

CROSS HANDS ECONOMIC LINK ROAD PHASE TWO: ARCHAEOLOGICAL WATCHING BRIEF (SN 5610 1330)



Prepared by Dyfed Archaeological Trust
For: Alun Griffiths (Ltd)



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CROSS HANDS ECONOMIC LINK ROAD PHASE TWO: ARCHAEOLOGICAL WATCHING BRIEF

By

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Paratowyd yr adroddiad yma at ddefnydd y cwsmer yn unig. Ni dderbynnir cyfrifoldeb gan Ymddiriedolaeth Archaeolegol Dyfed Cyf am ei ddefnyddio gan unrhyw berson na phersonau eraill a fydd yn ei ddarllen neu ddibynnu ar y gwybodaeth y mae'n ei gynnwys

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CROSS HANDS ECONOMIC LINK ROAD PHASE 2: ARCHAEOLOGICAL WATCHING BRIEF

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EXECUTIVE SUMMARY

DAT Archaeological Services were commissioned by the developer to undertake a watching brief in June 2018 during ground works associated with Phase 2 of the Cross Hands Economic Link Road development (centred on SN5785 1363). No significant archaeological features or artefacts were recorded.

CRYNODEB GWEITHREDOL

Comisiynwyd Gwasanaethau Archeolegol YAD gan y datblygwr i ymgymryd â brîff gwylio ym mis Mehefin 2018 yn ystod gwaith daear sy'n gysylltiedig â Cham 2 o ddatblygiad Ffordd Gyswllt Economaidd Cross Hands (wedi'i ganoli ar SN5785 1363). Ni chofnodwyd unrhyw nodweddion archeolegol nac arteffactau arwyddocaol.

CROSS HANDS ECONOMIC LINK ROAD PHASE TWO: ARCHAEOLOGICAL WATCHING BRIEF

SUMMARY

DAT Archaeological Services were commissioned by Alun Griffiths Ltd to undertake an archaeological watching brief during groundworks associated with the development of the Cross Hands Economic Link Road. The scheme is being delivered in two phases, with archaeological works focusing on a section of new road construction that forms Phase 2 of the works which sees the continuation of the Link Road from the point at which it currently intersects with Black Lion Road (completed in Phase 1a and 1b) northwards to join with the A476 (Llandeilo Road).

During the watching brief a trench c.55m long was excavated across an area identified as having potential for surviving archaeology because of its vicinity to 19th and 20th century colliery features, including the remains of the Mountain Branch railway (PRN 30867) that could be adversely impacted upon as a result of the road development. The Mountain Branch railway was a branch of Llanelli railway which opened between Ammanford and Crosshands during 1841, leading to improved access to the coal and iron mines of the Gorslas area. By 1921 the line is marked as 'Disused' on historic mapping.

The trench was orientated N-S roughly along the route of the proposed new road in this area. Within the excavated trench two similar 'ditch-like' features were recorded running E-W across the trench. No surviving above ground evidence of the railway was apparent within the area; neither was any below ground evidence of the former railway observed in the trench. It is probable that any evidence of the railway lay further south in an area that has already been developed. Both ditches were filled with very dark brown/black silty clay; the colour being a result of coal waste from the coal mining industry.

No further significant archaeological finds or deposits were observed during the course of the watching brief and the results suggest that in this area Phase 2 of the road development has not impacted upon any significant archaeological remains.

Despite the results of this watching brief it does not preclude the possibility that significant archaeological activity exists in the wider area, especially if these areas have not been disturbed by modern activity.

1 INTRODUCTION

1.1 Project Commission

- 1.1.1 DAT Archaeological services were commissioned by Alun Griffiths Ltd to undertake an archaeological watching brief during the proposed development of the Cross Hands Economic Link Road (Planning consent E/32266) centred on NGR 5610 1330 (Figure 1).
- 1.1.2 The scheme is being delivered in two phases, with the archaeological works focusing on a section of new road construction known as Phase two which sees the continuation of the link road from the point at which it currently intersects with Black Lion Road (completed in Phase 1a and 1b) northwards to join with the A476 (Llandeilo Road). The scheme will consist of a two lane distributor road that provides a route connecting the Amman and Gwendraeth Valleys.
- 1.1.3 Following consultation the Development Management section of Dyfed Archaeological Trust (DAT-DM) were of the opinion that there were no archaeological constraints on development. However, the environmental appraisal report prepared by Jacobs recommended an archaeological watching brief should be undertaken at a number of identified sites of archaeological potential.
- 1.1.4 A Written Scheme of Investigation (WSI) for the archaeological works had been prepared by Alun Griffiths Ltd (Appendix I) but a supplementary WSI (Appendix II) was prepared by DAT Field Services detailing the methodology for the proposed archaeological watching brief.
- 1.1.5 The purpose of a watching brief, as laid down in the IFA S&G AWB is:
- To allow, within the resources available, the preservation by record of archaeological deposits, the presence and nature of which could not be established (or established with sufficient accuracy) in advance of development or other potentially disruptive works.
 - To provide an opportunity, if needed, for the watching archaeologist to signal to all interested parties, before the destruction of the material in question, that an archaeological find has been made for which the resources allocated to the watching brief itself are not sufficient to support treatment.

1.2 Scope of Project

- 1.2.1 A Written Specification of Investigation (WSI) for the watching brief was prepared by DAT Archaeological Services prior to the commencement of works. The specification outlined the methodologies by which the watching brief should be undertaken including those:
- To identify the presence/absence of any archaeological deposits.
 - To establish the character, extent and date range for any archaeological deposits to be affected by the proposed ground works.
 - To appropriately investigate and record any archaeological deposits to be affected by the ground works.
 - To produce an archive and report of any results.

1.3 Report Outline

- 1.3.1 This report describes the location of the development works, reviews the archaeological background, and provides a summary and discussion of the archaeological watching briefs and their results.

1.4 Abbreviations

- 1.4.1 Sites recorded on the Regional Historic Environment Record¹ (HER) are identified by their Primary Record Number (PRN) and located by their National Grid Reference (NGR). Dyfed Archaeological Trust Development Management – DAT-DM; Scheduled Monument – SM; Written Scheme of Investigation – WSI; -Pembrokeshire Coast National Park Authority – PCNPA.

1.5 Illustrations

- 1.5.1 Printed map extracts are not necessarily produced to their original scale.

1.6 Timeline

- 1.6.1 The following timeline (Table 1) is used within this report to give date ranges for the various archaeological periods that may be mentioned within the text.

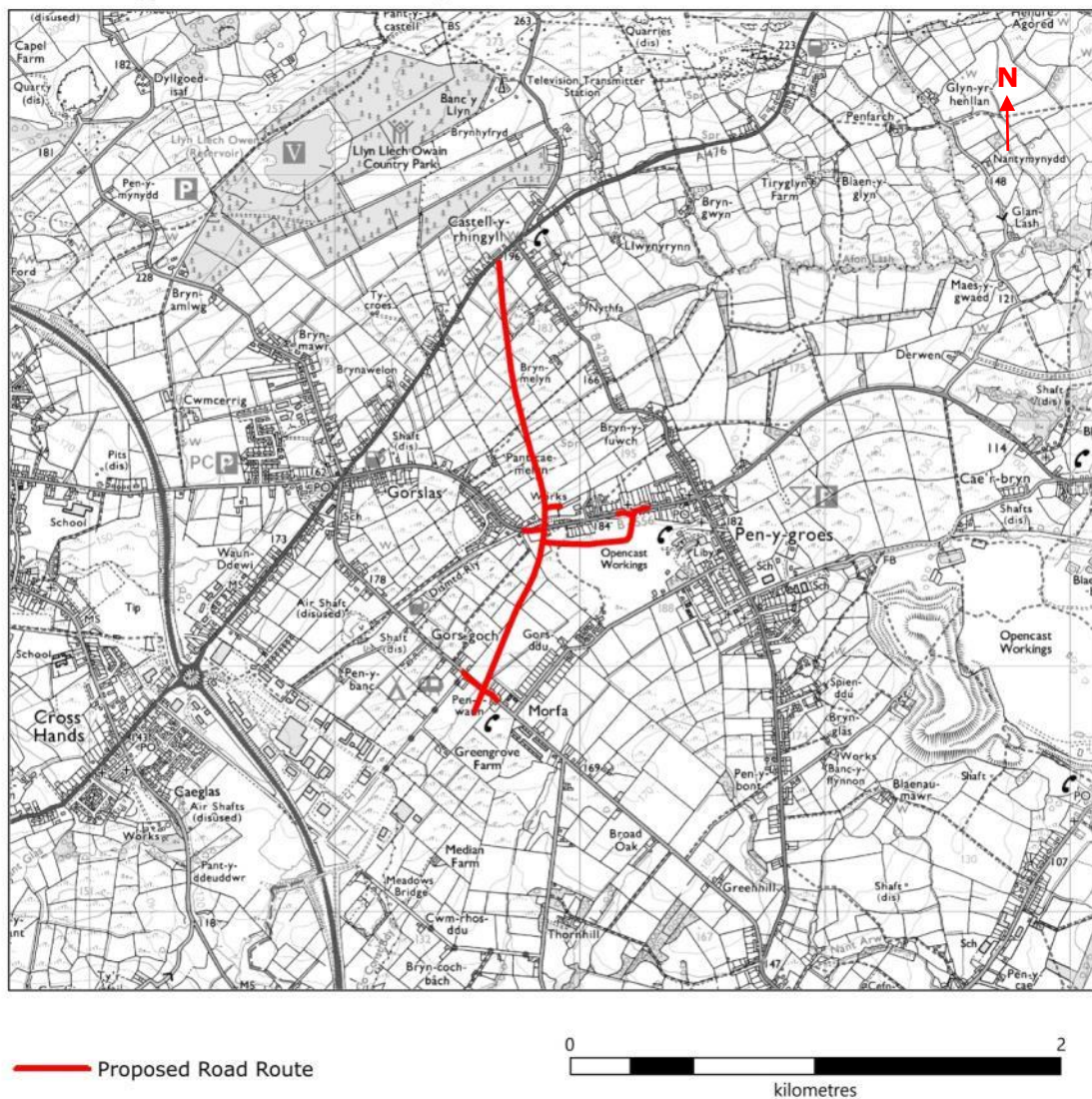
Period	Approximate date	
Palaeolithic –	c.450,000 – 10,000 BC	Prehistoric
Mesolithic –	c. 10,000 – 4400 BC	
Neolithic –	c.4400 – 2300 BC	
Bronze Age –	c.2300 – 700 BC	
Iron Age –	c.700 BC – AD 43	
Roman (Romano-British) Period –	AD 43 – c. AD 410	Historic
Post-Roman / Early Medieval Period –	c. AD 410 – AD 1086	
Medieval Period –	1086 – 1536	
Post-Medieval Period ² –	1536 – 1750	
Industrial Period –	1750 – 1899	
Modern –	20 th century onwards	

Table 1: Archaeological and Historical Timeline for Wales.

¹ Held and managed by Dyfed Archaeological Trust, The Shire Hall, Carmarthen Street, Llandeilo SA19 6AF.

² The post-medieval and industrial periods are combined as the post-medieval period on the Regional Historic Environment Record as held by Dyfed Archaeological Trust

Figure 1: Location plan.



Reproduced from the Ordnance Survey
1:50,000 and 1:25,000 scale Map with
the permission of The Controller of Her
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Llandeilo, Carmarthenshire SA19 6AF
Licence No 100020930



2 SITE DETAILS

2.1 Location

- 2.1.1 The following information has been extracted from the WSI prepared by Alun Griffiths Ltd.
- 2.1.2 The proposed Cross Hands Economic Link Road Phase 2 is located within agricultural land a short distance to the north of Cross Hands (Figure 1).
- 2.1.3 The road will run from the Black Lion Road to the junction of Llandeilo Road and Gate Road.
- 2.1.4 The agricultural landscape is one of small enclosed fields within what was previously a landscape dominated by the coal industry; in particular the nearby collieries of California Colliery in the 19th century and Emlyn Colliery in the 20th century.
- 2.1.5 The underlying solid geology comprises South Wales Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone. Sedimentary Bedrock formed approximately 310 to 318 million years ago in the Carboniferous Period. No overlying superficial deposits area recorded. (Source: British Geological Survey).

2.2 Archaeological Background

- 2.2.1 The following information has been extracted from the Environmental Appraisal 'WelTAG Stage 2 – Environmental Appraisal Report (Costain 2013).

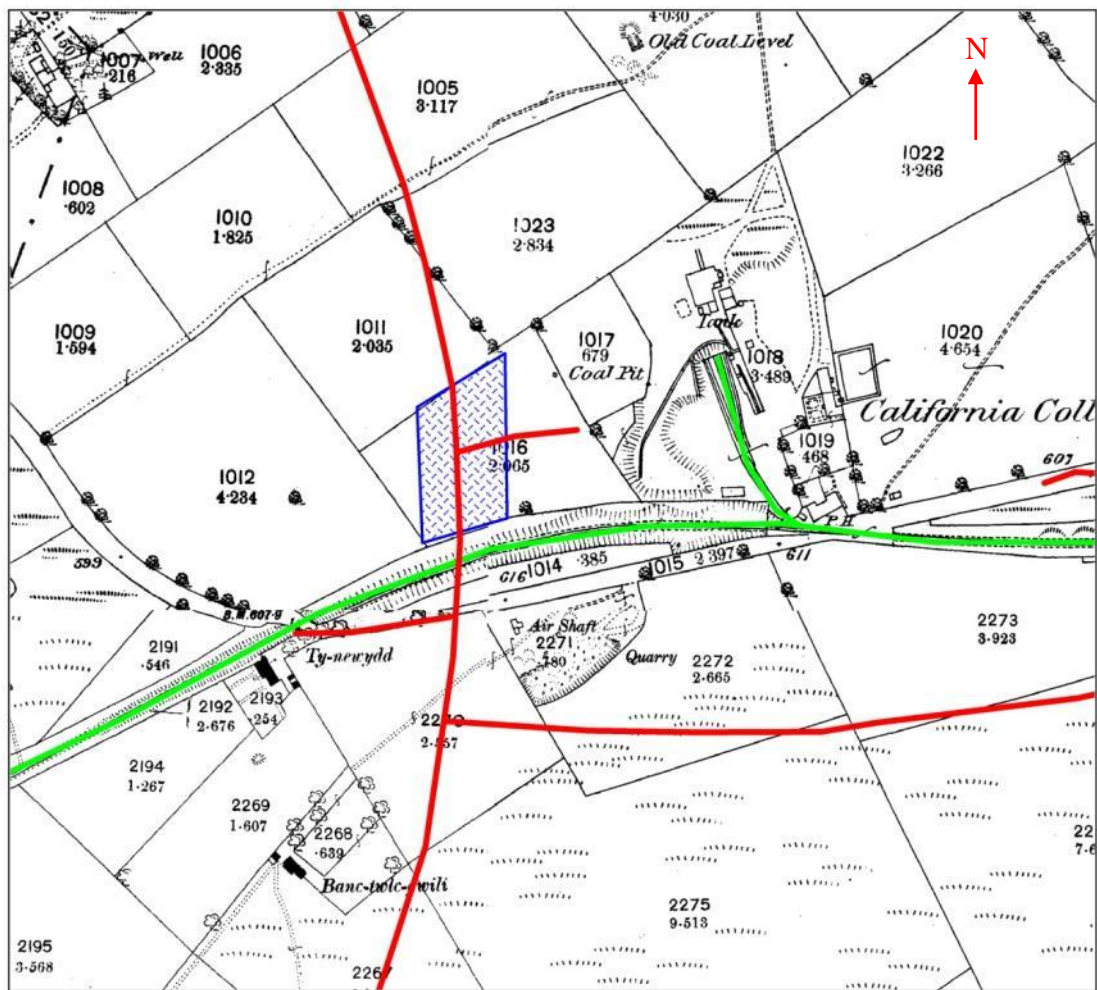
The only potential prehistoric activity in the study area is represented by the Carreg Calch standing stone (Asset 5). This site may have been Bronze Age in origin, but may equally be one of the many medieval or post-medieval boundary stones which are common in Carmarthenshire. The location of the standing stone was identified on 19th century maps but is no longer visible on site (PRN14492).

There are no further identified assets representing the period between the Bronze Age and the post-medieval period within the study area. The remaining assets consist of sites related to the post-medieval and modern industrial development of Cross Hands. The village grew as a settlement located at a noted cross-roads on the route from Carmarthen to Swansea which was an important staging post for travellers during the era of coach travel (James, 1991).

During the 18th and 19th centuries the landscape was transformed from an agricultural one to a mining landscape by the opening of a succession of coal mines developed along the Gwendraeth Valley from Cross Hands to Carway. The presence of the exploitable coal measures led to immense industrialisation of the area and an influx of labour from different areas. However, unlike the coal mining valleys of south eastern Wales, historically the Gwendraeth Valley retained a mix of farming alongside the coal mines, thus making coal mining a seasonal occupation. The temperate climate of cool summers and mild winters as well as the high rainfall in the area combined to enable mixed farming to remain a profitable occupation. It is due to the surviving agricultural traditions and the relative isolation that, despite the presence of coal mining and other outside influences, the area retained its rural traditions and majority of the population retained the Welsh language.

Rich seams of high quality anthracite coal were found in the Gwendraeth Fawr valley and the Mynydd Mawr, which led to the growth of a coal industry and large villages around the coal mines such as Cross Hands, Tumble, Penygroes, Cwmmawr, Pontyberem, Ponthenry and Trimsaran. The study area is associated with the former California Colliery, later superseded by the Emlyn colliery, as well as the remains of associated mining structures tramways, quarries and colliery waste tips.

Figure 2: 1st edition 1878 Ordnance Survey map



- Proposed Road
- Mountain Branch Railway
- Watching Brief Area

0 250
metres



3 WATCHING BRIEF METHODOLOGY

3.1 Fieldwork Methodology

- 3.1.1 The archaeological watching brief was undertaken on 6th June 2018 following a request by the site contractors to attend site, during ground preparation works associated with Phase 1 of the new road development.
- 3.1.2 The attending archaeologist was asked to watch a trench being excavated along the proposed road route in one particular area, shaded in blue in Figure 2. A single trench, c.55m long and 1.80m wide and orientated approximately N-S was excavated across the field. The route of the nearby Mountain Branch railway (PRN 30867) is marked in Figure 2 as a green line.
- 3.1.3 This watching brief was undertaken in accordance with the relevant CIfA Standard and Guidance for an Archaeological Watching Brief (2014).
- 3.1.4 Recording of all archaeological features or deposits conformed to best current professional practice and was carried out in accordance with the Recording Manual³ used by DAT Archaeological Services.
- 3.1.5 All numbers within the text within square brackets [] refer to the unique context number given to all individual deposits using the open-ended numbering system in accordance with the DAT Archaeological Services' Recording Manual. A list of contexts is recorded in Appendix III.

3.2 Post-Fieldwork Reporting and Archiving

- 3.2.1 All data recovered during the fieldwork will be collated into a site archive structured in accordance with specifications in *Archaeological Archives: a guide to best practice in creation, compilation, transfer and curation* (Brown 2007), and the procedures recommended by the National Monuments Record, Aberystwyth.
- 3.2.2 The results of the fieldwork have been assessed in local, regional and wider contexts.
- 3.2.3 The report includes a desk-based research element to ensure that the site is placed within its wider archaeological context.

³ DAT Archaeological Services has adopted the Recording Manual developed by English Heritage Centre for Archaeology.

4 RESULTS



Photo 1: The excavated trench. 1.0m scale. View south

- 4.1 A 1.80m wide trench was excavated from south to north across the field (Photo 1) for a length of 55m along the proposed N-S line of the new road in this area (Figure 2). The trench was excavated using a 360° machine using a toothless grading bucket. The line of the former railway passed close to the end of the trench but no evidence of the railway line was observed in the trench.
- 4.2 Excavation of the trench revealed that the topsoil [101] comprised dark brown silty loam with an average depth of 0.30m from the ground surface. The topsoil overlay seemingly undisturbed orange/brown clay [102]. In areas where additional excavation was required the clay was recorded to a depth of at least 0.60m deep; before excavation ceased.
- 4.3 At the southern end of the excavated trench what appeared to be a linear feature [103] was observed orientated east to west across the trench. The feature was approximately 3.0m wide (Photo 2).
- 4.4 The linear feature was machine excavated to reveal a possible ditch feature up to 0.65m deep with a rounded U-shaped profile and filled with soft black silty clay [104] (Photo 3); made black by high levels of coal dust within the clay. The fill of the ditch also contained small isolated patches of gravel.
- 4.5 Towards the northern end of the excavated trench a second linear anomaly [105] was observed. This linear was orientated diagonally northwest-southeast across the trench but also measured approximately 3.0m wide (Photos 4 and 5).
- 4.6 The feature was machine excavated to reveal another possible ditch with a rounded profile, approximately 0.75m deep and filled with very similar soft black silty clay [106] to the fill [104] in the southern ditch. Again the black

colour of the fill was a result of the large amount of coal dust within the clay fill.

- 4.7 No archaeological artefacts or dating evidence were recovered from the ditches.



Photo 2: Linear feature located at the southern end of the trench. Scale 1.0m.
View northeast.



Photo 3: East facing section of southerly linear feature. Scale 1.0m.



Photo 4: Second possible linear feature located at the northern end of the trench. Scale 1.0m. View south.



Photo 5: East facing section of ditch at northern end of trench (It is difficult to show the ditch cut clearly as the fine coal dust within the fill was so easily smeared across the section by the machine).

5 CONCLUSIONS

- 5.1 The area subjected to a watching brief during Phase 2 of the Crosshands Economic Link Road development had been identified by the site contractors as an area of potential archaeology. During the course of the archaeological watching brief the attending archaeologist observed the stratigraphic and archaeological potential of the site.
- 5.2 The single 1.80m wide trench was machine excavated from south to north across the field for a length of 55m along the proposed line of the new road in this area. The line of the former railway passed close to the end of the trench but no evidence of the railway line was observed in the trench.
- 5.3 Two archaeological features were recorded within the excavated trench; one at the southern end and the other towards the northern end. Both features may represent evidence of former drainage ditches or boundaries running across the area but neither matches any boundaries visible on historic mapping. They both appear to have been backfilled with a similar silty clay that has been coloured black by the addition of coal dust; probably a waste product from local collieries.
- 5.4 No above ground evidence of the Mountain Branch railway was apparent on the ground surface and neither was any evidence of the former railway recorded within the excavated trench. It is probable that the railway lies a little further south of the end of the trench in an area that has already been developed.
- 5.5 The watching brief demonstrated that the ground works associated with Phase 2 of the road scheme development did not appear to have had an adverse impact upon significant archaeological remains or deposits.

6 SOURCES

6.1 Unpublished

Brown, D H, 2007, *Archaeological Archives: A guide to best practice in creation, compilation, transfer and curation*. Institute of Field Archaeologists

Cross Hands Economic Link Road Phase 2. Written Scheme of Investigation. Alun Griffiths Ltd, 2018.

Environmental Appraisal 'WelTAG Stage 2 - Environmental Appraisal Report. Costain 2013.

6.2 Database

Dyfed Archaeological Trust Historic Environment Record, housed with Dyfed Archaeological Trust in The Corner House, Llandeilo, Carmarthenshire, SA19 6AE

British Geological Survey:

<http://mapapps.bgs.ac.uk/geologyofbritain/home.html>

6.3 Cartographic

Ordnance Survey 1st edition 1:2500 map published in 1878

Ordnance Survey Map, 2001, 1:25 000

APPENDIX I

Project Archive

ERN: 112701

19 x Digital photographs; Film Number 112701 (19 x JPEGs)

1x Photo catalogue

Context Register

Context	Description	Interpretation
101	Dark brown silty loam with an average depth of 0.30m from the ground surface.	Topsoil
102	Undisturbed orange/brown clay	Natural subsoil
103	3.0m wide, 0.65m deep possible ditch, with a rounded U-shaped profile, orientated east to west across the trench.	Ditch/boundary?
104	Soft black silty clay - made black by high levels of coal dust within the clay. Also containing small isolated patches of gravel.	Fill of [103]
105	3.0m wide possible ditch orientated diagonally northwest-southeast across the trench. It measured roughly 0.75m deep.	Ditch/boundary?
106	Soft black silty clay - made black by high levels of coal dust within the clay	Fill of [105]

APPENDIX II:

WSI PREPARED BY ALUN GRIFFITHS LTD

CROSS HANDS ECONOMIC LINK ROAD PHASE 2

**WRITTEN SCHEME OF INVESTIGATION FOR AN ARCHAEOLOGICAL
WATCHING BRIEF**

OCTOBER 2017

SUMMARY

This document is presented as a written scheme of investigation (WSI) for an archaeological watching brief relation to the proposed development of Cross Hands Economic Link Road Phase 2.

The Cross Hands Economic Link Road is referenced as a transformational scheme of regional importance in the Joint Local Transport Plan for South West Wales (2015 - 2020) and the recently launched 'A strategic regeneration plan for Carmarthenshire 2015-2030 -Transformations'.

The scheme is to be delivered in phases, with this contract focusing on a section of new road construction known as Phase 2 which sees the continuation of the Link Road from the point at which it currently intersects with Black Lion Road (Completed as Phase 1a and 1b) Northwards to join with the A476 (Llandeilo Road) a length of 1.7km.

Phase 2a links Black Lion Road within Norton Road, Penygroes, with Phase 2b continuing on to the A476. The road, which will unlock key sites identified in the Swansea Bay City Deal. The road consist of a new 2 lane distributor road with associated Active Travel provision. This road would serve the A48 trunk road and Cross Hands Business Park; linking Gorslas and Cross Hands via The Cross Hands Business Park, and additionally reducing congestion at the A48 Cross Hands roundabout, improved local environmental conditions for residents of Gorslas and Cross Hands by effectively bypassing the Gorslas residential area.

The scheme provides a route that connects the Amman and Gwendraeth Valleys and in doing so provides improved links between communities and key employment, health, education and leisure sites by a number of different modes.

This route continues in a north-easterly direction from the end of the ELR Phase 1 across Black Lion Road with a near straight alignment. It would then move into a left hand bend and cross Norton Road seeking to minimise impact on the associated residential properties. From here the route would run north, again with a near straight alignment, to the east of the Caeau Blaen-yr-Orfa SSSI whilst avoiding direct impact on a field actively used for horses, before moving into a right hand bend to join the A476 Llandeilo Road just south of the existing B4297 Gate Road junction. This route would approach the A476 at an angle that facilitates a continuous alignment with the existing A476, which would assist in re-routing strategic traffic onto the new route. The approximate length of the proposed route would be 2.0km.

The Head of Planning's report dated the 19th April 2017 to Carmarthenshire County Councils Planning Committee in relation to application no. E/32266. Following consultations it was stated that Dyfed Archaeology had no objection as there are no historic constraints on site.

However the Environmental appraisal report prepared by Jacobs recommended that an archaeological investigation should be undertaken. Due to the heavily Industrialised nature of the area the potential for unknown archaeological features pre-dating the Industrial revolution is considered to be low. A desktop review of historic maps show no recorded areas of historic interest. This WSI outlines measures to be undertaken during the works to record and preserve any historic remnants discovered.

This WSI outlines the methodology of an archaeological watching brief proposed in order to determine the archaeological presence and significance of any remains on the areas identified within the Environmental Statement.

1. INTRODUCTION

2.1 Project Background

- 2.1.1 This report is presented as a written scheme of investigation (WSI) for an archaeological watching brief in relation to a proposed development at Cross Hands Economic Link Road Phase 2.
- 2.1.2 Planning consent (E/32266) has been sought from Carmarthenshire County Council for the Cross Hands Economic Link Road Phase 2.
- 2.1.3 Dyfed Archaeology had no objection to the granting of planning as there are no historic constraints on site. Dyfed Archaeology letter dated 29th March 2017 referred to the environmental appraisal report prepared by Jacobs and highlighted a desk top review for the scheme. This had been completed and submitted within the Environmental Statement for the submitted scheme. The Environmental Statement highlighted areas of archaeological interest which required further investigation.

2.2 Site Location and description

- 2.2.1 The proposed Cross Hands Economic Link Road Phase 2 is located within agricultural land, with a short length passing through a disused coal tip, a short distance to the north of Cross Hands.
- 2.2.2 The road will run from the Black Lion Road to the junction of Llandeilo Road and Gate Road.
- 2.2.3 The agricultural landscape is one of large enclosed fields. The disused coal tip is bounded by the former Emlyn and California colliery.
- 2.2.4 Unlike the coal mining valleys of south eastern Wales, historically the Gwendraeth Valley retained a mix of farming alongside the coal mines, thus making coal mining a seasonal occupation.
- 2.2.5 The temperate climate of cool summers and mild winters as well as the high rainfall of in the area combined to enable mixed farming to remain a profitable occupation. During the 18th and 19th centuries a succession of coal mines developed along the Gwendraeth Valley from Cross Hands to Carway and the presence of the coal measures led to immense industrialisation and an influx of labour from different areas. However, the surviving agricultural traditions and the relative isolation may be the reasons that, despite the presence of coal mining and other outside influences, the area retained its rural traditions and majority of the population

3. AIMS AND METHODOLOGY

3.1 Aims

3.1.1 The Investigation proposes an archaeological watching brief on the areas identified within the Environmental Statement as shown on the attached plan reference WSI 01

3.1.2 The aims of the watching brief proposed in this WSI are to:

- Determine the extent, condition, nature, character, date and significance of any archaeological remains encountered.
- Establish the nature of the activity on the site.
- Identify and establish the extent of any Prehistoric activity on the site.
- Identify any artefacts relating to the use of the site.
- Provide further information on the archaeology of the site from any archaeological remains encountered.
- Determine the geological and soil formation at the site and establish the depths of topsoil.
- To make available to interested parties the results of the investigation subject to any confidentiality restrictions.

4. SCOPE AND METHODOLOGY OF WORKS

- 4.1 The proposed archaeological works will comprise a watching brief on the topsoil strip of the identified area, possibly undertaken as localised trenching at the locations indicated on plan WSI 01 which were identified in the Environmental Masterplan, which was submitted with the original application.
- 4.2 The investigative works for the WSI will be done under supervision by a suitably qualified archaeologist.
- 4.3 The monitoring archaeologist will examine excavated areas for archaeological features, deposits or artefacts as the work proceeds. Resulting sections will be recorded in order to aid in assessing the potential for preserved archaeological stratigraphy at the site.
- 4.4 The watching brief will be undertaken in accordance with the relevant Standards and Guidance published by the Chartered Institute for Archaeologists (CIfA, 2014a).
- 4.5 Decisions made on the methods and strategies for sampling features will be based upon the nature and extent of any deposits when and where they are revealed. This will be reviewed once any surviving archaeology is revealed and agreed with the Archaeological Advisor to the Planning Authority (Planning Archaeologist) as appropriate. As a minimum guideline however, discrete features will be half-sectioned in the first instance; linear features will be sampled at a minimum of 10% along their length (each sample section not less than 1m), or a minimum of a 1m sample section if the feature is less than 10m long.

General Methodologies

- 4.6 Topsoil strip of the identified areas will be undertaken as localised trenching at locations identified on plan WSI 01 by an excavator fitted with a flat-bladed bucket and under archaeological supervision, removing any topsoil until the first archaeological horizon or undisturbed natural subsoil is exposed. Thereafter, any identified deposits will be cleaned manually to define their extent, nature, form and, where possible, date.
- 4.7 All information identified in the course of the site works will be recorded stratigraphically, with sufficient pictorial record to identify and illustrate individual features. It should be noted that, where possible, data will be collected and stored digitally and in a format suitable for long term storage by the Archaeological Data Service (ADS). Primary records will be available for inspection at all times.
- 4.8 The excavation, sampling and recording will include, as a minimum:
 - The recording of individual contexts on appropriate pro-formas

- Excavation plans on GPS; planning and section drawing of appropriate trench sections, single contexts and features (usually at 1:20 scale for plans and 1:10 scale for inhumations and sections)
- Photographs; and other appropriate drawn and written records

4.9 The survey and recording works will meet the following requirements:

- All levels will be recorded and reduced to OS datum
- All trench locations will be electronically surveyed with National Grid references
- The locations of trenches shall be plotted on appropriate scale plans related to the National Grid and labelled with six figure eastings and northings
- The electronic survey record shall be retained with the project archive.

4.10 Site photography will be by high resolution (7 megapixel or greater) colour DSLR photography. Photography will include general site shots, shots of each trench, and shots of individual features and groups of features. All photographs will include a suitable photographic scale and will be recorded on a photographic register detailing as a minimum the subject, feature number, location and direction of each shot.

Finds

4.11 Artefact collection policy will be concerned with the provision of adequate samples for meeting the objectives of the work. If archaeological objects are recovered an appropriate retention/discard strategy will be agreed with the relevant repository. Discarded artefactual materials will be described and quantified through assignment to broad categories in the field.

4.12 All retained finds and archaeo-environmental samples are to be treated and conserved in accordance with the English Heritage guidance document A Strategy for the Care and Investigation of Finds (English Heritage, 1995) and the UKIC's document Guidelines for the Preparation of Excavation Archives for Long Term Storage (UKIC, 1990). Assessment and analysis of finds and archaeo-environmental samples will be undertaken, as necessary. Finds and sample storage will be at Rubicon Heritage's Office unless an alternative is required.

4.13 Any human remains discovered will be recorded in plan and full excavated (see section 5.2). A Ministry of Justice licence under Section 25 of the Burial Act 1857 will be obtained. Any exhumation and post-excavation treatment will be carried out in accordance with published guidelines (McKinley & Roberts 1993; Brickley & McKinley 2004).

4.14 In general finds will be treated in the following way:

- All finds, where appropriate, will be retained from each archaeological context excavated.
- All finds, where appropriate, shall be washed.

- All Pottery, and other finds, where appropriate, shall be marked with the, the site code and context number.
- Finds work will be undertaken in line with the Chartered Institute for Archaeologists Guidelines for Finds Work.

Environmental Sampling

- 4.15 Where appropriate contexts will be sampled in accordance with the guidelines provided by English Heritage (2011). Samples will be collected for technological, pedological and chronological analysis as appropriate.
- 4.16 Should archaeological remains be identified soil samples will be taken as appropriate to contribute to the evaluation of the nature, date and extent of those remains. The exact sampling methodology can only be determined once the nature of archaeological remains becomes apparent, however given the dry condition of the site it is most likely that flotation samples of up to 40 Ltr will be taken from individual contexts with the aim of recovering charred plant remains. These charred plant remains would contribute to the evaluation if there was material suitable for dating features, or if they could contribute to the interpretation of the function of features. Where ever possible samples should be taken in response to specific research questions.
- 4.17 Any bone recovered from stratified deposits will also be subject to assessment; analysis will be limited to material that can provide metrical, ageing or sex information.

Reporting & Archiving

- 4.18 Within two weeks of completion of the onsite works a fieldwork report will be produced covering this element of works. One unbound, three bound copies, a CD-ROM and a digital copy in PDF format will be supplied to the client, if required, for distribution to relevant parties.
- 4.19 The preparation of the report will follow the guidelines published by the Chartered Institute for Archaeologists (CIfA 2014b). Details of style and format will be determined by Rubicon Heritage Limited but will include:
- A non-technical summary.
 - The site location.
 - Aims and purpose of the archaeological work.
 - The methodology of works.
 - A description of the project results.
 - An objective interpretation of the results, placing them in an appropriate local and regional context.

- Site layout plans on an OS base, with the location of the watching brief areas.
- Plans of each area in which archaeological features were recorded.
- Sections and feature sections (with OD heights).
- Site matrices where appropriate.
- A consideration of evidence within its wider context.
- Site photographs, including key features, and an index to the full photographic archive.
- A summary table and descriptive text showing the features, classes and numbers of artefacts located, and soil profiles, with interpretation.
- An archive statement, which will summarise the contents, location, and projected deposition date of the archive, if required.
- Supporting illustrations & plans, suitably captioned, at appropriate scales. These will include a location map and site plan; copies of historic map & historic photographs where relevant.

- 4.20 The results of the archaeological work will form the basis of a full archive to professional standards, in accordance with:-

The National Standard and Guidance to Best Practice for Collecting and Depositing Archaeological Archives in Wales 2017.

National Standard and Guidance to Best Practice for Collecting and Depositing Archaeological Archives in Wales 2017 will also be adhered to in relation to the compilation and treatment of the archive.

- 4.21 The deposition of a properly ordered and indexed project archive in an appropriate repository is considered an essential and integral element of all archaeological projects by the CIfA in that organisation's code of conduct (CIfA) and this will be adhered to in relation to the current project.
- 4.22 Digital archives will be submitted to RCAHMW while the physical site archive will ultimately be deposited with Carmarthenshire Museum, this will also include a copy of the report.
- 4.23 Hard copy project reports as well as a digital copy will be submitted to the regional HER.
- 4.24 A summary of the project will be submitted, within two years of completion, for suitable publication in a journal (eg. *The Carmarthenshire Antiquary*, *ArchaeologiaCambrensis*)

5. UNFORSEEN ARCHAEOLOGICAL REMAINS FOUND DURING WORKS

5.1 Unforeseen Archaeological Remains of Significance

5.1.1 In the event of archaeological remains of unexpected or exceptional (i.e. of regional or national) importance that requires further investigation being encountered, during either archaeological or non-archaeological works on site, the following will be undertaken:

- The stripping of soil, ground reduction or ground disturbance will cease in that area.
- The archaeologist will examine the remains as soon as is practically possible, and certainly within 24 hours of the find.
- The Project Archaeologist will inform the Planning Archaeologist of the finds and arrange a site meeting at the earliest possible convenience to all parties.
- The Project Archaeologist will, if necessary, erect temporary fencing around the area of possible archaeological remains until such a meeting.
- The impact on archaeological remains will be mitigated in a manner appropriate to their importance.

5.2 Human Remains

5.2.1 Any discovered human remains will be left *in situ*, covered and protected.

5.2.2 If removal is necessary the Project Archaeologist will inform the Planning Archaeologist, the Client, and the local Coroner as appropriate. Advice will be sought from the Ministry of Justice by the Project Archaeologist as to whether a licence may be required to exhume any or all remains.

5.2.3 A strategy for the excavation, analysis, retention and/or reburial of a) disarticulated and b) articulated human remains will need to be developed and specified in a discussion with the Planning Archaeologist covering the identified human remains. The cataloguing and analysis of all human remains will be undertaken, as necessary, by Carmelita Troy, osteoarchaeologist. All treatment of remains will follow industry-standard procedures (McKinley and Roberts, 1993).

5.2.4 Normal conditions will apply with regard to finds ownership and the Treasure Act 1996.

6. PROGRAMME & MONITORING

6.1 Provisional Programme

6.1.1 It is intended that the work shall commence during the site clearance works of the scheme.

6.1.2 The post-excavation assessment report on the results will be completed within 6 months of the completion of fieldwork.

6.2 Monitoring Responsibilities

6.2.1 The appointed qualified archaeologist will keep the Planning Archaeologist informed on the progress of works, including post-excavation works, as necessary.

- 6.2.2 Reasonable access to the site is to be arranged at all times for Planning Archaeologist, should they request to make a site inspection to ensure that the archaeological works is progressing satisfactorily.
- 6.2.3 Any variations to the WSI shall be agreed with the Planning Archaeologist, in writing, prior to them being carried out.

7. ADDITIONAL INFORMATION

7.1 Health & Safety

- 7.1.1 A risk assessment for the archaeological evaluation trenching works will be produced and submitted to the client for review prior to the progression of such works.
- 7.1.2 The following statutory provisions and codes of practice will be adhered to where relevant:

All statutory provisions and by-laws relating to the work in question, especially the Health and Safety at Work etc. Act 1974

The Chartered Institute for Archaeologists Code of Conduct
Chartered Institute for Archaeologists Code of Approved Practice for the Regulation of Contractual Arrangements in Field Archaeology

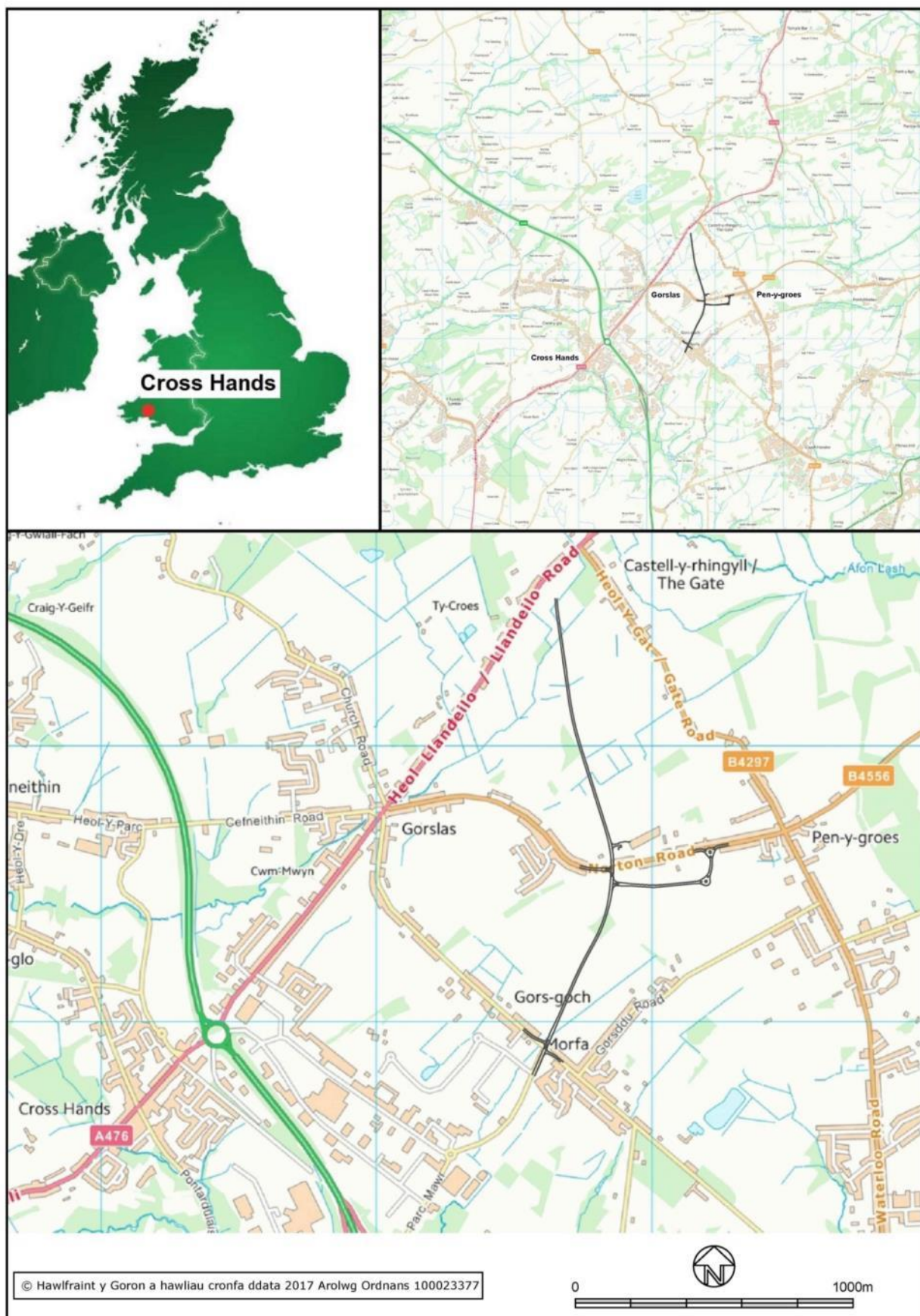
7.2 Personnel

- 7.2.1 The field team deployed by appointed archaeologist will include only full time professional archaeological staff. All staff in supervisory positions will be members, at an appropriate level, of the Chartered Institute for Archaeologists (CIfA).
- 7.2.2 The overall management of the various stages of the project will be done by a Project Archaeologist, who will oversee all phases of the archaeological programme of works, through to its completion.
- 7.2.3 The analysis of the finds and environmental data will be undertaken by the Project Archaeologist.

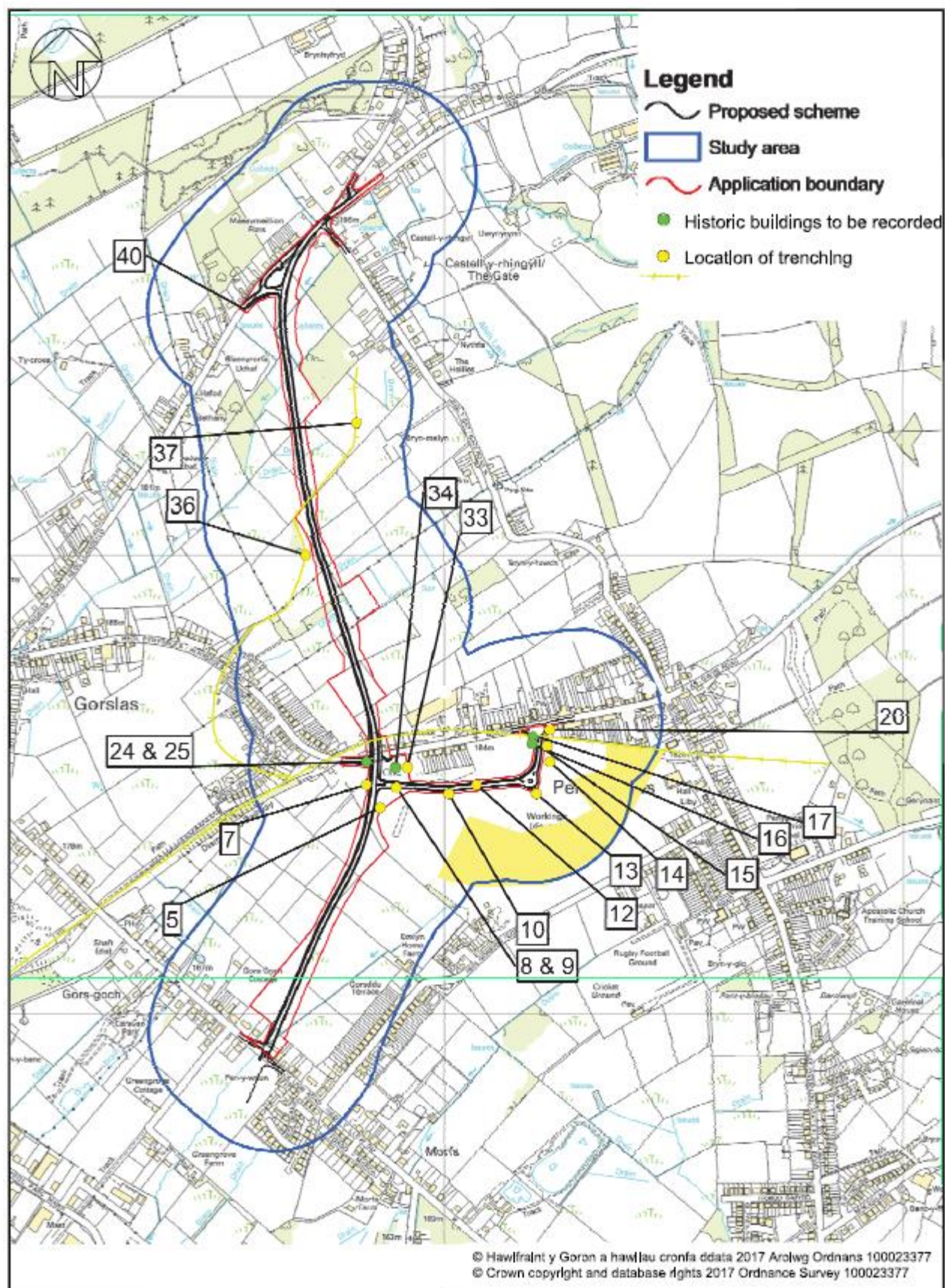
7.3 Variations

- 7.3.1 Any variations to this Written Scheme of Investigation that may be needed as a result of the emerging results of works will be approved in advance with the Planning Archaeologist.

Figure 1 - Cross Hands Economic Link Road Phase 2, Carmarthen: Site location.



WS1 01 – Extents of WSI



Extract from Environmental Statement

11.4 Predicted Impacts

11.4.1 Potential impacts assessed to be of moderate magnitude or above are presented below. Impacts of less than moderate magnitude are presented in Appendix 11.4 (Potential Impacts) in Volume 2 Technical Appendices.

Archaeological Remains

Construction

11.4.2 Construction of the proposed scheme would have potential impacts of moderate or above magnitude on 15 archaeological remains. Please refer to Table 11-12.

Table 11-12: Potential impacts of moderate magnitude or above on Archaeological Remains - Construction

Asset Number	Asset Name	Value of Asset	Magnitude of Impact	Significance of Effect
5	Emlyn Colliery Field Boundary	Negligible	Major	Slight
7	Emlyn Colliery Road	Negligible	Moderate	Slight
8	Emlyn Colliery Field Boundary	Negligible	Major	Slight
9	Emlyn Colliery Tramway	Low	Moderate	Slight
10	Emlyn Colliery Field and Quarry Boundary	Negligible	Major	Slight
12	Emlyn Colliery Water Channel	Negligible	Major	Slight
13	Emlyn Colliery Trackway	Low	Moderate	Slight
14	Emlyn Colliery Water Tank	Negligible	Moderate	Slight
15	Emlyn Colliery Boundary	Negligible	Major	Slight
20	Emlyn Colliery Roofed Structure	Negligible	Major	Slight
31	Former Mnydd Mawr Railway	Low	Moderate	Slight
33	Emlyn Colliery Quarry	Negligible	Major	Slight
36	Glas pant Tramway	Low	Moderate	Slight
37	Bryn-Melyn Tramway	Low	Moderate	Slight
40	Site of Carreg Ar Holt Boundary Stone	Negligible	Major	Slight

11.4.3 As a result of assets being within the footprint of the proposed scheme, construction would remove archaeological remains comprising field and quarry boundaries and a water channel associated with Emlyn Colliery and

Emlyn Quarry (Assets 5, 8, 10, 12 and 15), as well as removing archaeological remains comprising Emlyn Quarry itself (Asset 33). The magnitude of impact on all six assets has been assessed as major and the significance of effect as Slight.

11.4.4 Assets 7, 9, 13, 31, 36 and 37 comprise elements of a transport infrastructure associated with 19th and early 20th century industrial activity within the study area. Assets include a track-way, road, railway and tramways. Construction of the proposed scheme would remove archaeological remains associated with these assets where each asset is severed by the scheme. The magnitude of impact on them has been assessed to be moderate and the significance of effect as Slight.

11.4.5 Construction of the proposed scheme would result in the removal of archaeological remains comprising site of the Carreg Ar Holt Boundary Stone (Asset 40) to the west of Castell-y-Rhingyll village. The magnitude of impact has been assessed to be major and the significance of effect as Slight.

11.4.6 Potential impacts of less than moderate magnitude are predicted on a further 20 archaeological remains, as described in Appendix 11.4 (Potential Impacts) in Volume 2 Technical Appendices.

Operation

11.4.7 The severance experienced by Assets 7, 9, 13, 31, 36 and 37 during construction would continue into Operation. The magnitude of impact on them has been assessed to be moderate and the significance of effect as Slight. Please refer to Table 11-13.

Table 11-13: Potential impacts of moderate magnitude or above on Archaeological Remains – Operation

Asset Number	Asset Name	Value of Asset	Magnitude of Impact	Significance of Effect
7	Emlyn Colliery Road	Negligible	Moderate	Slight
9	Emlyn Colliery Tramway	Low	Moderate	Slight
13	Emlyn Colliery Trackway	Low	Moderate	Slight
31	Former Mnydd Mawr Railway	Low	Moderate	Slight
36	Glaspant Tramway	Low	Moderate	Slight
37	Bryn-Melyn Tramway	Low	Moderate	Slight

11.4.9 The value of the other archaeological remains identified within the study area results from their physical remains rather than their settings. As such no further impacts on archaeological remains during Operation are predicted.

APPENDIX III

CROSS HANDS ECONOMIC LINK ROAD PHASE 2 WRITTEN SCHEME OF INVESTIGATION FOR AN ARCHAEOLOGICAL WATCHING BRIEF

1 INTRODUCTION

- 1.1 This Written Scheme of Investigation (WSI) has been prepared by DAT Archaeological Services following a request from Alun Griffiths (Contractors) Ltd to provide an archaeological watching brief. The watching brief will be undertaken in identified areas where there is a potential for archaeological remains to be present. By doing this, it will ensure that any archaeological remains exposed by the groundworks can be appropriately recorded, and a report and archive prepared.
- 1.2 Alun Griffiths (Contractors) Ltd have already prepared a detailed WSI detailing the project background and potential impacts on archaeological remains. This WSI includes more detailed information on the scheme and a summary archaeological and historical background. This information is not been repeated here.
- 1.3 The works being undertaken are associated with the northern section of the Phase 2 element of the Cross Hands Economic Link Road. The Phase 2 works sees the continuation of the Link Road from the point at which it currently intersects with the Black Lion Road (completed as Phase 1a and 1b), northwards to join with the A476 (Llandeilo Road) a length of 1.7km. The present WSI will be for works undertaken on the northern side of the B4556 Penygroes Road. Further works will be required to the south but these are unlikely to be done until 2019.
- 1.4 This WSI is intended to be a brief supplementary WSI detailing the methodology DAT Archaeological Services will employ, our code of practices and policies adhered to. This document has been prepared for the client and is specifically prepared for DAT Archaeological Services to undertake the required archaeological works. The WSI cannot be used by any third party.
- 1.5 The written scheme of investigation is in accordance with the *Standard and Guidance for Archaeological Watching Briefs* (Chartered Institute for Archaeologists (CIfA), 2014).
- 1.6 DAT Archaeological Services has considerable experience of this type of project and always operates to best professional practice. DAT Archaeological Services is the contractual arm of Dyfed Archaeological Trust that has its own Health and Safety Policy, and all works are covered by appropriate Employer's Liability and Public Liability Insurances. Copies of all are available on request.
- 1.7 Dyfed Archaeological Trust is a CIfA Registered Organisation and all permanent staff are CSCS registered.

2. WATCHING BRIEF

- 2.1 The definition of archaeological watching brief, taken from the Chartered Institute for Archaeologists Standards and Guidance: for Archaeological Watching Briefs (CifA S&G: AWB 2014) is a formal programme of observation and investigation conducted during any operation carried out for non-archaeological reasons. This will be within a specified area or site on land, inter-tidal zone or underwater, where there is a possibility that archaeological deposits may be disturbed or destroyed. The programme will result in the preparation of a report and ordered archive.
- 2.2 The purpose of a watching brief, as laid down in the CifA S&G AWB is:
to allow, within the resources available, the preservation by record of archaeological deposits, the presence and nature of which could not be established (or established with sufficient accuracy) in advance of development or other potentially disruptive works;
- 2.3 This document provides a scheme of works for:
- 2.4 ***Archaeological attendance during ground works focusing on the northern section of the Phase 2 part of the Cross Hands Economic Link Road. This will include areas previously identified by the contractors as being of archaeological significance. Appropriate investigation and recording of any such remains will be undertaken if revealed. A report and archive of the results of the works will be prepared.***

3. PROJECT OBJECTIVES

- 3.1 Provision of a written scheme of investigation to outline the methodology by which DAT Archaeological Services will undertake the archaeological watching brief.
- 3.2 To monitor ground works in order to identify the presence/absence of any archaeological deposits.
- 3.3 To establish the character, extent and date range for any archaeological deposits to be affected by the proposed ground works.
- 3.4 To appropriately investigate and record any archaeological deposits to be affected by the ground works.
- 3.5 To produce an archive and report of any results.

4. FIELDWORK

- 4.1 The watching brief would entail an archaeologist being present during all ground works where there is a potential for archaeological remains to be exposed, damaged or destroyed. This will be carried out during the initial site strip for the new road line in the area of a former tramway alignment and a railway alignment; both post-medieval in date, where they cross the new road route.
- 4.2 The tramway route has been identified crossing the central part of the proposed road route and the railway line ran to the north of the properties along the Penygroes road near the Six Ways junction.
- 4.3 It was known prior to the works starting, that the route of the tramway through the central part of the area had already been significantly compromised through being firstly reused as a farm track over the years and more recently the area had become very waterlogged and disturbed through plant traffic associated with drilling and grouting operations undertaken by another contractor prior to Griffiths getting on-site. The

area has been deemed to have been totally destroyed and will not be investigated further.

- 4.4 The railway line area will be investigated during the week commencing 4th June 2018.
- 4.5 It is essential coordination between the site contractor's and archaeologist is established at the outset to avoid any potential disturbance to archaeology without an archaeologist being present, or unnecessary visits to the site when works are being carried out that do not require the presence of an archaeologist.
- 4.6 Adequate time must be made available to the visiting archaeologist to ensure that appropriate recording can be undertaken of any archaeological features or deposits exposed during ground works.
- 4.7 Recording of all archaeological features or deposits will conform to best current professional practice and be carried out in accordance with the Recording Manual⁴ used by DAT Archaeological Services. Significant archaeological features or deposits will be drawn at a suitable scale (no less than 1:20) and photographed in an appropriate format.
- 4.8 All archaeologically significant finds will be retained and, where possible, related to the contexts from which they derived. Finds will be temporarily stored by DAT Archaeological Services in stable conditions. All finds, except those deemed to be Treasure, will remain the property of the landowner.
- 4.9 Under the 1996 Treasure Act, "treasure" can be summarised as:
- Any object other than a coin containing at least 10% gold or silver and at least 300 years old;
 - Any prehistoric assemblage of base metal;
 - Coins found together which contain 10% gold or silver (but no single coins) and groups of at least 10 coins of other metals, provided they are at least 300 years old;
 - Any object found associated with treasure except unworked natural objects; and
 - Any object which would have been Treasure Trove before the 1996 Act but not covered above.
- 4.10 In the event that unforeseen archaeological discoveries are made during the development, or that archaeological remains of high significance are exposed, DAT Archaeological Services shall have the power to halt any ground works and shall inform the site agent/project manager and the curatorial officer, and prepare a written statement with plan detailing the archaeological evidence. Following assessment of the archaeological remains by the curatorial officer, DAT Archaeological Services shall, if required, implement on behalf of the Client a contingency scheme for salvage excavation of affected archaeological features. In these instances it would be necessary to employ extra resources to record such features to an appropriate standard.
- 4.11 In the event that human remains are encountered, the District Coroner's Office and the Police will be notified immediately. All human remains will, where possible, be left *in situ*. If preservation *in situ* is not possible all statutory permissions will be obtained in writing before removal begins.

⁴ DAT Archaeological Services have adopted the Recording Manual developed by English Heritage Centre for Archaeology. A copy will be available on-site for inspection if required.

5. POST-FIELDWORK REPORTING AND ARCHIVING

- 5.1 Assuming the site results are considered significant based on the DAT archive retention policy, all data recovered during the evaluation will be collated into a site archive structured in accordance with the specifications in *Archaeological Archives: a guide to best practice in creation, compilation, transfer and curation* (Brown 2011), and the procedures recommended by the National Monuments Record, Aberystwyth. The *National Standards for Wales for Collecting and Depositing Archaeological Archives* produced by the Federation of Museums and Art Galleries of Wales will also be adhered to. Digital archives will be collated using the Royal Commission on the Ancient and Historical Monuments of Wales systems (2015) and deposited with the RCAHMW.
- 5.2 The results of the fieldwork will be assessed in local, regional and wider contexts. The report will include a desk-based research element to ensure that the site is placed within its wider archaeological context. A report that is fully representative of the results of the fieldwork will be prepared and digital copies will be sent to the client for dissemination to all relevant parties. The photographic record will be included as part of this archive.
- 5.3 DAT Archaeological Services will arrange for the deposition of finds, and ascertain the costs of storage and deposition, with an approved body before the project commences and inform the curator of the arrangement which has been made (it is anticipated that the paper and digital archive will be deposited with the Royal Commission on the Ancient and Historical Monuments of Wales and any finds to Carmarthenshire Museum).
- 5.4 A summary of the project results, excluding any confidential information, may be prepared for wider dissemination (e.g. Archaeology in Wales and special interest and period-specific journals).
- 5.5 Digital copies of the reports will be produced for the client. Digital copies of the report will be supplied to Dyfed Archaeological Trust - Development Management and the regional Historic Environment Record.

6. STAFF

- 6.1 This project will be managed by James Meek, Head of DAT Archaeological Services.
- 6.2 Archaeological attendance during the watching brief will be undertaken by staff drawn from the team of archaeologists employed by DAT Archaeological Services.

7. MONITORING

- 7.1 The Dyfed Archaeological Trust – Development Management team should be told of the commencement of the works so that they can arrange a monitoring visit if needed. The fieldwork may need to be monitored by the Head of DAT Archaeological Services. All parties should be provided with free access to the site at any time during the watching brief works.

8. HEALTH AND SAFETY

- 8.1 All DAT Archaeological Services staff are CSCS⁵ registered.
- 8.2 DAT Archaeological Services will carry out a health and safety risk assessment to ensure that all potential risks are minimised.
- 8.3 All relevant health and safety regulations must be followed.

⁵ Construction Skills Certification Scheme (Health and Safety Tested)

- 8.4 All site inductions, H&S procedures and site rules of the site contractor will be made known to DAT Archaeological Services staff prior to them commencing work on-site.
- 8.5 Safety helmets, safety boots, goggles, gloves, long sleeve high visibility vests and trousers are to be used by all site personnel. The site contractors will make all archaeological staff aware of any other PPE⁶ that may be required and provide them. Archaeological staff must not enter any area where there is a considered to be a health and safety risk that has not or is not being appropriately mitigated against.
- 8.6 DAT Archaeological Services staff must ensure that their presence on site is communicated to all relevant site staff, especially machine operators.
- 8.7 A detailed Risk Assessment and Method Statement (RAMS) document has been prepared for the site and submitted to the client.

⁶ *Personal Protection Equipment*

CROSS HANDS ECONOMIC LINK ROAD PHASE TWO: ARCHAEOLOGICAL WATCHING BRIEF (SN 5610 1330)

**REPORT NUMBER 112701
PROJECT RECORD NO. 2018-33**

June 2018

This report has been prepared by

Charlie Enright

Position: **Archaeologist DAT Archaeological Services**

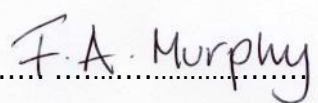
Signature  Dyddiad / Date 01/06/18

This report has been checked and approved by

Fran Murphy

on behalf of Dyfed Archaeological Trust Ltd.

Position: **Project Manager DAT Archaeological Services**

Signature  Dyddiad / Date 06/08/2019

As part of our desire to provide a quality service we would welcome any comments you may have on the content or presentation of this report

