

A5 ANGLESEY IMPROVEMENTS
STAGE 1, WEST OF
LLANFAIRPWLLGWYNGYLL TO A5114
NANT TURNPIKE

ARCHAEOLOGICAL ASSESSMENT

REPORT NO 70

GAT. 1141

Ymddiriedolaeth Archaeolegol Gwynedd
Gwynedd Archaeological Trust

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for Gwynedd County Council Highways and Transportation Dept.

Gwynedd Archaeological Trust Report No 70

A5 ANGLESEY IMPROVEMENTS - STAGE 1

INITIAL REPORT

1. INTRODUCTION

The Welsh Office is proposing to upgrade the A5 trunk road across Anglesey. Stage 1 of this work extends from the end of the existing Llanfairpwll bypass, just west of the village, to the junction with the A5114 (Llangefni road) at Nant Turnpike.

The proposed route broadly follows the line of the existing A5, to the north, keeping fairly close to the old road for most of the way but bypassing the villages of Gaerwen and Pentre Berw. The new route crosses mainly agricultural land, laid down to permanent pasture, which is undulating with rocky outcrops for the most part but includes a fairly extensive low-lying area at the western end.

The extent of the area of interest is a strip 200 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 by Richards, Moorhead & Laing for Gwynedd County Council. Gwynedd Archaeological Trust was contracted by Gwynedd County Council to undertake the archaeological assessment of the route, to be presented as part of the Environmental Statement.

2. ASSESSMENT BRIEF

Gwynedd Archaeological Trust was commissioned to assess the likely archaeological impact of the proposed scheme, and suggest mitigatory measures. A Suggested Project Design was produced by the Trust and agreed with Cadw: Welsh Historic Monuments, a copy of which appears as Appendix I to this report.

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.

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.

N.B. Full details of ancillary areas likely to be affected by the road works, such as vehicle parking and turning areas, materials storage areas etc., have not yet been supplied. Experience shows that these areas are as likely to suffer damage as the actual landtake for the road. If all such areas fall within the corridor of interest, they will have been covered, but as the corridor is relatively narrow there is a possibility of ancillary areas extending outside it. As we understand that the fine detail of the route, link roads etc. is still subject to change, there is obviously a potential need for limited further work. In order that all areas can be subjected to the same level of survey, any information relating to new areas affected should be notified to the Trust as soon as possible.

3. THE ARCHAEOLOGICAL BACKGROUND

No settlement or burial sites are known from the prehistoric period within or near the corridor of interest, but sites and finds dating to this time occur in the surrounding area. Two Neolithic stone axes were found in the area of the A5, one in Llanfairpwll and one close to the existing road between Star and Gaerwen. The complex site at Cae Capel Eithin (PRN 2746), a short distance north of the proposed route, has produced evidence of Neolithic occupation, together with an extensive Bronze Age cremation cemetery. Anglesey in general has many prehistoric sites, particularly in the south and east, and it is probable that the whole island was well settled during this period.

The enclosure near Bryn Gof (PRN 2702) is probably late prehistoric or Romano-British in date, and there is evidence for Roman occupation too from Cae Capel Eithin. Again, a concentration of Roman sites in southern and eastern Anglesey suggests that there is considerable potential for finding more.

Settlement of the area during the Medieval period is fairly well documented, but limited physical evidence exists. The line of the proposed road passes through several known Medieval townships, although appearing to be clear of the actual settlement sites. Those identified (e.g. Bryn y Gof, Carnan Isaf, Carnan Uchaf, Gaerwen, Berw and Lledwigan) are represented today by farm or village names; in the case of Gaerwen and Berw there is evidence of migration of settlement, following the construction of Telford's A5, bringing the villages to lie close to the new road.

The name Bryn y Gof now belongs to a single farmstead. The Carnan names are attached to a series of farms called either Carnan or Carnedd: both names mean 'a heap of stones', although the location of the feature from which the name originates is not known. The original township of Gaerwen (trans. 'the white fort') probably lies south of the A5, where Gaerwen Uchaf and Gaerwen Isaf are still to be found, and if the name should refer to the existence of a stone fort then its location is likely to be south of the corridor of interest. A settlement connected with the Medieval township of Berw may have lain on the site of the present village, where there was formerly a Medieval chapel (Capel Ulo), although the 15th century house of Plas Berw lies south-west of here. The Medieval township of Lledwigan (originally in two parts, Lledwigan Llys and Lledwigan Llan), is represented on the ground by the present farm of Lledwigan. The remains of field systems associated with these early settlements can often be recognised from estate maps, and the ridge-and-furrow visible around Lledwigan could be part of such a system.

Several events took place in the 18th and 19th centuries which transformed the landscape of the area. The most obvious was the building of the cob at Malltraeth, with the associated draining and enclosing of Malltraeth Marsh and the re-routing of the Cefni into its present course, with the main channel flanked by two side drains. This work was carried out between 1788 and 1811.

Houses and farms along the route date from at least the 18th century onwards, some of them being buildings of intrinsic merit and some having group value with their associated outbuildings and walls. Others are now reduced to nothing more than earthworks. Some, which retain the names of medieval settlements, may be located on or very close to the centres of those settlements.

Industrial remains in the Berw and Lledwigan areas reflect the two principal local industries of the Post-Medieval period. In Malltraeth Marsh, near Pentre Berw, are the remains of two coal mines, which exploited the coal measures lying in two narrow bands on either side of the Marsh, and extending for some way underneath it. These are the only workable coal measures in north-west Wales, and the earliest reference to mining in the area occurs in a document of 1532. Coal continued to be worked in the Penrhyn Mawr area from this time until about 1850. The building marked on several maps as 'Machine', on the south side of the A5 opposite the Penrhyn coal mine, would have been the location of a weighing machine.

The lime kilns in the Lledwigan area, their growth encouraged by the presence of limestone and coal, were an important industry throughout the 19th century, and before. There were at least six kilns with associated quarries, some operating from the 18th century, and most continued in use up to the late 19th century.

Changes in transport and communications are reflected in the construction of new road and railway networks in the 19th century. Official traffic from London to Dublin increased after the Act of Union of 1800, which amalgamated the Irish and British parliaments, and in 1810 Thomas Telford was asked to advise on improving the route between them. The result on Anglesey was the construction of a new road across the island replacing the old post road, and linked to the mainland by the Menai suspension bridge across the straits. The new road was some four miles shorter, and with fewer gradients. The surfaces of Telford's roads were typically water-rolled stone, which required continual maintenance, and so recesses were built into the walls lining the road for the storage of new road metal. The original walls with these recesses still flank the road for most of the stretch between Llanfairpwll and Nant Turnpike. On this same stretch, there was a toll house at Llanfairpwll, and another at Nant, both with three ground floor rooms and an octagonal bedroom. The Nant toll house was built in 1822 at a cost of £328.00. The present Llangejni branch road was also constructed at that time, at a cost of £1293.15.00. The Anglesey turnpike was the last survivor in North Wales, and continued charging until 1895.

The main Chester to Holyhead railway line was built between 1846 and 1850; Stephenson's tubular bridge was opened on 5th March, 1850. The Anglesey Central line to Amlwch followed in 1865, although the extension to the Anglesey Central from Pentre Berw to Red Wharf was not built until 1909.

As might be expected, the sites of archaeological and historical interest which have best survived largely date from the later periods, but the area has most probably been settled from the Neolithic period at least and the potential exists for the discovery of further sites relating to all periods.

4. METHODS AND TECHNIQUES

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 Anglesey archives at Llangefni. Aerial photographs were inspected at the offices of Gwynedd County Council, the County Archives at Caernarfon and the Royal Commission in Aberystwyth.

Field Search

This was undertaken during the period 5th - 8th October 1993 by two members of Trust staff. The whole length of the preferred route was walked where possible (the only inaccessible areas were a few small patches of marsh or dense scrub). Conditions were generally good for fieldwalking, most of the land being under pasture and the weather mainly dry and sunny.

Many farmers were spoken to along the route; all were helpful but none were able to contribute information of material value.

Sites identified were marked on copies of the maps supplied by Gwynedd County Council, 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.

Report

All available information was collated and the points of greatest interest and relevance were transferred onto a single set of maps at a scale of approximately 1:7,000 for ease of reference. The sites were then assessed and allocated to the categories listed below; further investigation may result in some 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: Archaeology and Planning.

Categories

The 'Design Manual for Roads and Bridges' Volume 11 states in paragraph 6.2 '*For archaeological remains which are underground, in situ preservation is preferable to excavation where practicable.*' The categories listed below reflect this approach, although a distinction is made between those sites considered to be of national importance (Category A) and those of

lesser importance (Category B) which would require full recording (including excavation) prior to disturbance.

Category A - Preservation in situ.

Sites of such importance that it is recommended that they remain preserved and protected *in situ*.

Category B - Detailed recording.

Sites for which preservation *in situ* is the preferred option, but appropriate detailed recording might be an acceptable alternative if damage or destruction cannot be avoided.

Category C - Recording by photograph and description.

Sites capable of being adequately recorded quickly, if threatened, by written description and photograph, and in some cases by measured survey.

Category D - Watching brief sites.

Sites are allocated to Category D where finds or features may be expected (e.g. significant place-names, geophysical anomalies which have not been satisfactorily identified, or areas near existing sites) but no work is thought to be necessary in advance of the road works. It is recommended that the whole route be the subject of a watching brief as some sites will not be suspected until topsoil stripping reveals them, and sites identified in advance of the works may require further recording during construction.

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 - C, 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.

5. RESULTS AND RECOMMENDATIONS

Archive material for the desk-top study was plentiful, and results suggest that the area was of some historical importance, especially in the Medieval period. Estate and other old maps provided dating and place-name information, as well as showing features of interest omitted from modern maps; lists supplied by Cadw: Welsh Historic Monuments gave information about listed buildings and scheduled ancient monuments (although only one of these, Cae Capel Eithin (SAM 120) falls within the corridor of interest). Aerial photographs both confirmed the positions of known sites and showed up some 'new' sites, the latter all within the Lledwigan/Llangristiolus area. Several fields here show the typical 'striped' effect produced by the remains of ridge-and-furrow cultivation, and there are other, less clear, remains, some of which were also noted on the ground during the field search. This area contains several features of interest, with potential for the discovery of medieval settlement in the vicinity of the church. Whilst the ridge-and-furrow cultivation cannot be dated, it may belong to the time of the Medieval township of Lledwigan, and almost certainly predates the period of quarrying and lime-burning early in the 19th century. Many of the remains are rather slight, being much ploughed down, and difficult to identify at this stage; these therefore have not been separately listed in the Gazetteer but contribute to the status of this area (Area 1) as an *Area of High Archaeological Potential*.

A second area (Area 2) was similarly designated around the group of Carneddi place-names, for similar reasons. There was obviously settlement in this area in Medieval times, and traces of it may remain, including a possible field system, which is included in the Gazetteer; but there is clearly potential for further discoveries.

Most of the fields walked in the course of the fieldwork had been repeatedly ploughed over many years, with the result that surface indications were often ambiguous or absent. It is clear that under these circumstances fieldwalking may not be the most efficient way of identifying new features.

Sites already noted from documentary sources were identified in the field where possible and marked on the map if necessary; and a number of previously unrecorded sites was identified, and these are included, with the rest of the sites, in the Gazetteer. The total of sites allocated numbers in the Gazetteer was 17, plus the two Areas.

Gazetteer and recommendations Sites are numbered from west to east

The sites are described here in numerical sequence. Each description is followed by recommendations, for further assessment when the evaluation requires completion before mitigatory measures can be suggested, and for mitigatory measures when there is sufficient information for such measures to be suggested. A summary at the end of the gazetteer lists the sites according to their allocated category.

1. Telford's A5 Category C

The extant A5, still largely following the route laid out by Telford and built in 1818-22, retains most of the original walling, bridges and culverts. It is particularly important as the Anglesey stretch is the only remaining long stretch of the A5 which was built new by Telford, and therefore may retain, under later surfaces, an original new metalled surface typical of the time.

Recommendation for further assessment: None.

Recommended mitigatory measures: Where the A5 is to be altered or abandoned, it should be recorded, with particular attention paid to the recording of the original metalling.

2. Cottage alongside A5 SH44907412 Category C

An abandoned two-roomed building on the edge of the road. The relationship of the walls suggests that it predates the construction of Telford's A5, although it is not shown on the first edition of the 1" Ordnance Survey map. Nothing is known of its history at present.

Recommendation for further assessment: None.

Recommended mitigatory measures: Record by photograph and description.

3. Nant - site of, Llangristiolus SH44987382 Category E

The foundations of a farm, dating back to the 18th century at least, which was moved when Telford's road was built, and relocated at Nant Newydd to the north. It is reasonable to expect to find medieval settlement remains within the vicinity of the church, and Nant could be a survivor of this, as could the ridge and furrow surrounding it, although this latter could be a result of Victorian steam ploughing.

Recommendation for further assessment: A geophysical survey of the area occupied by Nant and the surrounding area. This would give an indication of the extent of settlement remains, the relationship of the existing field system to Nant, and of possible underlying field systems. A sequence of test pits may be necessary to confirm the results of the geophysical survey.

Recommended mitigatory measures: The site will be reclassified following evaluation.

4. Toll House, Nant Turnpike SH45047385 Category C

The present building, although it bears a plaque stating that it is the former tollhouse, was not the original tollhouse, the foundations of which have been noted immediately to the north-west.

Recommendation for further assessment: None.

Recommended mitigatory measures: The present building, and the foundations if exposed, would require recording if threatened.

5. Field system and earthworks S. of Lledwigan SH45307365C Category E

The whole of the field containing the lime kiln is covered with ridge-and-furrow, clearly visible from the air and, under certain conditions, on the ground, except for the north-west corner, which may contain traces of a field system of a different kind. The site of a former building located north of the quarry is also visible as low earthworks, with a track leading to it from the A5. Documentary evidence would suggest this building predates the quarry, but is not older than the 19th century.

Recommendation for further assessment: A geophysical survey of the area to be disturbed to locate possible areas of archaeological interest, in particular areas of settlement and/or earlier field systems connected with the Medieval township of Lledwigan.

Recommended mitigatory measures: The site will be reclassified following evaluation.

6a. Lime kiln, quarry and stables PRN 1599 SH45387360 Category A

The kiln is a large, square stone building in a good state of preservation, containing two pots, each with a single draw hole. The associated quarry, close by to the north-west, is not very large and may reflect a relatively short life-span for this kiln by comparison with others nearby. Documentary evidence suggests this kiln was not built until the middle of the 19th century, and that it had ceased working by 1900. The remains of associated stables abut the revetment wall of the present A5, and will be cut off from the rest of the complex by the new road if built according to current plans. There is a documentary reference to a track 'once gravelled', 3/4 mile long, serving this kiln and its neighbour. The line of a track is still visible between the A5 and the first kiln.

Recommendation for further assessment: None.

Recommended mitigatory measures: This site is an important survivor of the once flourishing lime-burning industry, and the complex has been classified as Category A. The service road and stables which lie between the present A5 and kiln have group value with the kiln and quarry and thus enhance the value of the whole complex, but if the cutting-off of these elements by the new road is unavoidable, they do not merit Category A status as a separate site, and recording by measured survey and photography prior to disturbance would be adequate.

6b. Limestone quarries with remains of associated kilns. Various locations near 6a. Category C

There are several limestone quarries in addition to that already mentioned, some of which also contained a lime kiln.

SH44917371 Outcrop, quarried in the past

SH45157400 Large, overgrown quarry, previously contained a lime kiln

SH45087381 Overgrown quarry with pond, near toll house, previously contained a lime kiln

SH44977367 Large quarry now used as landfill site, previously contained a lime kiln

SH45087308 Overgrown quarry between A5 and church

Recommendation for further assessment: None.

Recommended mitigatory measures: Recording by description and photograph, with particular attention being paid to the sites of former lime kilns.

7. Afon Cefni Embankments SH46187310A Category C

Attempts to regularise the course of the river have been made since the 16th century. The

present layout, with its double embankments and ditches, dates from the late 18th to early 19th centuries.

Recommendation for further assessment: None.

Recommended mitigatory measures: If the embankments are to be disturbed, their makeup and method of construction should be recorded by measured drawing and photography.

8. Penrhyn Coal Mine SH46687260C Category E

No building remains are visible but they, and tips, may exist under the scrub which covers much of the site. Documentary evidence suggests the likely presence of several shafts, with a beam engine located at one of them. At least one outlying shaft may be seen in the next field to the east. The coalfield was being exploited early in the 19th century, but was certainly first used well before this - possibly even in the Medieval period.

Recommendation for further assessment: The remains which survive are difficult to assess because of the presence of vegetation. It is therefore recommended that the vegetation is removed, and a full measured survey carried out.

Recommended mitigatory measures: The site will be reclassified following evaluation.

9a. Holland Arms Station SH47117261 Category A

A brick building dated 1891, the disused station is in good condition and retains many original features.

Recommendation for further assessment: None.

Recommended mitigatory measures: This building should be preserved in situ.

9b. Railway line SH47107275 Category C

The road corridor crosses the branch line from Pentre Berw to Amlwch, still occasionally in use for freight trains. The eastern branch to Red Wharf Bay is now completely disused and the tracks have been taken up.

Recommendation for further assessment: None.

Recommended mitigatory measures: The line and associated elements to be recorded by description and photograph before any disturbance.

10. Small roadside quarries SH47767249 & SH 47787258 Category C

There are two small quarries, into natural outcrops, either side of the road south of Craig Fawr farm.

Recommendation for further assessment: None.

Recommended mitigatory measures: Recording by photograph and description.

11. Cae Capel Eithin - site of excavation SH49007265C Category E

An excavation was carried out here in 1978-80, which revealed a multi-period site including Bronze Age and Early Christian cemeteries, a Roman building and other features.

Recommendation for further assessment: The area which was previously excavated lies outside the 200 m road corridor, but as the archaeological remains clearly extended beyond the excavated area, geophysical survey and trial excavation pits along the line of the link road are recommended to discover whether any archaeological remains are to be affected by the construction of the road.

Recommended mitigatory measures: The site will be reclassified following evaluation.

12. Possible field system, Garnedd Fawr SH49807215 Category E

What appear to be large but ploughed-down lynchets are visible in a sloping field west of Garnedd Fawr; these could be the remains of a Medieval field system. A curving linear feature may be an old track or hollow way, or a watercourse. A small enclosure shown on old maps has now been ploughed out, and is barely visible on the ground.

Recommendation for further assessment: Up to three small trenches across the possible lynchets where they are going to be disturbed by the construction of the road; this should confirm the status of these features.

Recommended mitigatory measures: The site will be reclassified following evaluation.

13. Well, Garnedd Ddu SH50517215 Category C

A small spring beside a stream has a capstone and some walling around it. Although it has evidently been trampled by animals and is now a muddy pool, the proximity to the area of 'Carnedd' names suggests that it may be of Medieval origin (see Area 2).

Recommendation for further assessment: None.

Recommended mitigatory measures: Recording by photograph and description.

14. Green lane, near Garnedd Ddu SH50557215 Category C

There are several tracks and lanes in the area of the 'Carnedd' place-names, any of which may be old roads. This one is currently a farm track but as it comes out very close to the well (No 13) it could be Medieval.

Recommendation for further assessment: None.

Recommended mitigatory measures: Recording by photograph and description, with a measured drawing of the section if the road works cut through the track.

15. Cottage alongside A5 SH50767195 Category C

A derelict two-roomed building on the edge of the road, similar to No 2, but in this case there is no evidence to suggest that it pre-dates the roadside walls. Some plaster remains on inside walls and both rooms have fireplaces.

Recommendation for further assessment: None.

Recommended mitigatory measures: Recording by photograph and description.

16. Possible Medieval field system, Bryn Gof SH51507185C Category E

Two faint banks in the field east of Bryn Gof may be ploughed-down lynchets - the remains of a Medieval field system.

Recommendation for further assessment: One trench across one of the possible lynchets to determine its status.

Recommended mitigatory measures: The site will be reclassified following evaluation.

17. Field name - Cae Cwt Crwn SH52207190C Category D

There is nothing visible in this field, but the name could mean that it contains the remains of prehistoric or Romano-British round houses.

Recommendation for further assessment: None.

Recommended mitigatory measures: A watching brief if this field is disturbed.

Areas of High Archaeological Potential numbered from west to east

Area 1: Lledwigan/Llangristiolus SH44857385C

This large area, falling mostly to the north and west of St Cristiolus' Church, includes the Medieval township of Lledwigan. Although this is now represented only by a single farm name, vestiges of this and later periods of history do remain. Some slight earthwork features are visible on the ground and more, including fairly extensive areas of ridge-and-furrow, can be seen from the air. Industrial remains are also present in this area, adding further to its importance.

Recommendation for further assessment: Several sites in this area have already been included in the Gazetteer (i.e. the lime kiln, the field system around it, and the site at Nant). However in view of the likelihood of Medieval remains it is recommended that geophysical survey be conducted over the areas to be affected north and east of the church. This would include the entire length of the link road from the roundabout to the present A5. Results from the survey would need to be further analysed by a series of test pits.

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

Area 2: Carneddi place-names SH50507250C

Another large area, mostly to the north of the A5. Two Medieval townships, Carnan Isaf and Carnan Uchaf, once existed in this area, but as the name (altered to Carnedd or Garnedd in most cases) still clings to several farms, it is difficult to suggest precise locations. Old tracks and field boundaries in the area may reflect the ancient landscape. The cairn or heap of stones which gave its name originally to the locality may of course be significant in itself, and is so far unlocated.

Recommendation for further assessment: This area of possible Medieval settlement is more nebulous than that at Lledwigan, but in view of the likelihood of extant remains a series of test pits along the line of the proposed road is suggested.

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

Areas of unknown archaeological potential

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 along the line of the route is therefore often seen as an essential part of the evaluation procedure, with potential for discovering sites which would otherwise go unrecorded.

Recommendation for further assessment: A 1 m wide trench should be dug down the length of the proposed route, excluding areas, such as Malltraeth Marsh, which would not benefit from such an approach.

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

Field boundaries, tracks etc.

Minor and generally linear features such as walls and tracks have not been listed in the Gazetteer as individual sites, for various reasons including sheer weight of numbers, and the fact that the majority of them will only be partially affected, the unaffected portion remaining *in situ* as an adequate record. The necessity for archaeological recording and the possibility of mitigation are both limited. However, the patterns of fields, tracks and boundaries are

nevertheless an important aspect of the historical landscape, and it is worth noting that styles of walls and other field boundaries vary considerably even within this relatively small area, local differences quite possibly having their roots in historical factors. In particular, field boundaries which coincide with parish boundaries, which are clearly cut by the imposed 1820s A5, or which are associated with groups of small fields may be of significant age and thus particular interest. The large, open fields characteristic of much of the route are probably of 19th-century origin (and tend to be within large estates), and have swept away the boundaries of many of the original small fields. Malltraeth Marsh has only been relatively recently drained, and its characteristic pattern of straight field boundaries can therefore be quite closely dated.

Recommendations for further assessment: None.
Recommended mitigatory measures: None.

6. SUMMARY OF RECOMMENDATIONS FOR FURTHER WORK AND MITIGATORY MEASURES

6.1 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.

3. Nant - site of	<i>Geophysical survey and trial excavation.</i>
5. Field system/earthworks S. of Lledwigan	<i>Geophysical survey.</i>
8. Penrhyn coal mine	<i>Measured survey.</i>
11. Cae Capel Eithin	<i>Geophysical survey and trial excavation.</i>
12. Garnedd Fawr field system	<i>Trial excavation.</i>
16. Bryn Gof field system	<i>Trial excavation.</i>
Area 1	<i>Geophysical survey and trial excavation.</i>
Area 2	<i>Trial excavation.</i>
Areas of unknown archaeological potential	<i>Trial excavation.</i>

6.2 Mitigatory Measures

This section lists the remaining sites according to category. The categorisation identifies the level of archaeological response which is recommended prior to the construction of the road (see p. 4 and Appendix I).

Category A Sites - Preservation in situ

- 6a. Lime kiln and quarry
- 9a. Holland Arms Station

Category B - Detailed recording

No sites fall into this category at present, but some of those currently categorised as E may be moved into this category following evaluation.

Category C - Recording by photograph and description

1. Telford's A5
2. Cottage alongside A5
4. Toll House, Nant Turnpike
- 6b. Limestone quarries
7. Afon Cefni embankments
- 9b. Railway line, Holland Arms
10. Small roadside quarries, Craig Fawr
13. Well, Garnedd Ddu
14. Green lane, near Garnedd Ddu
15. Cottage alongside A5

Category D - Watching brief sites

17. Field name - Cae Cwt Crwn

The whole route should be the subject of a watching brief during the road construction works: see Project Design (Appendix I) and descriptions of categories (p. 5).

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Pierce, T. Jones, 1972 *Medieval Welsh Society*

Plans at 1:2,500 provided by Gwynedd County Council

Richards, Melville, 1972 *An Atlas of Anglesey*

Royal Commission on Ancient and Historical Monuments in Wales, 1937 *Inventory, Anglesey*

Tithe maps and schedules held at Anglesey archives, Llangefni

Trinder, Barrie, 1982 *The Making of the Industrial Landscape*

Williams, E. A., 1988 *The Day Before Yesterday*

APPENDIX I

SUGGESTED PROJECT DESIGN

Gwynedd Sites and Monuments Record

GWYNEDD ARCHAEOLOGICAL TRUST

Suggested Project Design for Archaeological Assessment of

A5 ANGLESEY IMPROVEMENTS

Stage 1 Desk-based assessment

Stage 2 Field Search

Prepared for Welsh Office Highways Directorate

1. INTRODUCTION.

The Welsh Office is proposing to upgrade the A5 trunk road across Anglesey. The corridor that will be affected starts at the end of the current dual carriageway north of Llanfair PG (SH519718) and ends in the town of Holyhead. The road corridor under investigation extends some 32 kilometres end to end, cutting right across the island. The land it passes through is largely gently undulating grazing land laid down to pasture, with outcrops of rock forming mainly south-west to north-east ridges, until the town of Holyhead is reached.

The route has been split into four sections for four separate road-building contracts, and from south-east to north-west these are : Llanfair PG to Nant Turnpike; Nant Turnpike to west of Bryngwran; west of Bryngwran to Ty Mawr; and the Holyhead Improvements.

However, GAT has suggested that it would be more cost-effective, and make more sense from an archaeological point of view, for the initial archaeological assessment to consider the entire route. This would include both stage 1 desk-top study, and stage 2 field search, with a report being made available by November 1993 (see page 7 below) so that it can be incorporated into the draft Environmental Statement. This will contain recommendations for stages 3 and 4 (geophysical survey and trial trenching) which should be undertaken in time for the results to be incorporated into the full E.S. to be published June 1994. The report on the Holyhead section would be available by mid-September.

N.B. In addition to the actual route, it is essential that details of borrow pits, temporary work compounds, dumping areas, temporary access and any other earth-moving operations carried out in connection with the road scheme are made known as early as possible and subjected to the same level of archaeological assessment. Any changes to these areas, or new areas as they are identified, should be notified, and again be subject to full archaeological assessment. Experience has shown that these associated workings are often more destructive to the archaeology than the actual road construction. In order to try to cover these eventualities, it is proposed that the actual width of the corridor to be examined is doubled to 100m.

2. THE ROUTE AND ITS ARCHAEOLOGICAL BACKGROUND.

The A5 was constructed by Telford during the years 1818-1822 to link London with Holyhead. The road crossed the Menai Strait via Menai Bridge (opened 1826) and followed its present route, crossing to Holy Island via the Stanley Embankment (fully opened after 1824) and ending in Holyhead. Most of the villages and houses that now line the route (Valley, Caegeiliog, Bryngwran, Pentre Berw) date from after this period. The road corridor therefore represents a 19th-century imposition on a landscape that had evolved (and still retains evidence of its evolution) since the immediate post-glacial period. Anglesey has always been a favoured location for

habitation, and has been extensively and intensively occupied and farmed for thousands of years. This has resulted in the loss of visible remains from the landscape of much of the evidence for earlier periods: a situation similar to that in certain areas of Britain, but atypical of Gwynedd as a whole. Most of the evidence for human occupation from earlier periods survives only as buried sub-surface features and artefacts.

The building of the original A5 by Telford resulted in the attraction to the new road of a population which had previously lived elsewhere. Archaeologically, the importance of this is that earlier nucleated settlements became uninhabited and "lost", surviving perhaps only as placenames, and it is precisely these sites which may be under particular threat from the present A5 improvements which bypass the existing (i.e. 19th-century) settlements.

3. THE ASSESSMENT BRIEF.

For Environmental Assessment it is necessary to identify "significant adverse effects" on the cultural heritage. The aims of this assessment, therefore, are

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

The Agreed Procedures Governing the Archaeological Response to the Trunk Road Programme in Wales (paragraph 3.3) states:

All archaeological assessments will involve a detailed evaluation of the relevant information within the Sites and Monuments record, a study of relevant aerial photographic collections, and easily available documentary sources, walking the whole route, plotting or surveying all cropmark or earthwork sites affected by the route, undertaking field pick-ups on located sites and commissioning geophysical survey where relevant.

This staged approach is the one which is now being advocated.

4. STAGE 1 DESK-BASED ASSESSMENT.

The scope of the first stage of assessment, the desk-based study, should include consideration of the following:

General published works - Royal Commission Inventory, histories of the island in the 18th and 19th centuries, published records of Extents and litigation from the 13th and later centuries..

National Monuments Record - contains information on sites which was not published in the Inventory, and information that has come to light since.

Aerial photographs - good collections covering Anglesey are held by the Countryside Council for Wales, Gwynedd County Council, the Royal Commission, the Welsh Office Aerial Photographs library, Ynys Mon Borough Council, ADAS (Cambridge), Cambridge University and possibly others.

Listed buildings - the full list of Listed Buildings is held by Cadw.

Tithe maps - tithe map coverage of Anglesey is very poor, but nevertheless needs to be consulted.

Estate surveys - are very useful for Anglesey, covering large parts of the island and containing a much detailed information on holdings, field names etc.

Ordnance Survey maps - 1st edition and unpublished 2" manuscript maps show much topographical detail missing from later editions.

Local society records - Anglesey Antiquarian Society is a well-established and active Society.

Geotechnical data - any boreholes, trial pits etc. already carried out in connection with the scheme should be examined for archaeological data.

Oral evidence - as appropriate and available will be used.

Llangefni Archives - full search of listed documents is needed.

UCNW Archives - the college hold a considerable number of estate plans, papers and surveys as well as other maps and documents.

The above list is not intended to be exhaustive, but indicates the wide range of sources available.

This section should include a full study of the available place-name evidence, looking at field names and farm names in attempt to define the position and extent of medieval and post-medieval settlement (see above). Some form of landscape analysis will also be required (looking at variations in field patterns etc.), so that the sites can be put into their proper landscape context.

5. STAGE 2 FIELD SEARCH.

This part of the assessment will involve a team of two persons (the minimum number allowed under Health and Safety Regulations) walking the entire length of the route in both directions and recording (short description, photograph, map position) all sites encountered. This would not involve walking through any field while it had a crop on it, and would not involve any ground disturbance.

A report on the findings of these two stages will be completed after the programme of fieldwork, which will include recommendations for the avoidance or recording of certain sites (see below, categories A - D) as well as for what further work is required (i.e. geophysical survey and/or trial trenching) to elucidate the nature of category E sites.

6. REPORT.

Following the completion of work on stages 1 and 2 as outlined above, a report will be produced for submission to the Welsh Office Highways Directorate and Cadw. A copy will also be made available to Richards, Moorehead & Laing for inclusion in the Draft Environmental Statement. The final format of the report will be subject to discussion between GAT and RML, but at present it is suggested that it will present a full list of all field data, incorporating this where appropriate with previously available information about the archaeology of the area, referring where necessary to the fuller site archive. A summary analysis will also be produced, outlining the information, sites and areas of principal interest and concern and recommendations.

A computerised database will be established, cross-referenced to the maps, descriptions, photographs and report recommendations. To assess the importance of sites and to allow the appropriate mitigatory action to be carried out for each, it is proposed that a framework of basic categories be established, and that each site is allocated to a particular category, graded according to its relative importance. The following five categories are suggested.

Category A - Preservation *in situ*.

This would include sites of such importance that it is recommended that they remain preserved and protected *in situ*.

Category B - Detailed recording.

This would include sites for which preservation *in situ* is the preferred option, but detailed recording (either by full excavation or standing building analysis and controlled dismantling) might be an acceptable alternative if damage or destruction cannot be avoided.

Category C - Recording by photograph and description.

Sites in this category will probably form the majority. They will include most landscape features such as walls, tracks etc, many of which will be recent in origin. An adequate record of these can be achieved by written description and photograph, and possible survey by Electronic Distance Measuring equipment.

Category D - Watching brief sites.

This category is meant to deal with possible sites whose presence is suspected (e.g. from place-name evidence) or whose nature is still unclear following detailed assessment (e.g. minor geophysical anomalies). The whole route will need to be the subject of a watching brief following top-soil stripping as some sites will inevitably only become apparent at this stage.

Category E - Sites needing further investigation.

Sites whose importance or nature are as yet undetermined (e.g. slight earthwork features), and which will require further work before they can be allocated to categories A - C, should temporarily be placed in this category, with recommendations as to what further action is considered necessary. By the end of the assessment it is intended that there will be no sites remaining in this category.

The report will specifically include the following:

- 1) A copy of the agreed Project Brief.
- 2) The results of the assessment to date in the form of one or more route plans, showing positions of all sites, sensitive landscape areas and other information if appropriate.
- 3) A full list of all sites in route or number order with brief description.
- 4) A full list of categories and sites included in each.
- 5) A methodology explaining the allocation of sites to particular categories.
- 7) An interpretation of the results, placing all sites in their historical and economic context.
- 8) A representative sample of the photographic survey, showing views of the sites considered to be of particular interest.
- 9) A full bibliography of sources consulted.
- 10) Other archaeological information which has been recorded during the course of the work.

- 11) Recommendations for what further assessment work (i.e. geophysical survey and trial trenching) is required to complete the assessment.

An agreed number of copies of the report will be submitted to the Welsh Office Highways Directorate and Cadw within a mutually agreed time-scale (see below). In addition, copies will be lodged with the county Sites and Monuments Record at the same time on the understanding that this will become a public document after an appropriate period of time (generally not exceeding six months).

7. ARCHIVE.

A full archive including plans, photographs, written material and any other material resulting from the project will be prepared. All plans, photographs and descriptions will be labelled and cross-referenced, and lodged in an appropriate place (to be decided in consultation with the Sites and Monuments Record and Cadw) within six months of the completion of the project.

8. MONITORING.

The project will be monitored by Cadw. It is suggested that monitoring meetings are arranged as follows:

- 1) A preliminary meeting at the start of the work.
- 2) A progress meeting during the fieldwork stage.
- 3) A meeting to discuss the draft report before final submission.

In addition, it is intended that regular liaison be maintained between GAT and RML as mentioned above.

Finally, it is suggested that a meeting between the Welsh Office Highways Directorate, Cadw and Gwynedd Archaeological Trust be held mid-November to discuss the findings of this initial assessment and the recommendations for further work.

9. COSTINGS.

1) Desk-top study.

Staff time - 35 man days @ £80 (1 person x 7 weeks)	£ 2800
Travel & subsistence (journeys to Llangefni, Caernarfon, Aberystwyth, Cardiff, Cambridge etc.)	£ 600
Special flight	£ 150
Materials	£ 300
Sub-total	£ 3850

2) Fieldwork.

Staff time - 30 man days @ £80 (2 persons x 3 weeks)	£ 2400
Travel & subsistence (15 daily journeys of average 35 miles)	£ 160
Materials	£ 200
Sub-total	£ 2760

3) Report.

Staff time - 15 man days @ £80 (1 person x 2 weeks, 1 person x 1 week)	£ 1200
Travel & subsistence	£ 30
Materials	£ 370
Sub-total	£ 1600

4) Archive.

Staff time - 20 man days @ £80 (1 person x 4 weeks)	£ 1600
Travel & subsistence	£ 10
Materials	£ 300
Sub-total	£ 1910

Sub total	£10,120
plus administration and overheads @ 15%	£ 1518
TOTAL	£11,638

5) Costs per individual scheme.

To arrive at the cost for each individual scheme it is proposed that the costs are divided according to the relevant lengths of each to give a proportional figure:

Llanfair PG to Nant Turnpike;	8km	25%	£ 2,909
Nant Turnpike to west of Bryngwran;	13km	41%	£ 4,772
west of Bryngwran to Ty Mawr;	9km	28%	£ 3,259
Holyhead Improvements;	2km	6%	£ 698

Total	32km	100%	£11,638
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10. TIMING.

Stage 1 Desk-based assessment will take 7 weeks.

Stage 2 Fieldwork will take 3 weeks.

The report will take a further 2 weeks.

(The archive will take 4 weeks but can be done after the report has been prepared and submitted).

Total of 12 weeks from start to production of report.

If work begins mid-July, a suggested timetable would be:

July 19 - September 3: 7 weeks desk-based assessment.

September 6 - 8: Holyhead fieldwork.

September 10: Holyhead report submitted.

September - October: Remainder of fieldwork.

Mid-November: Deadline for report on whole of stages 1 and 2.

INDICATIVE SCALE OF STAGES 3 & 4

11. STAGE 3 GEOPHYSICAL SURVEY.

The extent and positioning of this stage of archaeological work will depend on the results of the previous two stages. However, some indication can be given of the likely scale of work required.

Geophysical survey will be required in the following instances:

- 1) in areas around known sites and artefact scatters;
- 2) where a field or farm name is indicative of past human activity (be it settlement, ceremonial or other);
- 3) where the presence of surface features suggests past human activity;
- 4) areas where there is another reason (e.g. oral evidence) to believe there is buried evidence for past human activity.

On top of this, in previous schemes the sampling of "blank" areas has been applied: however, in this case we propose that a more cost-effective and possibly more productive assessment of these areas can be achieved through trial trenching (see below).

12. STAGE 4 TRIAL TRENCHING.

Trial trenching will be required in either of two sets of circumstances:

- 1) Areas which have been defined as being of potential importance (through desk-top study, fieldwalking or geophysical survey) but which need further work to clarify their extent or importance.
- 2) Some areas may not be susceptible to evaluation by any of the methods proposed above (desk-top, fieldwalking, geophysical survey): in these cases, the only other alternative method of evaluation available is trial trenching. It is therefore proposed that a programme of trial trenching will be required in areas that still appear to be blank after the previous methods have been applied. Increasingly the experience of colleagues elsewhere is that this is an essential part of the evaluation procedure, as trial trenching reveals many sites that otherwise would have been destroyed without any form of record.

13. INDICATIVE COSTINGS FOR STAGES 3 & 4.

Stage 3. Geophysical survey

An average cost of geophysical survey is as follows (prices current April 1993):

£550 per ha for magnetometer survey, and £650 per ha for resistivity survey:

on top of which there are standard charges of £120 per week (sub-contractors' T & S), + VAT at 17.5%, plus GAT laying-out costs.

Assuming for sake of argument that c. 10% of the route will require geophysical survey, indicative costs would be somewhere in the region of:

(Route corridor (30km x 100m width) involves c. 300 ha land-take: 10% = 30 ha)

30 ha of magnetometer survey = £16,500 + £360 costs + £2950 VAT + £500 GAT = **£20,310.**

30 ha of resistivity survey = £19,500 + £360 costs + £3475 VAT + £500 GAT = **£23,835.**

A combination of the two methods to achieve a 10% sample survey would obviously fall in between these figures.

Stage 4. Trial trenching

The simplest way of costing trial trenching work would seem to be on a cost per kilometre basis. The following figures assume a field team of three people working with a Hymac. It is estimated that a team can excavate a trial trench which measures 1 m wide x 1 kilometre long per week (trench down length of proposed road, see below).

N.B. The road corridor in this stage is the actual 50 m wide corridor of the intended road, rather than the 100 m wide band of interest considered in stages 1 -3 of the assessment which was necessary to put sites in their context.

3 people team = £1200 + £55 (T & S):	£1255
hymac = (@ £18.50 /hr) 37 hr week = £685 + £75 per job/week =	£ 760
+ materials @	£ 35 /week

Total = **£2050 per 1 m x 1 kilometre trial trench** (i.e. 1000 sq. m)

Total = **£20,500 per hectare**

(Route corridor (30km x 50m width) involves c. 150 ha land-take: 10% = 15 ha)

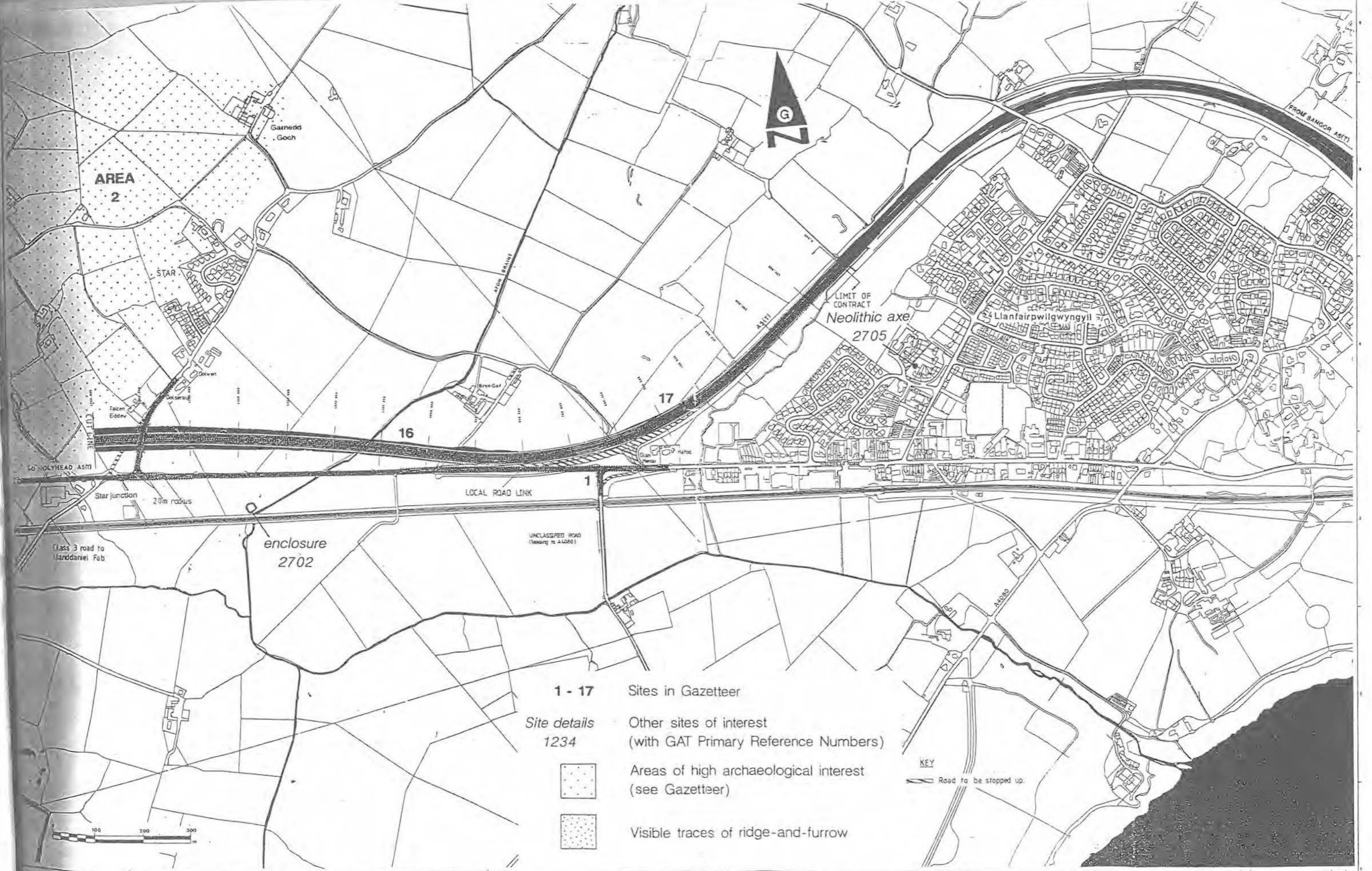
As an indicative cost, a sample assessment of 2% of the corridor using this method (i.e. the equivalent of a trench down the length of the proposed road) would cost £61,500.



As far as timing and access are concerned, it may be possible to carry out the work at the same time as the geological boreholes.

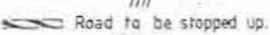
N.B. These figures do not include administration and overheads @ 15%.

Gwynedd Archaeological Trust,
Garth Road,
BANGOR,
Gwynedd. LL57 2SE

Tel: 0248 352535



- 1 - 17 Sites in Gazetteer
- Site details 1234 Other sites of interest (with GAT Primary Reference Numbers)
-  Areas of high archaeological interest (see Gazetteer)
-  Visible traces of ridge-and-furrow

KEY
 Road to be stopped up.

GWYBODAETH GYMREIG
 Adran Cylarwyddwr Prifffyrdd
 WELSH OFFICE
 Highways Directorate

CYNGOR SIR GWYNEDD
 Adran Prifffyrdd a Thrafnidiaeth
 GWYNEDD COUNTY COUNCIL
 Highways and Transportation Department

A5 ANGLESEY IMPROVEMENT STAGE 1
WEST OF LLANFAIRPWLLGWYNGYLL AND A5114 NANT TURNPIKE
 SCHEME LAYOUT - ROUTE 1A

Scale		1:2500	
Author	J.WILLIAMS	Titled	1 of 4
Checked by	J.WILLIAMS	Ref Used	126/B/R/164
Date	AUGUST 1999		

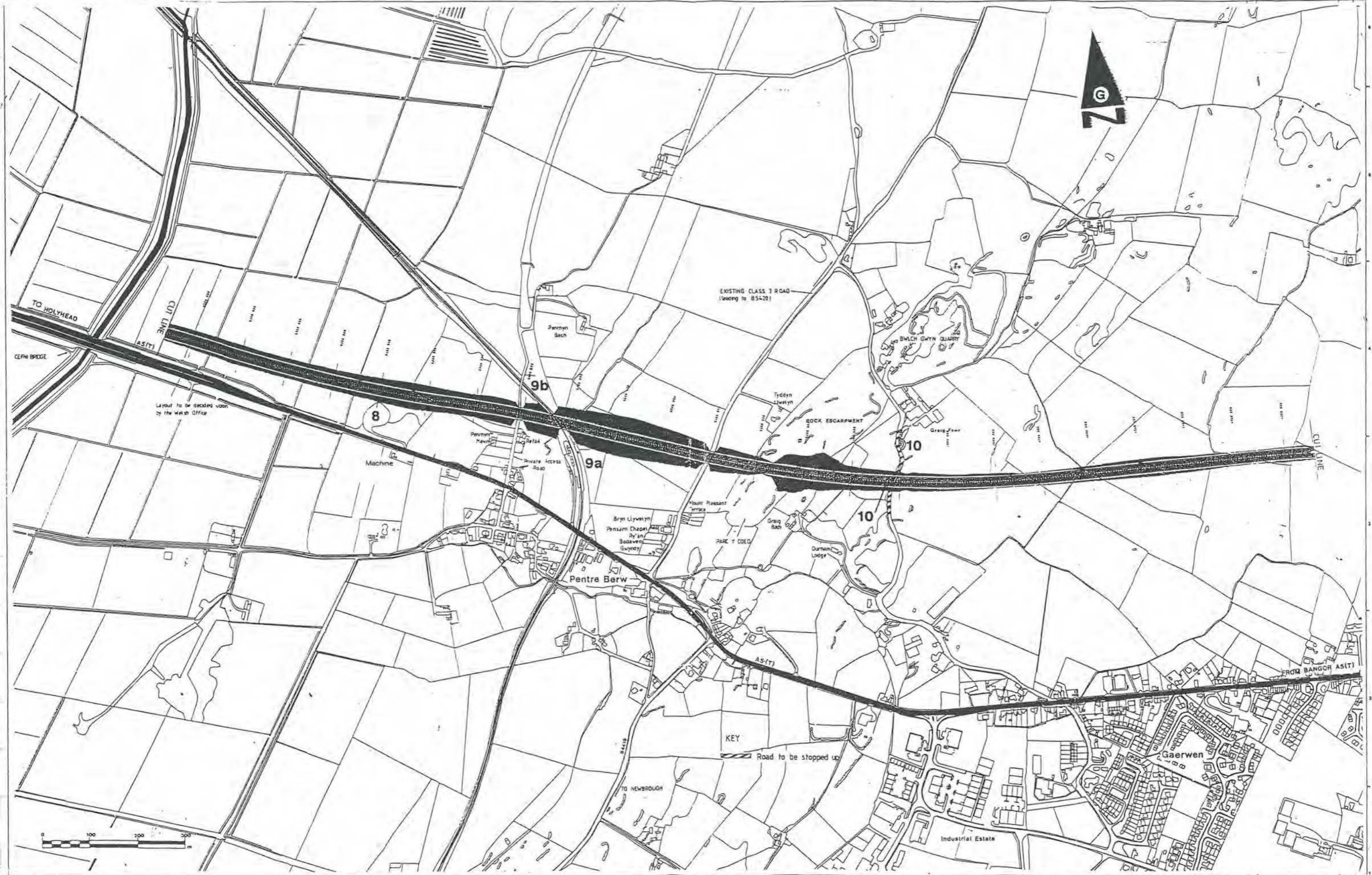


A5 ANGLESEY IMPROVEMENT STAGE 1
WEST OF LLANFAIRPWLLGWYNGYLL AND A5114 NANT TURNPIKE
 SCHEME LAYOUT - ROUTE 1A

YDDA GYMREIG
 Cyfarwyddwr Priflyrd
 OFFICE
 Directorate

CYNGOR SIR GWYNEDD
 Adran Priflyrd a Thrafnidiaeth
 GWYNEDD COUNTY COUNCIL
 Highways and Transportation Department

Scale		1:2500	
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Revision			
Author			
Date			



Y SWYDDFA GYMREIG
Adran Cyfarwyddwr Prifffyrdd
WELSH OFFICE
Highways Directorate

CYNGOR SIR GWYNEDD
Adran Prifffyrdd a Thrafnidiaeth
GWYNEDD COUNTY COUNCIL
Highways and Transportation Department

A5 ANGLESEY IMPROVEMENT STAGE 1
WEST OF LLANFAIRPWLLGWYNGYLL TO A5114 NANT TURNPIKE
SCHEME LAYOUT - ROUTE 1A

SCALE		1:2500	
DATE	BY	DATE	BY
APPROVED	DESIGNED	APPROVED	DESIGNED
DRAWING NO.		126/B/R/166	
DATE		AUGUST 92	
SHEET NO.		3 of 4	