THE WESTERN HEIGHTS DOVER, KENT

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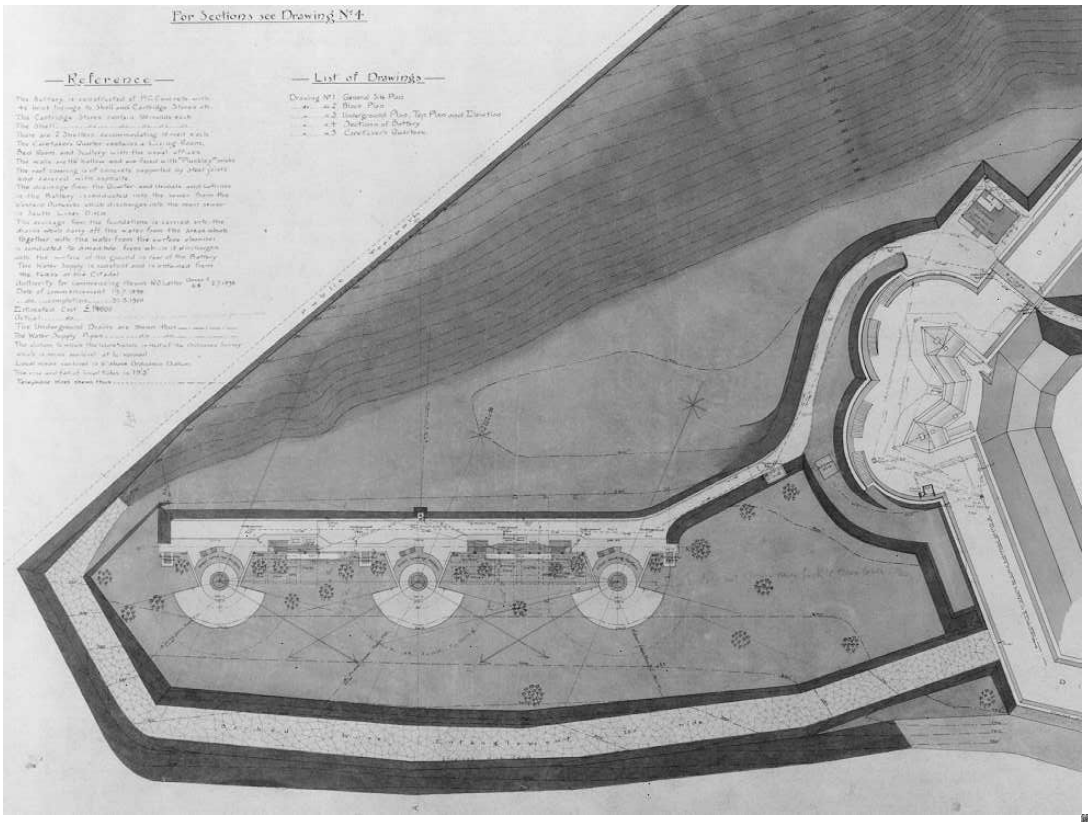
Report No 8: The Citadel Battery: A late 19th/early 20th-century coast artillery battery



SURVEY REPORT

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Photography by STEVE COLE & ALUN BULL

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ARCHAEOLOGICAL INVESTIGATION SERIES 29/2001

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THE WESTERN HEIGHTS,
DOVER, KENT

REPORT NO 8

CITADEL BATTERY

LATE 19TH & 20TH-CENTURY 9.2-INCH COAST ARTILLERY BATTERY

ARCHAEOLOGICAL INVESTIGATION REPORT SERIES 29/2001

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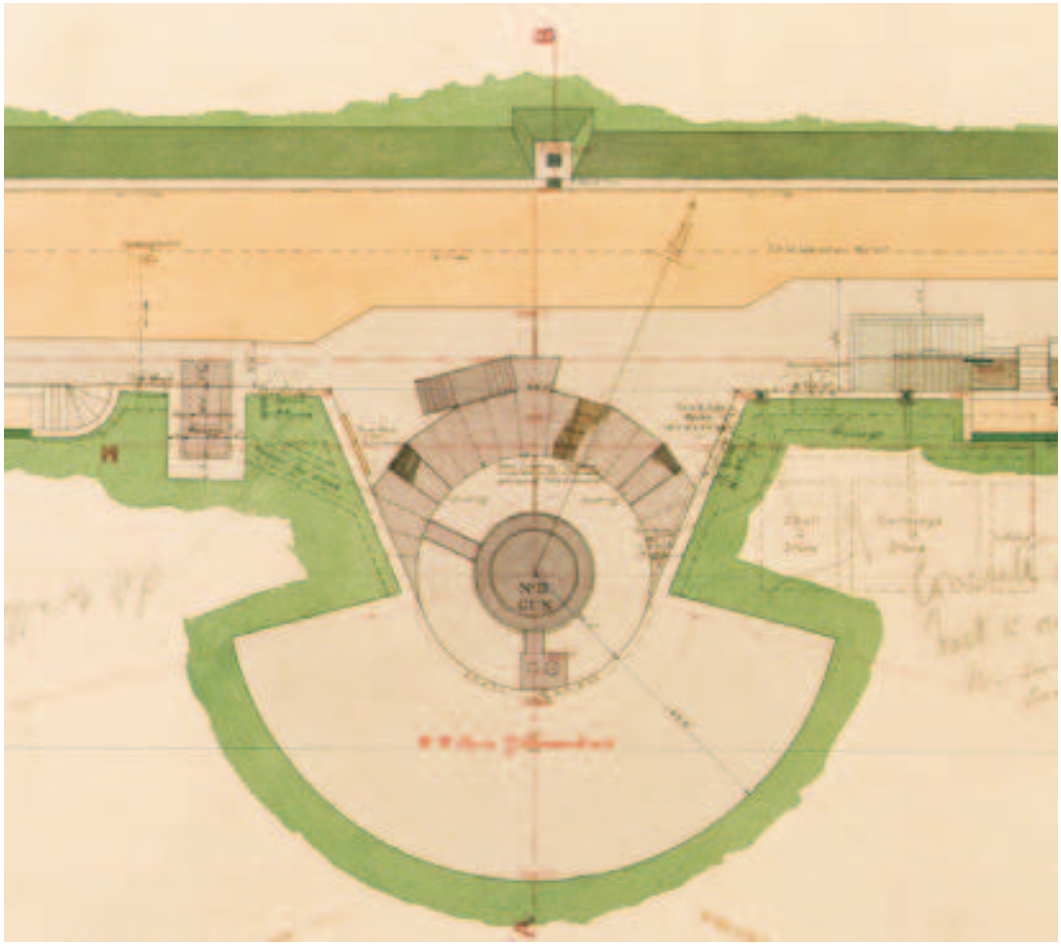

No II emplacement at Citadel Battery. Extract from a record plan dated 1902 (PRO: WO 78/5107/6; reproduced by kind permission of the Public Record Office)

CONTENTS

ABBREVIATIONS USED IN THE TEXT

AA	anti-aircraft
BC	battery command
BL	breech loader
BCP	battery command post
BOP	battery observation post
DRF	depression range finder
OP	observation post
PF	position finding
RA	Royal Artillery
RE	Royal Engineers
RSJ	rolled steel joist

LIST OF FIGURES

GLOSSARY

Barbette
A protective breastwork or forward edge of an emplacement, over which guns fire

Battery
A work, either temporary or permanent, where artillery is mounted

Blacker Bombard (or spigot mortar)
A close defence weapon, employed mainly by the Home Guard, which propelled a mortar-like shell at low trajectories

Bofurs gun
A light anti-aircraft gun built by the Swedish company, Bofurs

Breech-loader (BL)
A gun which is loaded at the rear of the barrel

Caponier
A protected position running across or projecting into a ditch; usually with embrasures and loopholes to provide flanking fire along the ditch.

Carbine
A short-barrelled firearm issued to the Engineers and Artillery (also the Cavalry)

Counterscarp
The exterior slope or revetment of a ditch

Covered way
A continuous walkway or roadway, protected from enemy fire by an earthwork parapet

Depression range finder
An instrument used in calculating the position of an enemy in order to set the angles and distances for a gun to fire

Embrasure
An opening in a parapet or wall through which a gun can be fired

Fuze
A wood or metal tube fitted into a shell in order to explode it

Glaçis
The external slope of a defensive work, carefully profiled and often massively reinforced with earth and other materilas to absorb incoming bombardment

Holdfast
The arrangement for securing a gun to the gun floor

Howitzer
An artillery piece shorter and lighter than its equivalent conventional smooth bore calibre, specialising in firing shells at high angles

Hydraulic accumulator

A unit which provided power to the guns for traversing and elevation/depression

Parapet
A low wall or earthen breastwork protecting the front or forward edge of a rampart

Slit trench
A small rectilinear trench, with spoil along the forward edge, forming a temporary defensible position for infantry

Terreplein
A level surface on a rampart, behind the parapet, providing a platform for guns

Trace
The plan of a fortification

Tube
A copper tube, filled with light gunpowder, inserted into the vent of a gun in oredr to fire it

Work
A general term for any work of defence

1. INTRODUCTION

In March 1999 the Royal Commission on the Historical Monuments of England (RCHME) carried out a survey and analysis of the earthworks, buildings and structures of Citadel Battery, a 20th-century coast artillery fortification forming part of the extensive defences on the Western Heights in Dover (Fig 1). The Western Heights Project was undertaken at the request of Kent County Council as part of an Interreg II programme relating to historic fortifications in Kent, Nord-Pas de Calais and West Flanders. The programme was co-ordinated for several partners in Kent by Kent County Council and funding for Western Heights was shared between the RCHME and the European Union. The field investigations were the responsibility of staff of the RCHME Field Office in Cambridge.

This report is no 8 in a series of ten to be produced on the Western Heights fortifications.

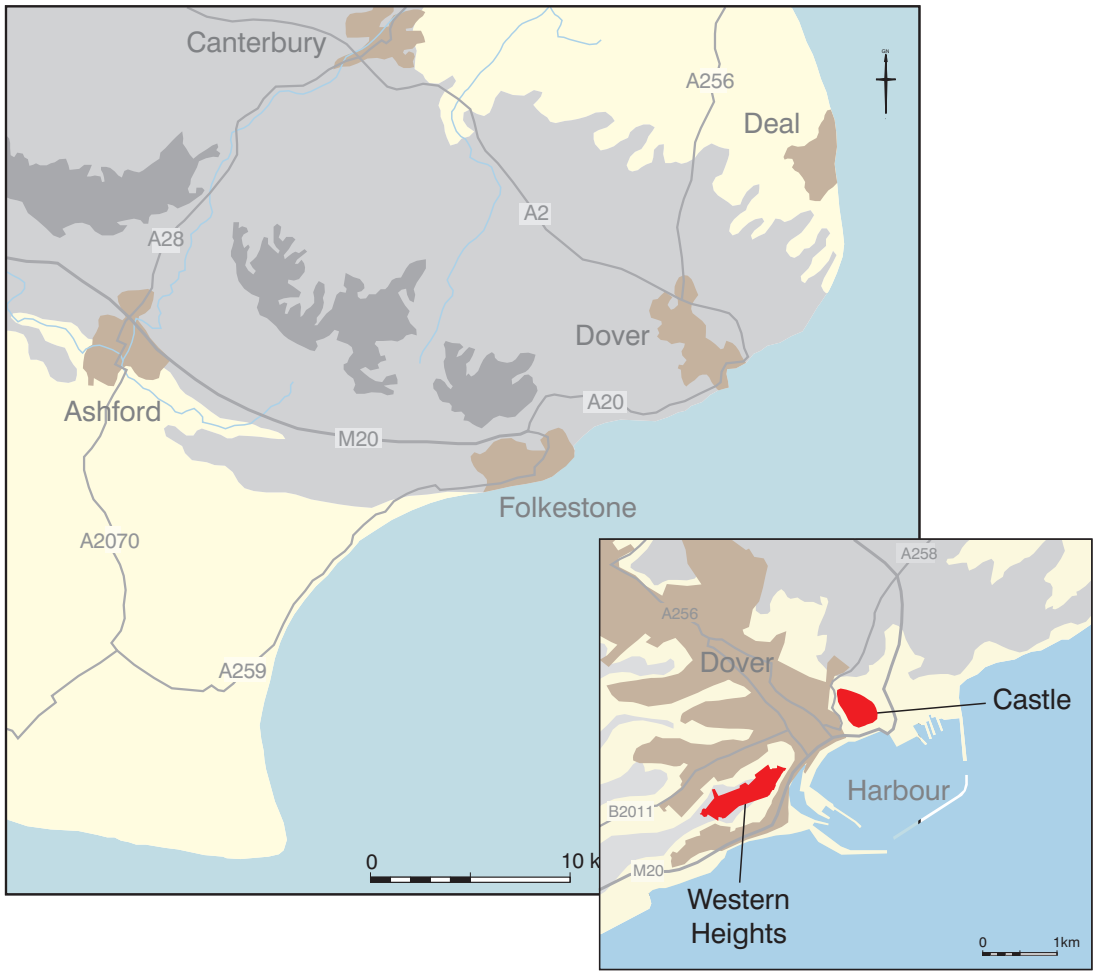

Figure 1
Dover Western Heights, location maps (pale yellow = land below 50m OD; light grey = land 50-150m OD; dark grey = land over 150m OD; pale brown = urban areas)

Citadel Battery lay at the very western end of the Western Heights fortifications (Fig 2). It was built between 1898 and 1900, to house three 9.2-inch Mark X breech-loading (BL) guns, with a primary role of counter bombardment of enemy shipping in the Channel, threatening to shell the port of Dover. It remained in use until 1956.

The battery is situated immediately west of the Western Outworks, an extension to the Citadel made in the late 1850s and 1860s, on the prominent east-west ridge of Upper Chalk which dominates the western side of the port and town (British Geological Survey 1974; Fig 2). It sits on the seaward edge of the ridge and commands an extensive view of the seaward approaches to both east and west. To the east, the battery overlooks the port as far as Langdon Cliff, where there was another 9.2-inch battery on the cliffs. With a range of almost 10 miles, these guns were an important element in the defence of the port and seaway.

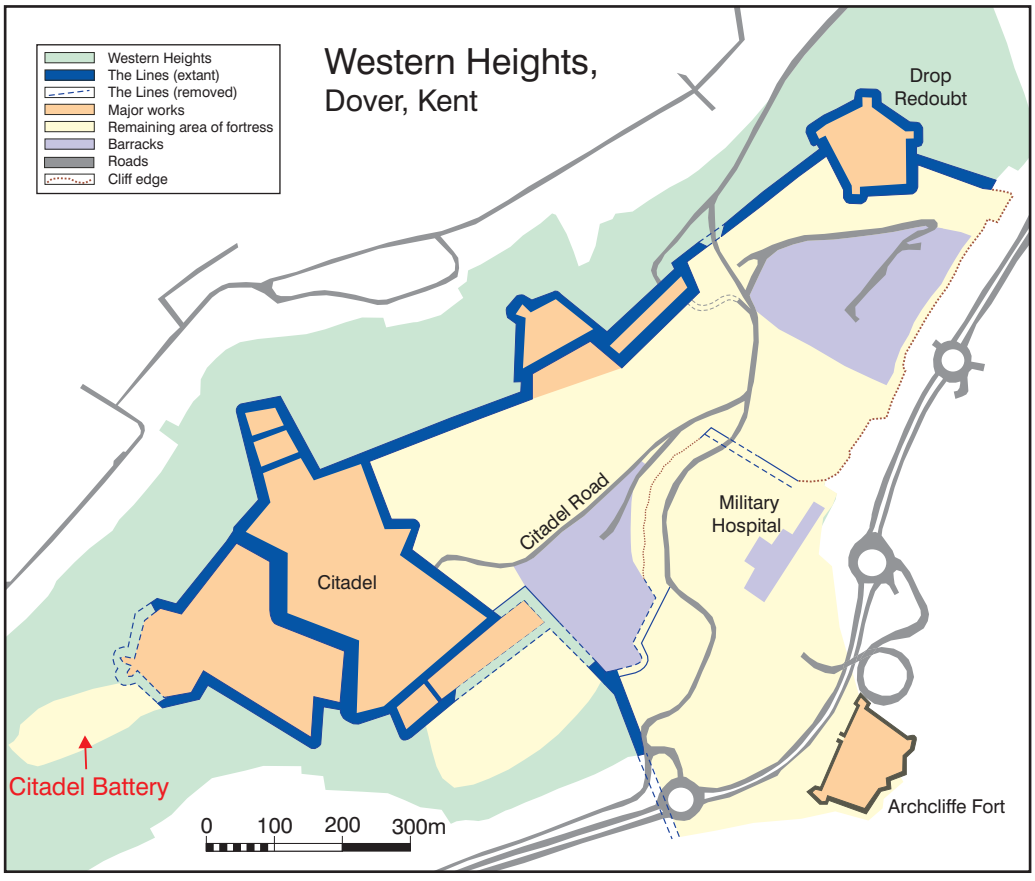

Figure 2
Location map showing the main components of the Western Heights with Citadel Battery at bottom left

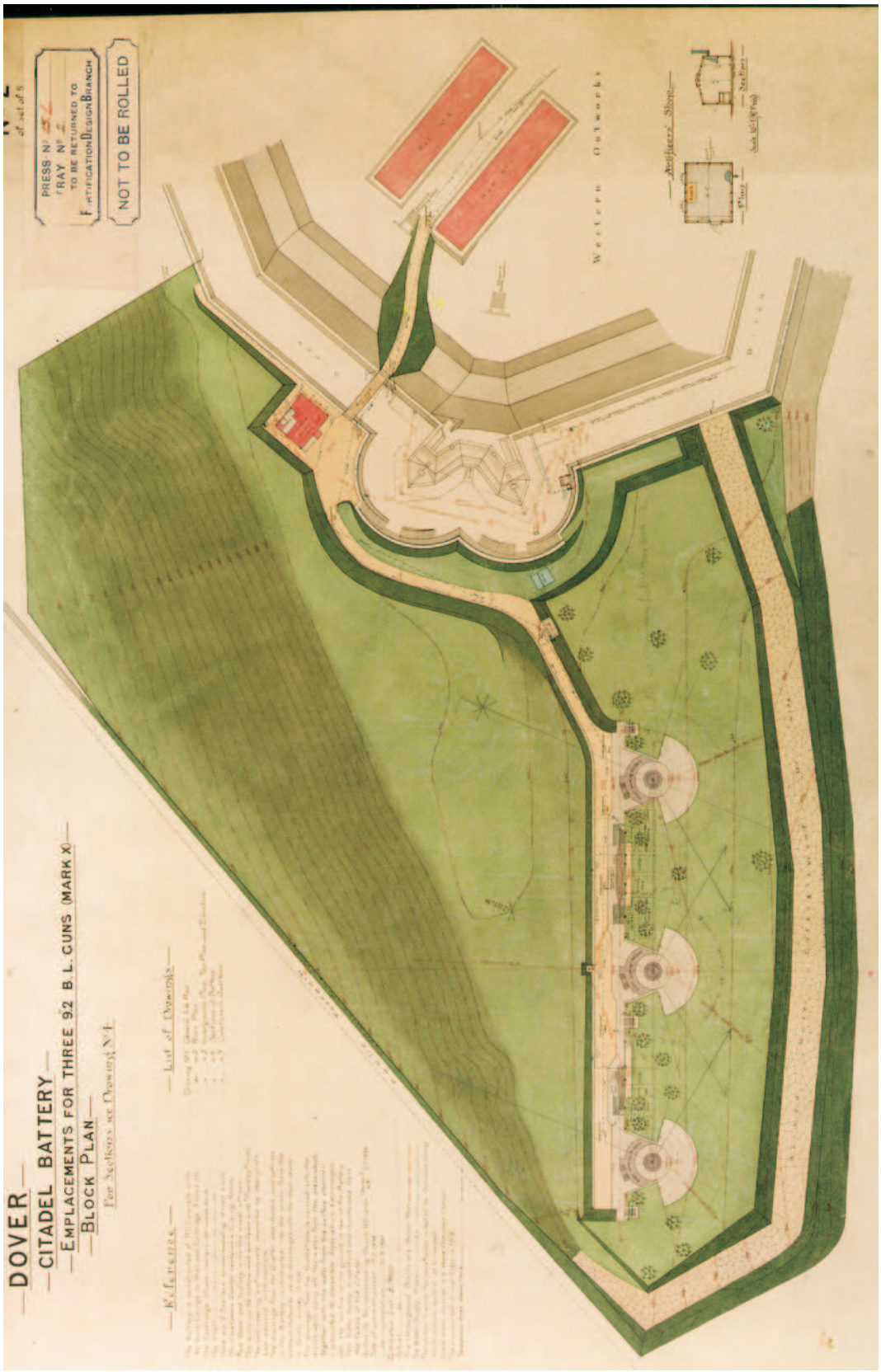

Figure 3 *Citadel Battery record plan, dated 1901 (PRO: WO/78/5107/5; © The Public Record Office)*

2. HISTORICAL SUMMARY

Citadel Battery was established at the end of the 19th century as one of a new generation of coast artillery batteries. By this time, warfare had demonstrated the futility of massive artillery forts with casemates and heavy armour, which had become vulnerable to accurate long range bombardment. The military engineers of the day had realised that protection could be better afforded to a small battery with a low profile, protected by a concrete barbette and a sloping earth and sand *glaçis*. In addition, a new generation of more powerful and accurate breech-loading artillery was introduced in the 1880s - principally at 6-inch, 9.2-inch and 10-inch calibres - which were gradually installed in coast batteries.

Authority for the commencement of work on Citadel Battery was given by the War Office on 2nd July 1898, and work began just over two weeks later on the 19th. The work was completed and the battery handed over to the Royal Garrison Artillery on 31st March 1900 (PRO:WO/78/5107/5). It comprised three emplacements for 9.2-inch BL mark X guns, installed between 1901 and 1902, on barbette mountings (Fig 3) (PRO: WO/33/254).

The Report of the Committee on the Armament of Home Ports, dated 1905, severely criticised Citadel Batttery. It considered, first of all, that the 9.2-inch guns did not provide sufficient cover against bombarding cruisers, especially with the position-finding (PF) equipment in use. Secondly, it was the view of the Committee that the location of the battery was too retired, leaving dead water south and south-west of Shakespeare Cliff. In conclusion, a new battery was proposed on the coast near Lydden Spout, some 1.86 miles (3km) to the south-west, with Citadel Battery to be dismantled (PRO: CAB/16/1).

Despite this report, which was heavily influenced by the Admiralty, the battery remained operational. However, in 1908, probably in response to its findings concerning the PF equipment, a new Battery Command (BC) post was established behind the battery. It had two floors comprising a telephone room below an open Depression Range Finding (DRF) position. Within months another open floor was added, probably because the original DRF did not have sufficient elevation (PRO: WO/78/5107/4). In 1914-15 this upper floor was provided with walls and a roof of asbestos sheeting on a steel frame (PRO: WO/78/5107/3).

In February 1910, the three 9.2-inch guns (referred to then as *A, B* and *F* guns) were still in place, with close defence provided by two parapet-mounted Maxim machine guns which

were in place by December 1907 (PRO: WO/33/488; WO/78/5102/5]). Later in 1910, the parapet carriages for the machine guns were replaced by tripod mountings, and in December of the same year one of the 9.2-inch guns (no II or *B* gun) was removed to Woolwich and the emplacement remained empty thereafter (PRO: WO/192/77). The two 9.2-inch guns and two machine guns remained as mounted armament until 1916, when the machine guns were withdrawn (PRO: WO/33/558; 599; 639; 683; 704 and 746). In 1919, two 6-pdr sub-calibre guns (for practice) were mounted on the 9.2-inch weapons (PRO: WO/33/942).

The remaining two guns were still in place in July 1927 (referred to as *A1* and *F1*), although they were not manned at night, and there was a PF cell on the south-western bastion of the Citadel. The range of the guns was given at this date as 17,000 yards (or 9.65 miles/15.54 km) (PRO: WO/78/5102/1). In 1934, an anti-aircraft Lewis gun position was established at the western end of the battery (PRO: WO/33/2861). In June 1936 there were still two 9.2-inch guns (PRO: WO/78/5101/10).

During the Precautionary Period in 1938, the guns were manned by the Royal Garrison Artillery (46 Co Kent RGA), housed in the Citadel, and there were fighting lights manned by the Royal Engineers (1 Fortress Company/Cinque Ports Company), in Archcliffe Fort. Command came from the senior Royal Engineer (RE) officer in Archcliffe Fort. The Citadel duty contingent comprised the following, with an identical complement on stand-down:

3 by 13-men gun detachments; 1 master gunner; 21 men in ammunition supply; 2 men in the stores and lamp room; 2 RGA artificers; 1 orderly/trumpeter; 4 dials operators (ie telephones); 1 man assigned to other duties (PRO:WO/33/488)

The battery was fully operational during the Second World War, for some of that time manned by 295 Battery Royal Artillery (PRO: WO/192/45). Aerial photographs taken in 1945 show the guns in emplacements I and III, complete with metal turrets and loading platforms to the rear. High walls protected the rear of the guns in both emplacements. Several other buildings, including pillboxes, were established in and around the battery (Fig 4; NMR: 106G/UK/610/Part V/6434-5).

During the 1960s, the ditch around the Western Outworks was infilled. Structures between it and the battery were partially levelled, a process which removed surface traces of the Caretaker's Quarters, the latrine block, the Artificer's Shop, much of the covered way and several structures of Second World War date (Fig 5).

Figure 4
Citadel Battery in 1945 (NMR: 106G/UK/944/Part II/6097) © MOD by kind permision

Figure 5
Citadel Battery in 1966 after the Western Outworks ditch had been partially filled in (NMR: MAL/66081/102)

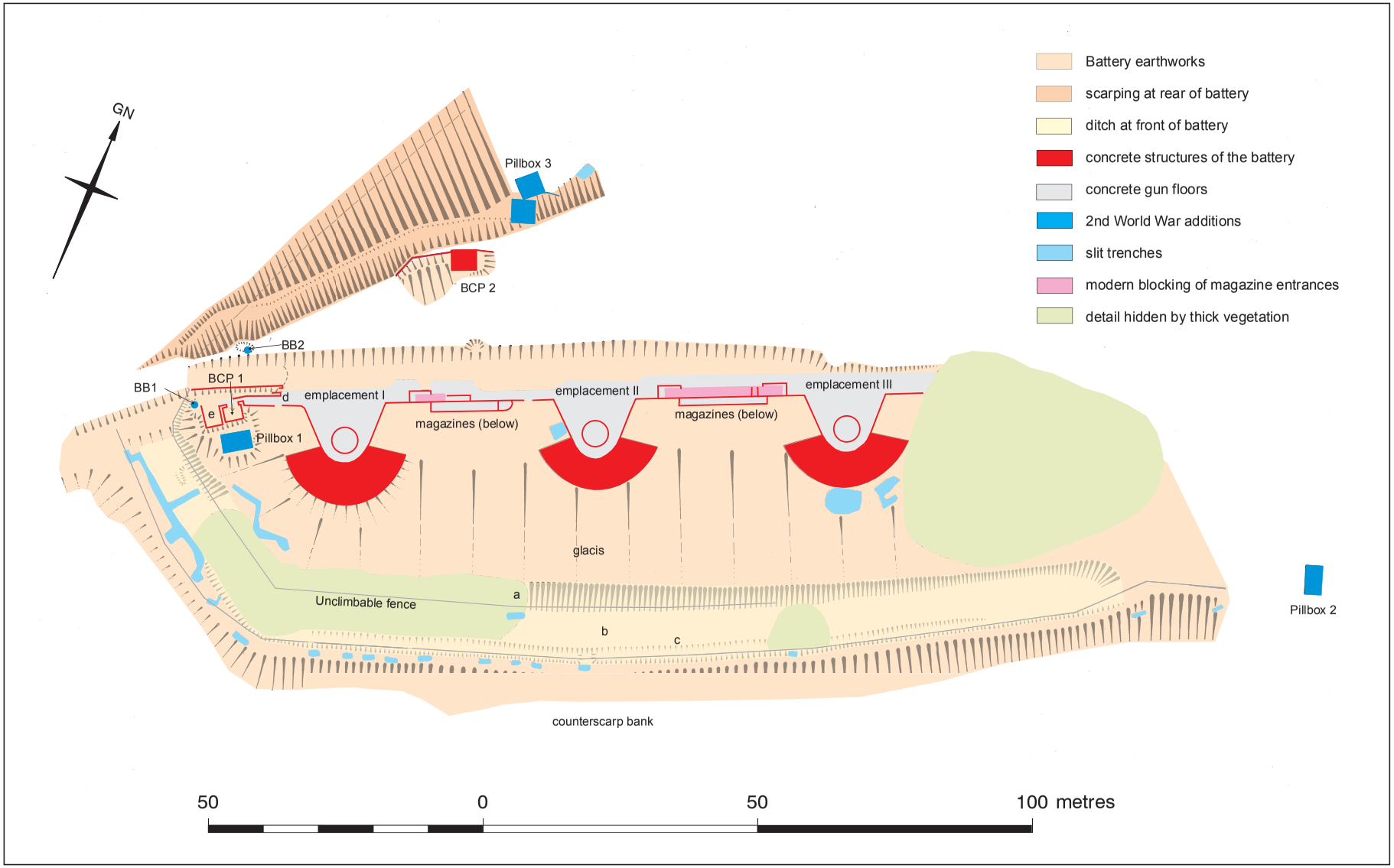

Figure 6 *RCHME survey plan of Citadel Battery (adapted from the original at 1:500 scale)*

3. DESCRIPTION

In the following description, words and letters which appear **in bold** are shown on Fig 6.

Earthwork defences

The battery occupies a flat ridge-top site, carefully positioned with three emplacements on the highest point, with the land sloping gently away to seaward. The emplacements are laid out in series with underground magazines, stores and gun detachment shelters below them. A covered way runs along the rear of the battery, formerly leading back into the Western Outworks by a curving route around the counterscarp of the main ditch, past the Caretaker's Quarters and across the ditch via a bridge. Direct access from the ditch and the double *caponier* there was provided by two sets of steps, close to which was an Artificers Shop (Fig 3). Beyond the eastern end of the battery, all of these features are now buried, following the infilling of the Western Outworks ditch during the 1960s.

On the record plan of 1901, the seaward face of the battery was defined by a sloping ***glaçis*** falling to a steeper scarp, at the foot of which was a broad barbed wire entanglement and beyond that a strained wire fence and a **counterscarp bank** (Fig 3). This defence was also carried around the western end of the battery, which occupied the whole width of the narrow ridge top, thereby closing off access from this direction. This original profile is largely intact, though much obscured by scrub growth, with the glacis falling away from the concrete gun aprons to the steeper scarp, **a**, 2.4m (7ft 10½in) high, with the rusted remains of an **unclimbable fence** at its foot - the latter not original (Fig 7). At the western end of the battery a short section of a 1.5m (6ft) high iron fence survives, probably part of the original. South of the unclimbable fence, there is a more gentle slope, **b**, for some 6.0m (19ft 8in) - the site of the barbed wire entanglements – before a shallow ditch, **c**, 2.8m (9ft 2in) wide by 0.2m (8in) deep, a secondary feature on the site of the strained wire fence. The ditch itself supports a modern fence and two or three of the uprights survive from a predecessor. The

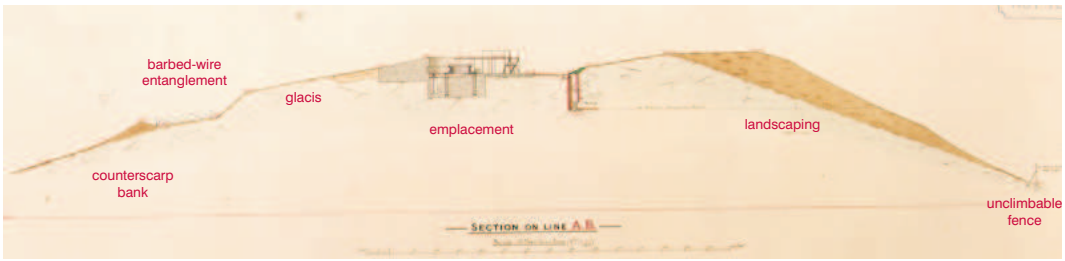

Figure 7
Profile of no II emplacement in 1901 showing the landscaping required at the rear of the Battery (extract from PRO: WO/78/5107/7; © The Public Record Office) (annotation in red by the authors)

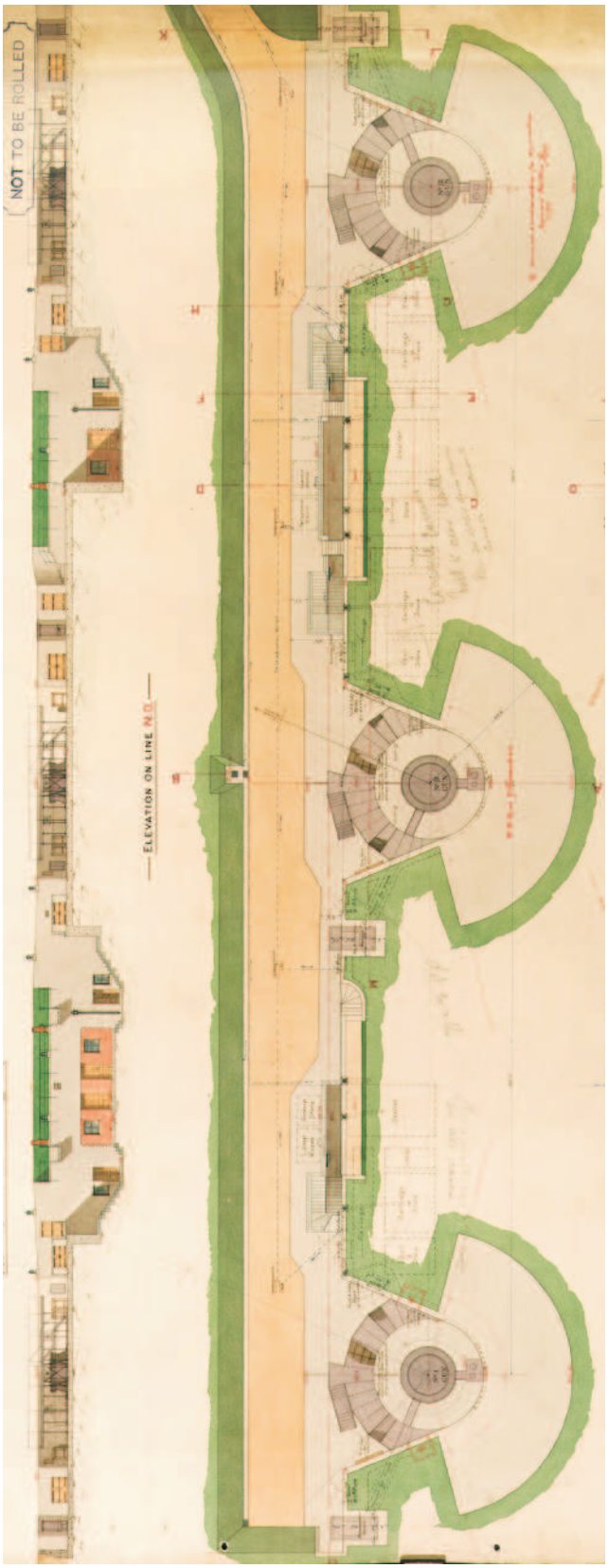

Figure 8 *Plan and elevation dated 1901, showing the three emplacements in detail (extract from PRO: WO/78/5107/6; © The Public Record Office)*

counterscarp bank beyond it is in good condition, though there are several **slit trenches** (at least twelve) cut into the top, most of them small, on average 2.5m (8ft 2½in) long, 0.8m (2ft 7½in) wide and 0.6m (2ft) deep. Two long examples guard the western end. All are probably of First or Second World War date.

On the 1901 plans, the steep natural slope on the landward side was made even more precipitous by adding a thick layer of earth, which had the added effect of concealing and protecting the rear of the battery (Fig 7). At the foot of this carefully profiled new slope, there was an unclimbable fence. Although the slope survives, it has been altered by construction of the BC Post and two Second World War structures (see below).

The *terreplein*

The three emplacements are arranged in series. Each one comprises a gun pit defined by a *barbette*, 2.2m (7ft 2½in) high, which splays to the rear and joins with parapet walls which run between the emplacements. Each emplacement is essentially identical, with only slight variation in the positioning of particular features. Construction is of concrete and steel throughout (Figs 8 and 9).

Figure 9
Emplacement for gun no I, showing the gun floor with holdfast and sawn-off uprights for the steel loading platform and the barbette with shell recess, cartridge recess and tunnel to the hydraulic accumulator (NMR: AA99/19743© Crown Copyright 1999)

Emplacement for gun no I: the centre of the gun pit floor is occupied by the gun **holdfast,** comprising two rings each of 26 steel bolts, each bolt 5cm (2") in diameter by 17cm (6¾") high. The rings measure 4.10m (13ft 5in) and 3.56m (11ft 8in) in diameter respectively. A gulley, 0.73m (2ft 5in) wide by 0.30m (1ft) deep, rebated for metal inspection covers, runs a dog-leg course across the gun floor from the western flank of the barbette, where it emerges from a low arched tunnel, 0.60m (2ft) wide by 0.97m(3ft 2in) high, leading to a recess for a

Figure 10
Emplcaement no III; detail showing the metal bolts of the gun holdfast and the gulley which carried hydraulic power to the gun and lift (NMR: AA99/09731 © Crown Copyright 1999)

hydraulic accumulator (Fig 10). The tunnel and gulley carried hydraulic pipes from the accumulator to the gun, providing power for the gun to traverse and elevate. The gulley leads to the centre of the holdfast, then turns south-east to the front of the emplacement and joins a rectangular pit, 1.35m (4ft 5in) by 1.03m (3ft 4½in) by at least 1.43m (4ft 8in) deep, partly filled with rubble. The pit has a ladder built into one corner and a metal inspection plate covers half of the top: it formerly housed a hydraulic ram lift which lifted shells from the recess at the base of the *barbette* up to the loading platform. In the *barbette* above the centre of the pit is a large hook, associated with securing a trapdoor in the loading platform after a shell had been passed through it. Large metal rings on the flanks of the *barbette* were for securing tackle for manhandling the gun during installation and dismantling.

Running around the rear of the gun floor are the stumps of metal uprights in two concentric curves. These are the remains of the uprights which supported the steel loading platform at the rear and flanks of the gun, level with the top of the *barbette*. The platform was constructed of ½" steel plate covered with alternate strips of teak and concrete on 6" I-section beams. The end beams were anchored into the *barbette*, where their sawn-off ends remain (Fig 9; PRO: WO/78/5107/6).

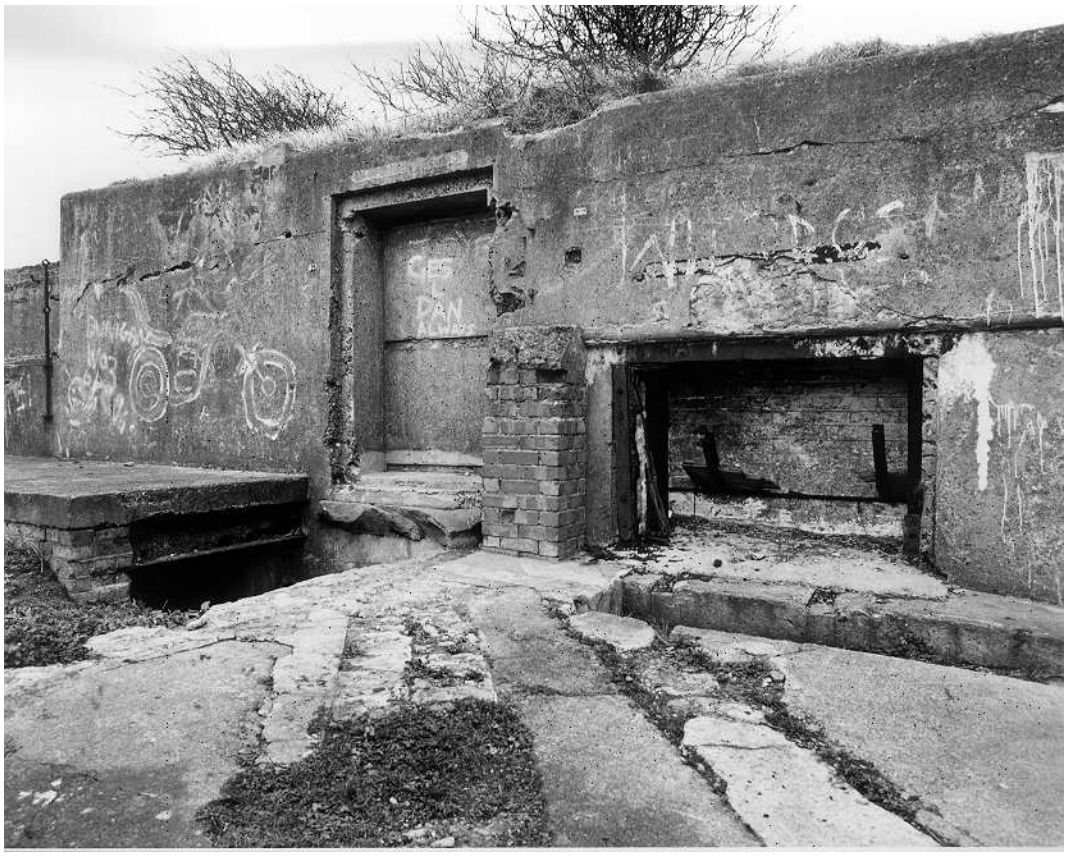

Figure 11
The parapet east of gun emplacement I, showing from right to left, the blocked ammunition lift, dials recess and blocked entrance to underground magazine and shelter (NMR: AA99/09746 © Crown Copyright 1999)

The flanks of the *barbette* contain three ready-use ammunition lockers, each 1.83m(6ft) wide by 1.02m (3ft 4in) deep by 1.09m (3ft 7in) high, and a shallow shell recess is moulded into the base of the barbette around its curved seaward side. The north-eastern ready-use locker is an original cartridge recess with non-ferrous frames for outward-opening double doors; the other two were added following approval in 1911, for additional shell capacity and have the associated heavy steel frames for outward-opening double doors. A scar in the wall immediately west of the accumulator tunnel is the site of a rack for 12 carbines; two more racks, each for 8 carbines, were removed during the installation of one of the shell recesses. In the north-eastern corner of the *barbette* is a small recess, 0.46m (1ft 6in) wide by 0.50m (1ft 7½in) deep by 0.62m (2ft ½in) high, with a rebate for a wooden frame: this was for the storage of tubes and fuses (PRO: WO/78/5107/6).

In the parapet west of the gun pit is a single cartridge recess, 1.82m (6ft) wide by 1.04m (3ft 5in) deep by 1.22m(4ft) high, rebated for a wooden frame, next to which is a large recess, 1.53m (5ft) wide by 2.46m (8ft 1in) deep by 2.2m (7ft 2½in) high, apparently open to the sky. This housed the hydraulic accumulator which was a free-standing unit (PRO: WO/78/5107/6).

In the parapet east of the gun pit is the ammunition lift (Fig 11). This recess, 1.40m (4ft 7in) wide by 0.59m (1ft 11in) deep by 1.01m(3ft 4in) high and edged with a metal frame, has a metal sill to the front. The pulley wheels, 0.25m (10in) in diameter, are still in place, as are fragments of the lifting mechanism. A small recess, 0.46m (1ft 6in) wide by 0.23m (9in) deep by 0.23m (9in) high and with a rolled edge, is situated above the lift opening and may have housed a light in a secondary phase.

Next to the ammunition lift, a recess 1.00m(3ft 3in) wide by 0.3m (1ft) deep by 1.64m (5ft 4½in) high, is rebated for a wooden frame (Fig 11). This was a dials recess for receiving the target range information, and a large piece of pipe issuing from the floor formerly contained the electric wires. Originally a step in front of the dials recess overhung the steps to the magazine below.

Emplacement for gun no II varies slightly, not least because the gun was dismantled and removed in 1911. There is only one ready-use ammunition locker in the *barbette*; a cartridge recess in the eastern wall. The scars marking the positions of three carbine racks are evident.

The concrete within the holdfast has been lowered by 8cms, further exposing the steel bolts. A concrete platform, the base of a small structure, occupies the southern part of the gun pit floor. This was part of a flat-roofed building, visible on air photographs of 1945 (NMR: 106G/UK/944/6097-8). The steel loading platform has been totally removed from the gun pit and the sides of the barbette.

Emplacement for gun no III is virtually a mirror image of emplacement 1. There are minor variations: the two cartridge recesses have brass frames and there are two secondary ready-use lockers, probably for shells, one of which is blocked by earth and rubble. The scar of the 12-carbine rack is visible but similarly obscured.

Between emplacements I and II, and emplacements II and III, are two observation platforms built into the parapet. Each is, in effect a broad step, 14.7m (48ft 3in) and 15.9m (52ft 2in) long respectively and 1.5m (5ft) wide, set 0.8m (2ft 7½in) above the covered way and with a brick parapet wall to the front. The western example, reached via curving steps towards its eastern end, is clearly of two builds: the first wall is 0.8m (2ft 7½in) high and the second a heightening to 1.22m (4ft). In the initial phase, each probably functioned as an infantry step for close defence of the perimeter, using carbines kept in the racks in the gun pits. There were also two parapet-mounted machine guns here in the first decade of the 20th century. However, the present level state of the ground beyond the parapet would prevent effective close defence and this is probably an alteration relating to the heightened wall, when the platforms were perhaps purely for observation over the coastal approaches. There are three rows of metal stanchions associated with the second phase wall, possibly the remains of shelving, and a scar in the side wall may be the remains of a cupboard.

The eastern observation platform has steps at each end: in detail it is similar to its western counterpart and also has evidence for a cupboard in its later phase.

Behind the emplacements, the northern side of the covered way is defined by a 1.6m (5ft 3in) high scarp, with level ground beyond.

The magazines, stores and shelters

Between the emplacements and located underground are the magazines, shelters and associated stores, which were reached by steps from the covered way. The entrances are now blocked with rubble and concrete, preventing access during the survey (Fig 11).

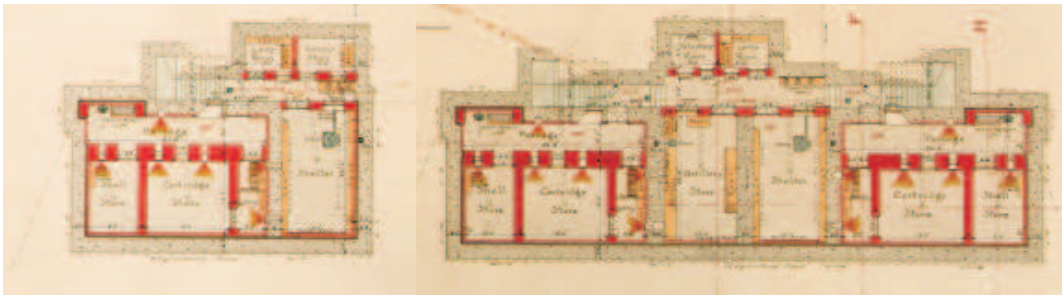

Figure 12
Detailed record plans of the magazines and shelters in 1901 (extract from PRO: WO/78/5107/6; © The Public Record Office)

The original record plan, however, shows them in great detail (Fig 12; PRO: WO/78/5107/6). There are two complexes: the first, between emplacements I and II, comprises a magazine, shelter, lamp room and group store; the second, between emplacements II and III, comprises two magazines, shelter, lamp room, telephone room and artillery store.

Each magazine comprised a shell store and cartridge store; the former has a doorway leading directly to the passage with the ammunition lift at the end, while access to the cartridge store was restricted through a controlled shifting lobby. Cartridges were passed out of the store through an issue hatch into the passage, and illumination was achieved through lamp recesses in the passage wall with permanent glazing on the internal wall preventing sparks from entering the stores. At the foot of the steps leading down to the magazine complexes were ablution benches, with extra latrines being provided along the covered way to the Western Outworks (PRO: WO/78/5107/5-6).

The first Battery Command Post (BCP1)

Originally, the western end of the north scarp of the covered way turned south to form an effective end to the battery, with only the *glaçis* and its barbed wire entanglements beyond (Fig 4). Prior to 1909, alterations were made there to incorporate a BC Post on the glacis , with the cutting of a short passage westward into the *glaçis*, leading via two flights of steps to a small square building (**BCP1**) (Fig 13).

The passage, **d**, survives, commencing immediately west of the accumulator recess for emplacement no I. It is some 9m (29ft 6in) long, 1.7m (5ft 7in) wide, its sides revetted in concrete. The passage leads to two small concrete cells let into the glacis, now much obscured by rubble. The first, measuring 3.2m (10ft 6in) by 2.4m (7ft 10½in), is the site of the BC Post itself – probably the telephone room on the lower level; the remains of a doorway, now broken, survive in the north wall. The second cell, **e**, measuring

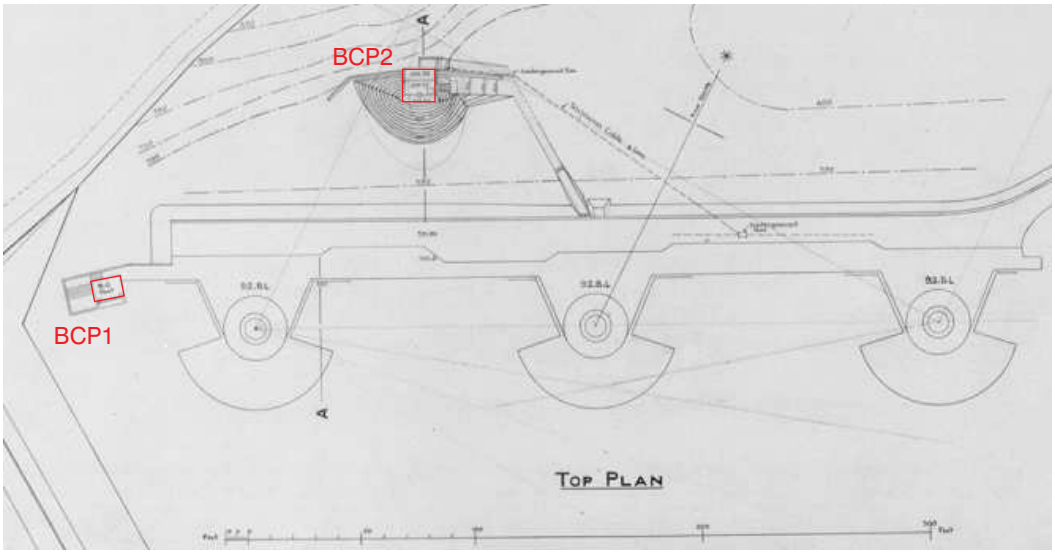

Figure 13
A plan of Citadel Battery in 1909, showing the first and second Battery Command Posts (PRO: WO/78/5107/4; © The Public Record Office) (annotation in red by the authors)

approximately 3.0m by 4.0, is simply a revetment wall for the stair leading to the upper floor of the BCP.

The second Battery Command Post (BCP2)

This structure replaced BCP1 in 1908. It is situated behind the battery close to the northern edge of the ridge, in a position midway between emplacements I and II (Figs 13 and 14). It is a concrete structure protected by an earth mound shielding the eastern, western and southern sides and revetted on the north by a ramped retaining wall. The mound is now severely slighted on the south and east.

It was originally of two floors but a third was added very shortly after completion (see Historical Summary, above). The new upper floor carried out the same function as the (superceded) second floor. The enclosed ground floor formed a telephone room while the second and upper floors housed the Depression Range Finding (DRF) equipment. The present remains comprise the lower floor and the middle floor, though the latter has several alterations so that it no longer reflects the structure shown on the record plans of 1909 (Fig 15). The upper floor has gone.

At the time of survey, the ground floor room was accessible and the following description reflects that fact. Shortly afterwards, all openings were bricked up (Fig 16).

Figure 14
The second Battery Command Post from the rear, showing the telephone room below and the DRF position above (NMR: AA99/09740 © Crown Copyright 1999)

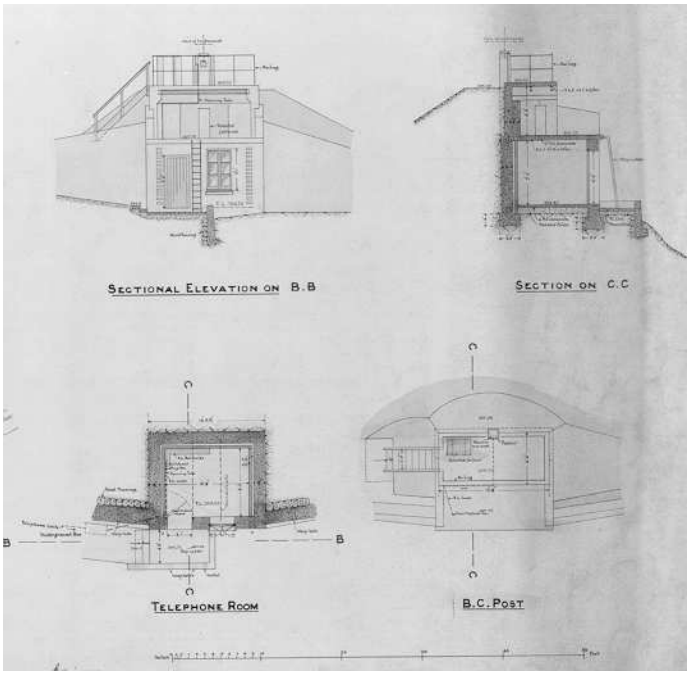

Figure 15
Plans, section and elevation of the second Battery Command Post in 1909 (extract from PRO: WO/78/5107/4; © The Public Record Office)

The ground floor telephone room, 3.17m (10ft 5in) by 2.59m (8ft 6in) by 2.40m (7ft 10½in) high, was originally of cavity-wall construction with a concrete core and brick skin, but the bricks have all been removed and glazed airbricks to the cavity outlets in the northern wall have all been smashed. The northern wall has a doorway, 0.96m (3ft 2in) wide by 1.94m (6ft 4in) high, and an adjacent window, 0.95m (3ft 1½in)

wide by 1.58m (5ft 2in) high, both with concrete sills and rebates for wooden frames. At the southern end of the eastern wall is a small rendered recess, 0.95m (3ft 1½in) wide by 0.23m (9in) deep by 0.62m (2ft) high, which held the switch and plug box (PRO: WO/78/5107/4). Inside, the room has a concrete floor and a flat concrete ceiling with cross-axial RSJs supported on stone pads. Two small holes in the ceiling formerly carried wiring for electric lighting, and a speaking tube for communication with the upper floors.

The middle floor forms a three-sided platform open to the rear (north), with partly ramped side walls; it was originally reached via a steel ladder attached to the northern wall. The front half was roofed but would have been open prior to construction of the upper floor. A scar in the floor, 0.32m (12½in) square, marks the position of the pillar which supported the DRF instrument as shown on the record plans of 1909 (Fig 15; PRO: WO/78/5107/4). The front wall has a slight 'bay' which is not shown on the plans though it appears to be an early feature.

Figure 16
The second Battery Command Post, showing the blocking of the telephone room (NMR: AA99/09735 © Crown Copyright 1999)

On top of and partly enclosing the middle floor walls, is an added wall of poorer quality concrete, also open to the rear. This is the strengthening material applied to support the upper floor, which has now gone. The upper floor was originally open, with only a steel railing around the perimeter. A concrete pillar for the DRF instrument stood centrally at the front. By 1914 a simple concrete roof had been added (PRO: WO/78/5107/3)

Second World War structures

During the early part of the Second World War, the battery was provided with additional close defence: this included two pillboxes, two Blacker Bombard emplacements, a Bofurs gun and a 4.5-inch howitzer (PRO: WO/192/45). **Pillbox 1** is located at the western end of the battery, on an artificial mound above BCP1. The mound, 9.2m (30ft 2in) by 8.1m (26ft 7in) and 0.7m (2ft 3½in) high, has a set of steps leading up to the eastern side where access was gained through the single embrasure in the AA gun pit. The pillbox is a classic type 23 example, comprising two cells; an open AA pit at the western end with a central concrete pillar for a light machine gun (Fig 17). From the pit, a set of steps lead down into the second

Figure 17
View across Citadel Battery from the top of pillbox 1; in the foreground is the pit for the light anti-aircraft gun (NMR: AA99/09729 © Crown Copyright 1999)

cell, the roofed part of the pillbox. Inside, it is divided into two by a short east-west wall and there are three embrasures, facing north, south and east.

Near pillbox 1, close to the remains of BCP1, and flanking the covered way, are two Blacker Bombard (spigot mortar) emplacements. These were sited to cover the western end of the battery and, in particular, the concrete road which had been constructed along the ridge to a new heavy AA battery. All that remains of the southern one (**BB1**) is the concrete pedestal and the stainless steel pintle: the surrounding pit and lockers have been filled in, though metal uprights testify to the existence of a corrugated iron revetment. The pit around the pedestal of the northern emplacement (**BB2**) survives, albeit in poor condition.

Pillbox 2 is situated at the eastern end of the Battery, close to the infilled Western Outworks ditch. It is identical to pillbox 1, with the AA gun pit to the north and three embrasures facing east, south and west.

There is no trace of the Bofurs and howitzer positions.

Other buildings

During the Second World War, two structures were built into the steep slope north of BCP 2, reached along a new covered way, **f**, descending gently from the western end of the battery and leading ultimately into the Western Outworks. The lower structure comprises two phases: a pillbox (**pillbox 3**) attached to an earlier building of unknown function. The earlier structure is roughly square (2.4m (7ft 10½in) by 1.8m (5ft 11in)) with a 0.7m (2ft 3½in) wide doorway in the east wall and two small windows in the north wall; during construction of the pillbox a second doorway was provided between the windows to provide access between the two structures. The pillbox is similar to others on the Western Heights generally, known as Dover Quads (Pattison *et al*, 2002). It is strongly constructed, with a concrete core faced inside and out with brick, a concrete floor and a flat overhanging concrete roof. In the north, east and west walls are low, wide embrasures that slope outwards towards the corners of the pillbox, and downwards, incorporating concrete ricochet stepping. The entrance is on the south side through the door from the earlier structure. Below the embrasures are small floor-level recesses in the east and west walls. The pillbox is perfectly sited to watch activity on the Folkestone Road.

Figure 18
?Shelter on the north side of Citadel Battery, with a pillbox immediately downslope (NMR: AA99/09739 © Crown Copyright 1999)

Behind this, and immediately upslope, is what may have been a small shelter for troops manning the pillbox (Fig 18). Quite different to any other structure on the Western Heights, this poorly constructed building encloses a rectangular area 3.20m (10ft 6in) by 2.33m (7ft 8in) by 1.79m (5ft 10½in) high, below an arched corrugated iron roof which is supported on low concrete walls. The roof is further protected on top by the addition of a thick concrete layer. The front of the structure is open with a length of steel railway track forming a lintel to the low entrance. Large metal rings close to the entrance are of unknown function.

There are a number of slit trenches (**ST**) along the north face of the Western Heights between Citadel Battery and the Western Outworks, some of which contain the remains of corrugated iron revetment.

4. SURVEY AND RESEARCH METHODS

The archaeological survey was carried out by Moraig Brown and Anwen Cooper, with some additional field assistance being provided by Paul Pattison, Andrew Williams and Duncan Garrow. Control and some hard detail was supplied using a Wild TC1610 Electronic Theodolite with integral EDM. Data was captured on a Wild GRM 10 Rec Module and plotted via computer using Key Terra Firma software on a Designjet 750C plotter. Archaeological detail was supplied at 1:500 scale using conventional graphical methods.

Site photography was carried out by Steve Cole and Alun Bull.

The report was researched and written by Moraig Brown and Paul Pattison and edited by Paul Pattison. The drawings were prepared by Moraig Brown and the report was produced using Corel Ventura software, also by Moraig Brown.

The site archive (NMR Number TR 34 SW 491) and a copy of this report have been deposited in the National Monuments Record, the archive of the RCHME (now English Heritage), at the National Monuments Record Centre, Great Western Village, Kemble Drive, Swindon SN2 2GZ, to where further enquiries should be directed.

5. ACKNOWLEDGEMENTS

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The Public Record Office, Kew

Dover Museum

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WO/78/5107/3 Citadel Battery: Improvements to BC Post - plan, sections and details, dated 04/08/1915

WO/78/5107/4 Citadel Battery: BC Post - plans elevations and sections, dated 06/03/1909

WO/78/5107/5 Citadel Battery: Emplacements for three 9.2" BL guns (Mark X) - block plan, dated 30/09/1901

WO/78/5107/6 Citadel Battery: Emplacements for three 9.2" BL guns (Mark X) - underground plan, terreplein plan and elevation, dated 24/04/1901

WO/78/5107/7 Citadel Battery: Emplacements for three 9.2" BL guns (Mark X) - sections of emplacement magazines and shelters, dated 03/01/1901

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WO/192/45 Fort Book, Citadel Fort, Dover 1901-1945

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b) National Monuments Record (NMR); aerial photographs

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MAL/74028/17-8	(08/05/1974)

7. LIST OF PHOTOGRAPHS TAKEN DURING THE SURVEY

AA99/09729 Exterior. View from westernmost pillbox, showing battery and prison in background

AA99/09730 Exterior. Rear of gun emplacement no I, view from north

AA99/09731 Exterior. Gun emplacement no I, view from apron showing gun holdfast

AA99/09732 Exterior. Gun emplacement no I, view from apron showing gun holdfast

AA99/09733 Exterior. Gun emplacement no I, view showing rear of emplacement, pillbox and site of other structure

AA99/09734 Exterior. Battery Command Post at rear of battery, view from south west

AA99/09735 Exterior. Battery Command Post at rear of battery, view from north west

AA99/09736 Exterior. Battery Command Post at rear of battery, view from north west

AA99/09737 Exterior. Battery Command Post at rear of battery, view from north west

AA99/09738 Exterior. Battery Command Post at rear of battery, view from west on covered way

AA99/09739 Exterior. Battery Command Post at rear of battery overlooking north side of ridge, view from south west

AA99/09740 Exterior. Battery Command Post at rear of battery, view from east north east

AA99/09741 Exterior. Gun emplacement no II, view showing gun holdfast

AA99/09742 Exterior. Gun emplacement no II, view showing gun holdfast and ready-use lockers from west

AA99/09743 Exterior. Gun emplacement no III, view showing gun holdfast, fragments of loading platform and tunnel to hydraulic accumulator

AA99/09744 Exterior. Gun emplacements nos I & II and sea beyond, view from north-west on Battery Command Post at rear of battery

AA99/09745 Exterior. Gun emplacement no III and sea beyond, view from north-east on Battery Command Post at rear of battery

AA99/09746 Exterior. Gun emplacement, detail showing top of ammunition lift and entrance to underground magazine (filled in)

NATIONAL
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RECORD

The National Monuments Record contains all the information in this report - and more: original photographs, plans old and new, the results of all English Heritage and RCHME field surveys, indexes of archaeological sites and historical buildings, and complete coverage of England in air photographs.

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The Royal Commission on the Historical Monuments of England (now part of English Heritage) gathers information on England's heritage and provides it through the National Monuments Record

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