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DYFED ARCHAEOLOGICAL TRUST LTD



PORTH Y RHAW

COASTAL PROMONTORY FORT

SOLVA

PEMBROKESHIRE

ARCHAEOLOGICAL EVALUATION

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Summary

A small team undertook an archaeological evaluation during four weeks in August and September 1995, on this multivallate promontory fort, threatened by large scale coastal erosion. This work and archive report has been commissioned by Cadw.

Three trial trenches were cut through the defences. A first (inner) bank, now much reduced in size, appeared to have had internal timber revetment, but any outer face had been lost. A late phase of this bank contained a hearth and associated post hole and a C14 date has been obtained from this of 800BC - 400BC. Results are awaited from pollen analysis of buried soil below the bank. It was confirmed that the third bank continues to the south west, albeit in a lesser form than had been previously recorded. On the eastern side, by the entrance, the third bank showed signs of probably being remodelled, rather than unfinished.

A further trial trench was excavated in the interior. This confirmed the existence of a stone-footed roundhouse, of approximate diameter 8.36m (internal), 10.75m (external). Four post holes were located to the south of the roundhouse. Depths of soil cover on parts of the remaining promontory indicate potentially good results from any further excavation.

A few flints were found which appear to be pre-Iron Age.

Purpose

This site was identified as one of the seven most vulnerable of the 65 Dyfed coastal promontory forts (Crane 1994). This site is the first of these to be evaluated as a result of that assessment. The results of this evaluation are to form the basis of any future rescue-orientated work on this site.

Location

Porth y Rhaw (SM 786242) lies on the coast 3.5km east of St Davids, 2km west of Solva (figure 1), and 0.8km south of the A487 road at Nine Wells.

The nearest public parking is at Nine Wells just behind the dwelling owned by the National Trust; from there a broad footpath descends along the valley to the inlet of Porth y Rhaw. The fort is situated adjacent to the coastal footpath to the left (east) of the inlet.

There are approximately 50 known coastal promontory forts in Pembrokeshire, with 14 of these sites (plus 3 possible) on or adjacent to St Brides Bay (figure 1). The nearest of these are the Gribin (PRN 2780, SAMPE 410), 1.6km to the east and Penpleidiau Camp (PRN 2728, SAMPE 294), 2.3km to the west.

Description

The remains of the fort (figure 9) are on the eastern side of the stream running south from Nine Wells. The two promontories occupied by the fort are undoubtedly the eroded remains of a single much larger promontory, projecting south westward from the north side of St Brides Bay. The surviving promontories are on high ground, sloping up steeply and somewhat separated from the mainland by a minor stream and valley.

The geological structure comprises 35m high sandstone and mudstone cliffs, the bedding layers of which are to a great extent in near-vertical formation. There are two major eroded caves below the cliffs, one near the surviving western end of the first bank, where the cliff top overhangs (figure 2).

Both of the promontories are enclosed by the third ditch and bank, and possibly an outer counterscarp bank, which has been utilised by a much later hedge bank, on part of which the Coast Path now lies. On the western side, between the third ditch and third bank, there are some scoops into the hillside (figure 2).

On the western side the full depth of the defences survive. There are four banks with three ditches between them. The first bank and first ditch are very steep and massive (figure 10). The second bank is far less pronounced and, on the eastern side of the central area of the defences, appears little more than a counterscarp bank.

The second ditch and third bank are both large and steep, and the western ends appear to butt or turn southwards (figures 2 and 3); however, there is an indication that this third bank, or another minor bank, survives along the eastern side of the western promontory. Near the mid point of the defences the second ditch turns sharply northwards and passes through the third bank. East of this the third bank has no inner slope until near its eastern end close to the entrance (figures 2 and 3). There may be an indication of an outer ditch on the eastern side of the entrance, on the mainland side of the promontory, although this may be due to ground slippage, or be an older geological formation.

Although the entry through the outer defences appears to have been eroded away on its eastern side, the entrance still survives through the first bank. There is an in-turn to the western terminal of the first bank. There are indications of former excavation trenches around the entrance on the first and third banks (figure 2).

On the eastern promontory, some 25m inside the entrance, there are indications of a hut circle (OS survey 1966, Rees 1992) (figures 2 and 3). Towards the southern end of the promontory there may be an indication of a low bank, although this may not be man made.

There appear to be remains of late hedge banks over the eastern end of the third ditch and over the western end of the first ditch. There is also a small bank in the central area of the first ditch, which could also be a hedge bank (figure 3).

Site History

A number of flint scatters have been recorded from the fields on the mainland side of the promontories (Grimes 1932; DAT Sites and Monuments Records, Primary Record Numbers 2717, 2719, 2720, 7758, 12254, 12255). There are also 11 bags of flints from Porth y Rhaw deposited by Grimes at Scolton Manor Museum, Haverfordwest (accession number PM.A.79.1), which may be those from the reported sites. Although there is no associated paperwork with these flints it is considered most likely that they are not from the promontory fort itself, but from the mainland. These flints are probably Mesolithic or Neolithic.

In 1808/9 the antiquarian Richard Fenton visited Porth y Rhaw, giving a description of the site as well as undertaking some digging (Fenton 1903, p76-77). It was already recognisable then that much of the site had been eroded. Fenton excavated within the ramparts on the summit of the cliffs, on what is described as an extensive grassy area, by two large stones, and found charcoal, limpet shells and signs of much fire.

Fenton also noted hut sites between the third and second ramparts. This is probably misleading; he may have been describing the slumps or gouges, noted during the 1994 survey, that can be seen on the north western side of the promontory (figure 2). These features may be quarrying, and could be associated with post medieval activity in the valley, possibly the mill site, which only ceased working about 1915 (Warburton 1944, Raggett 1990, p36-7).

In the mid 1800s a descriptive text and plan was published (Jones and Freeman 1856). The hut sites noted by Fenton were not recorded or were no longer apparent. It is difficult to explain the width-to-length ratio of the eastern promontory as shown on the plan, other than by its being considerably wider at that time. However, the plan (figure 4) appears, on present topography, to be to some degree unreliable, as the full southern extent of the western promontory has not been indicated.

A large worked stone found in the third ditch was recorded earlier this century (RCAHM 1925, No 1168, p411). There appears to have been an attempt to make a sizable hole through the stone, which then broke. The stone may have been intended for ritual use. Its present location is unknown.

There are records of paths descending from the fort to the sea, still to be seen in 1906 (Warburton 1944, p10).

In Warburton's "The History of Solva" (1944) the description of Porth y Rhaw fort (p 10) refers to "a shallow circular depression on the summit, 13 feet in diameter, and excavation showed that this was probably a cattle pond". The highest part of the site is now the southern end of the eastern promontory, but this is actively eroding and what was described as the summit may now be lost. Warburton states that about 1800 charcoal and limpet shells were found near the pond, almost certainly a reference to the investigations by Richard Fenton. The excavation may have been carried out by Dr F Oswald (renowned for his works on samian), who assisted with the 1944 history. There are local accounts of Dr Oswald having undertaken work on the site, and the possibility of his having pottery from the site at his house in Solva. At present his papers are being archived at Nottingham University, but there appear to be no records of any work on this site (pers comm. Mulholland N 1995).

Warburton's association of his 'cattle pond' with Fenton's discoveries 130 years earlier may not, however, necessarily be correct; he makes no mention of finding the two large stones referred to by Fenton, or of any finds of his own similar to those recovered in 1808/9. It would seem probable that Fenton's excavation may have disappeared prior to 1944 and that Warburton's own site may have been lost since then (figures 3 and 4).

Reputably the banks of the fort were used for small arms practice, in the Second World War, and a .303 calibre spent bullet was found in the topsoil.

The Ordnance Survey (OS 1973) gave a brief description of the site and a detailed plan, drawn in 1966 (figure 3). Here the third bank's western end is drawn with a turn to the south to the cliff edge; also of note is the probable hut circle on the inside of the entrance. This hut site has also been independently noted at later dates (Rees 1992, Crane 1994).

There are local eyewitness accounts that corroborate the digging of holes on the site 15 to 20 years ago, possibly to look for treasure. These may relate to the former trenches around the entrance on either side of the first bank and immediately to the west of trench 2 (figure 2).

In 1993-4 a reconnaissance of all the coastal promontory forts of Dyfed was commissioned by Cadw and undertaken by the Dyfed Archaeological Trust (Crane 1994). This identified Porth y Rhaw as one of the seven most vulnerable of the 65 sites to be investigated and recorded. In particular it was noted that a long length of the surviving first bank was now critically close to the cliff edge, along with the exposed south western end of the first ditch. Furthermore the western side of the interior appeared to be fissuring parallel to the edge and a cliff fall in this area was probable in the near future. A contour survey of Porth y Rhaw, excluding the southern end of the western promontory, was produced within that report.

The observations of this site have concluded that a large proportion of the interior had been lost before any records were made, and the later records indicate that erosion has continued.

Aims and Objective

The aims of this project were to evaluate a possible hut site on the promontory, and the first defensive bank; to confirm whether the third bank continues further west than previously recorded; if the third bank's eastern end is part of the entrance or formed by erosion; to record the exposed ditch section in the cliff face. It was also considered desirable to complete the survey of the earthworks and to establish permanent survey stations in order to be able to monitor further erosion as necessary. The objective was that the results of this evaluation would form the basis for any future work.

Methodologies and Results

Except for the south western tip of the fort's interior promontory, there is a very thick turf cover with exceptionally springy long grass, up to 500mm tall. As a consequence, geophysical survey is very unlikely to obtain any satisfactory results, especially as there are a number of geological features in the top of the bedrock.

Prior to any excavation, trench areas were photographed, as all excavation had to be reinstated at the conclusion of the work.

Erosion Survey

The survey equipment used was a Geotronics EDM recording onto a Psion Organiser using Map400 software, transferring to Digital Ground Modelling System and both into EasyCAD.

The contour and cliff edge survey undertaken earlier (Crane 1994) was incomplete at its south western extent, and the small depressions of possible former excavation trenches around the entrance, although noted, were not indicated on plan. At that time further survey work was not a consideration and permanent survey stations were not established. Therefore at the beginning of this project the establishment of such stations, together with relating these points to the former survey, completing the plan and tying in to the Ordnance Survey datum, was a priority. A good correlation with the former survey and OS datum was achieved (see appendices).

The cliff edge on the interior was replanned, and in some areas the edge is slightly further out than in the earlier survey, mainly due to the improved weather conditions. The 1994 survey was undertaken during the winter in strong winds, when taking readings right on the edge was considered unsafe. When the full survey of the present cliff edge of the eastern promontory is overlaid onto the Ordnance Survey plan of 1966 (OS 1973), there is evidence of some cliff loss both on the sides and particularly towards the end of the fort interior (figure 3). There

is also evidence of noticeable erosion at this promontory end between the 1994 and 1995 surveys. The cliff edge between the promontories, south of the first bank, shows erosion between the 1966 and 1995 surveys; however this may not be quite as great a loss as apparently indicated, although the 1995 edge was recorded as closely as was practicable. On the western side of the western promontory the cliff appears substantially reduced; however this side of the promontory slopes steeply down, no spot heights could be taken to produce the contours for the extreme edge of this area (figure 5), and this edge was partly estimated.

Exposed ditch section

A section of the first ditch is exposed in the cliff face (figure 2). Direct recording of this exposed face was not possible as the cliff edge is nearly 30 metres high, with a cave below. Instead, a levelled string was put across the top of the section and a 1m x 2m planning frame hung over the exposed ditch fill face. This was then photographed, on colour print film, using a telephoto lens, from the southern edge of the western promontory over 50m away. The photographs were taken at approximately the same height as, but from slightly off a 90 degree angle to the exposed ditch section, due to the cliff edge. The resulting photograph was enlarged and the planning frame grid expanded across. This photograph was then used, with check measurements and viewing with binoculars, to produce a 1:20 scale section drawing (figure 6, archive 226). Any distortions in the drawing are considered to be minor.

Recording and trial trenches

Throughout the four weeks of the fieldwork the weather was extremely hot and dry, with soil conditions far from ideal, being extremely hard within the banks. Damping down of the site was only done prior to some drawings and photographs, and with only minor success. Water supply was limited, as the springs adjacent to the site had all but dried up, with the nearest available source being at the end of the stream to the west, near sea level.

Trench 1 (figure 2)

This was excavated to investigate any structure or phases of the first bank and to examine the anticipated buried soil beneath. The trench was placed in an area that will probably be lost to erosion in the near future. A minor footpath is also causing considerable damage on the bank's outer face (figure 10), and the bank is starting to slump. Furthermore, at this point the upper cliff slopes away before dropping vertically, making it safer to investigate than much of the remaining first bank, which sits above a sheer drop.

A 5.2m by 2.4m area was deturfed along the line of the bank, to examine the eroded bank top and determine if there was a preferred position within this area for the cross section. There were no apparent features. The trial trench was placed at the south west end of this area, 4

metres away from the remaining end of the bank. This trial trench was 15 metres long, from the inner edge of the first bank to the centre of the second bank. It was 1.5m wide on the surface, decreasing in width as the trench sides were battered.

The first ditch

The cut (30) for the ditch (figure 7) was into mudstone bedrock, which at this point is in near vertical planes. The ditch was not bottomed, but is very likely to be similar in profile to that of the exposed section (figure 6).

It is probable that there were initial primary fill(s) in the bottom of the ditch, below the depth excavated. Unfortunately, these possible primary fills could not be seen in the exposed ditch section in the cliff face (see below), due to a spill of debris (figure 6).

The lowest fill (29) seen in the ditch was quite deep, with no apparent lenses. This fill almost certainly predated the major collapse of the bank and was probably a primary fill. This deposit was likely to have been derived from gradual erosion of the upper, shaly part of the bank and ditch sides.

It is possible that this ditch may have been re-cut, with fills 26, 27 and 28 lying in the bottom of this cut. However, these fill layers also appeared to be dipping along the axis of the ditch, and therefore this is not conclusive (figure 7).

Two other fills (27 and 28), given their content of large stones, could be collapse of stone walls from the face or possibly from within the bank. Four layers of fill (23, 24, 25 and 26) possibly represented the collapse of the bank. The north western edge of layer 23 may not have been found.

Above these fills was an upper fill or layer (22) of shattered shale and pea grit deriving, at least in part, from the exposed bedrock on the side of the bank after the collapse of the outer face of the first bank. Some of this layer on the side of the bank could be merely frost shattering of the bedrock. Although this layer (22) was on the same slope alignment as a layer (31) of a similar type of material in the bank, they were not joined and they are not considered to be stratigraphically the same. Unfortunately, at the crucial junction between the first bank construction and the top edge of the ditch fills there is an eroded foot path which has caused some slumping of the bank and cut through part of the stratigraphy.

The upper ditch fill (3) below the topsoil (1) on the inside edge of the ditch was riddled with animal burrows. This material probably derived from the erosion of the upper bank deposits.

The fills of the ditch cut by trench 1 appear similar to those recorded in the exposed ditch section in the cliff face, 7 metres away.

Exposed ditch section

The exposed ditch section in the cliff face (figure 6) was mainly vertical, except for a spill of soil (162) in the bottom of the ditch (161), probably hiding the primary fill(s). The ditch had a U-shaped profile with a rounded bottom and equally steep sides for the greater part of its depth; the internal (south east side) had an inclined lip. There were no signs of a berm or any external palisade trench for the face of the bank. However, the inclined lip was probably partly, or wholly, lost due to erosion which may have removed any evidence of a berm or external revetment features.

The lower two fills (163 and 164) that could be seen above the spill contained soil and small to medium sized angular stones, probably derived from spills of soil from the edges of the banks and the sides of the ditch. Above these was a layer (165), with greater build up on the inner side of the ditch, which was less stony, and may have derived from soil wash from the bank. Above this was a layer (166) of very large angular stone with some soil; this was almost certainly from the first bank and could have been a stone revetment wall. It was just possible that this stony layer (166) could have been in a re-cut of the ditch. Above the stone layer there were two layers of soil (167 and 168), which appeared to represent slow silting of the remaining ditch.

A hedge bank (169, 170), probably of late post-medieval date, appeared to have been constructed across the ditch. This bank may have extended across the second ditch but has now fallen over the cliff edge.

The first bank

The initial layer of the bank (11) was above a buried soil (12), 200mm to 300mm thick, of moderately dark grey brown, very compact gritty clay with iron panning on the upper part. A small sample (no 552) of this material was sent to Lampeter University for pollen analysis. The buried soil was above a subsoil (13) of pale yellow brown silty clay with a few large sub-rectangular stones, which appeared to be geological. This lay above a bedrock of mudstone with near vertical planes.

The initial bank material (11) consisted of very pale buff silty clay loam with a few large random sub-angular and rounded cobbles and a few larger angular stones up to 300mm max. These stones appeared to be concentrated towards the inside edge of the bank, but did not form a wall. Above and on the outer side of the initial bank material (11) was a inclined layer (31) of soil with shattered shale stone and pea grit, which was possibly left exposed at some time. It was not possible to establish the exact boundary of this layer with the one above (10), but it was considered probable that layer (31) was part of the initial bank construction.

On the inside of the bank there were two linear cuts (20 and 21) into the bedrock. Both were considered to be probable slots for revetment for the inner face of the bank

and the cut for 21 was particularly well defined against the bank (figure 7), where it cut the lower bank material (11), buried soil (12) and subsoil (13). However, the south eastern cut (20) may have been partly, or wholly, geological in origin. It was not possible to establish their relationship to each other; their lower fills (16 and 18) were near identical and therefore it is possible that these features were contemporary.

In a similar position much nearer the entrance there was a feature? (figure 2) exposed on the inner face of the first bank, of two upright stones, approximately 0.80m apart. It is possible that the inner revetment was of vertical stones, either with timbers or drystone walling between them.

Cutting the initial bank material (11) was a post hole (5) with packing (6) (figure 7) for a post pipe (7) and fill (8) (not visible on figure 7). The post pipe (7) was 100mm in diameter and at least 580mm deep.

Both the packing for the post hole and the top of the initial bank construction (11) had a considerable area of burning above, almost certainly a hearth (9). It was probably contemporary with the post hole (5). Possibly 50% of the hearth lay within the area of the trial trench. This apparent hearth lens may have derived from heating and baking the top of both the post pipe packing and the surface of the layer of initial bank construction (11).

The use of the hearth was represented by a thin layer (4) containing a large amount of charcoal fragments, within which there were a few minute fragments of copper alloy and at least one piece of coal, probably from the beach. A charcoal sample has provided a radiocarbon date of 800-400BC (see appendices). Layer (4), representing the hearth use, also appeared to be the same as the fill (8) of the post pipe (7), probably falling into the post pipe when the post was removed or rotted. One flint was found within the fill of the post pipe (8).

The next layer of bank material (10) appeared to seal the hearth. It was quite compact with small stones. Above this was a layer (2), apparently much eroded, containing larger angular stones, which had spilt down the outer side of the bank to form part of the upper fill (3) of the ditch; however, layers (2) and (3) did not have a direct stratigraphic relationship.

Layer (2) contained a very corroded copper alloy object (no 401), 20mm long and 2.5mm in diameter, with a slight taper to one end and which possibly has four incised rings around it. No further details could be seen after x-ray and cleaning at the conservation laboratory of the University of Wales College of Cardiff. This object could be modern, as it was close to the topsoil; however, it was found above the hearth (9) which had associated minute copper alloy fragments.

The turf and topsoil layer (1) extended over all of the trench except where it was cut by footpath erosion (figure 7).

The second bank at the north western end of the trench was not investigated.

Trench 2

This was positioned to evaluate the surviving end of the third bank on the west side of the entrance (figure 2), to establish whether this was the original end of the bank or if it had been lost to erosion. The trench was 3.75m by 2.0m, with a later extended annex 3.0m by 0.75m. The original trench was placed along the axis of the bank, with the later annex approximately at a right angle and cutting back the section face eroded by a minor footpath.

The form of the apparent bank makeup layers appeared to indicate that the present shape of the bank end is due to erosion. There were a few burnt stones within these layers, which may be from much earlier activity on the site. Three flint flakes (and one unstratified from backfill) were found in these makeup layers and appear to be pre-Iron Age.

The main trench was not excavated down to bedrock, due to the depth of deposits, the loose nature of the lower fills and the close proximity of the cliff edge. A lower, voided large stone rubble layer (112) was only partly excavated. It may perhaps, given the nature of the deposit, represent the upper fill of a possibly backfilled ditch, on the line of this third bank.

The trench was extended to the north east below the minor foot path in an attempt to ascertain if the side of this possible earlier ditch could be found. Although a possible geological deposit (117) was uncovered, the results were inconclusive. Cleaning off, or monitoring of, the eroding cliff face may resolve this question.

A post hole (114) was found in the terminal of the third bank where it had been cut and eroded by the footpath. The post hole was 350mm in diameter, with stone packing (115), and contained a post pipe of 200mm diameter at its lower part (fill 116). This post hole could possibly be for either a palisade or revetment.

The results from this trench probably indicate that the outer defence around the entrance was remodelled, rather than unfinished (as has occasionally been postulated), possibly to create a "fighting platform" over the former second or third ditch.

Trench 3

This was excavated to determine if the third bank continued along the surviving western promontory (figure 2). This possible bank is being eroded on its south eastern edge and a 6.75m by 1.25m trench was excavated approximately halfway along this side. The results showed a

buried soil (154) sealed below a probable small bank, built of a lower layer (153) of shaly stone fragments with soil, and a larger mixed soil deposit with a few medium stones (152) above it. There was no sign of any outer revetting. It is possible that this minor bank is a counterscarp bank for a ditch now lost over the cliff, perhaps with added turf or topsoil. More excavation may confirm further structure to this bank that may have been missed by this small trench.

Trench 4 (figure 8)

This was positioned within the remaining interior of the fort (figure 2), to verify the existence, or otherwise, of a suggested hut circle (figure 3). This trial trench was positioned along the western side of the promontory, as this side appears to be eroding more quickly, but still far enough onto the promontory to cut the possible hut. The trench was 1.2m wide and extended finally to 22 metres long. A large proportion of the excavated soil was sieved.

In the southern part of the trench there was a layer of soil (513), into which were cut at least four probable post holes (514, 516, 518 and 521), some with stone packing. These post holes were grouped closely together near the southern end of the trench. They differed to some extent in form and may not therefore have been contemporary.

Stone footings for the roundhouse were found (505 and 507), the northern arc (505) of which had well defined edges (figure 11).

Extrapolation of the arcs of the edges of the wall footings gave an exterior roundhouse diameter of 10.75m and internal of 8.36m. The wall footings appeared to be in quite reasonable condition and were constructed of local stone, with the larger stones forming the outer faces. There was a little scatter of stone around them, but nothing to indicate that the walls were much higher, suggesting they were probably the footings for a turf or wattle and daub wall. There were no signs of stake or post holes within the area of the footings, which were probably one or two courses high and were not excavated.

There was a small layer (508) within the roundhouse area, above a possible floor surface. This layer contained fragments of apparent burnt soil but which may prove to be very coarse pottery, briquetage or burnt daub; burnt soil or clay is, however, common on hillfort interiors in Dyfed. The possible floor was not uncovered to any extent and not excavated.

The area uncovered to the north of the roundhouse did not indicate any features, although it was not excavated down to the geology.

Covering the whole area of the trench, including the post holes and wall footings, was a layer of clay loam (502), the upper part of which was very leached, and may have included two separate layers. It was probably the result of podsollic soil formation after abandonment of the fort.

An insubstantial, probably relatively modern, post hole (504), with packing (503), was located some 2.5m to the south of the roundhouse.

The turf (501) on the promontory is particularly thick (up to 250mm) and, where this is not being eroded, it is protecting the underlying archaeology.

During backfilling two flints were found, probably coming from outside the roundhouse to the south.

Discussion

The 1995 Evaluation Excavations

All the flints found on this site appear to be residual (see appendices) and are possibly representative of the Mesolithic to Bronze Age activity in the surrounding area.

Examination of the exposed ditch section (figure 6), the bank and ditch section (figure 7) recorded in trench 1, and the remaining length of the first defences indicate a steep sided ditch and bank, without any apparent indication of a berm between ditch and bank. However one may have been lost due to erosion of the upper ditch edge, although the resulting inclined lip could be the remains of a sloping berm. This apparent lack of berm may indicate that this defence was of a dump type rampart; however, only a very narrow trench was excavated, and a timber element may well have been missed.

There is evidence for revetment on the inner face of the first bank and more extensive excavation may reveal further information regarding the construction of the bank, such as timber lacing or an outer timber and/or stone revetment. The very large rubble layer seen in the ditch could derive from a stone revetment wall or possibly a wall within the bank. The steepness of the ditch sides would appear to rule out a normal glacia defence, which are not found in Dyfed, unless this is a local semi-glacia adaptation, partly influenced by the underlying geology.

The remains of the hearth (9) found in the first bank in trench 1 (figures 2 and 7) may be contemporary with the first bank construction, during or after a hiatus in the initial construction. The alternative interpretation is that there is a second phase of rebuilding the bank after it had eroded a great deal, with the top of the initial bank construction layer (11) being levelled, and the hearth being constructed during this second period. If this latter interpretation is the case, it would appear that very little of the bank remained, as the levelled height is only 500mm maximum.

So far, only one sample from the hearth has been radiocarbon dated, producing a corrected date of 800BC to 400BC (see appendices), therefore it appears that this fort is likely to have its origins, at least, in the early Iron Age. The hearth may have been used, wholly or partly, to work copper alloy, given the fragments found within the

hearth-use layer. The copper alloy object (object no 401), found two layers above the hearth, may possibly have been associated with it; however it could be relatively modern. A few fragments of bone were also recovered from above the hearth (4).

Additional excavation may resolve any doubts about the sequence of bank and hearth and the hearth's use. Further samples could be taken from the hearth for radiocarbon dating. There is also the potential to obtain an archaeomagnetic date. The flint found in association with the hearth is of slightly different material to the others found on the site and may date to the Iron Age.

The internal revetment construction slots (20 and 21) (figure 7) in the first bank could be part of the initial construction phase, although probably after the first layer (11) of the bank was deposited. Internal revetments are almost always found with dump fronted ramparts in Dyfed. However, as with the hearth within the bank, they could be part of a later phase. The fill (15) of the revetment construction slot (21) was relatively loose and possibly humic; this could be due to late, even post medieval robbing of any stone construction. The lower fill (16) in the revetment slot 21 produced a few teeth, probably sheep.

The simplest interpretation of the first bank's construction is that it was of single phase, with a hiatus when the hearth was constructed, and the internal revetment was part of the initial construction. However, it must be noted that little of the first bank remains, there was also some animal disturbance and the conditions of excavation were very dry.

Trench 2 confirmed that the present shape of the end of the third bank is due to erosion. The post hole found in the eroded section of the minor footpath could form part of an entrance or end-of-bank structure. This part of the third bank may lie over an earlier ditch and it is considered that the defences have probably been re-modelled.

The continuation of some form of third bank on the western promontory parallel to its present south eastern cliff edge was confirmed by trench 3 (figure 2). The underlying cliff appears stable and, as this is now a relatively low earth bank with no apparent additional construction, no further archaeological action appears necessary, other than monitoring.

Excavation on the promontory in trench 4 (figure 2) confirmed the existence of the suspected roundhouse. It is unlikely to be the 'small depression' of 13ft diameter referred to by Warburton. The structure of the roundhouse footings was well defined with good edges, in comparison to those found across the bay (figure 1) at Tower Point Rath (PRN 2618, SAM PE 281) (Wainwright 1971). These footings were probably the base for a turf wall on which the roundhouse's rafters would have rested. The small internal area uncovered by the trench

was not excavated to any extent, to maintain the archaeological integrity for any further, more extensive investigation. There were some signs of occupation activity in a thin layer above a possible floor level in the roundhouse.

The four probable post holes found at the southern end of this trench have stone packing; however they differ in form from each other, do not appear to be associated, and may therefore not be part of the same structure or even contemporary.

Erosion and Damage

The site has now been fully surveyed and survey stations established to enable accurate re-measurement of the cliff face to assess erosion; however, particularly on this type of geology, erosion is likely to be severe and irregular, rather than steady and gradual. The most active areas of cliff erosion are still basically as those outlined before (Crane 1994), but with the addition of the area at the south western end of the eastern promontory, and the possibility that the roofs of the two major caves below the monument could collapse (figure 2). These caves have not been investigated as part of this work.

The survey work and previous accounts of the site show that a large proportion, up to 80% or more, of the fort's interior has been lost (figures 3 and 4). The present internal area is 0.1155 hectare (0.28 acre), but was possibly in the region of at least 0.58 hectare (1.5 acre), and may have extended more extensively to seaward. Probably as at many other of these promontory forts, the internal area should be re-estimated before comparisons are made (Hogg 1965).

There does appear to be a build up of soil on the interior, probably protecting the archaeology below. Some damage has been done to the site by unofficial diggings, where the remains of the trenches can be seen around the entrance banks (figure 2). More of this activity may have taken place on the promontory that cannot be seen. It is evident that excavations have taken place on the summit of the promontory (Fenton 1903, Warburton 1944); these areas may now have been lost, but further excavation may show whether the remaining areas have been archaeologically damaged.

Active erosion can be seen on the cliffs where the wind and salt spray are removing the vegetation and soil cover. Erosion of the tip of the eastern promontory can also be seen to have continued between the 1966 and 1995 surveys (figure 3). The western side of this promontory appears to be fissuring parallel to the cliff edge and part of this is likely to shear away in the near future, erode and become too dangerous to investigate. The other area that is particularly vulnerable is the surviving western end of the first bank and possibly some of the first ditch (figure 2). It is also considered that parts of the length of the first bank are threatened and likely to be lost or become very dangerous.

The geological make up of the two promontories, the major caves below, and the exposure to the elements, especially the breaking seas on the lower parts of the cliffs, make any prediction of areas of collapse impossible. The inner landward parts of the banks are not immune from slumping, as these may be built on steep slopes or backfilled ditches. The banks appear to have suffered to a great extent in the past from animal burrows, probably mostly rabbits, but this activity now appears to have diminished.

This site, along with a considerable proportion of the other coastal promontory forts of Pembrokeshire, is visited by large numbers of people, walking the adjacent coast path. At this site in particular there is a risk of a careless match or cigarette end setting alight to the ground cover in unfavourable conditions, which would almost certainly lead to swift and drastic erosion of the topsoil. Consideration should be given to implementation of a rapid archaeological response in these circumstances.

Minor footpath erosion is evident on the outside of the western end of the first bank, adjacent to trench 1 (figures 2 and 10). Another footpath, on the exposed eastern end of the third bank by trench 2 (figure 2), adjacent to the cliff edge, has eroded the surviving end of the bank. After excavation this area was landscaped and turfied for protection. Warning signs were placed at either end of this area, as it is very close to the crumbling edge of the cliff. Within a few days of leaving the site both signs and one post had been removed and some of the replaced turf thrown about. The Pembrokeshire National Coast Park Footpath Officer now has the replacement of these signs and a slight re-routing of the coast path in their work programme, to discourage visitors from using this eastern edge of the promontory.

Pembrokeshire Coastal Promontory Forts

There has been little progress in our knowledge of Pembrokeshire coastal promontory forts since the excavation at Tower Point Rath (PRN 2618, SAM PE 281) twenty five years ago (Wainwright 1971). Excavation at Dale Point (PRN 2986, SAM PE 322) (Benson and Williams 1987) has shown this site to have its early beginnings in the Late Bronze Age, which may also be the case at Tower Point Rath. Extensive excavations, recovering a wide range of material, were undertaken by WF Grimes on a number of coastal sites but little has been published.

Sites of this type have so far produced few objects. Some occupation debris has been found at Tower Point Rath, St David's Head (PRN 2624, SAM PE 071; Baring Gould 1899) and Black Point Rath (PRN 3128, SAM PE 265; Nash-Williams 1929) (figure 1). The lack of finds, along with so little investigation of the interior of these coastal forts, makes detailed interpretation of their functions impossible. A few of the sites, as at Porth y Rhaw, have

a nearby water source, but this does not appear to be a prerequisite. These sites are defensive, some with substantial banks and ditch systems, and all except Wooltack Point (PRN 2940, SAM PE 323), at the southern end of St Brides Bay (figure 1) now enclose a relatively limited area.

Few huts have been identified within these forts, although this may not be a true reflection of the below-ground evidence; four-post structures, for example, are not apparently represented on present evidence, despite their frequent appearance on extensively excavated Iron Age defensive settlements. The scale of the defences for apparently so few (housed) inhabitants would seem to indicate that these sites were of some considerable importance for an individual or family. An exception to this could be Gateholm Island (PRN 2929, SAM PE 180), situated 2km south east of Wooltack Point. This site was probably originally a promontory fort but is now a tidal island; however the large number of huts (Lethbridge and David 1930) could be post Roman.

Some more recent work has been undertaken on similar types of sites in Cornwall (Smith 1988, Herring 1994); further, more extensive, comparative study of these and other sites on the Irish sea coasts may prove beneficial, although there is still little artifactual or dated structural evidence with which to work.

There is little proof of these type of sites having any contemporary ritual aspects. There is nothing, to date, to suggest that any of the material evidence is of anything more than a personal religious nature and there is no evidence indicative of these sites being either wholly or partly ritual centres.

Cunliffe considers that promontory forts as a whole are probably not very distinct, economically or socially, from other types of enclosure (1978, p208). Coastal forts, however, are in a unique situation to exploit the ecotone between the coastal and inland areas; they have the potential of a mixed farming economy (Benson and Williams 1987) and could take advantage of the sea and sea shore, including the possibilities of coastal trade. Salt is likely to have been an important Iron Age resource and control of its production and trade could have been of considerable significance, although there is no evidence for this as yet in West Wales. All of these aspects are likely to have enhanced the wealth and status of the owners of these forts, which may be reflected in the larger scale of many of the coastal promontory forts in comparison to other inland forts in Dyfed.

Suggested Further Action

The remains of the first bank to the south of trench 1 (figure 2) should be totally excavated (within safety limits), to rescue the information from the rest of the hearth and possibly gain an insight into any revetment structures.

The rest of the first bank should be closely monitored and, where possible, cleaned and recorded whenever it is breached by cliff erosion. Other action on this to be taken as necessary.

More information on the entrance may be obtained from observation of the cliff face as it erodes, possibly with small scale excavation before areas become critically unsafe. Other than the area to the east of trench 2 (figure 2) this area appears to be relatively stable.

Monitoring of the slowly eroding turf and bank edge should be undertaken on the third bank around trench 3 (figure 2). The most archaeologically sensitive area is where this bank continues on from the turn, or butt, as recorded on the Ordnance Survey 1966 plan (figure 3).

Within the fort's interior, the southern end and western side of the eastern promontory should be 'area' excavated, as these regions are likely to fall away, or lose their protective topsoil. It is desirable that not only the western, threatened, side of the roundhouse should be excavated, but that the whole of this structure should be examined. Should other structures or features be revealed in the course of this work, excavation strategy should be reviewed as to whether they should be dealt with in their entirety or, if only on the edge of the threatened area, be left alone.

Research work on the defences, such as a series of profiles, could easily be undertaken. Any more extensive work involving excavation, not only on the defences but also the less vulnerable parts of the interior, would need to form part of a more detailed research design.

It is possible that the defences of this fort could be breached from the caves below. The extent and height of these caves needs to be obtained, to ascertain the threat to the overlying archaeology, the safety of any projected work above, and any potential danger to the public.

Conclusion

There has been little work undertaken or published on Pembrokeshire promontory forts in the last 25 years. This evaluation has achieved its objectives and demonstrated the existence of important archaeological information within the areas examined. Additionally an early Iron Age date for Porth y Rhaw fort has been obtained. It is considered that further investigations of the areas identified as most at risk from cliff erosion are necessary. This would recover valuable information, probably with carbon dates relative to the fort's construction and use. The rescue of this vulnerable resource will add considerably to our understanding of this important type of site, enhance further research and our understanding of the British Iron Age.

Acknowledgements

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Archive Deposition

Final deposition with finds is likely to be at Scolton Manor Museum, Haverfordwest. Copy of archive report and list of archive RCAHMW, Aberystwyth.

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Appendices

Record Numbers used

Site Code (excavation): PRN 30942

Site Name: Porth y Rhaw

Year of excavation: 1995

No	Type	Division
1-31	Context	Site Sub 1
101-118	Context	Site Sub 2
151-156	Context	Site Sub 3
161-170	Context	Site Sub 7
201-226	Drawing	Site Sub 1-7
301-396	Photo	Site Sub 1-7
401	Object	Site Sub 1
501-523	Context	Site Sub 4
551-552	Sample	Site Sub 1

Reinstatement

There have been problems with the reinstatement on the steepbanked areas, partly caused by the extreme weather. In any future work these areas should be avoided, not reinstated or more time will need to be spent on the backfill and pinning down of every piece of turf.

The recommendation to PCNP to slightly alter the coast path through the hedge bank, adjacent to the fort entrance, to slow down the erosion on the end of the bank has not as yet been taken up (15/1/96).

Survey Notes

Levelling in of station A2 to Ordnance Survey datum was done using EDM and level with separate runs from the bench marks on Nine Wells National Trust building and the walled garden at Llanunwas. A difference of between 29mm - 34mm was found and a mean of 35.480 was taken as the height to use for A2. Other stations heights on the site are relative to A2.

Good correlation between 1994 and 1995 grids, probably within 100mm. Grid point discrepancy when measured on site between A and A2 only 1mm or so out, although in height difference possibly a little more (not checked). Checked on site: distance from A2 to A calculated as 1.357m and was found to be within 1mm.

Cliff edge also good correlation with edges on main promontory between DAT's 2 surveys. Possible that the far southern end of the promontory has eroded by 1.5m, however, this could be due to survey differences in what was chosen as the edge.

"Permanent" grid points established on site in 1995. These consist of iron rods of up to 500mm driven into the ground.

A2 250.000E 500.000N 35.480^

B2 249.995E 470.046N 36.418^

C2 262.870E 516.960N 32.577^

Y 125.041E 462.736N 28.684^

X 175.572E 485.663N 32.389^

Sighting marks from point A2

To SE corner Llanunwas house 48 01 42

To SE corner Brick building at Llanunwas 38 39 44
(Station Z)

To centre of electricity pole east of Croftufty

Trench 1 TBM 175.555E 485.674N 32.388^

Trench 1 grid point 1 175.700E 485.201N 32.562^

Trench 1 grid point 2 173.585E 483.085N 32.532^

Trench 1 grid point 3 172.078E 481.567N 32.435^

Trench 2 TBM 262.889E 516.980N 32.709^

Trench 2 other grid point 267.437E 514.540N 31.250^

Recalculated 1994 grid points onto 1995 grid

A 500.000E 251.346E 200.000N 500.176N 100.000^
35.433^

B 499.999E 240.595E 146.149N 146.149N 102.676^
38.109^

C 506.100E 261.592E 221.330N 519.857N 96.604^
32.043^*

D 471.480E 226.730E 216.740N 522.273N 93.137^
28.564^*

E 462.230E 218.656E 197.100N 503.875N 98.786^
34.219^

F 427.300E 173.789E 168.340N 483.665N 97.075^
32.508^

G 403.680E 151.433E 172.290N 492.250N 93.338^
28.771^

* Recorded in 1995 on pegs which were slightly loose.

Difference between 1994 and 1995 grids on points D and C was 23mm. This was split to 12mm before recalculating grid points A,B,E,F & G.

Promontory area:

Remaining 0.1155 hectare (0.28 acre), probably originally within the region of at least 0.58 hectare (1.5 acre), results in 20% remaining.

Lithic Material: Dr A David

There are 10 lithic items altogether: 9 of flint and 1 of shale. The pebble of shale and two of the flints (all from context 503) show no signs of modification and are probably not artifacts.

The remaining flints are flakes or fragments of flakes of little diagnostic value - with the exception of one unstratified piece [523] which appears to be a flake from a polished implement, presumably (but not certainly) an axehead.

Lithic scatters are common in the vicinity of Porth y Rhaw and diagnostic types from the early Mesolithic to the Bronze Age are represented at various localities nearby. It comes as no surprise that flints occur on the site of the promontory fort, where they probably pre-date the Iron Age activity. Late Mesolithic material seems to predominate amongst local cliff-top scatters, although none of the pieces from the recent excavation obviously falls into this category. A neolithic or later presence, at least, is suggested by the polished fragment.

The flint raw materials and their physical state (variously patinated and coloured) is typical of local flints most of which are derived from beach pebbles. None of the 10 pieces appear to be burnt.

Radiocarbon Date:

Undertaken by: Radiocarbon Dating Laboratory, Department of Geology, University of Wales, Swansea, Singleton Park, Swansea SA2 8PP

No SWAN-101 Porth y Rhaw

Charcoal from hearth construction on first bank (sample 551).

Laboratory note: The sample contained a single large lump of coal. Only the coarser lumps of charcoal were selected and used to obtain the date.

Date 2470 ± 70 . This is given in years BP (before 1950), and uncalibrated. Based on the NBS standard, and has been calculated using the Libbey half-life (5568 a) as is standard practice.

Result has a $\delta^{13}\text{C}$ correction applied.

Calibration using the CALIB Rev 3.0 programme (Stuiver and Reimer 1993) gave the following results (subject to confirmation):

Calibrated ranges obtained from intercepts

1 Sigma 785-402 BC

2 Sigma 806-378 BC

Calibrated ranges obtained using the probability method

1 Sigma 759-412 BC

2 Sigma 792-394 BC

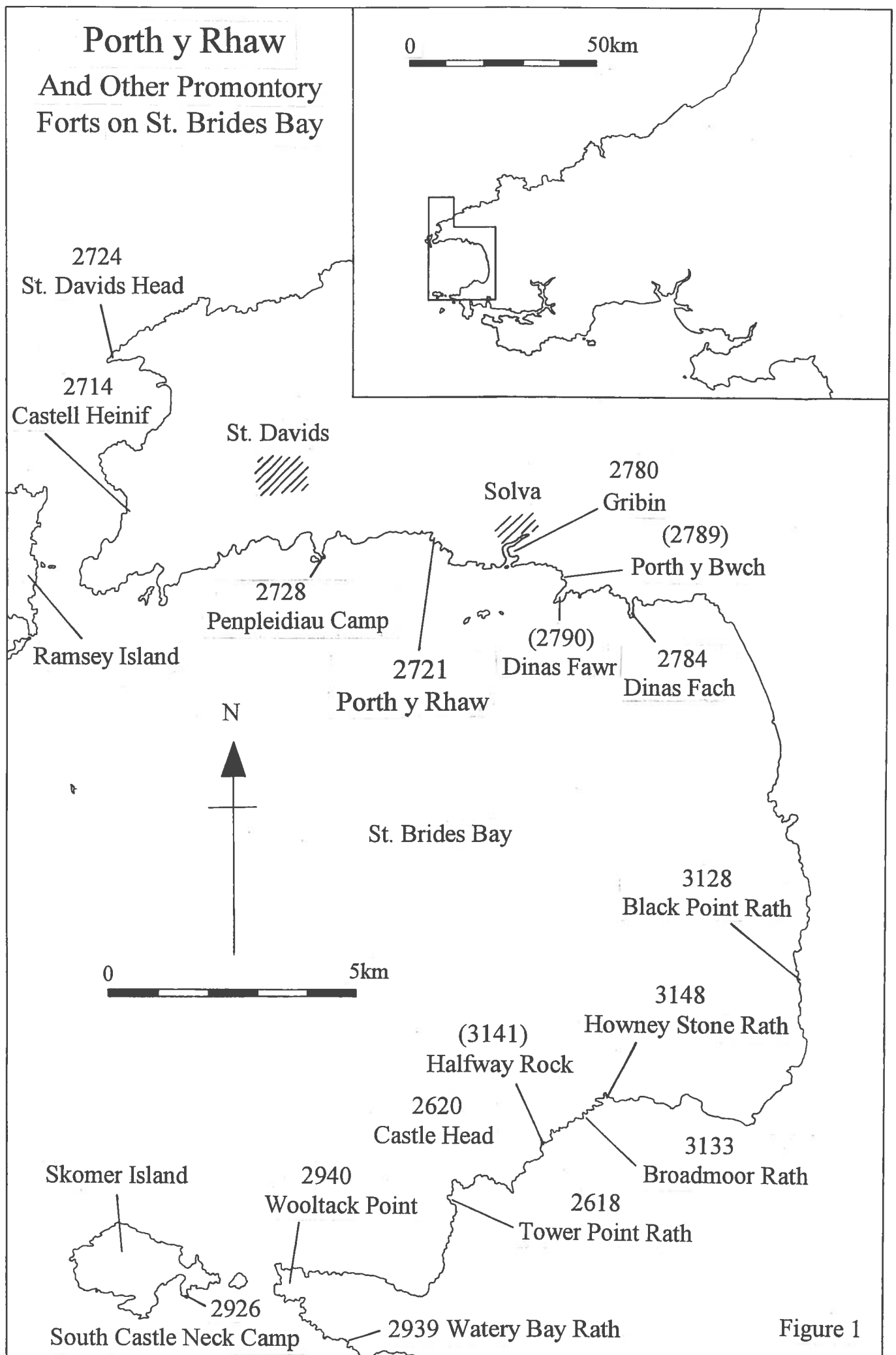


Figure 1

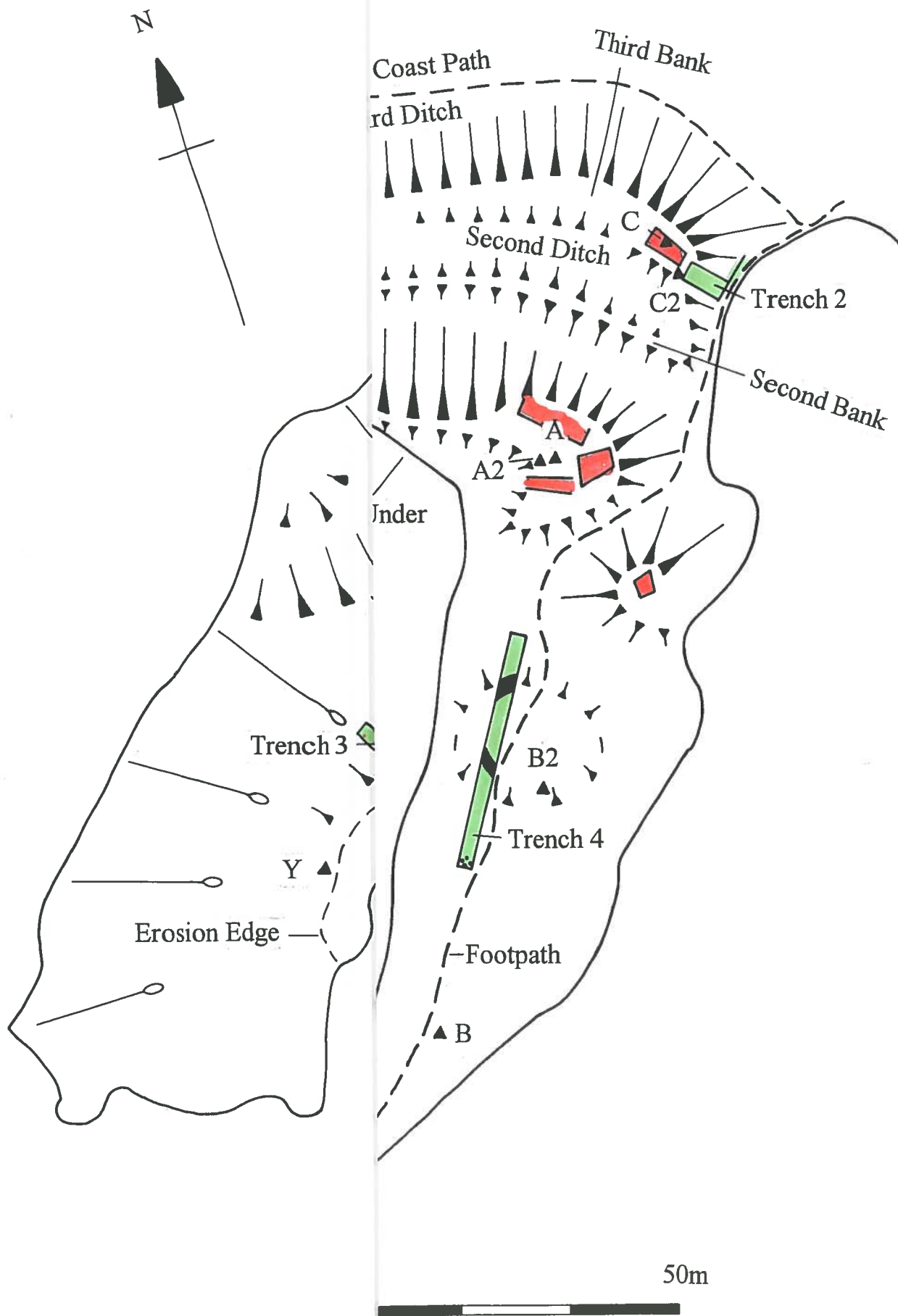


Figure 2

Porth y Rhaw O.S. 1966 Survey and 1995 Edge

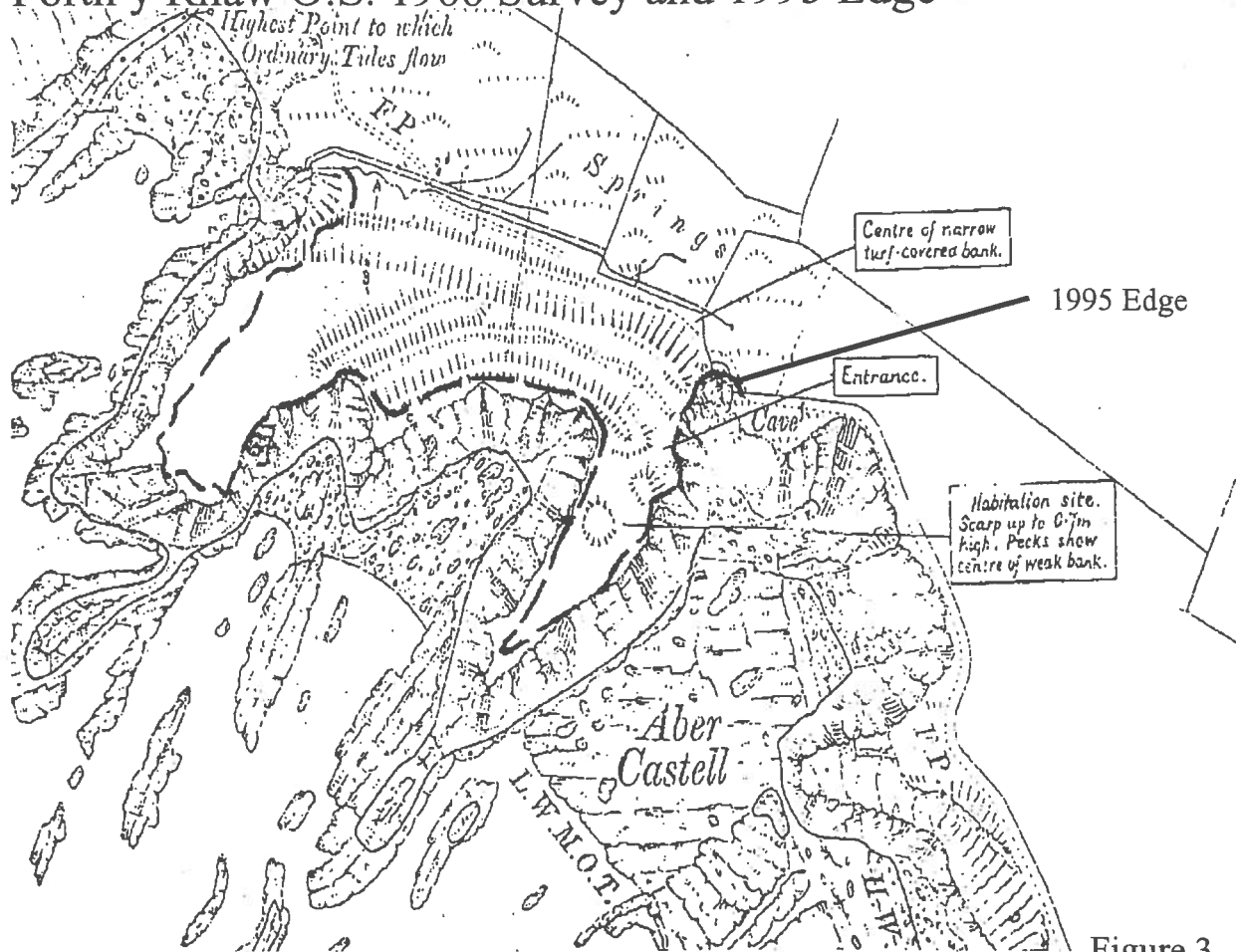


Figure 3

Porth y Rhaw From Jones and Freeman 1856

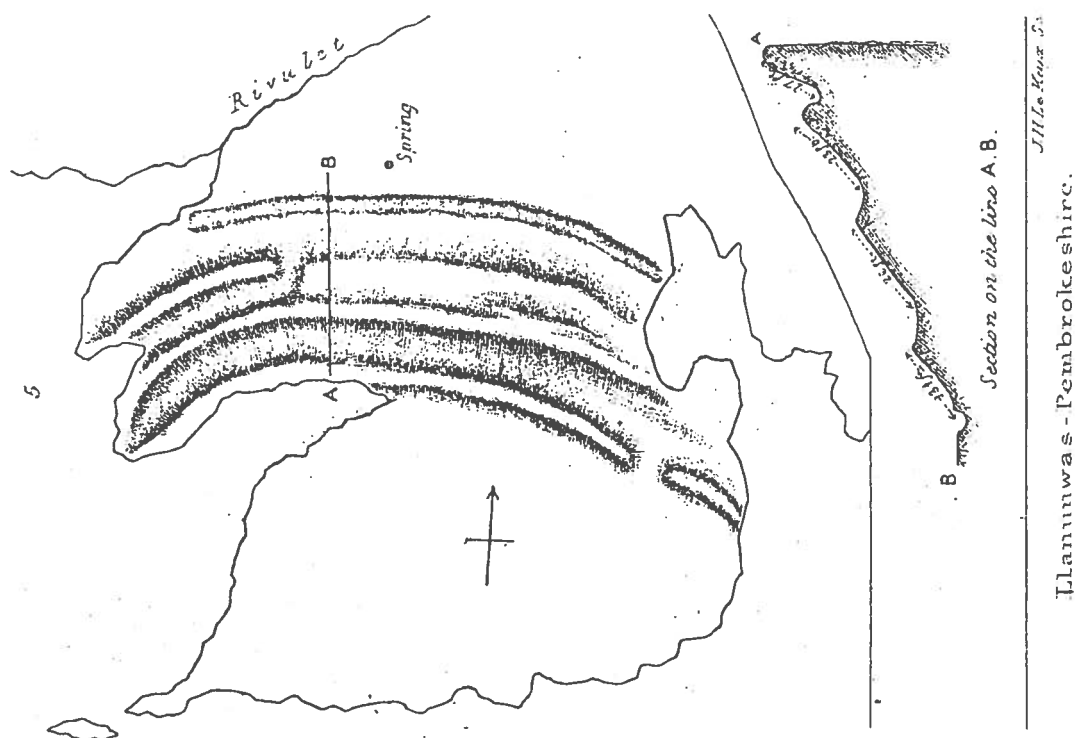


Figure 4



Figure 5

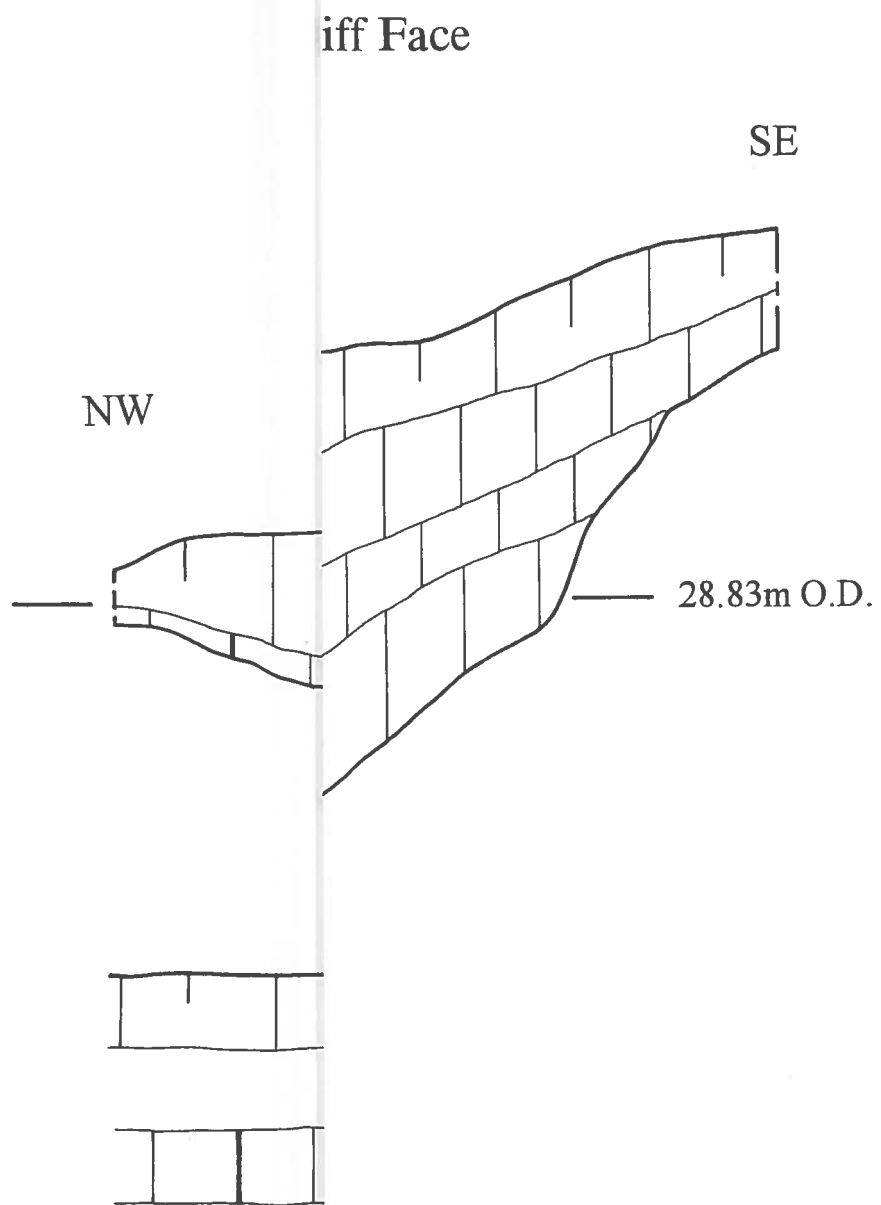


Figure 6

Porth y Rhaw 1995

Trench 1 Main Section (Drawn Reversed)

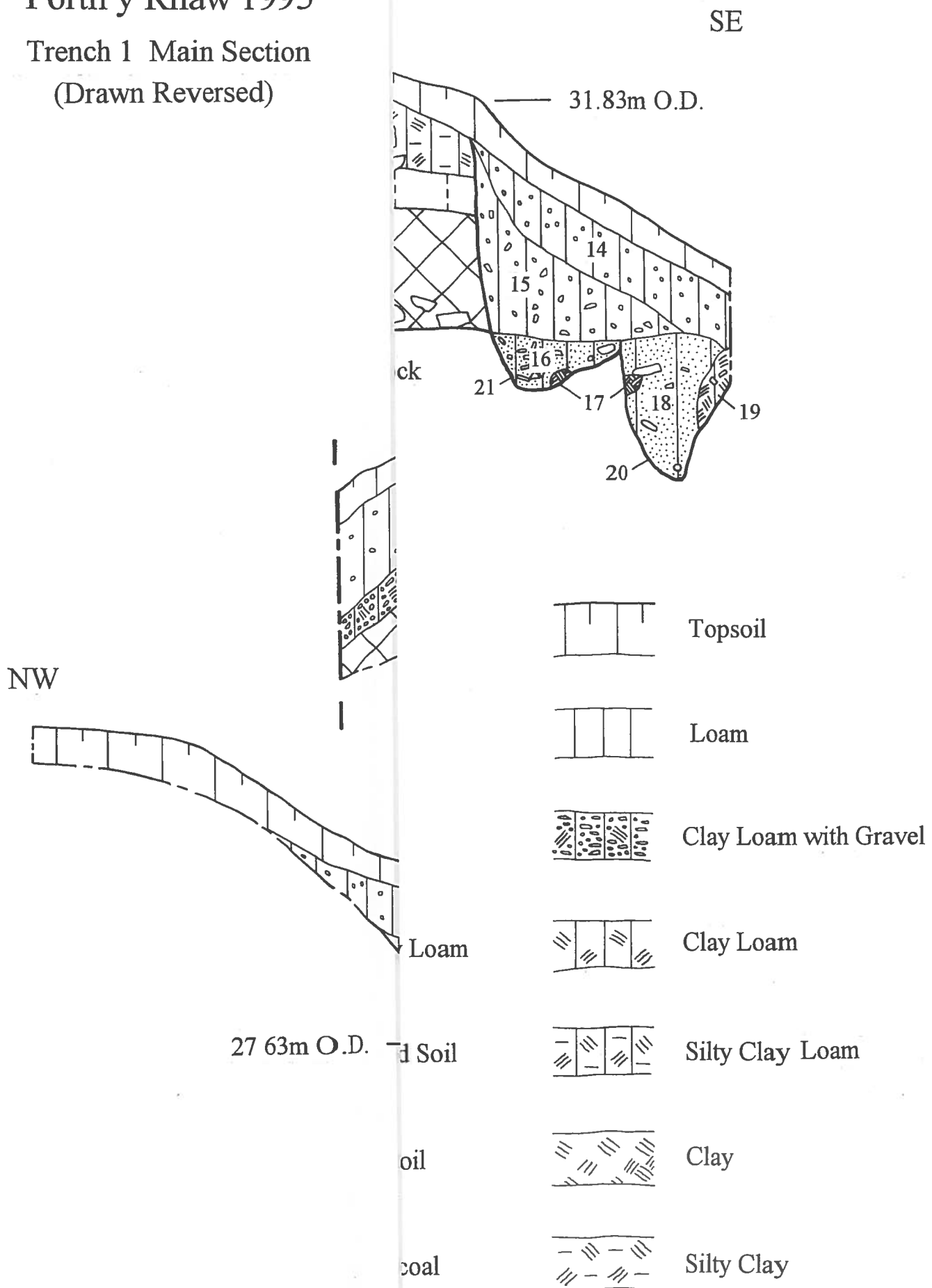


Figure 7

Porth y Rhaw 1995 Trench 4

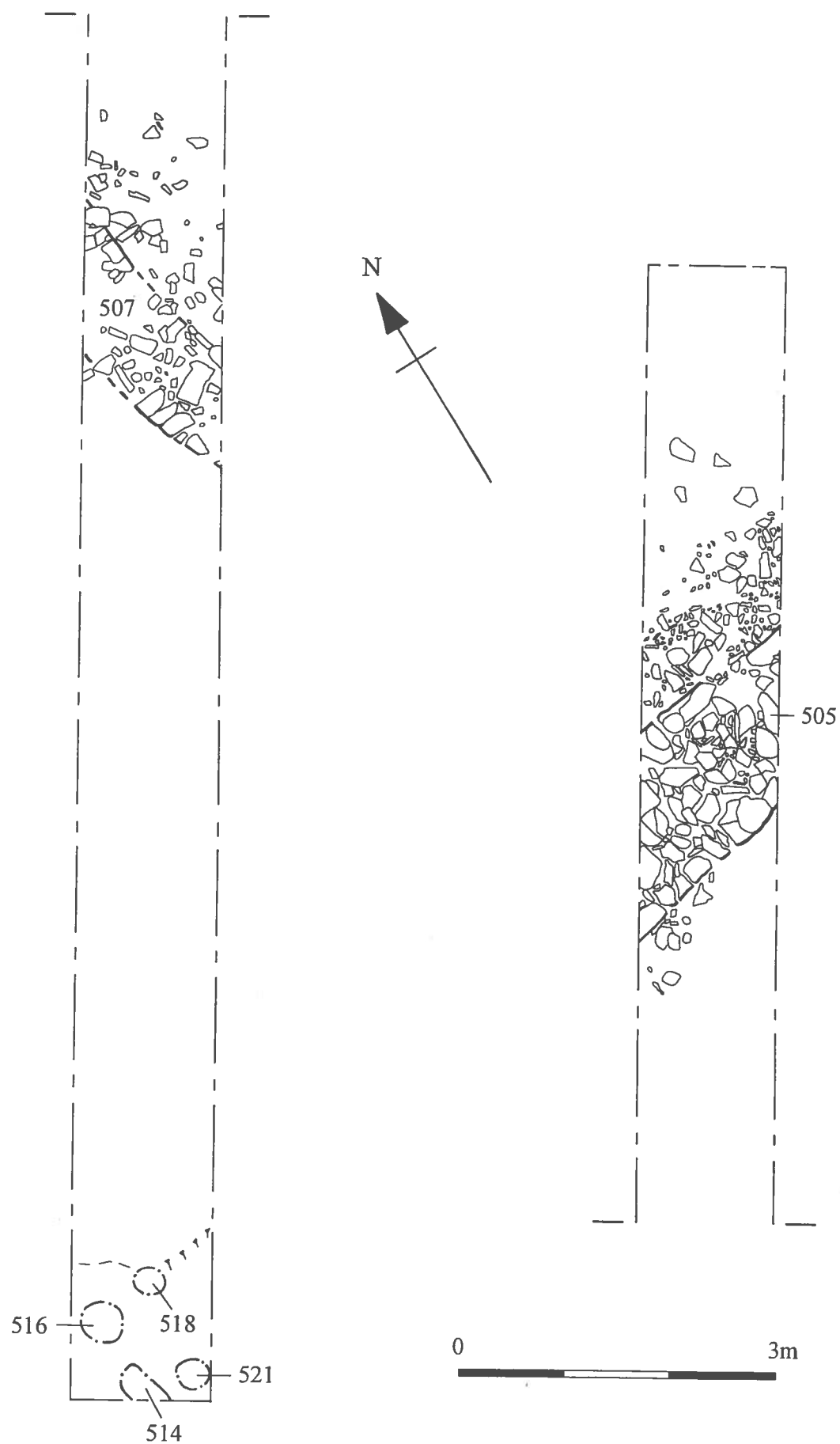


Figure 8

Porth y Rhaw view south east



Figure 9

First bank and ditch, position of trench 1, view south west



Figure 10

Trench 4, Round House North Footings (505), view west



Figure 11

