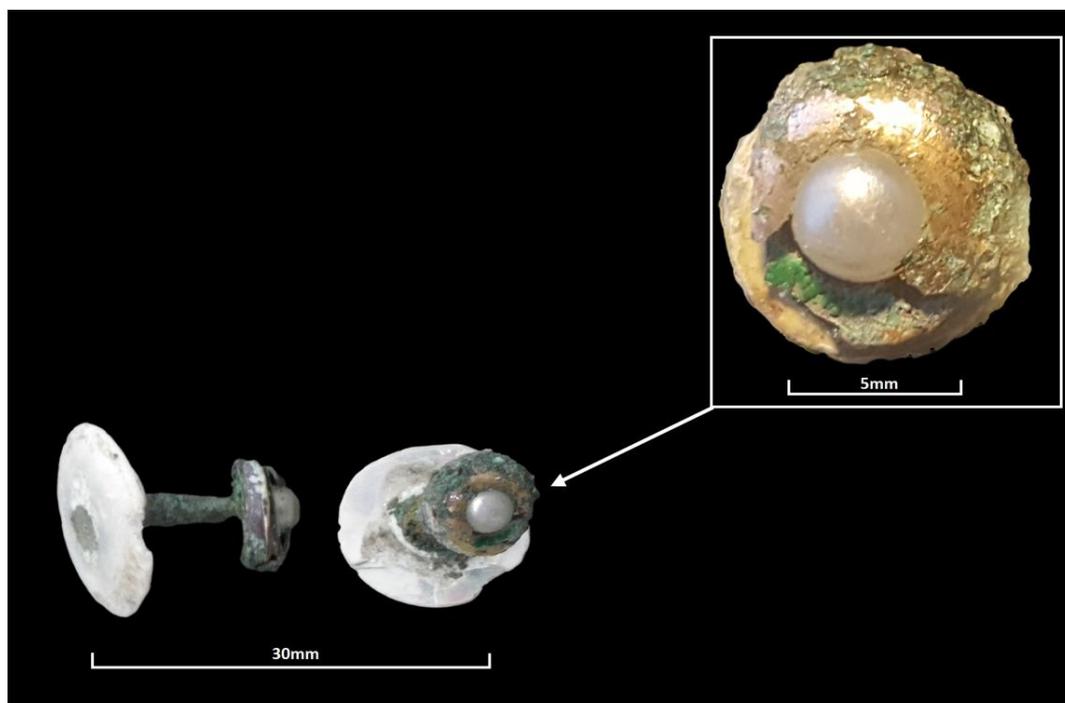
Three pressed brass trouser buttons were recovered (contexts 1100, 1210, and unstratified) which were used to fasten trousers as well as to attach the braces around the waistband. The button retrieved from context 1100 had a 0.16mm diameter with four holes and bore the inscription ‘NE PLUS ULTRA’ which means ‘of finest quality’. Like the more elaborate buttons, the brass replaced pewter in the 1855 uniform reforms; however, this type of button was very generic, and worn by civilians as well as the military. A brass buckle from a set of trouser braces, and a brass slide, used as part of a system to adjust a strap, probably from a knapsack, haversack or later military backpack, were also recovered from context 1100 (Figure 6.18).

Lastly, a mother-of pearl collar stud was recovered from context 1686 (Figure 6.19). The shell component measured 15mm in diameter, with a possible brass stem and gold/gilt base inset with a small mounted natural pearl that was 3.5mm in diameter. While the item is not strictly related to the military, and likely to have been an item only worn by someone of moderate wealth, the fact that it was recovered from a demolition layer within the footprint of Major Coleman’s house (the drill instructor of the Permanent Militia’s Mounted Volunteers) within the Permanent Militia barracks, strongly suggests the item belonged either to him or someone who visited his residence.

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**Figure 6.18** Regimental uniform and kit items (all made of brass) recovered from Town Acre 226. a: 65th (2nd Yorkshire North Riding) Regiment of Foot greatcoat/tunic button from context 1418; b: 14th Buckinghamshire Regiment of Foot greatcoat/tunic button from context 1100; c: remains of a Royal Sappers and Miners jacket button from context 1418; d: haversack/knapsack slide buckle from context 1100; e: trouser braces buckle from context 1100; f: four-holed pressed brass trouser button from context 1100; and g: 14th Buckinghamshire Regiment of Foot button clearly displaying the 'Waterloo' battle honour emblazoned below the Regimental number, from context 1506



**Figure 6.19** The mother of pearl and copper alloy collar stud found in context 1686, with mounted pearl surrounded by gold leaf decoration (inset)

## Munitions

Given that Buckle Street was (and still is in part) the site of a military facility, it is no surprise that a range of munitions dating from the entire period of military occupation were recovered from the Lower Barracks site.

The earliest type of munition found were two lead balls, both from context 1591: a 0.533-inch calibre pistol ball, and a 0.694-inch calibre musket ball (Figure 6.20). The lead ball was the projectile of choice for firearms for hundreds of years, and was only replaced with conical bullets in the 19th century. Muzzle-loading pistols firing round balls, ignited either using a flintlock or percussion cap mechanism, were popular sidearms for officers up until the 1840s and 1850s, when cap and ball revolvers using conical bullets began to become more prevalent. The musket ball almost certainly belonged to a 'Brown Bess' musket, the primary firearm of the British military since 1722, and going through several variations, the India Pattern being the one in use when the British army arrived in New Zealand. Originally a flintlock weapon, many were upgraded to percussion-lock before being replaced by Brunswick and Minié rifles in the 1840s and 50s (Blackmore 1961).

Two examples of unfired Enfield 'Minié' type bullets were recovered, one from context 1662 and one from context 1706 (Figure 6.20). The Enfield rifled musket was introduced in 1853, and was a standardised rifle for the entire British army, with a naval version being produced in 1858, and a cavalry and artillery carbine in 1861. All versions used the same, mass-produced, factory-made paper cartridges, which went through three variants. The type found here were the final, 1859 pattern projectiles, which were of 0.550-inch calibre (0.558 allowing for the thickness of the paper wrapped around the bullet), considerably smaller than the bore diameter of the barrel, which was 0.577 inch. This windage was designed to facilitate faster loading, and enable loading while the barrel was fouled with black powder residue (Browne 1853; Hawes 1859). The thin lead skirt at the back of the bullet, containing a boxwood or ceramic plug, would open up and engage the rifling upon the ignition of the powder charge. The Enfield was the primary weapon of the British and Colonial troops in the New Zealand Wars, and continued in civilian use until the 1870s (Roads 1964).

A 0.577" Snider projectile, and the base of a boxer shell case were also found in context 1688 (Figure 6.20). The Snider rifle was a breech-loading conversion of the Enfield rifled musket, but fired a very different projectile, and went through many variants in its short service life. Snider ammunition was the first military ammunition to be factory-produced here in New Zealand, at the Colonial Ammunition Company in Mount Eden, Auckland (Temple 1977). The projectile found at the site is 'type 6' with four saw toothed cannelures (to hold grease to remove black powder fouling as it was fired), in service from 1869. Snider projectiles all had hollow tips to cause expansion and mushrooming on contact with the target, and caused horrific wounds. This example had been crushed by pliers, likely to remove it from its case in order to re-use the case. Boxer cartridges, the base of one having been found, were very fragile, made of rolled thin brass sheet and covered in paper with an iron base, and it is highly unlikely that they could be re-used in this way. More likely the projectile had been fitted into a drawn brass case, of the type made from the 1880s into the early 20th century, which could be re-used, and reflects the use of the Snider rifle in New Zealand long after its obselence in 1871.

The Boxer cartridge base may not be from a Snider cartridge, however, as the rifle that replaced the Snider – the Martini-Henry – also used a Boxer cartridge with the same base diameter, though differing in design. The snider cartridge was a straight tube holding a 0.577-inch projectile, whereas the Martini-Henry had a bottle-neck cartridge holding a 0.450-inch projectile. Another notable difference was that the Martini-Henry was a purpose built single-shot breech-loading rifle, while the Snider was converted from the Enfield. The

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Martini-Henry saw extensive use in the Anglo-Zulu war of 1879, following which the Boxer ammunition was replaced with drawn brass ammunition as it was found to cause jams with extended repeated use. Using the new ammunition, the Martini-Henry had a reputation as a reliable and powerful rifle, and remained in use well into the 20th century, many examples being rebored for the new 0.303" British ammunition, becoming Martini-Enfields (Temple & Skennerton 1983).

Seven 0.303" British cartridges were found across the site from context 1685 (Figure 6.20). Brought into service as a black powder round for the Lee-Metford magazine rifle that replaced the Martini-Henry in 1888, the 303 went through several variations in its service life, and is still produced in its modern form for civilian shooters. Two of the empty cases found had live primers in them, indicating that they were unfired, and had the projectiles pulled from them. One was too corroded to read the headstamp, the other had 'CAC C V' on the base, meaning it was made in the Colonial Ammunition Company factory in Auckland. It used a cordite (smokeless powder) propellant, and was a Mark V hollow tip cartridge, which were produced during a very narrow timeframe between 1899 and 1900, when expanding projectiles were banned under The Hague Convention.

Three fired cases were recovered, one bearing the headstamp 'CAC C IV', another Colonial Ammunition Company round that used cordite, but this time a Mark IV hollow tip round, produced from 1898 until 1900. Another had the headstamp 'CAC VI', using a round nosed full metal jacket, produced from 1904 until 1910. The third had the headstamp 'CAC NC' on it, with the numeral unreadable; however, the NC indicates the charge is Nitrocellulose rather than cordite, indicating an early Mark VII round, which uses a pointed 'Spitzer' type projectile still in use today, with a light tip, designed to tumble upon impact, and thus inflict greater wounds without having an expanding projectile. The Mark VII was the type used throughout World Wars I and II.

One of the 303 shells recovered has been sawn off short, the bottom 1.65cm being missing (thus no headstamp). It is possible that the armourer was modifying the abundant 303 rounds in order to manufacture less available pistol rounds that use the same sized (0.45 inch) centrefire base. The remaining two 303 rounds are blanks, one fired, the other still live. Corrosion means the headstamps are unreadable, but 303 blanks may be related to the modern use of the site for services at the tomb of the unknown soldier, as blanks are frequently fired at such ceremonies.

Some of the munitions relate more to the training and sporting use of the site than strictly the military occupation, in that they were from rounds used in the underground rifle range by military, police and sporting groups. The underground range was too small and confined for the use of high-powered rifles, and thus was only really suitable for miniature rifles and pistols.

A large number (100+ but with only a subsample analysed) of 0.22 Long Rifle rimfire cartridges were recovered from the site from contexts 1065, 1222, 1058 and 1158 (Figure 6.20). The 22LR rimfire round was developed in 1887 and is still in heavy use today as a sporting and small game hunting round. Rimfire ammunition differs from centrefire ammunition in that instead of having a percussion cap primer set into the base of the cartridge, the primer is in the bottom of the case, and any strike on the rim of the case will ignite it. A random sample of them were chemically cleaned to identify headstamps. Two different headstamps were identified, a few bearing a 'U', meaning Remington or the Union Metallic Cartridge Company, made in America, and most having a 'K', meaning Kynoch. Made in England, Kynoch was merged into Nobel in 1918, changing headstamps, and with the rifle range not being constructed until after 1900, the large number of 22 shells can be interpreted as part of rifle training prior to and during World War I.

## 6. Artefact Analysis

Eight other centrefire cartridges were recovered from the rifle range area, all of which were of types shot at the range, although one (unstratified) was a brass shell that could not be identified. Six of the seven were badly corroded 0.32 calibre pistol cartridges (unstratified). The ends of the cartridges were missing, so the full length of the case is unknown, and the headstamp was only barely readable on one of the examples. It could possibly read: 'WRA Co C V 32', which would mean the cartridges were 32 Long Colt produced by Winchester (Figure 6.20). 32 Long Colt was a revolver round manufactured from 1873. The fact there were six cases found together suggests they represent a single use of a six-shot revolver in the range. Two 0.32 inch projectiles were also found, suggesting that possibly not every shot went off (Figure 6.20).

A cartridge of particular interest, from context 1061, was an unusual 0.29-inch calibre centrefire case. This is likely to be a .297"/230" Morris miniature cartridge, used in the Morris Tubes that part of the underground range was built for. Morris Tubes were special rifled metal tubes that could be installed into the barrel and breech of a stock Martini-Henry Rifle, allowing the rifle, built to fire very powerful 0.450/0.557 inch rounds, to fire the tiny Morris cartridge in small indoor ranges for marksmanship training. The Morris tube was removable, so when training was complete they could be taken out, and the rifle was then able to fire full-sized rounds again.



Figure 6.20 A selection of munitions recovered from Town Acre 226. a and b: pistol ball (left) and musket ball from context 1591; c: Enfield Minié bullets from contexts 1662 (left) and 1706; d: Snyder saw-toothed bullet; e: selection of .22 calibre shell cases; f and g: Winchester Long Colt revolver round shell cases (bottom) and two projectiles (unstratified); and h: selection of .303 shell cases from context 1685

### Artillery

Several components of an EOC (Elswick Ordnance Company) 8-inch Armstrong BL (Breech Loading) 'disappearing' gun were retrieved from context 1035, the lower backfill

## 6. Artefact Analysis

of the remains of the pivot standard upon which the gun had been mounted (Figure 6.21 to Figure 6.23).

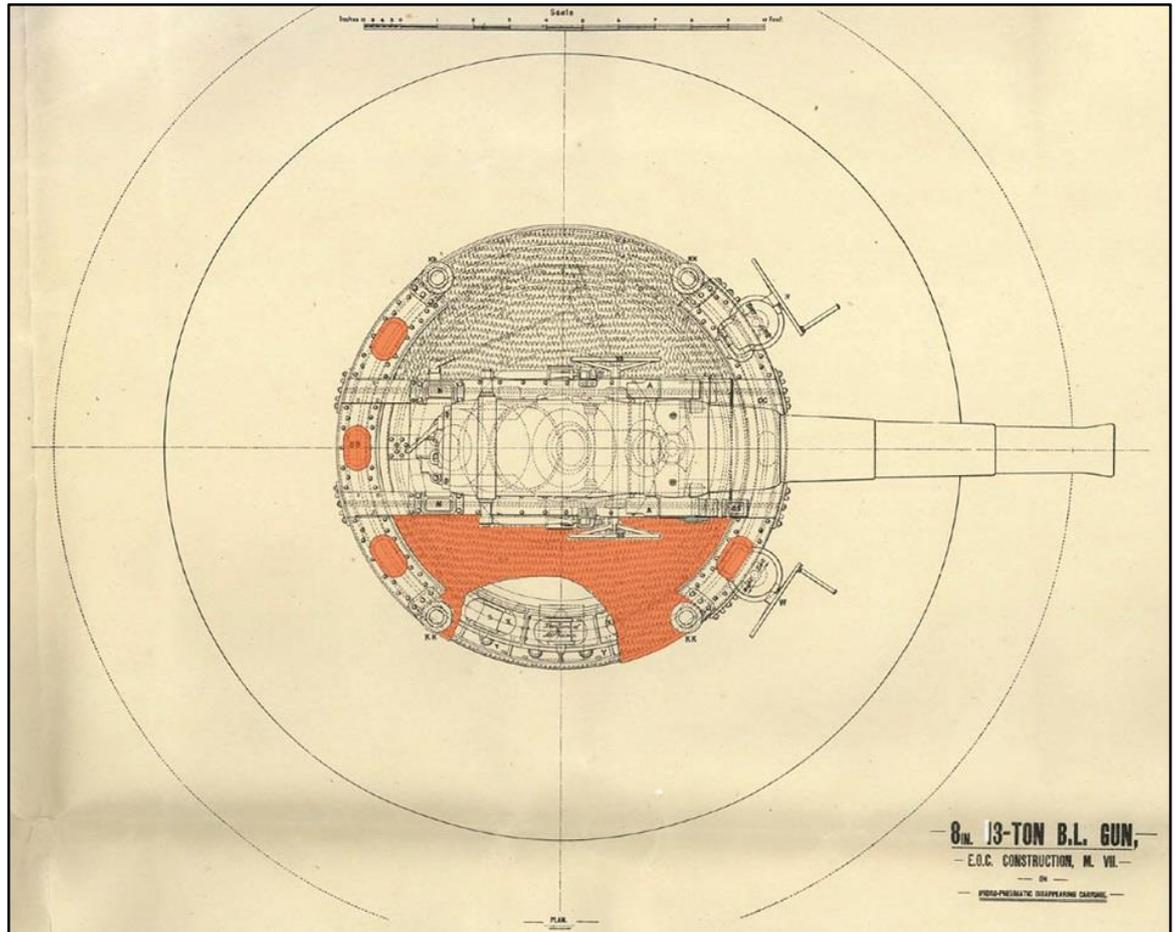
The EOC 8-inch Armstrong BL Gun was one of two disappearing guns at Buckle Street. The other was a 6-inch version that sat on the floor of the Artillery Drill Hall, while the 8-inch was installed in 1909 in the ‘gun shed’ or ‘artillery annexe’ next door on a pivot standard (*Dominion*, 2 June 1908: 8) sharing the annexe with a 6 pounder and 12 pounder battery (*Dominion*, 16 July 1909: 6).

The 8-inch Armstrong would later be removed from the pivot standard and put on display at the entrance to Mount Cook Upper Barracks, but parts of its hydro-pneumatic ‘disappearing’ carriage were left in the pivot standard. One of the elevation wheels, parts of the sliding rail, a sheet of diamond plate and a quantity of the service panels used to access the rotating mechanism for lubrication and repair were found (Figure 6.22 and Figure 6.23). A large bracket, possibly used to mount the main lifting ram was also recovered. Several smaller metal brackets, identical to those found in the coastal gun emplacements where these weapons have been installed, were present. It is likely they were used for shelving or other ancillary functions rather than being part of the gun mechanism itself.

The hydro-pneumatic carriage was first patented by Sir William Armstrong’s Elswick Ordnance Company in 1869 (Corbett 1998). Hydro-pneumatic carriages were designed to depress the gun using its own recoil into the gun emplacement, where it could be reloaded under complete cover. When reloaded, the gun was returned to firing position using a large ram. Guns on hydro-pneumatic carriages were referred to as disappearing guns, and were used by British and Colonial forces from 1869 until 1894 (Dodd 2014:33). The space taken up by the ram under the gun when in its reloading position was why the pivot standard had to have a cavity in the middle.



**Figure 6.21 Brass graduated azimuth scale for sighting the 8-inch Armstrong Gun recovered from context 1035 stamped with: ‘HYDR-PNEU CARRIAGE REDUCED CHARGE 8 GUN’**



**Figure 6.22** Plan view diagram of the 8-inch Disappearing Gun with components recovered during the archaeological investigation of Town Acre 226 shaded orange

Additionally, two small copper and brass components were recovered from context 1686. One was a broken thin copper tube fitted into a square section brass block, stamped with 'R.G.F.' (the Royal Gun Factory) and 'RAL' (the Royal Laboratories broad arrow stamp) – based in Woolwich and Greenwich respectively, in London. This was clearly part of a larger object of unknown function (Figure 6.24, left). The other was a small brass tap handle, that had been over twisted, and snapped off (Figure 6.24, right). The tap handle may have been from a valve from the hydro-pneumatic systems of one of the disappearing guns. It had the stamped text: '¾' 'M150', although it is not known what this relates to.

6. Artefact Analysis

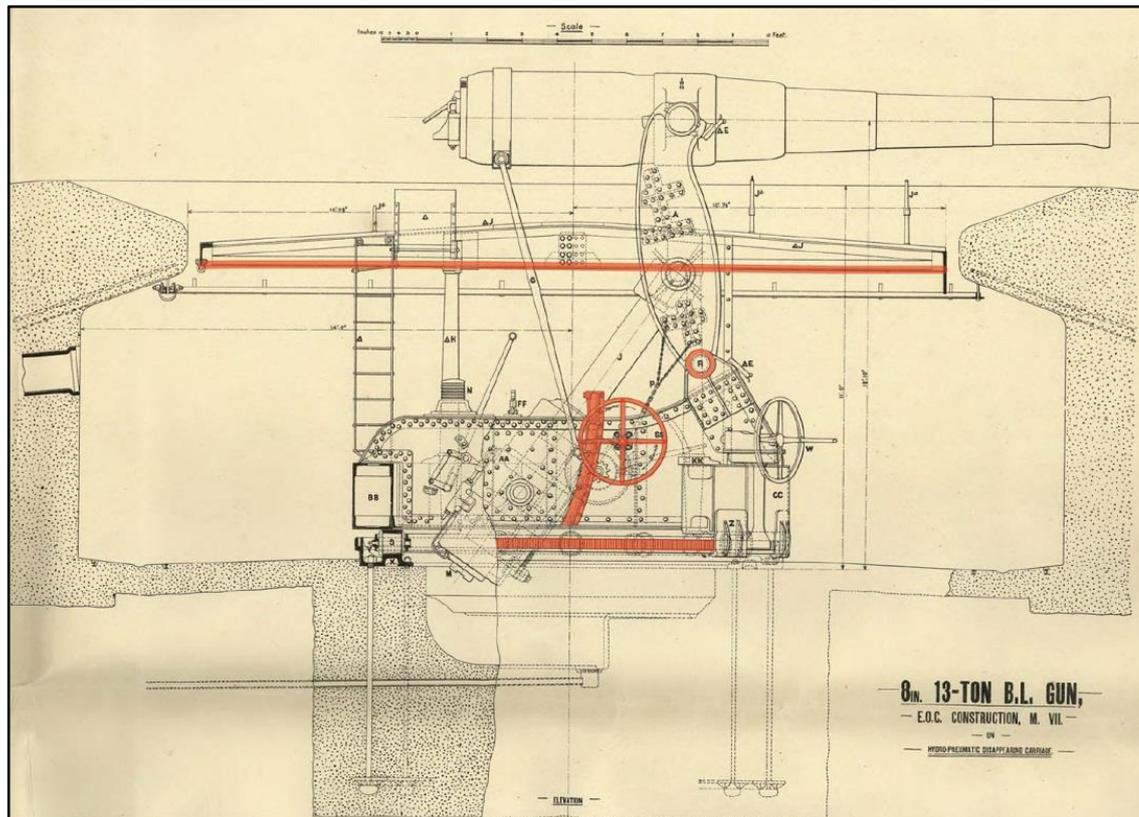


Figure 6.23 Profile diagram of the 8-inch Armstrong Disappearing Gun and its elevating mechanism with parts recovered from Town Acre 226 shaded orange



Figure 6.24 Brass artillery items retrieved from context 1686 with the stamps of the Royal Laboratories (centre top) and the Royal Gun Factory (centre bottom) displayed on the larger of the two items

## 6. Artefact Analysis

### Subsistence

Eleven 1903 Pattern water canteens were found in context 1094 (Figure 6.25). These vessels were made of blue enamelled steel, with a rubber stopper, and originally had a khaki felt cover and leather shoulder strap on them. This type of water bottle/canteen was the type used by British and Commonwealth soldiers during the First World War.

Five rectangular aluminium mess tins were recovered from context 1037. They were designed to stack inside one another, and two inner sections and two outer sections were found, one pair corroded together. This type of mess tin dates to World War II, and three of the tins had visible makers' marks on them: 'S.I. CO. 1941', 'JURY 1941' and '-CICOR 1940', all confirming their World War II origins.

A cigarette tin was found in context 1597, its paper label still intact. It bore the text: 'OGDEN'S GUINEA GOLD CIGARETTES SWEET & FRAGRANT. Ogdens Tobacco Company was founded in 1860 as a small tobacconist, building a factory in 1866 in Liverpool. In 1901 it was bought out by the American Tobacco Company, and in 1902 merged into the Imperial Tobacco Company. Cards from Ogden cigarettes were popular trading items and are still collectables today.

A large metal tin of unknown purpose constructed in the same manner as a modern ammunition tin was found (unstratified). However, its dimensions were not consistent with any commonly used ammunition tin: 30cm x 18cm x 26cm high. This tin may have had a more domestic-related purpose.



**Figure 6.25** One of the eleven 1903 Pattern water canteens complete with rubber stopper recovered from context 1094. These items were standard World War I issue water canteens and examples have been excavated from the battlefields of the Western Front in France

### Miscellaneous

A large pair of iron clamps with a wall bracket, clearly made for a specific purpose, was found on site (unstratified). Its purpose could not be defined. It bore the maker's marks: 'US PATS 1970888' 'MADE IN USA US PATS PEND' 'SHAL(ER?)'. As an American item, it is unlikely to have been an issued military object.

### Discussion

The military assemblage for this site contains munitions and other military items from the entire military occupation of the site. From the simplest of musket balls to the sophisticated and powerful 8-inch Armstrong disappearing gun, and the 0.303 blanks from services held at the war memorial, New Zealand's military history has stamped itself on this site. There are remains from New Zealand's own internal conflicts of the 1840s to 1880s, and remains relating to the training of New Zealand troops for overseas wars.

The majority of artefacts dating to the Imperial military phase of the site related to the soldiers' regimental uniforms, associated kit or clothing in general, although a small quantity of munitions of the period were also present. These artefacts were retrieved both from early features as well as features related to the later occupation of the Barracks by the Armed Constabulary, Permanent Militia, and Permanent Force, indicating they were at the least in secondary depositional contexts.

Artefacts relating to the occupation of the Lower Mount Cook Barracks by the Armed Constabulary, and later Permanent Militia and Permanent Force are dominated by munitions used in military firearms characteristic of the later 19th and early 20th centuries. Also, represented in the assemblage and dating to this period were items associated with artillery, in particular the 8-inch Armstrong Disappearing Gun, though some artefacts may perhaps relate to smaller artillery pieces.

Items that perhaps relate to the First World War consist of the water canteens, and the many shell casings dating to this period that may reflect the use of the Garrison Hall Rifle Range by enlisted men before leaving New Zealand for the frontlines overseas.

Post-World War I artefacts consist of the large quantity of .22 shells found in the upper pivot stand fill. The large number of 22 Long Rifle shells are not necessarily all from military use, as the rifle range was used by civilian shooting clubs as a sports venue for many years, just as the Garrison Hall was the venue for many non-military events.

In summary, as a barracks site the composition of the assemblage is typical, being representative of dropped or lost objects from the entire history of its use, first by the British military, then the NZ Armed Constabulary, Permanent Militia, and lastly the New Zealand Defence Force. One artefact stands out in the assemblage, just as its associated feature stood out on the site – the 8-inch Armstrong Breech Loading disappearing gun. The fact that this weapon was installed in its own devoted building for all-weather training, despite it being thoroughly obsolete at the time, perhaps indicates the determination of the armed forces to defend the nation's harbours, despite the obvious lack of resources.

### 6.1.8 Miscellaneous

A total of 244 items were collected from 48 contexts (with additional unstratified material) and classified as Miscellaneous. The items were then separated into the following sub-categories: Building Materials; Clothing/Footwear; Clerical, Personal (3 items), and Other (4 items). The items, the majority of which related to building materials and clothing, are summarised and discussed below.

#### Building Materials

The building materials assemblage totalled 169 items, the majority of which were fragments of roof slates or bricks (Table 6.77). A portion of a cement base or counterweight to hold a circular upright structure such as a flagpole or similar was recovered from context 1597, the upper fill of the military well that was infilled in the early 20th century (Figure 6.26). The item was constructed solely of cement with no gravels or shell present. Approximately one quarter of the item was collected, with the width from the interior to the exterior measuring 21cm. The top of the item was fairly flat with some chips, which are likely to have occurred during historic removal and burial. The underside or base showed a wood grain pattern, suggesting the cement was poured directly over a wooden base structure. The central hole was estimated to be approximately 16.5cm (6.5 inches) with a square cut-out area which may indicate the presence of a square wooden additional support directly around the base of a timber upright (Figure 6.26). The base or counterweight was 5.6cm thick (2 ¼ inches). It is plausible that this was part of a cement base supporting a flagpole.

An almost complete soot blackened brick was collected from context 1035. The stock size brick was orange in colour and contained a rectangular frog. A large portion of a kiln brick was collected from context 1036. The brick was likely to have formed part of the firebox and was heavily encrusted with titanium from the coal used to fuel the fire, the colour typical of coal extracted from Westport (John Madden, pers. comm). A lump of salt glazed fired clay was not identified; however, it is possible it was part of the infrastructure of a small dome-shaped kiln. The item is likely to have been associated with a similar item recovered from context 1361 (Town Acre 226) and context 2010 (in Town Acre 233).

6. Artefact Analysis

Table 6.77 Number of individual specimens relating to building materials per context from Town Acre 226

Context	NISP	Context	NISP
1026	3	1506	1
1035	1	1513	3
1036	2	1516	3
1042	1	1521	6
1044	1	1581	1
1045	18	1591	3
1046	1	1596	2
1065	6	1597	2
1069	1	1599	3
1093	3	1611	5
1100	32	1614	1
1101	1	1615	2
1139	2	1627	3
1226	8	1665	9
1247	8	1668	1
1301	4	1675	7
1308	1	1702	1
1361	1	1706	11
1403	1	1720	1
1418	1	Unstratified	3
1420	2	<b>Total</b>	<b>169</b>
1505	4		

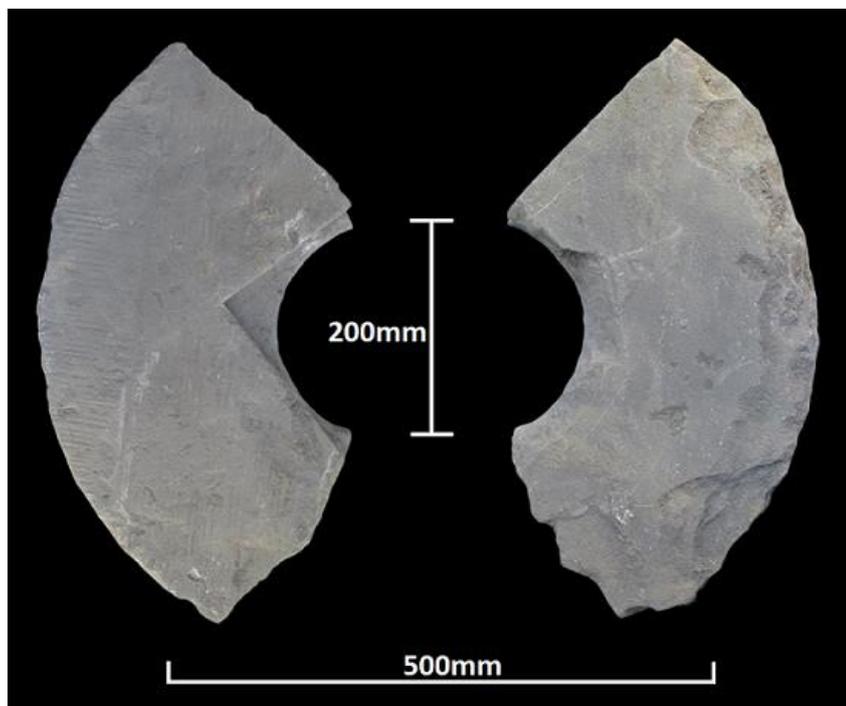


Figure 6.26 The cement base or counterweight retrieved from context 1597. The underneath of the base is represented by the left-hand image, while the surface of the base is seen at right

## 6. Artefact Analysis

Eighty-seven pieces of slate were collected from Town Acre 226, the single greatest concentration being 26 pieces in context 1100, but it could not be determined whether the slate was utilised for roofing or pile/foundation waterproofing.

A shaped piece of wood showing evidence of charring was collected from context 1026. Several small pieces of timber beams used as a diagonal support were collected from context 1226. The samples were highly degraded. Two rectangular plastic flanges were collected from context 1026 and a piece of PVC piping recovered from context 1065 are considered intrusive and likely to relate to late 20th century demolition and service installations.

### Clothing and Footwear

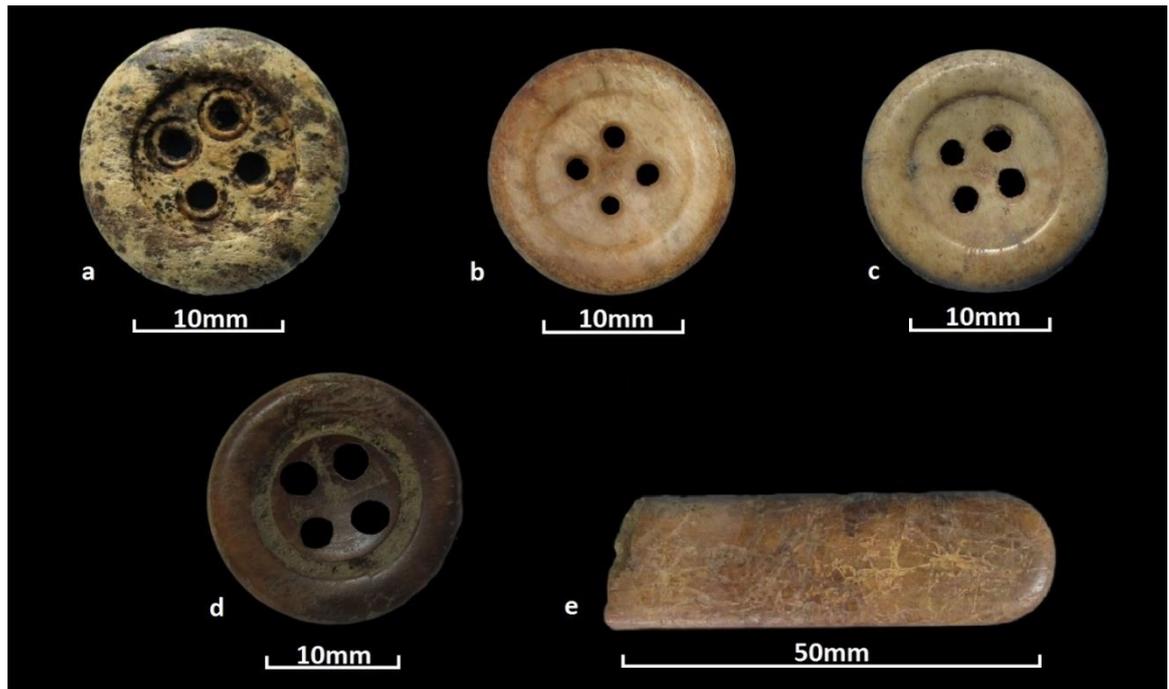
A total of 44 items relating to clothing or footwear were recovered from 10 contexts as well as a single unstratified item from Town Acre 226 (Table 6.78). Nine pieces of leather associated with the right foot sole of at least one boot were collected from context 1093 along with two iron heel plates. Ten pieces of shoe or boot leather were collected from context 1100. Four pieces of leather footwear were collected from context 1627, relating to the sole and partial upper of a woman's shoe, a portion of a man's hobnail boot and the heel of an unidentified shoe.

A complete wooden button collected from context 1611 with four attachment holes was possibly used on a jacket (Figure 6.27). Complete bone buttons collected from contexts 1685 and 1686 were likely to have been associated with at least one shirt (Figure 6.27). A complete bone button recovered from context 1513, which measured 18mm in diameter, was likely to have been used on a shirt or trousers (Figure 6.27). The partial rim of a brass trouser or shirt button was collected from context 1065, and a brass backing and button were found in context 1686.

Six pieces of green felt were also recovered from context 1065 beneath the footprint of the later Gunnery Annexe.

**Table 6.78 Number of individual specimens relating to clothing/footwear per context from Town Acre 226**

Context	NISP
1065	7
1093	11
1100	10
1513	2
1591	1
1597	3
1611	1
1627	4
1685	1
1686	3
Unstratified	1
<b>Total</b>	<b>44</b>



**Figure 6.27** Bone and wooden buttons and bone utensil handle retrieved from Town Acre 226. a: bone button from context 1513; b: bone button from context 1685; c: bone button from context 1686; d: wooden button from context 1611; and e: a partial bone utensil handle from context 1308

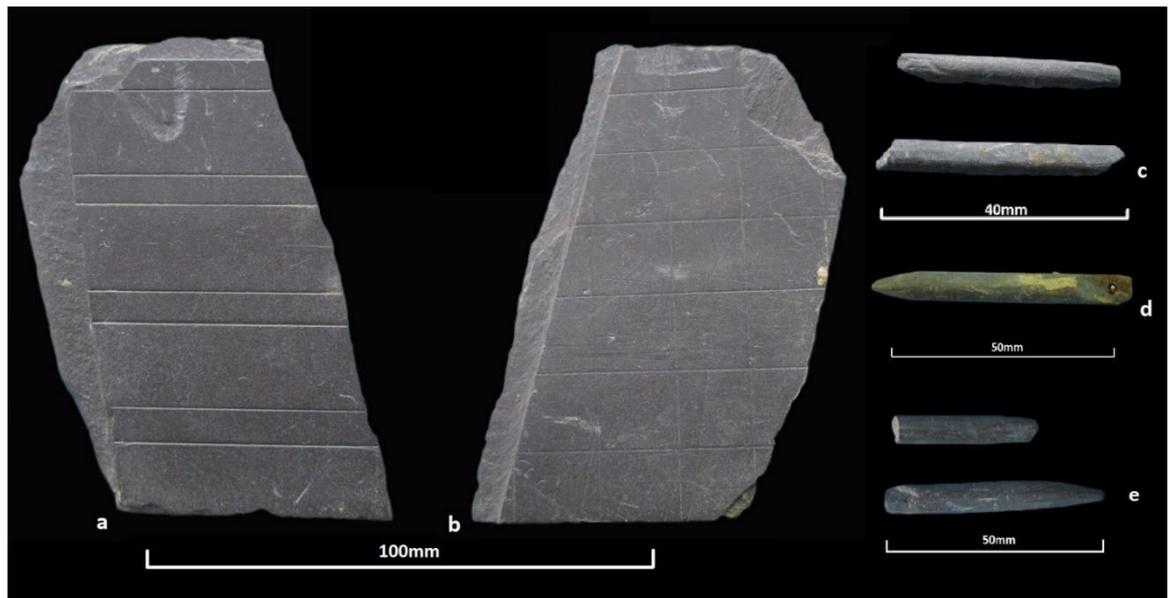
### Clerical

A total of 21 items that fall into the clerical category were collected from Town Acre 226 (Table 6.79). Fourteen pieces of writing slate were collected from context 1037. The largest of the pieces was incised on both sides, one side having double sets of incised horizontal lines while the reverse was incised in a quad fashion presumably to be used for mathematical equations (Figure 6.28). One fragment was incised with horizontal writing lines along with one vertical line suggesting it may have represented a margin, or the slate was sectioned into columns. Nine of the remaining pieces were incised with horizontal lines, some being sharply defined, while other examples were shallow and crude. Three of the pieces were unlined. One remaining fragment of slate was likely to have been part of a roofing tile as the surface had been left in rough condition unsuitable for a writing surface. Two portions of styluses were also collected (Figure 6.28). One example included the writing end which had been whittled to a point; however, the nib was no longer present.

Two portions of individual styli were collected from context 1061. Each stylus had been whittled to form writing points (Figure 6.28). Two fragments of writing slate were noted, with one having a slight impression of a scored line. A slate stylus was also collected from context 1142 (Figure 6.28), which had the writing end been whittled to a point. The butt end of the stylus had been whittled on two sides, making a narrow end through which a small hole had been drilled (Figure 6.28). This would have allowed the stylus to be tied to a writing slate or board.

**Table 6.79** Number of individual specimens relating to clerical activities per context from Town Acre 226

Context	NISP
1037	16
1061	4
1142	1
<b>Total</b>	<b>21</b>



**Figure 6.28** Clerical items collected from Town Acre 226. a, b, and c: writing slates and slate styli from context 1037; d: pierced slate stylus from context 1142; and e: two styli from context 1061

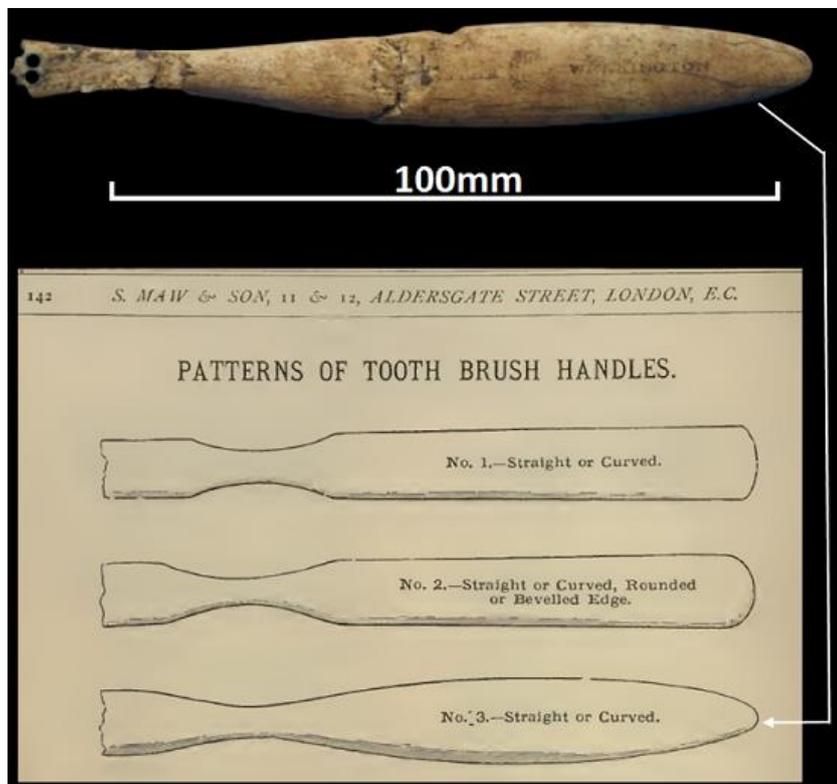
### Personal

Only four items were retrieved from four separate contexts from Town Acre 226 that were assigned to the Personal category. The first item was a fragment of a vulcanite/ebonite hair comb from context 1037, and dates to the first quarter of the 20th century. Two bone items (both utensil handles) were collected from contexts 1308 and 1615. A portion of a bone handle that was 57.5mm long and 14.81mm wide with a rounded end was collected from context 1308 (Figure 6.27, bottom right). Letters could be read faintly on one side, indicating the place of manufacture was London. It is not known which particular type of table utensil the handle originated from. A partial bone knife handle was also collected from context 1615.

Finally, a partial bone toothbrush was recovered from context 1706 (Figure 6.29). The majority of the stock (head) was missing, but the handle and shank was intact. The maker's stamp indicates that it was made by S. Maw, Son & Thompson and was manufactured in Warrington, England, between 1870-1900, although the retailer's (probably a chemist/druggist) name is not discernible. S. Maw, Son & Thompson was the largest pharmaceutical wholesaler in Britain and distributed toothbrushes as well as a range of dental and surgical equipment for the medical trade. From 1870 to 1901 the toothbrushes were made by William Addis & Son Brushworks, based in London. The S. May, Son & Thompson catalogue indicates that this brush is of type 3, although as very little of the stock survives the type cannot be determined (Maw & Son 1869; Figure 6.29). The brushes were made from ox or Bullock thigh and buttock bones, and the bristles would have been

## 6. Artefact Analysis

either white horse tail hair or pigs' bristles (for details see Mattick 2010; Bedford 1985). Due to the cost of a toothbrush relative to 19th century income, the items were not that common in New Zealand society at the time.



**Figure 6.29** The bone toothbrush collected from context 1706 (top) and the corresponding brush handle in the S. Maw & Son sales catalogue from 1869 (Maw & Son 1869)

### Other

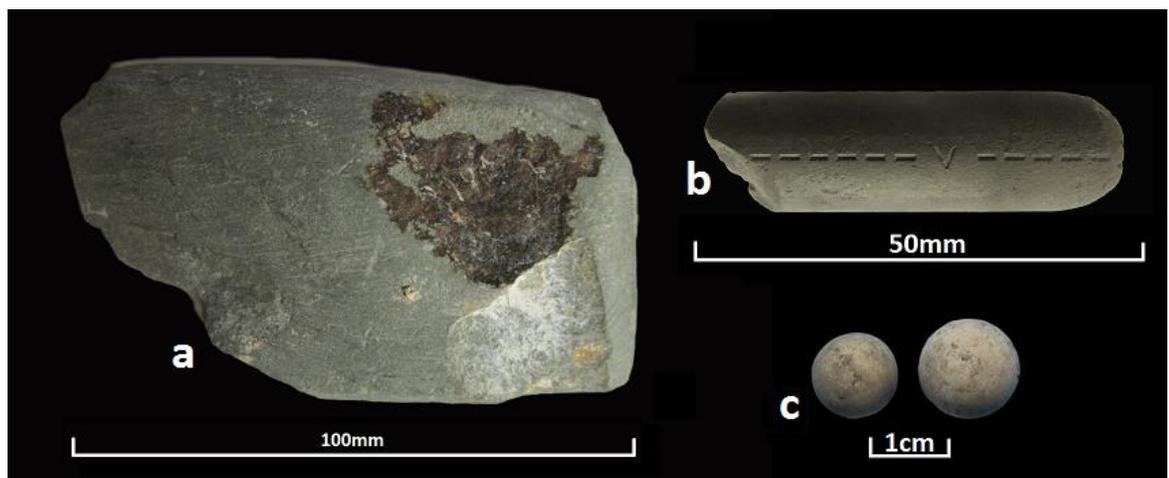
Just six individual items from five contexts comprised the 'other' category, consisting of a piece of coal (context 1100), two items of worked stone from contexts 1045 and 1247 respectively; a carbon arc light rod from context 1597, and two ceramic marbles from context 1686 (Table 6.80). A small piece of greywacke recovered from context 1045 had one smoothed facet that may indicate it represented a fragment of dressed stone, perhaps originating from a demolished stone building. The other stone item was retrieved from context 1247 in the form of a fragment of worked slate 105mm in length and 70mm wide (Figure 6.30). The slate had been shaped around both the long sides as well as the surviving end. The exterior surface of the item had also been shaped and smoothed and fine striations visible running parallel to the longer edges along the length of the item, indicate that it was likely to have been used as a whetstone (Figure 6.30).

A carbon arc light rod for incandescent lighting and consistent with those used in military signal lamps was collected from context 1597 (Figure 6.30). A similar item was found in context 2008, Town Acre 233. This particular rod was marked '-----V-----'.

Lastly, two small ceramic balls that are probably marbles were collected. One of the marbles had a diameter of 11mm while the other was larger at 13mm (Figure 6.30). It is possible they were part of a game set.

**Table 6.80** Number of individual specimens relating to ‘Other’ category per context from Town Acre 226

Context	NISP
1045	1
1100	1
1247	1
1597	1
1686	2
<b>Total</b>	<b>6</b>



**Figure 6.30** Miscellaneous artefacts retrieved from Town Acre 226 from ‘Other’ category. a: partial slate whetstone from context 1247; b: partial carbon arc light rod from context 1597, and c: two ceramic marbles collected from context 1686

### 6.1.9 Discussion

Town Acre 226 contained a moderate number of artefacts ranging in date of manufacture from as early as 1843 up to modern times. Much of the material collected was highly fragmented and in secondary depositional contexts, with only two glass bottles and one stoneware bottle complete. The majority of artefacts collected were within the glassware and ceramic categories, with smaller assemblages from clay tobacco pipes, stoneware, militaria, and other items. Alcoholic beverage bottles totalled 51% of the assemblage, with 67 of the 95 items black beer bottles. The ceramic category was dominated by tableware items, with the entire assemblage consisting of relatively inexpensive wares, typical of 19th century military sites.

Virtually all of the assemblage was related to the various periods of occupation of the Lower Barracks site from the late 1840s to the first quarter of the 20th century. The exceptions to this were the glass-filled rubbish pit likely to date to the early 1840s military encampment on the lower slopes of Mount Cook, and the five pieces of worked black beer bottle glass retrieved from Phase 1 drainage features, but likely to relate to Maori activity on Pukeahu during the early historic period.

Embossing on bottles, Holloway’s Ointment decoration and clay tobacco stamps all provided specific information on date ranges of manufacture for the individually marked items. Although one definite toy marble was collected, it could not be attributed to the presence of a child with certainty; the marble may have been utilised in gaming or gambling

## 6. Artefact Analysis

by adults. Only one partial shoe could be specifically related to the presence of a female. Unsurprisingly, the characteristics of the assemblage suggests a male dominated occupation representing military life in a mid-late 19th century military establishment, albeit with glimpses of civilian life.

Table 6.81 indicates date ranges for the likely deposition of material within specific contexts. The majority of contexts that provided assemblages that could be more precisely dated were those relating to the Imperial Military and Armed Constabulary periods of the site (Table 6.81). Artefacts derived from the bulk of depositional contexts present within Town Acre 226 confirm both the known chronology of the Lower Barracks site and validate the archaeological phasing sequence for the most part. The few exceptions where contexts produced anachronistic artefacts were those recorded as being truncated by later services and demolition activities.

**Table 6.81 Grouping of contexts by date-range of identified artefact manufacture**

Date Range	1843-1855	1855-1880	1880-1900	1900+
Contexts	1149	1065	1037	1026
		1100	1044	1097
		1142	1046	1064
		1418	1686	1686
		1420		
		1506		
		1591		
		1611		

## 6.2 Town Acre 233

### 6.2.1 Introduction

A small collection of items was recovered from Town Acre 233, and all were highly fragmented. Much of the material was unable to be dated to specific time periods, although some dateable glass was identified to the late 19th through to the early 20th centuries. Dates of manufacture of glassware were able to be suggested for context 2008 (1874-1907) and context 2010 (1895-1905 or 1905-1909).

### 6.2.2 Ceramics

Ceramic material was collected from five contexts – 2008, 2010, 2011, 2021 and 2030 (Table 6.82). The collection was very small and highly fragmented. Two patterns were identified by name, Asiatic Pheasants and Willow. The lack of maker's marks prevented any dating of the items. All items identified were tableware.

**Table 6.82 Summary of ceramics from Town Acre 233**

Context	NISP	MNV
2008	1	-
2010	6	4
2011	7	32
2021	1	1
2030	1	-
<b>Total</b>	<b>16</b>	<b>37</b>

**Context 2008**

One small fragment of plain white ceramic was collected. It was not possible to determine what vessel form the piece originated from.

**Context 2010**

Six pieces of ceramic were recovered from context 2010 representing four different items (Table 6.83 and Table 6.84). Two saucers were identified, one decorated with multiple gilt bands, the second relief moulded. Fragments of two plates were found, one decorated with the Asiatic Pheasants design and the second with the Willow design.

**Table 6.83 Vessel form and fabric minimum numbers from context 2010**

Vessel Form	Whiteware	Total
<b>Tableware</b>		(4)
Plate	2	2
Saucer	2	2
<b>Total</b>	<b>4</b>	<b>4</b>

**Table 6.84 Ceramic patterns and marks from context 2010**

Pattern	Vessel	Marks/Notes	NISP	MNV
<i>Asiatic Pheasants</i>	Vessel	Blue transfer print	1	1
<i>Banded</i>	Saucer	Gilt band	3	1
<i>WI00023</i>	Saucer	White relief moulded	1	1
<i>WI00024</i>	Plate	Blue transfer print	1	1

**Context 2011**

At least four plates of unknown size were identified from seven pieces of ceramic, three of which contribute to MNV (Table 6.85 and Table 6.86). Three fragments were decorated with bands of pink and probably originated from the same plate. Two fragments were decorated with the Asiatic Pheasants pattern and one small fragment was consistent with the Willow pattern. The fourth plate was decorated with an unknown blue print.

**Table 6.85 Vessel form and fabric minimum numbers from context 2011**

Vessel Form	Whiteware	Total
<b>Tableware</b>		(4)
Plate	4	4
<b>Total</b>	4	4

**Table 6.86 Ceramic patterns and marks from context 2011**

Pattern	Vessel	Marks/Notes	NISP	MNV
<i>Asiatic Pheasants</i>	Plate	Blue transfer print	2	-
<i>Banded</i>	Plate	Blue transfer print	1	3
<i>WI00025</i>	Plate	Blue transfer print	3	1
<i>WI00026</i>	Plate	Blue transfer print	1	1

**Context 2021**

One small fragment of plain white ceramic was collected – a partial rim from a platter.

**Context 2030**

One small fragment of a clear glazed white ceramic was collected – a handle fragment from a small cup.

**6.2.3 Stoneware**

Stoneware items were sparse in Town Acre 233 with context 2010 containing a partial ink bottle. No maker's mark was present on the portion recovered and no specific date can be ascribed.

**6.2.4 Glassware**

A total of 23 pieces of glass was collected from Town Acre 233 representing a minimum of 7 items (Table 6.87). These items consisted of black beer, wine and mineral water bottles (Table 6.88). Dates of manufacture (Table 6.89) were able to be suggested for context 2008 (1874-1907) and context 2010 (1895-1905 or 1905-1909).

**Table 6.87 Summary of glassware from Town Acre 233**

Context	NISP	MNV
2008	11	4
2010	7	2
2011	4	-
unstratified	1	1
<b>Total</b>	<b>23</b>	<b>7</b>

**Table 6.88 Minimum number of individual glassware products from Town Acre 233**

Product	NISP	MNI
Black Beer	14	3
Wine	5	1
Mineral Water	3	3
Unidentified	1	

**Table 6.89 Summary of date of manufacture for identified glassware products**

Context	Company Name	Date of Manufacture
2008	J.L. Bacon	1874-1907
2010	Thompson, Lewis & Co.	1895-c.1909 or 1905-1909

**Context 2008**

Remains of two black beer, one wine and a mineral water bottle were identified (Table 6.90). A large fragment of a Codd Patent mineral water bottle was embossed 'J.L.B.../Registere...'. The bottle is that of John Lewis Bacon of Tory Street, Wellington, whose plant operated under the JLB mark from 1874 through to 1907 (Wellingtonantiquebottles.org.nz, 2016 e).

**Table 6.90 Summary of glassware from context 2008**

Product	NISP	MNI
Black Beer	7	2
Wine	3	1
Mineral Water	1	1

**Context 2010**

Fragments of black beer and wine bottle glass were recorded but did not contribute to overall MNI (Table 6.91). Two fragments relating to two mineral water bottles were noted and both appeared to be of the same manufacturer. The pieces were embossed '...lingt.../...ganui &...' and 'Crys.../...ling.../...i &...', identified as Thompson, Lewis & Company, whose Crystal Springs Mineral Water Works were located on the corner of Lorne and Tory Streets from 1887 (Wellingtonantiquebottles.org.nz, 2016 e).

The addition of Wanganui and another location provides indication of two date ranges. Should the unknown location have been Otaki the bottle would have been produced between 1895 and 1905; should it have been Wanganui & Petone it would be 1905-1909. The placement of the names suggests only two further locations (other than Wellington) were listed on the bottle, although other locations existed, suggesting one of the above date ranges as more likely.

**Table 6.91 Summary of glassware from context 2010**

Product	NISP	MNI
Black Beer	4	-
Wine	1	-
Mineral Water	2	2

**Context 2011**

Four pieces of glass were recovered from this context – fragments of wine and black beer and the partial base of an aqua coloured bottle. The base was embossed ‘...Ld’ (Limited) with the number ‘8774’ likely to be a mould number.

**Unstratified Glass**

A black beer base with a shallow dome kick-up was collected.

**6.2.5 Tobacco Pipes**

The remains of a single clay tobacco pipe were recovered from context 2008. A partial reconstruction showed that the bowl was moulded in the shape of a hand cupping it (Figure 6.31). The hand is the left hand and only the thumb and forefinger were complete. There was no stamp on the bowl to identify a maker. Staining on the interior of the bowl suggested it had been well smoked.

**Figure 6.31 Pipe bowl retrieved from context 2008 showing thumb and forefinger of a hand****6.2.6 Miscellaneous**

A small number of items relating to building construction, clothing, lighting and organic material were collected, summarised in Table 6.92.

**Table 6.92 Summary of Miscellaneous Items collected from Town Acre 233**

Context	Clothing/ Footwear	Building Materials	Lighting
2008	1	1	1
2010	-	3	-
<b>Total</b>	1	4	1

### Building Materials

Items within this category included slate, brick and a fired clay object.

#### Context 2008

One small piece of a roofing tile was retrieved from context 2008. The tile edges were roughly finished.

#### Context 2010

One hand-mixed fragment of brick and the majority of a roofing tile were recovered from this context. The tile was roughly finished, like the smaller example from context 2008, which may indicate an early date as late 19th century tiles generally had well finished sloping edges.

An unidentified lump of shaped fired clay with salt glazing (context 2010) appeared to have been shaped around two long roughly square cross-section objects diverting from each other. It may have been used as binding for timbers in a kiln. A similar item was recovered from context 1361 in Town Acre 226.

### Clothing/Footwear

Two pieces of a complete sole of a man's left boot, measuring 30cm by 10cm wide, was recovered from context 2008, along with a small portion of the leather upper (Figure 6.32).



**Figure 6.32** The remains of the leather shoe retrieved from context 2008 (top), and the German manufactured Conrady Nuernberg carbon arc light rod also collected from context 2008 (bottom)

### Other

One of the more unusual items identified was an arc lighting carbon (context 2008; Figure 6.32), most likely derived from a signalling lamp used in the training of soldiers on site. Having the general appearance of a thick pencil the item is marked ‘...ONRADTY NUERNBERG’, which is identified as Conrad Conrady of Nuremberg, Germany. The company manufactured both cored and solid carbons for lighting used in cinematography, searchlight and projection work from the late 19th century. Carbon arc lights were also used as military signal lamps. A price list for the carbons (Jury’s Kine Supplies Ltd, nd) describes various types of carbons available. The carbon recovered is not identified to the particular form therefore no conclusion can be drawn as to whether the carbon was used for a searchlight. However, as military signal training was undertaken on the site this seems likely to be the most plausible origin of the piece.

### 6.2.7 Discussion

Overall, the assemblage was dominated by glass and ceramic fragments with only a small number of other items recovered. The small size of the assemblage prevented determination of occupation type (i.e., domestic, military, commercial). Items of interest were the embossed mineral water bottles which provided a date-range of manufacture for items in context 2008 (1874-1907) and context 2010 (1895-1905 or 1905-1909).

## **7 ENVIRONMENTAL ANALYSIS**

### **7.1 Faunal Analysis (with Bernie Larsen)**

#### **7.1.1 Introduction**

A modest quantity of faunal material was retrieved from the Diversion Road and Arras Tunnel excavations within Town Acre 226. The samples were collected on site following accepted archaeological practice and in accordance with the requirements of the HNZPT authority. As faunal remains on the site were rare, all such material encountered during the excavations was retained for analysis. The samples were collected from 32 contexts that consisted of the fills of ditches, postholes, beam-slots, a well, rubbish pits, and demolition and made ground deposits.

#### **7.1.2 Methodology**

Bone remains were cleaned then identified to the lowest taxonomic level possible: family, genus or species. The most fragmented bone which could not be assigned to a taxonomic class was put into a broad mammal or bird category. This was achieved through comparison with the author's reference collection and the help of published resource material (Hillson 1992; Prummel & Frisch 1986; Schmid 1972; Sisson 1930). Sheep and goat specimens are particularly difficult to separate morphologically from faunal remains and published illustrations were used to distinguish between species. In the absence of any goat, any specimen that could not be distinguished morphologically was assumed to be sheep.

For each bone the following information was recorded when possible: context, taxonomic identification, skeletal element and side. Butchery patterns were recorded including sawing, chopping and cut marks. These indicate dismemberment of skeletal elements into butchered units using saws and cleavers, while cut marks indicate skinning and removal of meat using a knife. Butchery cut definitions follow Watson (2000) for pork, beef and mutton, and Schulz and Gust (1983) for beef. Bones were assigned to butchery cuts to the limits possible with the available reference collections.

#### **Quantification**

Material from each taxonomic category was then quantified to the Number of Identified Specimens (NIS), the minimum number of elements (MNE), the Minimum Number of Individuals (MNI), minimum animal unit (MAU) (Grayson 1984) and Minimum Number of Butchery Cuts (Watson 2000). MNI, MNE and MNBC values were aggregated by context.

#### **Taphonomy**

Mammal skeletal element representation was calculated using percentage of minimal animal unit (%MAU) which takes into account the number of each element per animal. This ensures that elements which have higher proportions than others per animal are not over represented.

Modifications such as burning, carnivore gnawing, rodent gnawing and weathering were recorded as present/absent on each individual bone. A distinction was made between two types of burning; calcination and carbonization, which indicate the temperature at which the bones were burnt.

### **Animal Age and Sex Estimates**

Animal age at time of death is estimated based on rates of epiphyseal fusion and timetables for tooth eruption (Silver 1969; Bull and Payne 1982; Grant 1982) and is expressed as age ranges in years for MNI. Juvenile and adult avian species could be identified based on the epiphysis fusion of long bones. The sex of chicken and turkeys was assessed by the presence or absence of spurs on tarsometatarsal where possible. The indicator of sex for pigs was determined from the morphology of the canine, where closed root canines are female and open root canines are male (Schmid 1972).

## **7.1.3 Results (Town Acre 226)**

### **Taxa Diversity and Richness**

The Town Acre 226 assemblage is almost completely mammalian (95%), with the composition dominated by two domestic ungulates: sheep (*Ovis ares*) accounting for 31% and cattle (*Bos taurus*) 23% (Table 7.1 and Table 7.2). A large quantity of domestic cat (*Felis catus*) was also identified, accounting for more than 17% (Table 7.1). Unidentified mammalian fragments composed 20%. Both sheep and cattle have similar calculated MNI (15 and 16), while cat, despite making up 19% of the assemblage, only has an MNI of 2 (Table 7.1 and Table 7.2). This is due to the cat remains originating from just two contexts (contexts 1065 and 1158). Only four individual specimens were collected from context 1065, while a large proportion of a cat's skeletal elements (38) were present within context 1158 (Table 7.2). The other identified mammalian remains consisted of a small quantity of pig (*Sus scrofa*) and a single specimen of dog represented by a canine tooth (*Canis familiaris*) (Table 7.1 and Table 7.2).

The remainder of the faunal assemblage (9.59%) consisted of unidentified shell (3%), pipi (*Paphies australis*; 2.3%), oyster (*Crassostrea glomerata*), *Dosinia anus*, cockle (*Austrovenus stutchburyi*) and Dog Cockle (*Glycymeris glycymeris*), all at 1% each (Table 7.1 and Table 7.2). Lastly, a single specimen of an unidentified gastropod was also found.

### **Taphonomy**

Overall the remains had high rates of cultural modification such as sawing and chopping and low rates of non-cultural modifications (Table 7.3). Only two instances of extremely weathered bone and one instance of rodent gnawing (context 1065; Table 7.3) was found, showing the bones were not left exposed for any great length of time and were either buried or concealed soon after consumption.

The faunal remains recovered from Town Acre 226 showed relatively moderate quantities of butchery evidence; primarily sawing (45 specimens), followed by chopping (13), and cut marks (2) (Table 7.3). A small number of bones (3 specimens) showed incomplete sawing with the bone snapped after partial sawing. The numbers of remains with butchery evidence probably underestimates the amount of butchery in the assemblage as a large

number of the remains had recent breaks or damage which may have obscured or removed evidence of butchery.

The sawing and chopping evidence was concentrated on the diaphysis of long bones and showed low numbers on each specimen. This, along with the low numbers of cut marks indicating deboning, suggest the cuts were bought bone in and were likely to have been utilised as boiling joints or roasts as opposed to chops or steaks.

The beef butchery cuts represented by the assemblage included small numbers of middle retail value cuts, rump, chuck, arm, cross rib, short rib and short plate (Table 7.3). There were a relatively large number of leg shanks (7 examples), which is the lowest value cut, and a single short loin, which is the highest value cut.

The sheep butchery cuts show broadly similar results: small numbers of each cut with the exception of scrag. The pig remains include small numbers in all of the middle and high value cuts and no remains of head, jaw, neck or trotter.

The sheep assemblage included a number of cranial remains and almost all of the sheep butchery cuts. However, the minimum animal units (MAU) illustrate the assemblage is skewed towards ribs, tibia, metacarpal and mandible remains (Figure 7.1) possibly indicating smaller cuts were brought in separately.

The cattle and pig remains illustrate that the meat consumed was a mix of middle and low value cuts with small numbers of high value cuts. These different valued cuts may represent consumption by members of differing social status, which in the military was represented by officers and the rank and file.

### **Sex and Age Estimates**

The sheep age estimates showed the majority of animals were between 1 and 2 years old illustrating the meat was lamb as opposed to mutton. The pig and cattle remains were older, particularly the cattle, which were all between 3 and 5 years. The single dog bone was between 3 and 5 years and the cat was very young, between 1 and 2 years old.

### **7.1.4 Discussion**

The Town Acre 226 faunal assemblage was dominated by mammal, with sheep and cattle comprising the larger proportion after unidentified mammal, with lesser amounts of pig. Cat, dog, as well as a small amount of shellfish formed the remainder of the assemblage. Relative to the size of the excavation area the assemblage was small, which is almost certainly due to the majority of generated refuse from the barracks (including faunal material) being deposited outside of the excavation area.

Sheep, cattle and pork remains recovered from Town Acre 226 indicate that cuts were commonly procured as joints and included both high and low value cuts for lamb, and a large range of values for both beef and pork.

The majority of the assemblage is unsurprising given that the typical diet 'enjoyed' by soldiers of the 19th century British army is known to have been dominated by meat, and in particular by mutton and beef but also supplemented with pork, although this was less common (Caunt & Jones 1978, 10, 16-17 and 26). Differing values of mutton, beef and pork joints within the assemblage most likely highlight the differences in diet between rank and file and the officer classes. The common soldiery would have been completely

7. Environmental Analysis

dependent upon their rations, which in terms of meat, meant the daily three quarters of a pound allowance of either raw beef or mutton, destined for the pot as part of a broth (Bhreatnach 2016). Conversely, the officers rarely, if ever, relied on rations while resident in barracks and had the financial means to procure their own food, which would have included better cuts of meat (Bhreatnach 2016; Duffett 2012).

**Table 7.1 Faunal sample counts by Minimum Number of Individuals (MNI) per context – Town Acre 226**

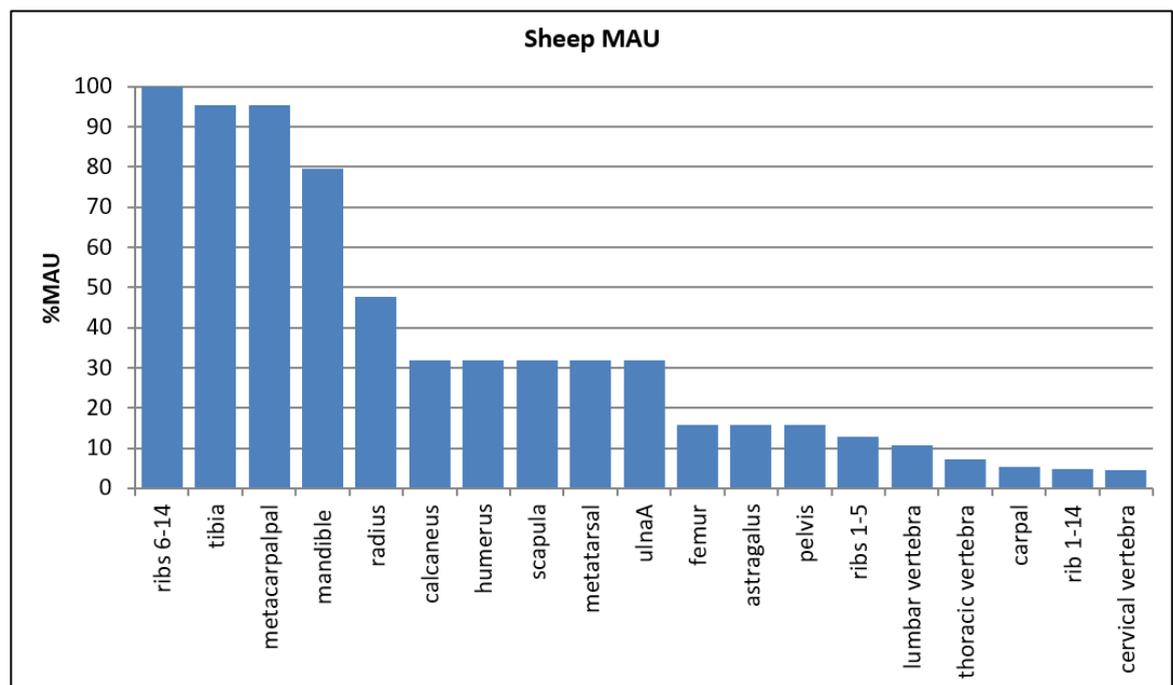
Context Number	Sheep ( <i>Ovis Ares</i> )	Pig ( <i>Sus scrofa</i> )	Cattle ( <i>Bos Taurus</i> )	Cat ( <i>Felis catus</i> )	Dog ( <i>Canis familiaris</i> )	Rock Oyster ( <i>Crassostrea glomerata</i> )	Cockle ( <i>Austrovenus stutchburyi</i> )	Pipi ( <i>Paphies australis</i> )	Dog Cockle ( <i>Glycymeris glycymeris</i> )	Venus Clam ( <i>Dosinia anus</i> )	Total MNI
1036	1										1
1037		1			1						2
1065	1		1	1		2	1	1		1	8
1069	1					2					3
1100	1		2								3
1134		1									1
1158				1							1
1247	1										1
1301			1								1
1303	1	1									2
1308		1									1
1310	1										1
1346	1	1	1					2			5
1418										1	1
1420	1		1								2
1429			1								1
1430			1								1
1476			1								1
1513	2		2								4
1597		1	1								2
1611	1						1		1		3
1627	1		1								2
1657	1										1
1686	1	1	1								3
1688								1	1		2
1702	1										1
1706			1								1
<b>Total</b>	<b>16</b>	<b>7</b>	<b>15</b>	<b>2</b>	<b>1</b>	<b>4</b>	<b>2</b>	<b>4</b>	<b>2</b>	<b>2</b>	<b>55</b>

Table 7.2 Faunal sample counts by Number of Identifiable Specimens (NISP) – Town Acre 226

Context Number	Sheep ( <i>Ovis ares</i> )	Pig ( <i>Sus scrofa</i> )	Cattle ( <i>Bos taurus</i> )	Cat ( <i>Felis catus</i> )	Dog ( <i>Canis familiaris</i> )	Unidentified Mammal	Rock Oyster ( <i>Crassostrea glomerata</i> )	Cockle ( <i>Austrovenus stutchburvi</i> )	Pipi ( <i>Paphies australis</i> )	Dog Cockle ( <i>Glycymeris glycymeris</i> )	Venus Clam ( <i>Dosinia anus</i> )	Gastropod sp.	Unidentified Shellfish	Total NISP
1036	1													1
1037		1			1									2
1044												1		1
1064													1	1
1065	4		3	4			1	1	2		1			16
1069	1		1				1							3
1100	3		5											8
1134		1												1
1158				38										38
1247	1													1
1301			2											2
1303		1	2											3
1308		1												1
1310	6					2								8
1346	2	1	1			1			2					7
1418											1		2	3
1420	3		5			5							1	14
1429			1											1
1430			3			1								4
1476			1											1
1500													1	1
1508													1	1
1513	28		12			21								61
1517													1	1
1597		1	5											6
1611	1					4		1		1				7
1627	3		4											7
1657	1													1
1686	9	1	1			2								13
1688						1			1	1				3
1702	1													1
1706			1											1
<b>Total</b>	<b>64</b>	<b>7</b>	<b>47</b>	<b>42</b>	<b>1</b>	<b>37</b>	<b>2</b>	<b>2</b>	<b>5</b>	<b>2</b>	<b>2</b>	<b>1</b>	<b>7</b>	<b>219</b>

**Table 7.3 Taphonomic evidence for sheep, cattle and pig in Town Acre 226 assemblage**

Common Name	Cut Marks	Chopped	Sawn	Partially Sawn	Very Weathered	Gnawed
Sheep	1	10	8	0	1	0
Cattle	0	3	31	3	1	1
Pig	1	0	6	0	0	0
<b>Total</b>	<b>2</b>	<b>13</b>	<b>45</b>	<b>3</b>	<b>2</b>	<b>1</b>



**Figure 7.1 Minimum animal units for sheep in Town Acre 226**

The cat remains found in two contexts are obviously non-subsistence related and were almost certainly deliberate burials of pets. Context 1158 was the fill of a modern feature dating to after the First World War, and a number of wooden fragments also present within the fill may be the remains of a small wooden box or crate that may have been utilised for the cat burial. The other cat remains were retrieved from context 1065, which was a demolition layer that covered most of the site and represented the end of the Imperial military occupation of the site and the commencement of the Armed Constabulary period. As only four individual specimens of cat bone were retrieved from this context, it is likely that the remains represent a disturbed burial that was truncated, scattered, and redeposited across a wider area than the original burial context.

Of particular interest is the small marine shellfish assemblage that was collected from 12 contexts, the majority of which were deposited during the Phase 1 occupation period. All but one of the contexts are the backfills of cut features such as postholes and brick lined drains, which demonstrates that the shell was present on the site at the time the features were originally cut. The identified species that make up the shellfish assemblage are, with the exception of dog cockle, species that were procured and consumed as food items by Maori. However, dog cockle was collected and used by Maori for personal adornment, commonly in the form of pendants (Furey 1986: 20-28). The remainder of the assemblage

was retrieved from demolition, redeposited made ground layers and the backfill of features that truncated earlier deposits, and was therefore not in primary depositional contexts. It is almost certain that the shellfish assemblage relates to pre-European Maori activity on Pukeahu.

### Depositional Context and Phasing

The greater part of the faunal assemblage (82.65%), relates to occupation Phases 1-3, covering the period from the initial military encampment in 1843 up to the end of the First World War (Table 7.4). Of this, the majority (54.34%) relates to Phase 1 (1843-1867), while 15.98% originated from the Phase 2 Armed Constabulary period (1867-1886), and the remainder (12.33%) to the Phase 3 NZ Permanent Militia/Force period (1886-1918; Table 7.4). Phase 1 material was retrieved from primary depositional contexts such as the fills of refuse pits, ditches, drains and the backfills of postholes (Table 7.5).

In contrast, all Phase 2 faunal material (with the exception of the bone retrieved from the fill of a posthole relating to the Armed Constabulary stables) was redeposited and collected from either the upper fill of the main Phase 1 drainage ditch, or the demolition/made ground layer (context 1065; Table 7.5). Both of these contexts were related to the demolition, clearing and levelling of the Imperial Barracks site in preparation of the Armed Constabulary takeover of the site. As such it is likely that the faunal material collected from Phase 2 contexts originated from deposits formed during the Phase 1 occupation of the site and were truncated by Armed Constabulary buildings construction. It is possible that at least some of the bone was originally beneath the floors of barrack buildings, and subsequently moved around the site during demolition and levelling, and was redeposited immediately prior to the Armed Constabulary phase.

Faunal remains attributed to Phase 3 contexts were collected from redeposited and overturned made ground deposits and the backfills of wall construction cuts and drainage trenches (Table 7.5). Much of the material would have been derived from context 1065, which many of the Phase 3 features had truncated, and therefore at least some of this material was likely in tertiary depositional contexts.

Finally, a cat burial post-dating the First World War composed the entirety of the Phase 4 faunal assemblage (Table 7.4 and Table 7.5).

**Table 7.4 Percentage total of faunal assemblage per occupation phase – Town Acre 226**

Occupation Phase	Total NISP	% of Total Assemblage
1	119	54.34
2	35	15.98
3	27	12.33
4	38	17.35

Table 7.5 Total NISP per context and archaeological phasing – Town Acre 226

Context No.	Depositional Feature Type	Phase	NISP
1036	Fill of construction cut	3	1
1037	Layer (made ground)	3	2
1044	Layer (made ground)	3	1
1064	Layer (made ground)	3	1
1065	Layer (demolition/made ground)	2	16
1069	Fill of construction cut (wall)	2	3
1100	Fill of earthen ditch	2	8
1134	Fill of earthen drain	1	1
1158	Fill of modern pit – cat burial	4	38
1247	Fill of posthole	1	1
1301	Fill of posthole	1	2
1303	Fill of posthole	1	3
1308	Fill of refuse pit	1	1
1310	Fill of posthole	2	8
1346	Fill of posthole	1	7
1418	Fill of earthen drain	1	3
1420	Fill of construction cut (brick drain)	1	14
1429	Fill of earthen ditch	1	1
1430	Fill of earthen ditch	1	4
1476	Fill of construction cut (wall)	3	1
1500	Demolition layer	3	1
1508	Fill of posthole	1	1
1513	Fill of beam-slot	1	61
1517	Fill of posthole	1	1
1597	Fill of well	3	6
1611	Layer	1	7
1627	Fill of robber trench	1	7
1657	Fill of refuse pit	1	1
1686	Demolition layer	3	13
1688	Fill of posthole	1	3
1702	Fill of posthole	1	1
1706	Fill of drain trench	3	1
		<b>Total</b>	<b>219</b>

### 7.1.5 Results from Town Acre 233

A solitary specimen of animal bone was retrieved from context 2010 within Town Acre 233. Context 2010 had a single proximal end of a pig (*Sus scrofa*) rib (1-6) that had been chopped at between the diaphysis and the distal myaphysis. This indicated the butchery cut was most likely a short rib.

## 7.2 Wood Identification

### 7.2.1 Introduction

Eight samples of wood from six contexts were retained from the Town Acre 226 excavations and submitted to Dr Rod Wallace of Auckland University for tree species identification (Table 7.6). The wood samples were collected from secure excavated contexts and included the remains of posts from five postholes relating to the Armed Constabulary Stables, and samples from the large timber signal mast as well as the associated sleeper beam bracing support and peg (Figure 7.2).

### 7.2.2 Results

All of the wood samples submitted were identified as being of Totara (*Podocarpus totara*) heartwood (Table 7.6). Totara is a podocarp (a genus of conifers), and is a straight-grained hardwood that is well suited to timber building construction as it is very resistant to rot, especially its heartwood.

As both the Armed Constabulary Stables and the Signal Mast both belong to the earliest phase of the Armed Constabulary period of the site (1867-1886), it is plausible that a 'job lot' of totara was used for the new Armed Constabulary structures that were constructed after the Imperial military had vacated the site, including the signal mast and stables.

**Table 7.6 Wood samples species per context and phasing – Town Acre 226**

Context No. & Sample ID	Sample Type	Source Context of Sample	Site Phase	Species ID
1755 / 2	Post	Posthole 1115 – Structure 8	2	Totara ( <i>Podocarpus totara</i> )
1756 / 3	Post	Posthole 1105 – Structure 8	2	Totara ( <i>Podocarpus totara</i> )
1754 / 4	Post	Posthole 1111 – Structure 8	2	Totara ( <i>Podocarpus totara</i> )
1757 / 5	Post	Posthole 1129 – Structure 8	2	Totara ( <i>Podocarpus totara</i> )
1759 / 7	Post	Posthole 1103 – Structure 8	2	Totara ( <i>Podocarpus totara</i> )
1760 / 17	Beam	Post-pit 1194 - Signal mast	2	Totara ( <i>Podocarpus totara</i> )
1760 / 18	Peg	Post-pit 1194 - Signal mast	2	Totara ( <i>Podocarpus totara</i> )
1761 / 19	Post	Post-pit 1194 - Signal mast	2	Totara ( <i>Podocarpus totara</i> )



**Figure 7.2** The remains of the timber signal mast dating to the earlier Armed Constabulary period (Phase 2) consisting of one of the two sleeper beam support and the remains of the upright mast. The signal mast was taken down due to the construction of the 1879 Drill

## 8 DISCUSSION

### 8.1 Introduction

The Pukeahu National War Memorial Park works exposed a significant number of archaeological features and deposits within Town Acre 226 which related to three phases of military occupation of the Lower Mount Cook Barracks, ranging from the 1840s to the early 20th century. Additionally, archaeological investigations within Town Acre 233 exposed remains which related to two phases of military occupation and to the Mount Cook Infant School.

In stark contrast to the large volume of archaeological features relating to the military phases of the site, there was a conspicuous paucity of artefactual material present. This most likely indicates that refuse generated during the occupation of the Lower Barracks was removed from the main areas of activity, and deposited in locations outside of the barracks, and consequently outside the archaeological investigation area. This situation is consistent with other known Imperial barracks of the 19th century both in New Zealand and across the Empire, where areas of activity such as parade grounds and living quarters were kept scrupulously clean, no doubt due to the inflexible regimen of military life. The sole exception to this was a solitary rubbish pit (context 1148) that was filled with a single deposit consisting almost entirely of alcohol bottle glass in the form of case gin and black beer bottle glass. It is considered that the rubbish pit, along with some animal bone deposited in the primary fill of the main drainage ditch bisecting the site (context 1102), represents refuse generated by the camp of the 96th Manchester Regiment of Foot, probably at some point between 1843 and 1847.

Unequivocal evidence relating to pre-European Maori activity on Pukeahu was not found, and no archaeological features survived that could be attributed to Maori occupation of any period. The only indications of Maori presence on the hill consisted of the small residual assemblage of worked historic bottle glass and some marine shell, both of which had been redeposited within the fills of a number of early Phase 1 features.

One unusual aspect of the archaeology within Town Acre 226 was the evident sequence of demolition, levelling and made ground deposits relating to three distinct phases of 19th and early 20th century military occupation on the site. This enabled a secure understanding of the stratigraphic phasing, and subsequently a clear concordant relationship with the detailed historic research and artefactual material that emerged during the post excavation analysis stage. This ultimately led to structures and features being dateable to sub-decade periods, and in certain cases (such as the remains of the stone built powder store), to within less than two years. Moreover, in some instances it was possible to define the cause of demolition and subsequent rebuilding phases, with two of the structures recorded displaying clear signs of having been impacted by either (or both of) the large earthquakes that struck Wellington in 1848 and 1855. This extraordinarily secure and nuanced understanding, while by no means unique to a historic archaeological site, is however, certainly unusual, and likely to be an aspect of the highly structured military nature of the site, which was characterised by extensive episodic demolition, levelling and development occurring across a much greater area than would normally be found if the site had been domestic, for instance.

## 8.2 Research Questions

The Archaeological Research Strategy formulated by OIC in August 2012, incorporated a range of research questions that were the result of both detailed historical research, and an assessment of the archaeological potential of the project area (Hudson 2012). The research design was formulated to focus on genuine research needs that would either contribute to, or further develop, current knowledge of the history of Wellington. Pre-European Contact archaeology and Historic Period investigations were treated separately within the research framework. In particular, the research design considered that surviving archaeology present across the Memorial Park site would have the potential to contribute to the knowledge of the Historic Period in Wellington. The Thomas Ward Survey Maps of Wellington City produced in 1891 and 1900 were a key component in the production of the research strategy.

The results of the archaeological investigations of Town Acres 226 and 233 principally provided data on the military occupation of the area. Only very limited evidence for Maori occupation was found in the investigation area which consisted of a small assemblage of worked bottle glass artefacts and remnant shell midden that were redeposited within early military features. This was due to later truncation attributable to both 19th century military developments of the site, including the demolition and levelling events, and later 20th century development. As such, the research questions relating to pre-European Contact Maori occupation of Puke Ahu could not be pursued, although the worked bottle glass assemblage allowed for limited discussion regarding the interactions between Maori and Europeans during the Post-Contact and early Colonial periods. Additionally, due to the large scale truncation across the majority of Town Acre 233, research questions pertaining to the two educational institutions could only be explored in a very rudimentary fashion.

### 8.2.1 Historic Maori Activity on Pukeahu

#### 8.2.1.1 Does the material culture and faunal record reflect relationships and interactions between Maori and Europeans during the contact period?

The archaeological investigations of Town Acres 226 and 233 determined that pre-European Maori occupation levels had been truncated during developments and earthworks associated with the various military phases of the site. However, the small assemblages of shell and worked historic bottle glass, while residual, provide a glimpse of Maori activities on the site prior to the military occupation of the site from 1843.

It is almost certain that the shellfish found in the early Phase 1 features relates to the consumption of shellfish and the disposal of food waste on Pukeahu prior to the arrival of Imperial troops on the hill. It is likely, that the shells were originally deposited within middens, perhaps situated on terraces or the original Mount Cook summit. The assemblage represents elements of the middens that were either eroded and redeposited downslope in the investigation area, or perhaps more likely, as a result of the largescale truncations of the summit by the military during the 1848 lowering of the hill. As none of the shell was recovered from primary depositional contexts, it is not possible to date and determine whether the shell originated from the pre-European or post-Contact periods.

Due to the shell assemblage being both of limited size and residual in nature, it was not suitable for exploring shellfish exploitation, procurement and processing strategies, or comparative analysis with other investigated shell midden assemblages from the Wellington area. However, it is likely that the dog cockle does not relate to the consumption

of shellfish. It is more probable that the dog cockle shells were collected by individuals, perhaps for use as personal adornment, potentially as pendants (see Furey 1986 for detailed discussion of the use of dog cockle as pendants).

The only artefactual material identified as being derived from Maori activities on Pukeahu was the small assemblage of worked bottle glass. The assemblage consisted of both flaked and expedient tools, as well as reduced bottle base cores. Worked bottle glass (also known as knapped, flaked, remanufactured or utilised), while underrepresented in the New Zealand archaeological record, has often been observed in a number of countries around the world, and is commonly found in contact encounter contexts, primarily associated with European colonial expansion (Martindale & Jurakic 2015: 1). More than half of the existing literature concerning the use of worked historic bottle glass in tool manufacture is derived from Australia (Martindale & Jurakic 2015: 6, see Allen & Jones 1980; Cooper & Bowdler 1998; Gibbs & Harrison 2008), with the rest derived from North, Central, and South America (see Clark 1981; Porter 2015; Hayden & Nelson 1981; Conte & Romero 2008; Pedrotta & Bagaloni 2005), Hawaii (see Flexner 2011; Flexner & Morgan 2013), Europe (Runnels 1976), Africa (see Gallagher 1977; Mason 1949) and Southwest Asia (Cooper & Bowdler 1998).

Most sites associated with worked bottle glass assemblages were of indigenous populations, who acquired bottle glass via post-contact period trade, or during widespread colonial expansion into their territories (Porter 2015; Cooper & Bowdler 1998). Many of these indigenous populations, such as Maori in New Zealand, already had a long tradition of obsidian tool manufacture and, as has been noted elsewhere (e.g. Australia and the Andaman Islands), there was often a period where these populations retained their traditional lifestyle, but at the same time adapted elements from the new culture, such as glass or metal, to their own advantage (Cooper & Bowdler 1998: 74).

Identifying intentionally worked glass, as distinct from accidentally flaked glass, may be problematic, as taphonomic processes can sometimes replicate morphological characteristics of struck flakes, or inflict damage to flakes of naturally broken glass that can be mistaken for retouch or usewear (Wackett 2015: 21; Martindale & Jurakic 2015: 27-36). However, there are a number of indicators which suggest worked glass when present together, including: colour (often a preference for dark green to black glass); a preference for the thicker parts of the bottle such as the base and top; use-wear, both macroscopic and microscopic; evidence of formal tool production such as intentional flaking and retouch; and the location and provenience in which the artefacts are found (Allen & Jones 1980; Cooper & Bowdler 1998; Flexner & Morgan 2013; Martindale & Jurakic 2015). All of the above apply to some or all of the worked glass artefacts found in Town Acre 226. The Wellington assemblage differs from others found to date in New Zealand, in that there is evidence for both the core reduction (bottle bases with flake scars), and both manufactured and modified expedient tools.

### ***Other Historic Worked Bottle Glass from New Zealand***

Other than the small assemblage from Town Acre 226, there are just five other sites where worked bottle glass has been reported; one in the South Island (Otago), and the other four being located on the coast or on islands off the North Island.

The first recorded instance of worked bottle glass found in an archaeological context in New Zealand is from trial excavations at Pa a Te Wera, Huriawa Peninsula, Karitane (Mackay & Trotter 1961, cited in Leach & Hamel 1978: 247). While the bulk of artefacts

relating to the site appeared to have been deposited in the pre-European settlement period, a small assemblage of items such as clay tobacco pipe stems, pig bone and an unspecified quantity of 'worked bottle glass', indicate that occupation persisted into the 19th century (Leach & Hamel 1978: 247). While it is possible that the European artefacts (including the bottle glass) were deposited during the early contact period, the establishment of a whaling station there in 1837 could equally have been the source of the material.

Excavations undertaken in 1990 of site R26/141, which included a historic Ngati Toa settlement dating from the 1820s and an early European homestead built in 1832 on Mana Island some 2.5km off Titahi Bay, Porirua, produced a single worked flake of black beer bottle glass likely dating to the 1830s/1840s (Horwood 1991: 15 and 26). Horwood noted that while bottle glass was utilised in the manufacture of a cutting tool, obsidian was still common throughout the occupation layer (Horwood 1991: 37). The presence of the bottle glass tool within a layer still containing much obsidian, perhaps reflects the recognition of the similar qualities shared by obsidian and bottle glass by Maori occupying the Mana Island site.

A single struck flake of black beer bottle glass was recovered from excavations at Rewa's Pa, Kororareka (Russell), in the Bay of Islands in 1999 (Best 2002: 91). The flake from the base of a bottle exhibited unifacial flaking in two areas, which perhaps indicates that it was derived from a reduced bottle base core (Best 2002: 91). It is likely that the flake was utilised and deposited during the 1830s.

Two pieces of potentially worked glass were retrieved from the fill of a historic Maori storage pit during the excavation of the Street Homestead at Bell Block, Taranaki in 2005 (Adamson & Bader 2008: 101). While a fragment of a pig snout case gin bottle appeared 'deliberately retouched', intentional modification of a piece of window pane is perhaps dubious (Adamson & Bader 2008: 101). It is likely that the glass was deposited within the storage pit during the 1840s, after the arrival of the first European settlers.

More recently, excavations adjacent to the pre-reclamation foreshore at Onehunga, Auckland, recovered an assemblage of worked black beer bottle glass. The assemblage consisted of a number of reduced bottle base cores, large biface and uniface flakes exhibiting retouch, probably utilised as cutting blades and scrapers, as well as debitage (Shakles & Clough, in prep.). It was also notable that the thin walled body portions of the glass bottles were absent. Finds retrieved from the fills of historic period storage pits and the proximity of the site to an 1840s Maori Hostel suggest a date of production for the assemblage at some point between the 1830s and early 1840s (Shakles & Clough, in prep.).

Martindale and Jurakic (2015) have noted that the use of bottle glass in the manufacture of lithic-like tools is likely to be both widespread, and also a poorly recognised industry of the utilisation of glass from colonial contexts around much of the globe (Martindale & Jurakic 2015: 23). However, the paucity of such assemblages in New Zealand is likely to be due to the fact that they were only formed on relatively rare site types, i.e. those where contact between Maori and incoming Europeans had taken place. Contact sites pre-dating the main European settlement period of New Zealand in the 1840s are not that common nationwide, and in particular, finding evidence of short-lived encounters where bottle glass could have been acquired, such as a ship picking up Kauri spars, or whalers coming ashore, is like looking for a needle in a haystack. As more of these sites are encountered over the coming decades, it is undoubted that more worked bottle glass assemblages will come to light.

The assemblage recorded here is therefore significant in that it provides evidence of the influence of introduced materials on a traditional lithic technology. The small assemblage is testament to the acquisition and utilisation by Maori of a newly introduced lithic-like material, that they intuitively understood and used to their own advantage. This most likely occurred during the late post-European contact period in Wellington (1820s to 1840), a time of profound social and political change amongst Maori in response to increased interaction with European settlers and land agents of the New Zealand Company.

## 8.2.2 Military Occupation – Town Acres 226 and 233

### 8.2.2.1 Is there evidence of any structures existing prior to the buildings recorded on the 1891 Ward plan, which can cast light on the use of this site for military purposes?

The archaeological investigation of Town Acres 226 and 233 exposed the remains of five buildings (four timber and one of stone construction) that were located within Town Acre 226 and existed prior to the production of the 1891 Ward Plan. Additionally, a brick-lined well and the substantial footings of a signal mast were present within Town Acre 226, and likewise not depicted on the Ward Plan. The five buildings almost certainly date to the late 1840s, and were subsequently demolished prior to the production of Ward's plan. These structures related to the Imperial Military phase of the Mount Cook Lower Barracks between the late 1840s and 1867, when all of the Phase 1 buildings with the exception of the two buildings depicted on the Ward plan (Structures 1 and 2), and along with the brick-lined well situated within the south-eastern corner of the town acre, were demolished in preparation of the Armed Constabulary takeover of the site (Figure 4.4 and Figure 8.1).

Two of the structures (Structures 4 and 5) related to modest sized timber buildings that were most likely utilised as workshops or for storage. The remains were exposed within the Diversion Road works and consisted of postholes and beam-slots, and due to vertical truncation no associated floor or yard surfaces survived. Structure 4 was located beneath the footprint of the later Armed Constabulary Drill Hall depicted on the Ward Plan, and is almost certainly seen in the Reverend Arthur Henry Stock's 1858 photograph depicting the Lower Barracks, as a small single storey structure with a pitched roof (Figure 8.1).

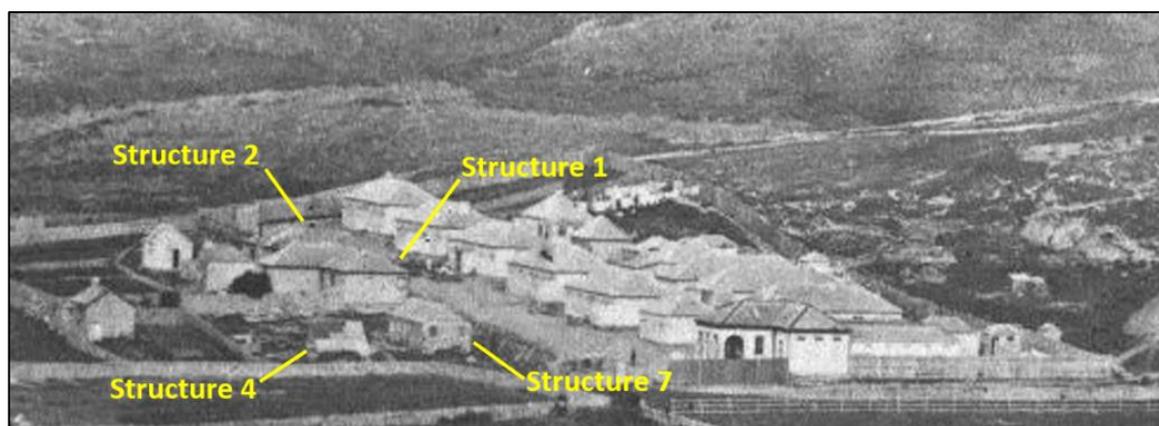


Figure 8.1 Detail from Stock's 1858 photograph of Te Aro, Wellington depicting the Phase 1 structures whose remains were exposed during the creation of the Memorial Park

The other building exposed within the SH1 Diversion Road (Structure 3) consisted of the truncated remains of 40 postholes located to the north of Structure 1 and west of Structure 2, the two Imperial Barracks buildings that survived into the early 20th century. Evidence of at least two building phases for Structure 3 (another Barracks building) was demonstrated by the realignment of both the structure's northern wall and the associated drainage features running alongside it, suggesting that the building underwent either partial reconstruction or substantial repairs. The absence of any building in the location in Stock's 1858 historic photograph depicting the Lower Barracks and the analysis of artefacts from the drains points towards a scenario in which the structure was damaged, subsequently repaired and then demolished prior to 1858. The likely catalysts for this sequence of events was the 1848 Marlborough and 1855 Wairarapa earthquakes.

The 1848 Marlborough earthquake occurred on 16 October with an estimated magnitude of 7.5, with major aftershocks occurring on 17 and 19 October (McSaveney 2012, a). The violent shaking devastated brick and masonry buildings in Wellington, and while timber buildings survived many lost their chimneys (*ibid.*). As a result of the damage sustained to Wellington's brick and stone buildings, most were rebuilt in wood, as were new buildings (*ibid.*). The Wairarapa earthquake occurred on the evening of 23 January 1855 and is estimated to have had a magnitude of 8.2, the largest earthquake ever recorded in New Zealand (McSaveney 2012, b). During the quake two-storey wooden buildings such as the council offices and adjoining government offices collapsed, whereas single-storey timber buildings for the most part survived (*ibid.*). However, as with the 1848 earthquake, many single-storey buildings were damaged by falling brick chimneys, while some shifted on their foundations and a few even collapsed (*ibid.*).

So, a plausible sequence of events for Structure 3, is that the building was initially damaged during the 1848 earthquake, probably shifting northward on its foundations, and was subsequently repaired, only to sustain more severe damage during the 1855 earthquake, after which the building was demolished. Further historic research in which the dispositions of 65th Regiment personnel were examined (see Table 8.1 and Table 8.2) lends further weight to this interpretation. Table 8.1 is a summary of the dispositions of the 65th Regiment as recorded on 1 January over a three-year period from 1853 to 1855. It illustrates that prior to the 1855 earthquake the numbers of 65th Regiment rank and file present in Wellington (which was the HQ for the 65th) fluctuated between 384 and 468 men, equating to between 63% and 68% of the total number of the Regiment's personnel present in New Zealand (Table 8.1). However, the figures from 1 January 1856 (the first disposition following the 1855 earthquake) show a marked decrease in personnel to approximately 25% of total 65th troops (Table 8.2). From the dispositions shown in Table 8.2, it suggests that these men were relocated to barracks in the Bay of Islands, Auckland and Taranaki. It is plausible that these troops were moved as a result of earthquake damage sustained to barracks buildings at the Wellington HQ, with Structure 3 possibly being one such example. However, in the following two years (1857 and 1858), 65th regiment personnel present at the Wellington HQ returned to full complement with 499 and 436 men present respectively, suggesting that new additional barracks were available by this time (Table 8.2).

The other two buildings present during the Imperial Military occupation of the site, were the stone building (Structure 6) and the timber building that succeeded it (Structure 7). The stone building was constructed of greywacke walls 0.60m (two feet) thick, and the associated French drain present beneath the building's northern wall, and the light well in

8. Discussion

the structure's southern wall, strongly suggest that the structure was utilised as a powder store, probably to ensure that the Lower Barracks site was defensible independent of the Upper Barracks (where the main powder store was situated) in the event of an attack. As with Structure 3, it is clear that the building had been damaged during the 1848 Marlborough earthquake, but as the building was of masonry construction, it was likely to have been severely damaged and subsequently demolished down to its foundations, to be replaced with an enlarged timber structure (Structure 7). It cannot be ascertained whether the replacement timber structure also functioned as a powder store, but it is perhaps unlikely due to the inherent dangers of storing gunpowder in a combustible structure.

**Table 8.1 Dispositions of the 65th Regiment in New Zealand for the period 1853-1855 transcribed from the Regimental diary. Source: Bruce Cairns - 65th (2nd Yorkshire North Riding) Regiment of Foot - Dispositions of the 65th in New Zealand. \* Sydney personnel were not used in dispositions percentage calculations. Information available at: <http://hicketypip.tripod.com/disp65th.htm>**

1 January 1853									
Location	Rank	Field Officer	Captain	Subaltern	Staff	Sergeant	Corporal	Drummer	Men
HQ Wellington		1	4	9	4	24	20	9	397
Wanganui		1	1	4	1	8	7	2	191
Leave		1		1					
On Staff			1						
<b>Total</b>		<b>3</b>	<b>6</b>	<b>14</b>	<b>5</b>	<b>32</b>	<b>27</b>	<b>11</b>	<b>588</b>
1 January 1854									
Location	Rank	Field Officer	Captain	Subaltern	Staff	Sergeant	Corporal	Drummer	Men
HQ Wellington		1	5	7	3	18	18	14	318
Wanganui		1	1	4	1	8	3	8	191
Leave		1	1						4
<b>Total</b>		<b>3</b>	<b>7</b>	<b>11</b>	<b>4</b>	<b>26</b>	<b>21</b>	<b>22</b>	<b>513</b>
1 January 1855									
Location	Rank	Field Officer	Captain	Subaltern	Staff	Sergeant	Corporal	Drummer	Men
HQ Wellington		1	6	6	4	25	21	11	371
Wanganui		1	2	4	1	8	8	2	175
Sydney*		1							5
Leave				1					4
<b>Total</b>		<b>3</b>	<b>9</b>	<b>11</b>	<b>5</b>	<b>33</b>	<b>29</b>	<b>13</b>	<b>555</b>

The only other structure relating to the Imperial phase of the site was the brick-lined well exposed during the Arras Tunnel works. It is likely that the large, deep well would serve the purpose of providing the Lower Barracks with a secure water supply of its own, making the site more defensible and self-sufficient, as with the powder store.

All of the buildings relating to the Armed Constabulary phase of the site were extant at the time the Ward Plan was produced. However, while not strictly a structure, the remains of the substantial signal mast dated from the period 1867-1879 before it was cut down to ground level prior to the construction of the Armed Constabulary Drill Hall in 1879. It is likely that the signal mast was utilised by a signalling detachment probably for flag signal training.

**Table 8.2 Dispositions of the 65th Regiment in New Zealand for the period 1856-1858 transcribed from the Regimental diary. Source: Bruce Cairns - 65th (2nd Yorkshire North Riding) Regiment of Foot - Dispositions of the 65th in New Zealand. Information Available at: <http://hicketypip.tripod.com/disp65th.htm>**

<b>1 January 1856</b>									
Location	Rank	Field Officer	Captain	Subaltern	Staff	Sergeant	Corporal	Drummer	Men
HQ Wellington		1	2	3	3	20	8	9	161
Wanganui		1	2	3		10	6	2	172
Taranaki			2	4	1	11	11	2	186
Bay of Islands			1	2		7	3	2	109
Auckland			1	1		4	7	2	40
Leave		2	1	3					1
AWOL			1		1				
<b>Total</b>		<b>4</b>	<b>10</b>	<b>16</b>	<b>5</b>	<b>52</b>	<b>35</b>	<b>17</b>	<b>669</b>
<b>1 January 1857</b>									
Location	Rank	Field Officer	Captain	Subaltern	Staff	Sergeant	Corporal	Drummer	Men
HQ Wellington		1	2	6	3	24	19	12	432
Wanganui		1	2	3		10	7	2	165
Taranaki			2	4		16	18	3	252
Bay of Islands		1	2	2	1	7	6	2	144
Auckland									4
Leave		1	1	2	1				1
AWOL				1					2
<b>Total</b>		<b>4</b>	<b>9</b>	<b>18</b>	<b>5</b>	<b>57</b>	<b>50</b>	<b>19</b>	<b>1000</b>
<b>1 January 1858</b>									
Location	Rank	Field Officer	Captain	Subaltern	Staff	Sergeant	Corporal	Drummer	Men
HQ Wellington		1	2	7	2	23	12	11	378
Wanganui		1	1	3		9	7	2	172
Taranaki			2	4	1	11	13	3	259
Auckland		1	2	1		9	6	2	141
Staff			1						
Leave		1	1	2	1	1	1	1	1
AWOL					2				3
<b>Total</b>		<b>4</b>	<b>9</b>	<b>17</b>	<b>6</b>	<b>53</b>	<b>39</b>	<b>19</b>	<b>954</b>

### 8.2.2.2 What is the relationship between the changing socio-political environment of pre-1900 Wellington and the development of military features on the site?

The development of military features on the site, and specifically those that were recorded during the investigation, can be discussed with reference to several socio-political environments in the 19th century. Prior to Wellington becoming the capital of the country, the first military presence on Mount Cook was by the 96th Manchester Regiment of Foot, who camped on its lower slopes. These troops were deployed initially to allay the fears of settlers in the Wellington area in the aftermath of the 'Wairau Affray', and later to provide men and reinforcements for the Hutt Valley and Pauatahanui (the northern arm of Porirua Harbour) Campaigns of 1846. Evidence of this temporary occupation can be seen in those features that related to the encampment of the 96th on Mt Cook. These features consisted of a large drainage ditch and a solitary rubbish pit. These were the earlier features on the site.

In 1847 the 96th Regiment were reinforced by the 65th Regiment of Foot in direct response to the campaigns in the Hutt Valley and Pauatahanui, and temporary wooden barracks were erected to house them. However, the posting of further contingents throughout 1847-8, including a permanent garrison of the 65th, as well as elements of the Royal Engineers and Artillery, necessitated the construction of further accommodation on Mount Cook and additional barracks and other buildings were erected on the Lower Mount Cook site. During the 1850s and 1860s, as the deteriorating relationship between Maori and the colonial government gave way to a number of armed conflicts and regional wars, the numbers of troops occupying the Lower Barracks site increased, with the 14th Buckinghamshire Regiment of Foot. Evidence of Imperial military period structures consisted of the remains of the three barracks buildings (Structures 1, 2 and 3); the two small ancillary buildings likely to have been utilised for storage (Structures 4 and 5); the masonry built powder store (Structure 6) and its timber replacement (Structure 7), as well as a host of brick and earthen drains, and the brick-lined well.

Following the departure of Imperial troops from the Lower Barracks site in 1865 perhaps as a result of Prime Minister Frederick Weld's policy of military self-reliance, the site was at first occupied by the Militia and Volunteers Office. Weld's other notable decision during his brief stint as New Zealand Premier was to move the capital from Auckland to Wellington, also in 1865. This had a direct bearing on the second phase of occupation at the Lower Mount Cook site, as it became the headquarters of the newly formed Armed Constabulary in 1867.

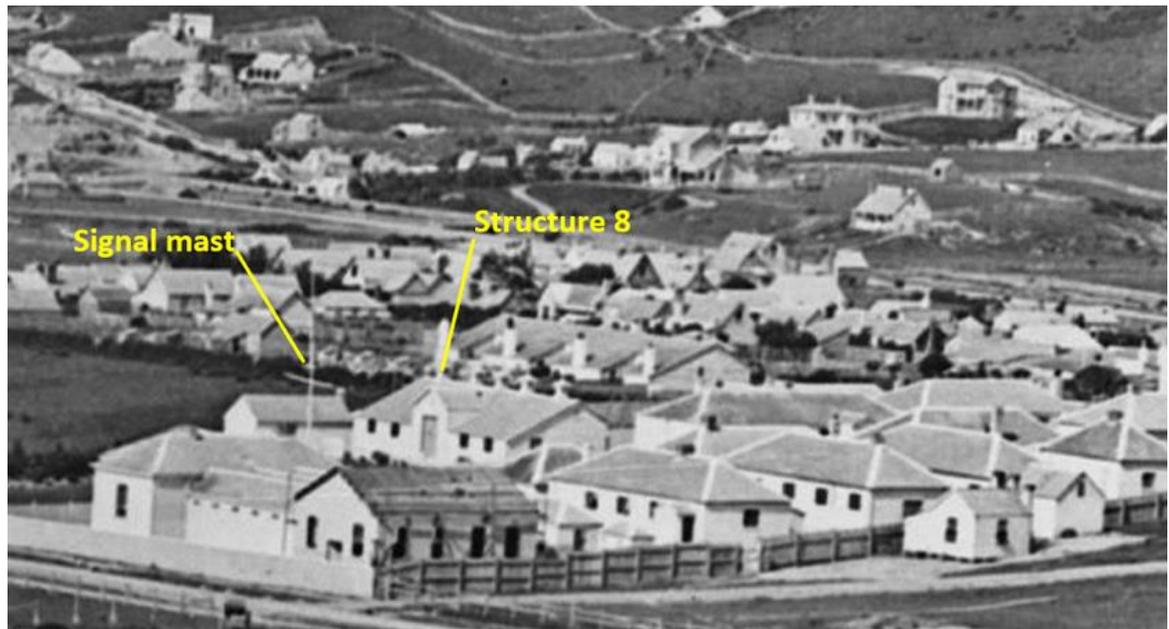
The change of occupation from Imperial/Volunteers Office personnel in 1867 to the Armed Constabulary led to the majority of the Lower Barracks structures (with the exceptions of Structures 1 and 2) being demolished in preparation for the construction of purpose built buildings required by the Armed Constabulary. At this time the demolition/made ground layer that sealed the Phase 1 archaeology across much of the investigation area was deposited. The first building on the Armed Constabulary Lower Barracks site to be built was the large stables of timber construction (Structure 8), which would have been used to house the horses for the training of mounted constables to form cavalry units to be based around the country (Rivers n.d., a; Figure 8.2). The substantial signal mast, supported on the sleeper beam configuration in the large, deep post-pit, also dates to this period (Figure 8.2).

In 1877, the Armed Constabulary and the Provincial Police merged and the new force was named the New Zealand Constabulary (Rivers n.d., b). However, the Police and Armed Constabulary still operated as separate branches independent of one another (Rivers n.d., a). At the same time the Armed Constabulary was reduced to a depot staff at Buckle Street, while four divisions of 80 men in total were trained and equipped for field service (Rivers n.d., a). Two years later, in 1879, the Drill Hall (Structure 9) was built to facilitate the training of the Armed Constabulary field divisions.

From 31 March 1885, all Armed Constabulary Field Force personnel were either posted to Wellington for training on coastal artillery equipment or to the four main ports (Auckland, Wellington, Christchurch and Dunedin), in response to the second Russian Scare of 1885 (Rivers n.d., b). Those sent to the ports were to prepare gun emplacements for the mounting of the rifled muzzle loading 64 pounders and 7-ton guns that had remained in storage since arriving in 1879 following the initial Russian Scare of 1878. Two 64 pounder RML and an 8-inch Armstrong Disappearing Gun were mounted for training purposes at the barracks, with the original location of the 8-inch Armstrong perhaps evidenced by the truncated semi-circular feature situated in the south of the parade ground area. The disappearing gun

itself would later be housed within the 1909 Gunnery Annexe, and components of its lifting mechanism and range finding equipment were retrieved during the archaeological investigation.

Following the Defence Act of 31 July 1886, the Armed Constabulary permanently split from the New Zealand Constabulary, which became the New Zealand Police. The Armed Constabulary now became the New Zealand Permanent Militia, which subsequently became the New Zealand Permanent Force in 1897. The archaeological investigations did not identify any features specific to the period 1886-1897.



**Figure 8.2** Detail from Daniel Mundy's 1868 photograph of Te Aro, Wellington depicting the Phase 2 Early Armed Constabulary period structures, the remains of which were exposed during the creation of the Memorial Park

### **8.2.2.3 How does the material culture contribute to understanding of the daily lives of soldiers living at the site?**

Both the artefactual and ecofactual assemblages recovered from the Lower Barracks site are modest in comparison to the volume of archaeological features and scale of excavation area. It would be expected from the length of military occupation, coupled with the considerable numbers of soldiers present, that large volumes of both artefactual and ecofactual material would have been generated. This situation reflects the fact that the archaeological investigation did not encounter the large refuse pits/trenches that undoubtedly would have been utilised for waste disposal, particularly during the 19th century. Moreover, much of the material culture retrieved consisted of less durable and fragile materials such as glass, ceramic and animal bone which was highly fragmented due to both depositional and taphonomic processes, in particular the multiple episodes of demolition and levelling, interspersed with phases of construction, as well as later truncation from services. Further limitations arise from the fact (with the exception of the small volume of artefacts recovered from postholes and beam-slots) that the greater majority of cultural material was not situated in primary depositional contexts. This material had been truncated, moved, and re-deposited, in some cases on multiple occasions,

resulting in the intermixing and deposition of artefacts from multiple phases within the same context.

However, while there are clearly limitations, the material culture retrieved from the Barracks can still shed some light on the lives of soldiers stationed at the site. For instance, the rubbish pit and the primary fill of the main drainage ditch, from which alcohol bottles, and a small quantity of degraded animal bone were recovered respectively, dated to the encampment of the 96th Regiment. This enables a small glimpse of life within the encampment, perhaps of soldiers sitting around a camp fire consuming meat (likely from a broth) and consuming alcoholic beverages, the remains of which were either discarded in the bottom of the ditch or disposed of within the rubbish pit. These activities would have been commonplace at the time.

The regimental paraphernalia retrieved from a number of Phase 1 and early Phase 2 contexts included artefacts derived from both uniform and issued kit. These items were likely to have been lost through activities undertaken within the barracks, and washed into drains where they were sealed within silt fills, or became buried within the old topsoil. The small amount of regimental artefacts associated with uniforms and kit, such as great coat and tunic buttons, was likely to have been a result of the fact that any uniform and kit items lost had to be replaced, the cost of which was taken directly from soldiers' wages. So, the modest nature of the assemblage is likely to be a consequence of the soldiers' diligence in not wanting to be 'out of pocket'.

The munitions assemblage dated to several phases of the site, with individual items deposited within a variety of depositional contexts reflecting different activities. The older artefacts, such as the musket and pistol ball, were likely either to have been accidental losses or later discards as the firearms they were used in became obsolete. The Enfield 'Minié' rounds, Snyder bullet, along with the later munitions such as the revolver, .303 and .22 shells are likely to relate to shooting practice, firstly in an outdoor setting and later in the Garrison Hall basement rifle range.

One of the more unusual artefacts retrieved was the pierced flattened lead disc, the weight of which corresponded exactly with that of the standard issue musket ammunition (31g) used in the smoothbore musket known as the 'Brown Bess'. While the origins of the name Brown Bess are unclear, it was the name given to whichever flintlock musket was in use with the British Army in any given period from the 1730s until the widespread introduction of rifles in 1853 (Roads 1964:68-69). Given that the disc is the exact weight of a known standardised musket ammunition, it is almost certain that the lead disc was itself originally a musket ball, which had been hammered flat and pierced in order to suspend it, most likely as a pendant.

Research has revealed five previous examples of intentionally hammered musket discs/pendants recovered from British military sites in North America (three from Canada and two from the USA). The Canadian examples dated from the late 18th century through to the first quarter of the 19th century and were recovered from Fort Wedderburn, Lake Athabaska, Alberta (occupied 1815-1821; Karklins 2006: 249); Fort George, Alberta and Fort Rivière Tremblante, Saskatchewan (both occupied 1791 to 1800; Kidd 1970: 75 and W. Dean Clark 1971: pers. comm., cited in Karklins 2006: 249). However, none of the Canadian flattened discs are referred to as being perforated, and it is suggested that 'the flattened balls may have served as gaming pieces' (Kidd 1970: 75, quoted in Karklins 2006: 249). The two examples from the United States were collected during excavations at Fort Stanwix, a British fort occupied from 1758 to 1768, and which was later reoccupied by American troops of the Continental Army from 1776 to 1781. Like the example from

Wellington, both of the lead discs recovered from the investigations at Fort Stanwix, had been pierced near one edge and interpreted as pendants (Hanson and Hsu, 1975). It is likely that the example recovered from the Lower Barracks site was intended to be worn, but for a reason which cannot be determined. Possible reasons range from its use as one of a sequence of strung discs serving as a portable resource to smelt musket balls in the field, or perhaps as a memento, such as a wounded soldier shot by enemy fire, retaining an extracted musket ball to be worn as a 'badge of honour'. While this obviously must remain as mere speculation, it is interesting to note that Maori warriors had used traded obsolete versions of Brown Bess muskets since the intertribal Musket Wars (1807-1845; Shakles et al. 2012). Additionally, while Maori used Brown Bess muskets they preferred double barrelled shotguns, 'Tupara', which were also capable of firing Brown Bess musket balls (Shakles et al. 2012).

Although the context in which the pendant on the Lower Barracks site was retrieved from dated to Phase 3 activities (the upper fill of the backfilled well), it is considered likely that it was originally lost during the Phase 1 occupation of the site and subsequently moved and later redeposited in the well.

The mutton, beef and pork component of the faunal assemblage, almost certainly originated from the Imperial military phase of the barracks site, and demonstrates that the soldiers stationed at the Lower Barracks 'enjoyed' the typical meat rich diet of the 19th century British Army. The majority of the mutton, beef and pork cuts found during the excavations were of low value, and probably reflect the rank and file's dependence on army rations. The few higher value cuts present probably demonstrate the financial ability of the officer classes to procure their own food, thus enabling them to avoid the standard broths and boiled meat.

Lastly, two personal items consisting of a bone toothbrush and a mother of pearl collar stud also illustrate the wealth of the officer classes. Unusually, for a site that was for the most part inhabited by the relatively unknown 'rank and file', the artefacts can with some degree of certainty be connected with an individual officer identified from historical records. The toothbrush and collar stud were recovered from a demolition deposit and the fill of a drain trench beneath the footprint of Structure 1, which was one of the original barracks buildings constructed in the late 1840s. The building was one of the few that survived the Armed Constabulary reconfiguration of the site in 1867, and was finally demolished probably in 1908/09 to make way for the construction of the Gunnery Annexe. Structure 1 is depicted on the Public Works Plan of September 1893 as being divided into two, with the eastern part of the building identified as a 'Store', while the western half is marked 'Captain Coleman' (Figure 2.9).

Captain John Coleman, was born in Dublin in 1837, and entered military service at the age of 16 with the 12th Royal Lancers (Cyclopedia Company Limited 1897: 327; Figure 8.3). During his career in the British Army he saw action in South Africa in 1851 (against the local Xhosa/Basotho peoples), the Crimean War (1853-1856), the Indian Rebellion of 1857, before in 1860 being appointed drill instructor to the Honourable East India Company's provisional cavalry regiment at Barrackpore, near Kolkata (9<sup>th</sup> / 12<sup>th</sup> lancersmuseum.org, 2016; Cyclopedia Company Limited 1897: 327). After a further posting as drill instructor of the 1st Bengal-European Light Cavalry (1862-64) he was promoted to troop sergeant-major in 1864, and in 1870 to Regimental Sergeant Major (Cyclopedia Company Limited 1897: 327). He returned to England in 1872 with the Royal Hussars, and after two years there he was engaged by the Agent-General in October 1874 as drill instructor for the New Zealand Government (ibid.). Coleman served as drill

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instructor for the Armed Constabulary cavalry and was promoted to the rank of Captain in 1880, and continued to serve in this role after the Armed Constabulary was integrated within the New Zealand Permanent Militia in 1886 (ibid.). After attaining the rank of Major, he retired in 1900. It is likely that after his promotion to the rank of Captain he took the western half of the former barracks building as his personal home, so it would seem that he resided on Buckle Street for some 20 years. The bone toothbrush and the mother of pearl collar stud which had a cut natural pearl mounted and surrounded with gold leaf, would have been luxury items certainly beyond the reach of rank and file soldiers of the 19th century, as well as the majority of late 19th century New Zealanders' incomes. Therefore, it is possible with some degree of confidence to state that these items were personal belongings of Major Coleman, the toothbrush used on a daily basis, whereas the collar stud was perhaps attached to formal clothing worn at special occasions or ceremonies.



Figure 8.3 Captain (later Major) John Coleman, the drill instructor of the Armed Constabulary Cavalry at the Lower Mount Cook Barracks. Source: Cyclopedia Company Limited 1897: 327)

#### 8.2.2.4 How does the structural and material culture evidence from the site compare to that recovered from other military sites from New Zealand or other contemporary colonies?

It is difficult to make a direct comparison of the Lower Barracks site at Mt Cook with other military sites in any detail due to the differences not only in site construction and function, but also with regards to how they were excavated, analysed and reported. For example,

comparison of the artefact assemblage with redoubt sites differs in that the artefacts from temporary field fortifications are often found in dumps deposited during the abandonment of a site, or intentionally thrown into redoubt ditches, sometimes as a deterrent to attack (broken bottle glass), or just utilised as a ready-made rubbish pit. Moreover, structures built within or associated with redoubts were of timber construction, due to the destruction of masonry and brick military buildings in Wellington and at Paremata in 1848. Even comparison with the Albert Barracks in Auckland is restricted to an extent, as only a small part of that site has been archaeologically investigated.

Furthermore, the majority of artefact assemblages from archaeological investigations of 19th century British and Colonial barracks sites are produced by large rubbish pit features, such as those found at the Albert Barracks site (Clough et al. 2003). However, such features were not exposed during the excavations of the Lower Barracks site. Therefore, only broad comparisons can be made, looking at general patterns in material culture between the Lower Barracks and Albert Barracks, with some reference to material culture from Te Awamutu Redoubt and the Paremata Barracks, Porirua, Wellington. Victoria Barracks in Paddington, Sydney, is also briefly compared due to some similarities in structural remains and other themes.

## **Material Culture**

### *Ceramics*

A comparison of the ceramic assemblage found during the excavation of the Albert Barracks site (R11/833) was made with that retrieved from the Te Awamutu Redoubt by Clough et al. (2003). Clough et al (2003) noted that military sites tend to produce assemblages that have less variety in ceramic wares and patterns compared to other contemporary sites. For example, the Albert Barracks site produced more Willow ware than any other type (56%), while 68% of the Te Awamutu Redoubt ceramic assemblage was dominated by the Asiatic Pheasant pattern (Clough et al. 2003:67). The Lower Barracks assemblage differs, however, with only 34% of the assemblage attributable to Willow ware, while a large number of unidentified patterns were also recorded. However, it must be noted that the Albert Barracks sample size was much larger, with 3058 sherds analysed compared to only 580 from the Lower Barracks. One explanation for the difference seen here might be that the ceramics found on the Lower Barracks are dominated more by smaller assemblages relating to the officer classes rather than the rank and file. However, it is hard to give a clear answer due to the absence of any large rubbish pits being found during the investigation.

There does however, seem to be some consistency in the frequency of teacups and other tablewares at both sites.

### *Clay tobacco pipes*

The clay pipe assemblage from the Lower Barracks was relatively small, with only 72 fragments relating to just four manufacturers, with Murray of Glasgow represented three times, Thomas White of Edinburgh twice, Miller of Glasgow and W. White of Glasgow once each. In contrast, the Albert Barracks site produced 378 clay tobacco pipe fragments relating to at least 11 manufacturers, and while the Scottish pipes dominated there as well, there were also pipes from England, Ireland and France (Clough et al. 2003: 126-135). The most common manufacturer at the Albert Barracks was McDougall, and interestingly

McDougall pipes were not present in the Lower Barracks assemblage, nor were those of A. Coghill, the latter a manufacturer also represented in the clay pipe assemblage at the Paremata Barracks in Porirua, Wellington excavation (Prickett 1981:127). However, this is likely due to the secondary and tertiary depositional contexts, including multiple demolition layers, from which the Lower Barracks assemblage was produced.

### *Glass and Stoneware*

Both the Albert Barracks and Lower Barracks sites were dominated by alcohol bottles. However, this is a common situation for other non-military sites of the period particularly in Auckland (Clough et al. 2003). While ‘black beer’ formed the most common type on both sites, gin was second in frequency at the Albert Barracks, whereas wine bottles came second in frequency at the Lower Barracks site. Wine bottles, while possibly reflecting consumption by the officer classes, could also have been reused for beer, however, and this might explain the higher number.

Both sites also produced a small, comparable number of glass as well as stoneware ink bottles, which almost certainly relate to military bureaucracy (Clough et al. 2003: 120). Overall, the stoneware assemblages from both sites were relatively small, with both having a similar range and number of examples of ink bottles, blacking jars, ginger beer and beer (likely porters).

### *Munitions*

Musket balls, pistol balls, and Minié bullets were recovered from both the Lower Barracks and Albert Barracks sites. However, while the number of musket and pistol balls are comparable, there were over six times the number of Minié bullets found at the Albert Barracks (13), to the Mt Cook site (2). This can be explained by the fact that half of those retrieved from the Albert Barracks site came from a large rubbish pit, a feature that was not exposed during the Memorial Park works. As such, it is possible that if such a feature had been exposed, then the Minié bullet component of the assemblages may well have been similar. Of more interest, perhaps, is that while 310 percussion caps were found at Albert Barracks (Clough et al 2003: 179), none were recovered from the Lower Barracks site. However, this may reflect different depositional factors between the two sites. The Albert Barracks collection was largely found in deposits within two rubbish pits (one large, one small), which would have helped them to survive intact. Additionally, each site provided evidence of the later modified Enfield known as the Snider, with a type 6 Snider projectile found at the Lower Barracks, and a snider shim brass case retrieved from the Albert Barracks site (Clough et al. 2003: 179). The continued use of the Lower Barracks site into the 20th century and presence of the Rifle Range most likely contributed to a number of 0.22 cases and .303 shell cases and blanks being recovered, with few projectiles other than Minié bullets found on the Auckland site.

One notable difference concerns the pieces of artillery related to the Armstrong gun that were recovered during the Lower Barracks excavation, which sets it apart from the Albert Barracks assemblage. However, it must be noted that only a small percentage of the Albert Barracks site was investigated, and therefore, it is entirely possible that remains of artillery may still be present subsurface within the remaining footprint of the site (although not of an 8-inch Armstrong gun, as these were located in coastal sites).

*Militaria – Uniform and Clothing Items*

In comparison with the Albert Barracks site a clear difference is seen in the quantity of clothing and uniform items recovered compared to the Lower Barracks. As with the munitions, this is clearly the result of differences between the depositional contexts from which the assemblages were recovered, i.e. the ‘big pit’ on the Albert Barracks site, with no similar pit being encountered on the Wellington site. Indeed, the range of regimental buttons is larger, with buttons from the 14th, 40th, 57th, 58th and 65th Regiment as well as other buttons (133 in total) from the Military Train, Militia Royal Cipher, Royal Engineers, Volunteer Rifles, Sappers and minor buttons, and Royal Artillery buttons (Clough et al. 2003: 184-190). In comparison, only nine military buttons were recovered from the Lower Barracks. However, the pattern is the same, with other items also including belt buckles and slides, with brass mouths and brass stiffeners from officers’ uniforms also found at the Auckland site.

Of note from the Lower Barracks site, however, is that two personal items can be traced back to an individual, Captain (later Major) Coleman, the cavalry drill instructor of the Armed Constabulary and subsequently the New Zealand Permanent Militia. This was possible due to the items being found in the demolition deposit within the footprint of his former residence on Buckle Street, within the Lower Barracks, and being clearly items of some cost, beyond the reach of the rank and file. Whereas, most of the items came from large rubbish pits at the Albert Barracks site, and therefore it was not possible to link items with any individuals.

*Miscellaneous*

Other items not evidenced were those relating to children and women which were found at the Albert Barracks, such as children’s toys (marbles, tea set, washbowl, legs and arms from two dolls; Clough et al. 2033: 76, 114, 119). This suggests that the families of the soldiers, and most of the officers lived off site or perhaps were accommodated within the Upper Barracks.

*Faunal remains*

There is a consistent pattern in beef and mutton being the staple diet, which correlates with documents from the period that relate to military rations. Again, the rubbish pit at the Albert Barracks gives a much better picture of other meats also consumed, with 275 bones dating to the use of the Barracks indicating that cattle were most frequent, followed by sheep, pig and fish (Clough et al. 2003: 214). Mutton was more common than lamb and beef was good quality, so probably eaten by the officers (ibid.). The Lower Barracks assemblage had a similar range, with mutton and beef most common, although mutton at 31% was more prevalent than beef (23%). As reflected in the Albert Barracks assemblage, better cuts of beef found at the Lower Barracks are also likely to indicate the ability of officers to purchase their own supplies while the rank and file had to rely on rations of meat destined for broths.

*Structural Features*

There is a clear difference in structural remains from both the Auckland and Wellington sites. The Auckland site was a stone walled fort, with some of the walling still surviving in good order and in use within the University of Auckland, whereas the Lower Barracks had what was described as an 8 foot-high one brick thick wooden fence. Also, many postholes and brick foundations were found relating to the early barracks structures and Drill and Garrison Halls, and similar structures were not recorded on the Auckland site. This is in large part due to the location of the latter excavation, with a large portion of the Barracks still remaining beneath Albert Park. Postholes recorded at the Auckland site are also related to the Merchant buildings, which were built post-barracks (after 1873), although a few are likely to relate to structures on the 1866 plan of the barracks (Clough et al. 2003). In comparison, the Lower Barracks site was used by the military for over 130 years, with structures from the 1840s to the early 1900s recorded during the investigations.

There was no evidence of stone or brick drains found on the Albert Barracks site, but comparison with the Victoria Barracks site in Paddington, Sydney, Australia shows correlations with the Lower Barracks, in terms of the attention spent on site drainage/stormwater works. The Victoria Barracks were contemporaneous with the Mount Cook site, constructed from 1841 to 1848, with the first substantial occupation commencing in 1850, and the barracks still being operational today (Annable 1990:8). The majority of the buildings were made of sandstone quarried from the near vicinity, with bricks used in one building vault and privies which had the government arrow stamped into them (Annable 1990:19). Like a number of the Phase 1 drainage features from the Lower Barracks site, a number of boxed drains ran alongside early structures, as well as smaller sections of drains which were made from stone, brick, or a combination of the two materials. While there is documentary evidence of the buildings, no plans were found that depicted the drainage system, so the archaeological results were useful. Two wells were also found, one with a vertical metal pipe for use with a pump, which is similar to the well found in the Lower Barracks. However, missing from the Lower Barracks site was evidence for privies or cess pits, which were evident at the Victoria Barracks site. This is of interest, and suggests that these features were either removed during groundworks for the Rifle Range, or they could have been located in Martins Square or other areas outside of Town Acre 226 which were not excavated as part of the Pukeahu National War Memorial Park project.

Lastly, cakes of smithing slag, offcuts of bar, rod and sheet metal retrieved from the Albert Barracks indicated the presence of a forge and workshop (Clough et al. 2003: 194). While no such remains were encountered at the Lower Barracks in Wellington, such a feature would certainly have been present somewhere within the Lower Barracks site, possibly in the area to the south of Buckle Street.

**8.2.2.5 How does this site contribute to an understanding of military technology and concepts of warfare and defence in a colonial outpost?**

While the site does not particularly offer any new insights, it does contribute to the existing knowledge of 19th century military technology, as well as ideas of warfare and defence, initially within a colonial setting, and subsequently an independent nation state. The role of the Lower Mount Cook Barracks was initially that of a mid-19th century Imperial Army barracks built to house troops engaged in a protracted and, at times, attritional conflict with Maori in a number of campaigns fought across the North Island of New Zealand. Imperial

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soldiers were stationed at a number of barracks, spread across the North Island from the Bay of Islands in the north, Napier in the east, Wellington in the south and Taranaki in the west. However, the Albert Barracks in Auckland and the Mount Cook Barracks in Wellington were constructed on a much larger scale than those in other regions, providing accommodation for upwards of 500 men. This was necessary due to the fact that both Auckland and Wellington were the principal settlements of the colony, commanding large natural harbours where supplies could easily be brought in and distributed via the commissariat, all of which required strategic defence. Moreover, the harbours allowed for rapid transference of troops as reinforcements to areas with smaller garrisons as and when the situation dictated.

The barracks site required itself to be self-reliant in face of attack, which was an unlikely eventuality from Maori, and suggests that the British were also concerned with the possibility of attacks from external sources such as rival European empires (France, for example). Both the Lower and Upper Mount Cook barracks were defensible on high ground and walled with musket proof fences, and were self-sufficient with secure water supplies and separate powder and ordnance stores. In the unlikely event of an attack the two barracks complexes could have defended themselves independently of one another.

The munitions and firearms used by the Imperial soldiers are consistent with contemporary sites throughout the North Island. The earlier use of musketry (as evidenced by the musket balls), was replaced in the British Army in 1853 with the Enfield rifle, although the troops in New Zealand had to wait until 1855 to be issued with the new rifles. The Minié bullets recovered from the site were likely to have been intended for use in Enfield rifles.

The investigations exposed many features relating to the Imperial military phase of the site. The change from stone to largely wooden buildings indicates an adaptation to local conditions as a result of the 1848 earthquake. The use of what was described as a high, one brick thick wooden fence rather than a stone wall (such as at Albert Barracks) suggests that any perceived attack on the barracks would have been made with muskets alone, as the fence would have been no match for artillery.

The later brick buildings, beginning with the 1879 Drill Hall, during the Armed Constabulary occupation of the site, show a reaction to the perceived need to train soldiers in the use of large artillery with harbour defence in mind. Indeed, the 'Russian Scares' of 1873 and 1885 led, at substantial cost, to the acquisition and installation of the 64-pdr RML and 8-inch Armstrong guns, which were mounted at the Lower Barracks site for the training of crews to man coastal artillery batteries at the four main ports of Auckland, Wellington, Christchurch and Dunedin. The original location of the 8-inch Armstrong was perhaps evidenced by the truncated semi-circular feature situated in the south of the parade ground area. The disappearing gun itself would later be housed within the 1909 Gunnery Annexe, and components of its lifting mechanism and range finding equipment were retrieved during the archaeological investigation.

Overall, the site is typical of a 19th century colonial barracks, following a conventional 'standard' template for the establishment and protection of a colonial outpost, and the subsequent formation of a self-reliant military capability, itself developing into a coherent, unified army for the protection of an independent country. However, less usual and perhaps even unique in a colonial setting, was the installation of the Armstrong Gun in its own devoted building for all-weather training, despite it being thoroughly obsolete at the time. This demonstrates the lack of resources available to the military in the decades leading up to the First World War, in maintaining a comprehensive coast defence for the country's harbours at that time.

## 9 CONCLUSION

The archaeological investigation of the Pukeahu National War Memorial Park works exposed a significant amount of archaeological remains relating to the military occupation of the Lower Mount Cook Barracks, from the 1840s through to the First World War. The features and associated deposits yielded relatively modest artefact and faunal assemblages, due to the absence of large refuse pits within the excavation areas. However, the assemblages, while limited, were largely consistent with those seen from other excavations of military barracks sites of the period, both in New Zealand and other contemporary colonies of the British Empire, such as Australia. Of note, and pre-dating the military occupation of Mount Cook, was the small residual assemblage of worked bottle glass and redeposited shell midden found in a number of early Phase 1 features, and relating to historic period Maori activities on Pukeahu.

Archaeological remains of the 1877 Mount Cook Infant School, were very meagre and survived only in isolation. This was undoubtedly due to the later substantial and widespread vertical truncation seen across much of Town Acre 233, which had occurred as a result of a number of 20th century developments on the site.

Within Town Acre 226, the archaeology survived in much better order, with remains present relating to three phases of the military occupation of Mount Cook, from the initial occupation by Imperial troops of the 96th and 65th Regiments of Foot in the 1840s, through to the creation of the Armed Constabulary and later New Zealand Armed Forces of the 20th century. This continuity of military use over some 140 years, from its origins as a temporary encampment in the 1840s as a response to the Wairau Incident, through the later Land Wars of the 1860s and 1870s, and both World Wars up until its abandonment in the 1980s, is unique for a military site within New Zealand. The military artefacts recovered, from the simplest of musket balls to elements of the sophisticated and powerful 8-inch Armstrong Disappearing Gun, to blank rounds from earlier services held at the War Memorial, reflect the entire military occupation of the site. The artefacts represent the country's own internal conflicts of the 1840s to 1870s, and also bear witness to the training of troops for overseas wars, including the 2nd Boer War (1899-1902) and both the First and Second World Wars. It is clear that New Zealand's military history has indelibly stamped itself upon this site. Particularly poignant, perhaps, are the items relating to the First World War, such as the water canteens, and the many shell casings dating to this period that reflect the use of the Garrison Hall Rifle Range by enlisted men prior to departure for the frontlines of Gallipoli and the Western Front.

In conjunction with the Upper Mount Cook Barracks, the site played a significant role in the development and training of troops, to provide an effective defence from both internal and external threats. The many soldiers who resided and trained at the Lower Barracks site took part in campaigns spanning one hundred years, from the New Zealand Land Wars, to the Boer War, and the two World Wars. The creation of the Pukeahu National War Memorial Park, in such a fitting setting that played so significant a role in the formation of the New Zealand Armed Forces, forms a lasting legacy in which future generations can pay tribute to all the brave men and women who fought and made the ultimate sacrifice in service to their nation.



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## **APPENDICES**



## **APPENDIX 1 – CONTEXT RECORDS TOWN ACRE 226**

Context No.	Type	Description
1000	Surface	Tarmac - modern.
1001	Layer	Greyish-brown loose mixed roadstone - modern.
1002	Layer	Yellowish-brown clay, compact. Redeposited -modern.
1003	Layer	Greyish-brown roadstone mixed with brown loam - modern.
1004	Layer	Yellowish-brown clay, compact. Redeposited. Phase 3.
1005	Layer	Compact dark grey clay; frequent CBM, wood; occasional pebbles, organics and Fe fragments. Demolition deposit. Phase 3.
1006	Layer	Dark blackish-grey clay, compact. Cultural layer = 1065. Phase 2.
1007	Natural	Greenish-grey clay, compact. Natural same as 1052.
1008	Layer	Mix of CBM fragments and whole bricks. Demolition deposit -modern.
1009	Surface	Reinforced concrete surface - modern.
1010	Natural	Yellowish-brown clay, very compact. Natural same as 1052.
1011	Layer	Greyish-brown loose mixed roadstone with greyish sand - modern.
1012	Surface	Reinforced concrete surface - modern.
1013	Layer	Compact orangey-brown loam and roadstone - modern.
1014	Layer	Reddish-grey mortar deposit, compact. Dumped during building construction. Phase 3.
1015	Layer	Dark brown clay, compact; small-medium CBM fragments, stoneware fragments, bone and charcoal. Cultural layer similar to 1006. Phase 3.
1016	Natural	Greyish-brown compact clay, similar to 1007 - Natural same as 1052.
1017	Layer	Same as 1011 – modern.
1018	Layer	Dump of wood - fragments of wood mixed with blackish loam – modern,
1019	Layer	Yellowish-brown clay with dark grey mottles; occasional CBM fragments. Phase 3.
1020	Layer	Similar to 1019 without the CBM fragments. Phase 3.
1021	Layer	Dark grey clay, compact. Frequent small rounded pebbles, CBM fragments and charcoal fragments. Cultural layer. Phase 3.
1022	Layer	Black clay, compact. Mottles with yellow clay at base. Cultural layer. Phase 2.
1023	Fill	Grey and yellow mottled clay, compact. occasional small CBM and rounded stones. Fill of 1025. Phase 3.
1024	Layer	Mix of CBM fragments and whole bricks. Demolition deposit. Phase 3.
1025	Cut	Sharp break from slope, steep to moderate sloping sides, flattish base. Southern side visible only. Pit. Phase 3.
1026	Fill	Mid-greyish red brick and mortar backfill deposit between walls 1027 and 1028. Modern.
1027	Structure	Eastern exterior wall of 1907 Garrison Hall English cross bonded with cement mortar. Phase 3.

1028	Structure	N-S Running brick wall (Western wall of Gun Annexe) English cross bonded with cement mortar. Phase 3.
1029	Structure	20th century Concrete Drain 2xcm thick and 20cm in diameter. Phase 3.
1030	Structure	N-S Running brick wall (Eastern wall of 1909 Gun Annexe) English cross bonded with cement mortar. Phase 3.
1031	Structure	Concrete catch pit 920mm x 720mm contained ceramic downpipe. Phase 3.
1032	Layer	Well compacted beige/light brown rock? With grey clay inclusions - basecourse deposit – modern.
1033	Layer	Dark brownish red brick fragments and gravel layer - moderately compacted. 60mm thick. Above 1034 only – modern.
1034	Structure	Reinforced concrete pad. Observed over 1.4m (N-S) 2.4m (E-W) and unknown thickness. Phase 4 - modern.
1035	Fill	Loose brownish-red clay with frequent inclusions of broken mid-red sandstock bricks. Lower fill of Gun well 1038. Demolition backfill – modern.
1036	Fill	Orange yellow clay, very compact. Fill between gun well 1038 and drain 1041. Same as 1145. Phase 3.
1037	Layer	Mottled beige and dark brown clay layer. Phase 3.
1038	Structure	Circular brick lined gun well with concrete base within Gunnery Annexe. 3.97m external diameter; 2.52 internal diameter. Phase 3.
1039	Layer	Yellowish-beige indurated gravel, 6cm thick, very compact. East of gun annexe. Truncated surface - path or yard? Phase 2.
1040	Fill	Brown ceramic drain pipe - draining from gun pit 1038. Phase 3.
1041	Cut	Stepped to vertical sides. Cut for ceramic drain 1040 = 1059. Aligned SE-NW. Phase 3.
1042	Cut	Construction cut for wall 1030 on east side of wall. Same as 1049. Phase 3.
1043	Layer	Yellowish-grey demo layer comprised of aggregates, small stones and broken brick. Made ground, Phase 3.
1044	Layer	Greenish-grey sandy silt layer, friable. occasional CBM, charcoal, ceramic, glass, nails and animal bone fragments; 0.25m thick. Phase 3.
1045	Fill	Mid-grey clay with orange and yellow mottles. occasional stones and charcoal, cbm, animal bone, glass, fe nails, clay pipe, slate. Upper fill of Ditch 1048. Phase 1.
1046	Layer	Yellowish light brown clay, occasional rounded stones. Made ground/fill deposit between 1038 and 1030. Made ground for footings for Gunnery Annexe. Phase 3.
1047	Layer	Firmly compacted deposit of angular stones and brick fragments sealed by 1046. Made ground likely used as footings for the floor of the Gunnery Annexe. Phase 3
1048	Cut	Linear, moderate sloping sides, unclear base, oriented ESE-WNW. Drainage ditch. Same as 1102. Phase 1.
1049	Cut	Straight sides, 230mm deep, flat base. Cut of wall 1030 on west side. Phase 3.
1050	Layer	Yellowish brown clay, indurated. occasional CBM rubble, stones, metal, and bottle glass fragments – modern.
1051	Layer	Dark brown to light brown clay, moderately compact. occasional stone, coal, and CBM fragments. Phase 2.
1052	Natural	Natural - sterile clay - brownish yellow/ greyish green/ beige with reddish brown mottles indicating gleying from waterlogging. Same as 1007, 1010 and 1016.
1053	Layer	Greyish-brown clay, compact. Fill of 1054. Phase 3.
1054	Cut	Linear construction cut, N-S oriented, vertical sides, flat base. Construction cut for wall 1028. Phase 3.
1055	Fill	Light greenish grey clay, compact. Occasional charcoal, CBM, clay pipe, and bottle glass fragments. Primary fill of 1048. Phase 1.
1056	Cut	Linear, moderate sloping sides, curved base. Filled by 1057 and plastic pipe. Phase 4 - modern.
1057	Fill	Loose grey roadstone/aggregate. Fill of 1056. Phase 4 - modern.

1058	Fill	Brownish-red sandy clay, moderately compact. occasional CBM and metal fragments. Upper fill of gun well 1038. Phase 4.
1059	Cut	Linear, vertical sides, concave base. Oriented NW. Same as 1041. Phase 3.
1060	Fill	Mottled yellowish-brown silty clay, moderately compact. occasional CBM, stone, shell and coal fragments. Fill of 1059. Phase 3.
1061	Layer	Dark grey clay loam with green clay mottles, compact. occasional champagne bottle fragments. Sealed by 1046 and above 1047. Phase 2.
1062	Structure	Linear, NNE-SSW aligned brick wall, bonded with light brownish yellow sandy mortar (1070). Coursing bond in the English Cross style. Phase 2.
1063	Cut	Linear, NNE-SSW aligned. Filled by 1062. Cut through 1065. Phase 2.
1064	Layer	Re-deposited yellow clay friable with some 19th century and early 20th century artefacts. Made ground within drill hall footprint for Garrison Hall build. Phase 3.
1065	Layer	Mid-grey clay layer, compact. Frequent bottle glass, metal, ceramic sherds. Made ground. Pre-dates construction of drill hall. Up to 0.34m thick. Phase 2.
1066	Layer	Whitish light grey mortar bond for Garrison Hall buttresses cut through original drill hall walls. Phase 3.
1067	Layer	Whitish grey mortar bond for Gunnery Annexe. Phase 3.
1068	Structure	Section of brick wall in north western corner of Gun Annexe. 1.72m in length x 0.32m wide. Contemporary with the Annexe and bonded with same mortar (1067).
1069	Fill	Dark brown sandy clay loam, moderately compact to friable. occasional pea gravel. Backfill of construction cut 1063 for wall 1062. Phase 2.
1070	Layer	Light brownish yellow sandy mortar, loose/friable - for wall 1062 (drill hall). Same as 1181. Phase 2.
1071	Cut	Rectilinear, N-S aligned construction cut for concrete drain 1074. Filled by 1072, 1073 and 1074. Phase 2.
1072	Fill	Orangey brown pea gravel. Loose. Primary fill (bedding layer) of 1071. Phase 2.
1073	Fill	Brownish yellow sandy clay, loose-moderately compact. Backfill of construction cut 1071. Phase 2.
1074	Structure	Concrete drain. 300mm wide, 120mm deep. Abutting exterior west facing wall of 1062. Phase 2.
1075	Cut	Rectangular, vertical sides - Cut for buttress 1076. Cuts 1074 and 1062. Phase 3.
1076	Structure	Brick pier buttress. cement mortar. Construction cut cuts backfill of construction cut for 1062. Phase 3.
1077	Structure	1879 AC Drill Hall - consists of wall sections 1062; 1179; 1435; 1570 and 1645 and buttresses 1091; 1438; 1444; 1445; 1446 and 1575. 31m long x 16m wide.
1078	Cut	Rectangular, vertical sides - Cut for buttress 1079. Cuts 1074 and 1062.
1079	Structure	Brick pier buttress. cement mortar. Fill of 1078.
1080	Cut	Rectangular, vertical sides - Cut for buttress 1081. Cuts 1074 and 1062.
1081	Structure	Brick pier buttress, cement mortar.
1082	Fill	Yellowish-brown clay, moderately compact. occasional CBM fragments. Backfill of construction cut 1075.
1083	Fill	Mid brown clay silt, moderately compact. occasional CBM fragments. Backfill of construction cut 1078.
1084	Fill	Yellowish-brown to mottled grey clay, moderately compact. occasional CBM fragments. Backfill of construction cut 1080.
1085	Cut	Rectangular, vertical sided construction cut for buttress 1086. Cuts 1074 and 1062.
1086	Structure	Rectangular, brick pier buttress. Cuts 1074 and 1062.
1087	Fill	Greyish-brown sandy gravel, loose/friable. occasional small pea gravel, CBM fragments and clay. Backfill of construction cut 1085.

1088	Cut	Rectangular, vertical sided construction cut for buttress 1089. Cuts 1074 and 1062.
1089	Structure	Brick pier buttress within cut 1088.
1090	Fill	yellowish brown clay, moderately compacted. occasional brick fragments. Backfill of construction cut 1088.
1091	Structure	Brick buttress bonded with light brownish yellow sandy mortar (context 1070). Contemporary with wall 1062
1092	Structure	Brick buttress. cement mortar. Fill of 1152.
1093	Layer	Moderately compacted dark grey clay, with occasional light blueish grey mottles. Sterile. Subsoil above natural (1052).
1094	Layer	Yellowy greyish brown loose aggregate deposit in a sandy matrix. Frequent brick, timber, glass and Fe metal. Demolition deposit adjacent to west face of wall 1062.
1095	Layer	Dark grey gravelly clay, friable. Moderate brick fragments.
1096	Structure	Remains of the 1907 Garrison Hall - consists of wall sections 1286; 1362; 1380; 1567; 1558; 1556; 1563 and concrete foundations 1363.
1097	Fill	Mid-grey brown rock, clay and brick rubble matrix, Loose/friable. Frequent metal, glass, ceramic. Intermixed fill between concrete wall 1098 and wall 1099.
1098	Structure	Reinforced concrete wall. Aligned E-W. Phase 4 - modern concrete wall.
1099	Structure	Brick wall bonded with cement E-W aligned rear wall of gun annexe
1100	Fill	Light greyish brown silty clay with yellow mottles. Occasional animal bone, brick fragments, stones and moderate charcoal. Upper fill of ditch [1102].
1101	Fill	Greyish brown silty clay, indurated. Frequent large greywacke rocks with smaller stone packing. Occasional charcoal. Pot, glass, cbm, fe. Lower fill of ditch 1102.
1102	Cut	ESE-WNW aligned linear, 45° slight step on N side. Base flat to concave. 1-17m wide, 0.46m deep. Drainage ditch. Filled by 1186, 1101 and 1100.
1103	Cut	Rectangular with rounded corners, vertical sided, cut for Posthole. Flat base 390mm x330mm x130mm deep.
1104	Fill	Dark brown silty clay, loose/friable. Fill of 1103. Remains of rotted wooden post (1759) were present within the deposit.
1105	Cut	Square vertical sided cut for posthole. 205mm x 200mm x 240mm deep. Flat to slightly concave base.
1106	Fill	Dark brown silty clay, loose/friable with remnants of timber post (1756). Fill of 1105. 1 metal bolt.
1107	Cut	Rectangular vertical sided cut for posthole with flat base. 230mm x 175mm x 430mm deep.
1108	Fill	Mid-grey clay, loose/friable. Fill of 1107. Remains of rotted timber post (1680) and metal bolt/nail present within deposit.
1109	Cut	Trapezoidal vertical sided cut for posthole. 270mm x 240mm x 210mm deep. Flattish base.
1110	Fill	Dark grey sand - loose/friable. Occasional brick fragments, glass. Fill of 1109.
1111	Cut	Sub-rectangular vertical sided cut for posthole with flat base. N-S 470mm; E-W 410mm; 310mm deep.
1112	Fill	Yellowish grey clay moderately compact. Wooden post still in situ context (1754). 290mm x 280mm x 275mm. Fill of 1111.
1113	Cut	Rectangular vertical sided cut for posthole with flat base, sloping slightly to east. 420mm x 300mm x 70mm deep.
1114	Fill	Mid-brown clay, moderately compact. Fill of 1113
1115	Cut	Trapezoidal vertical sided cut for posthole. 230mm x 150mm x 220mm deep. Flattish base.
1116	Fill	Dark brown clay with beige mottles, loose/friable. Timber post still in situ - context (1755 & Fill of 1115.
1117	Cut	Ovoid gradual sloping cut for posthole. 250mm x 180mm.

1118	Fill	Mid-grey brownish clay with beige mottling, loose/friable. Occasional charcoal. Fill of 1117.
1119	Cut	Square vertical sided cut for posthole. 160mm x 190mm x 320mm deep. Flat base.
1120	Fill	Mid-brown clay, loose/friable. Timber post 1480 still in situ.
1121	Cut	Square, vertical sided cut for posthole with flat base. 150mm x 150mm x 250mm deep.
1122	Fill	Greyish, dark brown clay, loose/friable. Occasional glass, metal, leather. Fill of 1121.
1123	Cut	Square vertical sided cut for posthole. 210mm x 220mm x 60mm deep.
1124	Fill	Greyish brown clay with beige mottling, loose/friable. Occasional charcoal. Fill of 1123.
1125	Cut	Square, vertical sided cut for posthole with flat base. 200mm x 220mm x 130mm deep.
1126	Fill	Light greyish brown clay, loose/friable. Occasional charcoal, remains of rotting timber post in situ (1758). Fill of posthole 1125.
1127	Cut	Sub-circular vertical sided cut for posthole with flat base. 420mm in diameter; 160mm deep.
1128	Fill	Mid-greyish brown clay, loose/friable with occasional fractured rock and Occasional charcoal. Fill of 1127.
1129	Cut	ovoid gradual vertical sided cut for posthole. 500mm x 410mm x 300mm deep. Cuts posthole 1307.
1130	Fill	Mid-greyish brown clay, loose/friable. Fill of 1129. Contains remains of timber post (1757).
1131	Cut	Rectangular posthole cut. Cut was vertical on S side and 45° on N side, with a concave base. 510mm x 410mm x 160mm deep. Filled by 1132 and 1298.
1132	Fill	Brownish clay with mottled yellow clay patches, firm. Occasional charcoal. Lower fill of 1131.
1133	Cut	Recti-linear vertical sided cut for drain with flattish base. Aligned SE-NW. 0.57m wide x 0.31m deep. Contained French drain structure in base. Same as drain 1598.
1134	Fill	Pale blue clay mixed with dark-greyish topsoil. Occasional animal bone, ceramic. Fill of 1133 same as 1599.
1135	Cut	Rectangular vertical sided cut for brick and tile drainage sump 1153.
1136	Cut	Recti-linear vertical sided cut for drain with flat base aligned NW-SE. 0.38m wide x 0.08m deep and survived for a 10.95m stretch and drained into ditch 1102.
1137	Fill	Mid grey clay with yellow mottles, occasional water worn pebbles. Fill of 1136.
1138	Cut	Rectilinear vertical sided cut for ceramic drain pipe aligned NE-SW. 530mm wide x 130mm deep. Filled by 1139 (backfill) and 1752 (ceramic pipe). Same as 1669.
1139	Fill	Grey and yellow mottled clay, soft/friable with Occasional stone, cbm, metal and glass. Backfill of 1138.
1140	Cut	Rectilinear vertical sided cut for brick lined drain aligned predominantly E-W. 600mm wide x 240mm deep. Filled by 1141 and 1420.
1141	Structure	Brick lined drain aligned E-W that drains via a step down into the terminus of drainage ditch [1102].
1142	Fill	Dark brown clay-silt loam with occasional brick fragments. Fill of 1140.
1143	Cut	Square, vertical sided cut of posthole - with the exception of 45° slope on N side possibly due to post being dragged out that side. 230mm x 210mm x 250mm deep.
1144	Fill	Mid-greyish brown clay, moderately compact with Occasional brick and charcoal inclusions. Fill of 1143.
1145	Fill	Clay fill - yellowish brown & mid-brownish red silty clay, moderately compact, occasional brick fragments and mortar. Backfill of construction cut 1146.
1146	Cut	Circular vertical sided cut for recess housing gun lifting mechanism beneath gun emplacement.
1147	Void	

1148	Cut	Cut of rectangular rubbish pit. 0.54m x 0.32m x 0.07m. Vertically truncated.
1149	Fill	Brownish dark grey clayey silt loam loose and extremely friable. Frequent glass, occasional ceramic, occasional Fe nail. Fill of rubbish pit 1148.
1150	Structure	French drain comprised of large pieces of greywacke. Two rocks set on edge with another placed on top to form a stone lined channel in the base of the drain.
1151	Fill	Greyish brown sandy gravel, loose and friable with occasional brick fragments. Backfill of construction cut 1152
1152	Cut	Rectangular vertical sided cut for buttress 1092.
1153	Structure	Brick and tile drain structure made with glazed ceramic.
1154	Fill	Dark brown clay with yellow brown clay mottles, firm and compact. Occasional brick fragments. Backfill of cut 1135.
1155	Cut	Rectilinear, vertical sided cut of drain, with flat base. 300mm wide.
1156	Fill	Ceramic drain pipe within 1155 aligned w-e. Stamped H. Hill Wellington.
1157	Fill	Dark brownish black clay with yellow brown mottles, firmly compacted. Backfill of 1155.
1158	Fill	Dark greyish brown clay loose and friable with mod wood fragments. Fill of 1159 a 20th century refuse pit? Vertically truncated.
1159	Cut	Sub-circular shallow scoop. 20th century refuse dump.
1160	Cut	Rectangular vertical sided cut for buttress 1161. 900mm x 650mm x 800mm.
1161	Structure	Brick buttress. cement mortar. Fill of 1160.
1162	Fill	Mid-brownish yellow silty clay, moderately compacted. occasional brick fragments. Backfill of 1160.
1163	Cut	Rectangular vertical sided cut for buttress 1164. 900mm x 650mm x 800mm.
1164	Structure	Brick buttress. cement mortar. Fill of 1163.
1165	Fill	Backfill of 1163. not observed due to removal via machine.
1166	Cut	Rectangular vertical sided cut for buttress 1167. 1350mm x 400mm x 1150mm depth.
1167	Structure	Brick buttress. cement mortar. Fill of 1166.
1168	Fill	Mid-brownish yellow clay, moderately compacted with occasional rock. Backfill of 1166.
1169	Cut	Rectangular vertical sided cut for buttress 1170. E-W 430mm (min) x Depth 1190mm (min).
1170	Structure	Brick buttress. cement mortar. Fill of 1169.
1171	Fill	Mid-brownish yellow clay, moderately compacted. Occasional brick parts and rock fragments. Backfill of 1169.
1172	Cut	Rectangular vertical sided cut for buttress 1173. N-S 1220mm (min) E-W 550mm (min) x Depth 1100mm (min).
1173	Structure	Brick buttress. cement mortar. Fill of 1172.
1174	Fill	Mid-brownish yellow and dark blackish brown (mixed) clay, moderately compacted. Occasional brick and rock fragments. Backfill of 1172.
1175	Cut	Rectangular vertical sided cut for buttress 1176. N-S 1400mm (min) E-W 550mm (min) x Depth 880mm (min).
1176	Structure	Brick buttress. cement mortar. Fill of 1173.
1177	Fill	Mid-brownish yellow and dark blackish brown (mixed) clay, moderately compacted. Occasional brick parts. Backfill of 1175.

1178	Cut	Rectilinear, vertical sided cut for eastern wall of drill hall 1179, with flat base. 560mm wide (min).
1179	Structure	Linear, N-S aligned brick wall, bonded with light brownish yellow sandy mortar (1181). 17 courses high (Eastern Drill Hall wall) including three foundation courses.
1180	Fill	Mid-reddish yellow mixed clay and silt, moderately to loosely compacted with inclusions of sand and mortar. Backfill of 1178.
1181	Layer	Mid-greyish yellow sandy mortar, loose/friable. - for wall 1179 (drill hall) same as 1070
1182	Layer	Black asphalt layer (Phase 4 - modern) sealing top course of remaining eastern drill hall wall.
1183	Cut	Rectangular vertical sided cut for posthole with a flat base. 250mm x 170mm x 135mm deep.
1184	Cut	Rectangular vertical sided cut for posthole with a flat base. 310mm x 290mm x 200mm deep.
1185	Cut	Square vertical sided cut for posthole with flat base. 290mm x 290mm x 140mm deep.
1186	Fill	Yellowish mid-grey silt, soft with occasional charcoal, degraded animal bone and small stones. Primary fill of Drainage Ditch 1102.
1187	Fill	Bluish dark grey clay, firmly compacted with occasional wood fragments, charcoal and small stones. 0.36m wide x 0.19m deep. Fill of drain 1188.
1188	Cut	Recti-linear, vertical sided cut with a very slightly concave base. Cut of small, narrow drain contemporary with ditch 1102.
1189	Fill	Dark brown silty clay loam. Fill of posthole 1183.
1190	Fill	Dark brown clay silt loam (old topsoil) with occasional clay lumps. Fill of posthole 1184.
1191	Fill	Dark brown clay silt loam (old topsoil) with occasional clay lumps. Fill of posthole 1185.
1192	Cut	Rectangular cut for posthole. 340mm x 280mm. Unexcavated. Filled by 1750.
1193	Cut	Rectangular cut for posthole. 340mm x 280mm. Unexcavated. Filled by 1205.
1194	Cut	Large sub-circular cut of post-pit for cross braced timbers for supporting large vertical timber upright. 1.82m x 1.76m x 1.26m deep.
1195	Fill	Fill of post pit 1194. Yellow clay and re-deposited topsoil matrix firmly compacted with occasional charcoal and small stones.
1196	Cut	Phase 4 - modern cut truncating 1140 (brick lined drain). 3.66m x 1.32m. Probably relates to the 1980's demolition and clearance of the site.
1197	Fill	Yellow and dark grey mottled clay with occasional brick and rock fragments. Fill of 1196.
1198	Fill	Greyish brown silty clay, indurated. Frequent large split rocks with smaller stones packing. occasional charcoal. Pot, glass, cbm, metal. Same as 1101. Fill of 1102
1199	Cut	Rectilinear, vertical sided cut of drain, with flat base. 400mm wide. Truncates 1140. Filled by 1753 (ceramic wastewater pipe) and 1200 (backfill)
1200	Fill	Mottled yellow-brown clay moderately compacted with occasional brick fragments. Fill of 1199.
1201	Cut	Phase 4 - modern rectangular cut feature 1100mm wide. Truncates 1100, 1101 and 1138. Probably relates to the 1980's demolition and clearance of the site.
1202	Fill	Dark brown loosely compacted gravelly sand. Phase 4 - modern fill of Phase 4 - modern cut 1201.
1203	Fill	Dark brown and yellow mottled clay and topsoil intermixed, firmly compacted with occasional brick fragments. Fill of posthole 1204.
1204	Cut	Rectangular cut of posthole with rounded corners, unexcavated. 0.57m 0.52m.
1205	Fill	Dark brown clay silt loam (old topsoil) with occasional clay lumps. Fill of posthole 1193.
1206	Cut	Rectilinear cut of drain with sloping sides and a slightly concave base aligned E-W. 530mm wide, 120mm deep. Truncated by 1138. Cuts 1102.
1207	Fill	Brown and yellow mottled clay with occasional fe pieces. Fill of 1206.

1208	Fill	Brownish grey silty clay loam, loose and friable with frequent gravel and occasional small brick fragments. 0.04m thick. Fill of posthole 1209.
1209	Cut	Square heavily truncated posthole with a flat base. 0.21m x 0.20m x 0.04m deep. Part of group of PH's including 1211, 1214, 1225, 1216, 1218 and 1220.
1210	Fill	Brownish grey clay silt loam with clay patches, firmly compacted with occasional brick, fe. Fill of posthole 1211.
1211	Cut	Rectangular cut of posthole with sloping edges and a concave base. 400, x 330mm x 11mm deep.
1212	Fill	Dark brown clay silt loam loosely compacted with occasional brick fragments. Post pipe. Fill of posthole 1214.
1213	Fill	Brown and yellow mottled clay. Fill of posthole 1214.
1214	Cut	Rectangular, vertical sided cut of posthole with flat base. 580mm x 370mm x 140mm deep.
1215	Fill	Yellow clay with occasional dark brown mottles of clay. Fill of posthole 1216
1216	Cut	Square, vertical sided cut of posthole with flat base. 220mm x 220mm x 50mm.
1217	Fill	Dark brown re-deposited top soil with occasional brick, occasional sandstone. Fill of Posthole 1218.
1218	Cut	Rectangular, vertical sided cut of posthole with flat base. 580mm x 370mm x 140mm deep.
1219	Fill	Dark brown re-deposited top soil with lumps of yellow clay, with occasional window glass and fe object. Fill of Posthole 1220.
1220	Cut	Rectangular, vertical sided cut of posthole with flat base. 380mm x 310mm x 140mm deep.
1221	Cut	Rectangular, vertical sided cut of refuse trench (20th century) with flat base. 4.75m x 0.98m x 0.30m. Vertically truncated.
1222	Fill	Yellow & brown mottled clay with intermixed topsoil and occasional brick fragments. Some 19th century artefacts and 20th century bullet cases. Fill of trench 1221.
1223	Fill	Dark greyish green firmly compacted clay with occasional pebbles and metal (fe). 150mm x 160mm x 150mm (deep). Post pipe in posthole 1225.
1224	Fill	Dark brown with yellow mottles firmly compacted clay with occasional brick fragments. Fill of posthole 1225.
1225	Cut	Oval cut of posthole with sloping sides and flattish base. 470mm x 610mm x 160mm (deep).
1226	Fill	Dark greyish brown and beige mottled and very compacted clay, with occasional small stones and slate fragments. Fill of upright post setting 1228.
1227	Fill	Degraded timber cross bracing within post setting 1228. Diagonals (truncated) - 90mm x 90mm; vertical upright (truncated) 130mm x 130mm. Flag pole?
1228	Cut	Rectangular vertical sided cut for post setting with a flat base. 940mm x 370mm x 250mm aligned n-s. Flag pole?
1229	Fill	Fill of rectangular posthole, dark greyish black with occasional brick pieces. Fill of posthole 1230.
1230	Cut	Cut of truncated rectangular posthole with vertical sides, and flattish base.
1231	Cut	Square, vertical sided cut of posthole with a flat base. 400mm x 400mm x 300mm deep. Cuts posthole 1274.
1232	Fill	Mottled brown and yellow firmly compacted clay with small pcs of ceramic. Fill of posthole 1231.
1233	Fill	Mottled dark brown and yellow firmly compacted clay. Fill of posthole 1234.
1234	Cut	Cut of rectangular posthole 650mm x 400mm. Not excavated.
1235	Fill	Mottled greyish brown and beige loosely compacted clay with occasional small pebbles and porcelain and fe nails. Fill of posthole 1236.
1236	Cut	Rectangular vertical sided cut of post hole with a flat base. 380mm x 320mm x 200mm deep.
1237	Fill	Mottled greyish brown and beige moderately compacted clay with occasional brick fragments, rock fragments and animal bone. Fill of posthole 1238.

1238	Cut	Sub-rectangular, vertical sided cut of posthole with a flat base. 0.28m x 0.33m x 0.24m deep.
1239	Fill	Mottled dark brown and yellow firmly compacted clay. Fill of posthole 1240.
1240	Cut	Rectangular, vertical sided cut of posthole with a flat base. 0.64m x 0.37m x 0.56m (deep).
1241	Fill	Mottled greyish brown and beige moderately compacted clay. Fill of posthole 1242.
1242	Cut	Square, vertical sided cut of posthole with flat base. 280mm x 280mm x 30mm.
1243	Fill	Mottled dark brown and yellow clay and topsoil (mixed) with occasional brick fragments, charcoal and gravel. Fill of posthole 1244.
1244	Cut	Rectangular, vertical sided cut of posthole with flat base. 460mm x 390mm x 300mm deep.
1245	Fill	Mottled dark brown and yellow clay and topsoil (mixed) with occasional brick fragments. Fill of posthole 1246.
1246	Cut	Rectangular, vertical sided cut of posthole with flat base. 540mm x 420mm x 240mm deep.
1247	Fill	Greyish brown sandy topsoil firmly compacted with pcs of sandstone, and possible whetstone fragment. Fill of posthole 1248.
1248	Cut	Sub-circular, vertical sided cut of posthole with a flattish to slightly concave. 460mm x 410mm x 350mm deep.
1249	Fill	Mottled dark brown and yellow clay and topsoil (mixed). Fill of posthole 1250.
1250	Cut	Rectangular, vertical sided cut of posthole with a flat base. 720mm x 600mm x 320mm deep.
1251	Fill	Mottled dark brown and yellow clay and topsoil (mixed). Fill of posthole 1252.
1252	Cut	Rectangular, vertical sided cut of posthole with flat base. 560mm x 240mm x 310mm deep. Cut by posthole 1250.
1253	Fill	Mottled greyish brown and beige moderately compacted clay with occasional small stones. Fill of posthole 1254.
1254	Cut	Rectangular, vertical sided cut of posthole with flat base. 680mm x 470mm x 180mm.
1255	Fill	Mottled greyish brown and yellow moderately compacted clay with occasional small pebbles and cbm. Fill of posthole 1256.
1256	Cut	Rectangular, steeply sided (80°) cut of posthole with flattish base. 550mm x 380mm x 150mm deep. Cut by posthole 1254.
1257	Fill	Mottled greyish brown and beige moderately compacted clay with occasional pebbles and pcs of coal. Fill of posthole 1258.
1258	Cut	Rectangular, vertical sided cut of posthole with flattish base. 210mm x 350mm x 100mm deep.
1259	Fill	Mottled dark brown and yellow clay with occasional small stones. Fill of posthole 1260.
1260	Cut	Rectangular cut of posthole. 880mm x 720mm. Unexcavated.
1261	Fill	Mottled dark brown and yellow clay. Fill of posthole 1262.
1262	Cut	Cut of square posthole. 490mm x 450mm. Unexcavated.
1263	Fill	Greyish brown and yellowish brown mottled sandy clay, loosely compacted with occasional charcoal and glass. Fill of posthole 1264.
1264	Cut	Rectangular, vertical sided cut of posthole with flat base.
1265	Fill	Mottled greyish brown and beige soft clay with occasional stones. Fill of posthole 1266.
1266	Cut	Rectangular, vertical sided cut of posthole with flattish base. 500mm x 300mm x 170mm deep.
1267	Fill	Mottled dark brown and yellow clay with occasional brick fragments. Fill of posthole 1268.

1268	Cut	Rectangular cut of posthole. 240mm x 280mm. Unexcavated.
1269	Fill	Mottled dark brown and yellow clay with occasional brick fragments. Fill of posthole 1270.
1270	Cut	Trapezoidal cut of posthole. 600mm x 430mm - unexcavated.
1271	Fill	Mottled dark brown and yellow clay with Occasional stones. Fill of posthole 1272.
1272	Cut	Square cut of posthole. 400 x 440mm - unexcavated.
1273	Fill	Mottled yellowish brown and dark brown firmly compacted clay with Occasional charcoal and brick fragments. Fill of posthole 1274. Cut by posthole 1231.
1274	Cut	Rectangular cut of posthole. 510mm x 380mm. Unexcavated.
1275	Cut	Rectilinear cut of drain with flat base aligned NW-SE. 2.03m long x 0.36m wide and 0.15m deep. Located within NW corner of gun annexe. Cut by 1478.
1276	Fill	Brown ceramic drain pipe within 1275.
1277	Fill	Dark brown topsoil with yellow clay patches firmly compacted fill of 1275.
1278	Structure	Pebbles in white grey cement matrix. 0.22m deep x 1.14m wide. Concrete foundations for buttresses on E drill hall wall.
1279	structure	Pebbles in white grey cement matrix. 0.40m deep x 1.20m wide. Concrete foundations for buttresses on W drill hall wall.
1280	Fill	Grey and yellow mottled clay, firmly compacted. Fill of posthole 1281 -massively truncated by ceramic drain running through middle of feature.
1281	Cut	Cut of rectangular posthole - massively truncated by ceramic drain 1138.
1282	Fill	Grey and yellow mottled clay, firmly compacted. Fill of posthole 1283 -massively truncated by ceramic drain running through middle of feature.
1283	Cut	Cut of rectangular posthole - massively truncated by drain trench 1138.
1284	Fill	Grey and yellow mottled clay, firmly compacted. Fill of posthole 1285 -massively truncated by ceramic drain running through middle of feature.
1285	Cut	Cut of rectangular posthole - massively truncated by ceramic drain 1138.
1286	Structure	Eastern external wall of Garrison Hall overlying the remains of the eastern drill hall wall 1179. 17.65m long.
1287	Cut	Cut of oval posthole, 500mm x 400mm - unexcavated.
1288	Fill	Mottled brown and yellow clay, firmly compacted. Fill of posthole 1287.
1289	Cut	Sub-circular, steeply sided cut of posthole with a flat base. 460mm x 650mm x 600mm deep.
1290	Fill	Dark brown and yellow mottled clay and topsoil mixed, firmly compacted with occasional stones, glass and fe. Fill of posthole 1289.
1291	Cut	Rectangular cut of posthole with rounded corners, vertical sided with a flat base. 320mm x 500mm x 460mm deep. Cuts posthole 1115.
1292	Fill	Dark brown and yellow mottled clay and topsoil, with occasional stones, glass. Contained the remnants of a hardwood timber post 1300. Fill of posthole 1291.
1293	Cut	Rectangular cut of posthole with rounded corners, vertical sided with a flat base. 500mm x 560mm x 650mm deep.
1294	Fill	Dark brown and yellow mottled clay and topsoil mixed, firmly compacted with occasional brick fragments. Fill of posthole 1293.
1295	Cut	Rectilinear with steep sides and a flat base - cut of beam-slot. 1.9m long x 0.25m wide x 0.20m deep.
1296	Fill	Dark brown silty clay loam firmly compacted with moderate gravel-small stones, occasional brick fragments, ceramic drain fragment, and marine shell. Fill of 1295.
1297	Structure	Phase 4 - modern concrete foundation/wall running n-s to east of gun annexe. 200mm wide, 350mm high, 4.4m long.

1298	Fill	Greyish brown silty clay loam with occasional stones and charcoal. Upper Fill of posthole 1131.
1299	Fill	Wooden post within posthole 1289. 190mm wide at the top tapering to 50mm at base and 540mm deep.
1300	Fill	Timber hardwood post within posthole 1291. 120mm wide at the top tapering to 90mm at base and 400mm deep.
1301	Fill	Brownish yellow clay with grey mottling, firmly compacted with occasional brick fragments. Fill of posthole 1302.
1302	Cut	Rectangular cut of posthole with rounded corners, vertical sided with shallow curve just before the flat base. 0.80m x 0.99m x 0.69m deep. Cuts 1304.
1303	Fill	Yellow with small patches of brown and grey flecking, firmly compacted clay with occasional animal bone and brick fragments. Fill of posthole 1304. Cut by 1302.
1304	Cut	Large rectangular, vertical sided cut of posthole with flat base. Cut by posthole 1302. 1.07m x 0.91m x 0.72m deep.
1305	Fill	Dark brown silty loam, loosely compacted with occasional brick fragments and wood pieces. Post-pipe within 1287.
1306	Fill	Yellowish brown clay with orange mottles, firmly compacted with occasional brick fragments and charcoal. Fill of posthole 1307.
1307	Cut	Rectangular cut of large posthole with rounded corners on w side. 1.03m x 0.70m - unexcavated. Cut by posthole 1129.
1308	Fill	Dark brown clay silt loam, loose and friable with occasional gravel, brick, animal bone, glass and wood pieces. Fill of refuse pit 1309.
1309	Cut	Rectangular with rounded corners, vertical except s side where slopes 45°, with a flat base. Cut of refuse pit. 1.01m x 0.32m x 0.44m deep.
1310	Fill	Dark brown clay silt loam with Occasional pebbles and charcoal. Fill of posthole 1311.
1311	Cut	Rectangular, steeply sided with 45° break of slope to concave base - cut of posthole. 0.46m x 0.34m x 0.32m deep.
1312	Fill	Yellow clay with mixed patches of dark brown topsoil with occasional brick, concrete pieces and wood, loosely compacted. Fill of posthole 1313.
1313	Cut	Square, vertical sided with slight tapering at bottom to a flat base. Cut of posthole.
1314	Fill	Mottled yellow and brown clay, firmly compacted with occasional small brick fragments. Fill of posthole 1315.
1315	Cut	Rectangular cut of posthole. 0.24m x 0.32m - unexcavated.
1316	Cut	Rectangular, vertical then steeply sided cut of posthole. 460mm x 440mm x 240mm deep.
1317	Fill	Mottled dark brown and yellow clay and silt loam, firmly compacted with occasional rounded stones. Fill of posthole 1316.
1318	Cut	Rectangular cut of posthole. 290mm x 240mm - unexcavated.
1319	Fill	Mottled dark brown and yellow clay and silt loam, firmly compacted with occasional rounded stones. Fill of posthole 1318.
1320	Cut	Rectangular cut of posthole. 540mm x 500mm - unexcavated.
1321	Fill	Mottled dark brown and yellow clay and silt loam, firmly compacted with occasional rounded stones. Fill of posthole 1320.
1322	Cut	Rectangular cut of posthole. 290mm x 200mm - unexcavated.
1323	Fill	Mottled dark brown and yellow clay and silt loam, firmly compacted with occasional rounded stones. Fill of posthole 1322.
1324	Cut	Rectangular cut of posthole. 160mm x 130mm - unexcavated.
1325	Fill	Mottled dark brown and yellow clay and silt loam, firmly compacted. Fill of posthole 1324.
1326	Cut	Circular (though only partly exposed) cut of posthole. 450mm wide - unexcavated.
1327	Fill	Mottled dark brown and yellow clay and silt loam, firmly compacted with occasional stones. Fill of posthole 1326.

1328	Cut	Square cut of posthole. 180 x 180mm - unexcavated.
1329	Fill	Mottled dark brown and yellow clay and silt loam, firmly compacted with occasional stones. Fill of posthole 1328.
1330	Cut	Rectangular cut of posthole. 400mm x 330mm x 250mm deep.
1331	Fill	Mottled dark brown and yellow clay and silt loam, firmly compacted with occasional brick fragments and mortar. Fill of posthole 1330.
1332	Cut	Rectangular (only partly exposed) cut of posthole. 200mm x 400mm - unexcavated.
1333	Fill	Mottled dark brown and yellow clay and silt loam, firmly compacted with occasional rounded pebbles. Fill of posthole 1332.
1334	Cut	Rectangular cut of posthole. 460mm x 260mm - unexcavated.
1335	Fill	Mottled dark brown and yellow clay and silt loam, firmly compacted with occasional rounded pebbles. Fill of posthole 1334.
1336	Cut	Square, vertical sided, cut of posthole with flat base. 500mm x 490mm x 220mm deep. Cut by posthole 1360.
1337	Fill	Mottled dark brown and yellow clay and silt loam, firmly compacted with occasional brick fragments and charcoal. Fill of posthole 1336. Cut by posthole 1360.
1338	Cut	Square cut of posthole. 230mm x 210mm - unexcavated.
1339	Fill	Mottled dark brown and yellow clay and silt loam, firmly compacted. Fill of posthole 1338.
1340	Cut	Square cut of posthole. 350mm x 370mm - unexcavated.
1341	Fill	Mottled dark brown and yellow clay and silt loam with occasional rounded pebbles, firmly compacted. Fill of posthole 1340.
1342	Cut	Square vertical sided posthole with flat base. 420mm x 400mm x 410mm deep.
1343	Fill	Dark brown clay silt loam with yellow patches of clay, firmly compacted. Fill of posthole 1342.
1344	Cut	Square vertical sided posthole with flat base. 250mm x 240mm x 130mm deep.
1345	Fill	Dark brown clay silt loam with yellow patches of clay, firmly compacted. Fill of posthole 1344.
1346	Fill	Yellowish brown clay with orange clay mottles, firmly compacted, with occasional CBM fragments, charcoal and animal bone. Fill of posthole 1347. Cut by 1349.
1347	Cut	Rectangular cut of posthole with vertical sides and a flat base. 0.84m wide x 0.76m (deep) - length unobserved - under bulk. Cut by posthole 1349.
1348	Fill	Yellow and greyish brown mottled clay, firmly compacted with occasional brick fragments and charcoal. 0.36m (wide) x 0.27m (deep). Fill of posthole 1349.
1349	Cut	Rectangular cut of posthole with vertical sides and a flattish to gently sloping base. 0.36m wide x 0.27m (deep) - length unobserved - under bulk. Cuts posthole 1347.
1350	Fill	Soft greyish brown silty clay loam with occasional shell, small stones, charcoal and brick fragments. 0.69m (depth) x 0.18m wide. Post-pipe within 1347.
1351	Fill	Dark brownish silty loam with small patches of yellow clay, loose and friable. 0.16m wide x 0.09m length x 0.2m deep. Post-pipe within posthole 1316.
1352	Cut	Rectangular, vertical sided cut of posthole with flat base. 0.77m x 0.485m x 0.28m (deep).
1353	Fill	Dark brownish silty loam with small patches of yellow clay, firmly compacted. Fill of posthole 1352.
1354	Cut	Rectangular cut of posthole with rounded corners, sloping sides and a flat base. 0.62m wide x 0.42m deep - length unobserved due to bulk.
1355	Fill	Mottled dark brown and yellow clay and silt loam, firmly compacted with occasional gravel, charcoal and brick fragments. Fill of posthole 1354.
1356	Fill	Greyish brown indurated silty clay, with occasional small stones, slate fragments, CBM, & charcoal. 0.39m x 0.08m x 5.3m length. Fill of drain 1357. Abuts 1359.
1357	Cut	Cut of drain with 45° sides and a slightly concave base. Aligned E-W then curving SE-NW. 0.39m x 0.08m (depth) x 5.3m. Abuts 1359. Cut by 1365, 1404 1206.

1358	Fill	Mottled yellow and brown clay, firmly compacted with occasional small stones and charcoal. 0.54m x 0.26m (deep) - x unobserved. Fill of posthole 1359.
1359	Cut	Cut of rectangular posthole with 45° sides (stepped on s side) and a flat base. 0.54m x 0.26m (deep) - x unobserved. Cut by posthole 1367.
1360	Cut	Rectangular vertical sided (with step on N edge) posthole with flat base. 0.64m x 0.40m x 0.64m deep. Cuts 1336.
1361	Fill	Dark brown clay silt loam with yellow patches of clay, firmly compacted with occasional brick and concrete fragments, angular rocks. Fill of posthole 1360.
1362	Structure	Northern garrison hall wall section. 21.2m long x 0.56m wide.
1363	Structure	Concrete foundations of internal Garrison Hall basement wall exposed within rifle range basement gallery. 3.84m in length x 0.73m wide.
1364	Fill	Greyish brown clay with yellow clay mottles, firmly compacted with occasional charcoal and brick fragments. Fill of posthole 1365.
1365	Cut	Cut of rectangular posthole with smooth, 45° sides and a slightly concave base. 0.52m x 0.28m (deep) - x unobserved. Cuts drain 1357 and posthole 1367.
1366	Fill	Yellow and brown mottled clay, firmly compacted with occasional charcoal and brick fragments. Fill of Posthole 1367. Cut by posthole 1365.
1367	Cut	Rectangular vertical sided posthole with flat base. 0.93m x 0.83m x 0.69m deep. Cut by posthole 1365.
1368	Cut	Rectilinear vertical sided cut for wall, aligned N-S. Base unobserved. 140mm
1369	Structure	N-S Aligned wall seen on N side of temporary road where it is abutted by Rifle Range. Same as 1179 - Eastern drill hall wall.
1370	Fill	Light greyish brown clay, firmly compacted. Backfill of construction cut for eastern drill hall wall 1369=1179.
1371	Fill	Brownish mid-grey silty loam, soft with occasional charcoal and small stones. 0.16m wide x 0.68m deep. Post pipe within 1367.
1372	Cut	Rectangular cut for posthole - unexcavated. 0.27m x 0.2m. Cut by posthole 1374.
1373	Fill	Dark brown clay silt loam with yellow patches of clay, firmly compacted. Fill of posthole 1372. Cut by posthole 1374.
1374	Cut	Rectangular cut for posthole - unexcavated. 0.60m x 0.39m. Cuts PH 1372
1375	Fill	Dark brown clay silt loam with yellow patches of clay, firmly compacted, with occasional brick fragments. Fill of posthole 1374. Cut by posthole 1374.
1376	Cut	Rectangular cut for posthole - unexcavated. 0.68m x 0.50m. Cut by posthole 1378.
1377	Fill	Mid-brown clay silt loam with yellow patches of clay, firmly compacted, with occasional rounded stones. Fill of posthole 1376. Cut by posthole 1378.
1378	Cut	Rectangular cut for posthole - unexcavated. 0.70m x 0.60m. Cuts 1376
1379	Fill	Dark-brown clay silt loam with yellow patches of clay, firmly compacted, with occasional brick fragments. Fill of posthole 1378.
1380	Structure	Section of the Garrison Hall's western external wall (Taranaki street frontage). 9.01m in length x 0.72m wide constructed with prison bricks.
1381	Cut	Cut of rectangular posthole. 0.39m x 0.36m unexcavated.
1382	Cut	Rectangular cut for posthole - unexcavated. 0.20m x 0.22m. Cuts 1392
1383	Fill	Dark-brown clay silt loam with yellow patches of clay, firmly compacted, with occasional rounded stones. Fill of posthole 1382.
1384	Fill	Dark-brown clay silt loam with yellow patches of clay, firmly compacted, with occasional brick fragments, animal bone and charcoal. Fill of posthole 1385.
1385	Cut	Rectangular cut for posthole with rounded corners and a flattish base. 1.06m x 0.57m x 0.27m deep (only partially excavated). Cuts PH 1387.
1386	Fill	Dark-brown clay silt loam with yellow patches of clay, firmly compacted, with Occasional brick fragments, animal bone and charcoal. Fill of 1387. Cut by 1385.
1387	Cut	Rectangular, vertical sided cut of posthole with flattish base. 0.80m x 0.62m x 0.11m deep. Cut by posthole 1385.

1388	Fill	Dark brown loam with yellow clay fragments, compact. Fill of posthole 1389. Cut by 1387.
1389	Cut	Rectangular in plan, vertical sides, flat base. 0.4 m x 0.7m visible. Posthole.
1390	Fill	Dark brown loam with occasional yellow clay fragments. Fill of posthole 1391. Cut by posthole 1389.
1391	Cut	Rectangular cut of posthole with vertical sides, flat base with post mould. 0.4m x 0.5m x 0.3m.
1392	Cut	Square cut of posthole. 500 x 500mm - unexcavated. Cut by posthole 1382, 1394.
1393	Fill	Dark-brown clay silt loam with yellow patches of clay, firmly compacted, with occasional brick fragments. Fill of posthole 1392. Cut by postholes 1382, 1394.
1394	Cut	Rectangular cut for posthole - unexcavated. 0.15m x 0.12m. Cuts 1392
1395	Fill	Dark-brown clay silt loam with yellow patches of clay, firmly compacted, with occasional stones. Fill of posthole 1394.
1396	Fill	Dark-brown clay silt loam with yellow patches of clay, firmly compacted, with occasional stones. Fill of posthole 1397.
1397	Cut	Irregular cut of vertically truncated posthole. 0.38m x 0.26m. Only the base remaining.
1398	Fill	Fill of posthole 1381
1399	Fill	Greyish brown with yellow mottles, clay, firmly compacted with occasional charcoal and brick fragments. Fill of posthole 1400. Cut by posthole 1404.
1400	Cut	Rectangular cut of posthole with 45° sides. Base not observed due to truncation. 0.24m x 0.30m x 0.17m (minimum). Cut by posthole 1404.
1401	Fill	Orange, brown and yellow mottled firm clay, with occasional charcoal and brick fragments. 0.87m x 0.61m x 0.56m (deep). Fill of 1402. Cut by 1206 & 1404.
1402	Cut	Rectangular cut of posthole with vertical sides on S, E, W and sloped 70° on N side with a concave base. 0.87m x 0.61m x 0.56m deep. Cut by 1206 & 1404.
1403	Fill	Mid-grey and orange mottled clay, firmly compacted with occasional brick pcs and charcoal. 0.83m x 0.76m x 0.89m deep. Fill of posthole 1404.
1404	Cut	Rectangular cut of posthole, vertical sided and a flat to slightly concave base. 0.83m x 0.76m x 0.89m (deep). Cuts postholes 1400 & 1402 and drain 1357.
1405	Fill	Brownish light grey silty clay loam, firmly compacted with occasional brick and charcoal. Fill of posthole 1406. Cuts drain 1357. Abuts 1140.
1406	Cut	Rectangular cut of posthole, vertical sided with a flat base. 0.29m x 0.28m deep (seen in section). Cuts drain 1357. Abuts 1140.
1407	Fill	Dark-brown clay silt loam with yellow patches of clay, firmly compacted, with Occasional rounded stones. Fill of drain 1408.
1408	Cut	Rectilinear cut of drain, aligned N-S, cut with vertical sides and a flat base. 400mm wide.
1409	Fill	Very compacted yellowish brown and greyish brown mottled clay - fill of large rectangular posthole 1410.
1410	Cut	Cut of large likely rectangular posthole truncated by postholes 1372; 1374; 1376 and 1378.
1411	Fill	Glazed earthenware drain pipe stamped 'P Hutson Wellington' within cut 1408
1412	Fill	Light greyish brown clayey silt, firmly compacted. Upper fill of ditch 1415. Observed n in S L.O.E.
1413	Fill	Whitish beige clay, firmly compacted. Secondary fill of ditch 1415. Observed n in S L.O.E.
1414	Fill	Orangey beige silty clay, firmly compacted. Primary fill of ditch 1415. Represents primary silting of the ditch. Observed n in S L.O.E.
1415	Cut	Sloping 45° cut of possible ditch with concave base. Observed in Southern L.O.E. 2.4m wide x 0.51m deep.
1416	Fill	Greyish brown organic silt, soft. Fill of rectangular open earthen drain 1417. Observed in Southern L.O.E.
1417	Cut	Rectangular, vertical sided cut of earthen drain with flat base. 0.34m wide x 0.14m deep. Observed in Southern L.O.E.

1418	Fill	Yellowish light brown silty clay, firmly compacted with mod charcoal, occasional small stones, brick fragments, animal bone and burnt bone. Fill of drain 1419 beneath brick drain 1141. Cut by 1140. 0.06m deep x 0.74m wide.
1419	Cut	Rectilinear cut for earthen drain with flat base. Sides not observed due to truncation by 1140 (cut for brick lined drain 1141. 0.06m deep (surviving) 0.74m wide.
1420	Fill	Yellow and brown mottled clay, firmly compacted with mod charcoal, occasional cbm fragments, ceramic. Backfill of construction cut 1140 for brick drain 1141.
1421	Fill	Dark-brown clay silt loam with yellow patches of clay, firmly compacted, with occasional brick fragments. Fill of posthole 1422.
1422	Cut	Square or rectangular posthole cut with steep 70° sides and a flattish base. 0.35m wide x 0.40m deep. Observed in Southern L.O.E.
1423	Fill	Dark-brown clay silt loam with yellow patches of clay, firmly compacted, with occasional brick fragments and small stones. Fill of posthole 1424.
1424	Cut	Rectangular or square cut of posthole vertical sided with a flat base. 0.4m x 0.5m (deep). Observed in Southern L.O.E.
1425	Fill	Dark brown silty clay loam with frequent brick, mortar and pieces of tarmac near top of fill. Fill of posthole 1426. Observed in Southern L.O.E.
1426	Cut	Cut of posthole with vertical sides and a flat base. Shape in plan not seen. 0.39m x 0.27m deep. Observed in Southern L.O.E.
1427	Fill	Brownish yellow fractured rock, indurated. 1.20m wide x 0.11m thick. Upper fill of ditch 1431. Sealed by 1432.
1428	Fill	Brownish grey clay silt loam with frequent crushed marine shell, firmly compacted. 1.10m wide x 0.09m thick. Tertiary fill of ditch 1431.
1429	Fill	Light brownish mid grey clay with yellow clay mottles and moderate broken rock and stones, firmly compacted. 0.76m wide x 0.16m thick. Secondary fill of ditch 1431.
1430	Fill	Mid grey silty clay with frequent large brick pieces and broken rock and frequent animal bone, firmly compacted. 0.3m wide x 0.09m thick. Primary fill of ditch 1431.
1431	Cut	Rectilinear cut of ditch with 45° sloping sides then a step with a vertical cut down to a rectangular drain shaped bottom of ditch with a flat base. (Funnel shaped). 1.06m wide x 0.48m deep.
1432	Layer	Orange and black broken brick, stones, crushed cbm with occasional coal and charcoal, very firmly compacted layer. This layer was immediately beneath the concrete floor of the rifle range and represents a foundation layer prior to the concrete floor being put in.
1433	Structure	Brick culvert with concrete skim over brick work, with a wrought iron grate cover. This represents a stream that was culverted over probably during the 1880's. The ditch 1431 was cut by this structure and likely originally drained into an open stream prior to its culverting.
1434	Cut	Rectilinear vertical sided cut with a flat base for construction of rear E-W drill hall wall. 0.19m wide of brickwork on southern side of wall and 0.17m deep. Filled by 1435 (wall) and 1436.
1435	Structure	Linear, E-W aligned brick wall, bonded with light brownish yellow sandy mortar. 37 courses remaining including the two foundation courses (Rear Drill Hall wall). Coursing/bonding in English Cross style. Fill of 1434. Abutted by 1437. Foundations were constructed in the free standing method.
1436	Fill	Dark blue with white mottles, firmly compacted clay with occasional charcoal and animal bone. 0.19m wide of brickwork on southern side of wall and 0.17m deep. Same as 1093
1437	Structure	Linear, E-W aligned brick wall, bonded with grey cement mortar. South-eastern most east-west aligned Rifle Range wall. Brickwork was painted white on the inside (N facing). Exterior not observed as it abutted 1435. Rifle range wall - southern wall of first gallery where ramp enters the range. Prison bricks. 15.28m long x 0.47m wide and surviving up to 2.2m high.
1438	Structure	Brick internal diagonal corner buttress. Light brownish yellow sandy mortar. Fill of 1434. Contemporary with 1435.
1439	Cut	Rectangular, vertical sides - Cut for buttress 1440. Cuts 1435.

1440	Structure	Brick buttress. Concrete mortar. Fill of 1439.
1441	Fill	Mottled (yellow, white, dark brown) clay, firmly compacted with mod inclusions of cement mortar. Fill of construction cut 1439.
1442	Cut	Cut of rifle range wall. Cuts 1063
1443	Fill	Backfill of rifle range cut 1442.
1444	Structure	Brick buttress. Light brownish yellow sandy mortar. Contemporary with 1435. Fill of 1434.
1445	Structure	Brick buttress. Light brownish yellow sandy mortar. Contemporary with 1435. Fill of 1434.
1446	Structure	Brick buttress. Light brownish yellow sandy mortar. Contemporary with 1435. Fill of 1434.
1447	Cut	Cut of ditch seen in section beneath western end off rifle range gallery. Cuts ditch 1431.
1448	Fill	Firmly compacted mid-grey silty clay with occasional inclusions of fragmented angular stones, broken brick, charcoal and fragmented oyster shell. Primary fill of ditch 1447.
1449	Fill	Firmly compacted light grey clay and yellow clay with crushed rock lens within at southern extent. Secondary fill of ditch 1447.
1450	Fill	Firmly compacted dark grey clay with patches of yellow clay intermixed and containing occasional inclusions of broken brick, fragmented oyster shell, and small angular stones. Upper fill of ditch 1447. Sealed by layer 1432.
1451	Cut	Construction cut for brick and concrete culverted stream 1433
1452	Fill	Backfill of construction cut 1451
1453	Cut	Cut of concrete foundations 1363 of internal Garrison Hall basement wall.
1454	Cut	Construction cut for Garrison Hall wall 1362.
1455	Cut	Construction cut for Garrison Hall wall 1380.
1456	Layer	Concrete floor of Garrison Hall Basement (northern rifle range gallery)
1457	Layer	Made ground levelling layer above 1093 and sealing ditch fills 1427 and 1450. Sealed by layer 1432.
1458	Fill	Whitish grey concrete within cut 1175 forming a plinth for buttress 1176.
1459	Fill	Whitish grey concrete within cut 1172 forming a plinth for buttress 1173
1460	Fill	Whitish grey concrete within cut 1169 forming a plinth for buttress 1170.
1461	Fill	Whitish grey concrete within cut 1166 forming a plinth for buttress 1167.
1462	Fill	Whitish grey concrete within cut 1163 forming a plinth for buttress 1164.
1463	Fill	Whitish grey concrete within cut 1160 forming a plinth for buttress 1161.
1464	Cut	Cut of rectangular post-pad footing. 0.28m x 0.40m x 0.12m deep (surviving dimensions).
1465	Fill	Orange and red frogged sandstock bricks.
1466	Cut	Recti-linear, vertical sided, E-W aligned construction cut for wall 1468. Western end of Buckle Street facing Garrison Hall wall.
1467	Structure	Concrete foundations for wall 1468. 0.68m wide. Smooth pour concrete.

1468	Structure	E-W aligned brick wall with coursing/bond in the English cross style. Bricks bonded with cement mortar. Far western end of front wall of 1907 Garrison Hall truncated vertically and longitudinally by Phase 4 - modern service trench and cut across near western terminus on Taranaki Street frontage by a stormwater trench.
1469	Structure	Remains of the 1909 Gunnery Annexe consists of walls 1028; 1030; 1068; 1099; 1654 and lifting mechanism housing well 1038.
1470	Structure	Imperial military barracks consists of postholes 1681; 1717; 1715; 1713; 1711; 1710; 1708; 1719; 1722; 1724; 1687; 1690; 1691; 1693; 1695; 1697; 1699; 1763; 1766; 1768 and 1701; post-pad 1663 and beam-slot 1684.
1471	Structure	Small building immediately to northeast of military barracks consists of postholes 1302; 1304; 1347; 1349; 1502; 1504; 1510; 1512; 1516; 1518; 1520; 1523; 1525; 1527; 1529; 1533; 1535; 1536; 1542; 1544; 1546; 1548; 1550; 1553 and 1555. Also includes beam slots 1507; 1514 and 1516.
1472	Structure	Large timber structure of unknown function to north of barracks consists of postholes 1309; 1315; 1316; 1318; 1320; 1322; 1324; 1313; 1326; 1328; 1332; 1334; 1354; 1381; 1392; 1340; 1338; 1397; 1372; 1374; 1376; 1378; 1336; 1360; 1342; 1352; 1344; 1410; 1330; 1391; 1389; 1387; 1385; 1359; 1365; 1367; 1400; 1402; 1404; 1406 and 1464.
1473	Structure	Small timber structure within footprint of drill hall. Consists of postholes 1183; 1184; 1185; 1192; 1193; 1746 and beam slot 1642.
1474	Structure	Small timber structure north of Gunnery Annexe. Consists of postholes 1234; 1236; 1238; 1242 and 1240 and beam slot 1295.
1475	Structure	Armed Constabulary stables. Consists of postholes
1476	Fill	Backfill of construction cut 1042 on east side of wall. Same as 1049.
1477	Fill	Backfill of construction cut 1049 on west side of wall. Same as 1042.
1478	Cut	Linear construction cut, E-W oriented, vertical sides, flat base. Construction cut for wall 1099.
1479	Fill	Backfill of construction cut 1478.
1480	Fill	Remains of hardwood timber post within backfill 1120 in posthole 1119.
1481	Layer	Interbedded brown and yellowish brown Holocene sands, silts and gravels sealed by the natural clay (1052). Present to the base of well 1596 at a depth of 9m but would extend to the greywacke bedrock.
1482	Structure	Remains of the southern end of the western drill hall wall abutting the Garrison Hall façade wall (context 1558) and sitting atop brick footings. The wall was 0.74m long and 0.83m wide.
1483	Structure	Remains of the northern section of the western wall of the 1877 Drill Hall. Joins rear drill hall wall and abuts Garrison Hall wall 1437. 3.46m in length x 0.34m wide.
1484	Structure	Entranceway and exterior wall of the 1907 Garrison Hall Basement Rifle Range. 5.35m long x 0.47m wide and up to 2.1m high.
1485	Structure	E-W aligned brick wall with coursing/bond in the English cross style. Bricks bonded with cement mortar. Front wall of 1907 Garrison Hall. 6.5m long x 0.74m wide and 0.48m high.
1486	Structure	Concrete floor within gun well 1038 to support lifting mechanism for Armstrong Disappearing Gun.
1487	Void	
to	Void	
1499	Void	
1500	Layer	Dark brown clay silt loam, firmly compacted with frequent broken brick, moderate charcoal and occasional concrete fragments. Demolition layer containing frequent 19th century artefacts overlaying subsoil - context 1093.
1501	Fill	Greyish mid-brown clay with patches of intermixed topsoil, firmly compacted. Fill of posthole 1502.

1502	Cut	Rectangular, vertical sided cut of posthole. 0.33m x 0.28m x 0.22m deep.
1503	Fill	Dark brown intermixed clay and topsoil, firmly compacted. Fill of posthole 1504
1504	Cut	Square, vertical sided on N and S side with steeply sloped sides on E and W cut of posthole. 0.26m x 0.26m x 0.10m. Vertically truncated.
1505	Fill	Greyish light brown silty clay with yellow mottles, very firmly compacted with Occasional animal bone, Occasional broken bricks and roof slate fragments, and Occasional charcoal. 0.45m x 0.10m (depth) x 7.5m minimum length - disappeared beneath edge of ex. Fill of beam slot 1507. Sealed by 1500.
1506	Fill	Greyish light brown clay with yellow mottles, firmly compacted. Occasional charcoal and Occasional brick fragments. 0.10m (wide) x 0.14m (deep) x 7.5m (length) minimum. Backfill of construction cut of beam slot 1507.
1507	Cut	Recti-linear, vertical sided cut of beam slot, aligned E-W and with a flat base. 0.18m deep x 0.50m wide x at least 7.5m length.
1508	Fill	Dark brown re-deposited topsoil, firmly compacted with frequent brick fragments, marine shell fragments, occasional animal bone and charcoal pieces. Fill of posthole 1510.
1509	Fill	Reddish brown rotted timber post. 0.14m x 0.09m x 0.16m (deep). Remains of timber post in posthole 1510.
1510	Cut	Rectangular, vertical sided cut of posthole with a flat base. 0.34m x 0.26m x 0.16m (deep).
1511	Fill	Dark brown re-deposited topsoil, firmly compacted with frequent brick fragments, and Occasional charcoal. Fill of posthole 1512.
1512	Cut	Rectangular, vertical sided cut of posthole with a flat base. 0.38m x 0.29m x 0.09m (deep). Vertically truncated.
1513	Fill	Dark brown re-deposited topsoil, with mottles of yellow clay, firmly compacted with occasional brick fragments, & charcoal. Fill of beam slot 1514. Sealed by 1500.
1514	Cut	Recti-linear, vertical sided cut of beam slot, aligned E-W and with a flat base. 0.05m deep x 0.30m wide x 3.27m in length. Truncated at eastern end by a late 19th century drain and also heavily vertically truncated.
1515	Fill	Brick footings for timber beam in beam slot 1514. Sealed by 1500.
1516	Cut	Recti-linear, vertical sided cut of beam slot, aligned E-W with a flat base to house brick footings for beam slot. 1.61m x 0.30m wide x 0.08m deep. Sealed by 1500.
1517	Fill	Dark brown firmly compacted silt clay loam with occasional small and large stones, brick fragments and charcoal. Fill of posthole 1518.
1518	Cut	Rectangular, vertical sided cut of posthole with a flat base. 0.32m x 0.24m x 0.19m (deep). Vertically truncated.
1519	Fill	Dark brown re-deposited topsoil, with mottles of yellow natural clay, firmly compacted with occasional brick fragments, small stones and charcoal. Fill of Posthole 1520.
1520	Cut	Rectangular, vertical sided cut of posthole with a flat base. Whole posthole not seen in plan as it extended beyond excavation area. Vertically truncated. 0.56m x? X 0.80m deep.
1521	Fill	Greyish dark brown silt clay loam moderately compacted with occasional brick fragments, charcoal and small stones. Upper fill of posthole 1523.
1522	Fill	Light brownish yellow clay, firmly compacted with occasional charcoal and small stones. Lower fill of posthole 1523.
1523	Cut	Rectangular cut of posthole with vertical sides on N side and steep 70° on S side. 0.40m x 0.42m x 0.29m. Filled by 1521 and 1522.
1524	Fill	Dark brown firmly compacted redeposited topsoil with occasional coal, brick fragments, small pebbles and window glass. Fill of posthole 1525.
1525	Cut	Rectangular, vertical sided cut of posthole with a flat base. Vertically truncated. 0.33m x 0.22 X 0.04m deep.
1526	Fill	Yellow firmly compacted clay with patches of re-deposited dark brown topsoil with occasional broken bricks. Fill of posthole 1527.
1527	Cut	Rectangular, vertical sided cut of posthole with a flat base.

1528	Fill	Yellow firmly compacted clay with patches of re-deposited dark brown topsoil with occasional broken bricks. Fill of posthole 1529.
1529	Cut	Probable rectangular cut of posthole with vertical sides and flat base. Not seen in its entirety as feature extended beyond limit of excavation. 0.60m x? X 0.80m deep.
1530	Fill	Dark brown re-deposited topsoil with patches of yellow natural, firmly compacted clay with occasional mortar, charcoal and small pebbles. Fill of posthole 1531.
1531	Cut	Circular, 45° sided cut of posthole with a flat base. 0.52m x 0.24m x 0.03m. Vertically truncated as was the surrounding area.
1532	Fill	Dark brown re-deposited topsoil with patches of yellow natural, firmly compacted clay. Fill of posthole 1533.
1533	Cut	Rectangular vertical sided on N, 45° on all other sides cut of posthole. 0.35m x 0.29m x 0.13m. Vertically truncated as was the surrounding area.
1534	Fill	Dark brown re-deposited topsoil with patches of yellow natural, firmly compacted clay with occasional brick fragments and small pebbles. Fill of posthole 1535.
1535	Cut	Square, vertical sided cut of posthole with a flattish base. 0.30m x 0.30m x 0.10m. Vertically truncated as was the surrounding area.
1536	Fill	Dark brown re-deposited topsoil with patches of yellow natural, firmly compacted clay with iron staining in spotting throughout fill. Fill of posthole 1537.
1537	Cut	Sub-circular cut for posthole with 45° sides and a flat base. 0.37m x 0.35m x 0.03m deep. Vertically truncated as was the surrounding area.
1538	Fill	Dark brown re-deposited topsoil with patches of yellow natural clay, firmly compacted with frequent water worn pebbles ranging in size from 15cm to 1-2cm. Fill of drain trench 1540.
1539	Fill	Brown ceramic drainpipe within cut 1540. 10cm internal diameter and 14cm external.
1540	Cut	Recti-linear cut of trench for ceramic drain 1539 oriented NNW-SSE. 4.4m in length x 0.38m wide. Unexcavated. Filled by 1538 and 1539.
1541	Fill	Greyish dark brown silt clay loam firmly compacted with occasional brick fragments, charcoal, burnt bone and small pebbles. Fill of posthole 1542.
1542	Cut	Rectangular, vertical sided cut of posthole with flat base. 0.35m x 0.28m x 0.10m. Vertically truncated.
1543	Fill	Dark brown silt clay loam firmly compacted with occasional bricks, mortar, roof slate (demo material) and occasional charcoal. Fill of posthole 1544.
1544	Cut	Rectangular, vertical sided cut of posthole with a flat base. 0.34m x 0.31m x 0.11m. Vertically truncated.
1545	Fill	Dark brown silt clay loam firmly compacted with occasional bricks, occasional mortar, (demo material) small pebbles and charcoal. Fill of posthole 1546.
1546	Cut	Square vertically sided cut of posthole. 0.22m x 0.22m x 0.08m. Vertically truncated.
1547	Fill	Dark greyish brown re-deposited topsoil, firmly compacted with moderate well-worn pcs of demo material (brick, mortar, slate, fe nails etc.) and occasional small stones. Fill of posthole 1548.
1548	Cut	Square, vertically side cut of posthole with a flat base. 0.20m x 0.20m x 0.08m deep. Vertically truncated.
1549	Fill	Dark greyish brown re-deposited topsoil, firmly compacted with occasional small stones. Fill of posthole 1550.
1550	Cut	Square, vertically side cut of posthole with a flat base. 0.23m x 0.23m x 0.08m deep. Vertically truncated.
1551	Fill	Remains of rotten timber post within posthole 1550.
1552	Fill	Dark brown topsoil with yellow clay patches firmly compacted fill of posthole 1553.
1553	Cut	Sub oval cut of posthole with gradual sloping sides (45°), with a concave base. 0.50m x 45m x 0.45m.
1554	Fill	Dark brownish black, loose and friable clay silt loam with frequent inclusions of gravel and Occasional charcoal. Fill of posthole 1555.
1555	Cut	Rectangular, steep sided (70°) cut for posthole which tapered in to a flat base. 0.35m x 0.30m x 0.07m deep. Vertically truncated.
1556	Cut	Rectilinear, vertical sided construction cut for E-W aligned brick wall 1558 and concrete beam/pedestal 1557. 0.28m wide of South side of wall.

1557	Structure	Concrete foundations of wall 1558.
1558	Structure	E-W aligned brick wall with coursing/bond in the English cross style. Bricks bonded with cement mortar. Front wall of 1907 Garrison Hall. 17.74m long x 0.74m wide and 6 courses high.
1559	Fill	Green and brown mottled clay, moderately compacted with no visible inclusions. Backfill of construction cut 1556.
1560	Cut	Rectilinear, vertical sided construction cut for N-S aligned brick wall 1563. The cut was 0.30m wide of the South side of the wall.
1561	Fill	Brownish dark grey clay, firmly compacted with Occasional charcoal flecks and Occasional small brick fragments. Backfill of construction cut 1560.
1562	Fill	Concrete foundations containing frequent medium pebbles 2-7cm in length and 3-5cm in width. Footings for wall 1563. 0.60m thick.
1563	Structure	N-S aligned section of brick walling with coursing/bond in the English cross style. Bricks bonded with cement mortar. Internal wall of 1907 Garrison Hall. 1.4m in length surviving which was 0.48m wide.
1564	Cut	Rectilinear, vertical sided construction cut for E-W aligned brick Garrison Hall wall 1567. The cut was 0.37m wide of the South side of the wall.
1565	Fill	Brownish dark grey clay, firmly compacted with Occasional charcoal flecks and Occasional small brick fragments. Backfill of construction cut 1564.
1566	Fill	Concrete foundations containing frequent medium pebbles 2-7cm in length and 3-5cm in width. Footings for wall 1567. 0.59m thick. The deposit changes from a pebbly concrete to smooth pour concrete in the extreme western end of the wall.
1567	Structure	E-W aligned brick wall with coursing/bond in the English cross style. Bricks bonded with cement mortar. Internal wall of 1907 Garrison Hall. 6.01m in length and 0.60m wide.
1568	Cut	Recti-linear, vertical sided, N-S aligned construction cut for wall 1570.
1569	Fill	Mottled yellow, brown and light greenish blue clay, moderately compacted with occasional brick fragments, charcoal, mortar, iron fragments and small stones. Backfill of construction cut 1569.
1570	Structure	N-S aligned brick wall section with coursing/bond in the English cross style. Bricks bonded with a yellowish brown sandy mortar. Surviving southern stretch of the Western Drill Hall wall. Surviving section was 3.3m x 0.365m wide. Foundations were constructed in the free standing method. 1570 = 1062.
1571	Structure	NNE-SSW aligned concrete drain abutting the western (exterior) drill hall wall 1570. The drain only survived in one small section that was 1.19m long x 0.24m wide and was 0.065m thick.
1572	Cut	Rectangular, vertical sided - cut for buttress 1575. Cuts drill hall wall 1570.
1573	Fill	Mid-brownish yellow silty clay, moderately compacted. Occasional brick fragments. Backfill of 1572.
1574	Fill	Greyish light brown clay with yellow mottles, firmly compacted. Occasional charcoal and roof slate fragments. Backfill of construction cut of beam slot 1516.
1575	Structure	Brick buttress. Cement mortar. Heavily truncated N-S 0.55m remaining; E-W 0.35m remaining. Prison bricks.
1576	Cut	Rectangular, vertical sides - Cut for buttress 1579. Cuts drill hall wall 1570 and drain 1571.
1577	Fill	Mottled yellow and brown clay, moderately compacted with occasional brick fragments, charcoal, mortar, and small stones. Backfill of construction cut 1576.
1578	Structure	Concrete with frequent rounded pebbles. Foundations for brick buttress 1579. 0.30m thick.
1579	Structure	Brick buttress. cement mortar. Prison bricks.
1580	Cut	Recti-linear cut for beam slot/footings trench with vertical sides on N side and 45° on S side with a flat base. 4.35m (visible but extending beyond L.O.E.) x 0.56m wide x 0.18m deep.

1581	Fill	Orange brown degraded sandstone, indurated compaction. 0.36m wide x 0.12m deep. Lower fill of beam slot 1580.
1582	Fill	Yellowish mid-brown clay, firmly compacted with occasional brick fragments. 0.56m wide x 0.06m deep. Upper fill of beam slot 1580.
1583	Cut	Rectangular cut of posthole. 0.43m x 0.26m. Unexcavated.
1584	Fill	Brownish grey clay with red mottles, moderately compacted with occasional brick fragments and rounded small stones. Fill of posthole 1583.
1585	Cut	Rectangular cut of posthole. 0.44m x 0.25m. Unexcavated.
1586	Fill	Brownish grey clay with red mottles, moderately compacted with occasional brick fragments and rounded small stones. Fill of posthole 1585.
1587	Cut	Phase 4 - modern service trench cut through 1001 and Garrison Hall wall 1567. Backfilled with 65mm aggregate (1001). 1.7m wide and 1.4m deep.
1588	Cut	Rectangular, vertical sided cut for drain within wall 1570, with a sloping base (E to W) which would have drained the interior of the drill hall to the outside. 0.23m deep x 0.10m wide.
1589	Structure	Rectangular concrete drain occupying cut 1588 within wall 1570. The concrete sides were 0.004m thick and the base 3.5cm. Smooth concrete - no pebbles.
1590	Cut	Recti-linear e-w aligned cut for beam slot. Only the south and east sides of the cut remain due to truncation, and the cut was vertical on S, and vertical to undercut on the E side with a flat base. 2.56m x 0.43m wide x 0.26m deep were all that remained.
1591	Fill	Greyish brown clayey silt with patches of intermixed dark brown topsoil, softly compacted with Occasional small stones and Occasional charcoal. Fill of construction cut 1590. A pistol ball and musket ball was retrieved from this context.
1592	Cut	Rectangular, steep sided (70°) cut for posthole with a slightly concave base. 0.55m x 0.34m x 0.18m deep. Vertically truncated. Located near SE corner of the front wall of the drill hall.
1593	Fill	Mottled brown and yellow clayey silt, moderately compacted with occasional wood fragments, whole bricks, fe nails, small stones and charcoal. Fill of posthole 1592.
1594	Structure	Stone building, rectangular in plan consisting of two cells (rooms) constructed with large quarried rock cobbles that are faced to the inside and outside with a rubble core. The walls are 0.60m thick and bonded with a light brownish grey sandy, shelly mortar. Probably early 1840's.
1595	Cut	Circular cut for well with vertical sides, 1.54m in diameter x 9m (approximately) deep. Truncated vertically by Phase 4 - modern services apart from northern side for first 1.2m.
1596	Structure	Brick lined well, 1.50m (5ft) in diameter, bonded with a light brownish yellow sandy mortar containing crushed shell fragments. The bricks had a wide, very shallow frog and were hand made. The well was situated to the south of the front wall of the drill hall and therefore probably predates it by some years.
1597	Fill	Bluish dark grey gritty fine silt, softly compacted and waterlogged with moderate inclusions of broken bricks, Occasional whole bricks, Occasional window pane shards, Occasional fe nails and Occasional wood pieces. The well appears to have been deliberately backfilled in the early twentieth century. Upper fill of well 1596. The deposit was completely waterlogged for the final 3m. Seals 1606 (lower fill).
1598	Cut	Recti-linear, vertical sided cut for stone drain aligned NW-SE. The drain runs adjacent to the northern wall (context 1605) of the stone building 1594. 0.53m x 2.5m (visible) X 0.31m deep = 1133.
1599	Fill	Mottled pale blue, yellow and brownish grey clay, firmly compacted with occasional charcoal, small stone brick fragments and fe nails. Fill of drain 1598.
1600	Structure	Rock lined "French" drain within cut 1598 and comprised of large pcs of quarried greywacke rock lining a channel in the base of the drain, with rocks sealing the top and small packing stones filling gaps to prevent soil infill. Large rocks up to 0.35m x 0.20m x 0.15m to packing stones of 0.05m x 0.10m x 0.02m.
1601	Cut	Recti-linear vertical sided construction cut for stone wall 1603 aligned NNE-SSW with a flat base. 2.75m x 0.60m x 0.35m (depth).

1602	Fill	Void
1603	Structure	NNE-SSW aligned western exterior wall of stone structure 1594. The wall consists of the foundation courses of a hard light grey fine grained rock (greywacke), tightly packed with packing stones and faced on the east and west sides and bonded with mortar 1625. 3.03m x 0.60m x 0.35m (depth)
1604	Cut	Recti-linear vertical sided construction cut for stone wall 1605 aligned WNW-ESE with a flat base. 6.73m x 0.60m x 0.17m (depth).
1605	Structure	WNW-ESE aligned northern exterior wall of stone structure 1594. The wall consists of the foundation courses of a hard light grey fine grained rock, tightly packed with packing stones and faced on the east and west sides and bonded with mortar 1625. 3.7m x 0.60m x 0.17m (depth).
1606	Fill	Dark grey silty clay deposit that formed during the well's use. A forged large axe head was retrieved from this deposit. Lower fill of well 1596.
1607	Cut	Rectangular vertical sided cut with a flat base for brick foundation pads probably for timber upright. 1.12m x 0.46m x 0.24m deep and aligned WNW-ESE. Likely supported a beam-slot, in turn supporting timber uprights.
1608	Fill	Mid brown sandy gravel with some clay patches loosely compacted with occasional brick and rock fragments. Backfill of construction cut 1607.
1609	Cut	Recti-linear steep sided ('V' shaped profile) cut of drain aligned E-W and draining into drain 1598 at the northwest corner of the northern exterior wall of stone structure 1594. 0.2m wide x 0.17m deep.
1610	Fill	Dark grey green and orange mottled clay, moderately compacted with occasional brick fragments, and occasional large rocks derived from 1598. Fill of drain 1609.
1611	Layer	Greenish grey with orange mottles sandy silt, moderately compacted with occasional charcoal, bone and broken brick fragments.
1612	Layer	2 sheets of corrugated iron, heavily oxidised sealing the natural clay 1052 adjacent to the remnants of the eastern drill hall wall.
1613	Cut	Recti-linear steeply sloped 70° side then vertical break to a flat base (stepped), aligned E-W. Approximately 6m surviving in length x 0.53m wide x 0.29m (deep). The drain connected in to the earlier stone lined drain ('French' drain) that ran adjacent and parallel to stone structure 1594.
1614	Fill	Brownish grey silt, soft compaction with occasional brick fragments and charcoal. Lower fill of drain 1613.
1615	Fill	Greenish grey to light brown, firmly compacted silty gritty clay with occasional brick fragments, iron pcs, animal bone and small stones. Upper fill of drain 1613.
1616	Cut	Rectangular vertical sided with gradual curved break to a flat base cut of stone foundation setting possibly to support large timber roof support. 0.75m x 0.40m x 0.18m deep.
1617	Fill	Greyish red igneous/metamorphic rock tightly packed together with small packing stones filling any gaps. Fill of foundation setting 1616.
1618	Void	
1619	Cut	Rectangular, flat based, vertical sided cut for post pads (1634) and (1636), aligned WNW-ESE). 1.68m x 0.40m x 0.28m (deep). Likely supported a beam-slot, in turn supporting timber uprights.
1620	Void	orange brown degraded sandstone, indurated compaction. 0.36m wide x 0.12m deep. Lower fill of beam slot 1580.
1621	Fill	Brownish grey gritty clay with frequent angular stones and stone fragments with moderate broken brick fragments and sandy mortar inclusions. Backfill of construction cut 1619.
1622	Cut	NNE-SSW aligned recti-linear, very steep to vertical sided cut for stone wall 1624 (part of structure 1594) with a flat base. 0.59m wide x 2m in length x 0.28m deep truncated by Phase 4 - moderns service on east side.
1623	Cut	East-west aligned recti-linear, very steep to vertical sided cut for stone wall 1640 (part of structure 1594) with a flat base. 0.60m wide x 6.87m in length x 0.30m deep. Vertically truncated by Phase 4 - modern services.

1624	Structure	NNE-SSW aligned interior wall of stone structure 1594. Indurated light grey, fine grained greywacke sandstone/mudstone? With red oxidised patches. Consists of small packing stones and large cobbles/boulders up to 0.4m x 0.25m x 0.20m
1625	Fill	Brownish grey friable sand with moderate very small crushed shell fragments and Occasional charcoal. Mortar bonding stone structure 1594.
1626	Cut	NNE-SSW Recti-linear vertical sided construction cut for eastern stone wall of structure 1594. Aligned NNE-SSW with a flat base. 2.50m x 0.60m x 0.35m (depth).
1627	Fill	Moderately compacted dark brownish grey clay with frequent iron artefacts, moderate broken bricks and occasional shell, bone, large rocks (derived from (1626) and Occasional charcoal. Fill of robber cut 1639.
1628	Structure	Stone wall aligned north-south within construction cut 1626.
1629	Fill	Western brick footings of a double rectangular brick post pad foundation settings at either end of rectangular cut [1607] aligned east-west. Probably to support sleeper beam that in turn would have supported timber uprights.
1630	Void	
1631		Eastern brick footings of a double rectangular brick post pad foundation settings at either end of rectangular cut [1607] aligned east-west. Probably to support sleeper beam that in turn would have supported timber uprights.
1632	Void	
1633	Void	
1634	Fill	Square timber post pad setting consisting of handmade bricks with a shallow frog set into a level topped square, 3 courses deep but not bonded with mortar, sitting atop compacted angular rock (consistent with that found in structure 1594) and broken bricks. The brick pad was 0.36m x 0.36m x 0.28m deep. Eastern brick post pad setting within cut 1619.
1635	Void	
1636	Fill	Western rectangular brick footings of a double rectangular brick post pad foundation setting at either end of rectangular cut [1619] aligned east-west. Probably to support sleeper beam that in turn would have supported timber uprights.
1637	Void	
1638	Layer	Rectangular footprint/floor surface of timber structure (likely represents the northward extension of the successor timber structure to stone building 1594). 8.76m in length (east-west) x 3.83m wide (north-south at eastern end) x 0.13m thick. Surface comprised of firmly compacted greyish brown clay with frequent gravel and occasional broken brick fragment inclusions.
1639	Cut	Recti-linear 45° sides with irregular base cut of robber trench that removed stone wall fill 1624. 2.50m in length (N-S) x 3.75m (E-W) and up to 1.10m wide and to depth of original wall cut (0.35m). "Robber cut" to extract stone from east wall of stone structure 1594.
1640	Structure	East-west aligned remains of southern wall within cut 1623 of stone structure 1594. 6.91m x 0.21m. Severely vertically truncated by line of modern services trench.
1641	Fill	Firmly compacted mottled yellow, dark grey and blue clay with occasional small stones and charcoal. Fill of beams lot 1642.
1642	Cut	Rectangular, vertical sided cut with flat base aligned east-west. 1.8m x 0.30m x 0.06m deep. Cut of vertically truncated rectangular beam slot.
1643	Fill	Firmly compacted bluish yellow clay (re-deposited natural) with Occasional stones. Parallel to eastern end of northern wall of stone structure 1594.
1644	Cut	Recti-linear cut for stretch of eastern drill hall wall. 1.75m in length x 0.35m wide.
1645	Structure	Stretch of eastern drill hall wall in tunnel cut. 1.75m in length x 0.35m wide and consisting of 10 courses of bricks bonded with brownish yellow sandy mortar in English cross style. Continuation of eastern drill hall wall = 1179.

1646	Fill	Backfill of cut for wall 1644.
1647	Cut	Cut for concrete plinth 1648 to support buttress 1649. 0.71m wide x 0.13m deep.
1648	Fill	Whitish grey concrete within cut 1649 forming a plinth for buttress 1649. 0.71m wide x 0.13m deep.
1649	Structure	Brick buttress comprised of prison bricks cutting eastern drill hall wall.
1650	Fill	Backfill of cut for buttress 1647.
1651	Structure	Concrete drain abutting eastern external face of drill hall wall. 0.30m wide with a concrete channel 0.115m deep.
1652	Void	Rectangular, vertical sided cut with flat base aligned north-south. 1.8m x 0.30mx 0.06m deep. Cut of vertically truncated rectangular beam slot.
1653	Fill	Whitish grey concrete foundations for wall 1654
1654	structure	Brick wall (English Cross Style) aligned north-northeast-south-southwest and bonded with whitish grey cement mortar. Continuation of Western gun annexe wall = 1028. 2.08m long x 0.26m wide.
1655	Fill	Backfill of cut for wall 1654.
1656	Cut	Cut of rectangular refuse pit. Vertically truncated. 1.14m x 0.59m x 0.14m (deep).
1657	Fill	Moderately compacted dark brown silty loam with occasional patches of clay and mod brick fragments, window glass and Occasional bottle glass. Fill of pit 1656.
1658	Cut	L' shaped vertical sided cut with flat base for brick drain. Dimensions - Long side = 2.17m x 0.32m x 0.08m (deep); Short side = 0.96m x 0.21m x 0.08m (deep). Some vertically truncation along its course.
1659	Structure	Linear enclosed brick drain bonded with grey sandy mortar and located adjacent to and parallel to remains of stone foundations 1682. Dimensions - Long side = 2.17m x 0.32m x 0.08m (deep); Short side = 0.96m x 0.21m x 0.08m (deep). Some vertically truncation along its course. Filled by 1751.
1660	Fill	Moderately compacted greyish light brown gravelly clay with frequent gravel; moderate small stones and occasional marine shell fragment inclusions. Backfill of construction cut 1658 for drain 1659.
1661	Cut	Recti-linear vertical sided (west) and 45° slope (east) cut for drain with flat base. 8.32m in length (surviving) x 0.35m wide and 0.07m deep. Cuts Drain 1672. Cut by drain 1678 and Phase 4 - modern services and vertically truncated.
1662	Fill	Loose and friable grey silty gravel with some intermittent patches of clay with occasional oxidised mottles. Fill of earthen drain 1661.
1663	Cut	Rectangular cut for brick post pad setting just to north of drain 1659. Old distorted (waster) handmade bricks with narrow, shallow frog. Unexcavated.
1664	Fill	Old distorted (waster) handmade bricks similar to those used in military well, with narrow, shallow frog. Fill of post pad cut 1663.
1665	Cut	Cut of square posthole with vertical sided and a flat base. 0.26m x 0.25m x 0.06m. Vertically truncated.
1666	Fill	Dark brown moderately compacted silty loam and gravel matrix with moderate inclusions of marine shell fragments. Fill of posthole 1665.
1667	Cut	Vertical sided cut for rectangular posthole with a flat base. 0.61m x 0.43m x 0.25m (deep).
1668	Fill	Moderately compacted dark brown fill comprised of topsoil and re-deposited natural with demolition material in a matrix with Occasional small stones and very small marine shell fragments. Fill of posthole 1667.
1669	Cut	Recti-linear, vertical sided cut for ceramic drain. 0.48m wide x 0.23m deep. Same as 1138.
1670	Fill	Dark brown glazed ceramic drainage pipe. 0.14m in diameter and 0.18m at collar. Water pipe within 1669.
1671	Fill	Firmly compacted mottled yellow brown and dark brown clay with Occasional cbm fragments. 0.48m x 0.23m deep. Backfill of construction cut 1669.

1672	Cut	Recti-linear cut for drain aligned north-south with vertical sides and a flat base. 1.4m in length (surviving) x 0.37m wide and 0.08m deep (vertically truncated and truncated by modern services at north and south).
1673	Fill	Firmly compacted dark brown topsoil and re-deposited yellow natural clay intermixed with Occasional small stones and charcoal. Fill of earthen drain 1672. Cut by drains 1661 and 1678.
1674	Cut	Arc (likely originally a circular feature) steeply sided (70°) truncated feature with a flat base. 1.31m wide x 1.88m (surviving) x 0.55m deep. The feature had a pronounced curve in plan on the unexcavated eastern side and the cut on the eastern side was also curving round to the west. It is possible that the trench was excavated for brick footings and possibly originally a circular feature such as a gun pit?
1675	Fill	Moderately compacted greyish brown sandy silt clay matrix with moderate inclusions of small stones, Occasional mortar, Occasional crushed marine shell, Occasional charcoal, Occasional animal bone and Occasional CBM. Probably deposited as a refuse deposit after foundations/original fill had been removed. Fill of 1674.
1676	Cut	Recti-linear steeply sided cut feature aligned east-west with a flat base. 1.44m x 3.4m x 0.56m deep. Possible trench cut to remove a section of ceramic drain. Cuts 1674.
1677	Fill	Moderately compacted yellow and light greyish brown clay with occasional charcoal, small stones, broken brick fragments and marine shell (cockle) fragments. Fill of 1676.
1678	Cut	Recti-linear, vertical sided cut for drain with a flat base, aligned northeast-southwest. 0.87m in length (surviving) x 0.25m wide and 0.03m deep (vertically truncated).
1679	Fill	Moderately compacted dark brown clayey loam with moderate inclusions of broken bricks and small stones. Fill of drain 1678. Vertically truncated.
1680	Fill	Rotted remains of timber post within backfill 1108 in posthole 1107.
1681	Cut	Recti-linear, vertical sided cut for stone footings aligned north-south with a flat base. 2.10m x 0.62m x 0.07m deep (vertically truncated).
1682	Fill	Large angular and faced rocks and cobbles as structure 1594, bonded with a light brownish grey sandy, shelly mortar. Fill of construction cut 1681. Size of rocks up to 0.32m x 0.22m x 0.11m.
1683	Fill	Firmly compacted mid-brown clay with topsoil and sand intermixed with occasional fragments of marine shell. Fill of beam slot 1684.
1684	Cut	Recti-linear, vertical sided cut for beam slot with a flat base, aligned north-south. Truncated in the north and south and also vertically. Surviving dimensions are 1.75m x 0.46m x 0.05m (deep).
1685	Layer	Demolition deposit spread rich in 19th century artefacts and building material including roof slate and broken bricks.
1686	Layer	Ash and demolition deposit with refuse material containing frequent 19th century artefacts and animal bone.
1687	Cut	Cut of sub-rectangular posthole with triangular extension to the north. Vertical sided with slightly concave base. 0.45m x 0.42m x 0.32m deep.
1688	Fill	Moderately compacted dark brownish grey and yellow mottled re-deposited topsoil and clay intermixed with occasional mortar, gravel, bricks and brick fragments. Fill of posthole 1687.
1689	Fill	Firmly compacted dark brownish black clay and topsoil mix with occasional pebbles and brick fragments. Fill of posthole 1690.
1690	Cut	Cut of rectangular posthole with rounded corners, and sloping sides (70°) and a concave base. 0.35m x 0.41m x 0.38m (deep).
1691	Cut	Cut of rectangular posthole with vertical sides and a flat base. 0.45m x 0.32m x 0.21m (deep).
1692	Fill	Softly compacted dark brownish grey re-deposited and re-deposited yellow clay natural intermixed with occasional rock fragments, brick and mortar. 0.45 x 0.32m x 0.21m. Fill of posthole 1691.

1693	Cut	Rectangular, vertical sided (east and north sides) sloping 70° on west cut for posthole with a flat base. 0.47m x 0.31m x 0.11m (deep).
1694	Fill	Moderately compacted dark brown loamy re-deposited topsoil with occasional brick fragments, gravel and rounded pebbles. 0.47m x 0.31m x 0.11m (deep). Fill of posthole 1693.
1695	Cut	Rectangular, vertical sided cut for posthole with a flat base. 0.32m x 0.22m x 0.09m (deep).
1696	Fill	Softly compacted dark brownish grey re-deposited and re-deposited yellow clay natural intermixed with occasional small rounded stones. 0.32m x 0.22m x 0.09m (deep). Fill of posthole 1695.
1697	Cut	Rectangular, vertical sided cut for posthole with a flat base. 0.12m x 0.10m x 0.05m (deep). Severely truncated.
1698	Fill	Moderately compacted dark brown loamy re-deposited topsoil with occasional rounded pebbles. 0.12m x 0.10m x 0.05m (deep). Fill of posthole 1697. Sealed by 1001.
1699	Cut	Rectangular steeply sloped with slight inward taper cut of posthole with a base that sloped from east to west. 0.34m x 0.28m x 0.12m (deep).
1700	Fill	Moderately compacted dark brown loamy re-deposited topsoil with occasional brick fragments and rounded pebbles. 0.34m x 0.28m x 0.12m (deep). Fill of posthole 1699. Sealed by 1001.
1701	Cut	Rectangular vertical sided cut for posthole with a flat base 0.53m x 0.33m x 0.61m (deep).
1702	Fill	Firmly compacted mottled yellow and brown clay with occasional brick fragments, animal bone, stone, fe, charcoal. 0.53m x 0.28m x 0.61m. Fill of posthole 1701. Cut by drain 1704.
1703	Fill	Loose and friable greyish brown silt and gravel matrix with occasional charcoal, brick fragments with frequent root action. 0.23m x 0.18m x 0.61m deep. Post pipe within fill 1702 in posthole 1701.
1704	Cut	Recti-linear, vertical sided and flat base cut of trench for ceramic drain. 0.44m (wide) x 7m aligned E-W, then turned for 1.3m N-S alignment and 0.29 (deep).
1705	Fill	Purplish brown ceramic stoneware drainage pipe in base of linear trench 1704. 0.16m in diameter. Fill of drain trench 1704.
1706	Fill	Moderately compacted yellow and brownish grey mottled clay with occasional charcoal, angular stones, small rounded stones, bone, brick fragments, tile and ceramic pipe fragments. Fill of drain trench 1704. This deposit contained three small finds a Minié bullet, an ivory toothbrush and a copper alloy shako chin strap mount.
1707	Fill	Firmly compacted mid-brown clay with patches of yellow clay with occasional brick and mortar fragments and small rounded stones. Fill of posthole 1708. 0.35m x 0.39m x 0.40m (deep).
1708	Cut	Rectangular cut of posthole with vertical sides and a flat base. 0.84m wide x 0.76m (deep) - length unobserved - under bulk. One of a pair with posthole 1710. 0.35m x 0.39m x 0.40m (deep).
1709	Fill	Firmly compacted mid-brown clay with patches of yellow clay with occasional brick and mortar fragments and small rounded stones. Fill of posthole 1710. 0.37m x 0.34m x? (unexcavated).
1710	Cut	Rectangular cut of posthole observed in plan. 0.37m x 0.34m x? (unexcavated). One of a pair with posthole 1708.
1711	Cut	Square cut of posthole observed in plan. 0.35m x 0.40m.
1712	Fill	Softly compacted greyish brown clay with occasional mortar, small stones, gravel and brick fragments. Fill of posthole 1711.
1713	Cut	Rectangular cut of truncated posthole observed in plan. 0.46m x 0.33m x? (unexcavated). Truncated by Phase 4 - modern services.

1714	Fill	Moderately compacted greyish brown clay with moderate inclusions of gravel and occasional mortar, brick fragments and small rounded stones. 0.46m x 0.33m x? Fill of posthole 1713.
1715	Cut	Cut of square posthole observed in plan. 0.36m x 0.32m x? - unexcavated.
1716	Fill	Moderately compacted dark brown/grey/yellow mottled clay with moderate inclusions of gravel and occasional mortar, brick fragments and small rounded stones. 0.36m x 0.32m x? Fill of posthole 1715.
1717	Cut	Cut of rectangular posthole truncated by cut of trench for Phase 4 - modern services. 0.60m x 0.60m surviving.
1718	Fill	Moderate to firmly compacted dark brownish grey clay with frequent inclusions of gravel & small stones and occasional brick fragments and charcoal. Fill of 1717.
1719	Cut	Cut of rectangular posthole truncated by cut of trench for Phase 4 - modern services. 0.50m x 0.34m surviving.
1720	Fill	Moderately compacted dark brownish grey clay with occasional patches of yellow clay, with occasional gravel, mortar, brick fragments, small stones and gravel. 0.50m x 0.34m. Fill of posthole 1719.
1721	Fill	Fill of posthole 1722
1722	Cut	Cut of sub-rectangular/oval posthole observed in plan. 0.42m x 0.36m. Unexcavated.
1723	Fill	Fill of rectangular posthole 1724.
1724	Cut	Cut of rectangular posthole substantially truncated by Phase 4 - modern service trench. Observed in plan.
1725	Fill	Firmly compacted re-deposited brownish yellow clay. Primary fill of posthole 1715.
1726	Void	
to	Void	
1735	Void	
1736	Cut	Recti-linear, vertical sided cut with a flat base for stone wall 1737 aligned east-west.
1737	Structure	Stone wall aligned east-west 2.94m in length and 0.23m wide in front of light well and 0.72m thick at eastern end. Forms the front section of a double skinned wall with a void that was probably a lightwell.
1738	Cut	Rectangular, vertical sided cut with a flattish base for a recess that served as a lightwell. 1.4m in length x 0.43m wide x 0.24m deep and aligned east-west.
1739	Cut	Rectangular, vertical sided cut with a flat base. The cut was through stone wall 1737 and appears to have been undertaken to allow a brick repair to be made to the stone structure, possibly as a result of earthquake damage.
1740	Structure	Brick pad/repair to stone structure 1737. The bricks have very shallow frogs and are bonded with a yellowish brown sandy mortar with inclusions of small crushed marine shell fragments.
1741	Cut	Rectangular cut of posthole, truncated vertically - not excavated/ 0.25m x 0.30m
1742	Fill	Brownish grey clay with red mottles, moderately compacted with occasional brick fragments and rounded small stones. Fill of posthole 1741.
1743	Cut	Rectangular cut of posthole, truncated vertically - not excavated/ 0.25m x 0.18m
1744	Fill	Brownish grey clay with red mottles, moderately compacted with occasional brick fragments and rounded small stones. Fill of posthole 1743.
1745	Fill	Post pipe within context 1189 fill of posthole 1183. Post dimensions were 0.15m x 0.12m
1746	Cut	Square, vertical sided cut of posthole with a flattish base. 0.20m x 0.19m x 0.15m. Cut by posthole 1184 and also vertically truncated as was the surrounding area.

1747	Fill	Fill of posthole 1746.
1748	Fill	Timber post within context 1191 fill of posthole 1185. Post dimensions were 0.15m x 0.13m x 0.15m (deep)
1749	Fill	Post pipe within context 1190 fill of posthole 1184. Post dimensions were 0.23m x 0.15m deep.
1750	Fill	Fill of posthole 1192. Moderately compacted clay with occasional gravel, small stones and charcoal.
1751	Fill	Mid-grey silt with Occasional small broken brick fragments. Fill of brick drain 1659.
1752	Fill	Ceramic drain pipe within backfill 1139 of drain cut 1138
1753	Fill	Ceramic drain pipe within backfill 1200 of drain cut 1199
1754	Fill	Timber post within context 1112 fill of posthole 1111. Post dimensions were 0.15m x 0.13m x 0.15m (deep)
1755	Fill	Timber post still in situ. Fill of 1115.
1756	Fill	Remnants of timber post within backfill (1106). Fill of posthole 1105.
1757	Fill	Remnants of timber post within backfill (1130). Fill of posthole 1129.
1758	Fill	Remains of rotted timber post in situ within backfill (1126). Fill of 1125.
1759	Fill	Remains of rotted wooden post within backfill (1104). Fill of posthole 1103.
1760	Fill	Crossed timber sleeper beams (totara) to support timber upright within backfill (1195) of large post pit 1194. Largest beam has a mortice joint to house tenon at base of timber upright (1761).
1761	Fill	Timber upright with tenon joint at base to lock into large sleeper beam mortice. The timber upright was further supported by cross braced smaller timbers extending at 45° angle from the large sleeper beam.
1762	Structure	Brick and concrete lined sump/catch pit within construction cut 1135.
1763	Cut	Cut of rectangular posthole unexcavated. Adjacent to and west of drain 1659. 0.22m x 0.24m. Filled by 1764 (timber post) and 1765 backfill.
1764	Fill	Reddish dark brown timber post remnants within posthole 1763. 0.14m x 0.12m.
1765	Fill	Moderately compacted mottled dark grey and yellowish brown clay with occasional charcoal. Backfill of posthole 1763.
1766	Cut	Cut of rectangular posthole to west of brick drain 1659. 0.35m x 0.27m. Filled by 1766. Considered contemporary with beam slot 1684, posthole 1763 and posthole 1768. Probably represents a small storage structure such as a 'lean to' building butting up against wall 1682. Dimensions are at least 2.19m long x 1.38m wide.
1767	Fill	Moderately compacted brownish dark grey clay with occasional charcoal, small broken brick fragments and small stones. Fill of posthole 1766.
1768	Cut	Cut of rectangular posthole adjacent to and contemporary with posthole 1766. 0.28m x 0.24m. Filled by 1769.
1769	Fill	Moderately compacted brownish dark grey clay with occasional charcoal, small broken brick fragments. Fill of posthole 1768.



## **APPENDIX 2 – CONTEXT RECORDS TOWN ACRE 233**

Context No.	Type	Description
2000	Surface	Tar seal. Seals aggregate basecourse (context 2001).
2001	Layer	Greyish-brown loose mixed greywacke aggregates and sand basecourse / 65mm road aggregate stone.
2002	Layer	Yellowish-brown clay, with dark brown and black mottles, firmly compacted with occasional brick fragments, coal, rounded stones and charcoal. Modern 20th century demolition deposit. Seals buried soil layer context 2003.
2003	Layer	Greyish-brown loamy topsoil with occasional patches of re-deposited orangey clay natural. Contained occasional brick fragments and charcoal.
2004	Fill	Dark brown and yellowish-brown clay intermixed with sandy gravel, moderately compacted. The deposit contained occasional inclusions of broken brick, asphalt, charcoal, with ceramic, glass and metal (fe) artefacts present also. Fill of 20th century linear feature 2005.
2005	Cut	Recti-linear cut for modern drain aligned approximately southwest-northeast. 0.45m wide and visible for 2.3m before extending beyond edge of excavation. Cuts brick-lined drain 2012.
2006	Fill	Greyish brown and yellowish-brown clay intermixed with sandy gravel, moderately compacted. The deposit contained occasional inclusions of broken brick, wood, charcoal, aggregate stone, with plastic and fe - wire, present also. Fill of 20th century linear feature 2007.
2007	Cut	Recti-linear cut of modern drain or service, aligned south-southwest to north-northeast. Only the western side for the most part was exposed and the feature was visible for approximately 1.5m before extending beyond the limit of excavation. Cuts brick-lined drain 2012.
2008	Fill	Firmly compacted yellowish brown, white and dark brown mottled clay containing gravel and sand inclusions with bottle glass, brick fragments and fe pieces. Backfill/made ground deposit deliberately placed to fill drain 2012 and create a level surface. 6.30m in length x 0.60m wide x 0.13m deep. Sealed by flag stones (sandstone - context 2009).
2009	Surface	Sandstone flagstones placed across drain probably contemporary with slate surface to south of Drain 2012 (context 2010).
2010	Surface	Slate and hard packed floor surface immediately south of and adjacent to Drain 2012. Slates placed on hard dark greyish brown and black packed clay surface. Contemporary with context 2009.
2011	Fill	Firmly compacted yellowish brown, white and dark brown mottled clay containing occasional inclusions of brick fragments, charcoal and small rounded stones. Backfill of construction cut 2013 for Drain 2012.
2012	Structure	Open brick-lined drain within recti-linear construction cut 2013 aligned east-southeast to west-northwest along the northern boundary of Town Acre 233. Bricks were orange fabric with inclusions of poorly fired yellow clay and had narrow shallow frogs. Some of the bricks had purplish brown glaze on one side. 6.30m in length x 0.60m wide and 0.16m deep.
2013	Cut	Recti-linear construction cut, aligned east-southeast to west-northwest for brick-lined drain 2012. Edge of cut not seen on northern side but extended up to 0.36m wide of drain 2012 on south side and at least 1.04m wide. Visible for some 6.30m in length and 0.22m deep. Filled by contexts 2020, 2011, 2012 and 2008.
2014	Surface	Indurated dark brown gravel and clay layer with frequent gravel inclusions. Possibly remnants of the Armed Constabulary parade ground although conceivably could date from Imperial Military occupation. South of Drain 2012.
2015	Natural	Firmly compacted greyish to yellowish brown sterile clay. Natural
2016	Fill	Firmly compacted yellowish brown, white and mid-brown mottled clay containing inclusions of brick fragments and gravel. 0.30m x 0.31m. Fill of posthole 2017.
2017	Cut	Rectangular cut of posthole with vertical sides and a flattish base. 0.31m x 0.30m x 0.14m deep. Vertically truncated.

2018	Fill	Loosely compacted dark brown sandy gravel. Fill of beam slot 2019. 0.98m in length x 0.18m wide and 0.15m deep.
2019	Cut	Recti-linear cut for beam-slot with vertical sides and a flat base aligned north-northeast to south-southwest. 0.98m in length x 0.18m wide and 0.15m deep. Immediately south of Drain 2012.
2020	Fill	Friable brownish yellow sandy gravel. Basecourse beneath brick-lined drain 2012. Fill of cut 2013. 0.03m thick.
2021	Layer	Moderately compacted, mid-brown and yellow mottled intermixed clay and topsoil with occasional gravel, and brick and roof tile fragments. Thinly spread layer of demolition material. Extends east-west for approximately 10m and north-south for between 1-1.5m but has been truncated by Phase 4 - modern service trench.
2022	Layer	Moderately compacted brownish yellow clay with occasional rounded pebbles and small stones. Re-deposited yellow clay layer sealing 2021.
2023	Cut	Square, vertical sided cut of posthole with flat base. 0.27m x 0.25m x 0.36m deep. Vertically truncated.
2024	Fill	Moderately compacted mottled yellow and dark brown intermixed clay and topsoil with occasional brick fragments and very occasional river pebbles. 0.27m x 0.25m x 0.36m. Fill of posthole 1728.
2025	Cut	Square, vertical to steeply sloping sided cut of posthole with flat base. 0.35m x 0.34m x 0.10m deep. Vertically truncated.
2026	Fill	Loosely compacted dark brown organic topsoil with moderate inclusions of small stones and gravel. Fill of posthole 1730.
2027	Cut	Square, vertical sided cut of posthole with flat base. 0.31m x 0.35m x 0.06m deep.
2028	Fill	Loosely compacted dark brown organic topsoil with moderate inclusions of small stones and gravel. Fill of posthole 1732.
2029	Cut	Rectangular cut of beam slot with sloping sides (45°) and a flattish to irregular base. Vertically truncated. 1.44m in length x 0.52m (width) x 0.09m deep.
2030	Fill	Loosely compacted dark brown organic topsoil with moderate inclusions of small stones and gravel. Fill of beam slot 1734.
2031	Layer	Indurated, dark greyish brown and black packed clay surface with occasional brick fragments and charcoal. Bedding layer for slate surface (context 2010). Contemporary with context 2008.
2032	Layer	Moderately compacted dark grey clay, with occasional light blueish grey mottles. Sterile. Subsoil above natural (2015).



## **APPENDIX 3 – HARRIS MATRIX TOWN ACRE 226**

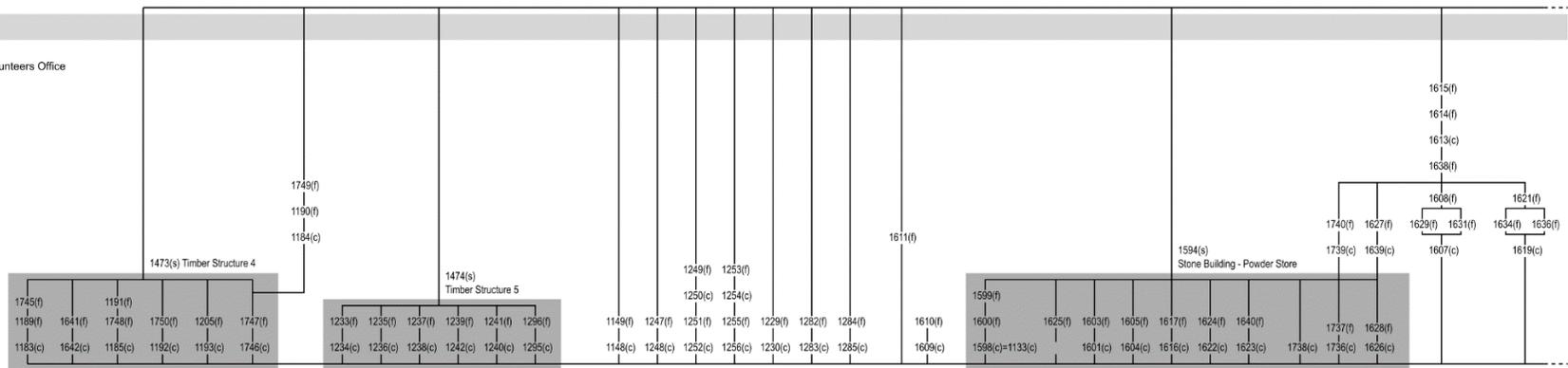


Phase 3 - 1886-1918  
New Zealand Permanent Militia/Artillery

Key  
c = cut  
f = fill  
L = layer  
s = structure

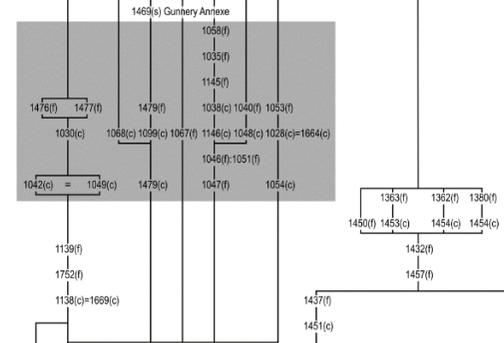
Phase 2 - 1867-1886  
Armed Constabulary

Phase 1 - 1843-1867  
Imperial Forces & New Zealand Militia & Volunteers Office

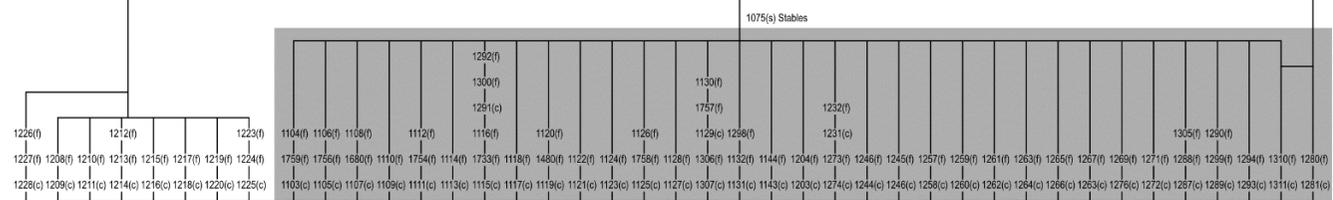


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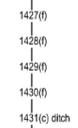
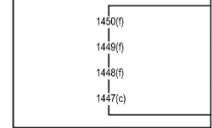
Phase 3 - 1886-1918  
New Zealand Permanent Militia/Artillery



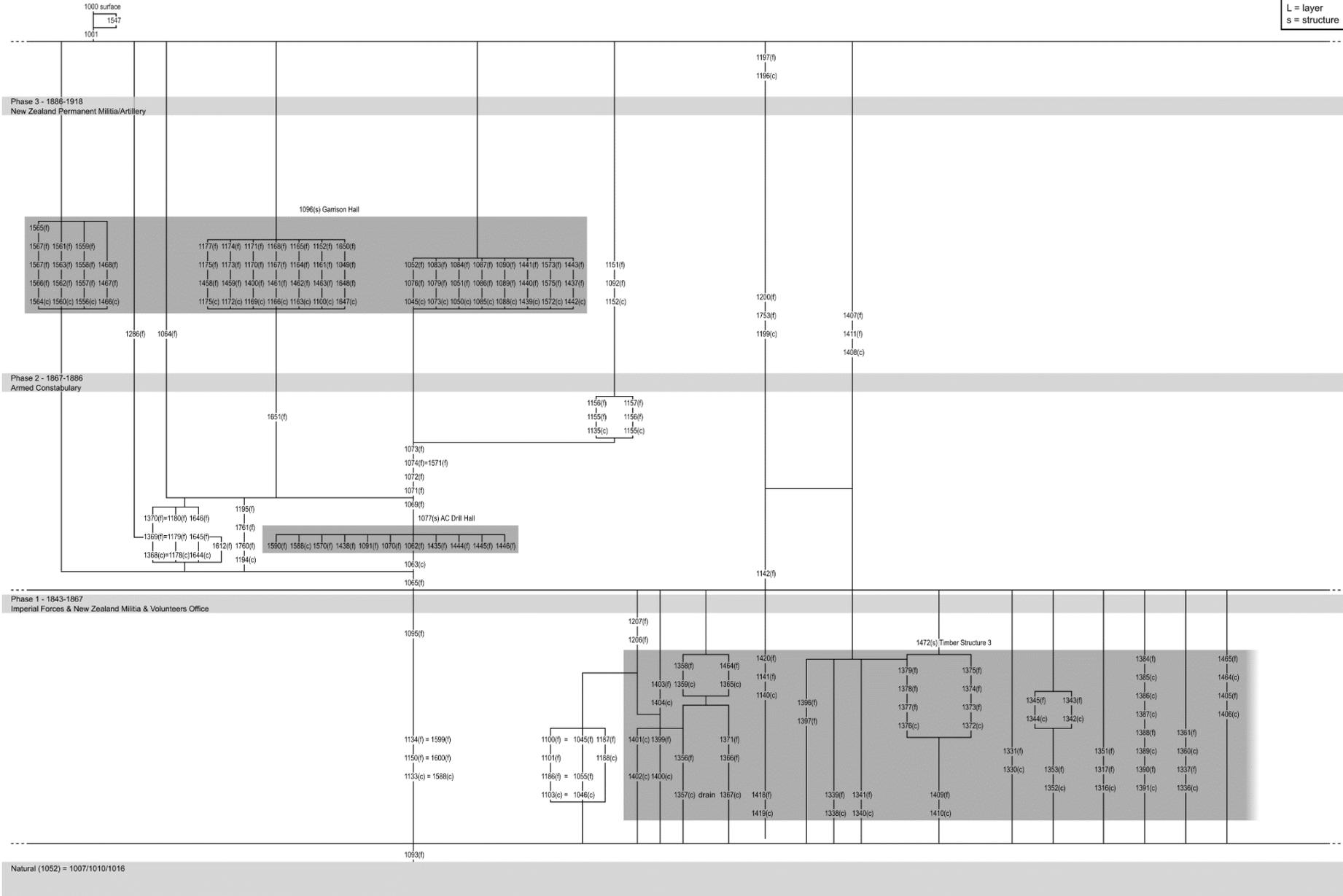
Phase 2 - 1867-1886  
Armed Constabulary



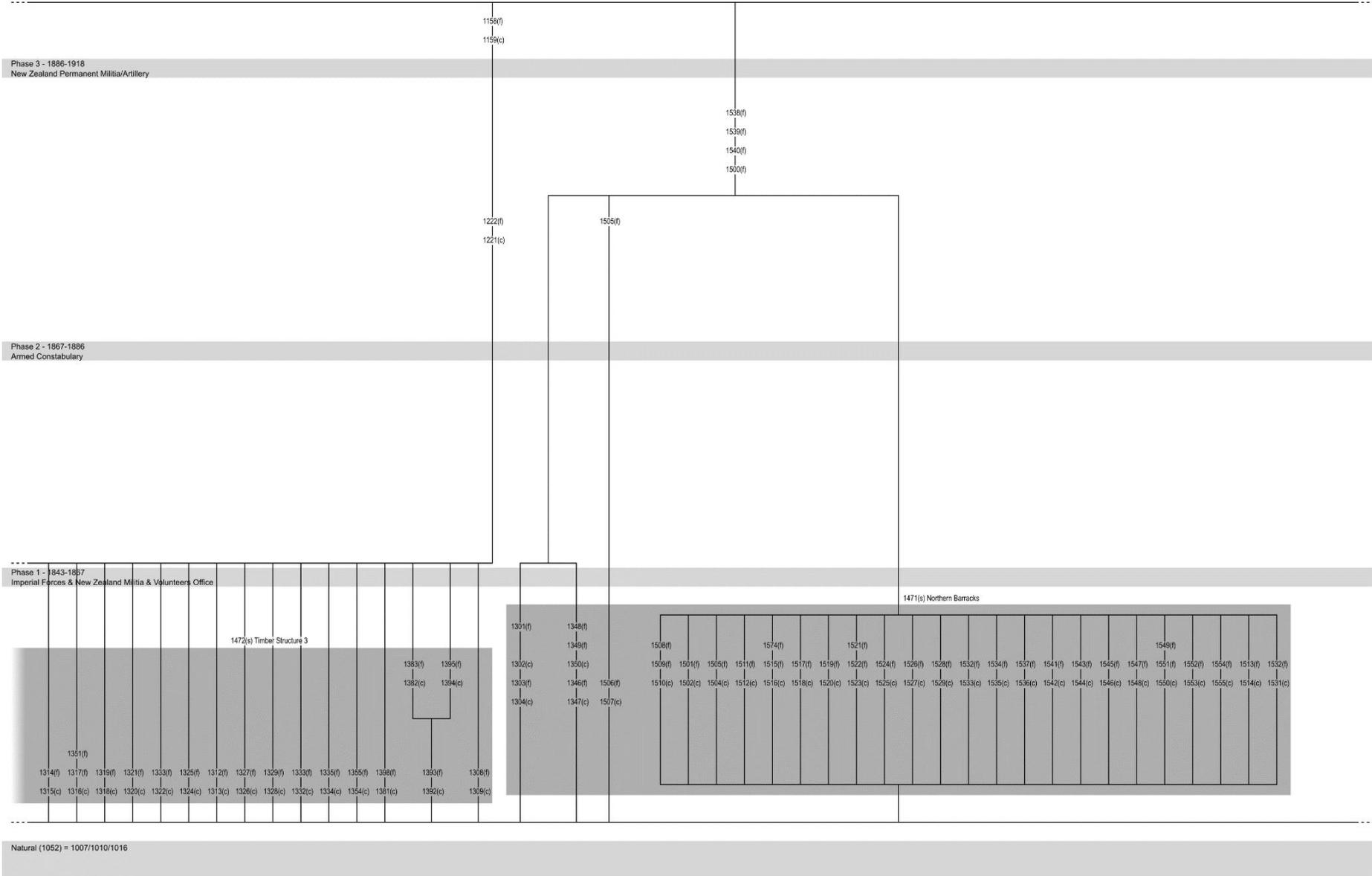
Phase 1 - 1843-1867  
Imperial Forces & New Zealand Militia & Volunteers Office



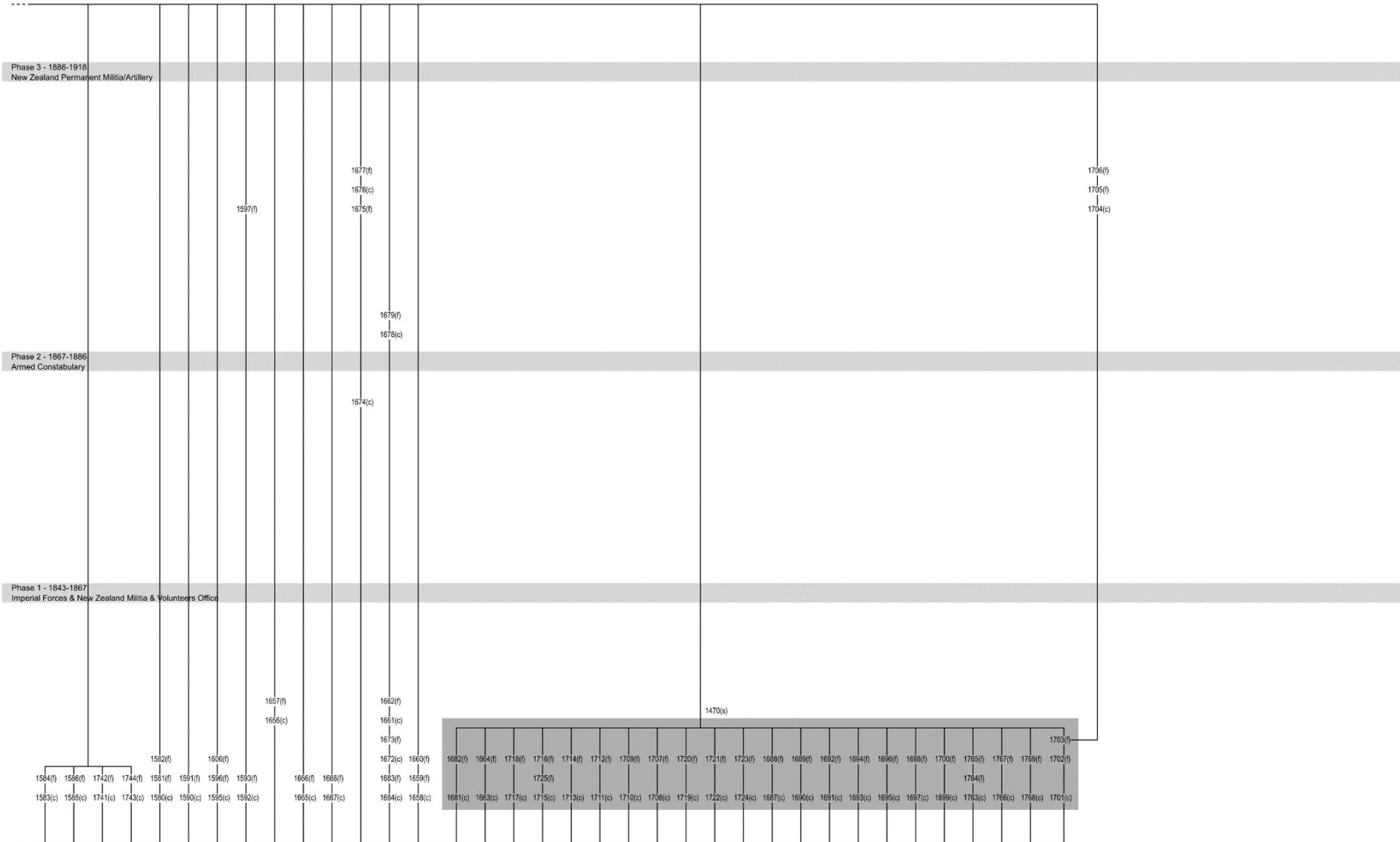
Key  
c = cut  
f = fill  
L = layer  
s = structure



Key  
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f = fill  
L = layer  
s = structure



Key  
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s = structure





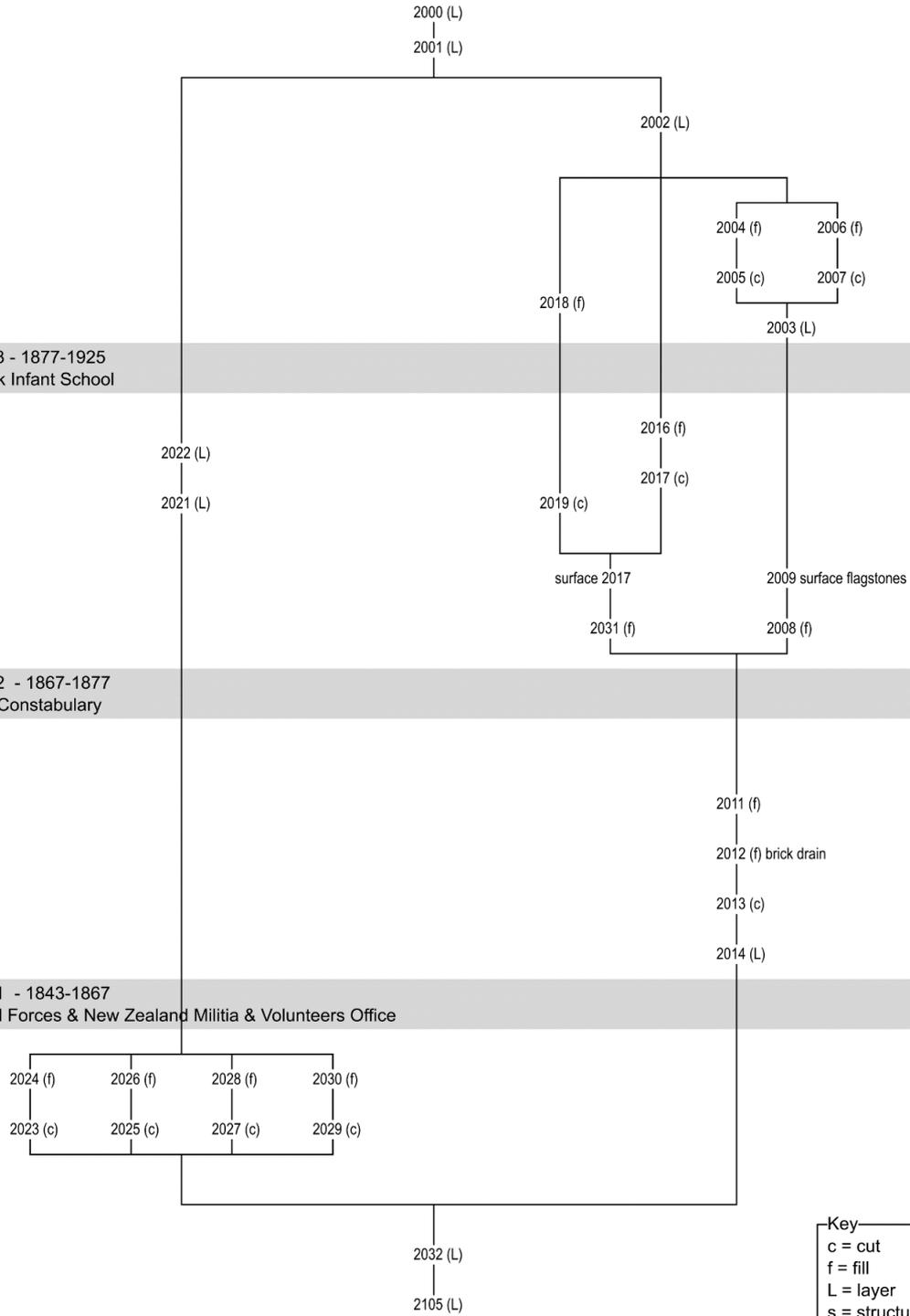
**APPENDIX 4 – HARRIS MATRIX TOWN ACRE 233**

**Phase 4 - 1925-2012**  
Mt Cook School & Modern

**Phase 3 - 1877-1925**  
Mt Cook Infant School

**Phase 2 - 1867-1877**  
Armed Constabulary

**Phase 1 - 1843-1867**  
Imperial Forces & New Zealand Militia & Volunteers Office

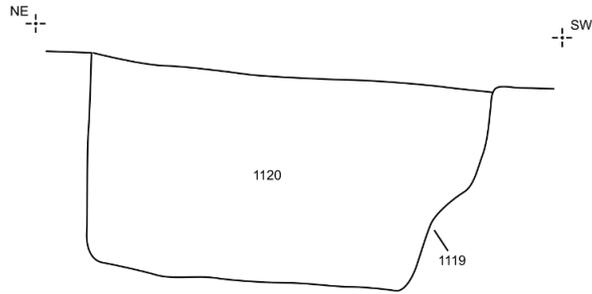


## APPENDIX 5 – DRAWINGS<sup>113</sup>

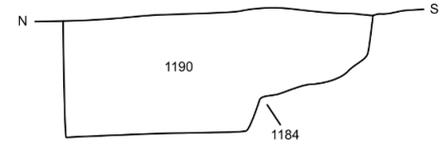
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<sup>113</sup> Due to the large volume of site drawings, only a selection were digitised for presentation in the appendices.

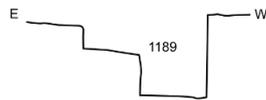
Dwg. 26  
NE facing section of Posthole 1119



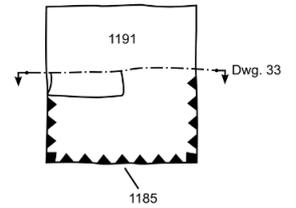
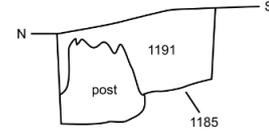
Dwg. 32  
East facing section of Posthole 1184



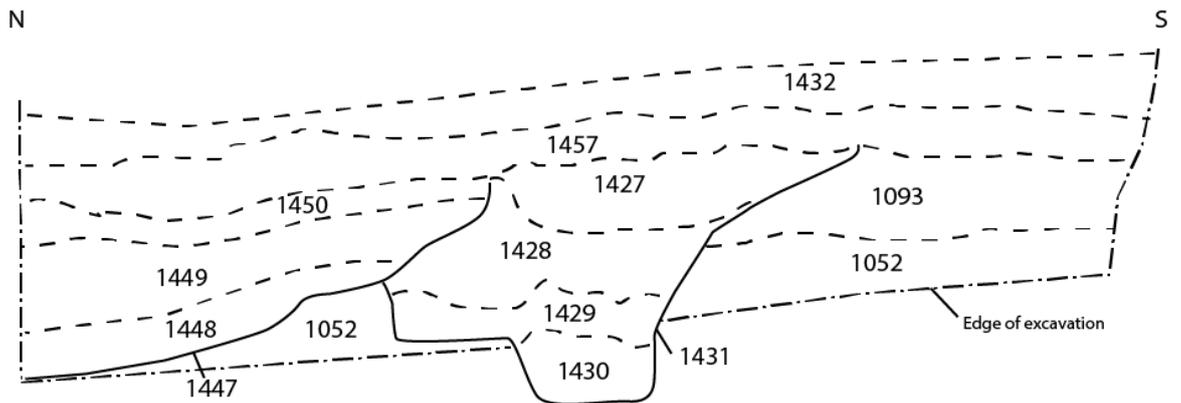
Dwg. 31  
South facing section of Posthole 1183



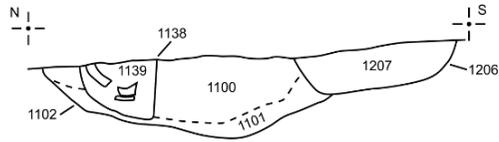
Dwg. 33  
East facing section of Posthole 1185



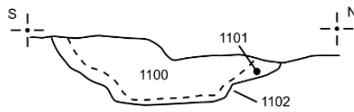
West facing section of ditch 1431 and 1447



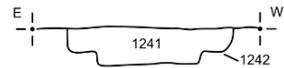
Dwg. 91  
West facing section of Ditch 1102, Drain 1206 and Drain 1138



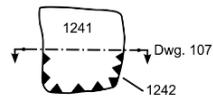
Dwg. 92  
East facing section of Ditch 1102



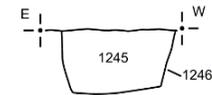
Dwg. 107  
North facing section of Pit 1242



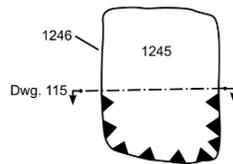
Dwg. 108  
Plan of Pit 1242



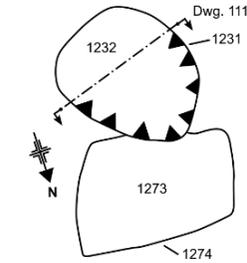
Dwg. 115  
North facing section of Posthole 1246



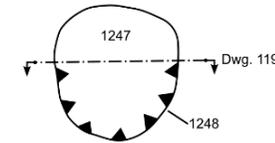
Dwg. 127  
Plan of Posthole 1246



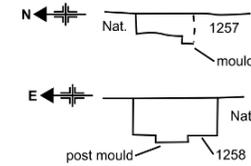
Dwg. 116  
Plan of Postholes 1231 & 1232



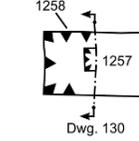
Dwg. 120  
Plan of Postholes 1247 & 1248



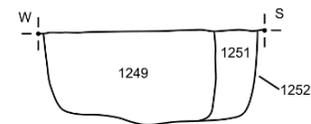
Dwg. 130  
Half-sectioned Posthole 1258



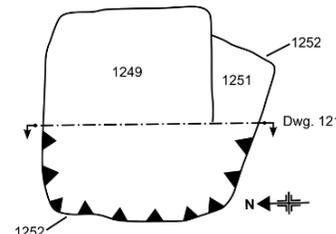
Dwg. 131  
Plan of 1258



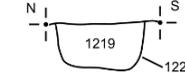
Dwg. 121  
West facing section of Postholes 1250 & 1252



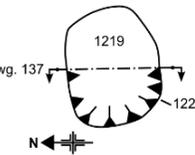
Dwg. 122  
Plan of Postholes 1250 & 1253



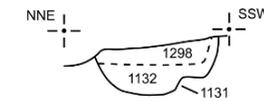
Dwg. 137  
West facing section of Postholes 1220



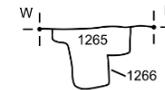
Dwg. 138  
Plan of Posthole 1220



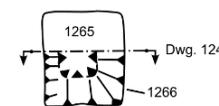
Dwg. 143  
WNW facing section of Posthole 1131



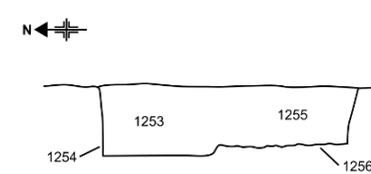
Dwg. 124  
South facing section of Posthole 1266



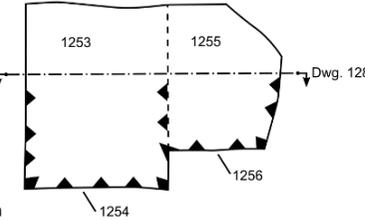
Dwg. 125  
Plan of Posthole 1266



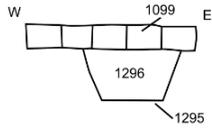
Dwg. 128  
1254 & 1256 intersecting Postholes



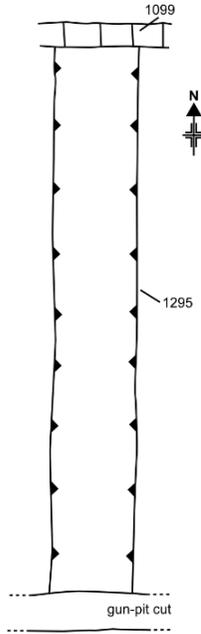
Dwg. 129  
Plan of Postholes 1254 & 1256



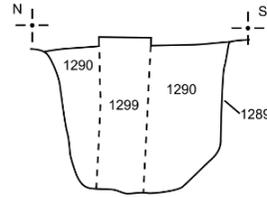
Dwg. 135  
South facing section of Drain 1295



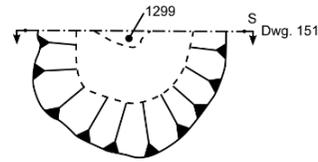
Dwg. 136  
Plan of Drain 1295



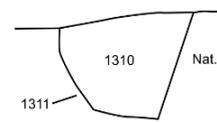
Dwg. 151  
West facing section Posthole 1289



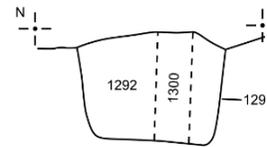
Dwg. 152  
Plan of Posthole 1289



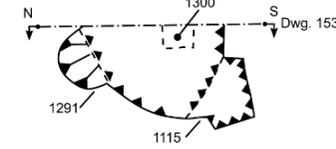
Dwg. 163  
North facing section Posthole cut 1311



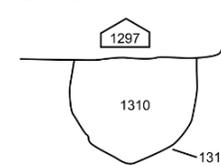
Dwg. 153  
West facing section of 1291



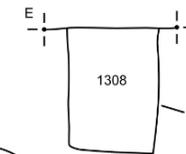
Dwg. 154  
Plan of 1291 & 1115



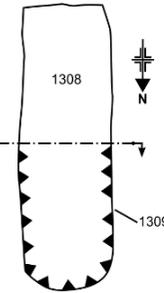
Dwg. 164  
Plan Of Posthole 1311



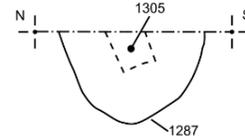
Dwg. 165  
North facing section of  
refuse pit 1309



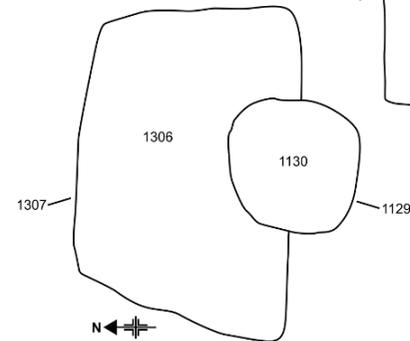
Dwg. 166  
Plan of refuse pit 1309



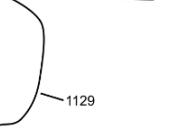
Dwg. 155  
Plan of 1287



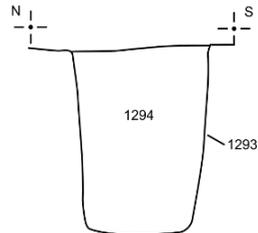
Dwg. 157  
Plan of Posthole 1129 & 1307



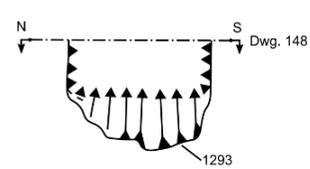
Dwg. 165  
North facing section of  
refuse pit 1309



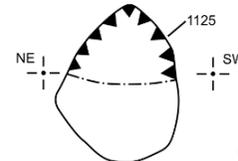
Dwg. 148  
West facing section of Posthole 1293



Dwg. 150  
Plan of Posthole 1293



Dwg. 158  
Plan of Posthole 1125



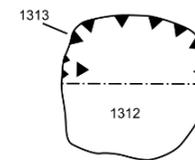
Dwg. 159  
Plan of Posthole 1123



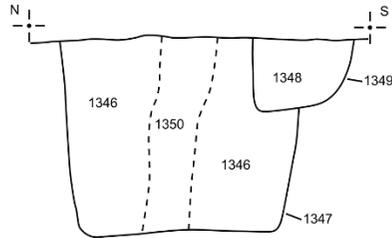
Dwg. 160  
Plan of 1117



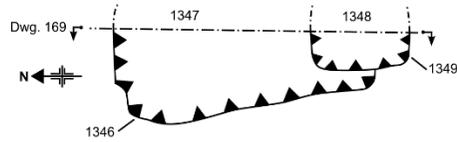
Dwg. 168  
Plan of Posthole 1313



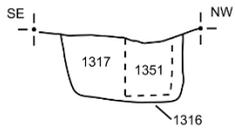
Dwg. 169  
West facing section of Postholes 1347 & 1349



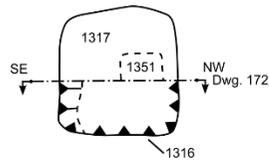
Dwg. 170  
Plan of Postholes 1347 & 1348



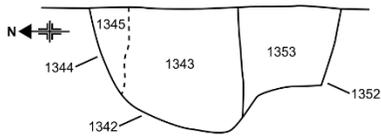
Dwg. 172  
NE facing section of 1316



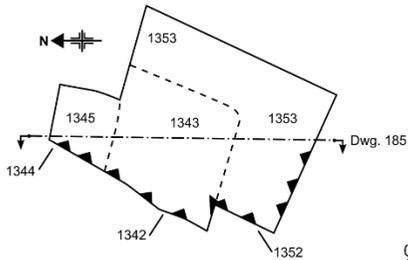
Dwg. 173  
Plan of 1316



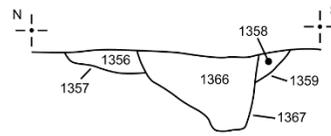
Dwg. 185  
Postholes 1344, 1342 & 1352



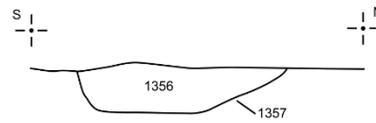
Dwg. 186  
Plan of Postholes 1344, 1342 & 1352



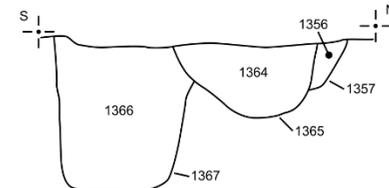
Dwg. 187  
West facing section of Drain 1357  
& Posthole 1359



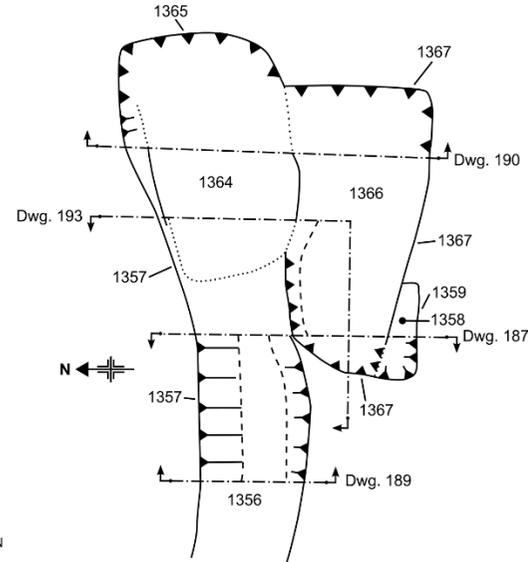
Dwg. 189  
East facing section of Drain 1357



Dwg. 190  
East facing section of Posthole 1365, 1367 & Drain 1357



Dwg. 188  
Plan of Postholes 1359, 1365 & 1367 & Drain 1357



Dwg. 193  
West & North facing section of Posthole 1359, 1365, 1367 & Drain 1357

