
ABERDYFI TO DYSYNNI FLOOD ALLEVIATION SCHEME - PENLLYN MARSHES, TYWYN

ARCHAEOLOGICAL RECORDING

Report No. 612



Penllyn Rifle Range target butts, general view of the west side

Prepared for
The Environment Agency, Wales

October 2005

By
George Smith



Ymddiriedolaeth Archaeolegol Gwynedd
Gwynedd Archaeological Trust

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1. SUMMARY

An archaeological assessment was carried out in 2004 in advance of a flood alleviation and managed coastal retreat scheme in the Penllyn marshes south of Tywyn, Gwynedd. The assessment recommended that several structures of some historical interest should be recorded in more detail before possible eventual destruction. This work provides a written, measured and photographic record of those structures.

2. INTRODUCTION

Gwynedd Archaeological Trust was asked by the Environment Agency to carry out archaeological recording of five structures in advance of the a proposed flood alleviation and managed coastal retreat scheme in Penllyn marshes, south of Tywyn, centred on SN 588986 (Fig. 1). The results of this scheme might entail the eventual erosion and loss of these structures. Several are military structures, the recording of which, where retention is not possible has been recommended (Lowry 1995; English Heritage 2003).

The area is low-lying drained and improved pasture with a high shingle bank currently separating it from the sea. The whole of the area lies within the Snowdonia National Park and much of the area is an SSSI. The coastal part is a Special Area of Conservation (SAC). The SSSI is mainly managed under the Tir Cymen scheme at present although a renewed application will soon be necessary under the Tir Gofal scheme.

Acknowledgements: The illustrations of the plans and elevations were prepared by Tanya Berks. Thanks to Paul Blackman, Site Supervisor and Nigel Purchase, Site Agent for assistance.

3. SPECIFICATION AND PROJECT DESIGN

The structures to be recorded were:

1. The tidal gate and outfall of the Afon Dyffryn Gwyn through the sea wall, a flood control feature first built about 1862, when the marshes were drained and the railway built.
2. A rifle range and command building, just behind the sea wall, built between c. 1881 and 1901 but added to during the Second World War.
3. Three Second World War concrete coastal defence gunnery pillboxes on the seaward side of the sea wall.

The locations of these features are shown on Fig. 1.

The recording was to be carried out to the specification of a Level 2 record as defined by the Royal Commission on the Historic Monuments of England (1996). This should include the location of the structures, date of recording and a description of the building, its materials and some account of its functional and chronological interpretation and setting. It should also include plans to scale and a general and detailed photographic record. Only examples of the photographic record are illustrated here. The rest are included on disc as digital files.

4. METHODS AND TECHNIQUES

4.1 Field recording

The site was visited on 14th and 16th September 2005. Descriptive notes, measurements and photographs were taken. An overall photographic record was made by photographing all external, and where possible internal walls by a series of overlapping views, perpendicular to the walls and with dual scales at set distances apart, to allow basic photogrammetric study, if required. Duplicate photographs were taken in digital and colour negative film format for security.

The Afon Dyffryn Gwyn tidal gate has been modified in recent times and detailed plans are already available, therefore this structure was only photographed with existing plans annotated.

4.2 Report

The recorded information is synthesised in the drawings showing plans and elevations with annotations. However, each structure is also described generally, to add to the drawings where these are not self-explanatory and with some interpretation. Only selected examples of record photographs are reproduced but the complete archive of photographs is included on a CD and the photograph record list is included as Appendix 1.

The introductory historical background to the area is repeated from the original assessment report (Smith 2004) but some new background research was used for the discussion.

5. ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

The earliest Ordnance Survey map of 1837 shows the study area with a large sinuous lake called Llyn y Borth, which reached almost as far as Penllyn farm, and several smaller pools behind the shingle bank and coastal belt of sand dunes. To the south was a large marshy area called Gwerglodd Rhowniar. The map accompanying the Tithe Apportionment of 1841 also showed Llyn y Borth, but called Penllyn Pool. In 1886 it was said – ‘The state of the marshes between Towyn and Aberdovey was very different prior to 1862 to what it is now. There was big pool below Penllyn, extending as far as Glanywern, upon which I spent many days boating. The Caethle Brook and Llyn y Borth were the best trout waters in the county before the Melinllyn Mining Company began, in 1851 to pollute them with lead washings, and fill up the bed of the brook with refuse, which proved, not only deadly to the fish but also to the ducks, geese and horses. These marshes, as well as the marshes of the Dysynni Valley were scientifically drained in 1862. The Dovey Marshes at a cost of £7,000 and the Dysynni Marshes at a cost of £30,000. The sound of a railway locomotive was first re-echoed by the hills and vales of the district about the same time as the marshes were drained. On the advent of these changes, and I call them changes advisedly, the charming seclusion, the primitive habits of the inhabitants, the wildfowl and the ague disappeared.’ (Anon. 1886, 9).

The Afon Dyffryn Gwyn in 1837 followed a more sinuous route than that after drainage when it was straightened and bordered with flood banks. It formerly drained into the lake, which then overflowed through the shingle bank. After drainage of the marshes, and by the time of the 1888 Ordnance Survey map, the river seems to have been put into a culvert under the shingle bank, probably with a tidal sluice gate (Fig. 3a). The former lake was then shown as just a marshy patch. Although the marshes were not productive agricultural land before drainage they may still have been valuable for summer pasture, fishing and peat cutting. The land was not ‘waste’ therefore and the 1841 Tithe Apportionment shows that they were in divided tenancy, between the farms of Penllyn, Esguan, Caethle, Rhawniar, all belonging to Athelstan Corbet (of Ynysmaengwyn). A small part was even listed as belonging to the ‘Poor of Dolgelly’ – possibly to allow peat cutting. Peat cutting in the Common of the Morfa, which was about 600 acres, must have been important for the town and there were disturbances when Corbet tried to enclose the common to improve it in the 19th century.

The field pattern was reorganised after drainage. Although the drainage was said to have taken place in 1862 and the Aberystwyth and Welch Coast railway was opened on 24th October 1864 the field pattern seems to show that it had been established before the railway was constructed. The drained fields would have provided better pasture and perhaps hay-cutting although the former area of lakes was still shown as ‘Liable to floods’ and left as a strip of rough land as shown on the 1888 map. Aerial photographs show a number of irregular features in this coastal strip, perhaps the remains of old channels or of peat cutting. The only major feature that appeared in this period was a rifle range, which is not present on the 1888 25 inch or 1891 6 inch maps but is present on the 1901 map (Fig. 8). This therefore belongs with the period between the Boer Wars of 1880-1 and 1899-1902 but it seems likely to have been a private range in origin. The range was clearly set up in line with a long field boundary and trackway leading to Esguan Hall, one mile to the north-east and reached via a bridge over the railway. This may have been designed to allow the range to be viewed by telescope from the hall. In 1901 the range consisted of just a line of targets with shooting butts set out at every 100 yards from 100 to 800 yards, thus continuing onto the east side of the Afon Dyffryn Gwyn. Some of the butts can be seen on aerial photographs in the rough coastal strip but those to the north-east in improved fields have been ploughed away. The target butts still survive but with a flat-roofed brick building adjoining, probably a command post and this shows the range was used again in the 20th century. Whenever this was, it was at this time that the dunes behind the targets were bulldozed and built up to a substantial height behind the targets, to protect the beach from stray shot.

The area seems to have gone unaltered in the 20th century although the coastal strip was levelled and part of the east edge of the dunes was spread over the adjoining pasture. The tidal gates have been rebuilt and the river

sides and flood banks improved. The main change was the addition of a line of concrete pillboxes along the front of the beach during World War II. There are six pillboxes set about every 500m from south of the outfall of the Afon Dyffryn Gwyn to the entrance to the Afon Dyfi. The flat area of the Penllyn Marshes must have been regarded as a possible landing place. It would seem possible that the line of defence would originally have continued to the north along the Tywyn sea-front in front of Tywyn RAF base and on the other side of the Dysynni in front of the Tonfanau army base although no evidence has been found for further pillboxes (Gwyn and Dutton 1995). It seems unlikely that they would all have been demolished or eroded by the sea although the latter possibility is supported by the decline in condition of the existing pillboxes from south to north. However, the pillboxes were designed to defend the open beach front south of the built-up area of Tywyn. The latter may have had alternative means of defence, such as sand-bagged gun emplacements.

6. THE ARCHAEOLOGICAL RECORDING

6.1 THE AFON DYFRYN GWYN TIDAL GATE AND OUTFALL (Fig. 2)

The present channel and two tidal gate chambers are of modern construction. The northern pipe is of concrete and the outfall chambers are of concrete blocks. The Penllyn Marshes were drained about 1862 and a tidal gate must have been installed at the same time or soon after. However, the earliest record of the drained marshes and outfall is on the 1888 OS 25" map (Fig. 3a). This shows a single outfall pipe running under the sea bank and projecting some way onto the beach, the area of the sea bank around the outfall protected by breakwaters, probably timber groynes.

The existing double outfall incorporates the line of the original outfall, which forms the southern of the two pipes, where some of the original structure survives (Fig. 4). Its entrance is via a splayed brick-built wall, of similar purple bricks to those used in the first phase of the rifle range to the south (see below). Above this is a brick-built apron, possibly designed to prevent erosion around the entrance to the pipe when the river flooded faster than it could flow out. Two of the original stone capping slabs survive on the top. Behind this "apron" is a rectangular aperture in the ground covered by heavy timbers (Fig. 5). This is presumably an access chamber and suggests that there might have originally been a tidal flap valve here, within a small chamber.

Later a single tidal chamber was built on the sea-ward side of the entrance to the outfall pipe and this was still in existence as late as 1976 as shown on the 1:10000 Ordnance Survey map of that date (Fig. 3b).

The outfall was subsequently again reconstructed with a second outfall pipe and chamber added, as existed in 2005, before the present works. The second entrance to the outfall was constructed to match the original approximately in style but in solid concrete. At the same time the original brick entrance was rendered to match the new concrete entrance. The new entrance did not have an access chamber and cover behind the apron (Fig. 3b). The new tidal gates were housed in deep rectangular chambers to contain the tidal rise in height, with the timber flap gates at the east side of the chambers. The foundations of both these chambers has eroded and the chambers will be demolished and replaced as part of the present development.

The outfall pipe onto the beach itself (Fig. 6) has suffered from erosion and has clearly been replaced, perhaps several times, and part of an earlier pipe in a brick setting is incorporated in the rubble protecting the present outfall (Fig. 7).

6.2 THE RIFLE RANGE PRN 7287 (Figs 8 - 15)

6.2.1 Introduction

This consists of several elements. The range itself lies approximately north-east to south-west. To the north-east a series of low banks, the shooting butts, at 100yards intervals, were shown on the OS 2nd Edition 1:2500 map of 1901 (Fig. 8). Only one of these is now well-preserved, probably because it was rebuilt as a larger earthwork when re-used during the 2nd World War and partly because it lay outside the nearby improved pasture fields. The low remains of the other butts survive within the nearby fields, levelled by cultivation and now showing mainly as crop marks on aerial photographs.

The main rifle range building consists of a long low, brick-built target butt, with a sloping front and at its north end is a rectangular command building (Fig. 10).

6.2.2 The Target Butt

This has been built into a terrace excavated into the coastal dunes. The excavated sand has been built up into a bank on the west side of the targets, to provide extra safety. The butt itself is 33.00m (40ft) long and 4.30m (14ft) wide overall. It is solid brick-built, of two bricks thickness except for the rear wall, the lower part of which is of three bricks thickness. The rear wall is built with a slight batter and the end walls slope down to the front, which has a low enclosing wall. The space inside the walls is filled with sand, sloped up to the top of the rear wall.

Attached to the rear wall is a roofed walkway, 0.9m (3ft) wide allowing safe access along the rear of the targets (Fig. 11). The walkway has a concrete roof, topped supported on T-section steel girders at 1.83m (6ft) intervals.

The overall structure has three phases of construction:

- a. The earliest was a short target butt, 18.42m (60ft) long, without a walkway. This was built of purple, hard-fired bricks and can be identified with a small rectangular structure shown on the 1901 Ordnance Survey map (Fig. 8).
- b. A second butt was built, to the north of, and continuing the line of and imitating the size and style of the first butt. This was built of poorer fired, gritty fabric, orange-red brick. A gap of 2.35m (8ft) was left between the two butts. The new butt incorporated a command building at its north end.
- c. The gap between the two butts was bricked-in rather crudely and the covered walkway was built along the whole length (Fig. 14).

The first phase butt had a series of pairs of large iron bolts fixed horizontally through the rear wall at about head height. These seem to have been the fixings for strong iron brackets, which have been taken away, perhaps for scrap. Impressions of the brackets remain on the brickwork (Fig. 12). The function of the brackets is not clear. They could have held paper targets or even have been a system for fixing targets from the shelter of the butt. The newer butt to the north had brackets in similar positions but these were much less substantially fixed, being attached to the wall by screws into wooden plugs let into joints in the brickwork.

Both butts also had pairs of protruding flat iron bars let into joints in the brickwork at intervals along the butts. These were set at about seating height and may have held plank benches (Fig. 9).

At the south end of the butts and belonging to the first phase was a small rectangular compartment set into the rear of the butt (Fig. 9). This was whitewashed inside and had shallow ledges on both sides at about seat height. These seem to be supports for a toilet seat, probably over a bucket. Surprisingly the later, covered walkway was not built to cover the entrance to the toilet, which was not therefore protected by concrete but by sheet iron roof, over which sand was laid.

6.2.3 The Command Building

The command building is 6.65m (22ft) E-W and 4.14m (14ft), N-S externally, built of solid double brick (Figs 11 and 13). It had a wide, probably double swing door at the south side leading into the covered walkway. At its side is a window aperture at quite a high level, the top being formed by the (presumably reinforced) concrete slab roof. The window originally had a wooden glazing frame. At the west and north side are long apertures at ceiling height, both probably originally glazed. Internally the building has no surviving structural features. However, it had a stove at the south-west corner where there is an aperture 0.14m diameter through the roof for a stove pipe chimney. There are traces of whitewash and green paint on the internal walls and rectangular gaps in the whitewash show that there were cupboards or shelf units along parts of the north and west sides.

A fragment of thick twisted steel hawser is left in a channel in the brickwork through the wall by the command building door, possibly for an aerial (Fig. 9).

The concrete roof has no sign of plank shuttering on the interior ceiling which is quite smooth suggesting that panels of plywood were used.

The whole of the structure seems to be built on a concrete raft foundation, now hidden beneath a build-up of sand and soil.

6.2.4 Shooting butt

This lies to the north-east of the target shooting butts. It survives as low earthen bank about 15m long, 4m wide and 0.4m high (Fig. 15). It must once have been higher and better defined and has presumably been trampled down by cattle. Just beyond its north end is a small, plain concrete marker post.

6.2.5 Discussion

The original rifle range was built approximately between 1888 and 1901, since it does not appear on the 1st Edition OS 25 inch map of 1888 but does appear on the 2nd Edition map of 1901. The maps were surveyed several years before their printing so it is possible that the range could have been constructed as early as 1880. Interestingly, the range as a whole was clearly deliberately aligned on Esguan Hall, to the north-east, and the field boundaries and a track that lay on the line of the rifle range were already in existence in 1888. These boundaries were laid out as part of the drainage works of the Penllyn Marshes *c.* 1862. Possibly therefore the rifle range was already planned at this early date.

The 1901 map shows shooting butts at 100yd intervals. However, these distances were not measured from the brick-built butt, but rather from a small rectangular feature shown on the map, labelled 'Targets' (Fig. 8). It may be that even in their Second World War phase the targets were set up some way in front of the butts. The position of the targets as shown on the 1901 map has now been obscured by the construction of a trackway.

There is shortage of information about other rifle ranges of the same periods. It seems they usually had a much taller screen than at Tywyn, as at Winscales, Workington, Cumbria and Burton-upon-Trent, Staffordshire, both with screens up to about 5m and both constructed before 1914. However, at Tywyn the sand bank behind the target butts may originally have been much higher and the coastal location may have made safety screening less important than inland locations.

The history of the rifle range has not been researched beyond that for the original assessment, when no reference to it was found on the Dolgellau Archives. The original construction may have been associated with a local militia, at about the time of Boer Wars. Its connection with Esguan Hall indicates that some reference to it may be found in the history of that house. The range could have been used during the First World War but the additions were all of 2nd World War date. There was considerable activity in the area in that period, with an army camp at Tonfanau, north of Tywyn, an airfield on the marshes north of Tywyn, and a line of coastal defence pillboxes along the sea-front of Penllyn Marshes, extending to the Dyfi estuary (see below).

6.3 PILLBOX 270343 (Figs 16-18)

This is an L-shaped pillbox, a variant of Type 23 (Lowry 1995; Wills 1985) of which the most basic type was rectangular with 2 rooms, one roofed with machine-gun mounts and one open, possibly with a light anti-aircraft gun. However, variations were built to suit local conditions.

The pillbox is of mass concrete, basically of one compartment *c.* 3.05m (10ft) square externally, 2.33m (7ft 8in) internally. The walls are 0.36m (14in) thick and the whole is built on a thick plinth foundation. The main compartment has internally-splayed gun ports on the S, W and N sides, overlooking the beach (e.g. Fig. 17). The room has an internal central ricochet partition. The chamber was entered via a narrow doorway from a small rear compartment giving an overall length to the pillbox of 5.35m (17½ft), E-W. The rear compartment was accessed via iron rungs, in an alternating offset series inside the wall (Fig. 18). There may have been a wooden ladder to gain access from outside. At the SE corner a round iron bar is set into the top of the concrete wall, possibly an aerial or just a hand-hold.

There must have been steps down from the rear antechamber into the gun room, similar to those of the other two pillboxes visited (see below) but the whole building interior was obscured by a filling of shingle at the time of the visit.

6.4 PILLBOX 270340 (Figs 19–21)

This has been partly demolished by wave action and seems to have slipped down the storm bank to rest on the beach itself (Fig. 20). Enough remains of the structure to reconstruct its plan, which is slightly different to that of pillbox 270343. It is again a variant of Type 23 but closer to the basic plan of this type, of two compartments, overall c. 3.07m (10ft) wide and about 5.2m (17ft) long, E-W. The front compartment is similar in all respects to that of pillbox 270343. The rear compartment however, is the full width of the pillbox, c. 2.35m by 1.85m (8ft by 6ft) internally with a central concrete pillar. As it was not roofed this probably supported a mount for a light anti-aircraft gun as described by Lowry (1995, 82). The main chamber was accessed via steps down from the rear chamber. The rear chamber was accessed from outside via a series of iron rungs set into the inside face of the wall, as in pillbox 270343. The rear chamber also had a gun embrasure in the east wall, with a double splay, which would have allowed a view of the rear approach to the pillbox (Fig. 21).

Erosion of the structure by the sea has exposed the base of the pillbox showing that a clay drain-pipe was incorporated into the foundation plinth providing drainage of rainwater from the bottom of the steps down from the rear compartment. This feature was probably common to all three pillboxes here, although this was the only one where the area of the drain was exposed.

The pillbox was clearly built into the slope of the storm bank rather than on its top because its plinth is also stepped into the slope, that is, the eastern, landward side of the pillbox is built on a foundation at a higher level than the seaward side (Fig. 19). The plinth incorporates a good deal of large beach shingle. The concrete of the walls was plank shuttered and laid in approximately 30cm (1ft) deep layers.

Part of the broken, exposed roof of the main compartment shows it to have incorporated steel plate reinforcement, possibly corrugated, of about 20mm (¾in) thickness, for additional strength (Fig. 21).

6.5 PILLBOX 270339 (Figs 22-24)

When visited in 2004 this pillbox appeared to survive only as flat pieces of slab lying on the beach. However, in 2005 these pieces had been further exposed by wave action showing that parts of the structure still survive, although collapsed (Figs 23-24). Sufficient remains to allow the overall plan to be identified. This pillbox was another variant on Type 23, a simple rectangle 4.11m (13ft 6in) long, E-W, by 3.07m (10ft) wide. It had one main gun compartment with three gun apertures, on the north, west and south, and probably an internal ricochet partition. It was accessed via a narrow rear compartment containing steps down into the main compartment.

6.6 THE PENLLYN MARSHES COASTAL DEFENCES, DISCUSSION

The difference in design of the three pillboxes here is surprising, since they are part of an extensive line continuing to the Dyfi estuary (Fig. 1, PRN 270344, 270 342 and 270345) and reproduction of a single design would have speeded up production. It may be that their differences were deliberate, for training purposes. Alternatively they may have been part of a larger design, perhaps with alternate or occasional boxes having anti-aircraft gun mounts (as pillbox PRN 270340). All the pillboxes have been recorded as part of the Defence of Britain Project and are recorded in the RCAHMW database. The pillboxes to the south are also of Type 23 but at present do not have a detailed enough record to understand their exact designs and therefore of the possibility of any overall plan. Further study of the remainder of the defences was outside the scope of the present project.

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7.3 Cartographic sources

Ordnance Survey 1st ed. 1inch to 1mile, 1837, Sheet LIX S.E.

Ordnance Survey 1st ed. 1inch to 1mile, 1837, printed with additions 1864. Sheet LIX S.E.

Ordnance Survey 1st ed. 1:2500, 1888.

Ordnance Survey 1st ed. 6 inches to 1 mile, 1891.

Ordnance Survey 2nd ed. 1:2500, 1901, Sheet XLVIII.1.

Saxton, Map of Caernarfonshire and Anglesey 1578.

Tithe map for the parish of Tywyn, c. 1841.

7.4 Aerial Photographic sources

www.multi-map.com

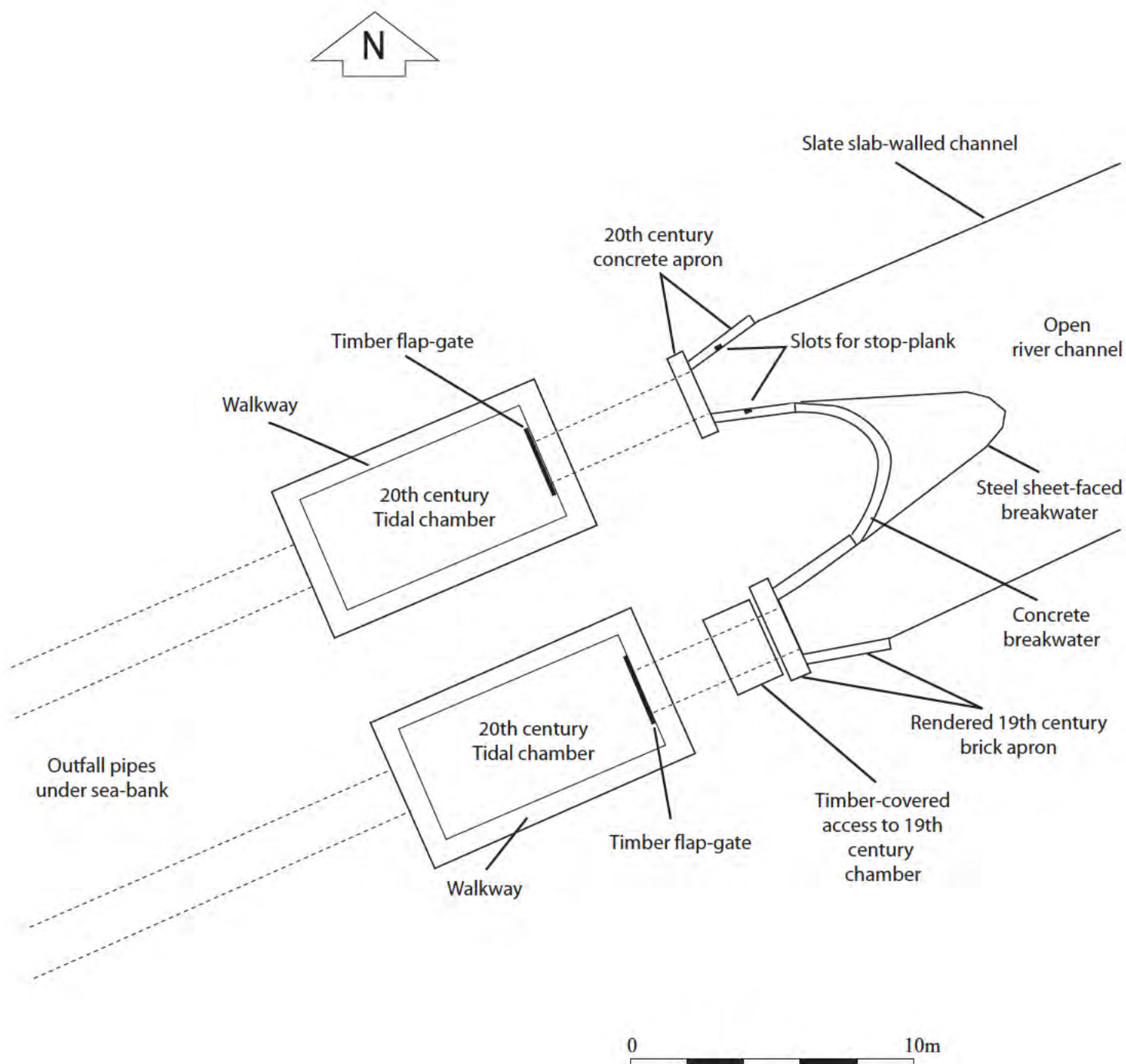


Fig. 2 Afon Dyffryn Gwyn Tidal Gate and Outfall. Plan based on Ordnance Survey 2003, with added sketched detail and annotation

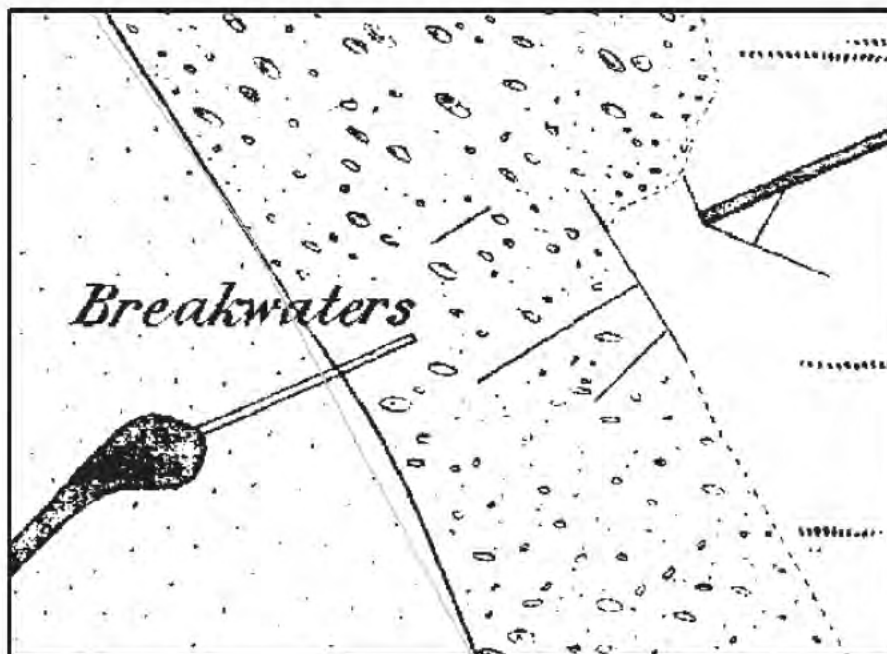


Fig. 3a Afon Dyffryn Gwyn outfall and tidal gate Ordnance Survey 1:2500 1st Edition 1888. Not to scale.

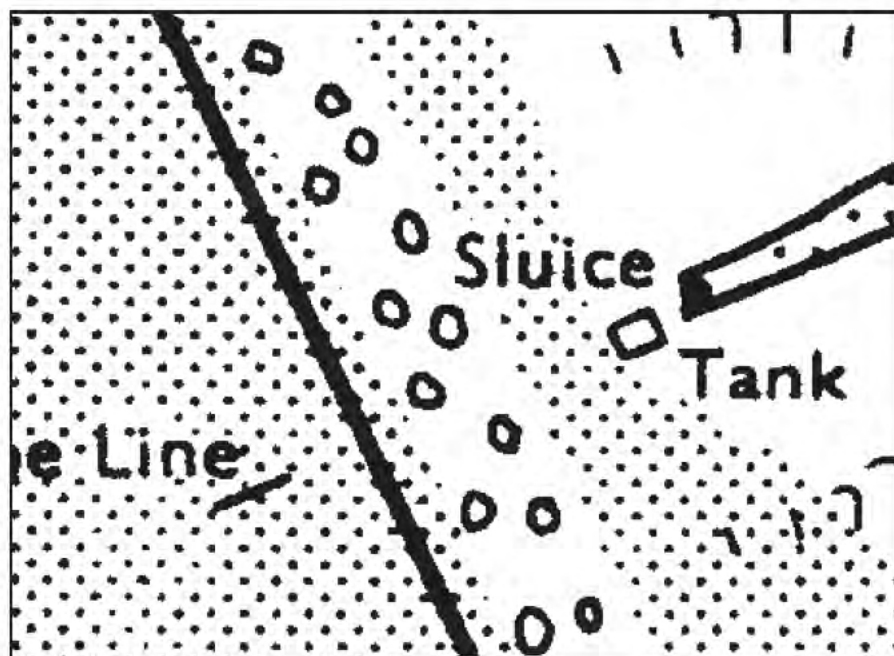


Fig. 3b Afon Dyffryn Gwyn Outfall and tidal gate Ordnance Survey 1:10,000 1976. Not to scale.



Fig. 4 Afon Dyffryn Gwyn tidal gate. The entrance to the outfall, the 19th century pipe inlet on the left.
From the east. Scales 2m long with 20cm divisions.



Fig. 5 Afon Dyffryn Gwyn tidal gate. The apron and access hatch of the 19th century tidal gate entrance.
From the south. Scales 2m long with 20cm divisions.



Fig. 6 Afon Dyffryn Gwyn beach outfall pipes, general view, from the west.



Fig. 7 Afon Dyffryn Gwyn beach outfall from the south. Remains of old outfall pipe incorporated in the rubble breakwater.

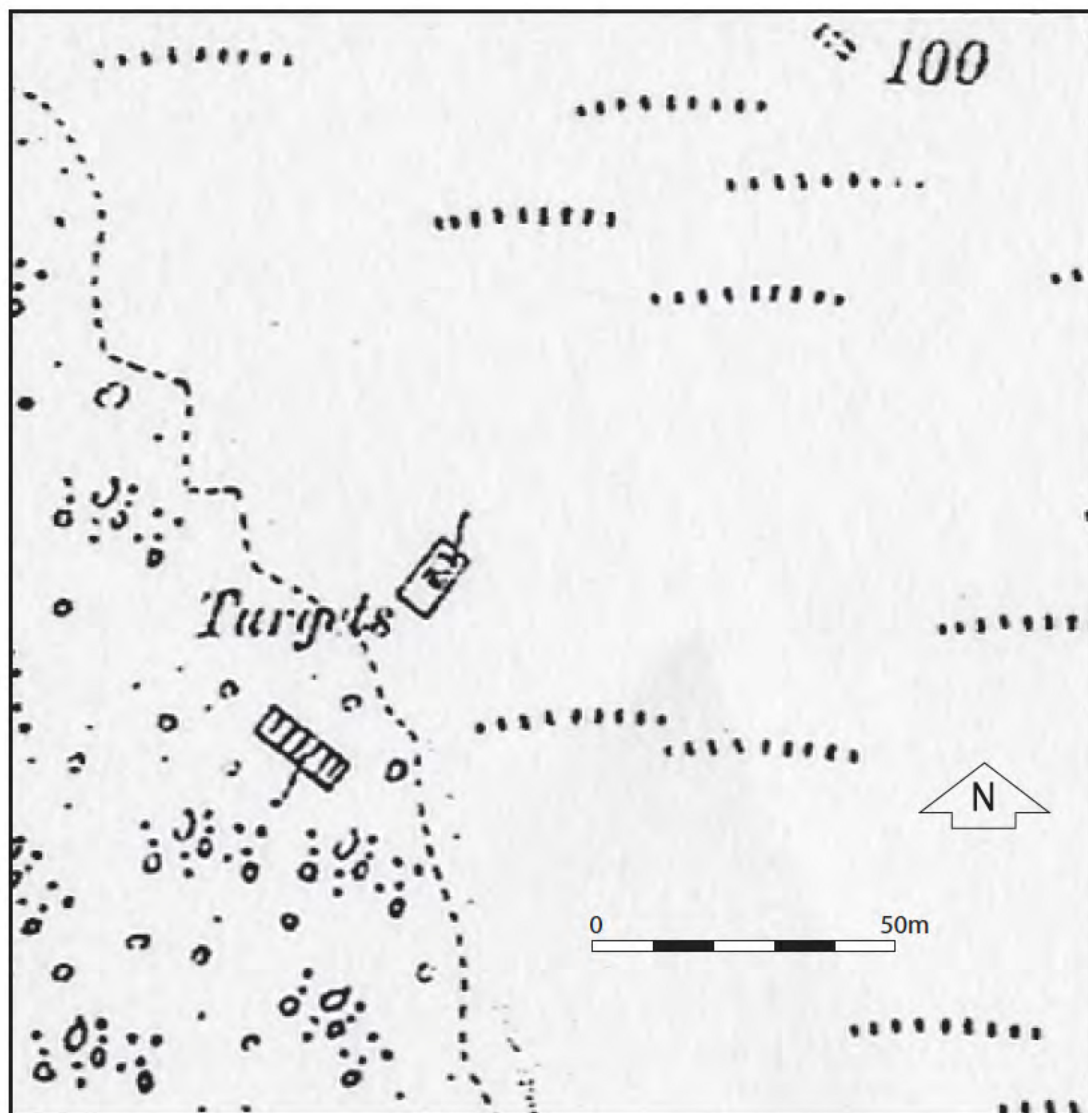


Fig. 8 The 19th century Rifle Range, targets and first shooting butt, enlarged from the Ordnance Survey Second Edition 1:2500 scale map, 1901.

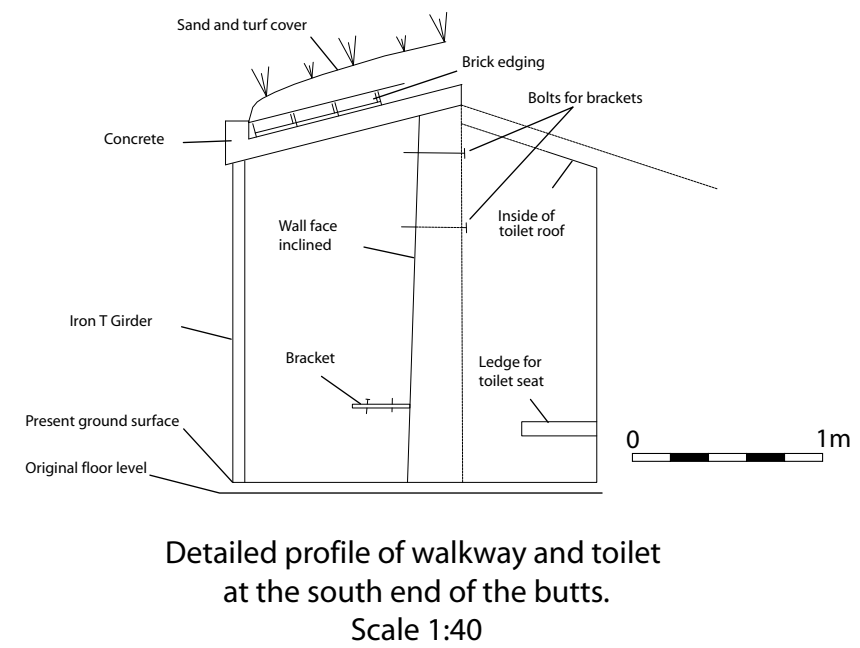
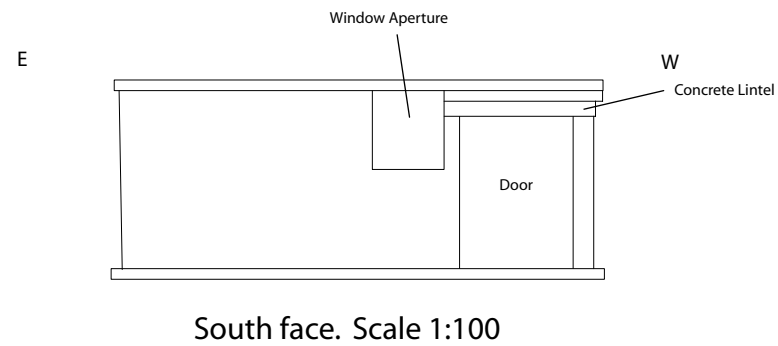
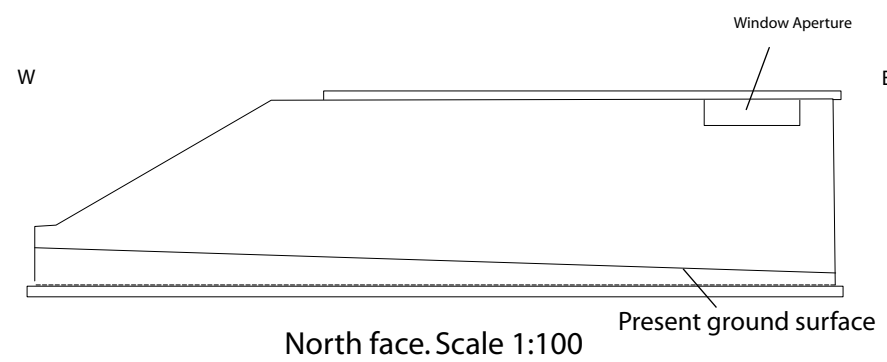
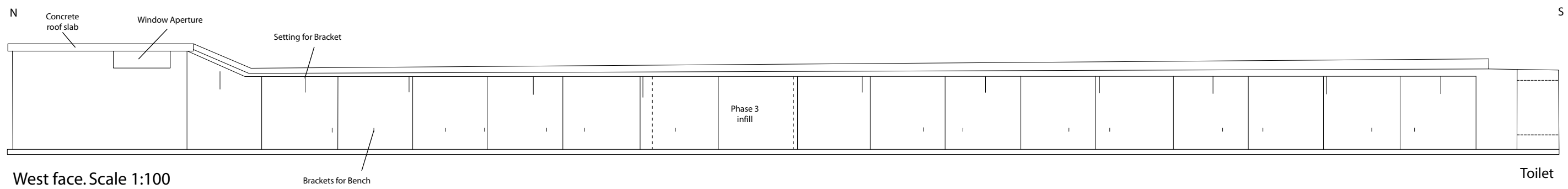
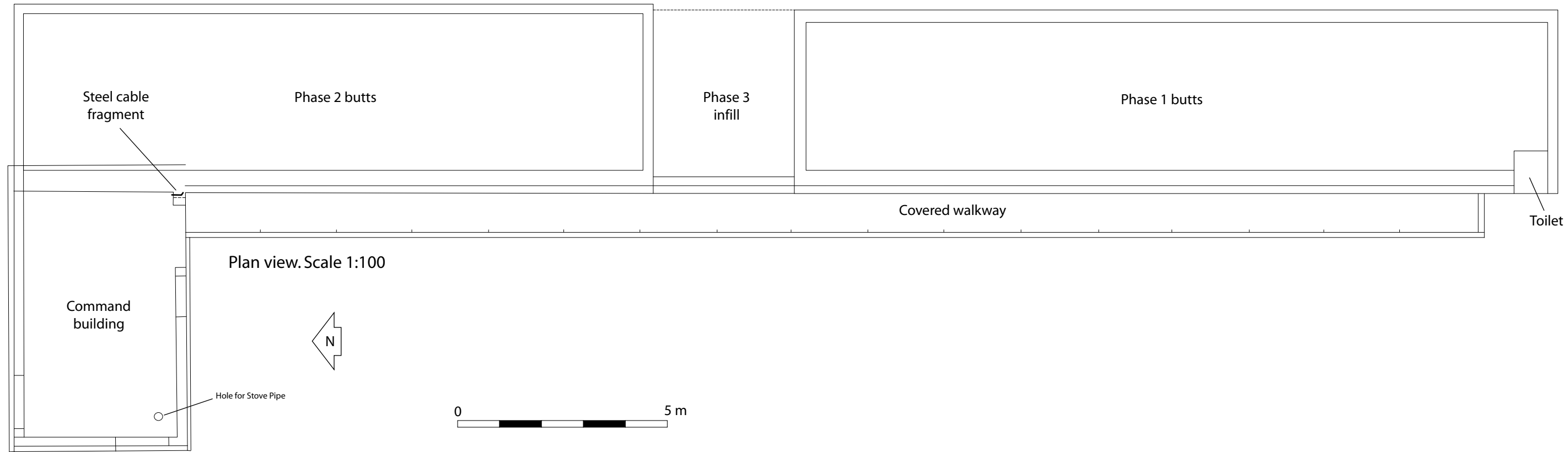


Fig. 9 Rifle range butts and command building. Plan and elevations



Fig. 10 Rifle Range butts and command building. General view of the west side of the building, from the north-west.
Scale 1m long with 20cm divisions.



Fig. 11 Rifle Range butts. View of the covered walkway from inside the command building, from the north.
Scales 2m long with 20cm divisions and 3m apart.



Fig. 12 Rifle Range butts. Bolt ends and stain of cast iron bracket on the rear wall of the Phase 1 part of the butts within the covered walkway.



Fig. 13 Rifle Range butts and command building. View of the north end of the building. Scales 2m long with 20cm divisions and 5m apart.



Fig. 14 Rifle Range butts. The central part of the covered walkway from the west showing the blocking between phases 1 and 2. Scales 1m long with 20cm divisions and 5m apart.



Fig. 15 Rifle Range shooting butt, from the north-west.
Scale 2m long with 20cm divisions.

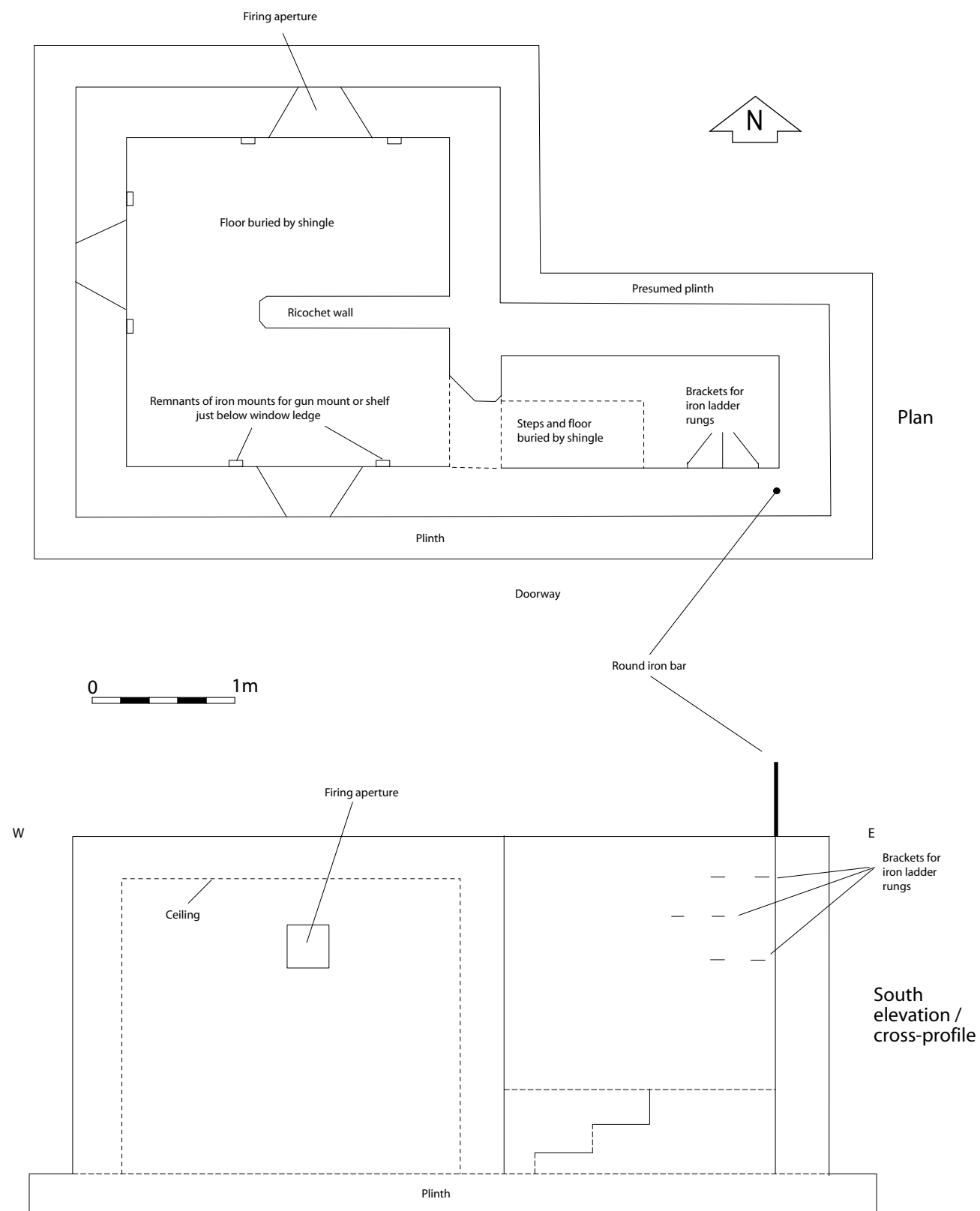


Fig. 16 Pillbox 270343. Plan and South elevation / Cross profile. Scale 1:40



Fig. 17 Pillbox 270343. West side. Scales 2m long with 20cm divisions and 2m apart.



Fig. 18 Pillbox 270343. The rear access compartment showing brackets for ladder rungs.

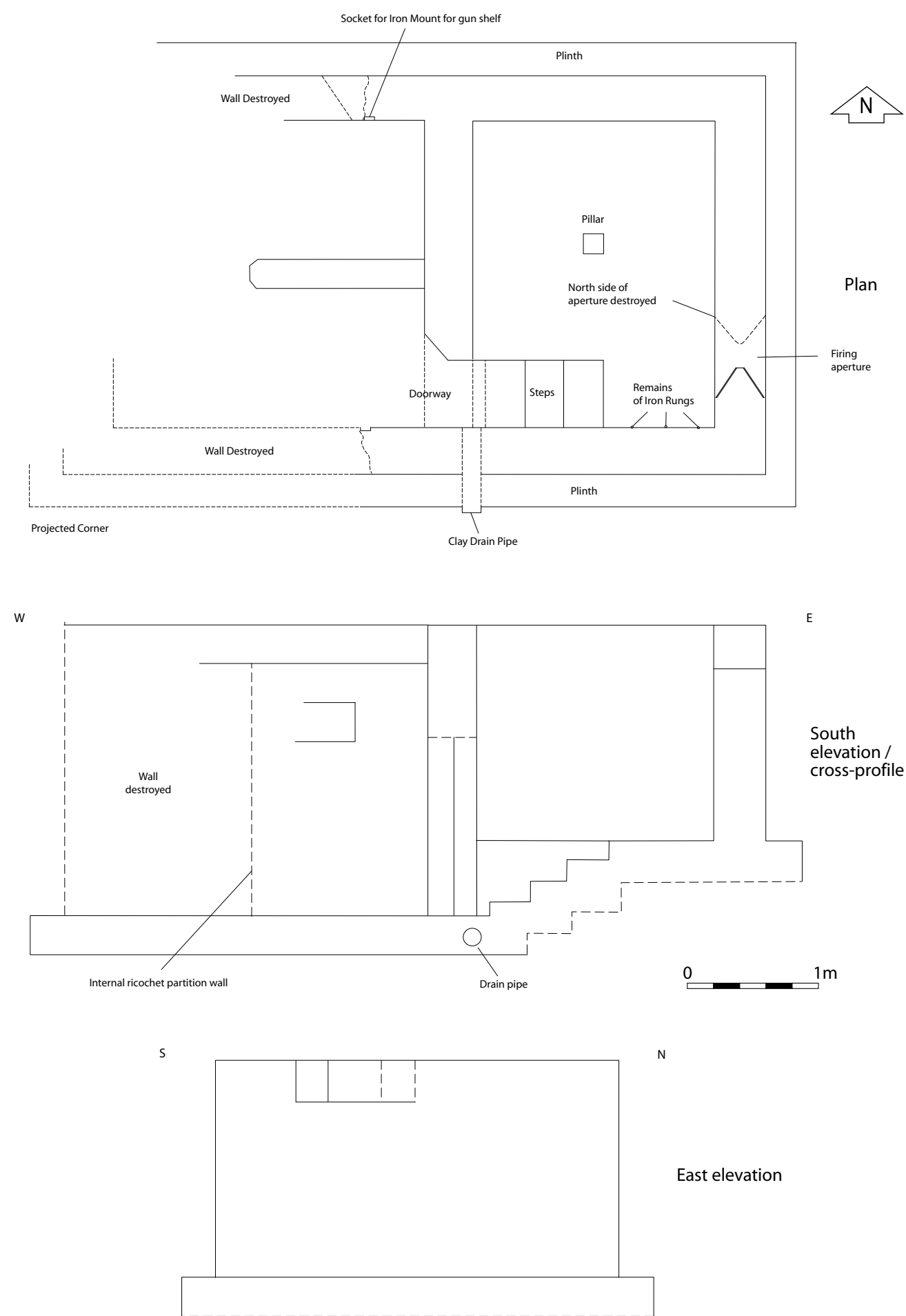


Fig. 19 Pillbox 270340. Reconstructed Plan and Elevations / Profiles. Scale 1:40



Fig. 20 Pillbox 270340. West side showing exposed interior and foundation plinth. Scales 2m long with 20cm divisions and 2m apart.



Fig. 21 Pillbox 270340. East side showing rear firing aperture (in fallen wall fragment) and exposed steel plate reinforcement for roof. Scales 2m long with 20cm divisions and 2m apart.

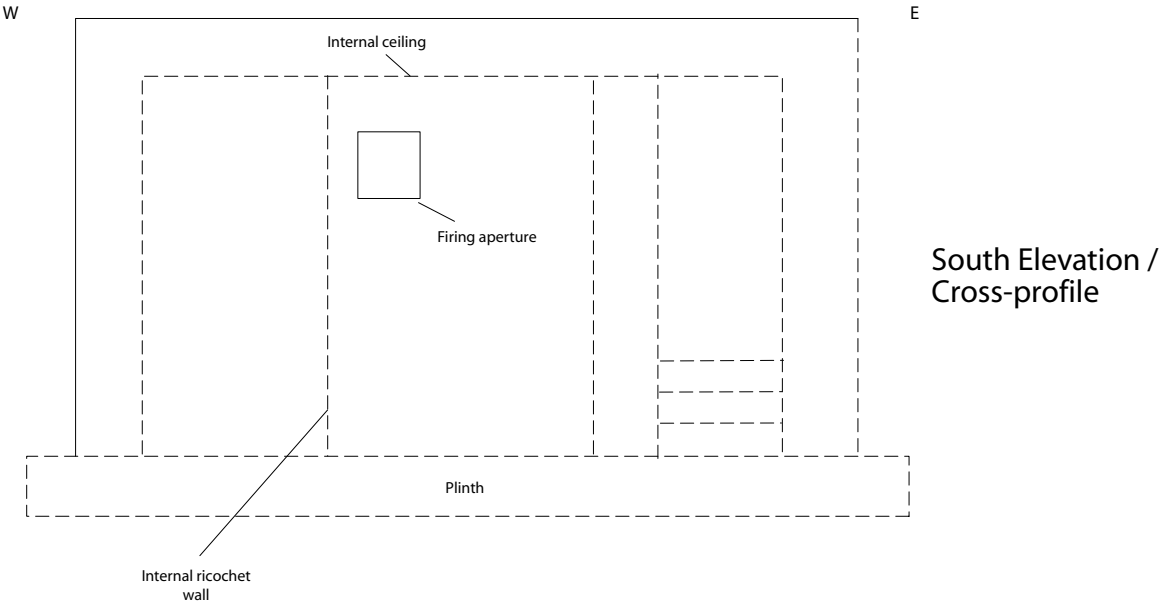
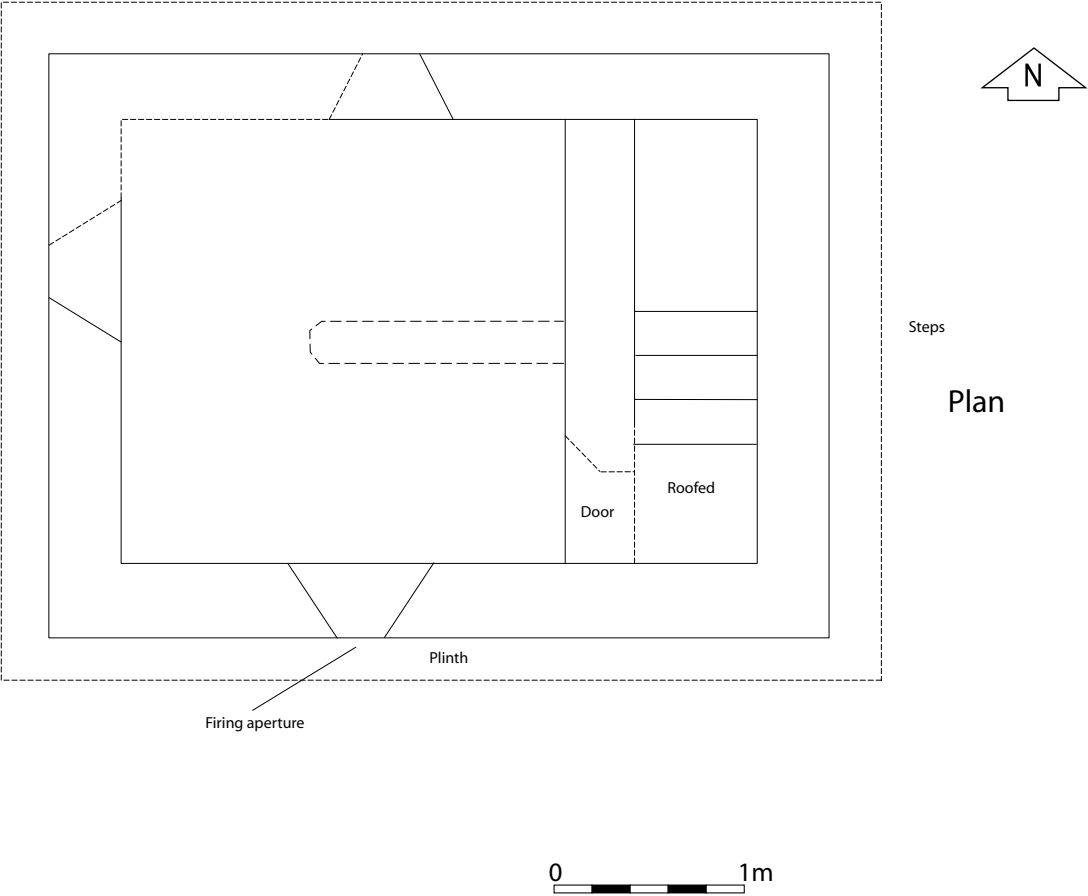


Fig. 22 Pillbox 270339. Reconstructed Plan and Elevation / Cross-profile. Scale 1:40



Fig. 23 Pillbox 270339. North side. Scales 2m long with 20cm divisions and 2m apart.



Fig. 24 Pillbox 270339. South side. Scales 2m long with 20cm divisions and 2m apart.

Appendix 1: Photograph data

Film Number 01-02

<i>Negative</i>	<i>Description</i>	<i>Scale(s)</i>	<i>Facing</i>	<i>Name of</i>	<i>Date of</i>
03	Afon Dysynni outfall, general view of the entrance at the east side	2X2m	NW	GHS	14/09/2005
04	Afon Dysynni outfall, general view of the entrance at the east side	2X2m	NW	GHS	14/09/2005
05	Southern outfall entrance pipe at the east side	2m	NW	GHS	14/09/2005
06	Southern outfall entrance pipe at the east side	2m	NW	GHS	14/09/2005
08	Back of southern outfall pipe at east side showing stone slab capping, brick construction and timber access cover	2m	N	GHS	14/09/2005
09	Outfall chambers general view at the west side	2X2m	E	GHS	14/09/2005
10	Outfall chambers general view at the west side	2X2m	E	GHS	14/09/2005
11	Northern outfall chamber interior at the east side showing wooden flap	2m	E	GHS	14/09/2005
12	Northern outfall chamber interior at the east side showing wooden flap	2m	E	GHS	14/09/2005
13	Northern outfall chamber interior at the west side	2m	W	GHS	14/09/2005
14	Northern outfall chamber interior at the west side	2m	W	GHS	14/09/2005
15	Southern outfall chamber interior at the east side	2m	E	GHS	14/09/2005
16	Southern outfall chamber interior at the east side	2m	E	GHS	14/09/2005
17	Southern outfall chamber interior at the west side	2m	W	GHS	14/09/2005
18	Southern outfall chamber interior at the west side	2m	W	GHS	14/09/2005
19	Rifle butts, command shelter north side, Ranging rods 5m apart	2X2m	S	GHS	14/09/2005
20	Rifle butts, command shelter north side, Ranging rods 5m apart	2X2m	S	GHS	14/09/2005
21	Rifle butts, comand shelter, west side, Ranging rods 4m apart.	2X2m	E	GHS	14/09/2005

22	Rifle butts, comand shelter, west side, Ranging rods 4m apart.	2X2m	E	GHS	14/09/2005
23	Rifle butts, command shelter south side. Ranging rods 4m apart.	2X2m	N	GHS	14/09/2005
24	Rifle butts, command shelter south side. Ranging rods 4m apart.	2X2m	N	GHS	14/09/2005
25	Rifle butts, target walkway series from north to south. Ranging rods 5m	2X1m	E	GHS	14/09/2005
26	Rifle butts, target walkway series from north to south. Ranging rods 5m	2X1m	E	GHS	14/09/2005
27	Rifle butts, target walkway series from north to south. Ranging rods 5m	2X1m	E	GHS	14/09/2005
28	Rifle butts, target walkway series from north to south. Ranging rods 5m	2X1m	E	GHS	14/09/2005
29	Rifle butts, target walkway series from north to south. Ranging rods 5m	2X1m	E	GHS	14/09/2005
30	Rifle butts, target walkway series from north to south. Ranging rods 5m	2X1m	E	GHS	14/09/2005
31	Rifle butts, target walkway series from north to south. Ranging rods 5m	2X1m	E	GHS	14/09/2005
32	Rifle butts, target walkway series from north to south. Ranging rods 5m	2X1m	E	GHS	14/09/2005
33	Rifle butts, target walkway series from north to south. Ranging rods 5m	2X1m	E	GHS	14/09/2005
34	Rifle butts, target walkway series from north to south. Ranging rods 5m	2X1m	E	GHS	14/09/2005
35	Rifle butts, target walkway series from north to south. Ranging rods 5m	2X1m	E	GHS	14/09/2005
36	Rifle butts, target walkway series from north to south. Ranging rods 5m	2X1m	E	GHS	14/09/2005

Film Number ***03-04***

<i>Negative</i>	<i>Description</i>	<i>Scale(s)</i>	<i>Facing</i>	<i>Name of</i>	<i>Date of</i>
01	Rifle butts, target walkway series from north to south. Ranging rods 5m	2X1m	E	GHS	14/09/2005
02	Rifle butts, target walkway series from north to south. Ranging rods 5m	2X2m	E	GHS	14/09/2005
03	Rifle butts, south end. Ranging rods 4m apart.	2X2m	N	GHS	16/09/2005

04	Rifle butts, south end. Ranging rods 4m apart.	2X1m	N	GHS	14/09/2005
05	Command shelter, interior, E wall. Ranging rods 3m apart.	2X2m	E	GHS	14/09/2005
06	Command shelter, interior, E wall. Ranging rods 3m apart.	2X2m	E	GHS	14/09/2005
07	Command shelter, interior, N wall. Ranging rods 3m apart.	2X2m	N	GHS	16/09/2005
08	Command shelter, interior, N wall. Ranging rods 3m apart.	2X2m	N	GHS	14/09/2005
09	Command shelter, interior, N wall. Ranging rods 3m apart.	2X2m	N	GHS	14/09/2005
10	Command shelter, interior, N wall. Ranging rods 3m apart.	2X2m	N	GHS	14/09/2005
11	Command shelter, interior, W wall. Ranging rods 3m apart.	2X2m	W	GHS	14/09/2005
12	Command shelter, interior, W wall. Ranging rods 3m apart.	2X2m	W	GHS	14/09/2005
13	Command shelter, interior, S wall. Ranging rods 3m apart.	2X2m	S	GHS	14/09/2005
14	Command shelter, interior, S wall. Ranging rods 3m apart.	2X2m	S	GHS	14/09/2005
15	Command shelter, interior, S wall. Ranging rods 3m apart.	2X2m	S	GHS	14/09/2005
16	Command shelter, interior, S wall. Ranging rods 3m apart.	2X2m	S	GHS	14/09/2005
17	Rifle butts east side. Series. Ranging rods 5m apart.	2X2m	W	GHS	14/09/2005
18	Rifle butts east side. Series. Ranging rods 5m apart.	2X2m	W	GHS	14/09/2005
19	Rifle butts east side. Series. Ranging rods 5m apart.	2X2m	W	GHS	14/09/2005
20	Rifle butts east side. Series. Ranging rods 5m apart.	2X2m	W	GHS	14/09/2005
21	Rifle butts east side. Series. Ranging rods 5m apart.	2X2m	W	GHS	14/09/2005
22	Rifle butts east side. Series. Ranging rods 5m apart.	2X2m	W	GHS	14/09/2005

23	Rifle butts east side. Series. Ranging rods 5m apart.	2X2m	W	GHS	14/09/2005
24	Rifle butts east side. Series. Ranging rods 5m apart.	2X2m	W	GHS	14/09/2005
25	Rifle butts east side. Series. Ranging rods 5m apart.	2X2m	W	GHS	14/09/2005
26	Rifle butts east side. Series. Ranging rods 5m apart.	2X2m	W	GHS	14/09/2005
27	Rifle butts east side. Series. Ranging rods 5m apart.	2X2m	W	GHS	14/09/2005
28	Rifle butts east side. Series. Ranging rods 5m apart.	2X2m	W	GHS	14/09/2005
29	Rifle butts east side. Series. Ranging rods 5m apart.	2X2m	W	GHS	14/09/2005
30	Rifle butts east side. Series. Ranging rods 5m apart.	2X2m	W	GHS	14/09/2005
31	Rifle butts east side. Series. Ranging rods 5m apart.	2X2m	W	GHS	14/09/2005
32	Rifle butts east side. Series. Ranging rods 5m apart.	2X2m	W	GHS	14/09/2005
33	Rifle butts. Gen. View of north side	-	SE	GHS	14/09/2005
34	View of target walkway from inside command shelter.	-	S	GHS	14/09/2005
34a	Detail of ?seat support bracket (Film 4 only).	-	E	GHS	14/09/2005
34b	Detail of bolts on brackets (Film 4 only)	-	E	GHS	14/09/2005
34c	Ditto	-	E	GHS	14/09/2005
34d	Detail, brickwork with iron stain from bracket (Film 4 only).	-	E	GHS	14/09/2005
34e	Detail of chimney pipe hole in command post roof (Film 4 only).	-	S	GHS	14/09/2005
35	View of first shooting butt.	2m	S	GHS	14/09/2005
36	View of first shooting butt.	2m	S	GHS	14/09/2005

Film Number 05-06

Negative	Description	Scale(s)	Facing	Name of	Date of
01	Pillbox 270343, south face. Ranging rods 2m apart.	2X2m	N	GHS	16/09/2005

02	Pillbox 270343, south face. Ranging rods 2m apart.	2X2m	N	GHS	16/09/2005
03	Pillbox 270343, west face. Ranging rods 2m	2X2m	E	GHS	16/09/2005
04	Pillbox 270343, west face. Ranging rods 2m	2X2m	E	GHS	16/09/2005
05	Pillbox 270343, east face. Ranging rods 2m	2X2m	W	GHS	16/09/2005
06	Pillbox 270343, east face. Ranging rods 2m	2X2m	W	GHS	16/09/2005
07	Pillbox 270343, north face. Ranging rods 2m apart.	2X2m	S	GHS	16/09/2005
08	Pillbox 270343, north face. Ranging rods 2m apart.	2X2m	S	GHS	16/09/2005
09	Pillbox 270343, entrance compartment.		E	GHS	16/09/2005
10	Pillbox 270343, entrance compartment.		E	GHS	16/09/2005
11	Pillbox 270340, north face. Ranging rods 2m apart.	2X2m	S	GHS	16/09/2005
12	Pillbox 270340, north face. Ranging rods 2m apart.	2X2m	S	GHS	16/09/2005
13	Pillbox 270340, west face. Ranging rods 2m	2X2m	E	GHS	16/09/2005
14	Pillbox 270340, west face. Ranging rods 2m	2X2m	E	GHS	16/09/2005
15	Pillbox 270340, south face. Ranging rods 2m apart.	2X2m	N	GHS	16/09/2005
16	Pillbox 270340, south face. Ranging rods 2m apart.	2X2m	N	GHS	16/09/2005
17	Pillbox 270340, east face. Ranging rods 2m	2X2m	W	GHS	16/09/2005
18	Pillbox 270340, east face. Ranging rods 2m	2X2m	W	GHS	16/09/2005
19	Pillbox 270339, south face. Ranging rods 2m apart.	2X2m	N	GHS	16/09/2005
20	Pillbox 270339, south face. Ranging rods 2m apart.	2X2m	N	GHS	16/09/2005
21	Pillbox 270339, west face. Ranging rods 2m	2X2m	E	GHS	16/09/2005
22	Pillbox 270339, west face. Ranging rods 2m	2X2m	E	GHS	16/09/2005
23	Pillbox 270339, north face. Ranging rods 2m apart.	2X2m	S	GHS	16/09/2005

24	Pillbox 270339, north face. Ranging rods 2m apart.	2X2m	S	GHS	16/09/2005
25	Pillbox 270339, east face. Ranging rods 2m	2X2m	W	GHS	16/09/2005
26	Pillbox 270339, east face. Ranging rods 2m	2X2m	W	GHS	16/09/2005



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