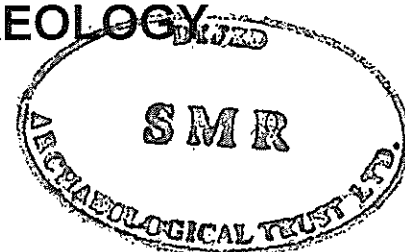


**ARCHAEOLEG CAMBRIA ARCHAEOLOGY
FIELD OPERATIONS**



**STAGE 4
ARCHAEOLOGICAL WATCHING BRIEF
A40**

01/03/2000

**CARMARTHEN
EASTERN BYPASS
CARMARTHENSHIRE**

MARCH 2000

EVENT PRN 40266

Prepared
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**A40 CARMARTHEN EASTERN BYPASS
STAGE 4
ARCHAEOLOGICAL WATCHING BRIEF**

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SUMMARY

The construction of the A40 Carmarthen Eastern Bypass required the implementation of an extensive programme of archaeological assessment and investigation. This report on the Stage 4 watching brief forms the last of a series of reports on that programme. The watching brief consisted of general monitoring of the topsoil stripping and groundworks as well as more targetted investigation and recording at a number of specific sites and areas of archaeological potential.

The sites recorded included the remains of Abergwili Railway Station, a leat associated with the 18th and 19th century tinplate works at Carmarthen, possible traces of the Llandovery to Carmarthen Roman road, and diversion works on two sections of the Afon Tywi. Palaeoenvironmental analysis of samples taken from an area of alluvium and peat deposits at Pensarn was also included in this stage of the programme; these are reported separately elsewhere.

1. INTRODUCTION

1.1 PROJECT OUTLINE AND COMMISSION

This watching brief was the final element of a programme of archaeological works undertaken as part of the A40 Carmarthen Eastern Bypass construction scheme. The programme of works was commissioned by Howard Humphreys and Partners on behalf of the Welsh Office Highways Directorate and carried out by Archaeoleg Cambria Archaeology (formerly Dyfed Archaeological Trust) Field Operations.

1.2 THE ARCHAEOLOGICAL PROGRAMME

The archaeological programme consisted of four phases. The first three were designed to inform the decisions regarding the level of the archaeological response for the succeeding phases of works. In this way a structured but flexible response tailored to meet the specific requirements of the archaeology was built into the bypass construction scheme of works.

The four phases were:

- 1) Stage 1 archaeological appraisal of the published routes
- 2) Stage 2 desk-top assessment of the preferred route
- 3) Stage 3 evaluation of features identified during Stage 2 as liable to damage, or those features not adequately assessed through the earlier stages
- 4) Stage 4 archaeological recording and watching brief on sites, features and areas of archaeological potential identified during Stages 2 + 3

1.2.1 STAGE 1 ARCHAEOLOGICAL APPRAISAL

Following the publication of the initial favoured route(s) for the bypass an appraisal based on information contained in the regional SMR was carried out to identify which route had the least archaeological implications. The appraisal showed that the scheme had potentially significant archaeological ramifications and it recommended that a desk-based assessment of the route be carried out to fully elucidate the character, extent and vulnerability of the archaeological resource of the preferred route.

1.2.2 STAGE 2 ARCHAEOLOGICAL DESK-TOP ASSESSMENT

This assessment was undertaken in 1994 (Page 1994) and it identified a range of sites, features and several areas of archaeological potential in or close to the preferred route corridor. The report assessed the relative archaeological value of the individual sites and features¹ as well as outlining the overall historic development of the landscape which the bypass crosses.

¹ The sites were assessed and valued using the criteria laid out in the Department of Transport's *Design Manual for Roads and Bridges (DMRB)*, Volume II, Section 3 part 2.

Furthermore, the report made a series of recommendations for more archaeological work on those sites that required further assessment before their potential could be accurately determined (Stage 3 Evaluation) and those that were known to be liable to damage or destruction (Stage 3 Evaluation and Stage 4 Watching Brief).

1.2.3 STAGE 3 ARCHAEOLOGICAL EVALUATION

This stage comprised of trial trenching, palaeoenvironmental sampling and geophysical survey of sites identified during Stage 2 as requiring further assessment or rescue investigation. Following the fieldwork the sites investigated were categorized using the DMRB criteria and further work recommended where appropriate (Murphy 1995).

1.2.4 STAGE 4 ARCHAEOLOGICAL WATCHING BRIEF

A watching brief was maintained throughout the construction to record known sites and to identify and record any unexpected features exposed during the bypass construction works. Areas of high archaeological potential such as the re-alignment of the river course were monitored intensively and targeted for investigation. Investigation of the drained river course involved walking the drained section to examine the exposed banks and controlled prospecting with metal detectors for chance finds.

1.3 THE SCOPE OF THIS REPORT

This report describes the physical environment of the site (Section 2) before summarising the watching brief results (Section 3) and the conclusions (Section 4) based on the results of Sections 2 and 3.

1.4 ABBREVIATIONS

Sites recorded on the county Sites and Monuments Record (SMR) are identified by their Primary Record Number (PRN) and located by their National Grid Reference (NGR). Where archaeological features and contexts are mentioned in the text they will be referred to using the continuous three-figure numbering system (e.g.001) employed by Archaeoleg Cambria Archaeology Field Operations.

2. THE SITE

2.1 THE A40 CARMARTHEN EASTERN BYPASS ROUTE

The A40 London - Fishguard Trunk Road is one of the major arterial routes through Wales, and it links many historic towns and villages.

2.1.1 THE GEOLOGICAL BACKGROUND

The underlying geology of the route is made up of Ordovician shales of the Arenig and Lower Llanvirn Series'. There is a rough split along the route at Tanerdy with the *Tetragraptus* Beds of the Arenig Series to the west and southwest and the *Didymograptus bifidus* Beds of the Llanvirn Series to the east. The shales are blue-black and at Abergwili they are mixed with an intrusion of ash and grit, a characteristic typical of the Llanvirn Series (Strahan *et al* 1909; Geological Survey of Great Britain (England and Wales) maps, Carmarthenshire - sheet 229). Overlying the solid geology are terraces of glacial sand and gravel which overlook the alluvial flood plains of the Afon Tywi and Gwili. The town sits upon the northern slopes of the Tywi valley on a terrace of boulder clays some seven miles from the sea at the tidal limit of the river (James 1980,1; Page 1994, 16).

2.1.2 SURFACE TOPOGRAPHY AND PRESENT LANDFORM

The bypass route runs from Pensarn (SN41151918) in the west to Whitemill (SN46062134) in the east, and skirts the south and southeast sides of Carmarthen town.

From Pensarn the route runs northeast from the roundabout on the A48 to the crossing point of the Afon Tywi some 0.25km upstream from the present bridge. This section of the route crosses an area of infilled floodplain now used for retail development and light industry. Infilling began in the late-18th or -19th century, when substantial quantities of clay and other material were dumped, and continued until the mid 20th century. Prior to the bypass construction there were two major episodes of infilling on the Tywi floodplain during the 20th century. The first took place in the 1930s when land either side of the river was built up during construction of the present bridge and the second episode was when Coracle Way was built in the 1960s. Geotechnical test pitting and boreholing showed there to be anything up to 4m of made ground overlying the flood plain alluvium at Pensarn (Page 1994, 16).

Once across the Tywi the route crosses an area of alluvial flood plain and former clay pits before joining the course of the disused railway line along the southern edge of the town. The course swings to the southeast at c.SN42122054 to recross the Tywi floodplain at Tanerdy before turning northeast to cross the A40 at SN42702106. From here the course diverges with a spur road running north along the line of the old Carmarthen and Cardigan Railway line while the main bypass route continues east along the old London and North Western Railway. The spur road runs along the

eastern edge of the West Wales General Hospital grounds and links to the A485 Carmarthen to Lampeter road at SN43052165.

The main bypass route follows the old railway line to the north of Abergwili before rejoining the A40 at SN4402105. From this point to Whitemill the bypass is more a widening and straightening of the existing A40 rather than a new road.

The bypass route is confined for the most part to areas of land that had previously been developed and in many cases subsequently abandoned. Whilst the re-use of these so-called 'brownfield' sites is a crucial part of sustainable development it does have inherent archaeological implications. Because they have been previously developed, brownfield sites, by their very nature, contain an important archaeological record of the past which in this case reflects both local and regional developments.



Plate 1: Draining the Afon Tywi during river diversion works. The new channel is to the right.

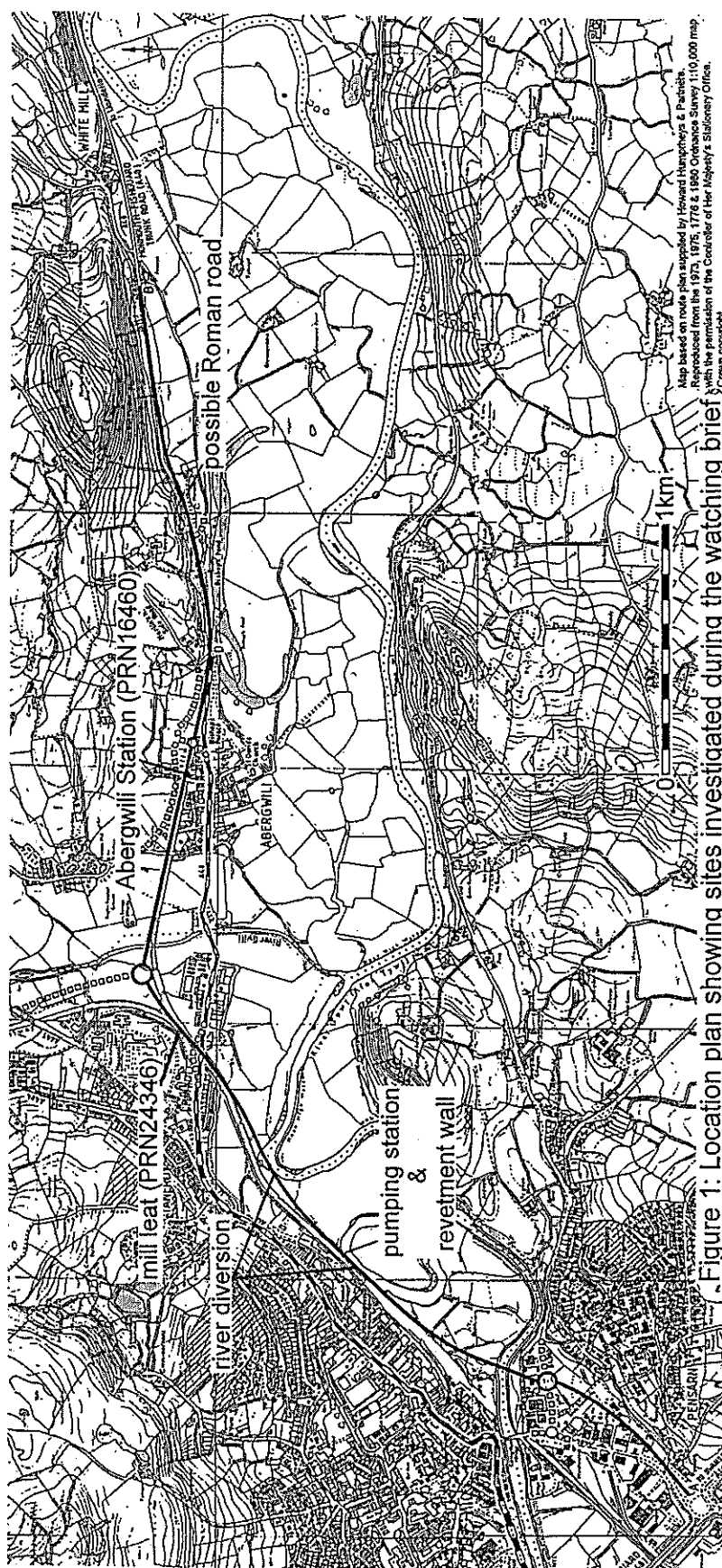


Figure 1: Location plan showing sites investigated during the watching brief

3. SUMMARY OF WATCHING BRIEF RESULTS

3.1 INTRODUCTION

The watching brief consisted of several site visits to monitor the works along the entire bypass route, with some areas targetted for more intensive investigation and recording.

3.2 THE WATCHING BRIEF RESULTS

3.2.1 THE DIVERSION OF THE AFON TYWI (plate 1)

One of the biggest engineering undertakings of the scheme was the diversion of two sections of the Afon Tywi below the town. This operation also had significant archaeological implications as the biggest section to be diverted was in the area suspected to have been used as landing places for the Roman town, St John's Priory and the tinplate works.

Following the draining of the old river channel the exposed banks were intensively examined for traces of any structures, features or artefacts that may have been uncovered. The examination of the banks included the controlled use of metal detectors to try to locate any metal objects such as stray finds or structures with metal components. The only feature exposed was a revetment wall along the north bank of the river. A stone-built structure on top of the bank just to the east of the revetment wall was also recorded.

3.2.1.1 The pumping station (fig 1; plates 2 and 3)

The remains of the structure were located on the north river bank at NGR SN 42102050. The exposed remains measured 7.6m x 4.7m and consisted of masonry bonded by a lime mortar. The structure stood to c.1.75m high and it was constructed on a masonry platform. Only the southern wall and parts of the east and west walls were exposed, the north end of the structure was buried under a spoil dump.

There were differences in the masonry of the structure which suggests at least two phases of construction, or a partial rebuilding. The platform and the lowest four courses of the structure were of shaped and worked blocks bonded by a hard off-white mortar, whilst the upper courses were made up of random rubble blocks bonded by a hard grey/white mortar. The east wall had very little mortar between the blocks and may even have been of dry-stone construction. There were brick quoins on the southwest corner of the structure.

A vertical iron pipe (0.2m dia) was sticking out of the ground (c.0.4m high) just inside and roughly midway along the south wall, and another metal pipe of the same diameter ran through the west wall. It seems likely that the two pipes are connected and form part of some sort of pumping equipment. A

metal pipe that extends 15m into the river may also have been associated with the structure, although a direct relationship between them was not established. This structure was identified during the Stage 3 Evaluation as a pumping station used to pump water to cattle pens and railway sheds situated further downstream. It was positioned at the lowest point on the river where fresh water could be taken at high tide (Murphy 1995, 14).



Plate 2: The southwest corner of the pumping station



Plate 3: Recording the west wall of the pumping station

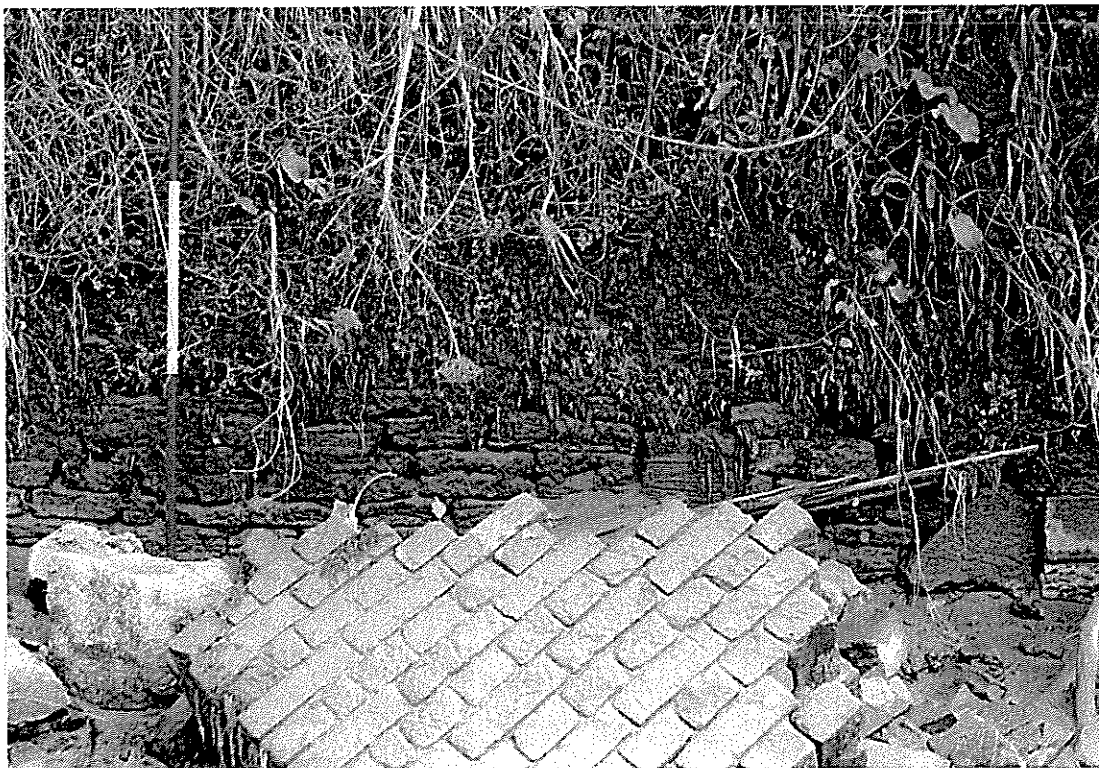


Plate 4: Detail of the revetment wall

3.2.1.2 The revetment wall (fig 1; plate 4)

The wall was constructed from roughly coursed limestone rubble and measured c.50m from east to west and it stood to a height of 1.5m. Modern overburden and dumping obscured the east end and the top was very overgrown. This wall was probably constructed to protect the railway from erosion of the river bank.

3.2.1.3 Metal detector investigation

Once the old channel had been drained to a sufficient level a sweep of the exposed banks was made by members of the Pembrokeshire Prospectors Club. Few artefacts were recovered and nothing at all was found in the area surrounding the supposed landing places, although that was probably caused by the conditions rather than being a true reflection of artefact distribution. The spread of debris from the tinplate works and the later modern dumping in this section of the north bank produced so much background 'noise' that accurate detecting was impossible.

3.2.2 MONITORING THE NEW CHANNEL CUT

The new channel was cut some 10m to the south of the existing channel. Excavation of the new channel gave an opportunity to record part of the sedimentary sequence of the Tywi floodplain. The channel sides contained a profile of approximately 2m of sediment which contained several clearly identifiable deposits. All the deposits were clay silts and they varied in colour only slightly from orange/brown to brown/orange. It was clear from a visual inspection of the profiles that the deposits were silts laid down by flooding of the floodplain. The Tywi floodplain is a high energy environment which experiences regular flooding, so the profiles exposed in the channel sides may not represent a great time depth.

3.2.3 THE POSSIBLE ROMAN ROAD

Monitoring of the works to the east of Carmarthen Museum grounds revealed a small patch of gravel following topsoil stripping. The gravel patch was c.30m wide east-west; its northern side was below the modern road and it had been truncated on the south by the construction works. It is not possible to say too much about this small patch of gravel, but it is known that the line of the Roman road from Llandovery to Carmarthen runs somewhere through this area close to where the gravel patch was recorded.

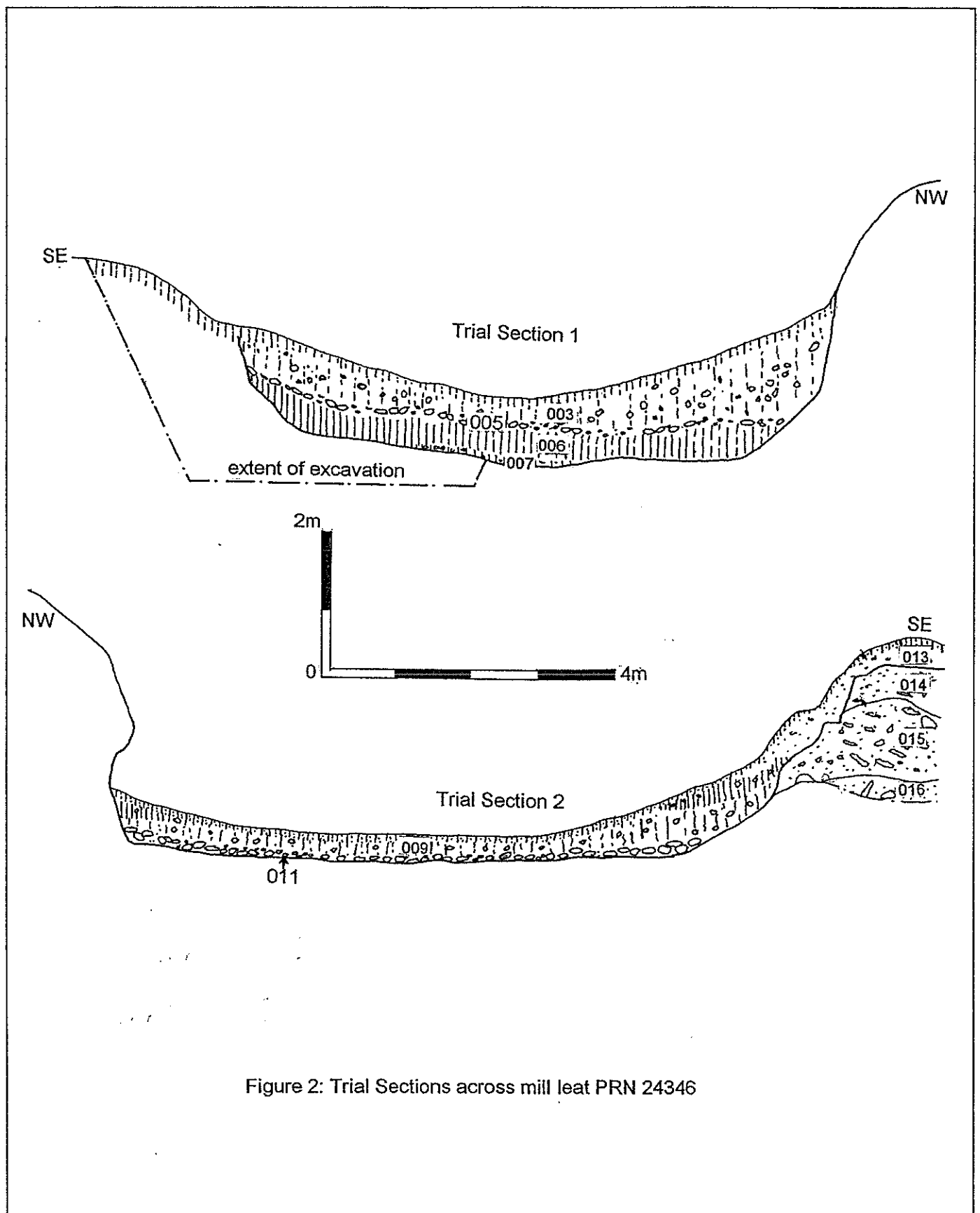


Figure 2: Trial Sections across mill leat PRN 24346

3.2.4 EVALUATION OF THE LEAT (PRN 24346 - figs 1 and 2)

The Carmarthen Tinplate Works was founded by Robert Morgan in 1761. This was his second metalworking enterprise in the area, he first opened a blast furnace on the site of the former mills of the Augustinian priory, in 1748. His choice of site was a logical one. It had an existing water supply, the leat that fed the Priory mills, and the nearby woodlands provided fuel (James 1976, 31; 1980, 56; Page 1994, 6 & 17-18).

The leat is 3.3km in length and its course can be traced from its source at Bronwydd past the eastern side of the West Wales General Hospital and from there running between the former railway line and the A40 to the Tinplate Works site (James 1976, 32). A c.20m length of the leat was to be affected by the bypass works to the east of the hospital. It was decided to excavate a trial section across the leat during the Stage 3 Evaluation to record its form, structure and any construction details that may have survived. In the event it was not possible to obtain a full profile of the leat from the first section, so it was agreed to excavate a second section c.20m north of the first.

The excavations revealed that within the assessment area the leat was up to 5m wide and c.2m deep and that it was cut into ground that sloped gently from northwest to southeast. Spoil from the excavation of the leat had been used to form a bank on the downslope, southeast, side. The bank had previously been removed in trial section 1 to allow access for farm machinery along the thin strip between the leat and the railway (Murphy 1995, 17) but it survived in trial section 2. Here it was made up of four layers of stoney, gravelly silty sandy loam (013; 014; 015; 016). The layers were typical of the underlying geology, which consisted of banded fluvio-glacial gravels, through which the leat was cut (*ibid.* 17). The uppermost layer (013) had suffered some modern erosion on its northeast side where it had slumped slightly and partially covered the modern silts that filled the leat.

There was no evidence for any form of lining in either section and a slight undercutting by water action of the northwest edge of the leat in trial section 2 suggests that it was never lined.

Despite the fact that the two trial sections were close together, there were some interesting differences between the deposits filling the leat. In trial section 1 a layer of cobbles set in clay (005) was interpreted as having been deliberately laid over silts (006; 007) that had built up in the bottom of the leat (*ibid.*, 17). A sherd of 19th century pottery was recovered from the layer of cobbles (*ibid.*, 17). Silt (003) and modern rubbish has since accumulated in the leat. The sequence in trial section 2 is much thinner than that in trial section 1 and comprises a layer of cobbles and clay (011) overlain by a layer of silt (009) and modern (19th and 20 century) rubbish. A thin layer of topsoil covered the upper silts in both sections. The layer of clay and cobbles in trial section 2 may equate with the apparently deliberately laid cobbles in trial section 1 and the overlying silts in both trial sections contained a similar

assemblage of modern, 19th and 20th century, rubbish. It is possible that the cobble and clay layers were laid in an attempt to re-use the leat, and at the very least they seem to have been an effort to improve the water flow. Furthermore, trial section 2 appears to show evidence of a recutting of the leat, the bank having been truncated slightly on its southeast edge (layer 015). When this improvement work took place is uncertain, but it may have been during the mid-19th century when the tinplate works re-opened following a period of closure.

Although the leat follows the line of the medieval watercourse to the priory mills there was no evidence from either section to suggest that in its present form it is anything other than post-medieval, or modern in date.

3.2.5 ABERGWILI STATION (PRN 16460 - fig 1; plates 5 and 6)

The station was constructed in the later 19th century. It was a typical small branch line station consisting of a number of small station buildings and a platform. It was closed along with the line and has since been allowed to decay and in 1994 it was derelict, although the platform and some remnants of the main station building survived (Page 1994, 8). On the OS 2nd edition 1:2500 map (Carms. sheet XXXIX.4) the platform is shown to be c.100m long with the main station building at the west end alongside the road. Only c.30m of the platform was visible at the time of recording. The platform was of concrete with a kerbed edge and a facing of red brick. The top three courses of bricks and the kerb stones were cantilevered forward. Most of the kerb stones had been removed in the past and only c.10m survived.

The remains of the main station building consisted of a west wall (9m long x 1.4m high) constructed from medium to large shaped mortared stone blocks and a north wall (c.8m long x 1.6m high) made up of smaller blocks. The north wall, which was rendered and retained traces of a white, or off-white paint finish, appears to have butted the west wall, rather than being bonded into it. Originally the west wall continued beyond the north wall and may have extended along the edge of the platform to form a gateway into the station. A vertical scar in the north wall indicates the former position of another wall which would have extended northwards onto the platform and may have been part of a covered waiting area.

It was not possible to check the interior of the building because it was filled with rubble and very overgrown. A small section of this building and part of the platform survive today.



Plate 5: The remains of the platform at Abergwili Station

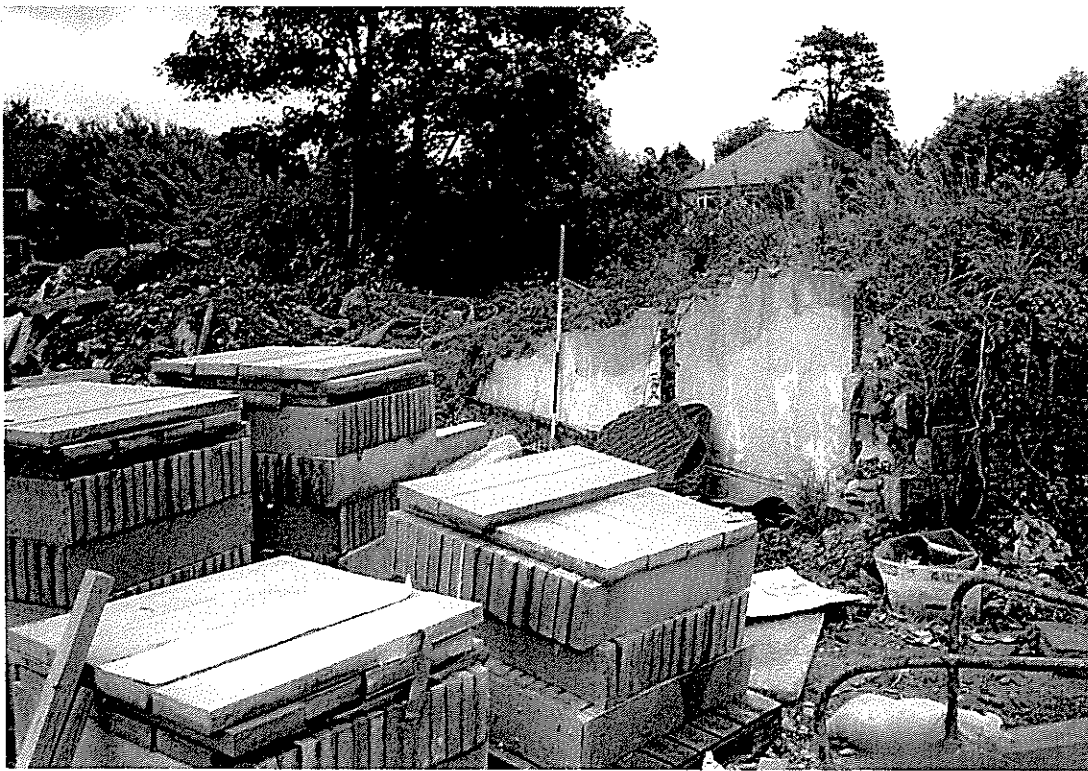


Plate 6: Remains of station building

4. CONCLUSIONS

4.1 THE VALUE OF THE WATCHING BRIEF AND THE PROGRAMME OF ARCHAEOLOGICAL WORKS

The watching brief was the final element of an extensive programme of archaeological works and it consisted of the recording of several sites that were to be damaged or removed during construction of the bypass.

Overall, the archaeological programme has provided much new evidence on the development of the Carmarthen landscape and it has also shown the value of the early inclusion of archaeology into the planning stages of large-scale developments. Linear developments such as roads and pipelines cover large tracts of landscape and they can destroy or damage many sites and features along their routes. By making archaeology part of the development design process from the outset it may be possible to modify the route to minimise its impact and to develop a workable archaeological programme. Whilst recognizing the threat posed by such schemes it is important to identify the opportunities they present to archaeologists. The development corridor can be seen to link, albeit artificially, various sites and the landscape between them which means that, in effect, the development itself becomes an archaeological site. Viewed in this way linear developments by their nature force the investigator away from the study of individual sites in isolation and towards a more landscape based approach. Therefore, it becomes possible to examine the wide range of site-environment and inter-site relationships along the development corridor which will lead to greater understanding of the development of the landscape and of the potential implications of any given scheme.

Obviously it is important to have a clearly defined and sustainable archaeological objective in any development scheme. This is particularly true of large scale developments such as road building schemes which are not only spread out over large geographical areas, but also over a long timescale. Clearly the key objective must be to preserve archaeological sites and features *in situ*, where possible, and to preserve by record those unavoidably affected by the scheme. That was the objective of the present programme. Each phase of the programme was designed to record or further assess the sites identified in the preceding phase and to inform the decisions regarding the level of archaeological works in the succeeding phase. This meant that the archaeological priorities for each successive phase were clearly identified as the scheme progressed, which not only provided the best protection for the archaeology, with varying levels of recording carried out in each phase, but it also allowed the works to be accurately costed and timetabled into the overall construction scheme, thus avoiding unnecessary and potentially costly delays and misunderstandings.

APPENDIX ONE: CATALOGUE OF WATCHING BRIEF ARCHIVE

The watching brief archive has been indexed and catalogued according to National Monument Record (NMR), Aberystwyth, categories and contains the following:

- A.** Copy of final report.
- B.** Site records, including context record sheets and site notebook.
- C.** Drawing catalogue and site drawings.
- D.** Site photographs - catalogue, colour slide and B/W contact sheets.
- E.** Finds catalogue, individual finds record and finds report.
- G.** List of references, including primary and secondary sources.
- I.** Archive report and draft copies of final report.
- J.** Publication drawings.
- M.** Miscellaneous correspondence.

There is no material in categories F, H, K, L and N.

The archive has been incorporated with the Stage 3 evaluation archive and will be deposited with the NMR. A copy of the report has been deposited with the Sites and Monuments Record.

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