Assessment of an Archaeological Watching Brief at Fort Warden Holiday Camp, Totland Bay, Isle of Wight

Central National Grid Reference: SZ 3250 8760

Site Code: IWCAC 4905

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1 ABSTRACT

1.1 An archaeological watching brief was conducted by Pre-Construct Archaeology Ltd. at Fort Warden Holiday Camp, Totland Bay, Isle of Wight (see Figure 1) during the demolition of the holiday camp structures in advance of its redevelopment for residential units. The work was commissioned by CgMs Consulting on behalf of Roseberry Homes.

1.2 The investigations were undertaken between 21st October 2002 and 15th January 2003, with further work between 13th and 17th September 2004. It comprised the monitoring of the demolition in order to preserve and record structures and features of Warden Point Battery, a coastal fort that was part of the Needles Defences. The drilling of four geotechnical boreholes and the excavation of a footing trench for one of the new buildings were monitored.

1.3 Substantial elements of Warden Point Battery were exposed and recorded, including parts of the original 19th century battery. Evidence was seen for the subsequent military alterations to the fort as it was used into the 20th century. The remains found on site correspond to an array of historical documents that illustrate its history. Furthermore they can be compared to contemporary forts on the west coast of the Isle of Wight that served the same purpose.

1.4 This report presents the results of the investigation in relation to the history of the Site in order to study its structural development, and make comparisons with neighbouring coastal emplacements.

2 INTRODUCTION

2.1 An archaeological watching brief was undertaken by Pre-Construct Archaeology Ltd. at the Fort Warden Holiday Camp, Totland Bay, Isle of Wight (henceforth the Site). The Site was disused as a resort in 1995 and has been in a derelict state since. The work involved the demolition of all elements of the camp, to reveal the remains of Warden Point Battery. This was a coastal battery, part of the Needles Defences, first built in the 1860s but redeveloped substantially over the next 100 years to serve different military needs. The new development has been designed to leave the majority of these structural remains, including gun emplacements, magazines and a perimeter wall, *in situ*. Pre-Construct Archaeology Ltd. was commissioned for the project by CgMs Consulting on behalf of Roseberry Homes.

2.2 The military history of the Site over the 19th and 20th centuries has been outlined in a number of studies[1]. This knowledge of the Site influenced a specification[2] and a method statement[3] for the watching brief. These indicated the high likelihood of archaeological remains, potentially in a good state of preservation.

2.3 The demolition was conducted between 21st October 2002 and 15th January 2003. A number of boreholes were drilled and monitored in October 2002. Some small-scale ground reduction was also monitored in January 2003 to expose the roofs of the subterranean magazines. Between 13th and 17th September 2004 a foundation trench for one of the new development blocks was dug and monitored.

2.4 The watching brief covered an area of land approximately 14.9 hectares in size and centred on National Grid Reference SZ 3250 8760. The Site is bordered to the south and east by heathland, to the east by disused holiday chalets on Warden Point Road, to the north by woodland containing an extensive badger sett and to the west by the cliff edge (see Figures 1 & 2).

2.5 The project manager for Pre-Construct Archaeology Ltd. was Jon Butler, and the work was monitored by Ruth Waller of the Isle of Wight County Archaeology and Historic Environment Service (IWCAHES). The work was supervised by Chris Mayo.

2.6 The completed archive, including written, drawn and photographic records will eventually be deposited at the Isle of Wight County Archaeology collection under the site code IWCAC 4905.

[1] Cantwell and Sprack 1986; Saunders 1998
[2] Isle of Wight County Archaeology and Historic Environment Service 2002
[3] Butler 2002

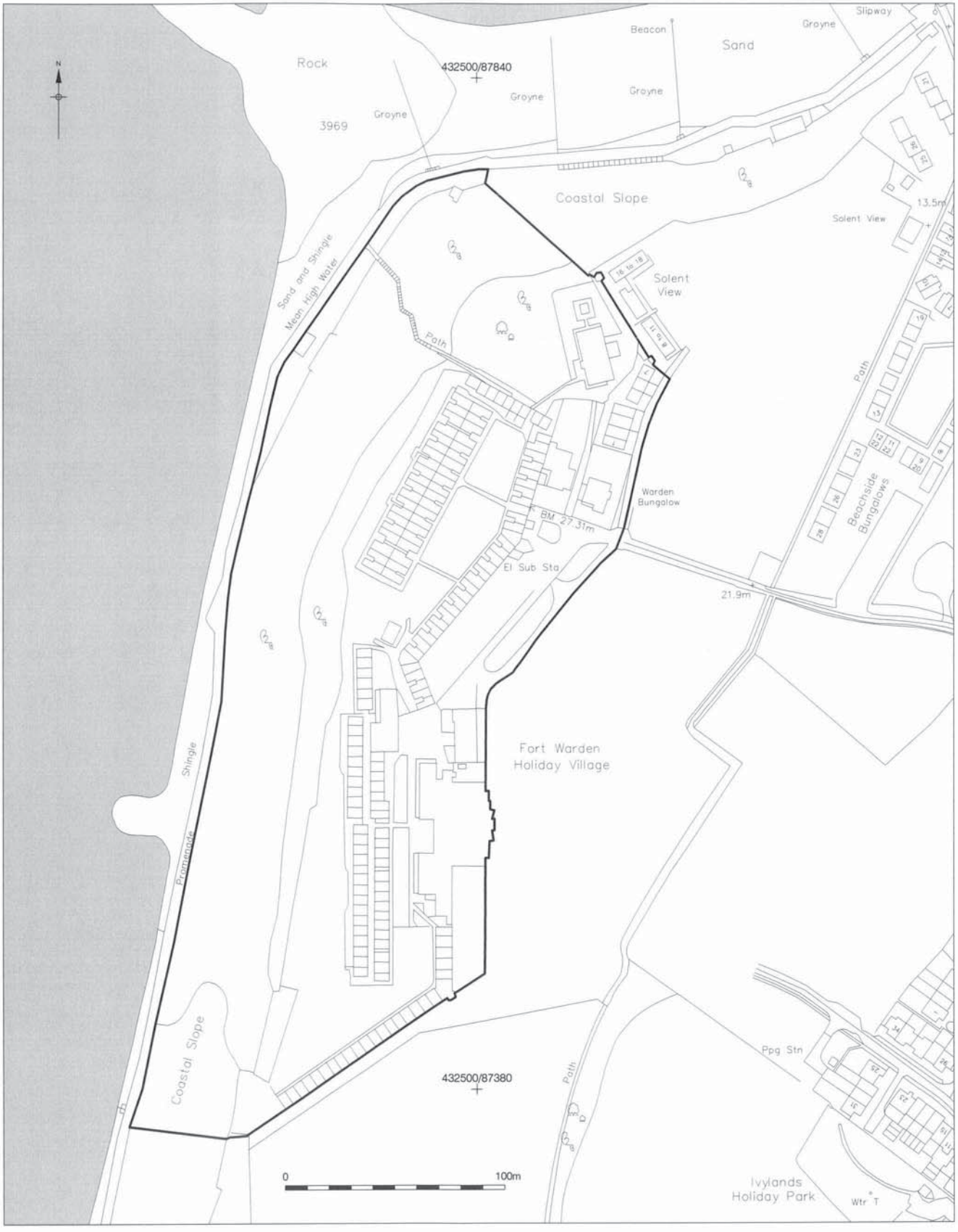


Figure 1
Site location
1:2,500

For location within the Isle of Wight, see Figure 3

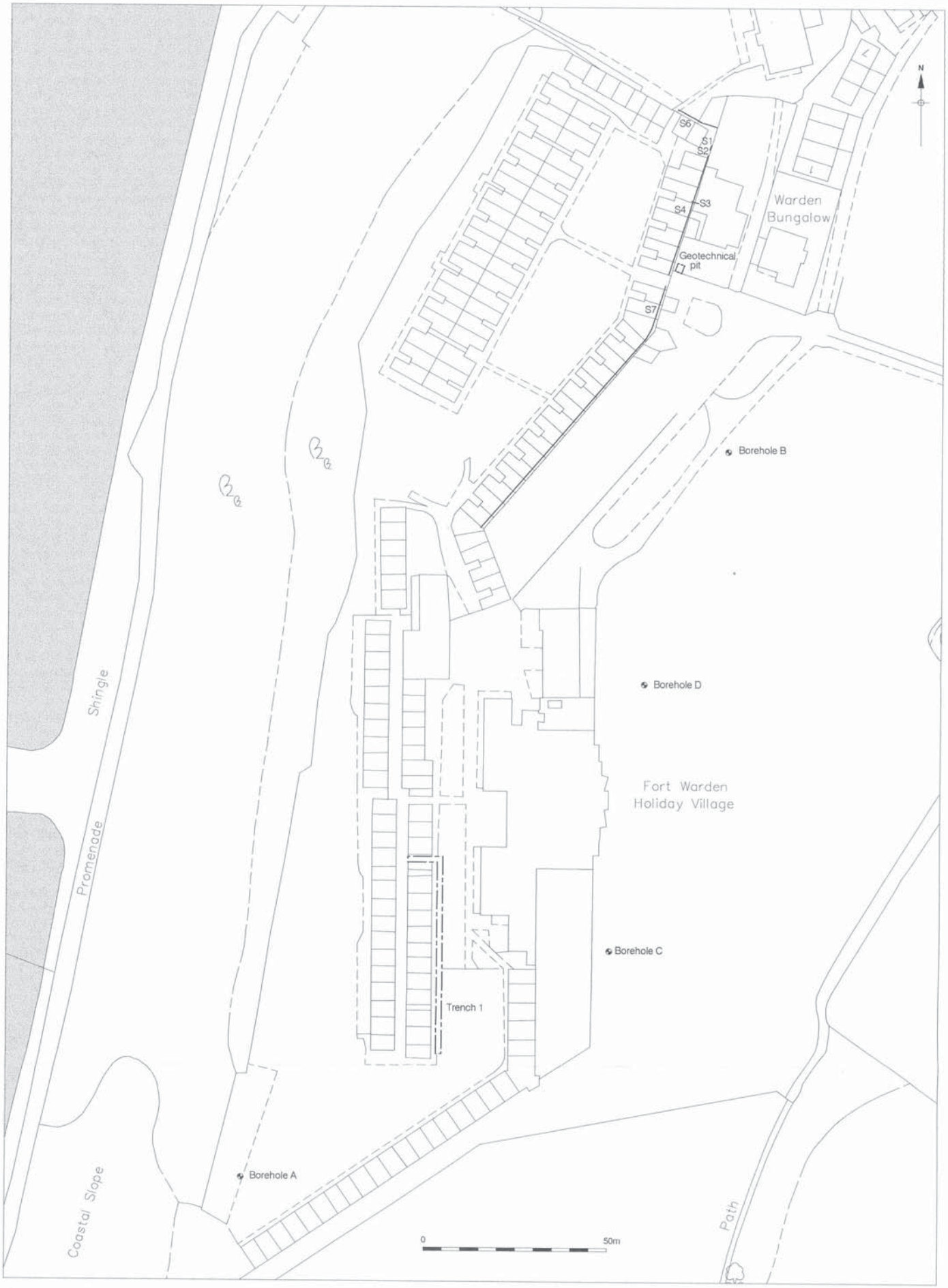


Figure 2
Location of Trench 1, elevations, boreholes and geotechnical pit
1:1,000

3 PLANNING BACKGROUND

3.1 The design for the investigation fulfils the requirements set out by the Isle of Wight Unitary Development Plan (UDP), adopted in May 2001[4]. The UDP contains the following policy statement relating to the Historic Environment and the Protection of Archaeological Heritage:

Policy B9

Development proposals which are likely to adversely affect the archaeological heritage and features of the Island, directly or indirectly, will not be permitted. Planning applications will be approved provided that:

a where nationally important remains or their settings are affected by proposed development, permission will only be granted if it will preserve or enhance the archaeological features; on these and other important sites, development which would damage the site or its setting will not be permitted;

b where proposed development may damage or destroy archaeological remains, the Council will require the developer to submit, prior to determination, the results of an archaeological assessment, which may include field evaluation;

c where development is proposed at a location which is likely to affect an archaeological site or its setting, permission may exceptionally be granted if preservation of archaeological remains in situ can be achieved by the careful use of appropriate layout, foundations and design;

d where preservation of archaeological remains in situ is not feasible, the Council will require the developer to submit, prior to determination, proposals which will mitigate the effects of the development on the archaeological remains. Such proposals should include a programme of appropriate archaeological investigation, recording, analysis and publication which may be undertaken as a condition of planning permission.

[4] www.iwight.com/ , 1

4 GEOLOGY AND TOPOGRAPHY

4.1 GEOLOGY

4.1.1 The underlying geology of the Site consists of Eocene deposits of sand, clay, limestone marl and Venus Beds[5].

4.2 TOPOGRAPHY

4.2.1 The Site is located on ground that slopes down from the cliff top to inland, approximately 32m OD to 24m OD.

4.2.2 The Solent lies immediately to the north and west of the Site (see Figure 1).

[5] freespace.virgin.net , 1; www.invectis.co.uk , 2

5 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

5.1 PREHISTORIC

5.1.1 Although there are no known sites of the Palaeolithic or Mesolithic periods on the Isle of Wight, a number of flint tools have been found. The Neolithic period is better represented by three monuments, including a long barrow within 4km to the east of the Site and a mortuary enclosure less than 3km to the south. Neolithic implements and sherds of residual pottery have also been found[6].

5.1.2 The Bronze Age period on the Isle of Wight is evidenced by a number of round barrows. The majority are focused on the chalk downs to the south and east of the Site, but one is also located on Headon Warren within 2km to the southwest[7].

5.1.3 One Iron Age monument is known of on the island at Chillerton Down Hill Fort to the southeast of the Site, although residual Iron Age pottery has also been found on three Roman sites[8].

5.2 ROMAN

5.2.1 The majority of Roman remains on the island are focused to the east of the Site. They include seven known villas, with mosaics and bath houses, at a time when the Isle of Wight was called *Vectis*. Closer to the Site, activity may have been limited to cultivation on the chalk downs to the south[9].

5.3 ANGLO-SAXON

5.3.1 There are two cemeteries on the Isle of Wight that have revealed Anglo-Saxon gravegoods within graves: at Chessell Down and Boscombe Down[10].

5.4 MEDIEVAL

5.4.1 A number of medieval monuments survive on the Isle of Wight, including Carisbrooke Castle built in the Norman period (see Figure 4) and St Catherine's Oratory on the south coast[11].

[6] www.invectis.co.uk/ , 1
[7] www.invectis.co.uk/ , 1
[8] www.invectis.co.uk/ , 1
[9] www.invectis.co.uk/ , 1
[10] www.invectis.co.uk/ , 1
[11] www.invectis.co.uk/ , 1

5.4.2 The Isle of Wight had been considered a defensive priority from the medieval period onwards. It was feared that the island could be used as a base from which raiders could launch attacks against the south coast of England[12]. For many years the currents and coasts along the Solent provided good defence, being treacherous and difficult to navigate. This was not always the case however, for if the tides and conditions were right ships could sail rapidly through the Solent. Defence in these situations was hampered when the only weapon usable against the raids was the longbow. But with the development of cannon by the late medieval period, it became easier to attack raiding ships.

5.5 POST-MEDIEVAL

5.5.1 The fear of attack on England's south coast, particularly from the French and Spanish, became stronger into the post-medieval period, largely because of the development of the naval base at Portsmouth and the port of Southampton (see Figure 4). With the development of artillery, it was possible to build forts along the south coast and along the coast of the Isle of Wight. Two of the best surviving examples are at Yarmouth, less than 5km to the northeast, and Hurst Castle on the mainland (see Figure 4). These two forts were the only protection for the west entrance to the Solent between the 16th and late 18th centuries[13].

5.5.2 The island's defences were rapidly enlarged though after 1793, when war with France began. It was the continued threat of French invasion that dictated the organisation of battery positions, particularly on the west coast of the Isle of Wight, throughout the 19th century. A two-gun battery was in existence at Warden Point by 1803[14].

5.5.3 The distrustful relationship of trust between Britain and France reached a peak in the 1850s, beginning with the publication by Lord Palmerston in 1849 of a report in which he predicted a French invasion. Further war scares circulated in 1852-3, but by 1854 both countries were united in war against Russia. Successful state visits occurred in 1855, when Lord Palmerston became Prime Minister. Yet by 1859, French activity in Italy caused a further war scare and a Royal Commission warned that Britain would be badly defended against invasion if the Navy were engaged elsewhere[15]. The problem was compounded by the introduction of the first French ironclad ship, rendering much of Britain's Navy ineffective[16].

[12] Cantwell and Sprack 1986, 1
[13] Cantwell and Sprack 1986, 2
[14] Cantwell and Sprack 1986, 18
[15] www.napoleon.org/ , 1
[16] Cantwell and Sprack 1986, 3

5.5.4 In 1860 a report by the Royal Commission on the Defences of the United Kingdom proposed a series of forts and defences to bolster coastal protection, involving the reinforcement of Portsmouth and Hurst Castle, and new batteries on the west and east coasts of the Isle of Wight. Prior to this new programme of defences, the batteries on the west coast of the island were the Old Needles, Freshwater Redoubt, Cliff End Fort Albert and Fort Victoria (these were all reworked after 1860). New batteries were built at Hatherwood Point and Warden Point. Golden Hill Fort was built inland to the east of the Site to serve as defence against a land attack and as barracks for troops stationed at the batteries[17] (see Figure 4).

5.5.5 Between 1862-3, an eight-gun battery was constructed at Warden Point, comprising four 7" Rifled Muzzle Loaders (RMLs) and four 9" RMLs. A large bombproofed magazine behind the centre of the guns was built. The guns were positioned within a loopholed perimeter wall with three caponiers that crossed a flanking dry ditch, to defend the landward side of the fort. The entrance was an arched door with a drawbridge, to the north of the middle caponier (see Figure 5). The initial construction cost approximately £12,000, with £6,000 of that being spent on drainage and a sea wall[18]. The problems of constructing a large emplacement at the top of a subsidence-prone cliff were to be recurrent at the fort.

5.5.6 The armament at the fort changed so that by 1873 it held eight 9" RMLs (see Figure 5), and again in 1888 when long-range gun practice was conducted[19]. In the same year an observation station was built for the Brennan Torpedo that was installed at Fort Albert[20]. Various trials were undertaken at Warden Point Battery with searchlights on the sea wall below in 1889-92, a see-saw searchlight emplacement in 1890[21] and one each experimental High-Angle (HA) gun and Long Range (LR) gun in 1892-3. These were installed on purpose built emplacements with a magazine below, which replaced the four southernmost RML emplacements[22] (see Figure 5). Other alterations included an engine room built in 1891 by the fort's entrance, containing two Robey steam engines.

5.5.7 The new gun arrangement was short-lived, and in 1898 all of the existing gun emplacements were disused. In 1898-9 they were replaced by emplacements for four 6" Breech Loading (BL) guns, built in two pairs, and a new underground engine room was built to the north of the battery. Two searchlight emplacements were also built on the sea wall below. The land occupied by the fort was extended to the south between

[17] Cantwell and Sprack 1986, 4-5
[18] Cantwell and Sprack 1986, 18-20
[19] Moore 1996, 22
[20] Saunders 1998, 107
[21] Cantwell and Sprack 1986, 20
[22] Cantwell and Sprack 1986, 20

1898-1900, and two emplacements for 9.2" BL guns were constructed. This extension required the alteration of the southern side of the perimeter wall for access. A third 9.2" BL gun emplacement was added in 1900, and the fort was enclosed in an 'unclimbable' iron fence. The 6" guns were installed between 1900-01, and the 9.2" guns in 1902[23,24]. By 1903, a Searchlight Command Post, to direct the lights, had been built[25] (see Figure 5).

5.5.8 By the start of the 20th century, and following this frenzied defensive building, the forts along the Needles Channel were heavily armed, so much so that in 1905 a report by the Owen Committee concluded that there were too many 6" guns. As a result of this, in 1907 the four 6" BL guns at Warden Point Battery were relegated to reserve status[26]. By 1906, a number of Maxim guns on parapet mountings had been installed at the fort[27].

5.5.9 Changes were also made to the 9.2" BL guns: in 1907 two 3-pound practice guns were installed in the middle 9.2" gun emplacement. It is unclear whether or not the 9.2" gun was removed to make way for them, or whether the practice guns were mounted on the 9.2" gun. The latter was definitely the case though in 1910, when 6-pound practice guns were superimposed on the 9.2" guns[28].

5.5.10 The fence was replaced in 1911 by a concrete wall that encompassed the 9.2" gun emplacements and the land to the north of the battery where the engine room was (by now the steam engines had been replaced by oil)[29]. A series of concrete shelters were built against the new wall[30].

5.5.11 With the outbreak of war in 1914, the 6" BL guns were activated for use, although in December of that year the two northernmost 6" guns were removed. Further effort was made to defend the landward side of the fort with the erection of barbed wire and machine gun nests. To enable a permanent troop presence on site, a series of temporary huts were installed (comprising either sheds or old railway carriages)[31].

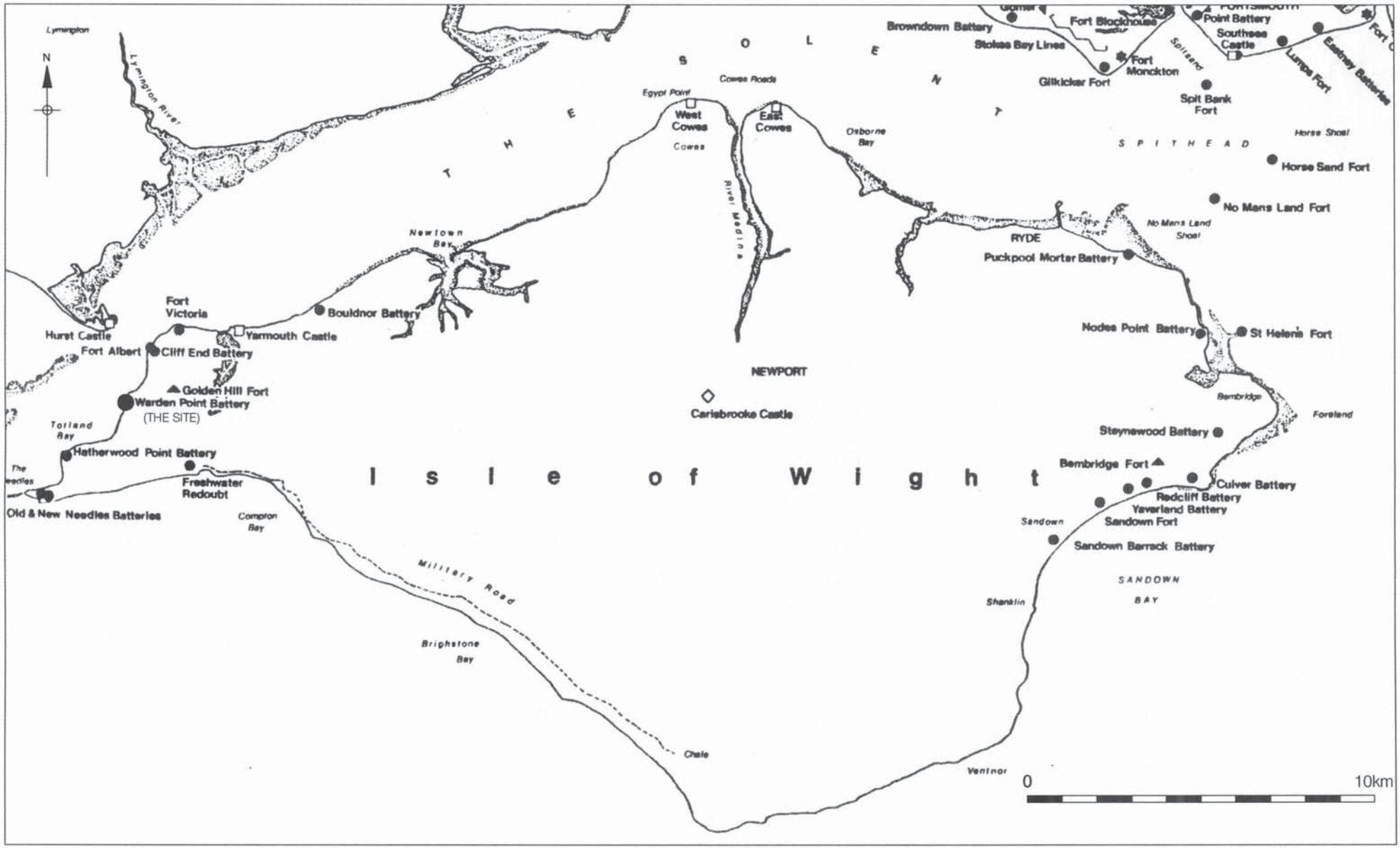
5.5.12 Following World War I, the guns at Warden Point Battery were used for Territorial summer camps. In 1923-4, the remaining 6" gun emplacements had to be rebuilt due to subsidence, and in 1929 the same problem led to the removal of one of the 9.2"

[23] Cantwell and Sprack 1986, 20
[24] Saunders (1986, 107) suggests that the third 9.2" BL gun was not added until 1905.
[25] Cantwell and Sprack 1986, 21
[26] Cantwell and Sprack 1986, 20
[27] Saunders 1998, 107
[28] Cantwell and Sprack 1986, 20
[29] Cantwell and Sprack 1986, 20
[30] Saunders 1998, 107
[31] Cantwell and Sprack 1986, 20

guns. By 1936 it had been decided that Warden Point Battery was now surplus to requirements; this combined with the continuing problem of subsidence led to the removal of the last two 6" and 9.2" guns[32]. However in 1937 a Night Fire Command Post was built on the former northern most 6" gun emplacement[33]. With the outbreak of World War II a series of light Anti-Aircraft (AA) guns[34] and searchlights were installed[35], the later on the old gun emplacements. They were powered by three 22kw Lister generators located in the engine room. In 1944 the light AA guns were replaced by a Bofors 40mm AA gun.

5.5.13 Warden Point Battery was retained by the military for storage in 1945, but was sold off in 1957, a fate that befell all of the Needles Batteries in the 1950s. The Site was used as a holiday camp until 1995. Substantial alterations were made to the fort, but many of its features were also retained. For example, the magazine below the latest 9.2" gun emplacement was converted into a bowling alley, and the 9.2" emplacements themselves were used as a cinema and discotheque. The magazines below the 6" gun emplacements were used for storage and staff bathrooms, while the middle and northern caponiers were annexed for storage. The new engine room to the north was replaced by an outdoor swimming pool, while the old engine room by the fort's entrance was replaced by a house.

[32] Cantwell and Sprack 1986, 20
[33] Cantwell and Sprack 1986, 20
[34] Moore 1996b
[35] Cantwell and Sprack 1986, 22



(from Cantwell and Sprack 1986)

Figure 3
Coastal defences in the Solent
1:160,000

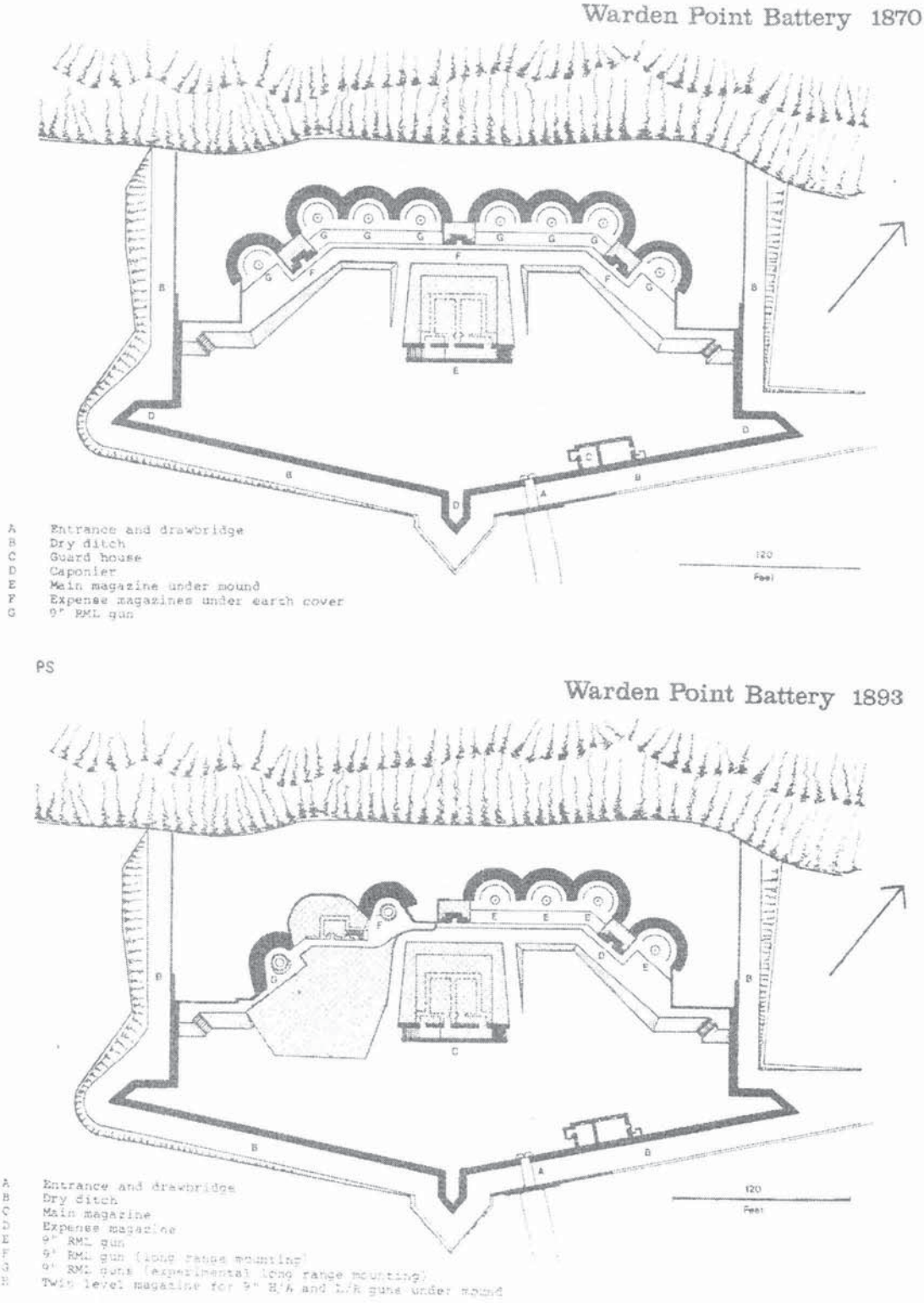


Figure 4: Warden Point Battery in 1870 and 1893 (from Cantwell and Sprack 1986, 19)

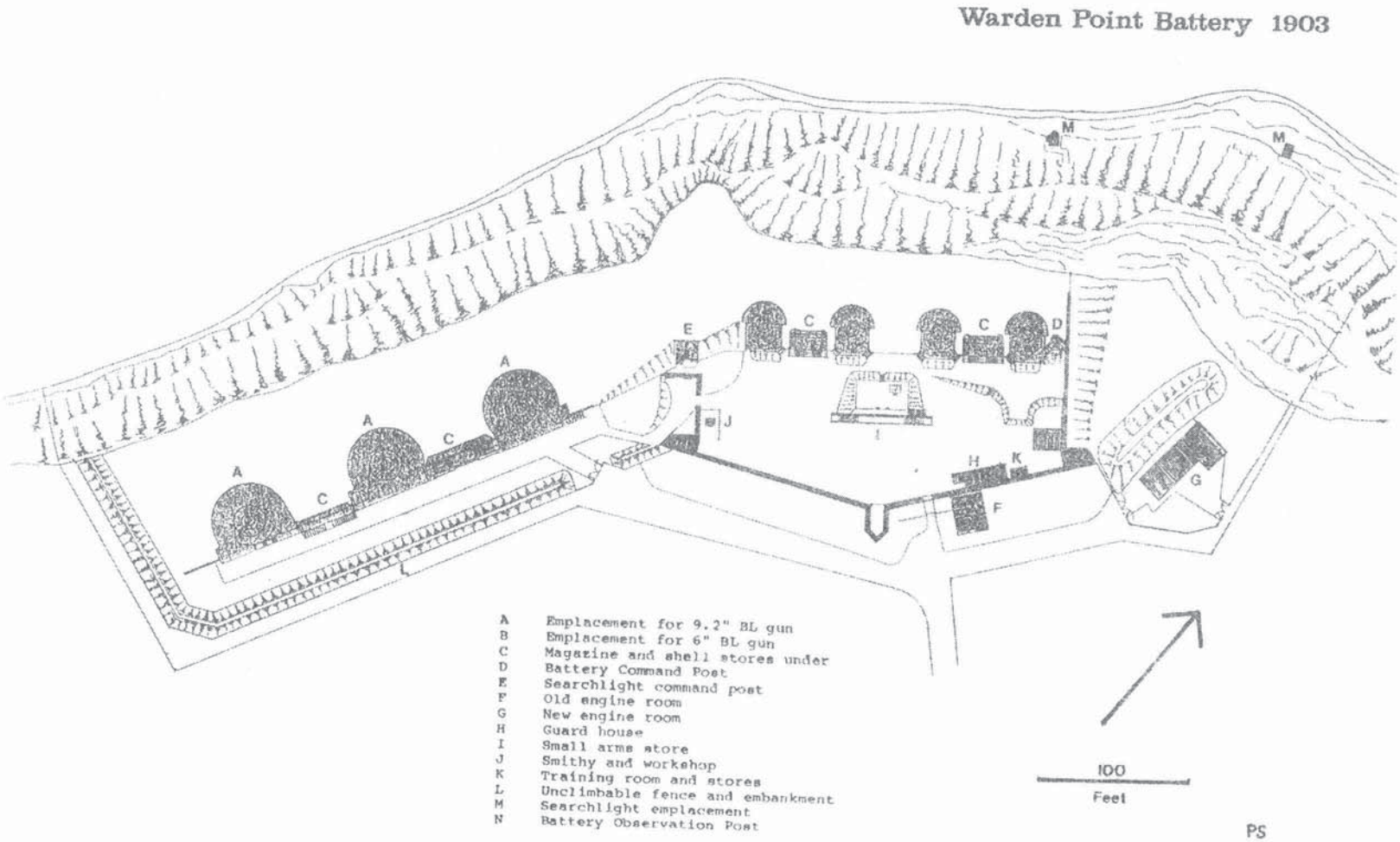


Figure 5: Warden Point Battery in 1903 (from Cantwell and Sprack 1986, 21)

6 ARCHAEOLOGICAL METHODOLOGY

6.1 The watching brief followed a brief specified in the method statement[36] for the Site and the IWCAHES specification[37].

6.2 All demolition work and ground-invasive machining was closely monitored by an archaeologist. This work was undertaken by 360° tracked machines fitted with toothed and toothless buckets, and breakers.

6.3 Once an area had been machined, the attending archaeologist cleaned and recorded exposed features as necessary; all were photographed. An on-site EDM survey was undertaken separately by a team contracted to the developers; this was designed to focus largely on the gun emplacements and surviving fort features for consideration into the new architectural design. The survey was made available to Pre-Construct Archaeology Ltd. for use in the post-excavation work.

6.4 The demolition of the holiday camp chalets from within the perimeter wall revealed elements of the fort structures. Elevations of the internal face of the perimeter wall were drawn and photographed.

6.5 The attending archaeologist made notes and observations on the fittings and arrangement of the magazines, as well as taking photographs.

6.6 The drilling of four boreholes by a contractor to test ground conditions was monitored by the attending archaeologist. A geotechnical test-pit was dug by the demolition contractors against the perimeter wall in order to assess its foundations; this was also monitored.

6.7 A watching brief was conducted during the excavation by machine of a footing trench, Trench 1, for the construction of Block ‘C’. This is the southernmost new build over the position of the southern and middle 9.2” gun emplacements.

6.8 It was also possible to visit most of the other batteries and forts around the west coast of the Isle of Wight in order to compare their construction and arrangement with those at Warden Point Battery. Photographs were taken in each case.

[36] Butler 2002
[37] Isle of Wight County Archaeology and Historic Environment Service 2002

6.9 The majority of levels in this report have been taken from survey drawings of the Site, themselves established from a OSBM on the main gate to the fort with a value of 27.31m OD.

7 THE ARCHAEOLOGICAL SEQUENCE

7.1 PHASE 1: NATURAL

7.1.1 The natural sequence was observed in the southern area of the site. Four boreholes were drilled: three external to the area of the fort, and one internal. Of these, Borehole A was the deepest, reaching a depth of 30m (in other words below sea level). They revealed a complex stratigraphic geology, with bands of shelly clay, limestone marl, sand, solid clay and Venus Beds. The upper most layer in the natural sequence was the only one recorded; a layer of slightly gravelly sand [22] occurring at approximate heights between 26.45m OD (Borehole A) and 23.5m OD (Borehole B). Natural deposit [22] was also seen during the excavation of Trench 1, occurring at a height of approximately 25.2m OD.

7.1.2 These heights represent a consistent drop in height from north to south, although it is possible that they may also be truncated heights owing to terracing prior to the construction of the fort or the holiday camp.

7.2 PHASE 2: CONSTRUCTION OF FORT 1862-3

7.2.1 The initial construction of Warden Point Battery was undertaken in 1862 and completed in 1863[38]. The earliest elements of the fort were drainage arrangements, eight emplacements for four 7" RMLs and four 9" RMLs, a magazine behind the guns, a loopholed perimeter wall enclosing the fort flanked by a dry ditch (see Figure 6) and a small guardroom. The armament was changed so that the fort had eight 9" RMLs by 1873, but the emplacements remained the same.

7.2.1 Drainage

7.2.2.1 The preliminary groundworks for the fort's construction were likely to have been a substantial process of clearance and terracing. This was dictated by the natural topography of the Site and its surrounding land, sloping down from the cliff towards inland. In the course of this work a series of drains were installed that channelled water directly onto the cliff face. A survey of the cliff face as it is now reveals a number of 4" to 5" diameter ceramic pipes, apparently contained within sand-filled cuts. All of these have been heavily damaged by collapse of the cliff face, a problem that would have been exacerbated by the action of the drains themselves.

7.2.2 Gun Emplacements (see Figure 6)

[38] The precise dates are given as 19th March 1862 and 30th May 1863 on PRO Plan, sheet 2

7.2.3.1 The emplacements comprised a central range of six guns facing northwest, with an expense magazine in the centre. There was another gun emplacement at each end of this range to fire obliquely from the others: one faced north, the other west. Elements of four emplacements [28] and the southernmost [36] were revealed, but only the central-southernmost was fully exposed.

7.2.3.2 The emplacements were semi-circular brick walls encased in concrete (Plate 1). An elevation at the end of the southernmost revealed that the brickwork was 1.0m wide and at least 0.45m high; it was capped with a large limestone block 0.45m by 0.35m by at least 0.30m (Plate 2). This core had then been capped with a substantial concrete skin (measuring 1.30m wide by 0.90m high) so that the upper dimensions of the emplacement were 1.30m to 1.70m wide by 1.20m high (from the internal floor). Set into the internal face of this wall were three evenly spaced granite blocks holding iron 'o' rings, 0.20m in diameter. These were to enable the anchoring of either the guns themselves, or the traversing platform on which the guns were mounted.

7.2.3.3 The diameter of the emplacement was 8.00m. Set vertically into the centre was a Muzzle Loading (ML) cannon, with the muzzle end projecting 0.43m above ground. It was positioned to act as a spindle upon which the traversing platform could turn and also to absorb recoil motion (Plate 3). With a diameter of 4", the cannon may have been a 9-pounder[39]. The cannon was set at the centre of a hexagonal arrangement of six granite blocks that had a circular groove 1.45m in diameter. Each block was in the shape of a parallelogram, with maximum dimensions of 1.06m by 0.56m in plan. A semi-circular racer groove with a radius of 2.70m was found in an arrangement of eight granite blocks within the floor of the emplacement (also parallelogram-shaped, with maximum dimensions 1.26m by 0.57m in plan), while another on the landward side of the spindle had a radius of 1.70m. The racers themselves had probably been removed and recycled when the guns were disused. The larger racer within the emplacement would have received the front wheels of the traversing platform and the rear racer the back wheels. That the pivot was closer to the rear racer than the front is typical of the 'D' type pivot system, which was normally used for 'barbette emplacements with less than 140 degrees of lateral training'[40].

7.2.3.4 The floor of the emplacement was a concrete slab but with kerbstones edging the inland side. The height of the floor was at approximately 29.70m OD.

[39] www.palmerstonforts.org.uk/ , 3
[40] www.palmerstonforts.org.uk/ , 3

7.2.3.5 To the north of the fully exposed emplacement, the plan of two more could be seen (Plate 10). They had been slightly truncated by the construction of the later 6" BL gun emplacements. From what little could be seen, they appeared to be identical in shape and size to the one that was fully exposed. Also to the south of the fully exposed emplacement, the end of the brick core of the southern-central emplacement was just visible.

7.2.3.6 The southernmost gun emplacement [36], which fired in a westerly direction, was partially exposed during the watching brief. The construction of the later gun emplacements had obscured part of the position, but a series of large granite blocks were visible set into concrete and with an *in situ* wrought iron racer set into the blocks. As before, the blocks were parallelogram shaped measuring 1.26m by 0.6m, and at least 0.2m thick. The remains are the same as the granite block arrangement for the front racer within the southernmost emplacement [28] (see 7.2.3.3), although there was no sign of the barbette wall or central pivot. It is probable that those missing parts were destroyed or removed during the construction of the 6" gun emplacements at the end of the 19th century. The position of these remains corresponds almost exactly with the position of the southern gun shown on plans[41].

7.2.3 Perimeter Wall (see Figure 6)

7.2.4.1 To enclose the battery, at this time approximately 8.3 hectares in size, a loopholed brick wall [1] was built that ran southeast before turning southwest (with a dogleg) and then back to the northwest. The wall was a substantial construction, with a total original length of approximately 180m, although the surviving wall is only approximately 150m long after later alterations (Plate 8). It was very well built, with uniform bed joints, in a header and stretcher bond. The bricks used were hand-made with square edges and corners, and would all have been imported from mainland Britain[42]. At an exposed cross-section through wall [1], it could be seen that the entire core was as solid as the face, indicating that it was intended to be robust rather than merely appearing so (Plate 6). The wall was founded upon stepped brick footings at 1.3m below ground level, 25.27m OD. They were exposed in a geotechnical test-pit dug on the external side of the main gate; this showed that the footings were at least 0.3m high, at which point excavation stopped.

7.2.4.2 The wall itself was approximately 5.02m high from the footings and 1.20m thick. It was vertically faced and incorporated numerous loopholes, angled on both the internal and external faces (Plate 5). These had been built by laying a limestone sill

[41] Cantwell and Sprack 1986, 19
[42] K Sabel, pers comm

slab, generally 0.81m by 0.07m in profile, at 2.25m from the base of the wall. This slab only covered half of the width of wall [1]; another moulded piece was placed externally that included a sloping face to allow downward fire. With the loophole in place, a lintel was set: this was another limestone slab, generally 0.81m by 0.14m in profile, at 2.96m from the base of the wall. This piece was the full width of the wall. The dimensions of the loophole windows were 0.60m wide by 0.62m high (internally) and 0.84m high (externally); the angled faces, at their closest point, were 0.07m wide.

7.2.4.3 Wall [1] had a main gate that faced onto Warden Point Road (Plate 4). It was an arched opening 2.78m wide and 3.30m high to the keystone. The arch was made of whitewashed brick with a limestone key; an inscription on the keystone read 'AD 1863'. Three iron hinge pins were seen on the internal side of each jamb from which the doors would have hung. The ground level beneath the arch, assuming it has not been altered dramatically during the life of the holiday camp, was 26.62m OD.

7.2.4.4 The wall was pitched at the top along its length. The pitch overhung the vertical faces of the wall by 40mm on either side. It had been built by laying a course of plain tiles with continuous nibs, so that the nib overhung the wall; the pitched top of the wall was built from this level.

7.2.4.5 At the start of the life of Warden Point Battery, it seems that the only structure within the fort was a guardhouse built just to the north of the main gate (see Figure 5). Traces of the superstructure of this building could be seen on the internal face of wall [1] but from Phase 3, as the building was retained from Phase 2.

7.2.4.6 Wall [1] included three caponiers along its length, one at each corner of the fort and one at the dogleg on its longest face. Only the middle (Plate 7) and northern survived, the southern having been demolished after the fort's disuse in the 1950s. Both were polygonal in shape, the north one having maximum dimensions of 9.50m by 4.50m and the central one having maximum dimensions of 6m by 3m. They initially served their intended purpose as defensive structures, although by the start of the 20th century they were also being used for other functions (Phase 3).

7.2.4.7 The exterior of the perimeter wall was defended further by a dry ditch along its length (Plate 12). This feature survived only on the northern side of the Site as cut [20], where it had measured approximately 50m long by up to 6m wide. It was 2.5m to 3.0m deep, and no upcast bank was visible on its northern edge. The cut sloped from southeast to northwest against the natural topography, between approximate heights of 25.70m OD and 23.30m OD at its base. Elsewhere the dry ditch had been infilled.

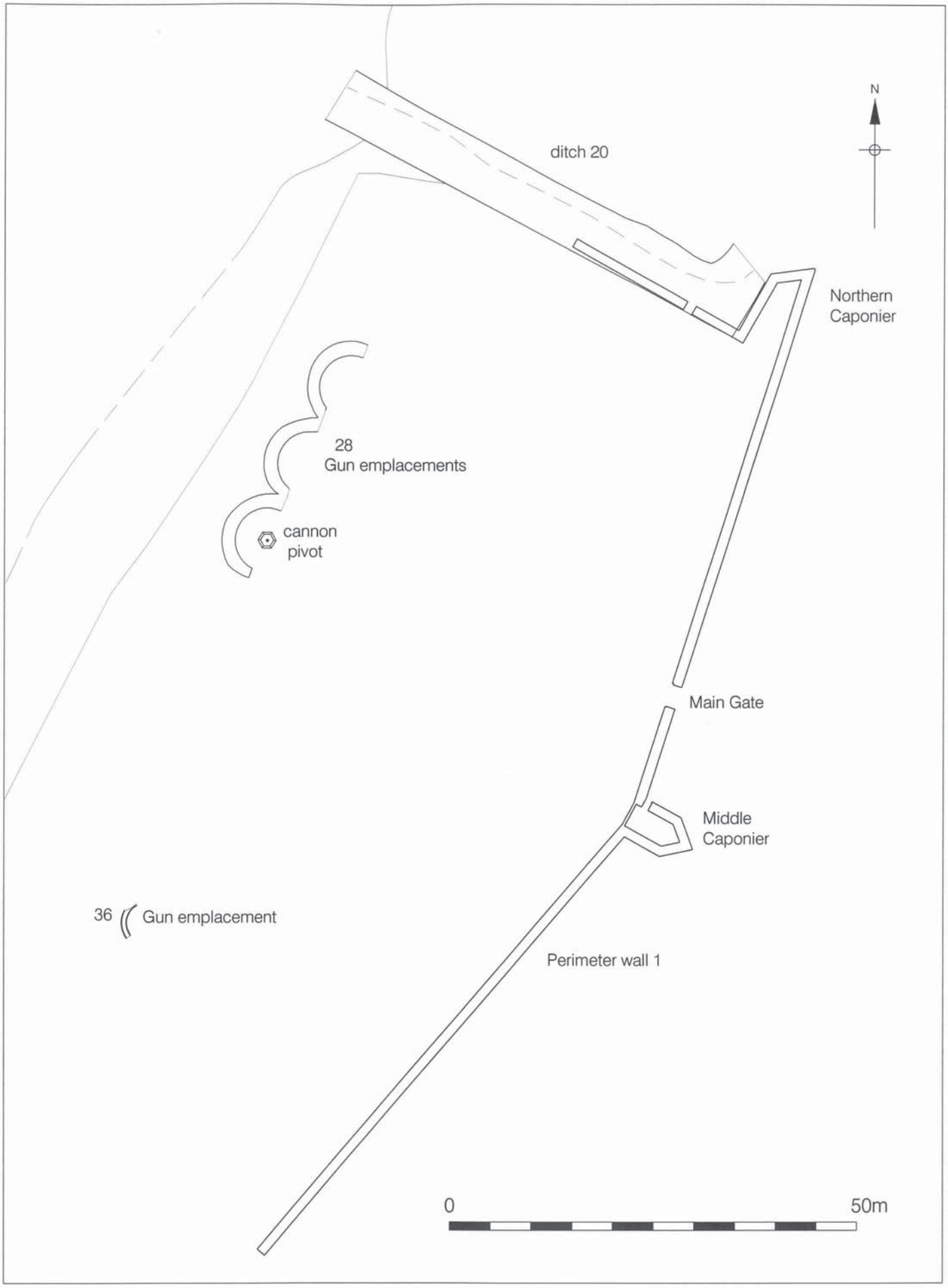


Figure 6
Phase 2: Construction of Warden Point Battery
1:625

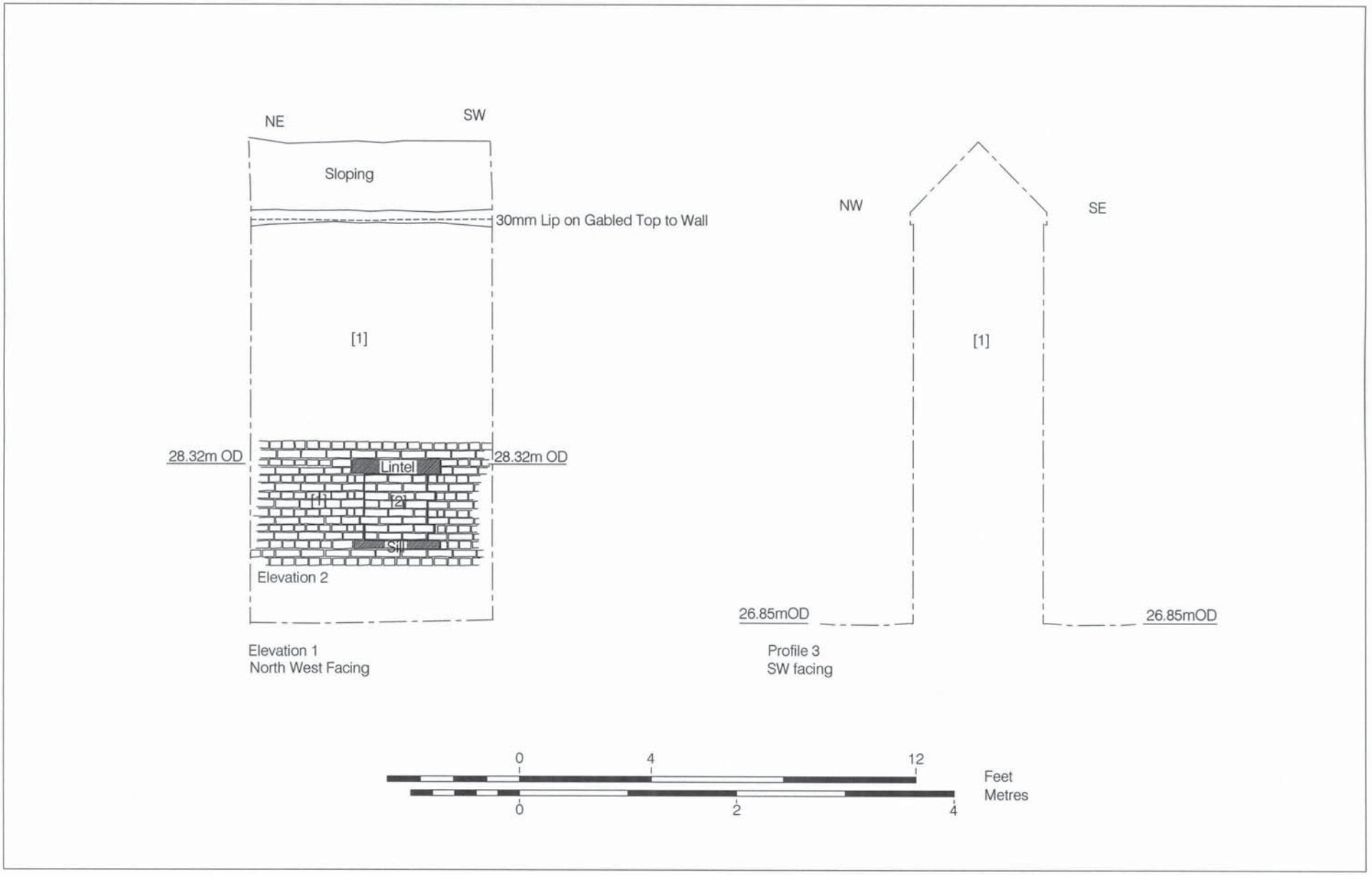


Figure 7
Phase 2: Elevation and profile of perimeter wall 1
1:50

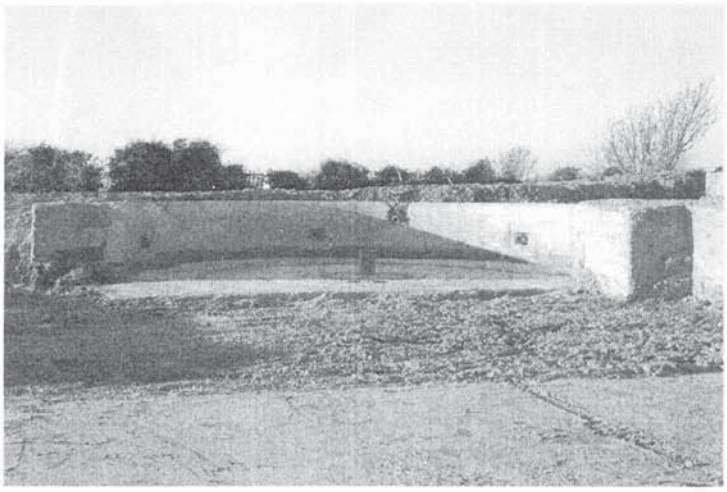


Plate 1: Phase 2. View west across fully exposed 1860s gun emplacement [28]

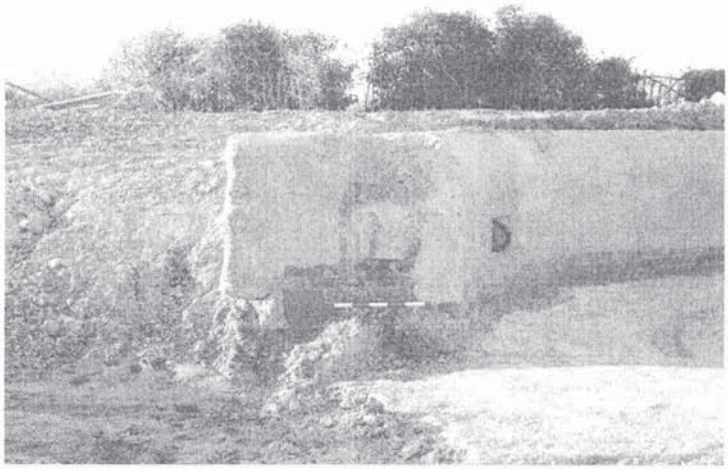


Plate 2: Phase 2. View west across brick, limestone and concrete build of gun emplacement [28]

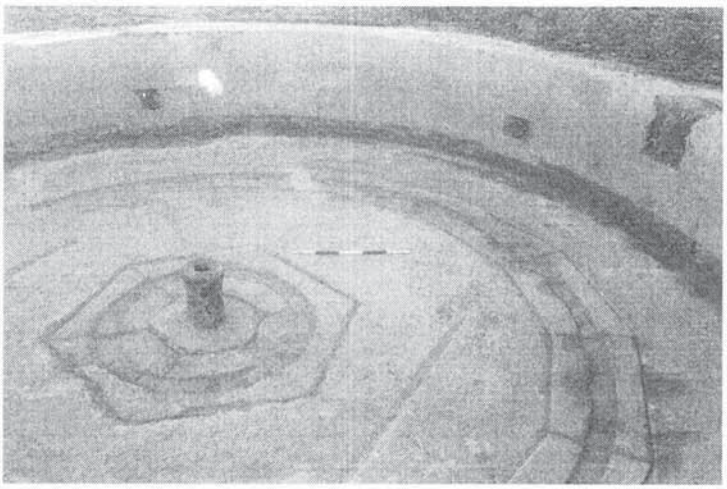


Plate 3: Phase 2. View southwest over central arrangement of gun emplacement [28] with granite blocks and cannon pivot

Plate 4: Phase 2. View west, arched gateway into fort through perimeter wall [1], 1862-3.

Plate 5: Phase 2. External view of loophole in perimeter wall [1], 1862-3.

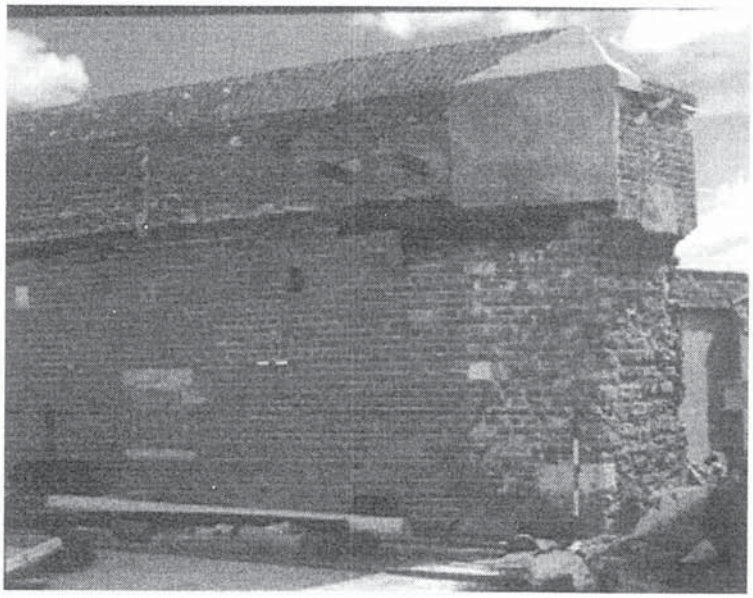


Plate 6: View northeast, end of perimeter wall [1] (Phase 2) after demolition of southern caponier in 1950s (Phase 8).

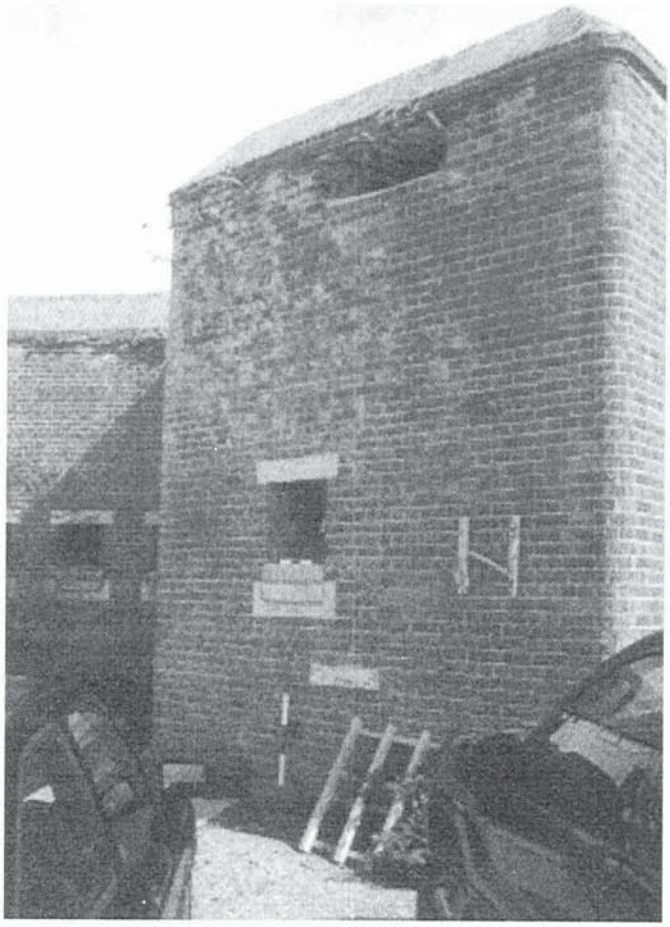


Plate 7: Phase 2. View west, external view of middle caponier in wall [1], 1862-3.

Plate 8: Phase 2. View north, external view of perimeter wall [1], 1862-3.

7.3 PHASE 3: REWORKING OF ORIGINAL FORT 1898-9

7.3.1 Between 1898 and 1899, Warden Point Battery was extensively reworked. The original gun emplacements and the HA and LR gun emplacements which replaced those to the south were superseded (nothing of the HA or LR gun emplacements was seen during the watching brief). They were replaced by four emplacements for 6" BL Mark VII guns (see Figure 8); these were only introduced in 1898[43].

7.3.2 6" Gun Emplacements and Magazines (see Figure 8)

7.3.2.1 The new guns were built on top of two subterranean magazines in which shells could be stored and filled. These were large identical constructions each covering an area measuring approximately 22.50m by 13m. The southern magazine and 6" gun emplacements are number [34]; those to the north are [19]. A construction cut [27] was only visible for [19], on the west side where it had truncated the earlier emplacements [28] (Plate 10).

7.3.2.2 Each magazine consisted of seven rooms accessed via two sets of stairs, although one of each of these stairs had been sealed off in the 1950s. The magazines were barrel-vaulted brick structures containing recessed light niches, windows between rooms, gullies formed into the concrete slab floors and various communication / ventilation pipes. A plan of the northern magazine[44] shows the function of each room: two central rooms, accessed by a small corridor, were for the storage of cartridges. These were flanked by two more rooms for shell storage, each of which had a vertical winch shaft that led to the gun emplacements above. The latter two rooms were accessed by two ante-rooms from which diagonal winch shafts began[45]. These led up to access points on the gun emplacements. A small room by the stair entrance to the magazine is labelled as 'Lamp Room'. The precise method of construction for the magazine could not be seen: the internal faces were all brickwork while the roof, where exposed, was covered with thick waterproofing[46].

7.3.2.3 The two gun emplacements were positioned directly above the winches at each end of the magazine. One area of damage indicated that they were brick structures covered in mass concrete, with semi-circular barbettes on the firing side of the gun.

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[43] users.belgacom.net/ , 1
[44] PRO Plan, sheet 6
[45] This is indicated from PRO Plan sheet 6; the opening for the winch in the magazines had been closed in the 1950s.
[46] Information from PRO Plan sheet 6 reveals that the damp course in these magazines consisted of two layers of Vulcanite roofing. It says the outside was rendered with cement, two layers of Vulcanite roofing and one layer of felt.

No reinforcing was visible within the concrete. The gun sat in a circular pit 3.76m in diameter and depths of 2.10m on the seaward side, 1.45m on the landward. The floors of the pits were at approximately 31m OD. In each pit a circular cast iron plate was *in situ* with a series of 40mm diameter bolts projecting upwards. These appear to be for the attachment of a Central Pivot (CP) Mounting and are associated with Quick Fire (QF) guns such as the 6" BL housed here[47]. The plates had a diameter of 2.70m. Each barbette had a 0.76m-wide 'corridor' running from the centres that, at the top, were fitted with wrought iron runners or slides. The barbettes themselves had substantial concrete walls on the seaward side, 4.50m thick.

7.3.2.4 The landward side of the barbettes was enclosed by a concrete wall 2m thick that would have formed a semi-circle, but in each case the external face had been badly truncated in the 1950s during the construction of holiday chalets. The landward-most side of this concrete is the point at which the diagonal winches from the magazines emerged. Only one survived, at the northernmost emplacement. Here the demolition in the 1950s had cut through exactly at the point of the winch, exposing a section through the mechanism (Plate 9). It reveals that the winch ran at an angle of approximately 65°; it was formed of a cast iron frame containing a rubber belt with cast iron nibs to hold the shells as they rose. Also present, but *ex situ*, was the cast iron hatch-frame that covered the winch. Adjacent to the winch shaft were two lockers formed into the concrete with steel frames and doors; these were visible on all four barbettes. They were 1.08m wide, 0.92m high and 0.60m deep.

7.3.2.5 The vertical winches that also rose from below emerged on the magazine-side of the gun. Nothing of the winch was visible at surface level, but from the magazine it was possible to see a large metal drum at the top of the shaft.

7.3.2.6 Each pair of guns was connected by a concrete wall approximately 16.50m long, 0.78m wide and 1.88m high. Rather than serving a structural purpose, it was designed as a retaining wall behind which the ground could be landscaped to disguise the guns. The wall had two openings at the top where 0.30m diameter pipes from the magazines emerged. These served for ventilation and communication. Two sets of steps in each wall allowed access to the front of the guns.

7.3.2.7 Inserted into the face of this wall, and also into the concrete of the barbettes on their landward side, were a series of cast iron settings. They occurred in pairs, with one

[47] Most records record the early 20th century armament at Warden Point Battery as 6" BL Mark VII guns only, but PRO Plan sheet 8 records them as QF guns as well.

0.45m above the other. PRO Plans reveal that these were fixings for metal railings along the face of the emplacements[48].

7.3.3 **Alteration to Perimeter Wall** (see Figure 8)

7.3.3.1 A plan of Warden Point Battery in 1903[49] shows that a Battery Command Post occupied the position to the north of the 6" gun emplacements. It is possible that this is the same structure as a Directing Station built for the Brennan Torpedo at Fort Albert in 1898[50]. Although no remains for this structure were found, a change in the design of the perimeter wall in this location, coupled with its extension to the cliff edge [33], may be associated with this phase. The original wall [1] was indicated by plans to have terminated at approximately 90ft, just over 24m, from the position of the northern caponier. At the same position in the wall as seen on Site, the pitched cap ceased and was continued by a flat limestone slab cover for 5.6m that was angled down at 5° towards the cliff edge (Plate 11). The slabs were 0.95m by 0.82m and 0.08m thick. Where it finished, the pitched cap continued at the same angle to the cliff edge. The new wall was built in the same bonding style and very well bonded to [1], but it was only 0.70m wide (the external face was flush with [1], the internal face was offset). The flat cap to the wall was flanked at the top by two large limestone blocks, between which the limestone slabs lay. These were coping stones to continue the line of the pitched brickwork, and the northwestern block, from where the new angled pitch began, was also angled. It maybe that the blocks had been placed to make it easier to bond the new [33] and old [1] wall together. The wall in this position may have been capped with flat slabs to allow a more convenient viewpoint for the Directing Station and Battery Command Post than would have been allowed by the pitched bricks.

7.3.3.2 The total length of this new wall [33] was approximately 34m, so that the fort was now entirely enclosed on its northern side. Externally the wall had been masked by the construction of a buttress along the length of [33] (Plate 12). The buttress [3] was comparatively cheap in its construction compared to the effort involved in [1] and [33]: a 'chicken wire' mesh had been bonded to the face of the wall, filled with gravel and then rendered. Given the low structural strength that such a buttress would have provided, it is possible that it was designed to withstand enemy fire, and therefore this part of the fort was felt to be vulnerable. The buttress began to the south of new build [33], also covering part of [1], and then ran the length of [33] respecting the diminishing height of the wall. It was 28.6m long, up to 0.7m thick and up to 4.68m high.

[48] PRO Plan, sheet 4
[49] Cantwell and Sprack 1986, 21
[50] Saunders 1998, 107

7.3.3.3 At the same time as the construction of wall [33], and the erection of the buildings within perimeter wall [1] (see 7.3.4), a new entrance way was cut through [1] to allow access to the woodland to the north of the Site. This was a simple gate, with a horizontal lintel that appeared to be made of iron. The gateway was small in size, 1.23m wide and with an internal height of 2.0m. Because it led down to lower ground externally, a set of concrete steps were installed within the wall so that the external height of the gate was 2.82m. The gate would presumably have been substantial to prevent intrusion, yet no evidence for its construction remained.

7.3.4 **New Buildings within the Perimeter Wall** (see Figures 9 and 10)

7.3.4.1 The holiday chalets that were built against the internal face of the perimeter wall [1] were actually built approximately 0.1m from the face, with only occasional chalet walls tied in or brick-ties used. This meant that any structural evidence of fort buildings that were against the face survived. A range of structures were seen and these are identifiable from PRO Plans[51] (see Figures 9 and 10).

7.3.4.2 The structures represented on the internal face of [1] are, from south to north: Cook Range and Ablution Room; Maxim Gun Store; Woodstore, Artillery General Store N^{o}. 2, Guardroom, Telephone Room; Latrines; Coals; Artillery Store for Moveable Armaments; Master Gunners Office, PF Workshop. They are manifested as wall and roof scars, fittings, whitewashed and rendered internal areas. No ground remains of these structures, although undoubtedly present, were seen during the watching brief as the demolition of the chalets stopped at their floor level (between 27.07m OD and 27.22m OD). Exterior to the area of the chalets a lower floor slab was visible, as concrete paving. This is presumably the ground height of the fort within the perimeter wall, between 26.83m OD (by the northern caponier) and 26.45m OD (by the middle caponier).

7.3.4.3 The Maxim Gun Store was located within the middle caponier; the conversion of this structure from open to storage necessitated the insertion of a roof. This was done by installing iron girders across the caponier and then laying a very crude concrete slab upon it. The Artillery Store for Moveable Armaments was positioned in the northern caponier, the roofing of which was more typical in style. Timber trusses were inserted into the caponier walls to create a pitched roof. The open face of the caponier through which it was entered was closed off with the construction of wall [6], measuring 4.5m long and up to 4.4m high (Plate 13). The wall was built on the same alignment as the

[51] PRO Plan, sheet 2

internal northwest to southeast face of [1]. It included an arched double doorway and a window.

7.3.5 **New Engine Room**

7.3.5.1 Exterior to the area of the Site, at its northeast corner, a new engine room was constructed in 1898-9 to replace the one that was positioned external to the main gate in 1891[52], of which no above-ground evidence survived. The new engine room was in a poor state of survival, having been reworked for the holiday camp when a swimming pool was built, and yet the shape of the swimming pool mirrors that of the engine room. Likewise some of the underground rooms below the swimming pool, in which its machinery was housed, have clearly also been retained from the engine room.

7.3.6 **Searchlight Emplacements** (see Figure 8)

7.3.6.1 Also in 1898-9, two searchlight emplacements [29] and [30] were constructed on the sea wall below Warden Point Battery. These fall outside of the area of the Site but are relevant because a Searchlight Command Post was built within the Site to direct their operation[53]. This structure [16] was later converted for use by the holiday camp, but the superstructure retains the shape as shown on a PRO Plan[54].

7.3.6.2 Searchlight [29] is marked only by its floor slab, but searchlight [30] survives as a concrete structure. Communication lines and power supply between the searchlights and the fort were not seen, but probably survive below ground.

[52] Cantwell and Sprack 1986, 20
[53] The Searchlight Command Post existed by 1903: Cantwell and Sprack 1986, 21
[54] PRO Plan, sheet 9

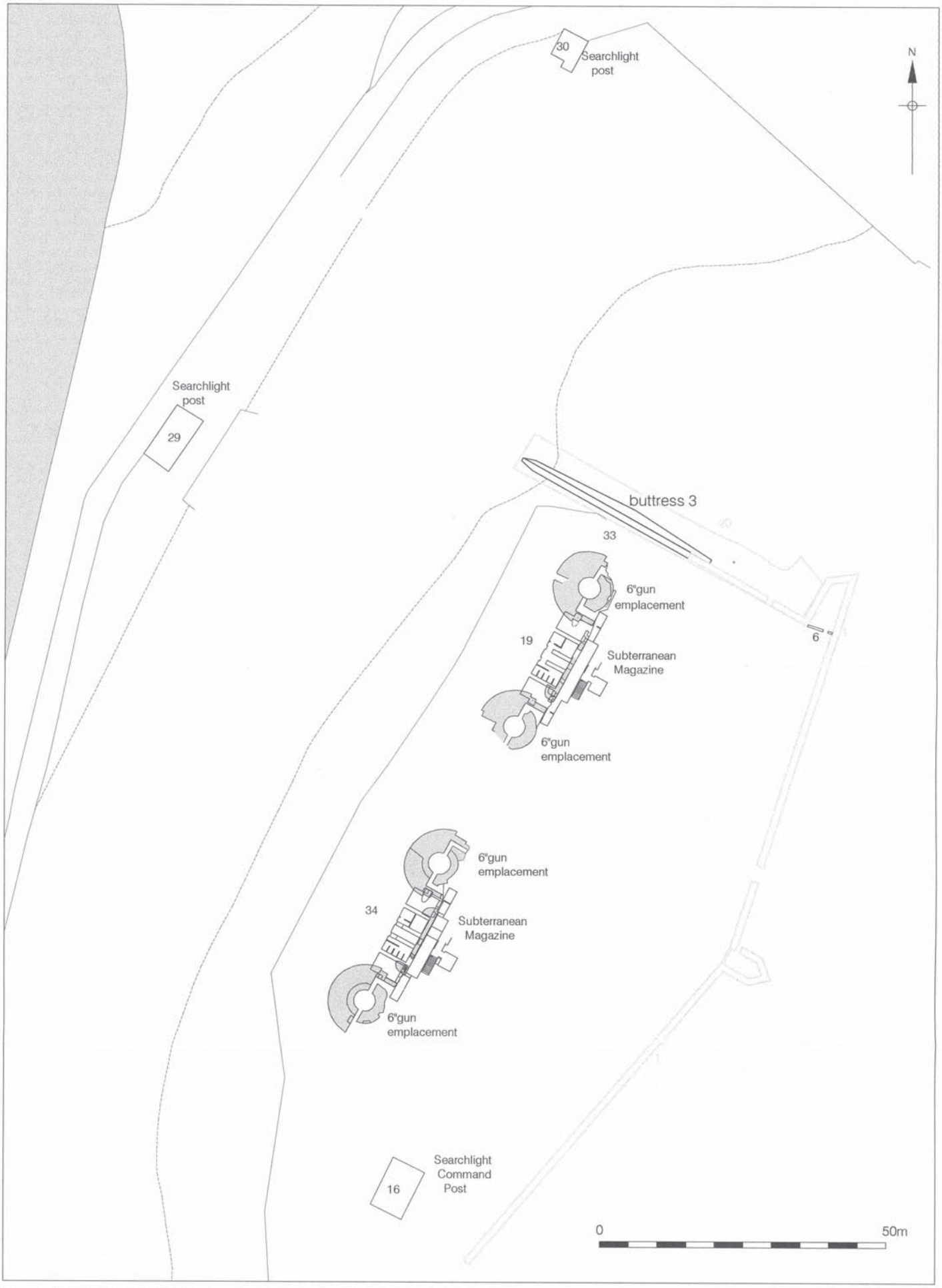
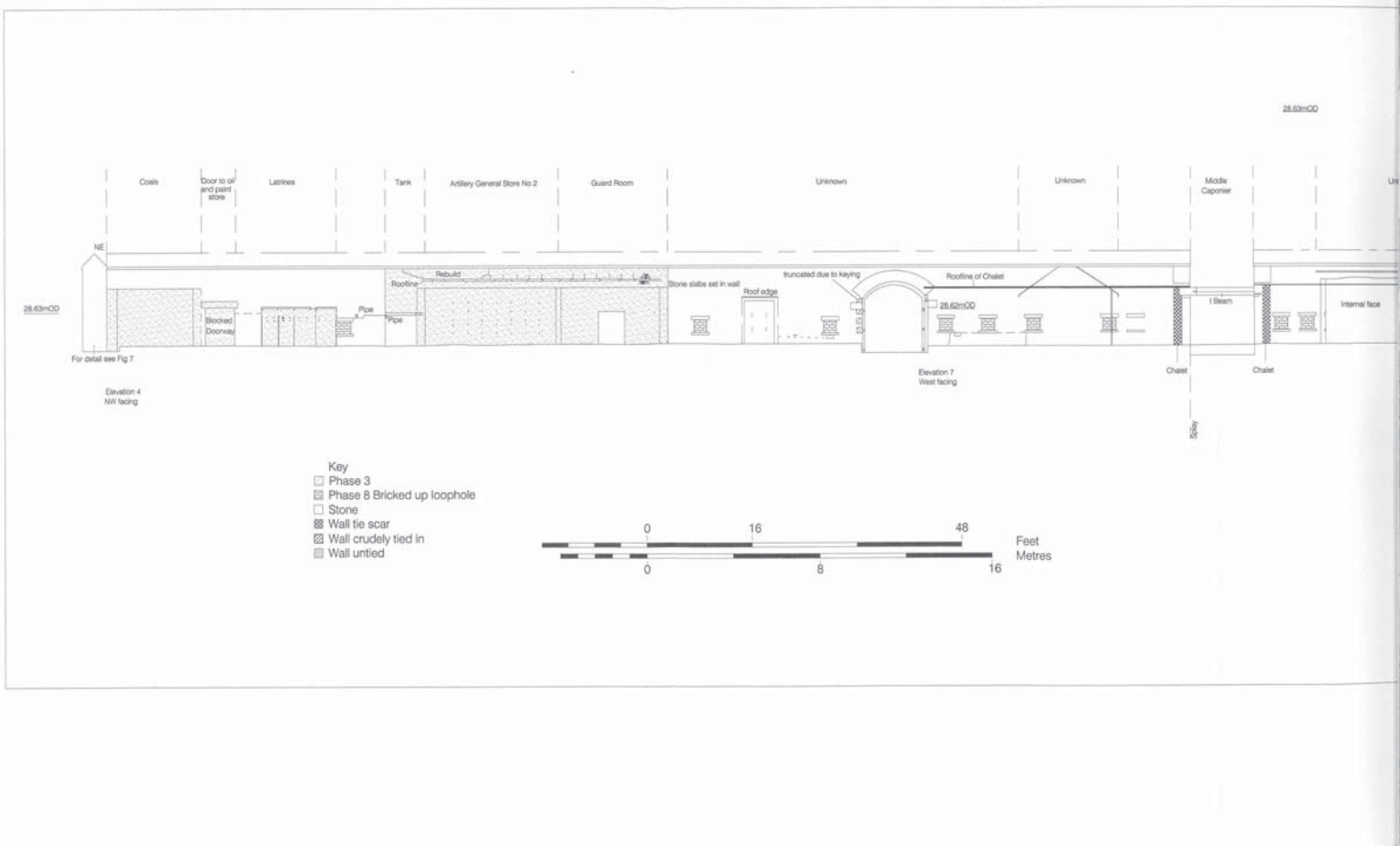


Figure 8
Phase 3: Reworking of original fort, 1898-9
1:625


28.63mOD
Coals
Door to oil and paint store
Latrines
Tank
Artillery General Store No 2
Guard Room
Unknown
Unknown
Middle Caponier
NE
28.63mOD
Rebuild
Roofline
Pipe
Pipe
Blocked Doorway
Stone slabs set in wall
Roof edge
truncated due to keying
Roofline of Chalet
28.62mOD
I Beam
Internal face
For detail see Fig 7
Elevation 4
NW facing
Elevation 7
West facing
Chalet
Chalet
Splay
Key
Phase 3
Phase 8 Bricked up loophole
Stone
Wall tie scar
Wall crudely tied in
Wall untied
0
16
48
Feet
0
8
16
Metres

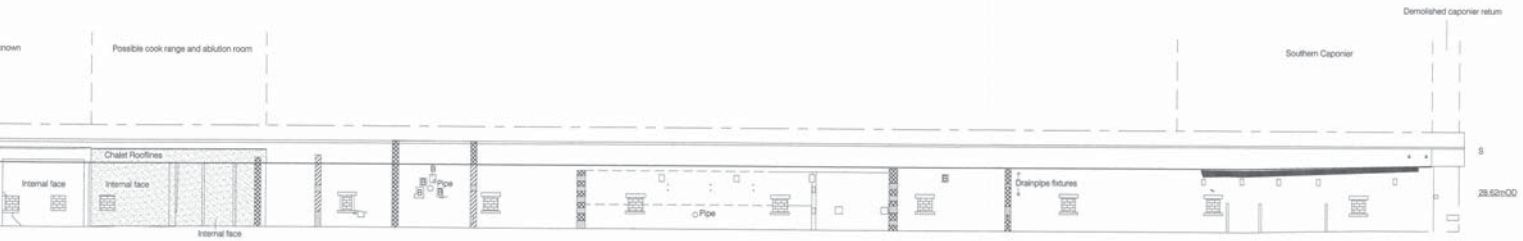


Figure 9
Phase 3: Structures within perimeter wall 1
1:160

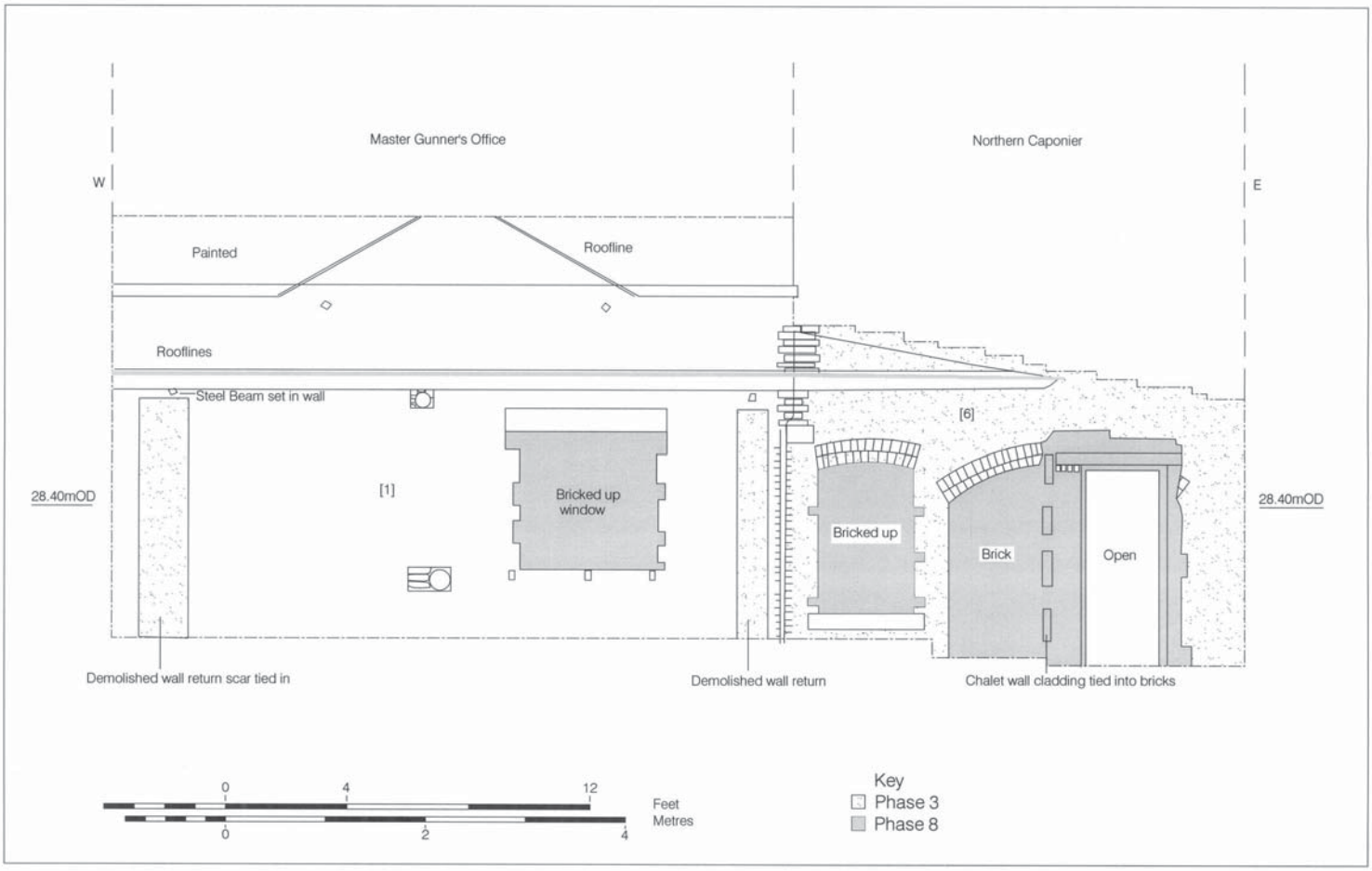


Figure 10
Phase 3: Structures within perimeter wall 1
1:50

Plate 9: Phase 3. View west, top of diagonal winch on northern 6" gun emplacement [19], 1898-9.

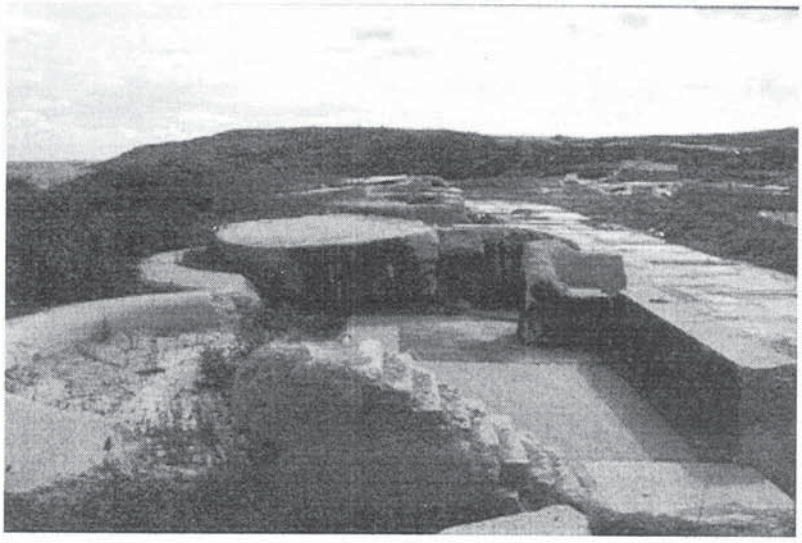


Plate 10: View north, view of 1898-9 6" gun emplacements [19] (Phase 3) and 1860s gun emplacements [28] on left hand side (Phase 2).

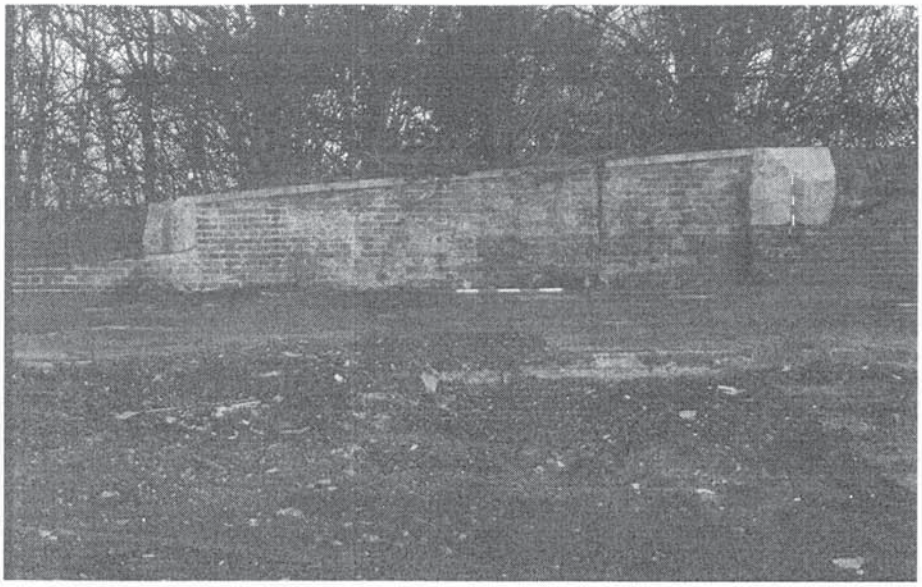


Plate 11: Phase 3. View north of the extension [33] to perimeter wall [1], including flat slab cap, 1898-9.

Plate 12: View west along 1862-3 dry ditch [20] (Phase 2) and the buttressing [3] against wall [33], 1898-9 (Phase 3).

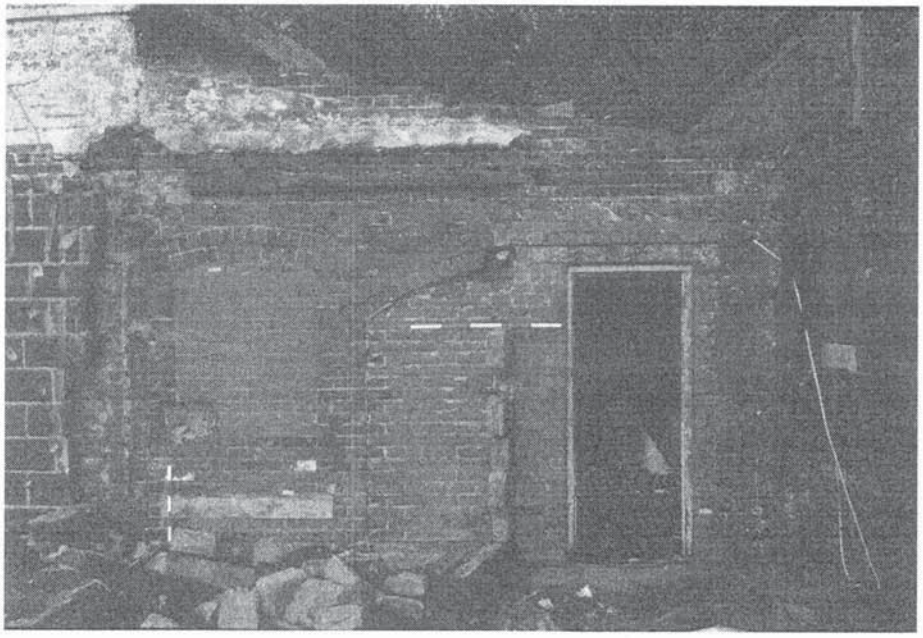


Plate 13: Phase 3. View north of wall [6] to enclose northern caponier for storage, 1898-9.

7.4 PHASE 4: EXTENSION OF FORT TO SOUTH 1898-1900

7.4.1 **Phase 4.1: Two 9.2" Gun Emplacements and Magazine** (see Figure 11)

7.4.1.1 The construction of the 9.2" gun emplacements, between 1898 and 1900, required the enlargement of the area of Warden Point Battery to enclose a new area approximately 14.9 hectares in size. It was extended in a southerly direction along the cliff top - the area to the north being too small and wooded - and work began initially on the central and northern barbettes with a magazine between them [18].

7.4.1.2 The magazine covered an area measuring approximately 31m N-S by 12.5m E-W. It had been unused by the holiday camp and therefore its internal structure was unaltered bar access changes, revealing that it was made of brick, either whitewashed or rendered. The ceilings were barrel-vaulted where arched and strengthened by RSJ's where flat (Plate 14); the floor was concrete with gullies and drains set in. It was positioned centrally to the two barbettes above, and was accessed by two sets of stairs adjacent to either barbette. The magazine was symmetrical and included rooms labelled as Cartridge Store, Shell Store, Artillery Store, Shelter and Lamp Room[55]. Many fittings and labels had survived including wooden floor-level access hatches between rooms, doorframes, light fittings and painted signs. The ammunition was transferred from below to above ground by means of two vertical winches, one at each end of the magazine for the two guns above. The winch mechanisms were, although heavily corroded, largely complete with cables, cog wheels and handles *in situ*. Apart from the waterproofing, the external build of the magazine was not seen[56].

7.4.1.3 The two barbettes were symmetrical concrete emplacements, completely open on the landward side. No reinforcement was visible within the concrete. Externally they took the shape of a major arc, while internally (where the gun sat) they were elliptical. Therefore the buttress of the emplacements on the seaward side had a varying thickness from 5.6m to 7.0m. They were up to 2.15m high from the internal concrete floor slabs at heights of approximately 26.6m OD, these areas having maximum dimensions of 10.3m by 12.4m. Compared to the other gun emplacements, evidence for racer tracks for the 9.2" guns was very limited, to only one iron runner in the central barbette. This is probably due to the use of these emplacements by the holiday camp. In both a vertical girder had been set in a central position, but these

[55] PRO Plan, sheet 5

[56] Information from PRO Plan sheet 5 reveals that the damp course in these magazines consisted of two layers of Vulcanite and two layers of felt. It says the roof was rendered with cement, Vulcanite and one layer of felt.

were supports for the holiday camp buildings that spanned them. Both 9.2" emplacements had three granite anchor blocks set into the seaward wall, although in only the northern one were the 0.2m diameter iron fixing rings also present.

7.4.1.4 A series of storage lockers, 1.8m wide, 1.1m high and 1.52m deep, were recessed into the walls of the emplacements, two in each. They had iron frames and doors in varying degrees of survival, the high strength of which implied that they were used to store explosive material. Other recesses included the openings for the winches from below. Each gun emplacement had at the side furthest from the central magazine a small tunnel that led from the curved internal face of the barbette to the external face, where it emerged in a large recessed opening. These tunnels were used to allow the quick removal of spent casings from the guns. The floor of the tunnels sloped downwards away from the gun to the large opening, measuring 1.35m by 2.36m and 2.7m high. In the southern 9.2" gun emplacement, the only one for which the opening survived, it was roofed with a wrought iron plate.

7.4.1.5 The two gun emplacements were connected by a concrete retaining wall as was found between each pair of 6" gun emplacements, behind which material [23] and [24] was placed to landscape the barbettes. The wall was just over 23m long, 0.5m wide and 0.9m high. A series of pairs of cast iron fixing rings had been set into this wall to support a handrail and the wall also had steps leading up to the front of the guns.

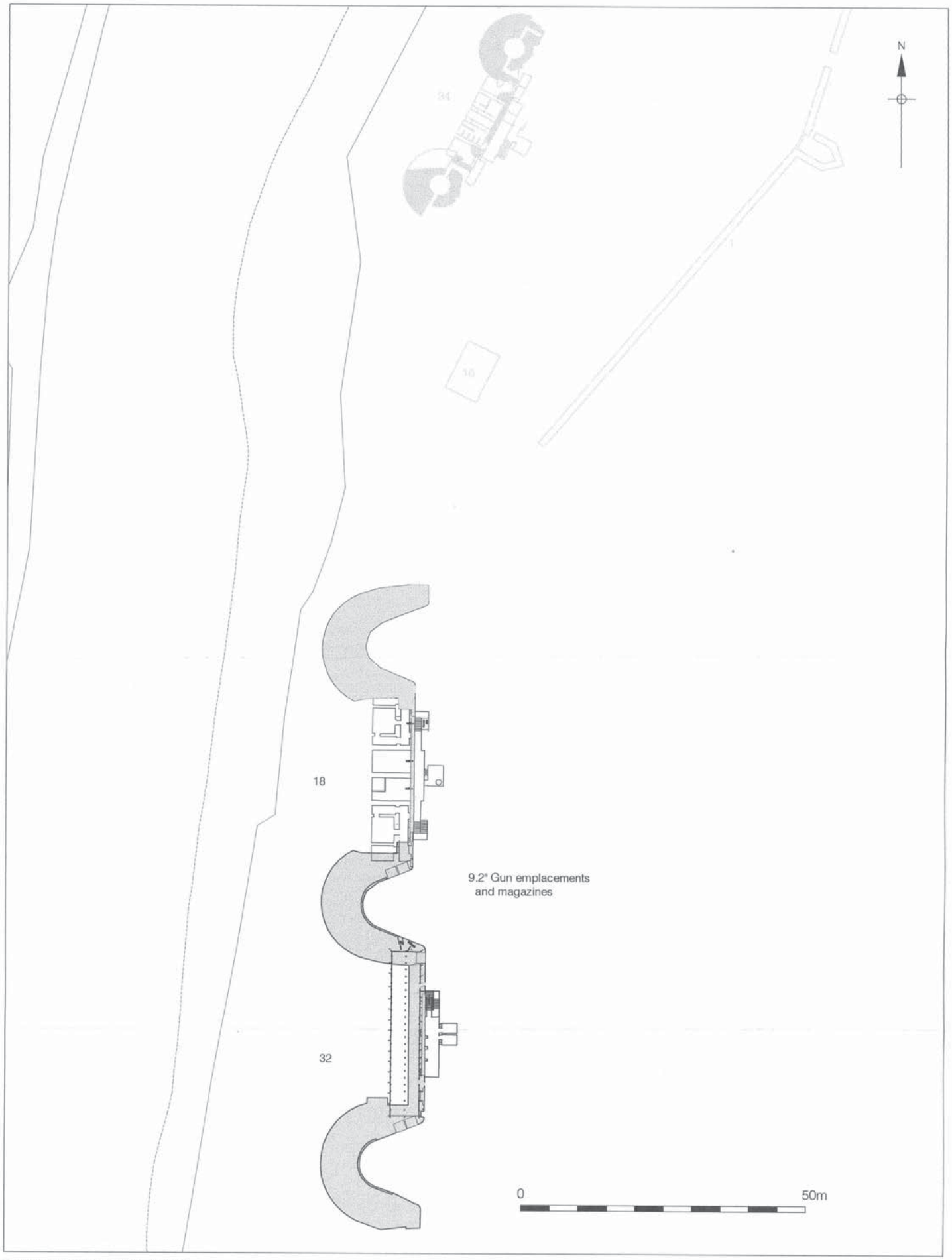
7.4.1.6 These two gun emplacements covered an area measuring approximately 70.50m N-S by 16.50m E-W.

7.4.2 **Phase 4.2: Third 9.2" Gun Emplacement and Magazine added** (see Figure 11)

7.4.2.1 During the work on the first two 9.2" gun emplacements (Phase 4.1) it was decided to add another barbette at the southern end of the range. This required the construction of another magazine and emplacement [32]. The magazine was constructed directly to the south of the southern emplacement of [18], with the new emplacement built to the south of this. The magazine had approximately the same external shape as [18] but a different internal arrangement comprising rooms for: 6" and 9.2" Cartridge Store; 9.2" Shell Store; Lamp Room; Group Store. Its dimensions were approximately 30m N-S by 12m E-W. It was brick-built as [18], but had a different ceiling arrangement consisting of brick barrel vaulting between steel girders laid E-W. The same vertical winch arrangement as on the other guns was present, emerging above ground in a recess behind a heavy iron door.

7.4.2.2 Above ground, the barbette was a slightly different shape from those of [18], the emplacement being circular in shape (Plate 16). The concrete was 6.80m thick. It had the same arrangements as the other two: recessed lockers with doors, iron fixing rings set in granite blocks (although four not three) and a tunnel for the removal of spent casings (Plates 15 and 17). A single iron racer was also present. The emplacement was linked to the northern one by another concrete retaining wall (24.8m long, 0.5m wide and 1.16m, high) for material [23] and [24], with the same cast iron handrail fixings and steps. There was no distinct change in build of this wall between [18] and [32] which implies that the decision to add another magazine and emplacement [32] happened before the concrete for the emplacements of [18] had been poured.

7.4.2.3 With the addition of the third 9.2” gun emplacement, the 9.2” battery now covered an area measuring approximately 116m N-S by 20.50m E-W



Survey data © Austen Surveys 2003

Figure 11
Phase 4: Extension of fort to south
1:625

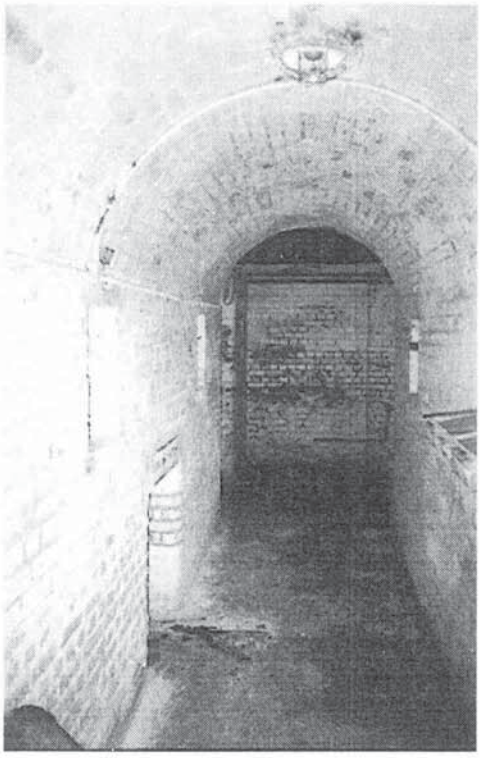


Plate 14: Phase 4.1. Brick barrel-vaulted construction within magazine [18] for 9.2" gun emplacements, 1898-1900.

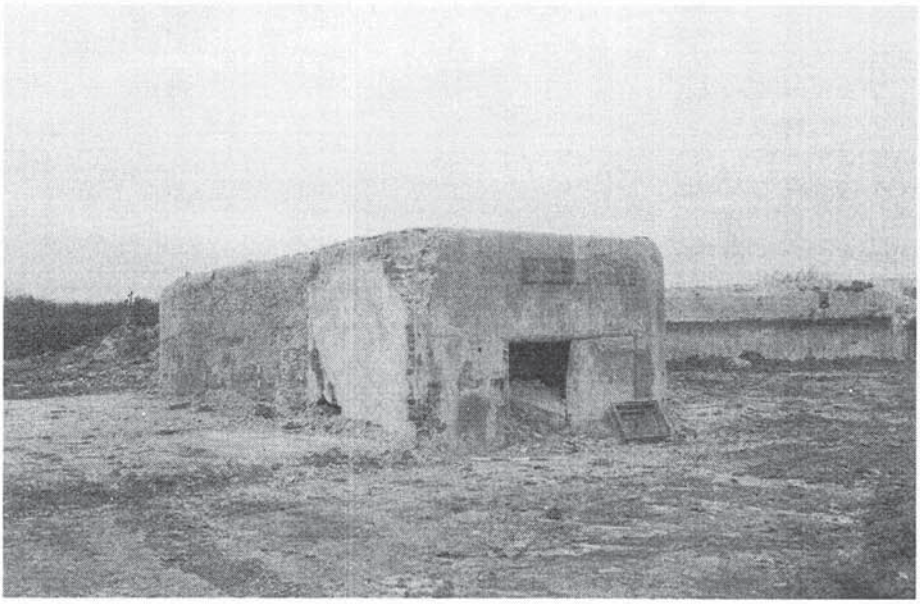


Plate 15: Phase 4.2. View northwest, southernmost 9.2" gun emplacement [32], 1898-1900.

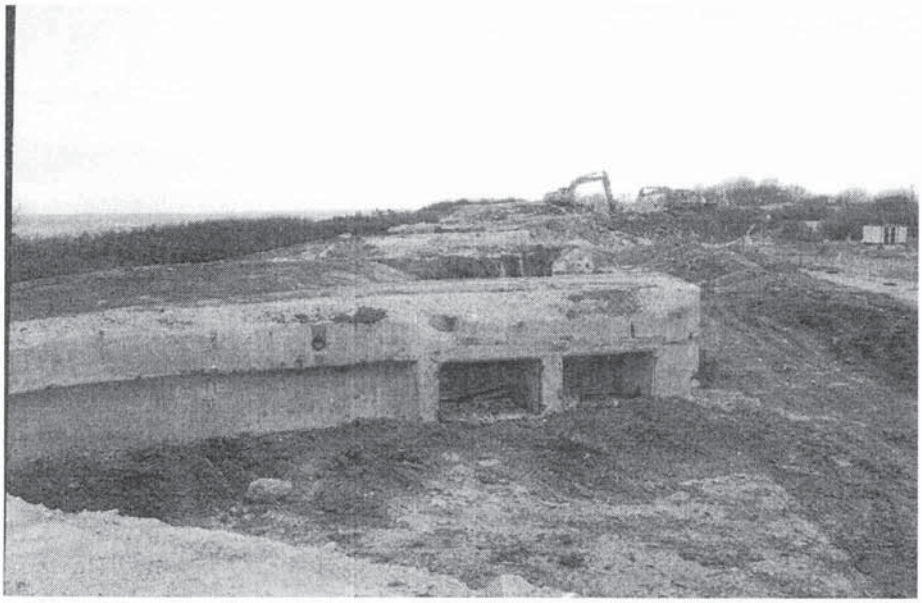


Plate 16: Phase 4.2. View northwest, southernmost 9.2" gun emplacement [32], 1898-1900.

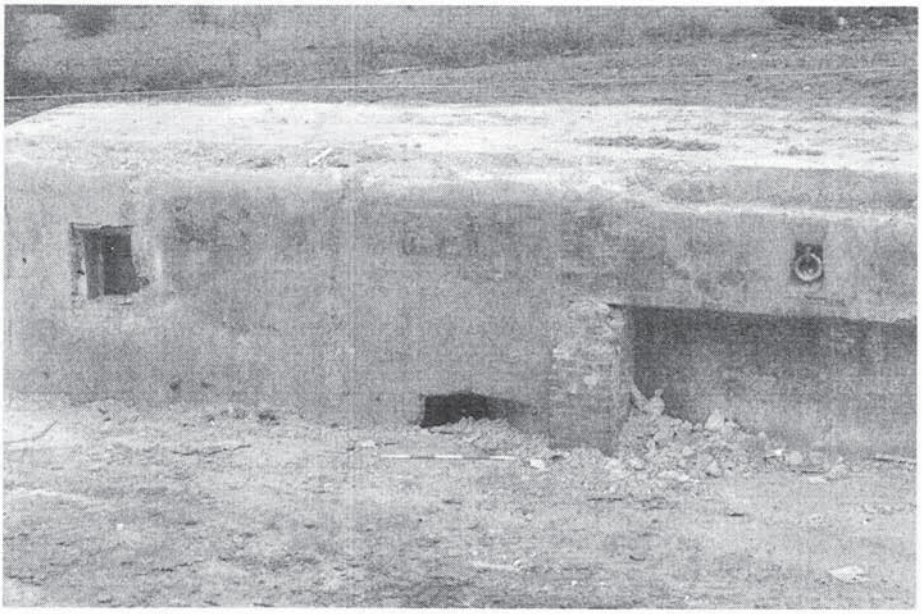


Plate 17: Phase 4.2. View south, southernmost 9.2" gun emplacement [32] and tunnel for removal of spent casings, 1898-1900.

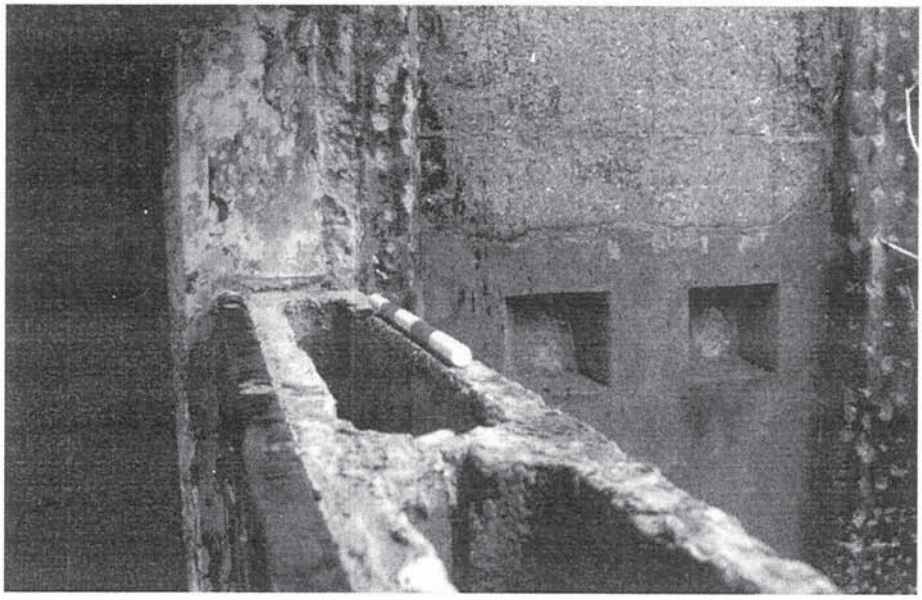


Plate 18: Phase 5. Concrete cavity wall [9] by bastion at southeast corner of fort, 1911.

7.5 PHASE 5: NEW ENCLOSURE WALL 1911

7.5.1 **Concrete Wall around enlarged Fort** (see Figure 12)

7.5.1.1 When Warden Point Battery was enlarged to the south and north (with the new engine room) at the start of the 20th century, the new enclosure was surrounded by an 'unclimbable' iron fence and bank. In 1911 this was replaced by a concrete wall [9][57]. The wall began at the end of the southern caponier and ran southeast before turning due south for a distance of approximately 152m. It then turned southwest and ran to the cliff edge for approximately 120m. A polygonal bastion was erected at the junction between the N-S and NE-SW stretches. To the north of the fort, the concrete wall began at the northern caponier, ran east then turned northeast, then again to the northwest: a distance of approximately 115m[58]. Another bastion guarded the second junction and a blockhouse was at the end of the wall. At this point the ground falls away sharply to the cliff edge, and it was perhaps unnecessary to defend it.

7.5.1.2 The southern stretch of wall [9] around the shelters (see 7.5.2) and its bastion were built using pre-formed hollow concrete blocks 0.20m thick, the interiors filled with gravel after erection to absorb attacking fire (Plate 18). The other stretches of the southern wall and all of the northern were made of pre-cast concrete slabs set between posts; the slabs were 2.24m long by 0.31m wide and only 0.08m thick. The height of the wall as it survived was 2.82m, although this is a truncated height following alterations for the holiday camp. In the 1950s new chalets in the southern area had simply used [9] as their back wall, requiring a change in height to take the chalet roof trusses. Elsewhere the wall had been retained into the structures of the holiday camp; for example, during the demolition of the entertainment complex it was seen to survive through that structure as a party wall.

7.5.1.3 The blockhouse at the north end of wall [9] was a sub-hexagonal structure 4m in diameter and 4.1m high. It had no entrance, and therefore access would have been via a ladder. The structure was two-storey, with the upper floor open and the lower floor roofed with a concrete slab. Access to the lower floor was through an open hatch. The blockhouse was built of concrete, and incorporated small loopholes at the lower level on each face.

[57] Cantwell and Sprack 1986, 20
[58] These distances are approximate because in places the wall has been demolished and therefore its route is conjectured.

7.5.2 **Concrete Shelters** (see Figure 12)

7.5.2.1 Following the construction of southern perimeter wall [9], a number of shelters [4], [7], [8] and [17] were built against its face. These were concrete structures comprising equally sized bays 3.2m by 2.2m and 2.5m high. They had reinforced concrete pillars at their corners and as lintels, and concrete slab roofs (Plate 19). They are identifiable from PRO Plans as Shelters 7 and 9[59]. The other shelters (numbers 6, 8 and 10) shown on the plan were presumably not reusable for the holiday camp and demolished in the 1950s.

7.6 PHASE 6: STRENGTHENING OF 6" GUN EMPLACEMENTS (see Figure 13)

7.6.1 One history of Warden Point Battery records that by 1923-4 subsidence had necessitated the rebuilding of the 6" gun emplacements[60]. However, comparison of the exposed barbettes with those recorded on PRO Plans dating from 1901[61] show a remarkable similarity, and therefore it seems likely that the emplacements were strengthened rather than being completely rebuilt. Evidence was found for the reinforcement of the two southernmost 6" gun emplacements [34], in the form of a mass concrete buttress [35] around the western seaward side of the barbettes only, closest to the cliff face. These had been partially truncated in the 1950s, but were 3.0m thick and curved to mirror the original circular barbette.

[59] PRO Plan, sheet 2
[60] Cantwell and Sprack 1986, 20
[61] PRO Plan, sheet 8

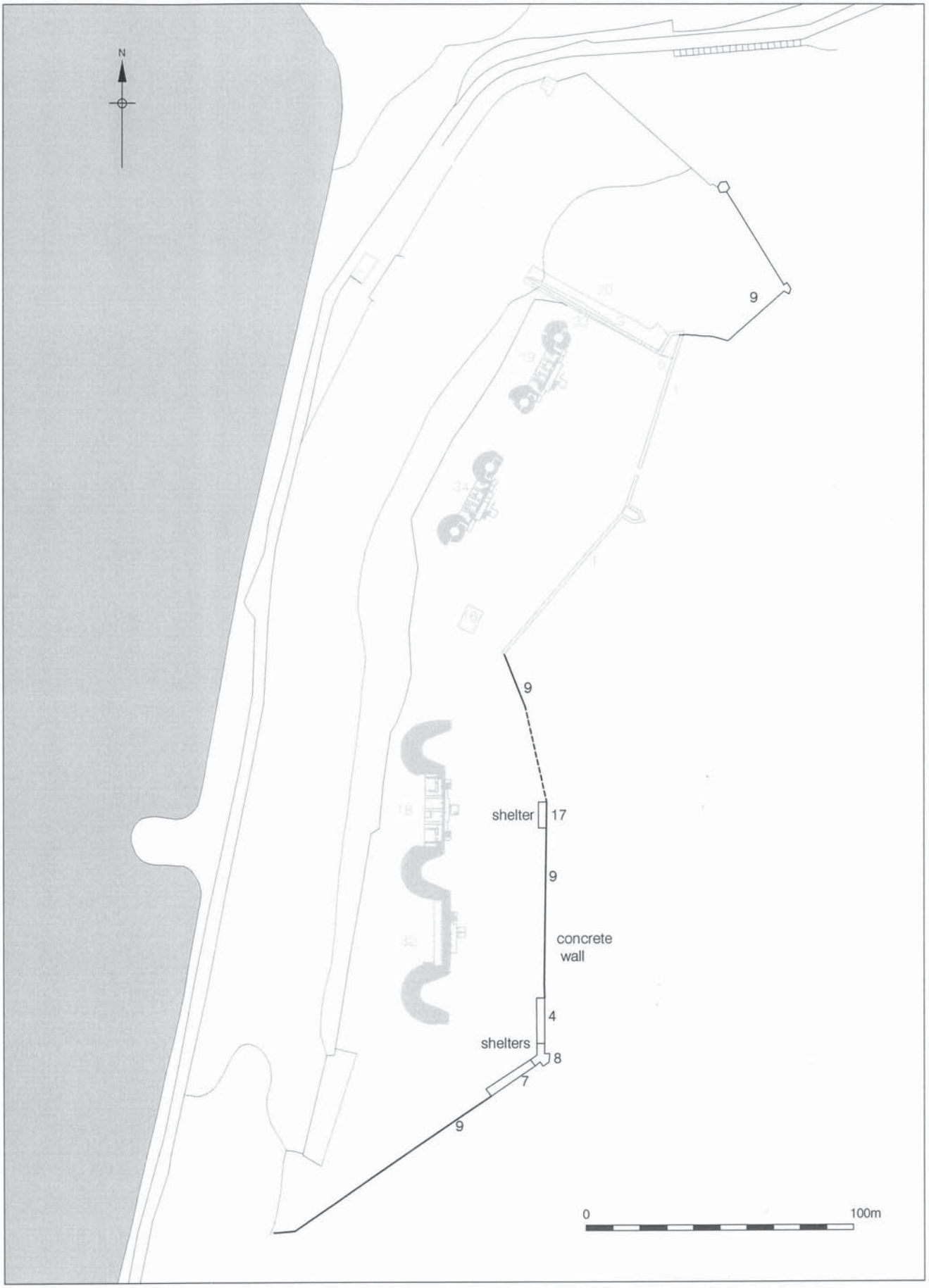


Figure 12
Phase 5: New enclosure wall
1:2,000

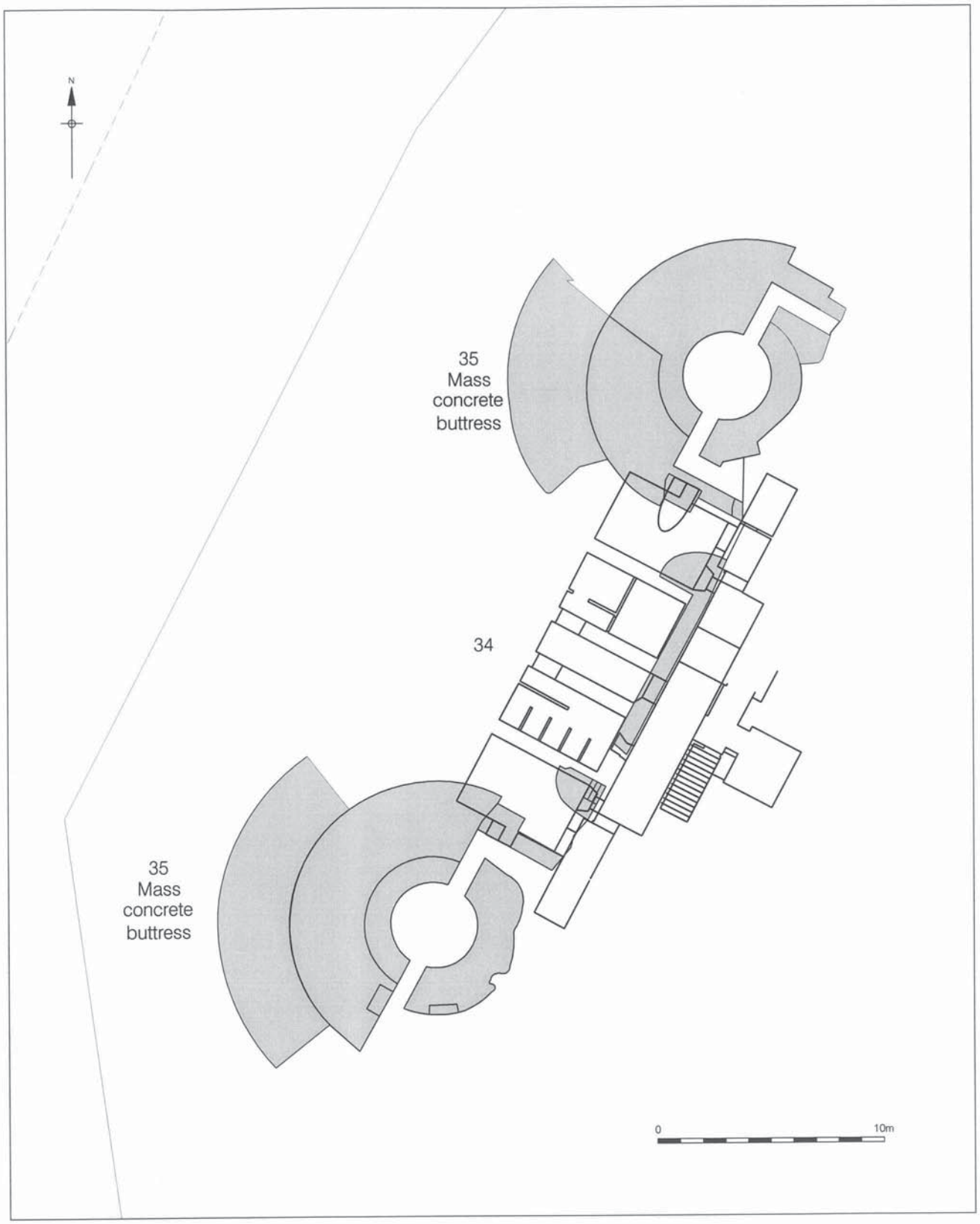


Figure 13
Phase 6: strengthening of 6" gun emplacements
1:250

Plate 19: Phase 5. View northeast, shelters reused in holiday camp, 1911.

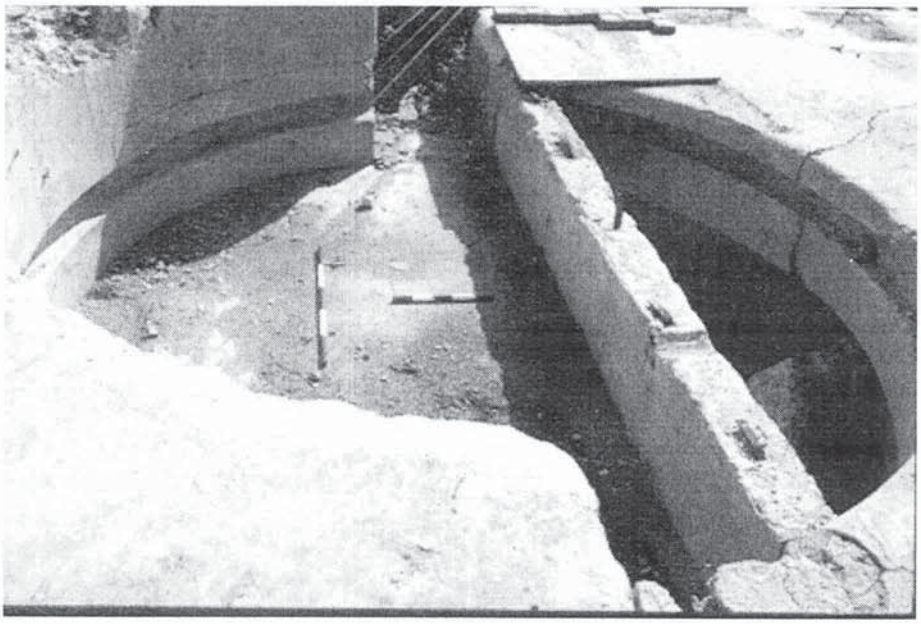


Plate 20: Phase 7.1. View north, alteration [31] to northernmost 6" gun emplacement for used as Night Fire Command Post, 1937.

Plate 21: View north, section through magazine at Cliff End Battery.

7.7 PHASE 7: CONVERSION OF 6" GUN EMPLACEMENTS

7.7.1 **Phase 7.1: Construction of Night Fire Command Post** (see Figure 14)

7.7.1.1 By 1936 all of the guns at Warden Point Battery had been removed, but a year later further activity at the Site began. A Night Fire Command Post was installed on the northern 6" gun emplacement[62] and was presumably used to direct the fire of guns at other batteries, seeing as Warden Point Battery was still unarmed. The remains of this gun emplacement revealed evidence for this change through the construction of a concrete wall [31], 3.6m long, 0.25m wide and 1.4m high, which bisected the central pit of the barbette (Plate 20). On the seaward side of this wall concrete was poured to raise the floor level of the pit by 0.86m, and a substantial cable was laid into this area, presumably to provide power or facilitate communications.

7.7.2 **Phase 7.2: Installation of Searchlights**

7.7.2.1 In 1939 searchlights were installed on the other 6" gun emplacements[63]. There was no sign of structural alterations to the barbettes but it is possible that some of the peripheral damage noticed (such as chiselled-away concrete) was done to allow the insertion of the lights. The lack of substantial attachments (such as fixing bolts) suggests that the lights may have been mobile. They were powered by three Lister generators that had been installed in the old engine room; during machining around the barbettes various pieces of stray cabling were found that may have been from this activity.

7.8 PHASE 8: DISUSE OF FORT, CONVERSION TO HOLIDAY CAMP (see figure 15)

7.8.1 After Warden Point Battery was sold in 1957, the construction of the holiday camp led to various demolition and alterations to the fabric of the fort. All of the buildings that were built against the internal face of the perimeter wall [1] were demolished, as was the old engine room by the main gate. The dry ditch around the exterior was in-filled (except to the north of the Site), and the southern NW-SE side of the perimeter wall was also demolished, including the southern caponier. Many of the loopholes on the perimeter wall, and the window and doorway in wall [6] at the northern caponier were closed with bricks [2] (Plate 13).

[62] Cantwell and Sprack 1986, 20
[63] Cantwell and Sprack 1986, 22

7.8.2 The magazines below the 6” gun emplacements were stripped of their fittings (bar the vertical winch fittings) and decorated, while the barbettes themselves were buried beneath made ground [26] to create a level platform for the construction of the chalets. The northern magazine below the 9.2” gun emplacements was untouched bar a few structural changes, but the southern one was decorated and a bowling alley inserted. The barbettes above were roofed over and partially buried below made ground [25]; the spaces were used for storage, a discotheque and a cinema.

7.8.3 Some of the shelters that were built against the southern perimeter wall [9] were converted and enlarged to form chalets, while wall [9] was also retained where convenient, such as in part of the camp complex [15]. The Searchlight Command Post, originally a two-storey structure, was reduced to one floor and converted for storage. The new engine room to the north of the Site was replaced by a swimming pool.

7.8.4 The gun emplacements were built over with chalets [10] and [11], while the buildings against the perimeter wall from Phase 3 were demolished to make way for chalets [12], [13] and [14].

7.8.5 It is difficult to tell visually how much of the Site may have been landscaped or terraced after the fort’s use, if at all. However, a PRO Plan of the Site[64] contains some imperial contour information, and conversion into metric shows that the current ground levels are not dissimilar from those in 1901. For example, an approximate level on ground on the landward side of the central 9.2” gun emplacement of 87ft OD converts to approximately 26.1m OD, compared to a current height of 26.124m OD. Therefore it is probable that minimal reduction of ground level occurred after 1957. Deposits of subsoil [21] and topsoil [5] seen in the boreholes and Trench 1 may date from this phase, although no artefacts were found within them.

[64] PRO Plan, sheet 3

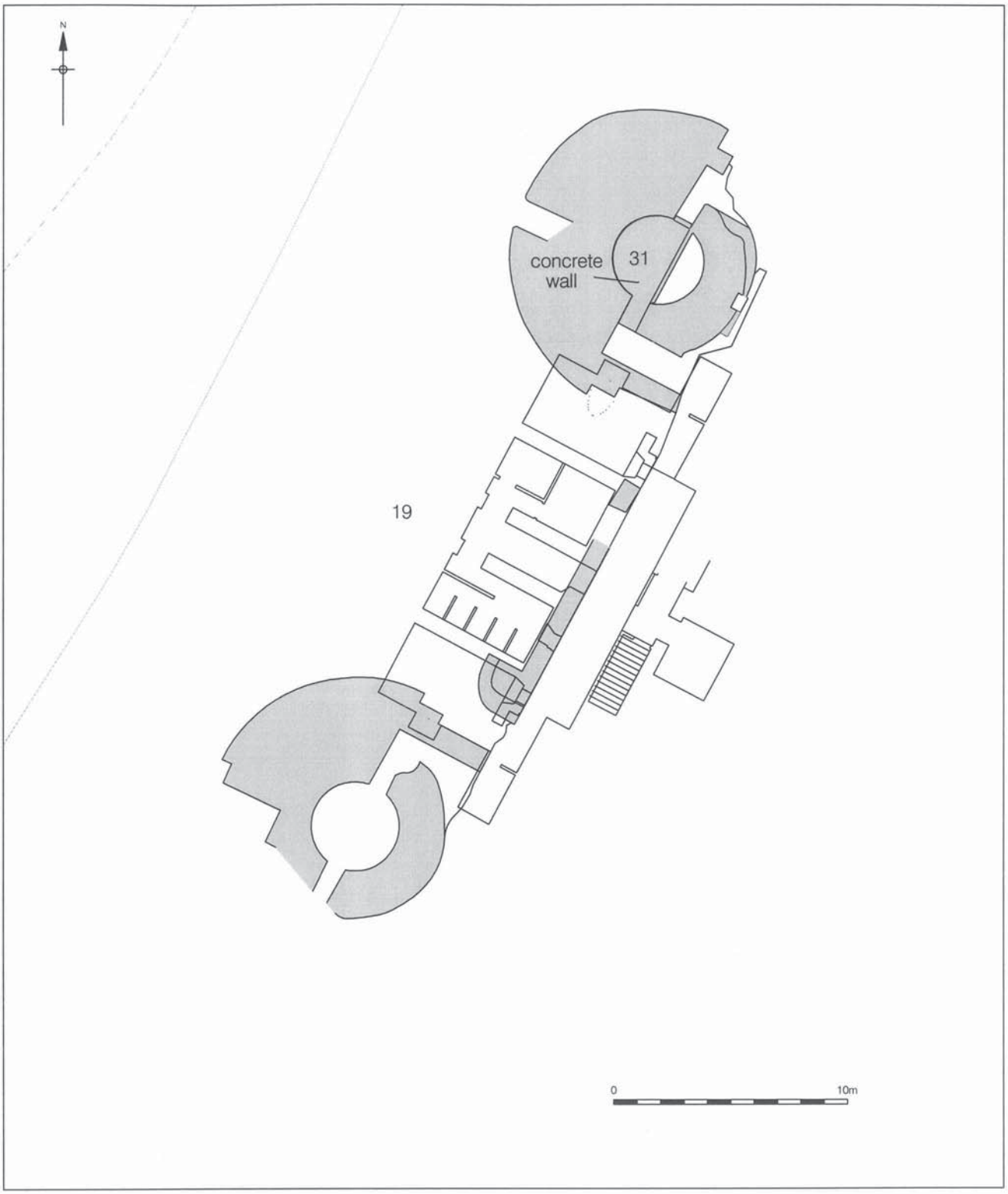


Figure 14
Phase 7: Conversion of 6" gun emplacements
1:250

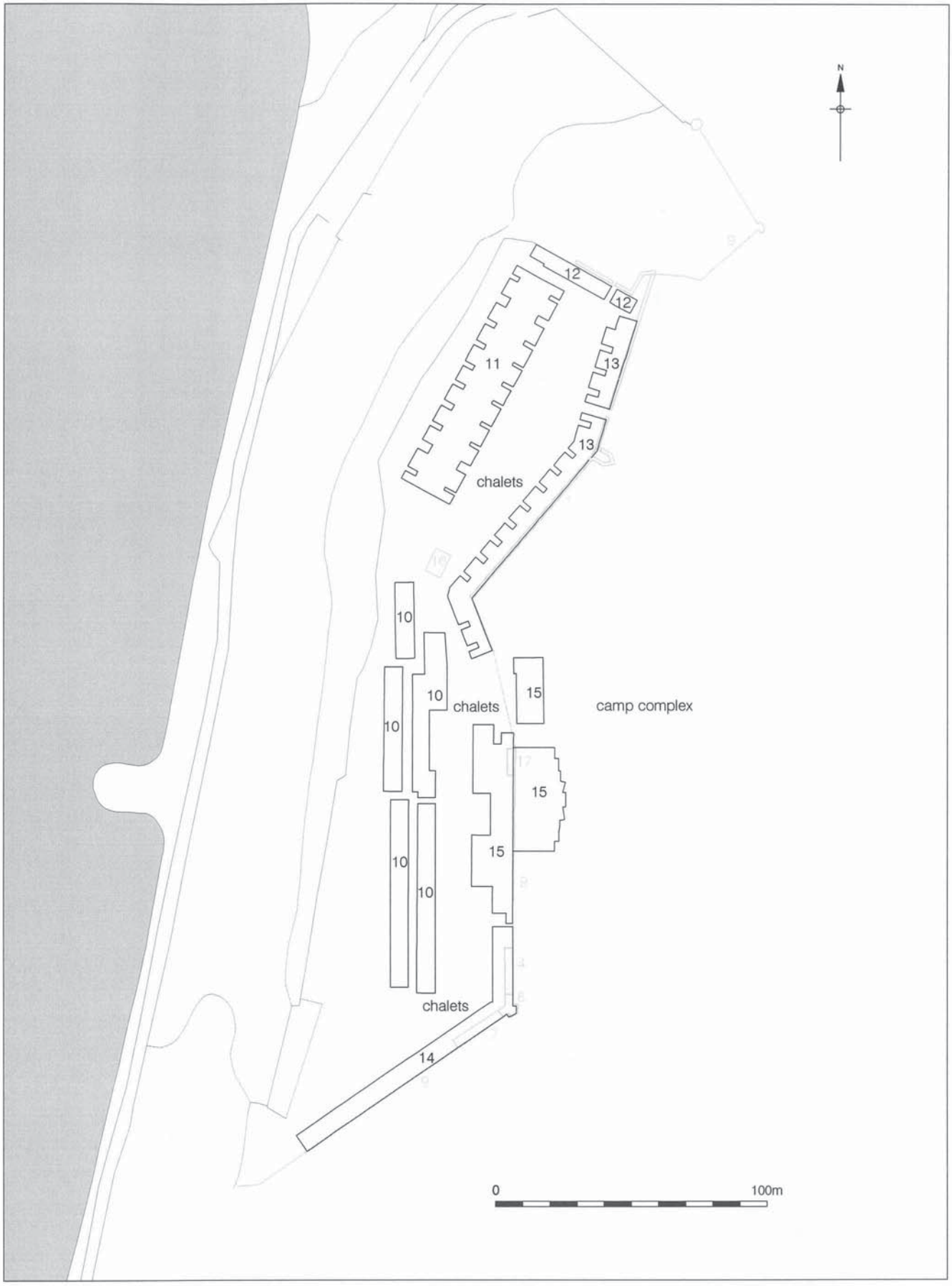


Figure 15
Phase 8: Conversion to holiday camp
1:2,000

8 RESEARCH QUESTIONS

8.1 Is there any evidence for remains earlier than the 1860s fort?

8.1.1 In only a few places were ground-invasive investigations conducted during the watching brief: the boreholes, a geotechnical pit by the main gate, footing Trench 1 and ground reduction above the gun emplacements. The latter revealed only made ground (usually redeposited natural) with an early 20th century deposition date. The others revealed no remains earlier than the 1860s when Warden Point Battery was built.

8.1.2 The lack of remains, in Trench 1 for example, may be a result of ground clearance and terracing that was undertaken prior to the fort's construction, to create a more level plateau for the gun emplacements. Such work could have removed any earlier archaeology such as Bronze Age barrows of the sort seen at Headon Warren to the south of the Site. However, these are normally found on higher ground and so it is possible that the area of the Site has no archaeological history prior to the 19th century.

8.2 Does anything survive of the original main magazine dating from the 1860s?

8.2.1 The initial Warden Point Battery had at its centre a substantial brick barrel-vaulted magazine, the function of which was eventually taken by the 6" gun magazines. This structure was present until at least 1901, when it is shown on PRO Plans that suggest that it was buried beneath a mound rather than being subterranean[65]. As such, and given the lack of a mound in its position currently, it is probable that the upper levels of the structure were demolished after the fort's disuse.

8.2.2 No ground-invasive works were conducted in the position of the magazine to test its survival, which may be limited to foundations.

8.3 Were any other below-ground remains found, and can they be expected?

8.3.1 Given the conclusions that have been drawn regarding the consistency of ground levels between Warden Point Battery and the holiday camp, it is highly likely that the foundation levels of structures associated with the fort will survive *in situ*. This likelihood is increased by the fact that many of the chalets built in the 1950s have raised floor levels and were ephemeral single-storey structures. Therefore the lower

[65] PRO Plan, sheets 2 and 5

levels of buildings such as those against the internal face of the perimeter wall may be present, but were not seen during the investigations.

8.3.2 The construction of Warden Point Battery and its subsequent reworkings will have necessitated complex drainage and service runs (such as those that drain onto the cliff face). Such services can be expected to survive *in situ* where untruncated by the construction of the holiday camp. Some of the PRO Plans[66] give positions of services, but this data could not be tested during the investigation.

8.4 Do historical sources relating to Warden Point Battery withstand close scrutiny?

8.4.1 The post-excavation assessment of the watching brief has been greatly assisted by contemporary PRO Plans showing, in great detail, the arrangement and structural details of the elements of the fort as it was in 1901. This information has proved to be very accurate; for example the position of structures against the Perimeter Wall drawn in Elevation 4 compares very closely to those shown on the plans[67]. Given this reliability, elements of the fort for which no evidence was found, such as foundation arrangements for these structures, can be expected to survive as shown on the plans, if untruncated.

8.5 How do the remains of Warden Point Battery compare to other Needles Batteries?

8.5.1 Warden Point Battery was constructed in the 1860s as part of a defensive chain of forts along the west coast of the Isle of Wight. The majority of its neighbours were in existence prior to this: the Old Needles Battery, Cliff End Battery, Freshwater Redoubt, Fort Albert and Fort Victoria, but following the report by the Royal Commission on the Defences of the United Kingdom in 1860, all were reworked. Only Hatherwood Point Battery to the south of the Site was built anew with Warden Point Battery.

8.5.2 Whilst Freshwater Redoubt, Fort Albert and Fort Victoria are markedly different in their design[68], the others all bear similarities to the design and methods of construction used at Warden Point Battery. They provide a useful source of information about the elements of the Site that could not be investigated during the watching brief. At Cliff End Battery to the north, for example, a combination of subsidence and the cutting of an access road to Fort Albert has left an exposed section through the gun emplacements and magazine (Plate 21); this shows that the magazine has been buried beneath substantial deposits of redeposited natural.

[66] For example PRO Plan, sheet 2
[67] PRO Plan, sheet 2
[68] For information on these see Cantwell and Sprack 1986

Ground reduction above the gun emplacements on Site, couple with the PRO Plans, shows that the same techniques were used at Warden Point Battery.

8.5.3 The battery at Hatherwood Point has survived poorly, largely due to vandalism, subsidence and exposure since its disuse. However the displaced remains include 0.5m^3 granite anchor blocks of the type that were found *in situ* at the Site in the 9.2" gun emplacements. Because they had to have been imported, and the batteries were built at the same time, it is likely that those at the Site had the same dimensions.

8.5.4 The remains at the Site also reveal differences in the design and construction of the Needles Batteries. Foremost of these is the perimeter wall; Warden Point Battery is alone in having such a massive defensive feature. The Old Needles Battey and Freshwater Redoubt were protected by large ditches; Hatherwood Point Battery was unenclosed; Cliff End Battery utilised a natural change in height as its enclosure defence. The topography at Warden Point Battery, with a steady incline approaching the cliff edge, meant that it needed a substantial defensive perimeter.

8.5.5 Despite the slight structural damage that was done to Warden Point Battery after the 1950s, the protection afforded to it by the holiday camp above has ensured that it survives well compared to Hatherwood Point Battery.

8.5.6 The similarities between the batteries that were reworked or newly built in the 1860s are to be expected from military installations, which would have been designed centrally and purposefully, and built to exacting specifications.

9 CONTENTS OF THE ARCHIVE

9.1 PAPER ARCHIVE

Type		Number
Records	Context sheets	39
	Plan sheets	35
	Section sheets	30
Photographs	Colour prints (medium format)	0
	Colour slides (35mm)	*c* 385
	Black and White prints (medium format)	0
	Black and White prints (35mm)	*c* 385

10 IMPORTANCE OF THE RESULTS AND PUBLICATION OUTLINE

10.1 IMPORTANCE OF THE RESULTS

10.1.1 The watching brief at Fort Warden Holiday Camp has revealed detailed evidence for the construction and development of Warden Point Battery from the 1860s through to World War II. This information has confirmed the accuracy of a variety of contemporary plans and records.

10.1.2 The initial fort, dated 1862-3, comprised a substantial perimeter wall enclosing eight barbette emplacements, remains of at least four of which were found to survive. The perimeter wall was loopholed and originally included three caponiers, of which two survive. The emplacements were semi-circular brick and stone structures in which a traversing platform pivoted on recycled cannon. These emplacements were seen to have largely survived demolition by later installations where the new footprint did not conflict with the old.

10.1.3 Warden Point Battery was restyled in 1898-1900, and the original eight emplacements were replaced by four 6” gun barbettes. These were built in two pairs, each positioned above a large brick barrel-vaulted magazine that retained fittings and mechanisms for winches to transfer the shells to the guns. The emplacements were concrete sub-circular structures with lockers, recesses and fittings for rails. The ground around the barbettes was landscaped to disguise their position.

10.1.4 The perimeter wall was extended at the same time to enclose the north side of the battery; the extension incorporated a change in design possibly to allow for the position of a Directing Station. The caponiers saw a change in use from being entirely defensive to use for storage as well. A number of buildings were erected against the perimeter wall, and the scars of these survive well having escaped complete disfigurement by the construction of the holiday camp. Externally to the area of the Site, a new engine room was constructed and searchlights were installed on emplacements at the foot of the cliff.

10.1.5 The battery was also enlarged to the south, where an eventual complement of three 9.2” gun emplacements and two subterranean magazines was built. The latter were brick structures below the concrete barbettes. Vertical winches, the mechanisms of which survive, transferred the shells to the guns. At this stage the newly enlarged battery was enclosed by an iron fence, but this was replaced in 1911 by a concrete wall that included two bastions and a blockhouse.

10.1.6 Additional concrete buttressing on two of the 6” gun emplacements is associated with reinforcement necessitated by problems of subsidence in the 1920s. Further changes happened in the 1930s as a Night Fire Command Post and searchlights were installed on the 6” gun emplacements.

10.1.7 The level of survival of the battery is good, largely thanks to protection from the elements that the holiday camp provided. As such the gun emplacements, previously buried below holiday chalets, survive virtually intact. The magazines, although affected by damp, are well preserved and include painted signs, wooden and metal fittings.

10.1.8 The results of the watching brief are most important when considered as part of the Needles Batteries as a whole. Hatherwood Point Battery to the south, the only other newly constructed in the 1860s, has been heavily damaged and therefore the remains at Warden Point Battery offer a unique and intact example of military construction on the west coast of the Isle of Wight in the 19th century.

10.1.9 The remains also serve as a substantial example of the political situation in the 1860s. The construction of Warden Point Battery was essentially reactionary but the massive expenditure of time, money and effort that went into its construction, and those of the other Needles Batteries, is indicative of the nature and magnitude of the threat that Britain felt she faced. The continued use of the fort and its changes over the next century provide physical evidence of the technological improvements in military construction.

10.2 PUBLICATION OUTLINE

10.2.1 The investigation would be suitably published in the Proceedings of the Isle of Wight Natural History and Archaeology Society. A publication would include the background of the Site and the work undertaken, together with the results of the watching brief.

11 ACKNOWLEDGMENTS

11.1 Pre-Construct Archaeology Ltd. would like to thank Duncan Hawkins of CgMs Consulting for commissioning the work, and Roseberry Homes for kindly funding it.

11.2 Pre-Construct Archaeology Ltd. would also like to thank Ruth Waller of IWCAHES for monitoring the work.

11.3 Thanks to David Moore of the Palmerston Forts Society for his help whilst researching the post-excavation assessment, Brian Austen of Austen Surveys for providing the survey drawings and to the staff of Stonehams Construction for their help on site.

11.4 The author would particularly like to thank Jon Butler for his project management and Lorraine Darton for the post-excavation project management. Thanks to Josephine Brown and Victoria Osborne for the CAD work, Cheryl Blundy for the photographic work and Ken Sabel for assistance in post-excavation.

11.5 Lastly thank you to the people of Freshwater for their continued interest and information regarding Fort Warden. In particular the staff and locals at the Royal Standard Hotel: Pete, Mick, John, Rebecca, Sue, Frank, Kevin, Pam, Graham, Mary, Anita, Alan and Fred.

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APPENDIX 1: PHASED SEQUENCE

Phase	Sub Phase	Activity	Date
1		**Natural**	
2		**Construction of Warden Point Battery**	**1862-3**
		Drainage	
		Gun emplacements	
		Perimeter wall	
3		**Reworking of original fort**	**1898-9**
		6” gun emplacements and magazines	
		Alteration to perimeter wall	
		New buildings within perimeter wall	
		New engine room	
		Searchlight emplacements	
4		**Extension of fort to south**	**1898-1900**
	1	Two 9.2” gun emplacements and magazine	
	2	Third 9.2” gun emplacement and magazine	
5		**New enclosure wall**	**1911**
		Concrete wall around enlarged fort	
		Concrete shelters	
6		**Rebuilding of 6” gun emplacements**	**1923-4**
7		**Conversion of 6” gun emplacements**	**1930s**
	1	Construction of Night Fire Command Post	1937
	2	Installation of searchlights	1939
8		**Disuse of fort, conversion to holiday camp**	**Post-1957**

APPENDIX 2: CONTEXT INDEX

Context	Type	Description	Plan / Dwg	Sect	Phase
1	masonry	perimeter wall	baseplan / survey	1, 2, 3, 4, 5, 6	2
2	masonry	closing of loopholes in 1	*	2	8
3	masonry	buttressing of 1	baseplan / survey	*	3
4	masonry	shelters	baseplan / survey	*	5
5	deposit	topsoil	*	*	8
6	masonry	wall blocking northern caponier	baseplan / survey	6	3
7	masonry	shelters	baseplan / survey	*	5
8	masonry	shelters and machine gun nest	baseplan / survey	*	5
9	masonry	concrete fort wall	baseplan / survey	*	5
10	structure	chalets on 9.2" emplacement	baseplan / survey	*	8
11	structure	chalets on 6" emplacement	baseplan / survey	*	8
12	structure	chalets	baseplan / survey	*	8
13	structure	chalets	baseplan / survey	*	8
14	structure	chalets	baseplan / survey	*	8
15	structure	camp complex incorporating 9	baseplan / survey	*	8
16	structure	searchlight command post	baseplan / survey	*	3
17	structure	concrete shelter	baseplan / survey	*	5
18	structure	9.2" gun emplacements and magazines	photocopy / survey	*	4.1
19	structure	northern 6" gun emplacements and magazi	photocopy and 19	*	3
20	cut	dry ditch / moat	20 x1	*	2
21	deposit	subsoil	*	*	8
22	deposit	natural sand	*	*	1
23	deposit	levelling sand	*	*	4.2
24	deposit	levelling clay / sand	*	*	4.2
25	deposit	levelling chalk	*	*	8
26	deposit	material burying 6" guns	*	*	8
27	cut	construction cut for 6" emplacements	19	*	3
28	structure	original gun emplacements	19	*	2
29	structure	searchlight emplacement	baseplan / survey	*	3
30	structure	searchlight emplacement	baseplan / survey	*	3
31	concrete	concrete alteration to 6" gun emplacement	31 x1	*	7.1
32	structure	9.2" gun emplacement and magazine	photocopy / survey	*	4.2
33	masonry	extension to wall 1	survey	*	3
34	structure	southern 6" gun emplacements and magaz	photocopy / survey	*	3
35	masonry	concrete buttresses on [34]	survey	*	6
36	masonry	southernmost original gun emplacement	survey	*	2

APPENDIX 3: GLOSSARY

The entries in this glossary have been paraphrased from Cantwell and Sprack 1986.

Barbette
A battery position where the protective parapet is low enough for the gun to fire over it without the need for embrasures.

Bastion
A projection from the walls of a fort whereby they could be covered with flanking fire. Bastions were usually composed of two faces meeting at a salient angle and joined to the main walls by straight flanks.

Bombproof
A vaulted casemate or building covered with earth to withstand plunging shell fire.

Breech-loader
Any gun that could be loaded by opening part of the breech (or rear) of the barrel.

Caponier
A work defending a ditch with crossfire by extending across it.

Casemate
A bombproof vault of brick and stone, usually covered with earth, which provided an emplacement for a gun or living quarters for soldiers.

Embrasure
Opening in a parapet or casemate through which cannon could be fired.

Muzzle-loader
Any gun loaded from its front (muzzle) end.

Racer
Curved iron track set into the floor of a gun emplacement that enabled guns to be traversed more quickly.

Rifling
A gun whose bore was cut along its axis with spiral grooves so as to spin an elongated shell and make its flight more accurate.

Training
To aim a gun.

Traversing Platform
Wooden or metal platform that supported a gun and its carriage, and could be traversed on racer tracks.

APPENDIX 4: OASIS FORM

OASIS ID: preconst1-4299

Project details	
Project name	Fort Warden Holiday Camp
Short description of the project	A watching brief was conducted at Fort Warden Holiday Camp, Totland Bay, Isle of Wight during the demolition of the holiday camp structures in advance of its redevelopment for residential units. The work was commissioned by CgMs Consulting on behalf of Roseberry Homes. It comprised the monitoring of the demolition in order to preserve and record structures and features of Warden Point Battery, a coastal fort that was part of the Needles Defences. The drilling of four geotechnical boreholes and the excavation of a footing trench for one of the new buildings were monitored. Substantial elements of Warden Point Battery were exposed and recorded, including parts of the original 19th century battery. Evidence was seen for the subsequent military alterations to the fort as it was used into the 20th century. The remains found on site correspond to an array of historical documents that illustrate its history. Furthermore they can be compared to contemporary forts on the west coast of the Isle of Wight that served the same purpose.
Project dates	Start: 21-10-2002 End: 17-09-2004
Previous/future work	No / Yes
Any associated project reference codes	IWCAC 4905 - Sitecode
Type of project	Field evaluation
Site status	None
Current Land use	Vacant Land 1 - Vacant land previously developed
Monument type	COASTAL BATTERY Post Medieval
Monument type	COASTAL BATTERY Modern
Methods & techniques	'Documentary Search','Survey/Recording Of Fabric/Structure','Test Pits','Visual Inspection'
Development type	Urban residential (e.g. flats, houses, etc.)
Prompt	Planning condition
Position in the planning process	Not known / Not recorded

Project location	
Country	England
Site location	ISLE OF WIGHT ISLE OF WIGHT TOTLAND Fort Warden Holiday Camp
Postcode	PO39
Study area	14.9 Hectares
National grid reference	SZ 3250 8760 Point
Height OD	Min: 23.5m Max: 26.45m

Project creators	
Name of Organisation	Pre-Construct Archaeology Ltd
Project brief originator	Local Authority Archaeologist and/or Planning Authority/advisory body
Project design originator	Jon Butler
Project director/manager	Jon Butler
Project supervisor	Chris Mayo
Sponsor or funding body	Developer

Project archives	
Physical Archive recipient	Local museum
Physical Archive Exists?	No
Digital Archive recipient	Local museum
Digital Contents	'Stratigraphic','Survey','other'
Digital Media available	'Database','Images raster','Spreadsheets','Survey','Text'

Digital Archive Exists?	Yes
Paper Archive recipient	Local Museum
Paper Contents	'Stratigraphic','Survey','other'
Paper Media available	'Context sheet','Correspondence','Drawing','Map','Miscellaneous Material','Photograph','Plan','Report','Section','Survey '
Paper Archive Exists?	Yes

Project bibliography 1

Publication type	An unpublished document/manuscript
Title	Assessment of an Archaeological Watching Brief at Fort Warden Holiday Camp, Totland Bay, Isle of Wight
Author(s)/Editor(s)	Mayo, C
Date	2004
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