

A487 PORTHMADOG/MINFFORDD
AND TREMADOG BYPASSES

ARCHAEOLOGICAL ASSESSMENT (G1285)

REPORT NO. 155 (REVISED)

Ymddiriedolaeth Archaeolegol Gwynedd
Gwynedd Archaeological Trust

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ARCHAEOLOGICAL ASSESSMENT (G1285)

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ARCHAEOLOGICAL ASSESSMENT

1. INTRODUCTION

The Welsh Office is proposing to construct a by-pass around the settlements of Tremadog, Porthmadog and Minffordd. The route crosses mainly reclaimed land, currently laid down to permanent pasture. The extent of the area of interest is a strip 400 m wide centred on the proposed route, but expanding to include slip roads, roundabouts and alterations to existing roads.

The proposals are to be accompanied by an Environmental Assessment, which is being prepared for the Welsh Office Highways Directorate. Gwynedd Archaeological Trust was contracted to undertake the archaeological assessment of the route, to be presented as part of the Environmental Statement.

2. ASSESSMENT BRIEF

An initial report was requested from Gwynedd Archaeological Trust, to assess the likely archaeological impact of the plans and to suggest mitigatory measures. A Suggested Project Design was produced by the Trust, and agreed with Cadw: Welsh Historic Monuments.

The basic requirement was for a desk-top survey and field search of the corridor of interest in order to assess the impact of the proposals on the archaeological and heritage features within the road corridor and close enough to it to be affected. 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 road scheme on the archaeological resource were to be suggested.

In addition, the assessment was to be carried out in accordance with the *Design Manual for Roads and Bridges Volume 11, Section 3, Part 2, Cultural Heritage*, June 1993 (incorporating amendment number 1, August 1994).

Gwynedd Archaeological Trust's proposals for fulfilling these requirements were, briefly, as follows:

- a) to identify and record the cultural heritage of the area to be affected by the proposals;
- b) to evaluate the importance of what was identified (both as a cultural landscape and as the individual items which make up that landscape); and
- c) to recommend ways in which damage to the cultural heritage can be avoided or minimised.

This report covers the work done under the first two stages of assessment, documentary research and walking the route, and includes recommendations for later stages.

3. METHODS AND TECHNIQUES

3.1 Desk-top Study

Consultation of maps, computer records, written records and reference works, which make up the Sites and Monuments Record, was undertaken at Gwynedd Archaeological Trust. Records (including early Ordnance Survey maps, tithe maps and schedules, estate maps and papers and

reference works - see bibliography) were also consulted in the library and the archives of the University College of North Wales, Bangor, and the County archives at Caernarfon and Dolgellau. Two sets of aerial photographs supplied by Halcro, Consulting Engineers, were examined.

3.2 Field Search

This was undertaken on the 15 March 1995 by two members of Trust staff. The whole length of the preferred route was walked where possible (inaccessible areas included some areas of extremely boggy land and the active quarry at Garth), and the rest of the corridor was either walked or observed from neighbouring fields, paths etc. Conditions were generally fine for fieldwork, though a proportion of the land was extremely boggy with thick growth of juncus, or thickly covered with scrub and ground cover. The light condition was average for the time of year.

Sites identified were marked on copies of 1:2,500 maps supplied by Wyn Thomas and Partners Ltd. as accurately as possible without surveying. Forms were filled in assessing each site, and detailed notes made of the more important. Photographs were taken of all potential sites identified.

3.3 Report

All available information was collated, and transferred onto a single set of maps at a scale of 1:2,500 for convenience. The sites were then assessed and allocated to the categories listed below. These are intended to give an idea of the importance of the site and the level of response likely to be required, for ease of reference; descriptions of the sites and specific recommendations for further evaluation or mitigatory measures, as appropriate, are given in the relevant sections of this report.

In some cases, further investigation may result in sites being moved into different categories. The criteria used for allocating sites to categories are based on those used by the Secretary of State when considering ancient monuments for scheduling; these are set out in Annex 3 to Planning Policy Guidance 16 (Wales): Archaeology and Planning.

3.4 Categories

The categories listed below follow the guidelines given in the *Design Manual for Roads and Bridges' Volume 11, Section 3, Part 2, Paragraph 3.4*, and allocation of a site to a category defines the importance of the archaeological resource of that site.

Category A - Sites of national importance.

Scheduled Ancient Monuments, Listed Buildings and sites of schedulable or listable quality, i.e. those which would meet the requirements for scheduling (ancient monuments) or listing (buildings) or both.

Sites which 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.

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

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

Category E - Sites needing further investigation.

Sites whose importance 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.

4. ARCHAEOLOGICAL FINDINGS AND RECOMMENDATIONS

4.1 Introduction

Archive material consulted during the desk-top study provided dating evidence for known sites (e.g. Former Ffestiniog Union Workhouse (1838, enlarged 1897), Plas Newydd farmhouse (late 17th century - date stone of 1677), the Great Embankment or the cob (1808 - 1811), the Ffestiniog Railway (1836), and maps of successive dates allowed an appreciation of the development of the landscape. Estate maps and papers, though including deeds dating to the early Post-Medieval period, were predominantly of relatively recent date. Ordnance Survey and tithe map coverage of the area was good.

Lists supplied by Cadw: Welsh Historic Monuments gave information about listed buildings and scheduled ancient monuments. The closest scheduled ancient monument to the scheme is the site of the Roman bath-house (SAM Cn174) near Llidiart Ysptyty (SH55734013), situated just to the north of the proposed roundabout at the Penmorfa end of the scheme. The curtilage of one listed building is directly affected as the proposals stand: that of the Ffestiniog Union Workhouse (Bron-y-Garth hospital) listed grade II. The setting of other listed buildings, all grade II, will be affected to varying degrees, notably: Capel Peniel (SH56263990), Bodawen Lodge (SH56673965), and to a lesser extent Plas Newydd farm (SH59853960), and Rhos House (SH59503803). Two conservation areas at Porthmadog and Tremadog contain further listed structures, but are not directly affected by the scheme.

Most of the area walked in the course of the fieldwork is land reclaimed from the tidal estuary of the Glaslyn at the beginning of the 19th century. All features of archaeological or historical interest within this area were thus contemporary with or post-dated these constructions. Elsewhere the land had been improved by ploughing, with one area having been used for land-fill. This area has seen frequent development since the early 19th century and the limited survival of early features may in part reflect this.

The location and nature of archaeological sites in the area is such that changes in sediment transport, brought about by the proposed scheme, are unlikely to affect remains of archaeological interest.

Sites noted from documentary sources were identified in the field where possible, and in addition a number of previously unrecorded sites were identified. These are included, with the rest of the sites, in the gazetteer. The total of sites allocated numbers in the gazetteer was 22.

4.2 The Archaeological Background

4.2.1 Prehistoric (up to 48AD)

There are no known settlement or burial sites of the prehistoric period within the corridor of

interest. However within a 5km. radius of the corridor a number of cairns and standing stones belonging to the Bronze Age are to be found. To the west of the area lies the hillfort at Moel-y-Gest and an associated settlement site with at least one round hut. Numerous settlement sites of round huts and associated enclosures dating to the late Prehistoric period are situated on the higher ground to the north of Tremadog.

4.2.2 Roman (48AD - 400AD)

To the immediate north of the proposed roundabout at the Penmorfa end of the route at SH55734041, is the site of a Roman bathhouse (Scheduled Ancient Monument Cn 174). The structure was rectangular in plan and comprised four linearly-arranged rooms, two of which contained hypocausts, and a corridor and small room at a lower level arranged along its southern side. Finds indicate occupation from the 2nd to the 4th century AD.

It is thought that a Roman road, which ran between the forts at Segontium and Tomen-y-Mur, via the Roman fort of Llystyn, may pass near the Bathhouse. The road probably forded Traeth Mawr near Llidiart Yspytty and Bryn-y-Fynwent, to the west of the present-day Tremadog, and is likely to have followed the same line as the present-day Cambrian Railway to Rhydau Minffordd, and then on to Penrhyndeudraeth. Antiquarian reports mention the existence of a Roman pavement on the hill between Penmorfa and Llidiart Yspytty, and the possibility of a Roman origin for the nearby lead mine of Bwlch-y-Plwm (SH 62794160).

The nearest settlement site of the period is the Ty'n-y-Berllan enclosed homestead located to the north of the survey area at SH60033935.

Of interest is the find of horse bones, discovered in c.1860 during the road widening work. This find was made at the west end of the natural hill (SH55704010), known as Bryn-y-Fynwent; the close proximity of the find to the bathhouse site suggests a possible, though tenuous, association.

4.2.3 Medieval (400AD - 1485AD)

The area lies within the Commotes of Eifionydd and Ardudwy-is-Artro. The land formed part of the townships of Gest and Penrhyndeudraeth during the Medieval Period, and was formerly divided between the three Parishes of Ynyscynhaearn, Llanfrothen and Llanfihangel-y-Traethau.

There are no known Medieval sites located within the survey area, however, south-west of Minffordd at SH58833715 is the motte of Castell Gwain Goch (also known as Castell Aber Ia), the remains of the 12th century stronghold of Gruffydd ap Cynan.

The name Llidiart Yspytty (literally translated as "the Gate of the Hospice" is of interest, suggesting a possible connection with the Order of St. John. The Order of St John of Jerusalem or the Knights Hospitallers was established during the first half of the eleventh Century to provide hospitality for pilgrims making the journey to the Middle East. No documentary evidence, however, has been found to support this association.

4.2.4 Post-Medieval and later (1485AD to the present day)

During the early Post-Medieval period the area north of Traeth Mawr was largely in the hands of the Price family of Rhiwlas, who had been actively engaged in a programme of estate expansion since the late 16th century. By the 17th century the land on the south side of Traeth Mawr was in the hands of a cadet branch of the Anwyl family of Parc, based at Plas Newydd. The house of Plas Newydd (Listed grade II) has a date stone inscribed "R.A. 1677", but may have earlier origins.

Large estates continued to dominate the area well into the 19th century, with the lands of the Anwyls of Plas Newydd passing into the hands of the Mostyn estate, and the purchase of the Penmorfa estate, including the house of Tan-yr-Allt and lands bordering the Glaslyn estuary,

from the Rhiwlas estate by W.A. Maddocks in 1798.

The arrival of W.A. Maddocks proved to be a great watershed in the development of the area. Maddocks initiated a series of land reclamation and other development schemes. His embankment of 1800, which reclaimed land in a western branch of the Glaslyn estuary, around Penmorfa, added over 1,000 acres to the estate. Maddocks conceived the model village of Tremadoc as a stopping place on the proposed new Porthdinllaen route to Ireland and construction was begun in 1805. Today the village of Tremadoc retains its original plan, now a conservation area it contains several Listed buildings. Encouraged by the Porthdinllaen Harbour Bill, Maddocks started on the construction of the Great Embankment which was completed in 1811. The Great Embankment allowed reclamation of the entire estuary and in turn lead to improvements in communication between Caernarfonshire and Merioneth and further afield, with improved road and eventually rail links.

4.2.5 Roads, rail and industry

The Merioneth Turnpike Trust was formed in 1777 and was responsible for maintaining the roads in the area between Penmorfa, Pont Aberglaslyn and Penrhyndeudraeth during the 18th and 19th centuries. According to map and other evidence (e.g the map of North Wales by John Evans, 1797) the original route between Penmorfa and Penrhyndeudraeth crossed the sands of Traeth Mawr followed a line from near the hill known as Bryn-y-Fynwent on the north-west side of the estuary, via Ynys-hir (Bodawen) to a point just north of the village of Minffordd on the south-east side of the estuary. This dangerous tidal crossing was only superseded in 1811 with the construction of the Great Embankment and the associated new connecting road to Penrhyndeudraeth. In 1864 the Portmadoc and Beaver Pool Turnpike Trust was set up to oversee the building and maintenance of the road between the Boston Lodge turnpike and the road junction at the Oakley Arms. The Turnpike Trust was finally abolished, in 1886.

Horse-worked tramways were used to construct and maintain the Great Embankment of 1811. The Tremadoc tramway was built in c.1843 to transport iron ore from the ironstone mines of Lliidiart Ysptyty and Pensyflog. In 1821, the port of Portmadoc (Porthmadog) was established, and slate was already being exported by 1824. Several unsuccessful Bills were introduced to obtain a rail link to the slate producing areas of the Moelwyn range. Finally, in 1832 the Festiniog Railway Bill was passed and by 1836 the Festiniog Railway was opened. The line was initially gravity and horse worked, steam traction being introduced in 1863 to cope with increased traffic.

Other important transport developments include the opening of the Croesor Tramway in 1864 and the completion of the coast section of the Cambrian Railway in 1867. The Croesor tramway ran between Carreghyllidrem, in the Croesor valley, and Portmadoc, connecting with a separate tramway north of Carreghyllidrem serving several slate quarries, namely Parc, Croesor, Pant Mawr and Rhosydd; the line used a 2ft gauge. The tramway was maintained and extended by two companies, prior to the embodiment of the Porthmadog end of the tramway into the Welsh Highland in the 1920s: the Croesor & Portmadoc Railway Company (July 1865); and the Portmadoc, Croesor & Beddgelert Tram Railway Company (July 1879). Leased to the Ffestiniog Railway in 1934, the Welsh Highland was finally wound up in 1944. The line has recently undergone partial reconstruction.

4.2.6 Conclusions

The majority of the corridor is reclaimed land dating from the 1800s. Of particular interest are the works carried out by W.A. Maddocks, as is the general concentration of industrial features associated with the development of Portmadoc (Porthmadog) as a port for the mineral and slate extraction industries. Earlier sites are located at either end of the corridor of the proposed scheme and include the Roman remains near Tremadog, and the pre-Maddocks road to Penrhyndeudraeth. The area offers an interesting case study of lines of communication from the Roman Period to the present day.

4.3 Gazetteer of Archaeological Sites

The sites included in the gazetteer are those elements of the cultural landscape noted during the assessment which are within the corridor of interest. They are described in numerical sequence. Each description is followed by recommendations for work **if the site is to be affected by the construction of the new road**. Where the remains require evaluating before full mitigatory measures can be decided upon, the recommendations are for further assessment, the results of which will allow appropriate mitigation measures to be recommended. Where the information is considered sufficient, mitigatory measures are suggested. A summary at the end of the gazetteer lists the sites according to their allocated category.

There are several sites of interest within the area of study, the principle ones being the site of the Roman Bath house at Tremadog, the 19th century Lodge of Bodawen, the Ffestiniog Railway, and the former Ffestiniog Union Workhouse (Ysbytty Bron-y-Garth). These sites are all of national importance.

Several sites are deemed to be of regional importance (category B) due to architectural and archaeological criteria. These are: the buttresses either side the Festiniog Railway; the wall surrounding the Union Workhouse; the Croesor Tramway; the Tremadoc/Gorseddau Tramway; and the canal and drain associated with the works of W A Maddocks.

The Cambrian Railway and the Gorsedd Circle at Tremadog have been placed in category C and are considered to be of local importance.

The majority of the remaining sites identified within the corridor are of local interest only, but nonetheless form an intrinsic part of the cultural landscape. It is recommended that these sites are recorded at a level sufficient to allow future students of the landscape to be aware of the existence and nature of the features concerned.

1. Roman Bathhouse (site of), Tremadog and surrounding area SH55734014

Category: A/E Impact: None

The Roman bathhouse (Scheduled Ancient Monument Cn 174) should not be affected by this road scheme, however the possibility of further Romano-British remains in the vicinity should be considered. The bathhouse site comprises a rectangular complex of rooms laid out in a linear fashion (see Archaeological Background) constructed of rubble (including tile and shell) faced with roughly coursed masonry, set in mortar mixed with pounded tile. Among the many finds recovered from the site in the excavation of 1908 were flue and ridge tiles, roofing slates, a fragment of a terracotta statue, and part of a hinged jet bangle. Pottery from the site indicates that occupation lasted from the 2nd to the 4th centuries AD.

Recommendation for further assessment: The area surrounding the site, particularly that between the bathhouse and the Bryn, should be included in the recommended archaeological evaluation work as outlined in Section 4.3.2 below.

Recommendation for mitigatory measures: None.

2. Find of horse bones at Bryn SH557-401-

Category E Impact: Considerable

Skeletons of numerous horses were uncovered when the Bryn was truncated during a road widening scheme in c.1860. The exact location of the find is now uncertain; it has been thought that it was found at the south-east side of the Penamser road where it joins the A487, however the present A487 road from Penmorfa as far as the junction with the Penamser road has been found to date from the 1860s. This 19th century road dissected an area of land adjacent to the north-west also under the name Bryn on the Tithe of 1842 and it is possible that the site of the horse burials was disturbed during the construction of this road, and may lie further to the north-west.

Recommendation for further assessment: The general area of the find should be included in

the further assessment work as outlined in Section 4.3.2 below.

Recommendation for mitigatory measures: *To be decided following further assessment*

3. Drystone revetting at Bryn-y-Fynwent SH55684002 - SH55724002 and SH55664006C
Category D Impact: Considerable

The remains of the field boundaries shown on the Tithe map of 1842, delineating the western and southern bounds of the raised area known as Bryn or Bryn-y-Fynwent, now remain as a discontinuous dry stone revetment. They may date from the time of the 1800 reclamation, or may be earlier revetting of the seaward-side of the Bryn.

Recommendation for further assessment: *None.*

Recommendation for mitigatory measures: *This site should be surveyed and recorded by photograph and description.*

4. Tremadoc/Gorseddau Tramway at SH56093978 and SH55894012 - SH55604024
Category B Impact: Likely

The section of Tremadoc/Gorseddau Tramway affected runs from just west of the present junction of the existing A487 and A498 roads along the line of the A487 towards Tremadog, turning south, on the line of the present tarmac footpath following the western bank of the canal, where it is crossed by the proposed road. The Tremadoc Tramway, or the Lliidiart Ysptyty line, is shown on the Portmadoc Harbour plans of 1845/1846. A lease of 1840 gives the right to lay a railway from Lliidiart Ysptyty to the wharf at Porthmadog. By 1841 the Tramway is known to have been under construction, though it does not appear on the Tithe map of 1842, and was in use soon after. Built to transport ironstone from the mines at Lliidiart Ysptyty and Pensyflog the Tremadoc tramway had a gauge of 3ft and was probably horse-worked in both directions throughout its life.

This earlier Tremadoc Tramway was linked to the new Gorseddau Tramway in the late 1850s by the Bangor & Portmadoc Slate and Slab Company. In 1872 the Gorseddau Junction & Portmadoc Railways Company was incorporated to take over the Tramway and convert it to a 2ft gauge (in reality smaller at 60cm). The extended and improved Tramway was reopened to freight on 2 September 1875, using a locomotive. The line was to remain in use until the mid-1890s.

Recommendation for further assessment: *None.*

Recommendation for mitigatory measures: *The location of the railway alongside the canal provides an interesting sequence of transport archaeology. If the bed of the railway is to be disturbed, then a section of the revealed deposits should be recorded, along with any details of the canal construction.*

5. The Canal SH55944013 - SH57103896
Category B Impact: Likely

The feature is a steep sided water-filled linear drain, with areas of revetting remaining in places. The Canal, also known as *Y Cyt*, was constructed as part of a land reclamation scheme of 1800. The inspiration behind it is reputed to be the Brecon Canal, which Maddocks knew from his visits to Talgarth. The canal drained the surrounding land, discharging water through the 1800 embankment via the Great Sluice into the estuary of the Glaslyn. In its heyday the canal was capable of accommodating vessels of up to 120 tons. The small ironstone mine at Lliidiart Ysptyty used the canal to transport material from the 1820s till c. 1842, when it started to use the Tremadoc Tramway. Over the same period ore from the Bron-y-Gadair Copper Mine was transported out to sea-going vessels by the same route. Ultimately the canal lost its economic value and reverted to the function of a drain.

Recommendation for further assessment: *None.*

Recommendation for mitigatory measures: *Record by photograph and description.*

6. Junction of old route across Traeth Mawr and improved turnpike road SH56403980 - SH56673956

Category D Impact: Likely

The line of the present A487(T), between Capel Peniel and Bodawen Lodge, overlies the probable junction of the old route across Traeth Mawr and the new turnpike route from Tremadog to Penrhyndeudraeth built following the construction of Great Embankment of 1811. The new road is shown on the OS map of 1838.

Recommendation for further assessment: None.

Recommendation for mitigatory measures: None.

7. Gorsedd Circle SH56583966

Category C Impact: Slight

A modern stone circle erected in 1987 for the National Eisteddfod. The setting of the circle will be affected only.

Recommendation for further assessment: None.

Recommendation for mitigatory measures: The setting of the site should be recorded by photograph.

8. Bodawen Lodge SH56663966

Category A Impact: Slight

The Bodawen lodge, a grade II listed building of early 19th century date. The building comprises a pair of stone cottages under a new single slate hipped roof, with a stone stack at each end. The front has four mid-19th century lattice casement windows and a small slate roofed pentice porch. A low outshut is located at each end of the building. The setting of the building will be affected by the scheme, but the building itself will not be affected.

Recommendation for further assessment: None.

Recommendation for mitigatory measures: This site should be preserved in situ and its setting recorded by photograph.

9. Revetted drain SH57073954

Category B Impact: Considerable (where it cuts drain).

The north-eastern arm of the canal known as Y Cyt (see site 18). Built to convey the water from Cwm Bach, above Tanrallt, through the area reclaimed by the Maddocks embankment to the sea by way of the great sluice. The feature is shown on the OS map of 1838 and is likely to be contemporary with the construction of an embankment of 1800. The feature appears to be stone revetted in places.

Recommendation for further assessment: None.

Recommendation for mitigatory measures: Record by photograph and description any original features, and any changes made to this site.

10. Croesor Tramway at SH57323950

Category B Impact: Likely

The embankment of the Welsh Highland Railway/Croesor Tramway just to the south-west of Pen-y-mount Station. At this point the railway embankment overlies the embankment constructed by W.A Maddocks in 1800 which reclaimed land in the western branch of Traeth Mawr extending as far as Penmorfa. The present rails belong to a restored section of the former Welsh Highland Railway (opened in 1922) which used the existing embankment of the Croesor Tramway. This section, the earliest, of the Croesor Tramway was opened to goods traffic on 1st August 1864.

Recommendation for further assessment: None.

Recommendation for mitigatory measures: Disturbance to the archaeological remains at this point should be kept to a minimum. However, should disturbance become unavoidable then all features should be recorded by photograph and description.

11. Site of shooting butts SH58303917

Category D Impact: Considerable

Shooting butt/s, part of the rifle range shown on the OS 25" county series maps of 1888 and 1917, probably associated with the County Volunteers. The site was visible on the ground as a low sub-rectangular mound.

Recommendation for further assessment: None.

Recommendation for mitigatory measures: Record by photograph and description.

12. Cambrian Railway from Glaslyn Bridge to E of Garth quarry SH58853902 - SH59623882

Category C Impact: Considerable

The embankment and line of the Cambrian Railway, as it passes Garth quarry and approaches the Glaslyn viaduct. This section of the Cambrian Railway was opened in September 1867. Individual features, not necessarily contemporary, include a level crossing, the junction with the quarry siding, and signal and mile posts.

Recommendation for further assessment: None.

Recommendation for mitigatory measures: Record by photograph and written description.

13. Embanked track leading towards Traeth Mawr SH59503865 - SH58953895

Category D Impact: Slight

A linear earth embankment and track running north-west from Minffordd towards the Afon Glaslyn, which appears to represent the south-eastern end of the pre-Maddocks route across Traeth Mawr. The feature is shown on the OS map of 1838 and the John Evans map of 1797.

Recommendation for further assessment: None.

Recommendation for mitigatory measures: Record any features to be disturbed by photograph and written description.

14. Garth quarry SH59403896C

Category D Impact: Slight

Garth quarry, also known as the Minffordd sett quarry, was first operated on a small scale from c.1856, though only officially opened in 1870. The quarry was worked by three different companies between 1870 and 1890, making use of the newly opened Cambrian Railway. The quarry is still active and little of archaeological interest remains. The road scheme largely avoids the quarry, mostly overlying the existing course of the Cambrian Railways, and only affects the extreme southern edge of the site where the rail sidings connected to the Cambrian railway.

Recommendation for further assessment: None.

Recommendation for mitigatory measures: Record any features to be disturbed by photograph and description.

15. Embankment with road SH59593870 - 59453893

Category D Impact: Likely

An earthen linear embankment originally protecting an area of low lying land from tidal inundation. The feature has been adapted and altered during the 19th century and now carries the road to Garth quarry and has been truncated by the embankment of the Cambrian Railways and its level crossing. The embankment was probably constructed during the 18th century, though its association with Plas Newydd hints at an earlier date (possibly late 17th century). The feature appears on the OS map of 1838 and is indicated on the John Evans map of 1789.

Recommendation for further assessment: None.

Recommendation for mitigatory measures: Record by photograph and written description.

16. Pre-turnpike road from Penrhyndeudraeth to Minffordd SH59983885

Category D Impact: Considerable

Now a minor tarmac lane running from Minffordd towards the farms of Plas Newydd and Ty Obry, entering Penrhyndeudraeth after crossing beneath the Festiniog Railway. The line of the road is clearly shown on the John Evans map of 1797 as the main route between the crossing of Traeth Mawr and Maentwrog and areas to the east. The road probably represents a traditional line of communication dating to at least the Medieval period. The feature is dry stone revetted on its north side at the point where it is bridged by the proposed scheme, just to the south of the 17th century Plas Newydd.

Recommendation for further assessment: None.

Recommendation for mitigatory measures: Record any features to be disturbed by photograph and description.

17. Area of quarrying SH60303877C

Category D Impact: Considerable (on NE side).

An area of small scale quarrying with the remains of embankments, and other linear features, including drains and a possible tramway bed leading from the main quarry towards the Festiniog Railway. The quarry may be associated with the Ffestiniog Union Workhouse or possibly the Festiniog Railway.

Recommendation for further assessment: None.

Recommendation for mitigatory measures: Survey and record by photograph and description the areas to be disturbed.

18. Festiniog Railway embankment SH60283884

Category B Impact: Considerable

The embankment of the Festiniog Railway has to be tunnelled through at this point. The embankment varies between 1.7 m and 2.5 m high and 3 m wide at the top. The outer facing is almost vertical, of dry stone walling. Either side the embankment are two dry stone revetted buttresses c. 2.6 m wide and 35 m long. The northern buttress had a signal post upon it. The buttresses may be contemporary with the construction of the railway in 1836.

Recommendation for further assessment: None.

Recommendation for mitigatory measures: The Festiniog Railway, in taking the narrow gauge railways of the slate quarries into the era of steam and also providing an example that was copied throughout the world, is considered in this report to be of national importance. The embankment and buttresses at this point have therefore been made Category B, and full recording of the features both before and during disturbance is recommended. This recording should include details of the makeup of the embankment and buttresses, and section drawings across them.

19. Curtilage of Ffestiniog Union Workhouse (Bron-y-Garth Hospital) SH60423877

Category B Impact: Considerable (on NE corner)

The north-east angle of the surrounding wall of the grounds belonging to the former Ffestiniog Union Workhouse, built c.1838. Constructed of random rubble and largely surviving to its full height. The main buildings are listed grade II, and because of its association with those buildings this site is considered to be of regional importance. Listed building consent may be required because the setting of the listed buildings will be affected.

Recommendation for further assessment: None.

Recommendation for mitigatory measures: Record by photograph and written description. Care should be taken to lessen the impact of the scheme on the setting of the listed buildings.

20. Area of quarry scoops SH60453877C

Category D Impact: Likely

The westernmost of two fields known as Bryniau Cochion on the Tithe of 1845, situated immediately to the east of the former Ffestiniog Union Workhouse. The occupants of the

Workhouse were employed on quarrying stone for road building and maintenance. The extensive area of small quarry scoops and generally pitted landscape, may be the result of these activities.

Recommendation for further assessment: None.

Recommendation for mitigatory measures: Record by photograph and written description.

21. Wall foundations SH75741830

Category E Impact: Considerable

A number of traceable linear foundations lying immediately north of and possibly partially cut by the existing A487 road. This road was built following the completion of the great embankment across Traeth Mawr in 1811. These foundations may be that of a building shown on J Evans map of 1792; possibly a precursor to the nearby Hendre Isaf.

Recommendation for further assessment: Trial trenching to establish exact nature of feature.

Recommendation for mitigatory measures: To be established following further assessment.

22. Bank SH60533872 - SH60483884

Category D Impact: Slight

A discontinuous low earth and stone bank which runs roughly N from the existing A487, to the east of Bron-y-Garth Hospital. Appears on the Tithe map of 1845, and divides an area known as Bryniau Cochion. See site (3).

Recommendation for further assessment: None.

Recommendation for mitigatory measures: Record by photograph and written description.

4.3.1 Field boundaries Category D

The pattern and nature of field boundaries are an important part of the historic landscape. Their construction, linear plan and ecological diversity can provide valuable information about the landscape and its evolution. The most common type of field within the reclaimed area are low earth banks topped by mixed deciduous hedges, notably birch and blackthorn. Examples of dry stone walls exist in the higher land either side the estuary.

Recommendation for further assessment: None.

Recommendation for mitigatory measures:

It is recommended that an archaeological and ecological survey be undertaken of the field boundaries within the corridor of interest, and expand this where necessary to allow the boundaries to be put into context.

4.3.2 Areas of unknown archaeological potential Category E

Previous results from similar projects have shown that many sites can only be detected by excavation, particularly in areas such as this where surface indications are slight due to ploughing. Trial trenching and a continuous watching brief along the line of the route are therefore essential parts of the evaluation procedure, with potential for discovering sites which would otherwise go unrecorded.

Recommendation for further assessment: Much of the route of this road lies on reclaimed land, but the areas east of the Festiniog Railway at the east end of the by-pass, and around the Bryn at the west end of the by-pass, are recommended for further evaluation. This should take the form of geophysical survey, with a series of trial trenches, the location of which should be partly random and partly informed by the results of the geophysical survey.

Recommended mitigatory measures: Any sites arising from the trial trenching will be allocated to categories according to their importance.

5. SUMMARY OF RECOMMENDATIONS FOR FURTHER WORK AND MITIGATORY MEASURES

5.1 Further Assessment Work

This section summarises the work which is recommended to evaluate those archaeological remains whose status and extent are not yet established, i.e. sites in Category E. They will be reclassified and suitable mitigatory measures suggested following evaluation.

Category E - Sites needing further investigation

- | | |
|---|------------------|
| 1. Area surrounding Roman Bathhouse, Tremadog | Trial excavation |
| 2. Find of horse bones at Bryn | Trial excavation |
| 21. Wall foundations | Trial excavation |
| Areas of unknown archaeological potential | Trial excavation |

5.2 Mitigatory Measures

This section lists the remaining sites according to category. The categorisation attempts to quantify the importance of the archaeological resource, as suggested in the 'Design Manual for Roads and Bridges' Volume 11, Section 3, Part 2.

Category A - National importance

- | | |
|------------------|------------------------|
| 8. Bodawen Lodge | Photographic recording |
|------------------|------------------------|

Category B - Regional importance

- | | |
|---|----------------------------|
| 6. Tremadoc/Gorseddau Tramway | Archaeological examination |
| 5. The Canal | Recording |
| 9. Revetted drain | Recording |
| 10. Croesor Tramway | Recording |
| 18. Festiniog Railway | Recording |
| 19. Curtilage of Ffestiniog Union Workhouse | Recording |

Category C - Local importance

- | | |
|----------------------|------------------------|
| 7. Gorsedd Circle | Setting to be recorded |
| 12. Cambrian Railway | Recording |

Category D - Minor and damaged sites

- | | |
|---|-----------|
| 3. Drystone revetting at Bryn-y-Fynwent | Recording |
| 6. Junction of old Traeth Mawr route | Recording |
| 11. Site of shooting butts | Recording |
| 13. Embanked track | Recording |
| 14. Garth quarry | Recording |
| 15. Embankment with road | Recording |
| 16. Pre-turnpike road | Recording |
| 17. Area of quarrying | Recording |
| 20. Area of quarry scoops | Recording |
| 22. Bank | Recording |
| Field boundaries | Recording |

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7. NON TECHNICAL SUMMARY

An archaeological assessment of the proposed route has been carried out to identify sites or features of archaeological interest, and to assess the impact of the proposals on the archaeological remains identified. The assessment has been carried out in accordance with the Design Manual for Roads and Bridges Volume 11, Section 3, Part 2, Cultural Heritage, June 1993 (incorporating amendment number 1, August 1994).

The initial assessment of the proposed route identified a number of sites of national, regional and local interest, and three sites that require further assessment. The location and nature of archaeological sites in the area is such that changes in sediment transport within the Afon Glaslyn brought about by the proposed scheme should not affect remains of archaeological interest.

Sites identified within the route corridor range from the Roman period to the present century, although are mainly of the 19th century. Significant sites are the Roman Bath house at Tremadog (1), the 19th century Lodge of Bodawen (8), the Festiniog Railway, and the former Ffestiniog Union Workhouse, all of which are of national importance. Where the setting of these sites is to be affected appropriate views should be recorded by photograph, and measures taken to mitigate the visual intrusion.

Sites of regional interest are the Canal (5), the Tremadoc/Gorseddau Tramway (6), the revetted drain (9), the Croesor Tramway (10), the Festiniog Railway embankment (18) and the Curtilage of the Union Workhouse (19). It is recommended that disturbance of these is kept to a minimum, and that any change is recorded by photograph and written description, with measured drawings where appropriate.

Sites of local interest are the Cambrian Railway (11), which should be recorded by photograph and written description before and during any disturbance, and the Gorsedd Circle (16), although this latter site will not be directly affected by the proposed scheme.

Recommendations are proposed for further archaeological evaluation to clarify the extent and nature of potential sites, particularly in the vicinity of the Roman bathhouse.

A number of agricultural, industrial and other features were identified, among which are tracks, field boundaries, and quarry workings and scoops, for all of which photographic recording in advance of destruction is recommended.

It is recommended that an archaeological and ecological survey be undertaken of the field boundaries within the corridor of interest, and that this is expanded where necessary to allow the destroyed boundaries to be put into context.