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NEFYN WASTE WATER TREATMENT SCHEME

ARCHAEOLOGICAL MITIGATION: WATCHING BRIEF REPORT

Gwynedd Archaeological Trust
Project No. G1760

Report No. 556

The pipeline excavation: Trenching through the area of the former medieval strip fields, Feature 20.

Prepared for
Symonds Group Ltd

November 2004
by
George Smith, M.A., M.I.F.A.

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1 *SUMMARY*

An archaeological assessment was carried out in advance of construction of a waste water treatment works and associated pipelines between Nefyn and Edern, Gwynedd (Smith and Hopewell 2003). Nefyn was a Royal manor and a flourishing trading centre in the medieval period. Areas of agricultural land around the town are notable for the rare survival of medieval patterns of strip fields within the modern field layout. The desktop study identified fourteen archaeological or historic features that were relevant to the assessment. The subsequent field search identified twenty-nine archaeological or historic features that lay within the easement area and that would be likely to be affected by the construction work. Five were categorised as being of regional importance, eight of district or local importance, fourteen of minor importance and two that needed further assessment before they could be categorised. The areas with features of greatest importance were subsequently investigated by geophysical survey (Hopewell 2003a), and two of these areas were then further investigated by trial excavation (Hopewell 2003b).

The original assessment report recommended that a watching brief should be carried out during construction in the vicinity of a number of the identified features. This report describes the results of that watching brief. An intensive watching brief was carried out during soil stripping for construction of the waste water treatment works, associated access road, site offices and plant storage area close to Edern. An intermittent watching brief was carried out over the remainder of the route, in the vicinity of particular features identified during the assessment. Several features of archaeological interest were identified in the area of the waste water treatment works, all of post-medieval date but predating the mid-19th century. The remainder of the route produced no new features that required detailed recording. The pipe trench was cut by a specialised trenching machine that cut a very narrow trench and exposed very limited areas for observation. The field banks, some of which were possibly of a historic origin, were drilled under at subsoil level, rather than cut through, so that they were not in the eventuality disturbed by the pipelaying.

2 INTRODUCTION

Gwynedd Archaeological Trust was asked by Symonds Group to carry out an archaeological assessment in advance of construction of a water treatment works and associated pipeline at Nefyn, Gwynedd (Fig. 1). The area affected is shown on Binnie, Black and Veatch Drawing No. 1065513/enviro4 (Mar 2002). The proposed pipeline extends from just south of Edern to just north of Nefyn with a treatment works at the Edern end (with a connection to Edern) and a pumping station at the Nefyn end. The total length of easement is about 3.25km. Following the desktop and field assessment a geophysical survey was carried out of some parts of the route (Hopewell 2003a) and trial trenches were dug to investigate some particular features (Hopewell 2003b). The assessment also recommended that watching brief be carried out during the construction work. This report records the evidence recorded during that watching brief.

The area lies just outside the Lleyn Area of Outstanding Natural Beauty but within the Lleyn Peninsula Environmentally Sensitive Area (ADAS 1988). Nefyn had a priory in the 12th century and was a Royal manor or llŷs of the Welsh kingdom of Gwynedd and a flourishing market town in the 13th and 14th centuries AD. Its importance was underlined by its choice by Edward I as the location for a royal tournament of international status to celebrate his victory over Llywelyn in 1282 (RCAHMW 1964, Soulsby 1983). The town was unfortunately largely destroyed during the Glyndwr rebellion and the exact sites of the Priory, Royal manor buildings and other contemporary housing still needs to be located (GAT 1999). It is a valuable area for historical research in that it retained much of its medieval plough land pattern until the middle of the 19th century and this latter is of particular relevance to the present project.

Acknowledgements: Many thanks are due to Doug Barber for assistance as well as to the employees of Gallifords, of Jennings plant hire and to Griffiths pipelaying for friendly co-operation during the work.

3 SPECIFICATION AND PROJECT DESIGN

The recommendation of a Watching Brief is defined as requiring observation of particular identified features or areas during works in their vicinity. This may be supplemented by detailed or basic recording of exposed layers or structures.

A watching brief can be carried out at various levels of intensity:

Comprehensive – archaeologist present during all ground disturbance.
Intensive – archaeologist present during disturbance of particularly sensitive areas.
Intermittent – archaeologist to view trenches after their excavation
Partial – archaeologist to visit when seems appropriate.

The recommendations of the original assessment were revised somewhat after the trial excavation (Hopewell 2003b) and were as follows (For location of features see Fig. 1):

- The trial excavations revealed a lower than expected level of survival of features relating to the medieval strip field system (Feature 20). Some features that were apparently remnants of the strip fields showed up in the geophysical survey but were not located during the trial excavation. It was therefore apparent that these features only survived as changes within the topsoil layer. There were therefore no archaeological reasons to avoid the creation of a topsoil stripped easement. An intensive watching brief during topsoil removal, if an easement is created, is still recommended here as the potential for the survival of some archaeological features has been demonstrated. Provision should also be made for the collection and processing of environmental samples from any buried soils that are encountered.

- The fields to the north of Nefyn appear to have a fairly low potential for the survival of features relating to the medieval field system, as a result of intensive agricultural improvement. It is therefore unlikely that geophysical survey would be of benefit in this area. There is therefore no recommendation for further assessment in this area. An intensive watching brief during topsoil removal is still recommended here, as there is some potential for the survival of archaeological features.

- The latest revision of the pipeline route avoids the possible barrow in area F (close to Feature 38). The mitigatory recommendation for this feature can therefore be revised to *avoidance.*

All other recommendations remain unchanged, these are listed below for reference (see GAT reports 487 and 496 for further details)

- There is a possibility that prehistoric features survive in a field (Feature 3) at the west end of the pipeline route (including the site of the Edern Treatment Works). An intensive watching brief is recommended during topsoil removal.

- Burials identified in the nineteenth century, to the north of Edern church, could indicate an early ecclesiastical site here. An intensive watching brief is therefore recommended during topsoil stripping in this area.

- The pipeline route runs just to the south of a site where Bronze Age cremation urns were discovered in the late seventeenth century (Feature 38). An intensive watching brief is therefore recommended during topsoil stripping in this area.

- It is also recommended that all field boundaries along the part of the pipeline passing through open fields should be reinstated following their original profile and in a similar style in order to preserve the character of the historic landscape.

The pipeline runs along an existing road as it passes through Nefyn. There are no archaeological implications associated with this section. The pipeline then passes through open fields that contain further elements of relict medieval strip fields.

- There are no archaeological implications associated with the eastern end of the pipeline, which again follows a modern road.

Most of the other extant archaeological and historic features are of only local or minor value, such as track ways and field banks. Their interest lies in their position in the landscape, rather than their detailed structure and they require no response although it is assumed that they will be reinstated.

- There is a high density of historical and archaeological sites in this area so a partial watching brief is recommended along the remainder of the pipeline route.

The mitigatory recommendations were summarised as follows (for location of features see Fig. 1):

Further assessment

- None

Mitigatory recommendations

- Avoidance Possible round barrow near Feature 38.
- Intensive watching brief Features 3, 37, 20 25, 26, 27, 28, 29, 30 31, 32, 38, 11, 13, 14, 15, 17, and 18.
- Partial watching brief Entire route where no other mitigation
- Re-instatement Features 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35 and 36.
- None Features 12, 16

4 RESULTS

4.1 The Water Treatment Works and Site Compound Area

The largest area of disturbance was in field OS 0001 to the east of Edern where the waste water treatment works was to be built together with an access road (Fig. 2). This large field was improved grass pasture at the time of the survey and it was unchanged in shape and extent since at least the time of the Tithe Apportionment survey in 1839, where it was listed as 'Arable and Pasture'. The assessment had identified a number of irregular hollows or terraces in this field which it was thought might be the remains of a prehistoric or Romano-British settlement that had been damaged by later ploughing (Feature 3).

Here a rectangular area of *c.* 70m by 70m was stripped for construction of the waste water treatment works and for accommodation of the site offices, plant store and vehicle park. Conditions for observation were poor, partly because the topsoil was stripped using a D6 bulldozer, rather than an excavator and partly because in much of the area the topsoil was of considerable depth with an upper soil and a lower, stonier soil. Only the upper soil was stripped in the areas of deepest soil so that the subsoil was not exposed, making the identification of any features difficult. However, the greater depth of soil proved to be interesting in itself because the lower layer of soil proved to be a survival from an earlier phase of agricultural activity within the field.

The soil stripping initially revealed a stony feature, possibly laid to form a floor surface. This was associated with a piece of quarried slate suggesting a post-medieval date for the feature. The stones lay within a lower soil layer that continued for about another 0.30m in depth. The stripping also revealed several dark pit-like features, two linear ditch-like features and two areas of cobble spreads. Investigation of the pit-like features suggested that they were natural hollows only about 0.20-0.30m deep, containing dark iron-panning.

The linear features proved to be two closely parallel lengths of ditch (Ditch 6, Fig. 3). Ditch 6 continued across the whole of the area exposed. In part of its length it consisted of two closely adjoining ditches, possibly as a result of being re-cut, these joining together into a single ditch, further east. The ditch was of a low vee-shaped profile, up to 1m wide and 0.25m deep, below the top of the subsoil (Figs 4 and 5). Its fill was fairly homogeneous and topsoil-like. It ran approximately parallel to the nearby existing field boundary, which lay lower down the slope. Only two small segments of the ditch were excavated. One of these produced a single piece of broken roofing slate and one piece of pottery (Fig. 8). The slate was narrow and thick, about 110mm wide and 7mm thick. This would have been long and narrow slate with a single peg or nail hole. It is a relatively early type of roofing slate, predating 19th century mechanisation and is of the 18th century or earlier. The pottery, a very small fragment, is from a thin, shouldered vessel, possibly drinking vessel. It has a fine red

fabric and a dark brown glaze, internally and externally. This type of pottery, probably made at Buckley in Cheshire, can be dated to the 17th or 18th century (Edwards in Smith 2002).

The ditch is best interpreted as a field drainage ditch of a field predating the existing field layout, which has been shown to have been the same since at least 1839. It seems to mark out an area of better quality land higher up the slope from the stream to the south-east and which therefore would have been more suitable for arable crops. With this identification in mind other slight linear ridges seen in the field to the north-east, oriented up and down slope can also be seen as remnants of this earlier phase of agriculture.

The possible area of flooring (Floor 1 Fig. 3) was investigated in an area of *c.* 5.5m by 3.5m. It was revealed as a sub-rectangular area of large sub-angular cobbles (Figs 6 and 7) and was interpreted as a floor laid approximately on the top of a former land surface. It surface followed the natural slope of the ground and was not terraced level. The floor was about 5m by 1.5m without any structurally defined edges and consisted of a single layer of stones set into the soil surface. Between some of the stones was a scatter of burnt clay fragments and these continued in the soil surface beyond the floor to the north, but not to the south. Excavation of two small trial trenches at the east and west edges of the floor showed that at the east side there had been a hollow or possibly ditch (Ditch 5) (Figs 6 and 8). The fill of this ditch or hollow contained more burnt clay fragments including some larger pieces, three of which contained long perforations (Fig. 8). The largest of these had part of an original outer surface which was convex and rather irregular. This suggests that the burnt clay fragments were the remains of some kind of air brick for an oven. The perforations may have been draught holes but it is also possible that they were just the impressions of a wattle internal structure around which the clay had been applied. The presence of these objects suggests that the stone floor was the base of a grain-drying oven with a surrounding drain, which had later been broken up and used to backfill and level the area prior to changes in the field layout and the subsequent phase of 19th - 20th century agricultural activity.

There were other similar stones to those of Floor 1 further upslope but more scattered and not forming any pattern. It is possible that Floor 1 and the other stones lay in the top of a small ditch (Ditch 5). Floor 1 would then have been at the edge of a field, defined by Ditches 5 and 6. There was no direct dating evidence from Floor 1 itself but the slate and pottery from Ditch 6 suggests that it was Post-medieval and belonged to a period predating the 1839 Tithe map. A 17th - 18th century or possibly early 19th century date seems most likely, perhaps belonging to a period of agricultural expansion, such as that which occurred as a result of high grain prices during the Napoleonic wars. Fields on slightly higher land immediately to the north are still used for arable crops. The land in the field here was not naturally well drained and therefore perhaps not of the best quality may then later have reverted to permanent pasture with occasional ploughing for re-seeding.

4.2 The Western Access Road

The field crossed by the access road was identified in the initial assessment as an area of possible archaeological interest (Feature 3). It contained a number of vague terraces or platforms that might possibly be the remains of prehistoric or Romano-British settlement. This area was not in fact affected, because the access road swung to the south of these features (Fig. 2).

Stripping of the topsoil close to the modern road, to provide the entrance to the new access road revealed a number of linear features (Fig. 9). Parallel to the existing boundary was clear linear feature 0.70m wide, which proved to be only some 0.05-0.10m deep and was interpreted as a plough feature, possibly alongside a former trackway about 2.5m wide along the field-edge or possibly just a plough headland (Fig. 10). There was no direct dating evidence and the feature could belong with the modern phase of agriculture or with the earlier phase represented by Floor 1 and Ditch 6 (above).

A second linear feature further to the south (Fig. 9) showed first as a broad spread of topsoil, narrowing to 0.5m wide at the level of the subsoil surface from which point it was 0.5m deep. There was no direct dating evidence in the form of pottery, for instance, but it was similar in size and profile to Ditch 6. This ditch-like feature was not parallel to the existing field boundaries and may be a remnant of the same former field layout as Ditch 6 above, of the 17th – 18th century.

Further to the south, downslope, the access track crossed more marshy ground with a clay subsoil and here it crossed two narrow stone-filled field drains (Fig. 11). Stone-filled drains in most places probably pre-date clay pipe drains and so could well belong with the 17th – 18th century agricultural phase identified above.

The existing roadside hedge-bank (clawdd) was cut through by machine and this was observed because although rebuilt in modern times might have retained traces of an earlier bank within it. The bank was of sandy loam faced on the road-side with sub-rounded cobbles. The modern road surface was some 0.5m higher than the subsoil surface on the field side of the bank. The road level had been built up by over the years by re-surfacing and this was demonstrated by the fact that the bank facing stones continued some way beneath the level of the road. Lower down, at the edge of the road, was a layer of larger sub-angular stones, *c.* 0.30m maximum dimension, possibly the foundation for the existing road, or of an earlier phase of it (Fig. 12).

4.3 The Eastern Access Road

This road was required to provide access to a small pumping station at the east end of the pipeline. Its route took it across fields that were identified as the remains of medieval strip fields (Features 11 and 13) and through field banks (Features 12 and 15) that might retain traces of medieval boundaries. The topsoil here was extremely fine and deep sandy loam. Stripping of the trackway did not expose the subsoil and revealed no features belonging to the medieval strip fields (Fig. 13). The trial excavations carried out in 2003 indicated that this area, used for arable at the present day, had been deep ploughed removing any traces of medieval agricultural features.

The access track route was taken through existing gateways so the field banks were not affected.

4.4 The Pipeline Excavation

There were a number of features along the pipeline route for which an intensive watching brief had been recommended. In addition a partial watching brief, that is occasional visits, was recommended for the whole route. The pipe was laid using a pipe-laying machine. This cut a narrow vertical trench approximately 0.20m wide and 1.0m deep. The pipe was then fed in behind the machine in short lengths of about 10m and immediately backfilled. This meant that very little of the soil or subsoil was exposed or disturbed and there was very little possibility of identifying features or even soil changes in such a narrow trench. The machine cut the trench with an arm with cutter blades, similar to a large chainsaw. This mixed the soil as it worked, throwing the soil to the surface and therefore reducing the likelihood of observing changes in soil type or of the context of any artefacts (Fig. 14).

The assessment report had identified many of the field banks (Features 25-32), as of archaeological interest because they might retain remnants of medieval boundaries. However, the pipelaying machine also had a horizontal boring attachment that was used to drill beneath field banks. In the event, therefore, none of these features were affected by construction.

According to the recommendations the pipelaying was observed intermittently where it left the line of the modern road and cut through the fields west of Nefyn through to south of Morfa Nefyn. West of this point no features of archaeological or historic value had been identified (Fig. 1).

PRN 17211 pass by burial mound

There were two areas that might have produced archaeological information. One was where the pipeline passed close to the possible Bronze Age burial mound identified during the geophysical survey, which itself was close to where several Bronze Age cremation burial urns had been found in the 17th century (Feature 38). The other was an area where the modern fields retained elements of the medieval strip fields (Feature 20).

The field with the possible Bronze Age burial mound did show a very slight surviving mound (Fig. 15). The pipe trenching showed no evidence of archaeological features or artefacts.

The area of relict medieval fields had a very deep sandy soil similar to the fields to the north of Nefyn. Like those fields this area had probably also been ploughed deeply in modern times for arable crops. The pipeline here followed mainly longitudinally along the same line that would have been taken by the medieval strip fields. There was therefore less likelihood of identifying relics of individual strip fields or headlands. The trial excavation within one area of strip fields indicated that any remnants of the medieval fields survived only as changes within the topsoil horizon and similarly here, no subsoil features were present (Fig. 16).

5 CONCLUSIONS

The watching brief identified a previously unknown phase of agricultural activity, with a field pattern predating existing map records. However, this was only in one confined area, which happened to be the field where the largest amount of construction activity was to take place, for the waste water treatment works close to Edern. The greatest amount of archaeological recording was therefore in this field.

Most of the length of the pipeline, however, cut through a field pattern that was largely unchanged from the medieval period. The method of pipe-trenching, using a cutting machine, rather than an excavator meant that very little subsoil was exposed and no archaeological features were identified. While it reduces the chance of identifying archaeological remains this technique does minimise the impact on any remains and so is very worthwhile, compared to trenching by excavator, which might be accompanied by stripping of the easement and cutting of boundary banks and walls.

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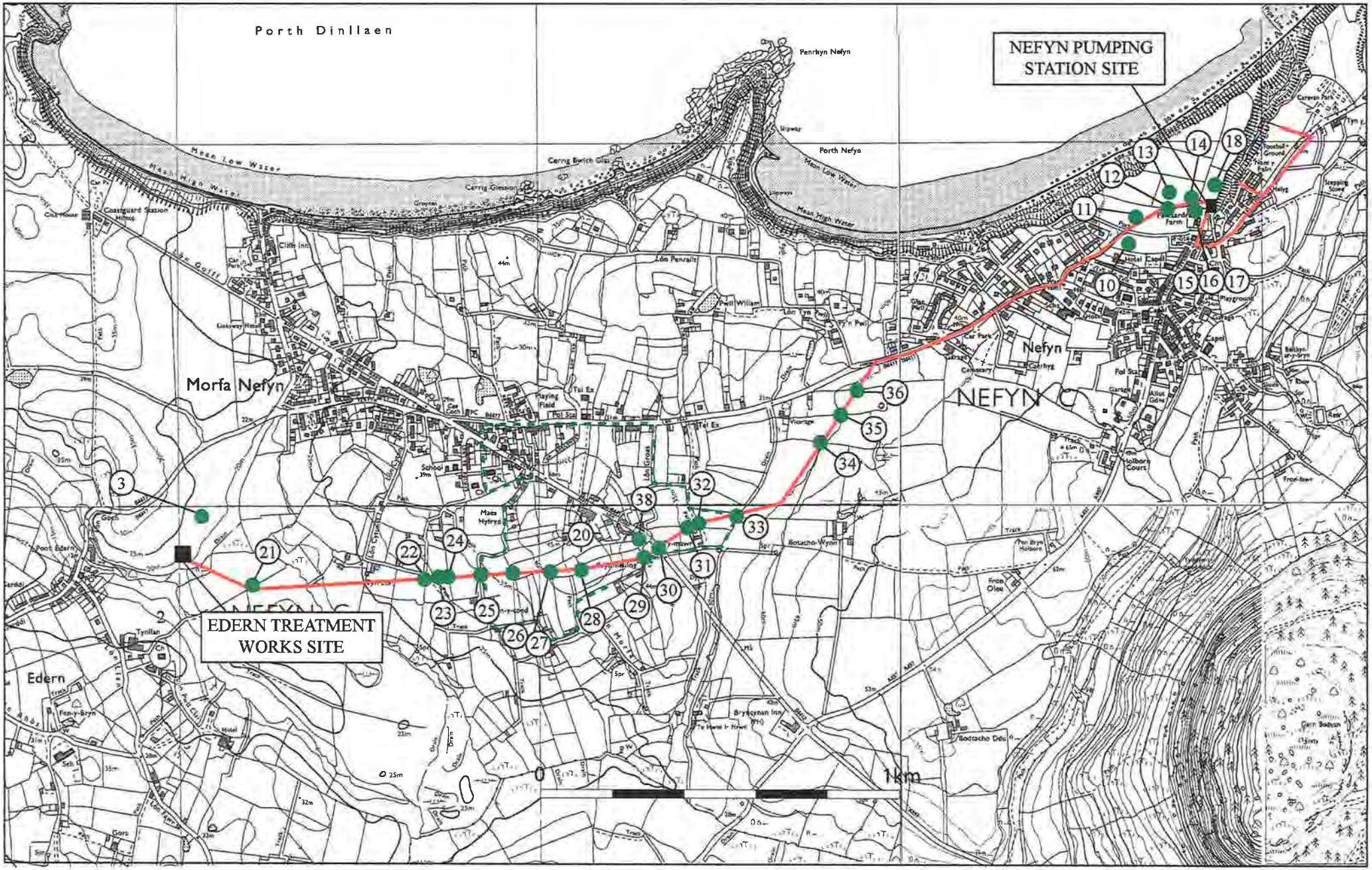

Nefyn Waste Water Treatment Scheme

Fig. 1 Location of archaeological and historical features identified during the assessment.

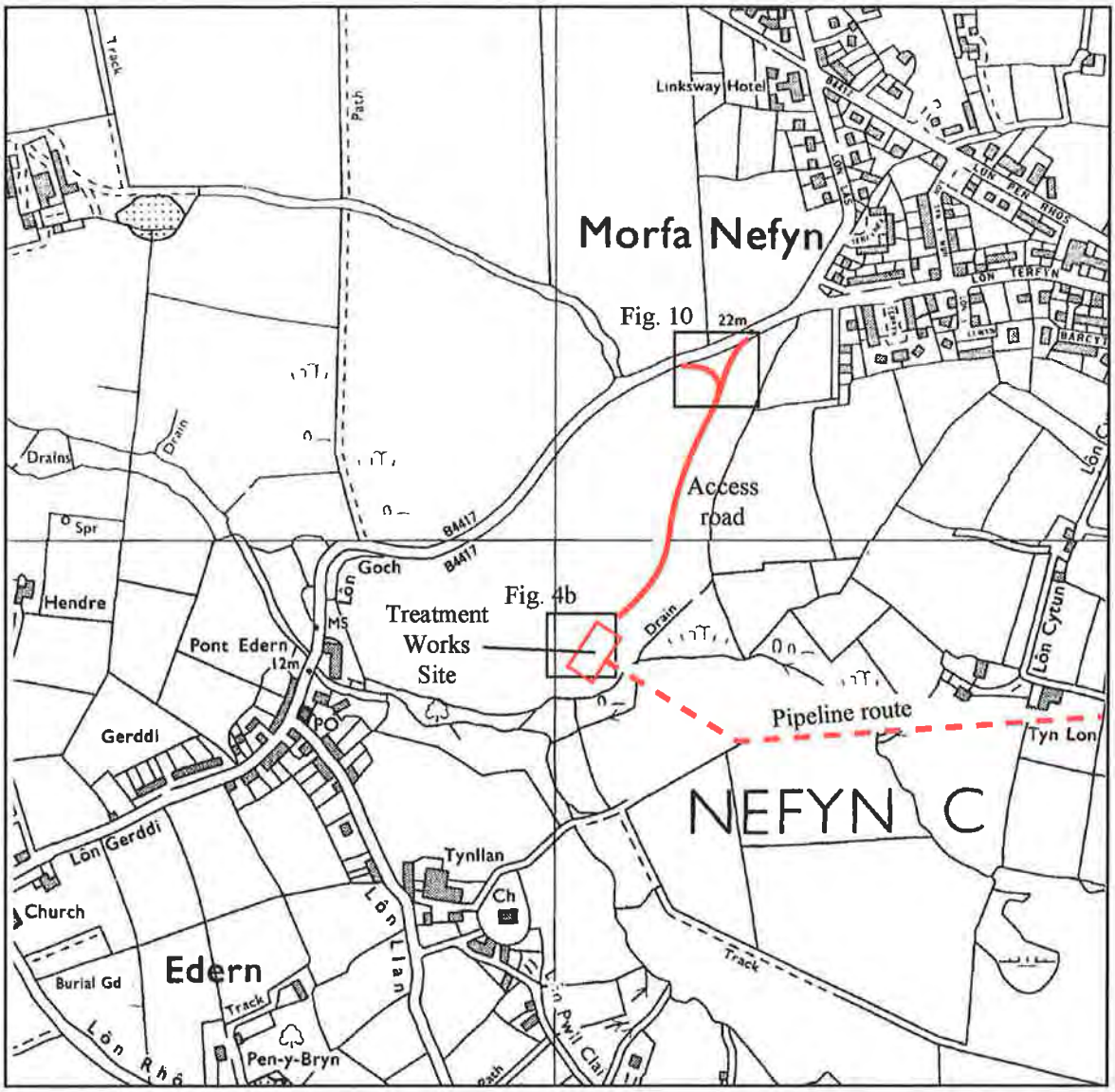

Fig. 2 Location plan: Treatment Works field, Edern

Fig. 3 Machine stripping topsoil: Treatment Works field, Edern

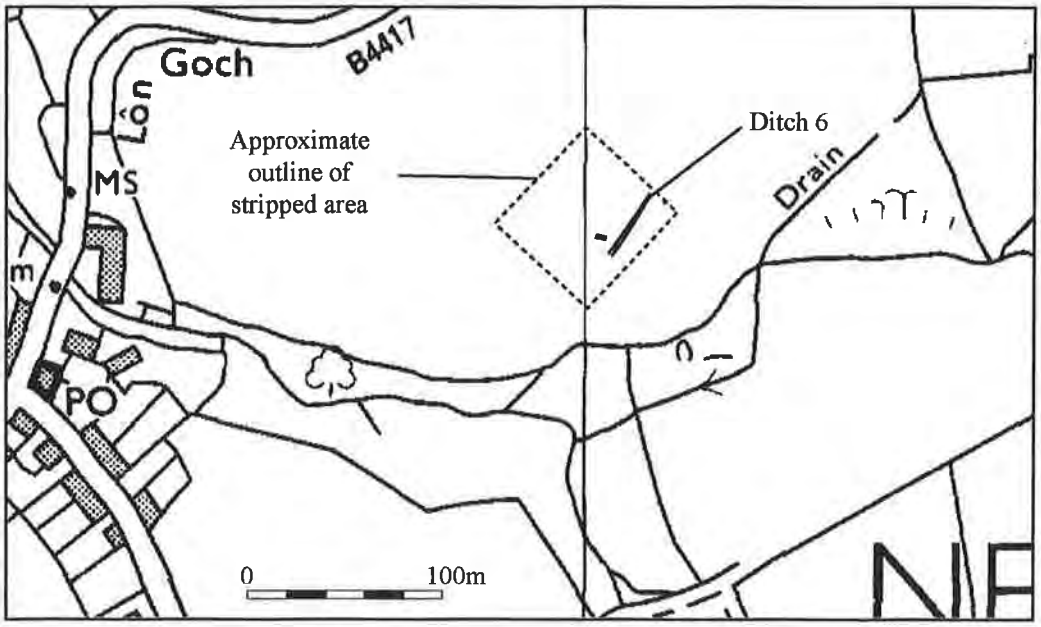

Fig. 4a The waste water treatment works site, Edern: Location of excavated features

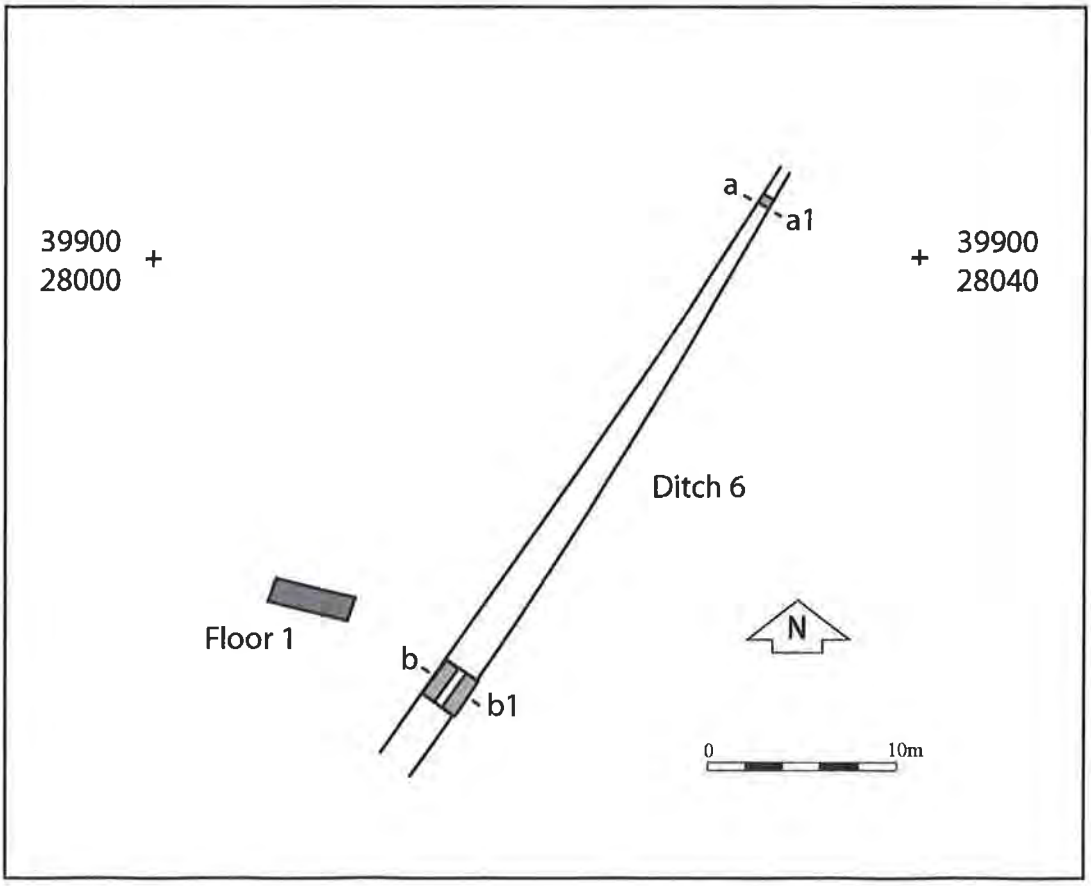

Fig. 4b The waste water treament works site, Edern: General plan of excavated features

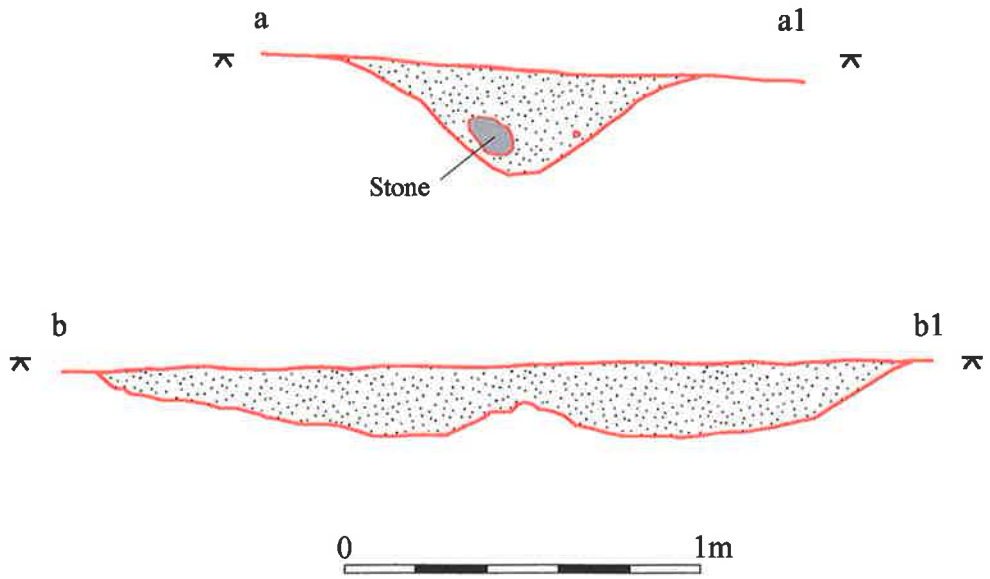

Fig. 5 The waste water treatment works area: Cross sections of Ditch 6 (see fig. 4)

Fig. 6 The waste water treatment works area: Cross section of Ditch 6. From west. Horizontal scale with 0.5m divisions.

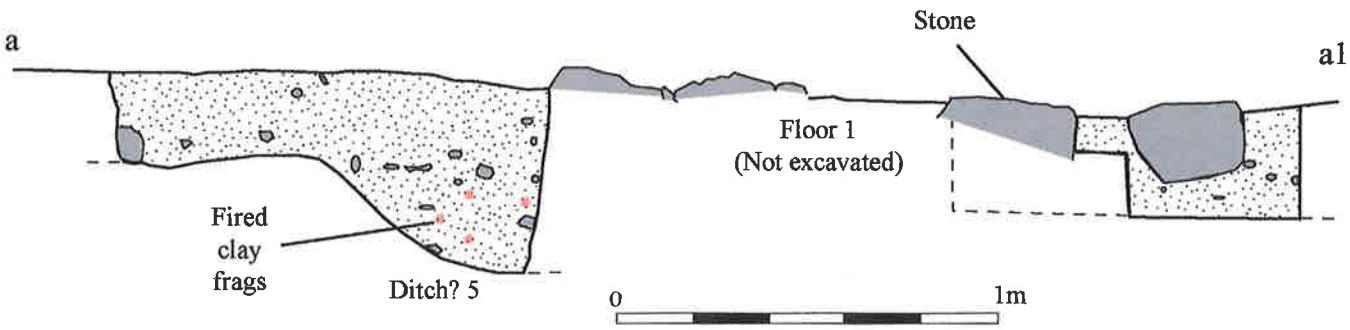

Fig. 7a The waste water treatment works area: Cross-section of Floor 1

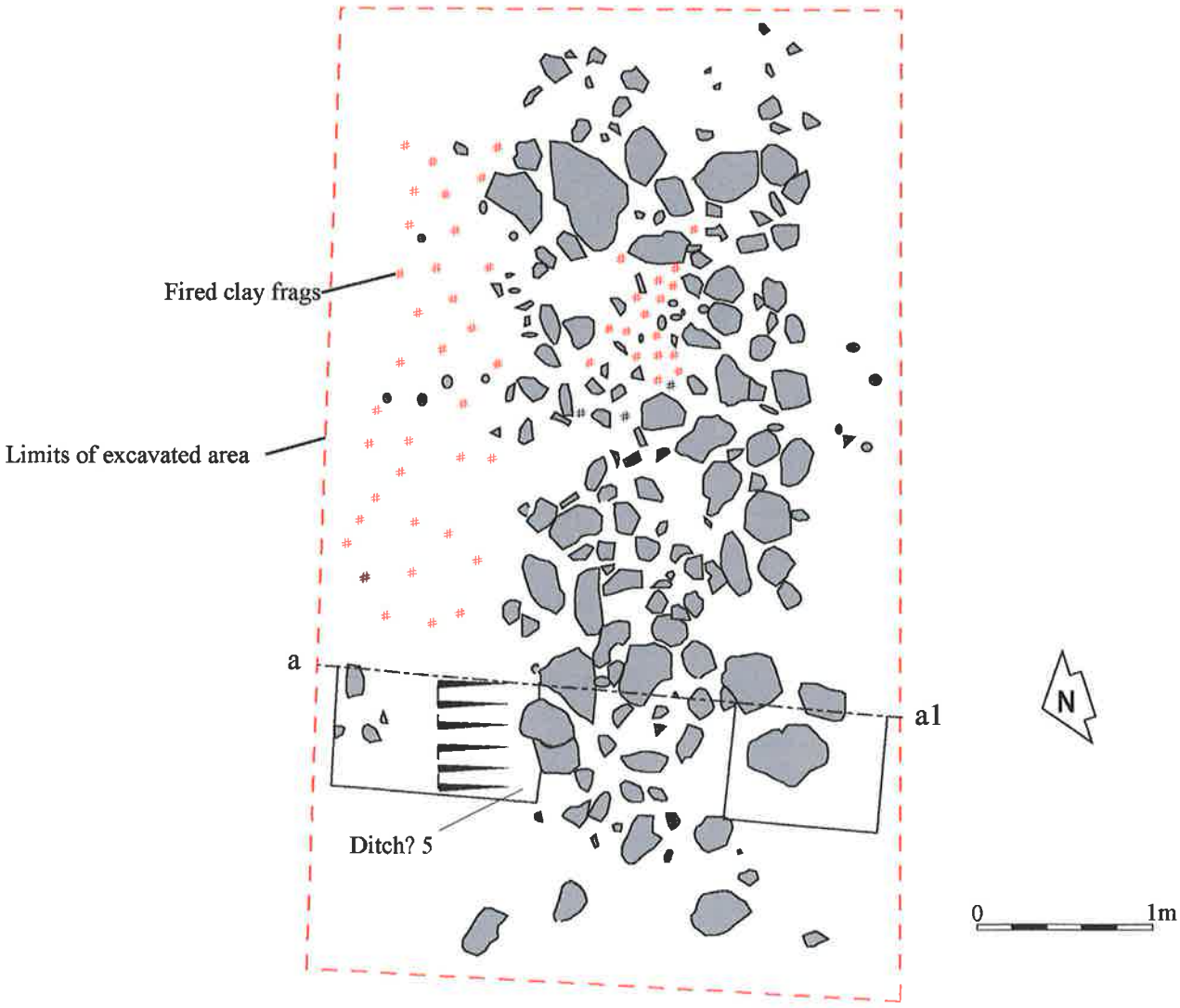

Fig. 7b The waste water treatment works area: Plan of Floor 1

Fig. 8 The waste water treatment works area: Floor 1, from the south-east. Scale with 50cm divisions

Fig. 9 The waste water treatment works area: Finds from Ditch 6 and Floor 1.
Ditch 6: 1 Roofing slate fragment. 2 Brown-glazed pottery fragment
Floor 1: 3 - 5 Fired clay oven? fragments

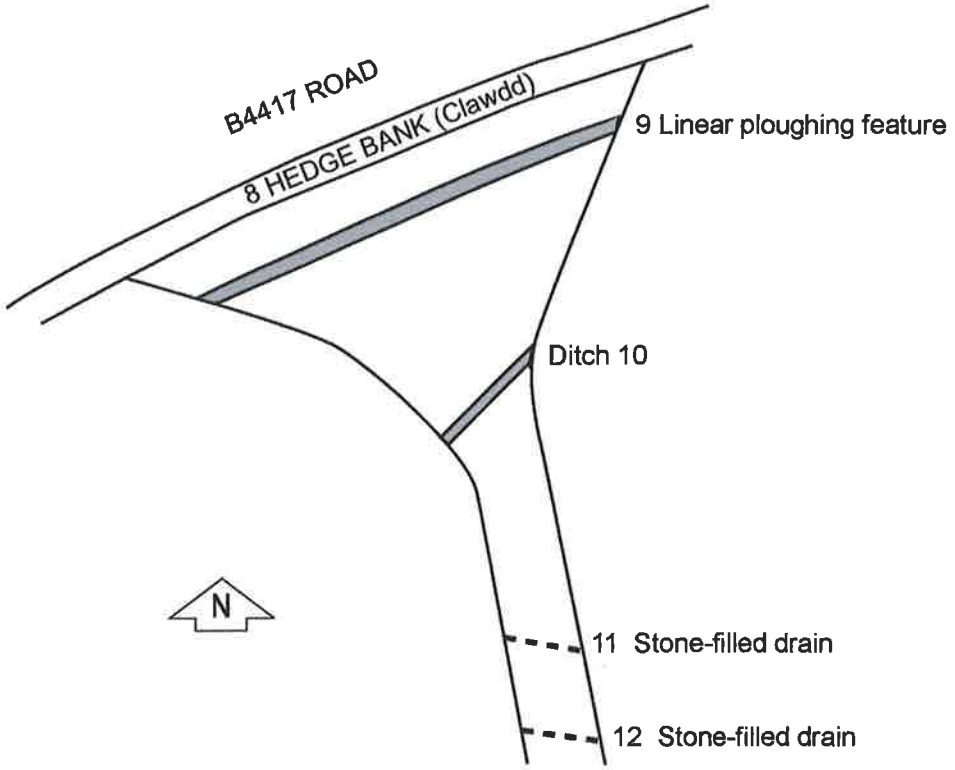

Fig. 10 The western access road : Location of features (See Fig. 3). Not to scale.

Fig. 11 The western access road: Linear ploughing feature 9, from the south-west. Scale with 50cm divisions

Fig. 12 The western access road: General view from the north-east in the clay sub-soil area showing the stone-lined drains. Scale with 50cm divisions.

Fig. 13 The western access road: The roadside hedge bank showing the stone facing and the stone foundations of the bank or possibly of an earlier road, on the base of the trench. From the west.

Fig. 14 The eastern access road: The easement cutting across the area of the former medieval strip field, Feature 11, showing the deep topsoil and absence of exposed subsoil. From the south-west. Scale with 50cm divisions.

Fig. 15 The pipeline excavation: Mr Griffith's trench cutting machine at work, showing the narrow trench and mechanical soil mixing

Fig. 16 The pipeline excavation: Trenching close to the site of the Bronze Age burials, Feature 38. The possible burial mound located during the geophysical survey is beneath the telegraph pole on the left. From the north-east. Scale with 50cm divisions.

Fig. 17 The pipeline excavation: Trenching through the area of the former medieval strip fields, Feature 20. From the east.

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