

NEFYN WASTE WATER TREATMENT SCHEME (REVISED ROUTE)

ARCHAEOLOGICAL ASSESSMENT

Report No. 487



Nefyn town, 1815, showing surviving medieval strip field holdings

Prepared for
Symonds Group Ltd

June 2003
By
G.H. Smith and D. Hopewell



Ymddiriedolaeth Archaeolegol Gwynedd
Gwynedd Archaeological Trust

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NEFYN WASTE WATER TREATMENT SCHEME (REVISED ROUTE)

ARCHAEOLOGICAL ASSESSMENT

SUMMARY

An archaeological assessment was carried out in advance of construction of a water treatment works and associated pipelines at Nefyn and Edern, Gwynedd. The report covers the Water Treatment Works site and the pipeline easement, of which part runs through the outskirts of the town of Nefyn, which was a Royal Manor and flourishing trading centre in the medieval period. The assessment involved consultation of existing records and documents and a field search. Existing records identified fourteen relevant archaeological or historic features recorded on the SMR that were relevant to the assessment. The field search identified twenty-nine archaeological or historic features that actually lay within the easement area. Five were categorised as being of regional importance eight of district or local importance, fourteen of minor importance or damaged/destroyed and two as requiring further assessment.

The features of regional national importance are rare examples of elements of medieval strip field systems preserved in the modern landscape. Further assessment using geophysical survey is required before the impact of the pipeline on these features can be fully assessed. Provisional mitigatory measures would be avoidance or a detailed watching and recording brief. Two possible burial sites, one early Christian and one Bronze Age, lying close to the pipeline route also require further assessment, initially using geophysical survey. The rest of the sites are of relatively low value although a watching brief is recommended in a field with possible earthwork features. The remaining sites will either be re-instated, avoided or need no response.

1 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 was shown on Binnie, Black and Veatch Drawing No. 1065513/enviro4 (Mar 2002). A report was prepared based on this route (GAT report No. 471). The present report is based on a revised route shown on Drawing No. 57748/RM/01. The proposed pipeline extends from just south of Edern at SH28023976 to just north of Nefyn at SH31054103 with a treatment works at the Edern end (with a connection to Edern) and a pumping station close to the Nefyn end. The total length of easement is about 3.85km. The exact sizes and locations of the proposed Edern treatment works and Nefyn pumping station are not known, nor is the size and depth of the proposed pipeline.

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 llys 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. 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. It is a valuable area for historical research in that it retained much of its medieval field systems until the middle of the 19th century and this latter is of particular relevance to the present project.

2 SPECIFICATION AND PROJECT DESIGN

The basic requirement was for a desk-top survey and field search of the proposed area, in order to assess the impact of the proposals on the archaeological features within the area concerned. The importance and condition of known archaeological remains were to be assessed, and areas of archaeological potential and new sites to be identified. Measures to mitigate the effects of the construction work on the archaeological resource were to be suggested.

Gwynedd Archaeological Trust's proposals for filling these requirements were as follows:

- Desktop study
- Field walkover
- Initial report
- Desktop study of revised route
- Field walkover of revised sections
- Revised report

3 METHODS AND TECHNIQUES

3.1 Desk top study

This comprised the consultation of maps, documents, computer records, written records and reference works, which form part of the Sites and Monuments Record (SMR), located at GAT, Bangor. The archives held by the Gwynedd Record Office, Caernarfon were also consulted. Information about listed buildings was consulted by means of the CARN (Core Archaeological Index), which is the online index of the Royal Commission on Ancient and Historic Monuments, Wales.

Sites, buildings and find spots listed in the GAT SMR were identified (Fig. 1a) within three zones: those within about 1km of the route were identified to give background information relevant to understanding the area, those within 100m, which might have direct relevance for understanding the easement area, and finally those directly on the easement route, which might be physically affected by construction.

3.2 Field Search

The initial search was undertaken on the 25th of November 2002. The whole route was walked over and notes and photographs taken (see GAT Report 471). A large part of the route follows the existing roads where only features adjoining the route would be likely to be seen. The eastern part of the initial route was not revised and the data for this area is retained in the present report.

The search of the revised parts of the route were undertaken on 11th June 2003 accompanied by site engineers. Minor changes to the route shown on the revised drawing (No. 57748/RM/01) were noted. The revised route passes through open grassland. Most of the fields contained long uncut grass at the time of survey. It should be noted that this could have masked low-lying earthworks along the route.

Field notes were written up on recording forms that summarised the Evaluation of importance, Impact and Recommendations for further assessment and Mitigation, in a manner suitable for database entry. These also provided a reference to the photographs, which were numbered and catalogued. The whole archive is stored with GAT under project no. G1760.

The route was been divided into convenient topographic units according to the varying blocks of land traversed, fields, roads etc. as set out below in order to assess the general environmental impact of the construction and to allow reference to particular areas of the route.

3.2.1 Pipeline and construction area topography, land use and sub-surface descriptions.

L1(b) Edern to Ty Mawr 1.4km.

Undulating improved pasture lower areas poorly drained. Small fields

L2(b) Ty Mawr to B4417 0.7km.

Undulating improved pasture, lower areas forming wetland habitat. Larger fields.

L3(b) W side of Nefyn to Penisardre Farm, Nefyn. 1.05km.

Firstly over an existing road and track then across gently sloping arable fields and part of the farmyard of Penisardre Farm.

L4 Penisardre Farm to Nant y Felin and former football ground.

Over existing roads apart from line along football ground boundary towards the coast. 0.7km

3.3 Report

The available information was synthesised to give a summary of the archaeological and historic background and of the assessment and recommendations, as set out below. The separate features, their evaluation and recommendations are listed separately, and a summary of the overall assessment of the area is given at the end.

The criteria used for assessing the value of features was based upon those used by the Secretary of State for Wales when considering sites for protection as scheduled ancient monuments, as set out in the Welsh Office circular 60/96. The definitions of categories used for impact, field evaluation and mitigation are set out below.

3.3.1 Categories of importance

The following categories were used to define the importance of the archaeological resource.

Category A - Sites of National Importance.

Scheduled Ancient Monuments, Listed Buildings of grade II* and above, as well as those that would meet the requirements for scheduling (ancient monuments) or listing (buildings) or both.

Sites that are scheduled or listed have legal protection, and it is recommended that all Category A sites remain preserved and protected *in situ*.

Category B - Sites of regional or county importance.

Grade II listed buildings and sites which would not fulfil the criteria for scheduling or listing, but which are nevertheless of particular importance within the region.

Preservation *in situ* is the preferred option for Category B sites, but if damage or destruction cannot be avoided, appropriate detailed recording might be an acceptable alternative.

Category C - Sites of district or local importance.

Sites which are not of sufficient importance to justify a recommendation for preservation if threatened.

Category C sites nevertheless merit adequate recording in advance of damage or destruction.

Category D - Minor and damaged sites.

Sites that are of minor importance or are so badly damaged that too little remains to justify their inclusion in a higher category.

For Category D sites, rapid recording, either in advance of or during destruction, should be sufficient.

Category E - Sites needing further investigation.

Sites, the importance of which is as yet undetermined and which will require further work before they can be allocated to categories A - D are temporarily placed in this category, with specific recommendations for further evaluation. By the end of the assessment there should be no sites remaining in this category.

3.3.2 Definition of Impact

The impact of the road development on each site was estimated. The impact is defined as *none, slight, unlikely, likely, significant, considerable or unknown* as follows:

None:

There is no construction impact on this particular site.

Slight:

This has generally been used where the impact is marginal and would not by the nature of the site cause irreversible damage to the remainder of the feature, *e.g.* part of a trackway or field bank.

Unlikely:

This category indicates sites that fall within the band of interest but are unlikely to be directly affected. This includes sites such as standing and occupied buildings at the margins of the band of interest.

Likely:

Sites towards the edges of the study area, which may not be directly affected, but are likely to be damaged in some way by the construction activity.

Significant:

The partial removal of a site affecting its overall integrity. Sites falling into this category may be linear features such as roads or tramways where the removal of part of the feature could make overall interpretation problematic.

Considerable:

The total removal of a feature or its partial removal which would effectively destroy the remainder of the site.

Unknown:

This is used when the location of the site is unknown, but thought to be in the vicinity of the proposed road.

3.3.3 Definition of field evaluation techniques

Field evaluation is necessary to fully understand and assess class E sites and to allow the evaluation of areas of land where there are no visible features but for which there is potential for sites to exist. Two principal techniques can be used for carrying out the evaluation: geophysical survey and trial trenching.

Geophysical survey most often involves the use of a magnetometer, which allows detection of some underground features, depending on their composition and the nature of the subsoil. Geophysical survey is not thought to be suitable for the feature and subsoil types expected at Nefyn.

Trial trenching allows a representative sample of the development area to be investigated at depth. Trenches of appropriate size can also be excavated to evaluate category E sites. Trenching is typically carried out with trenches of between 20 to 30m length and 2m width. The topsoil is removed by machine and the resulting surface is cleaned by hand, recording features. Depending on the stratigraphy encountered the machine may be used to remove stratigraphy to deeper levels.

3.3.4 Definition of Mitigatory Recommendations

None:

No impact and therefore no requirement for mitigation measures.

Avoidance

Where possible, features that may be affected should be avoided. Sometimes this could mean a change in layout, design or route. More usually it refers to the need for care during construction to avoid accidental damage to a feature. This may be achieved by marking features or areas, for example with warning tape, before work starts, or in sensitive cases carrying out a watching brief.

Detailed recording:

Detailed recording requires a photographic record, surveying and the production of a measured drawing prior to the commencement of the works on site.

Archaeological excavation may also be required depending upon the particular feature and the extent and effect of the impact.

Basic Recording:

A photographic record and full description, and limited measured survey where applicable.

Watching brief:

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.

It can be further defined as comprehensive (present during all ground disturbance), intensive (present during sensitive ground disturbance, intermittent (viewing the trenches after machining) or partial (as when seems appropriate).

4 ARCHAEOLOGICAL RESULTS

4.1 Topographic description

The Llŷn peninsula projects some 35km into the Irish Sea on the south-west side of the mountain massif of Snowdonia. It constitutes a relatively low-lying area of undulating plateau with occasional isolated hills of intrusive, harder rock. Geologically, the largest part of the plateau consists of slates and shales, while the isolated hills are of igneous rock, mainly granite. The tip of the peninsula and most of the northern coast consists of low hills, of pre-Cambrian rocks, such as gneiss and schist (Smith and George 1961, 7-11). The whole surface has, however, been affected by the passage of the Irish Sea ice sheet that left, in retreat, thick deposits of fluvio-glacial clay, silt and gravel and these have had a strong influence on soil formation. The soil types are largely derived from glacial till and fall into four broad categories: the rock dominant and leached podsoles of the volcanic intrusions, the poorly drained gleys of the lowland areas and river valleys, the freely drained brown earths on the hill slopes and an area of organic soils in the marshland along the south-central part of the coast (Soil Survey of England and Wales, Sheet 118). Nefyn lies on an undulating coastal plateau between about 30 to 50m OD. The town itself lies in a slight hollow centred around the head of a narrow valley and the stream which runs into it was probably the key factor in the siting of the priory and later the town. However, it also benefited from its proximity to the sheltered bay of Porth Dinllaen. The underlying geology of the town and immediate surroundings are slate but the area to the west, at Morfa Nefyn and Edern, lies over igneous gneiss and schist. More importantly, the whole area is covered by deep deposits of glacial till on which have developed brown earths which are relatively productive agricultural soils, where drainage is good, as here. The land of the pipeline easement is all classed as of Grade 3, Good to Moderate quality, suitable for a range of arable crops with only moderate limitations so that yields are lower or more variable than better quality land (MAFF 1977). The medieval success of the town was based on the availability of a good area of land suitable for arable, in comparison to elsewhere in Llŷn. However, much of it is now permanent pasture. The Llŷn peninsula, like Anglesey, benefits from a mild maritime climate, generally warm and with a long period of frost-free days, more like south-western England than the rest of mainland Wales.

4.2 Archaeological and historical background

The area close to the town of Nefyn is historically the most significant for the current assessment. However, the village of Edern, at the western end of the proposed pipeline and location of the treatment works, was a minor medieval settlement. The present church of St. Edern was built in the mid-19th century but on the footings of a Medieval church and re-using some of the timber trusses of that church (RCAHM 1964, 33). There was a church there as early as 1254 and there are other indications of an early establishment. Burials were reported to have been found when a mill leat was dug in the mid-19th century across the field (Cae Newydd), to the east of the church (*ibid*). These were on the southern side of the stream, while the proposed treatment works is on the northern side. The pipeline runs within 100m of the recorded location and it is likely that a new connecting pipe will be laid to connect the treatment works to Edern and this will cross the stream at some point. The accuracy of the map reference is unknown as is the extent of the site. It must therefore be recognised that this part of the pipeline has some archaeological implications.

Llŷn or Lleyn is the name for the peninsula, in Welsh Penllŷn, and is thought to take its name from the same root as the Irish tribal name Laigin (as in Leinster), probably reflecting early Irish settlement and influence in the area (Carr, 1972, 69). A large, presumably Iron Age, promontory fort near Nefyn on the north coast, Dinas Dinllaen, incorporates the same root name, which also gave its name to the medieval commote or administrative district. Nefyn is well recorded in the medieval period but may ultimately owe its origins to the presence of Dinas Dinllaen and may have succeeded it as a settlement and administrative centre. However, the first mention of Nefyn is in the Life of Gruffydd ap Cynan in the 11th century, where it is described as a harbour used by Gruffydd (Evans 1990, 72). Gerald of Wales also visited the area in 1188 and stated that there was a priory (*ibid*) and two burgesses of Nefyn witnessed a charter of Maredudd ap Cynan (died 1212). It was a clearly a well established, sizeable and wealthy town during the period of rule of the Welsh princes and its importance as a centre was clearly recognised by Edward I when he organised a grand tournament there in 1284 to celebrate his victory over Llywelyn in 1282. He ordered new ovens to be built to accommodate the number of guests for this occasion. The location of this tournament is not known but was identified by Lewis (1840) to be at a circular earthwork by the Edern road out of Nefyn, which has been suggested to be at a location that adjoins the original but not the revised pipeline route (6268 Fig. 1a).

A survey made by Edward I showed that the majority of the households were free, not bound tenants. Interestingly the town was never fortified and its layout continued as it was established and was not re-laid out by Edward in the regular manner of the burgages in the fortified towns of Caernarfon and Conwy. A new charter was given to the town by Edward II in 1355. Edward I's survey showed the town to have 200 acres of arable, a sizeable area for the time, suggesting a considerable and profitable surplus (Jones Pierce 1931, 256, 253). The Royal manor was also of some size and complexity as shown by records of repairs in 1284 and 1306-7, including a 'great barn', presumably for storing grain from taxes (Jones Pierce 1957, 150). The fields lay to the south and south-west of the town, between the cliffs and 'an outer boundary extending roughly from Cae Rhyg to Penymaes, and skirting the lands of Bodtacho Ddu, which at that time was a separate rural district outside the limits of Nefyn' (Jones Pierce 1957, 39). The fields were characteristically long and curving because they were divided into long narrow strips in the medieval open field system. In most places in Britain these strips were gradually amalgamated into larger, more efficient holdings, and the field patterns eventually changed dramatically. Here, however, the ownership of many of these strips continued up to the mid-19th century when an estate map (Fig. 4) (Glynllifon 1815) and the Parish Tithe map (Fig. 5) were drawn up. These records provide a rare example of the medieval field system and are relevant to the present construction project because the east end of the easement crosses two of these former strip fields and the revised length of pipeline runs through an additional 0.7km of former strip fields. It may be that a cross section of the field can reveal traces of the former strip fields. Soil build up at the lower end of the fields may preserve soil horizons, and possibly traces of the former medieval field boundary. There is also potential for recovering material from beneath more modern field banks. Buried soils could provide environmental evidence of the Medieval period.

Nefyn was sacked by Owain Glyndwr in 1400, despite being a basically Welsh town, not a new English settlement. The destruction seems to have been fairly total and the town was abandoned for a while and this may account for the fact that no traces of medieval buildings survive today, apart from a motte (castle mound) of unknown attribution, but assumed to be Norman. The town very gradually recovered but never gained its former wealth and status and was still not much more than a village in the 18th century, as recorded by Lewis Morris (1748) (Fig. 2) and John Evans (1797) (Fig. 3). However, it had a flourishing herring fishing and boat building industry in the 19th century, at Porth Dinllaen, although it was not a good harbour and was one of the smaller ship building centres, the last ship being built in 1880 (Eames 1977, 170) and the settlement eventually expanded to the south and west, covering most of the medieval strip fields, although fortunately a few survived to the north, on the line of the present construction route. In the early 19th century it became the focus for a proposed scheme to provide a rail and ferry route to connect London with Ireland, via Porth Dinllaen, through mid-Wales. Such a mail route had already been in use via the road and there had been improvements to turnpikes and the harbour from the 1770's (Davies 1977, 173). To this end a new road was built from Porthmadog to Porth Dinllaen. Figures were produced which attempted to show that the route through Porth Dinllaen would be faster, taking the combined time of rail and sea journeys into account (Dodd 1933, 115). However, the north coast route eventually won and the rail connection to Holyhead was completed in 1850 following the opening of the Britannia Bridge at Bangor.

4.3 The Archaeological Survey (Fig 1)

Twenty-nine features were identified directly within or contiguous with the survey area, defined as the easement shown on the map supplied (Drawing No. 57748/RM/01). These are listed below with recommendations for further assessment and mitigatory measures, where appropriate. Other features in the vicinity, not directly affected, but which may be relevant to the work are listed separately (Appendix 1). No information was available on the exact location and depths of construction of the proposed buildings of the Edern treatment works and the Nefyn pumping station or of the depths and width of the proposed pipeline trench.

Feature 3 Field (Fig. 6)

SH28003990 (C)

Period: Medieval-Post-medieval with possible prehistoric features.

Category: D. Impact: Slight

A large irregular-shaped field rather poorly drained but generally improved. There are occasional humps and bumps, possibly remnants of a more irregular original surface or perhaps created by machinery during installation of the existing water main across the field.

The field outline is not that of a medieval or Post-medieval arable enclosure and is likely to retain that of an original land enclosure of an area of poor pasture or heath. There is a band of such large enclosures on the east side of Edern parish, between the more complex patterns of smaller arable enclosures close to the centre of Edern on the west, and Nefyn parish on the east. However, the field had been taken into cultivation by 1839 as in the Tithe apportionment for Edern it is named as Cae Gwyn, described as Arable and Meadow. No specifically identifiable archaeological features will be affected and the wetness of the land suggests that there would not be any prehistoric settlement although activity of some kind, such as a 'burnt mound' cooking site is a possibility.

As there are vague features in the field surface and there is a possibility of evidence of prehistoric activity then a watching brief during pipeline and building construction would be desirable.

Recommendations for further assessment: None

Recommendations for mitigatory measures: Watching brief

Feature 37 Burials – NE of Edern church

SH28003975 (C)

Period: Medieval

Category: E. Impact: Unknown

Burials were reported to have been found when a mill leat was dug in the mid-19th century across the field (Cae Newydd), to the north-east of the church. . The accuracy of the map reference is unknown, as is the extent of the site. The pipeline passes within 100m of the given map reference and could impinge on the site.

Individual inhumations are difficult to detect using large area geophysical survey. Further assessment using fluxgate gradiometer survey could, however, identify the boundary of an earlier church site.

A watching brief should also be carried out during topsoil stripping in this area.

Recommendations for further assessment: Fluxgate gradiometer survey

Recommendations for mitigatory measures: Intensive watching brief

Feature 21 Field bank

SH28203977 (C)

Period: Post-medieval

Category: D. Impact: Likely

Overgrown earth field bank topped by fence. Probably dates from post-medieval enclosure.

As a long, linear agricultural feature, any impact will be minor.

As a relict part of the historic landscape, its profile should be restored.

Recommendations for further assessment: None

Recommendations for mitigatory measures: Re-instatement

Feature 22 Field bank

SH28713981 (C)

Period: Post-medieval

Category: D. Impact: Likely

Overgrown earth field bank topped by rough hedge. Probably dates from post-medieval enclosure.

As a long, linear agricultural feature, any impact will be minor.

As a relict part of the historic landscape, its profile should be restored.

Recommendations for further assessment: None

Recommendations for mitigatory measures: Re-instatement

Feature 23 Possible relict field bank

SH28743981 (C)

Period: Post-medieval

Category: D. Impact: Likely

Former field boundary visible as very low bank or break of slope running north/south along the centre of the field. The boundary is shown on tithe map of 1839.

As a long, linear agricultural feature, any impact will be only minor.

As a relict part of the historic landscape, its profile should be restored.

Recommendations for further assessment: None

Recommendations for mitigatory measures: Re-instatement

Feature 24 Field bank

SH28863981 (C)

Period: Post-medieval

Category: D. Impact: Likely

Very overgrown earth field bank standing to a height of 2.0m. Probably dates from post-medieval enclosure.

As a long, linear agricultural feature, any impact will be only minor.

As a relict part of the historic landscape, its profile should be restored.

Recommendations for further assessment: None

Recommendations for mitigatory measures: Re-instatement

Feature 20 Medieval field system (Fig. 7)

SH29204000 (C)

Period: Medieval-Post-medieval

Category: B. Impact: Significant

The fields within the area marked on Fig. 1 retain many features of an earlier field system. The fields are characteristically long and curving because they were originally divided into long narrow strips in the medieval open field system. In most places in Britain, these strips were gradually amalgamated into larger, more efficient holdings, and the field patterns eventually changed dramatically. Here, however, the ownership of many of these strips continued up to the 1839 century when the Parish Tithe map (Fig. 5) were drawn up. The tithe schedule still used the terms quillet and the Welsh equivalent *llain*. Both terms refer to medieval style strip holdings. The quilletts have mostly been amalgamated into somewhat larger fields but enough of the boundaries remain to allow the original layout to be traced. The survival of elements of this type of field system is very rare. The level of subsurface survival of the original strip fields is not known but it is likely that elements would be preserved at the topsoil/subsoil interface. Topsoil clearance along the pipeline easement would probably destroy this evidence.

Fluxgate gradiometer survey may be able to detect the line of the strip fields. It is therefore recommended that gradiometer survey should be carried out along the route of the pipeline as it passes through the field system.

If evidence for good preservation of the strip fields emerges the preferred option for mitigation would be avoidance. This would presumably lead to the abandonment of the revised pipeline route. An alternative although less preferred option would be a detailed watching brief. This should be kept throughout this area and provision should be made for the recording of any features as they arise along with the collection of environmental samples where necessary. The associated field boundaries are assessed separately (features 25 to 32). It should be noted that further fields are visible just to the north of Nefyn (features 10,11, 13 and 18). These are treated as separate features although the comments noted above are equally applicable.

Recommendations for further assessment: Fluxgate gradiometer survey

Recommendations for mitigatory measures: Avoidance or detailed watching brief

Feature 25 Field banks and lane

SH28843982 (C)

Period: Medieval Post-medieval

Category: C Impact: Likely

Narrow lane with earth banks on either side. Probably post medieval although possibly retaining some medieval features.

As a long, linear feature, any impact will be only minor.

As a part of the historic landscape, its profile should be restored.

Recommendations for further assessment: None

Recommendations for mitigatory measures: Watching Brief, environmental sampling where appropriate, re-instatement

Feature 26 Field bank

SH28933981 (C)

Period: Medieval/Post-medieval

Category: C. Impact: Likely

Overgrown stone and earth field bank standing to a height of 2.0m. This feature forms part of field system 20 and may include medieval elements. Buried soils could also be preserved beneath the bank which could provide environmental evidence relating to the medieval period.

As a linear agricultural feature, any overall impact will be minor.

As a relict part of the historic landscape, its profile should be restored.

Recommendations for further assessment: None

Recommendations for mitigatory measures: Intensive watching Brief, environmental sampling where appropriate, re-instatement

Feature 27 Field bank

SH29073984 (C)

Period: Medieval/Post-medieval

Category: C. Impact: Likely

Earth field bank standing to a height of 2.0m. This feature forms part of field system 20 and may include medieval elements. Buried soils could also be preserved beneath the bank which could provide environmental evidence relating to the medieval period.

As a linear agricultural feature, any overall impact will be minor.

As a relict part of the historic landscape, its profile should be restored.

Recommendations for further assessment: None

Recommendations for mitigatory measures: Intensive watching Brief, environmental sampling where appropriate, re-instatement

Feature 28 Field bank

SH29123984 (C)

Period: Medieval/Post-medieval

Category: C. Impact: Likely

Overgrown earth field bank standing to a height of 1.8m. This feature forms part of field system 20 and may include medieval elements. Buried soils could also be preserved beneath the bank which could provide environmental evidence relating to the medieval period.

As a linear agricultural feature, any overall impact will be minor.

As a relict part of the historic landscape, its profile should be restored.

Recommendations for further assessment: None

Recommendations for mitigatory measures: Intensive watching Brief, environmental sampling where appropriate, re-instatement

Feature 29 Field bank

SH29303986 (C)

Period: Medieval/Post-medieval

Category: C. Impact: Likely

Low earth field bank standing to a height of 1.0m and surmounted by a fence. This feature forms part of field system 20 and may include medieval elements. Buried soils could also be preserved beneath the bank which could provide environmental evidence relating to the medieval period.

As a linear agricultural feature, any overall impact will be minor.

As a relict part of the historic landscape, its profile should be restored.

Recommendations for further assessment: None

Recommendations for mitigatory measures: Intensive watching Brief, environmental sampling where appropriate, re-instatement

Feature 30 Field bank

SH29353988 (C)

Period: Medieval/Post-medieval

Category: C. Impact: Likely

Earth field bank standing to a height of 1.3m alongside B4412 road. This feature forms part of field system 20 and may include medieval elements although it could have been reinstated when the road was upgraded. Buried soils could also be preserved beneath the bank which could provide environmental evidence relating to the medieval period.

As a linear agricultural feature, any overall impact will be minor.

As a relict part of the historic landscape, its profile should be restored.

Recommendations for further assessment: None

Recommendations for mitigatory measures: Intensive watching Brief, environmental sampling where appropriate, re-instatement

Feature 38 Cist – Bronze Age cremation

SH29273992 (C)

Period: Bronze Age

Category: E. Impact: Unknown

A National Library of Wales manuscript possibly written by the Rev John Lloyd headmaster of Ruthin school records that a cist containing three or four large inverted cremation urns was found at Pen yr Orsedd in 1691. Pen yr Orsedd was recorded as being close to Plas yng Ngheidio. The name Pen yr Orsedd is preserved by a house on the road to Morfa Nefyn and a former owner recorded that local tradition maintains that it was the site of an old cemetery. The house stands about 40m to the north of the pipeline. Bronze Age burials are frequently found in groups forming small cemeteries and often have associated barrows.

Fluxgate gradiometer survey has been shown to be able to detect ploughed out barrows and survey is therefore recommended to the south of Pen yr Orsedd.

A watching brief is also recommended during topsoil stripping where the pipeline crosses the field to the south of the house.

Recommendations for further assessment: Fluxgate gradiometer survey

Recommendations for mitigatory measures: Intensive watching Brief

Feature 31 Field bank

SH29363989 (C)

Period: Medieval/Post-medieval

Category: C. Impact: Likely

Earth field bank standing to a height of 2.0m, faced with rounded stones in places. This feature forms part of field system 20 and may include medieval elements. Buried soils could also be preserved beneath the bank which could provide environmental evidence relating to the medieval period.

As a linear agricultural feature, any overall impact will be minor.

As a relict part of the historic landscape, its profile should be restored.

Recommendations for further assessment: None

Recommendations for mitigatory measures: Intensive watching Brief, environmental sampling where appropriate, re-instatement

Feature 32 Field bank

SH29553996 (C)

Period: Medieval/Post-medieval

Category: C. Impact: Likely

Earth field bank standing to a height of 0.8 to 1.0m and topped by a fence. There has been some erosion by animals and several areas of repair using stone facing. This feature forms part of field system 20 and may include medieval elements. Buried soils could also be preserved beneath the bank which could provide environmental evidence relating to the medieval period.

As a linear agricultural feature, any overall impact will be minor.

As a relict part of the historic landscape, its profile should be restored.

Recommendations for further assessment: None

Recommendations for mitigatory measures: Intensive watching Brief, environmental sampling where appropriate, re-instatement

Feature 33 Field bank

SH29563995 (C)

Period: Post-medieval

Category: D. Impact: Likely

Very overgrown earth field bank standing to a height of 1.4m along with part silted ditch. Trees growing on the bank are presumably an overgrown hedge. Probably dates from post-medieval enclosure.

As a long, linear agricultural feature, any impact will be only minor.

As a relict part of the historic landscape, its profile should be restored.

Recommendations for further assessment: None

Recommendations for mitigatory measures: Re-instatement

Feature 34 Field bank

SH29794019 (C)

Period: Post-medieval

Category: D. Impact: Likely

Very overgrown earth field bank standing to a height of 1.4m along with part silted ditch. Mature trees growing on the bank are presumably an overgrown hedge. Probably dates from post-medieval enclosure.

As a long, linear agricultural feature, any impact will be only minor.

As a relict part of the historic landscape, its profile should be restored.

Recommendations for further assessment: None

Recommendations for mitigatory measures: Re-instatement

Feature 35 Field bank

SH29854023 (C)

Period: Post-medieval

Category: D. Impact: Likely

Redundant and mostly destroyed earth field bank standing to a height of 0.2m and mostly silted ditch. Probably dates from post-medieval enclosure.

As a long, linear agricultural feature, any impact will be only minor.

As a relict part of the historic landscape, its profile should be restored.

Feature 36 Field bank

SH29904032 (C)

Period: Post-medieval

Category: D. Impact: Likely

Earth field bank standing to a height of 2.0m with a fence on either side and on top. Overgrown with gorse. Probably dates from post-medieval enclosure.

As a long, linear agricultural feature, any impact will be only minor.

As a relict part of the historic landscape, its profile should be restored.

Feature 10 Strip field

SH30654071 (C)

Period: Medieval

Category: B. Impact: Slight

One of several long, curving fields in the area around Nefyn, which still retained partial ownership as remnants of medieval strip fields in the early 19th century (Glynllifon 1815) (Fig. 4). Now amalgamated as one field, part of Penisardre farm.

The field is important because it was an unchanged medieval field of 5 strips in 1815. The pipeline runs alongside it and the field should not be affected.

Recommendations for further assessment: None

Recommendations for mitigatory measures: Avoidance

Feature 11 Strip field (Fig. 8)

SH30704078 (C)

Period: Medieval

Category: B. Impact: Significant

Slight remnants of the Medieval field strips survived in 1815 (Fig. 4). Now all are amalgamated into one large field, but in along, narrow, S-shape, running up and down the slope, typical of a medieval field ploughed by an ox team.

Fluxgate gradiometer survey may be able to detect the line of the original strip fields. It is therefore recommended that gradiometer survey should be carried out along the route of the pipeline as it passes through the field.

The pipe trench will cut across the whole width of the field and may reveal a cross-section of the strip fields as ridge and furrow. This therefore needs a watching and recording brief, to produce a plan and photograph of any features found.

Recommendations for further assessment: Fluxgate gradiometer survey

Recommendations for mitigatory measures: Basic recording and intensive watching brief

Feature 12 Field bank

SH30754081 (C)

Period: Medieval-Post-medieval

Category: D. Impact: None

A rather regular field bank without a hedge, which is probably a post-medieval construction, when the fields were enclosed and amalgamated. However, it could be built on top of a medieval boundary, which may have been no more than a plough-headland in the open fields.

The trench will probably go through the existing gateway and not affect the field bank.

Recommendations for further assessment: None

Recommendations for mitigatory measures: None

Feature 13 Strip field

SH30754085 (C)

Period: Medieval

Category: C. Impact: Likely

No strip ownership was marked on the 1815 Estate Map here (Fig. 4) so the field had probably already been amalgamated into one enclosure. However, it is of a typical medieval field shape and was almost certainly previously divided into strips.

Fluxgate gradiometer survey may be able to detect the line of the original strip fields. It is therefore recommended that gradiometer survey should be carried out along the route of the pipeline as it passes through the field.

The pipe trench will cut some way across the field but is less likely to produce information than in Field 10 except where it cuts into the positive lynchet (Feature 14).

Recommendations for further assessment: Fluxgate gradiometer survey

Recommendations for mitigatory measures: Intensive watching brief

Feature 14 Lynchet

SH30804085 (C)

Period: Medieval-Post-medieval

Category: D. Impact: Significant

This is the east end of the former medieval strip field, Feature 13. A depth of soil has built up behind the Post-medieval field bank here (Feature 15). This could be mainly Post-medieval plough headland but might help preserve traces of the former medieval strip field ridge and furrow, possibly even some medieval land surface.

The pipe trench will cut a cross-section across the lynchet but at the longitudinal edge of the field where the section will be less informative, and alongside a Post-medieval farm track into the farmyard, which may have obliterated any early features. A record of the lynchet profile, by levelling is needed. If a buried soil is present, it should be sampled for possible environmental analysis.

Recommendations for further assessment: None

Recommendations for mitigatory measures: Basic recording and intensive watching brief

Feature 15 Field bank

SH30834085 (C)

Period: Post-medieval

Category: D. Impact: Unlikely

A bank faced with neat stonework, forming a revetment for a build-up of plough soil (Feature 14) on the west, uphill side. Contemporary with Penisardre Farm but may overlie remains of a previous medieval boundary.

The planned pipeline route cuts through the gateway and so should not affect the bank. If it did it might provide an interesting cross-section, perhaps with a buried soil and so need basic recording.

Recommendations for further assessment: None

Recommendations for mitigatory measures: Basic recording and intensive watching brief

Feature 16 Farm yard

SH30834082 (C)

Period: 18th-19th century

Category: D. Impact: Slight

A small extension to the main farmyard of Penisardre Farm, enclosed by a wall (Feature 17). Now disused and overgrown.

The trench will cut the yard surface along the line of the trackway in which there are unlikely to be any features.

Recommendations for further assessment: None

Recommendations for mitigatory measures: None

Feature 17 Farm yard wall

SH30844082 (C)

Period: Post-medieval

Category: D. Impact: Significant

A stone-faced bank topped by a hedge, enclosing a yard (Feature 16).

The trench will cut through the wall, which may preserve a medieval soil beneath it. As part of the existing boundary, it will be re-instated. If there is a buried soil, it needs basic recording and sampling.

Recommendations for further assessment: None

Recommendations for mitigatory measures: Basic recording, intensive watching brief and reinstatement

Feature 18 Strip field

SH30864086 (C)

Period: Medieval

Category: C. Impact: Considerable

This field lies at right angles to the other identified Medieval strip fields and to judge by the 1815 estate map was probably subdivided from previously longer strip fields, Features 10 and 11.

Fluxgate gradiometer survey may be able to detect the line of the original strip fields. It is therefore recommended that gradiometer survey should be carried out along the route of the pipeline as it passes through the field.

The proposed pumping station lies at the south end of this field, an area that probably was once medieval ridge and furrow, with little likelihood of buildings or other features anywhere in the vicinity. The construction will involve stripping of an area of topsoil as well as deeper trenching. This could reveal elements of the former ridge and furrow. There should therefore be watching and recording brief during the topsoil stripping stage.

Recommendations for further assessment: Fluxgate gradiometer survey

Recommendations for mitigatory measures: Basic recording and intensive watching brief

5 SUMMARY AND RECOMMENDATIONS

The first part of the revised route of the pipeline passes through an important historic landscape. The following components may be affected by the works. Recommendations for further assessment along with provisional mitigatory measures have been made.

- 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.
- Burials identified in the nineteenth century, to the north of Edern church, could indicate an early ecclesiastical site (feature 37). The pipeline passes close to the burial site and as the overall extent of the archaeology is not known, further assessment is recommended, initially in the form of fluxgate gradiometer survey. Further recommendations are dependant on the results of the survey but an intensive watching brief is recommended during topsoil stripping in this area.
- The pipeline passes through an historic landscape retaining elements of a medieval field system (features 20 and 25 to 32). The present day fields are characteristically long and curving, preserving the line of some of the long narrow strips in the medieval open field system. This level of preservation is rare and further buried elements may also survive. Topsoil clearance along the pipeline easement would probably destroy any buried evidence. Field evaluation is therefore recommended, initially in the form of fluxgate gradiometer survey along the route of the pipeline as it passes through the field system. Further recommendations are dependant on the results of the survey. If the survey reveals good preservation of the strip fields avoidance would be the preferred option. This would either entail a detour around the field system as defined on Fig. 1 feature 20 or reversion to the original route along the road. An intensive watching brief, allowing time for recording of any features that emerge, during topsoil stripping in this area would be an acceptable alternative if avoidance is not possible. Provision should also be made for the collection and processing of environmental samples from any buried soils that are encountered.

- The pipeline route runs just to the south of a site where Bronze Age cremation urns were discovered in the late seventeenth century (site 38). Further assessment is recommended, initially in the form of fluxgate gradiometer survey in order to attempt to identify any surviving associated features such as barrows or further burials. Further recommendations are dependant on the results of the survey but an intensive watching brief is 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.

- At the eastern end of the pipeline route, the pipeline cuts through fields that were once medieval strip fields and where various features might be found. Such features are rarely recovered, because either there is no map evidence of their existence or, in most cases, they have been destroyed by later cultivation. Environmental evidence from a buried headland or boundary bank would be particularly interesting. The affected area comprises Features 10-18, including the area of the proposed Nefyn pumping station. Geophysical survey is again recommended along the route of the pipeline in order to assess the level of survival of the strip fields. If the survey reveals good preservation of the strip fields avoidance would be the preferred option. An intensive watching brief, allowing time for recording of any features that emerge, during topsoil stripping in this area would be an acceptable alternative if avoidance is not possible
- 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.

Summary of recommendations

Further assessment

- Geophysical survey (gradiometer) Features 37, 20, 38, 11, 13 and 18

Mitigatory recommendations

- Avoidance (possible preferred option) Feature 20
- 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

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Glynllifon Estate map Nevin Town and Parish 1815, Scale 6 chains to one inch

OS 1 inch first series, 1838, reprint.

Tithe map for the parish of Nefyn, c. 1839.

OS 1:2500 First Series

OS 1:2500

OS 1:10000 SH24SE

OS 1:10000 SH23SE

OS 1:10000 SH23NE

OS 1:10000 SH34SW

Gwynedd Archives, Caernarfon

Tithe Apportionment Schedules for Edern and Nefyn Parishes

Tithe maps for Edern and Nefyn

Glynllifon Estate maps for Nefyn

APPENDIX 1 List of sites around the water treatment scheme recorded in the Gwynedd Sites and Monuments Record, with their record numbers (See also Fig. 1a)

1. Archaeology and buildings (A – approximate location only, C – centre of extensive site)

a. Within the easement area

none

b. Within 100m of the easement

382 Burials, north of Edern church
3640 Cist - Pen yr Orsedd
5554 Find spot of a medieval jetton (trade token), German or Low Countries, early 14th C
6522 Morfa Nefyn medieval township

c. Within 100m to 1km of the easement

367 St Edern's Church, Edern
422 Standing stone, site of
1535 Motte, Nefyn
1536 Cross incised stone, Early Medieval
4316 St. Mary's church, Nefyn
4317 Priory, site of
5137 Small circular sub-soil feature, unknown date
6529 Nefyn Medieval township
6622 Possible site of Royal manor house or llys
6628 Possible site of circular earthwork

2. Industry and minerals

a. Within the easement area

Nil

b. Within 100m of the easement

Nil

c. Within 100m to 1km of the easement

Nil

APPENDIX 2 List of buildings around the water treatment scheme of special architectural or historic interest sites recorded by Cadw (1998)

a. Nefyn

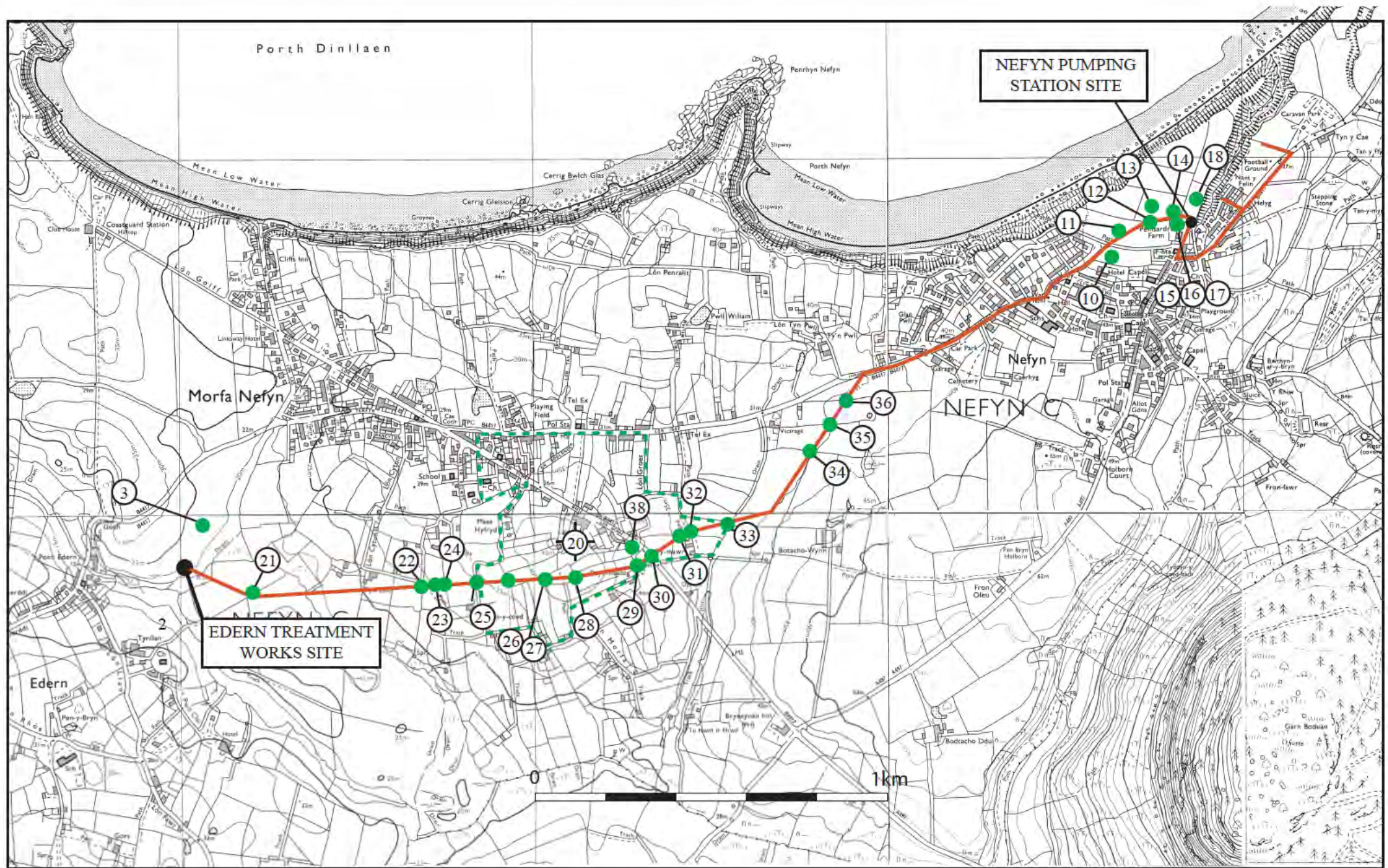
Church of St. Mary
St. Mary's Well
Nefyn Watch Tower

b. Edern

Church of St. Edern
Edern Presbyterian Chapel
Factory Cottage
Glan Afon (House)
Pont Edern

c. Morfa Nefyn

Capel Moreia
Cae'r Pwll (House)
Glandwr (House)
Milestone



Nefyn Waste Water Treatment Scheme

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

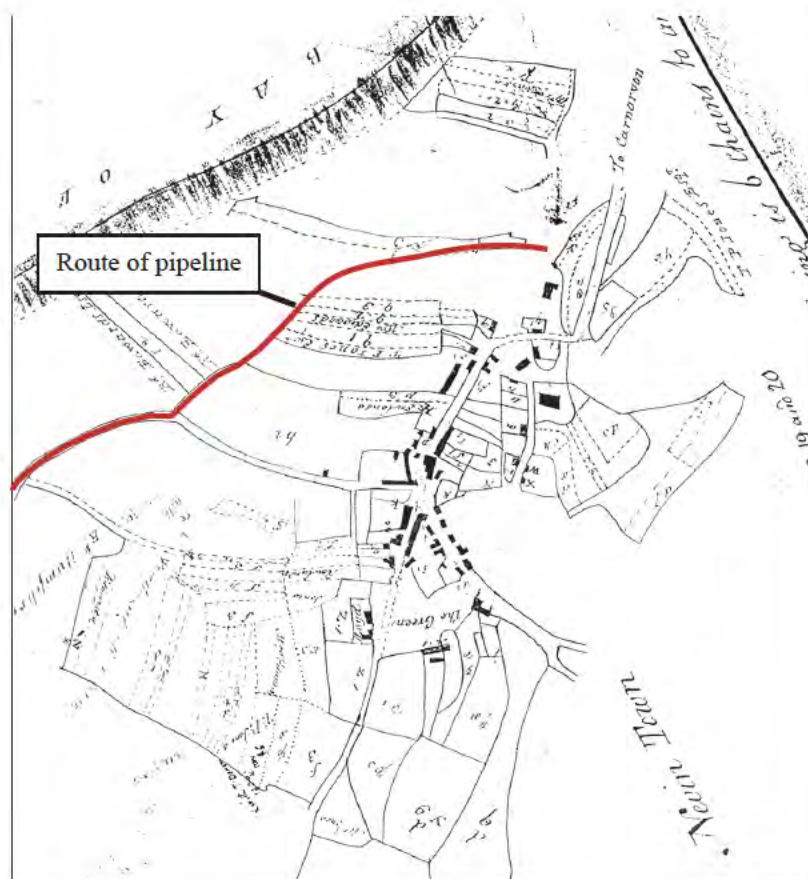
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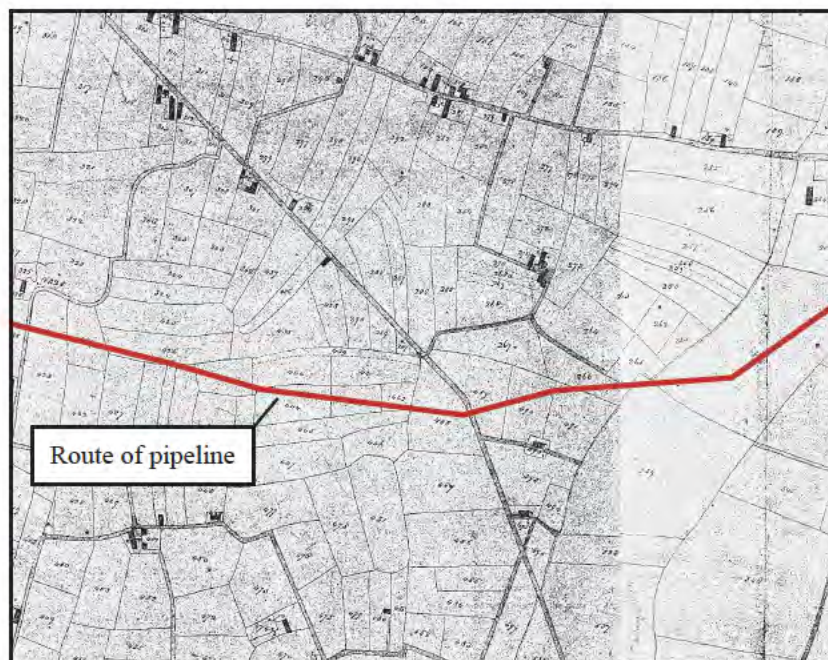
Scale: Not to Scale

Nefyn Waste Water Treatment Scheme
 Fig. 1a Location of features recorded on the Sites and Monuments Record



Nefyn Waste Water Treatment Scheme

Fig. 4 Nefyn town, 1815, showing surviving Medieval strip field holdings (Glynllifon 1815).
(North to top of map)



Nefyn Waste Water Treatment Scheme

Fig. 5 South of Morfa Nefyn, part of Nefyn parish tithe map, 1839, showing area of relict strip fields and route of pipeline (North to top of map).



Nefyn Waste Water Treatment Scheme

Fig. 6 Field (Feature 3), site of proposed Treatment Works, Edern, from the north-west



Nefyn Waste Water Treatment Scheme

Fig. 7 Part of former medieval strip field system (Feature 20) south of Morfa Nefyn.
Taken from close to feature 38, from the east.



Nefyn Waste Water Treatment Scheme

Fig. 8 Former Medieval strip field (Feature 11), Nefyn, from the east



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