

FIVE MILE LANE IMPROVEMENTS

**ARCHAEOLOGICAL DESK-
BASED ASSESSMENT**

Vale of Glamorgan Council

3512646-D

Issue 2

Five Mile Lane Improvements: Archaeological Desk-based Assessment

3512646-D

Prepared for
Vale of Glamorgan Council

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LIST OF ABBREVIATIONS

CIfA	Chartered Institute for Archaeologists
DCLG	Department of Communities and Local Government
DCMS	Department of Culture, Media and Sport
DCO	Development Consent Order
DMRB	Design Manual for Roads and Bridges
EIA	Environmental Impact Assessment
ES	Environmental Statement
GGAT	The Glamorgan-Gwent Archaeological Trust
HA	Heritage Asset
HE	Historic England
HER	Historic Environment Record
RFAW	Research Framework for the Archaeology of Wales
RCAHMW	Royal Commission on the Ancient and Historical Monuments in Wales
LB	Listed Building
NGR	National Grid Reference
NMR	National Monuments Record
OS	Ordnance Survey
SM	Scheduled Monument

EXECUTIVE SUMMARY

In September 2014, Parsons Brinckerhoff was commissioned by the Vale of Glamorgan Council to undertake an archaeological desk-based assessment in support of an application for planning permission to improve the A4226 Five Mile Lane. The proposed scheme lies between Waycock Cross and Sycamore Cross, northwest of Barry in the Vale of Glamorgan, South Wales.

The assessment identified 14 heritage assets within an inner study area; four of which are in or extend into the footprint of the Scheme Area. The four assets are non-designated and include a Bronze Age ring ditch (04147s), potential Iron Age enclosures (03121s), Whitton Lodge Roman Villa (00382s), and the site of an Industrial period lime kiln (02626s). Whitton Lodge Roman Villa, although non-designated and now largely destroyed, is considered by Cadw to hold national significance. The potential for hitherto unknown buried archaeological remains across the Scheme Area is high, as indicated by the significant presence of prehistoric and Romano-British archaeology recorded in the area. Furthermore, the discovery of two inhumations (00381s and 00380s) containing significant quantities of human bone in the central part of the study area have been suggested by Cadw to represent a potential burial or battlefield of national significance, the remains of which may extend into the Scheme's footprint.

An assessment of the significance of setting to the value of the designated heritage assets was also undertaken within an area defined by a Zone of Visual Influence. The settings of five Scheduled Monuments and one historic landscape were assessed, comprising Coed y Cwm Long Barrow (GM116), Coed y Cwm Ringwork (GM117) Moulton Roman Villa (GM253), Castle Ringwork (GM613), the remains of Highlight Church (GM344) and Bonvilston Amalgamated Fieldscape (HLCA010).

The results of this desk-based assessment suggest that the construction works is likely to have an impact upon Whitton Lodge Roman Villa (00382s), Bronze Age ring ditch (04147s), Iron Age enclosures (03121s) and lime kiln (02626s) and that the setting of GM116, GM253 GM117 and HLCA010 will be harmed as result of the development.

It is likely that the GGAT Planning Archaeologist will require a programme of field investigation prior to construction and this will almost certainly comprise a programme of geophysical survey and trial trenching. The Historic England principles for mitigation against harm to setting should also be considered.

SECTION 1

ACKNOWLEDGEMENTS

1 ACKNOWLEDGEMENTS

- 1.1.1 Parsons Brinckerhoff is grateful to the Vale of Glamorgan Council for commissioning this report and would like to thank the staff at Glamorgan-Gwent Archaeological Trust (GGAT) for their assistance during the data capture phase of the assessment. Particular thanks are due Judith Doyle, Acting Archaeological Planning Manager at GGAT for her advice and assistance. The staff at Glamorgan Archive Service are also acknowledged.
- 1.1.2 Charlotte Vallance (Assistant Heritage Consultant) compiled the report. Alison Plummer (Principal Heritage Consultant) was responsible for editing.

SECTION 2

INTRODUCTION

2 INTRODUCTION

2.1 Circumstances of the Project

2.1.1 The Welsh Government intends to submit an application for a scheme to improve the A4226 (Five Mile Lane), northwest of Barry in the Vale of Glamorgan, South Wales (Fig 1). The A4226 connects Barry at the A4050 Waycock Cross roundabout with the Sycamore Cross junction on the A48, and comprises an essential part of the highway network leading to the St Athan and Cardiff Airport Enterprise Zones. Five Mile Lane is a non-primary single carriageway A-road forming part of the local highway network within the Vale of Glamorgan Council which forms a north-south link between the A48 at Sycamore Cross and Port Road West in Barry.

2.1.2 The proposed scheme will improve the present road to modern DMRB highway standards, addressing poor visibility, curves that are too tight and narrow width. This will be done by building a new section of offline highway which ties in at either end of the existing Five Mile Lane between the roundabout at Waycock Cross and the new junction at Sycamore Cross.

2.1.3 This desk-based assessment (DBA) provides an archaeological and historical context for the heritage assets identified within defined study areas. It also assesses the significance of the assets and their settings, whilst considering the level of harm to the significance of the assets. It also provides the baseline condition for the forthcoming cultural heritage section of the Environmental Statement.

2.2 Location, Topography and Geology

2.2.1 The Scheme Area will partially follow the course of A4226 which extends between Port Road West to the southwest of Barry in the south and the A40 in the north. A significant part of the proposed route goes off line (land-take) to the east of the A4226 across an arable field system. The approximate centre of the proposed Scheme lies at grid reference is ST 08061 70959 (Figure 1).

2.2.2 The land within the Scheme Area is at approximately 78m above Ordnance Datum (AOD) in the north) and slopes steeply down towards the south to 22m AOD. The geology is characterised by Lias Group - Mudstone, Siltstone, Limestone and Sandstone and the local environment was previously dominated by shallow seas (www.bgs.ac.uk)

2.3 Historical Landscape Character Areas

2.3.1 The eastern extent of the Bonvilston Amalgamated Fieldscape (HLCA010) lies in the north of the outer study area. The historic landscape is an area of land that is largely a post-medieval agricultural landscape, with some agri-industrial features, and is located within the historic parish of Bonvilston. The First edition Ordnance Survey (OS) map depicts regular enclosures and shows the remnants of the medieval strip field system. Although now amalgamated into larger fields, the boundaries of the former strip fields are still visible as cropmarks in aerial photographs, despite continued agricultural practice and heavy ploughing in particular (GGAT).

SECTION 3

METHODOLOGY

3 METHODOLGY**3.1 Planning Background and Legislative Framework**National Planning Policy

3.1.2 In considering any planning application for development, local planning authorities are bound by the policy framework set by government guidance. This guidance provides a material consideration that must be taken into account in development management decisions, where relevant.

3.1.3 National planning policies on the conservation of the historic environment are set out in 'Chapter 6: Conserving the Historic Environment' of Planning Policy Wales (Edition 7, July 2014) and associated Technical Advice Notes (TANs). These are supplemented by 21 topic-based Technical Advice Notes (TANs). TANs prescribe the government's policies on various planning issues that shape the preparation of development plans. The principles and objectives of TANs prescribe the overarching national guidance for specific individual environmental topics. Both PPW and the TANs are material considerations in determining planning applications under the Town and County Planning Association (TCPA) system. The objectives of PPW include:

- Preserve or enhance the historic environment, recognising its contribution to economic vitality and culture, civic pride and the quality of life, and its importance as a resource for future generations; and specifically to
- Protect archaeological remains, which are a finite and non-renewable resource, part of the historical and cultural identity of Wales, and valuable both for their own sake and for their role in education, leisure and the economy, particularly tourism;
- Ensure that the character of historic buildings is safeguarded from alterations, extensions or demolition that would compromise a building's special architectural and historic interest; and to
- Ensure that conservation areas are protected or enhanced, while at the same time remaining alive and prosperous, avoiding unnecessarily detailed controls over businesses and householders.

Local Planning Policy

3.1.4 The Vale of Glamorgan Unitary Development Plan (UDP) sets out the key policy relating to the historic environment. Of particular reference is consideration of the historic built environment. Planning Policy Wales 2002 clearly outlines the role of the UDP in respect of the historic environment. Paragraphs 6.1.1 and 6.1.2 state:

It is important that the historic environment encompassing archaeology and ancient monuments, listed buildings, conservation areas and historic parks, gardens and landscapes-is protected. The Assembly Government's objectives in this field are to:

- *Preserve and enhance the historic environment, recognising its contribution to economic vitality and culture, civic pride and the quality of life, and its importance as a resource for future generations; and specifically to*
- *Protect archaeological remains, which are finite and non-renewable resource, part of the historical and cultural identity of Wales, and valuable both for their own sake and for their role in education, leisure and the economy, particularly tourism.*

Standards and Guidance

- 3.1.5 This DBA has been carried out in accordance with the relevant professional guidelines:
- Chartered Institute for Archaeologists (CIfA), Cadw, Historic England and GGAT:
 - CIfA 2015, Standard and Guidance for Historic Environment Desk-based Assessment;
 - CIfA 2015, Code of Conduct;
 - Cadw 2011, Conservation Principles;
 - Historic England 2006, Management of Research Projects in the Historic Environment (MoRPHE);
 - GGAT 2007, Notes for archaeologists undertaking desk-based studies in South East Wales).
 - The assessment of setting has been undertaken in accordance with Historic England guidelines; The Setting of Heritage Assets, Historic Environment Good Practice in Planning: 3 (2015).

Study Areas

- 3.1.6 The DBA has focused on the proposed Scheme although historic information for 200m from the Scheme (hereafter known as the inner study area) was considered in order to provide an essential contextual background. An outer study area, defined by a Zone of Visual Influence (ZVI), was applied for the setting assessment and extends to the furthest area from which the Scheme will be visible. Those designated assets immediately outside the ZVI were also considered. This was established following consultation with Cadw.

Terminology

- 3.1.7 The technical terminology applied to the assessment process in this document is based on that presented in Historic England's *The Setting of Heritage Assets, Historic Environment Good Practice in Planning: 3'* (2015) and the Cultural Heritage Section (Volume 11, Section 3, Part 2) of the Design Manual for Road and Bridges (DMRB) issued by the Highways Agency in 2007. This latter document has been widely adopted throughout the heritage industry as a baseline. However, the terminology has been enhanced as appropriate throughout this report.
- 3.1.8 Cultural heritage comprises Scheduled Monuments, Listed Buildings, Parks and Gardens, Registered Historic Landscapes, Conservation Areas, earthworks and buried archaeological remains. For the ease of presentation in this document, cultural heritage features are referred to as heritage assets, and additionally for the purposes of clarity a minor distinction is made between standing remains and buried archaeology.

Aims

- 3.1.9 The desk-based assessment has studied the historic environment within the study area. It consists of an analysis of data in order to identify the likely heritage assets, their significance, character of the study area and consideration of the setting of the heritage assets, and the nature, extent and quality of the known or potential historic, communal, architectural and aesthetic interest. Importance is to be judged in a

neighbourhood, local, regional, national or international context as appropriate (ClfA 2015).

Objectives

3.1.10 The specific objectives of this desk-based assessment are to:

- Identify those heritage assets within the inner and outer study areas;
- Describe the survival and extent of any heritage assets that may be disturbed by the construction and operation of the Project;
- Provide an assessment of the importance of these assets;
- Assess the likely scale of any impacts on the cultural heritage resource posed by the construction and operation of the Project;
- Provide strategies for further evaluation where the nature, extent or significance of the resource is not sufficiently well defined; and
- Outline suitable mitigation measures to prevent, reduce and where possible offset any significant adverse effects.

Limitations

3.1.11 This assessment is based on the development proposals as presented at the time of compiling this report. Changes to the proposed scheme and any additional technical data made available will be considered in any further assessment of the scheme, for instance the Environmental Impact Assessment (EIA) Cultural Heritage Chapter. This document is not intended to replace the EIA but rather to provide a set of baseline conditions upon which the Cultural Heritage Chapter can be compiled, although which should be enhanced, updated and reviewed as appropriate. Any comments received on this document from Cadw and the appropriate Planning Archaeologist should also be taken into consideration for future assessment or investigations.

3.2 Assessment Methodology

Data Collection

3.2.1 The principal sources of information consulted were historical and modern maps, although published and unpublished secondary sources were also reviewed. The following repositories were consulted during the data-gathering process:

- The Royal Commission on Ancient and Historical Monuments Wales;
- Glamorgan Gwent Archaeological Trust Historic Environment Record (Ref 4785);
- Glamorgan Archive Service; and
- National Resources Wales.
- The Central Register of Aerial Photographs for Wales (CRAPW)

Study Area Visit and Setting Assessment

3.2.2 The inner study area was visited in September 2014 in order to assess its character, identify any visible heritage assets and assess possible factors which may affect the survival or condition of known or potential assets. Additionally, the outer study area was visited in order to allow an assessment of the potential for direct impacts on the

significance of the setting of designated heritage assets. Each designated heritage asset, or clusters of assets were visited in order to assess the potential harm to the significance of the setting of the asset. The general topography was noted, as was the presence of any large areas of plantation, and building complexes such as housing estates, industrial plant, and so forth. A photographic archive was compiled and a selection of images is presented as Plates 8-11

- 3.2.3 All of the heritage assets identified through the data collection and the study area visit are listed in the Gazetteer (Section 5). Their locations are shown on Figure 2.

Assessment of Significance

- 3.2.4 Initially, the sensitivity or importance of the heritage asset is judged in a neighbourhood, local, regional, national and international context, which results in the cultural sensitivity of the asset being determined along with the appropriate form of mitigation (Table 1, below).

- 3.2.5 Cadw presents a set of heritage values in their guidance document 'Conservation Principles (2011): aesthetic, communal, historic and evidential, which is the approach adopted for analysing significance in this document. Full definitions of these values are presented in Section 7. Additionally, and in order to consider the archaeological and historic significance in particular, an additional set of criteria are employed which relate to the Secretary of State's criteria for assessing the national importance of monuments, as contained in Annex 1 of the policy statement on scheduled monuments produced by the Department of Culture, Media, and Sport (2010). These criteria relate to period, rarity, documentation, group value, survival/condition, fragility/vulnerability, diversity, and potential and are also presented in Section 7.

- 3.2.6 Additionally, this significance may derive not only from its physical presence but also from its setting. The methodology for assessment of the significance of setting is presented in Section 3.3, and relies heavily upon Historic England's 'The Setting of Heritage Assets, Historic Environment Good Practice in Planning: 3' (2015). The setting assessment results are presented in Section 5.

Table 1: Criteria Used to Determine Importance of Heritage Assets

Cultural importance/sensitivity	Criteria	Mitigation
Very high (international)	World Heritage Sites; Sites of International Importance.	To be avoided
High (National)	Scheduled Monuments; All Listed Buildings; Registered Parks and Gardens.	To be avoided
Medium (Regional/County)	Conservation Areas containing buildings that contributes significantly to its historic character; Areas of Archaeological Importance; Locally listed buildings.	Avoidance recommended
Low (Local/Borough)	Archaeological sites and remains with a local or borough interest for education, cultural appreciation; Assets which contribute to local or cultural understanding of the area.	Avoidance recommended

Table 1: Criteria Used to Determine Importance of Heritage Assets

Cultural importance/sensitivity	Criteria	Mitigation
Negligible (Neighbourhood)	Relatively numerous types of remains, of some local importance; Isolated findspots with no context; Areas in which investigative techniques have revealed no, or minimal, evidence of archaeological remains, or where previous large-scale disturbance or removal of deposits can be demonstrated.	Avoidance not envisaged
Uncertain /Potential	Potential archaeological sites for which there is little information. It may not be possible to determine the importance of the site based on current knowledge. Such sites are likely isolated findspots, place names or cropmarks identified on aerial photographs.	Avoidance unnecessary

Sourced from English Heritage 2011; Seeing History in View

3.2.7 Table 1 is a general guide to the attributes of cultural heritage assets and it should be noted that not all the qualities listed need be present in every case and professional judgement is used in balancing the different criteria.

Potential Impact

3.2.8 Harm to significance is the basis of assessing impact. In order to assess the level of harm or potential impact of any future development on built heritage or buried archaeological remains, consideration has been afforded to:

- Assessing in detail any impact and the significance of the effects arising from any future development of the study area;
- Reviewing the evidence for past impacts that may have affected the archaeological sites of interest identified during the desk-based assessment;
- Outlining suitable mitigation measures, where possible at this stage, to avoid, reduce, or remedy adverse impacts.

3.2.9 Key impacts have been identified as those that would potentially harm the significance of the heritage asset. The results of the impact assessment are presented in Section 8. Each potential impact has been determined as the predicted deviation from the baseline conditions, in accordance with current knowledge of the site and the proposed development. Although the impact is assessed in terms of the sensitivity of the asset to the magnitude of change or potential scale of harm during the proposed development, consideration is afforded to the heritage values of the assets (Section 7). The magnitude, or scale of an impact is often difficult to define, but will be termed as substantial harm, moderate harm, slight harm, or negligible, as shown in Table 2, below.

Table 2: Criteria Used to Determine Scale of Harm (Impact)

Magnitude of Harm (Impact)	Description
Substantial (Major) harm	Significant change in environmental factors; Complete destruction of the site or feature; Change to the site or feature resulting in a fundamental change in ability to understand and appreciate the resource and its cultural heritage or archaeological value/historical context and setting.
Moderate harm	Significant change in environmental factors; Change to the site or feature resulting in an appreciable change in ability to understand and appreciate the resource and its cultural heritage or archaeological value/historical context and setting.
Slight (Minor) harm	Change to the site or feature resulting in a small change in our ability to understand and appreciate the resource and its cultural heritage or archaeological value/historical context and setting.
Negligible	Negligible change or no material changes to the site or feature. No real change in our ability to understand and appreciate the resource and its cultural heritage or archaeological value/historical context and setting.

Source: After ICOMOS, 2010 Guidance on Heritage Impact Assessments for Cultural World Heritage Properties, Paris

3.2.10

The interaction of the potential scale of harm (Table 2) and the sensitivity of the heritage asset (Table 1) produce the impact significance. This may be calculated by using the matrix shown in Table 3, which is included to allow an objective assessment to be presented.

Table 3: Impact Significance Matrix

		No Change	Negligible	Slight harm	Moderate harm	Substantial harm
SENSITIVITY	Very High (International)	Neutral	Slight	Moderate/ large	Large/ very large	Very large
	High (National)	Neutral	Slight	Slight /moderate	Moderate / large	Large/very large
	Medium (Regional)	Neutral	Neutral/ slight	Slight	Moderate	Moderate/large
	Low (Local)	Neutral	Neutral /slight	Neutral /slight	Slight	Slight/ moderate
	Negligible	Neutral	Neutral/ slight	Neutral/ slight	Neutral/ slight	Slight
	Significance of the Impact					

Source:After DMRB 2007

3.2.11

It is normal practice to state that impacts of moderate or above significance are regarded as significant impacts. Mitigation measures as appropriate for each heritage asset affected are presented in Section 9.

3.3 Assessing the Significance of Setting to Heritage Assets

3.3.1 Elements of a setting may make a positive or negative contribution to the significance of an asset, and may affect the ability to appreciate that significance. The Cadw document '*Conservation Principles*' (2011) states that setting also relates to the asset's local context, embracing present and past relationships to the adjacent landscape. Historic England's (2015) *The Setting of Heritage Assets, Historic Environment Good Practice in Planning: 3* from which the Cadw document has derived, considers that the significance of a heritage asset derives not only from its physical presence and historic fabric, but also from its setting - the surrounding within which it is experienced.

3.3.2 Historic England has provided a stepped approach to the assessment of significance of setting to heritage assets. Following the initial identification of the heritage asset(s) and associated setting (Step 1) the following steps comprise:

- Step 2; Assessing whether, how and to what degree the settings make a contribution to the significance of the heritage assets;
- Step 3: Assessing the effect of the proposed development on the setting, and the resulting implications for the significance of the heritage asset(s);
- Step 4: Maximising enhancement and minimising harm (mitigation).

3.3.3 In assessing whether, how and to what degree the settings make a contribution to the significance of the heritage assets (Step 2), a number of potential attributes of a setting may help in determining its significance. These are presented in Table 4 below.

Table 4: Determining the Contribution of Setting to the Significance of the Heritage Asset(s) (Taken from EH 2011, Assessment Step 2)

Contribution of Setting: Potential attributes / factors to consider
<p>The asset's physical surroundings: Topography; Other heritage assets (archaeological remains, buildings, structures, landscapes, areas or archaeological remains); Definition, scale and 'grain' of surrounding streetscape, landscape and spaces; Historic materials and surfaces; Land use; Openness, enclosure and boundaries; functional relationships and communications; Green spaces, trees and vegetation; History and degree of change over time; Integrity; Issues, such as soil chemistry and hydrology</p>

Table 4: Determining the Contribution of Setting to the Significance of the Heritage Asset(s) (Taken from EH 2011, Assessment Step 2)

Contribution of Setting: Potential attributes / factors to consider
<p>Experience of the asset: Surrounding landscape and town character; Views from, towards, through and across, including the asset; Visual dominance, prominence or role as focal point; Intentional intervisibility with other historic and natural features; Noise, vibration and other pollutants and nuisances; Tranquillity, remoteness, 'wildness'; Sense of enclosure, seclusion, intimacy or privacy; Dynamism and activity; Accessibility, permeability and patterns of movement; Degree of interpretation or promotion to the public; The rarity of comparable survivals of setting</p>
<p>The asset's associative attributes: Associative relationships between heritage assets; Cultural associations; Celebrated artistic representations; Traditions</p>

3.3.4

Having assessed the contribution of the setting to the significance of the asset, the effect of the proposed development on the setting can be determined by consideration of the potential attributes of the development affecting setting. These are outlined in Table 5, below.

Table 5: Potential Attributes of the Proposed Development (Taken from EH 2011, Assessment Step 3)

Attribute	Factors to consider
Location and siting of the development	Proximity to asset; Extent; Position in relation to landform; Degree to which location will physically or visually isolate asset; Position in relation to key views
The form and appearance of the development	Prominence, dominance, or conspicuousness; Competition with or distraction from the asset; Dimensions, scale and massing; Proportions; Visual permeability; Materials (texture, colour, reflectiveness, etc); Architectural style or design; Introduction of movement or activity; Diurnal or seasonal change

Table 5: Potential Attributes of the Proposed Development (Taken from EH 2011, Assessment Step 3)

Attribute	Factors to consider
Other effects of the development	Change to built surroundings and spaces; Change to skyline; Noise, odour, vibration, dust, etc; Lighting effects and 'light spill'; Change to general character (e.g. suburbanising or industrialising); Change to public access, use or amenity; Change to land use, land cover, tree cover; Changes to archaeological context, soil chemistry or hydrology; Changes to communications/accessibility/permeability
Permanence of the development	Anticipated lifetime/temporariness; Recurrence; Reversibility
Longer term or consequential effects of the development	Changes to ownership arrangements; Economic and social viability; Communal and social viability

3.3.5

Once the contribution of the setting has been determined and the potential attributes of the proposed development upon it have been identified, the contribution needs to be evaluated in order to determine the magnitude of the potential harm. This is undertaken using the definitions presented in Table 6, below.

Table 6: Definitions of Sensitivity for the Settings of Heritage Assets

Sensitivity	Contribution to significance of the asset	Examples for settings
Very high	Very substantial	A defined setting that is contemporary with and historically and functionally linked with the heritage asset, may contain other heritage assets of international or national importance, has a very high degree of intervisibility with the asset and makes a very substantial contribution to both the significance of the heritage asset and to the understanding and appreciation of the significance of the asset.
High	Substantial	Contemporary with and historically and functionally linked with the heritage asset, with minor alterations (in extent and/or character), has a high degree of intervisibility with the asset and which makes a substantial contribution to both the significance of the heritage asset and to the understanding and appreciation of the significance of the asset.
Medium	Moderate	Contemporary with and/or historically and/or functionally linked with the heritage asset but with alterations which may detract from the understanding of the heritage asset, and/or with a moderate degree of intervisibility with the asset and/or which makes a moderate contribution to the significance of the heritage asset and/or a moderate contribution to the understanding and appreciation of the significance of the asset.

Sensitivity	Contribution to significance of the asset	Examples for settings
Low	Minor	Largely altered so that there is very little evidence of contemporaneous and/or historic and/or functional links with the heritage asset, and/or with a low degree of intervisibility with the asset and/or which makes a minor contribution to both the significance of the heritage asset and to the understanding and appreciation of the significance of the asset.

Source: After English Heritage, 2011 *Seeing History in View*, London

3.3.6 Changes may occur in the surroundings of an asset that neither affects their contribution to the significance of the asset, nor the extent to which its significance can be experienced. In such instances it will be considered that there is no impact upon setting.

3.3.7 The criteria for assessing the magnitude of harm on setting are presented below (Table 7). The sensitivity of a heritage asset to changes in its setting can be evaluated in the first instance by reference to any relevant designation, whereby those designated as nationally important will generally be considered the most sensitive. At the other end of the scale assets that are imperceptible or very difficult to perceive on the ground will generally be less sensitive than those that are more readily appreciable as they are to some extent already divorced from their setting.

Table 7: Criteria for Assessment of Magnitude of Harm on the Setting of a Heritage Asset

Magnitude of Harm	Guideline Criteria
Major beneficial (No harm)	The contribution of setting to the cultural heritage asset's significance is considerably enhanced as a result of the development; a lost relationship between the asset and its setting is restored, or the legibility of the relationship is greatly enhanced. Elements of the surroundings that detract from the asset's cultural heritage significance or the appreciation of that significance are removed.
Moderate beneficial (No harm)	The contribution of setting to the cultural heritage asset's significance is enhanced to a clearly appreciable extent as a result of the development; as a result the relationship between the asset and its setting is rendered more readily apparent. The negative effect of elements of the surroundings that detract from the asset's cultural heritage significance or the appreciation of that significance is appreciably reduced.
Minor beneficial (No harm)	The setting of the cultural heritage asset is slightly improved as a result of the development, slightly improving the degree to which the setting's relationship with the asset can be appreciated.
Negligible	The setting of the cultural heritage asset is changed by the development in ways that do not alter the contribution of setting to the asset's significance.
No Change	There is not change to the setting of the cultural heritage asset. There is no harm to the significance of the asset.

Table 7: Criteria for Assessment of Magnitude of Harm on the Setting of a Heritage Asset

Magnitude of Harm	Guideline Criteria
Minor adverse - harm	The contribution of the setting of the cultural heritage asset to its significance is slightly degraded as a result of the development, but without adversely affecting the interpretability of the asset and its setting; characteristics of historic value can still be appreciated, the changes do not strongly conflict with the character of the site, and could be easily reversed to approximate the pre-development conditions.
Moderate adverse - harm	The contribution of the setting of the cultural heritage asset to its significance is reduced appreciably as a result of the development. Relevant setting characteristics can still be appreciated but less readily.
Major adverse- harm	The contribution of the setting of the cultural heritage asset to its significance is effectively lost or substantially reduced as a result of the development, the relationship between the asset and its setting is no longer readily appreciable.

Source: After English Heritage, 2011 *Seeing history in view*, London

3.3.8

The interaction of the sensitivity of the setting (Table 6) and the harm to the setting (Table 7) produce the impact significance. This may be calculated by using the matrix shown in Table 8, which is included to allow a subject assessment to be presented.

Table 8: Impact Significance Matrix for Adverse Impact (Harm) to Setting

		No Change	Negligible	Minor adverse	Moderate adverse	Major adverse
SENSITIVITY	Very High	Neutral	Slight	Moderate/ large	Large/ very large	Very large
	High	Neutral	Slight	Slight/ moderate	Moderate /large	Large/ very large
	Medium	Neutral	Neutral/ slight	Slight	Moderate	Moderate/ large
	Low	Neutral	Neutral/ slight	Neutral/ slight	Slight	Slight/ moderate
	Negligible	Neutral	Neutral/ slight	Neutral/ slight	Neutral/ slight	Slight
			Significance of the Impact			

Source: After DMRB 2007

SECTION 4

BASELINE CONDITION

4 BASELINE CONDITION

4.1 Historical and Archaeological Background

4.1.1 The following section presents a summary of the historical and archaeological background of the general area. This is presented by historical period (Table 9), and has been compiled in order to place the study area into a wider archaeological context. This compilation has been made by analysing records provided by the GGAT Historic Environment Record, together with a study of historic maps and readily available secondary sources.

Table 9: Summary of British Archaeological Periods and Date Ranges

Period	Date Range
Prehistoric Period:	
Palaeolithic	500,000 – 10,000 BC
Mesolithic	10,000 – 3,500 BC
Neolithic	3,500 – 2,200 BC
Bronze Age	2,200 – 700 BC
Iron Age	700 BC – AD 43
Romano-British	AD 43 – AD 410
Early Medieval (Anglo-Saxon and Viking periods)	AD 410 – AD 1066
Late Medieval	AD 1066 – AD 1540
Post-medieval	AD 1540 – c1750
Industrial Period	cAD1750 – 1901
Modern	Post-1901

Source: English Heritage 'The National Heritage List for England'

Palaeolithic and Mesolithic Periods (500,000 – 3,500 BC)

4.1.2 Palaeolithic (pre 30,000 BC - 10,000 BC) and Mesolithic (10,000 - 3,500 BC) periods in South Wales include the first record of Neanderthals and anatomically modern humans through to the demise of the hunter-gathering communities (AMEC 2009, 22). There are no Palaeolithic or Mesolithic sites present within the study area, as it is understood that the last glaciation removed the majority of the evidence for Palaeolithic human activity in all but a few exceptional sites outside of the study area.

Neolithic Period (3,500 - 2,200 BC)

4.1.3 The Neolithic period was characterised by the establishment of sedentary farming communities and the beginning of arable agriculture. The Vale of Glamorgan was an area of primary Neolithic settlement due to its fertility and accessibility and the spread of the Neolithic culture in Wales can be seen in the burial practices of the period for example the development of Megalithic architecture and the practice of mass, communal inhumation (Access Archaeology 1989, 13).

4.1.4 The chambered tombs of the Bonvilston area to the north of the study area are probably the earliest in Wales and belong to the Severn-Cotswolds Group whose distribution lies across several counties included South Glamorgan. The best

preserved example in the area is the well-known tomb at Tinkinswood located 1.5km east of the proposed Scheme. The chamber contained the remains of 50 individuals and is roofed by a capstone reputed to be the largest in the country (*ibid*). There are the remains of what are probably three further chambered tombs in the area, the closest to the Scheme Area being Coed y Cwm Long Barrow (**GM116**) located in the east of the Outer Study Area.

Bronze Age Period (2,000-700BC)

4.1.5 The Bronze Age occupation of the area is heralded by evidence for the re-use of the Tinkinswood chambered tomb. Further evidence for this period comprises a number of standing stones including two within the Outer Study Area: the Redland Standing Stone and Cottrell Park Standing Stone. Such monuments are common throughout Wales and their size varies from 1m-6m with shapes ranging from elongated to squat. They occur in isolation, in groups and in association with a range of other monuments, particularly those in circular form (*ibid*).

4.1.6 The fully developed Bronze Age was, in economic terms, a move towards the uplands as evidenced by environmental data, and in ritual terms a move away from communal burial in long mounds to individual burials in round barrows. This is seen as representing an increasingly hierarchical society as typified in England by the burials of 'Wessex chieftoms'-individual burials of adult males with an array of weapons and gold ornaments (*ibid*). There are a number of ring ditches within the study area, archaeological features that are commonly the ploughed-out remains of a round barrow where the barrow mound has completely disappeared, leaving only the in-filled former quarry ditch. One ring ditch has been identified within the footprint of the scheme (**04148s**) at Whitton Cross and a further two possible ring ditches (**04147s**) have been identified by geophysics within the inner study area 500m to south.

Iron Age Period (700BC-AD43)

4.1.7 The evidence for the Iron Age in the Vale of Glamorgan consists largely of settlements, being primarily hillforts, the distribution of which represents a shift away from the uplands towards the margins of the main river valleys and coastal plains. A geophysical survey conducted within the Study Area in 2010 identified an extensive series of rectangular enclosures (**03121s**) in the vicinity of a Whitton Lodge Roman Villa (**00382s**) and is seen to be an indication of an extensive Iron Age settlement (GGAT HER). It is widely accepted that the villa itself evolved from a pre-Romano-British establishment without any significant break (Royal Commission on the Ancient and Historical Monuments in Wales 1976, 110). Iron Age material found beneath a building associated with the Romano-British settlement at Moulton (**GM253**) located to the west of the outer study area suggests a similar pattern here (*ibid*).

Romano-British Period (AD43 – AD 410)

4.1.8 The subjugation of South Wales by Rome can be dated with confidence to the Flavian period (69-96 AD) using both documentary evidence and the appearance of forts and villas from this period. No area of Wales has produced so great a concentration of Romano-British villas as the Vale of Glamorgan where agricultural exploitation was an extension of the Roman economy of southern England (RCAHM, 1982, 1). The extension of the villa system of land use along the Welsh coast has long been known and includes two examples within and in the vicinity of the study area; Moulton Roman Villa (**GM253**) and Whitton Lodge Roman Villa (**00382s**). The latter is located within the footprint of the Scheme Area was fully excavated between 1956 and 1976, where investigations revealed ten phases of occupation between the

later 1st century AD to c340 AD. The most important discovery was that the Romano-British building has been preceded by an Early Iron Age farmstead comprising wooden house arranged around a courtyard (RCAHMW 1976, 114). The site provides clear evidence of the transition from Iron Age farming to Roman villa with round houses giving place to sub-rectangular and with the gradual replacement by relative complex and sophisticated stone structures in the second and third centuries (*ibid*). Geophysical survey undertaken in 2010 revealed further evidence of occupation extending to the north and south of the site, indicating the settlement is far more extensive than first supposed. In the mid nineteenth-century silver coins dating to this period were recovered alongside fragments of human bone approximately 500m north of the villa site, potentially an indication of Roman activity outside the known settlement. The A48, to the north of the study area follows the line of a Roman Road, Iter XII on the Antonine Itinerary, which connected Caerleon and Neath (*op cit* 104).

Early Medieval (AD410 – AD 1066) and Late Medieval (AD1066 – AD1540) Periods

4.1.9 The Early Medieval period is generally viewed as one of the least well known in terms of archaeological evidence. The seven centuries between the breakdown of Roman imperial authority and the Norman Conquest have been difficult to understand historically given the scant documentary record and the few investigated archaeological sites (www.RCAHMW.gov.uk). It was a time of fundamental change: the consolidation of Christianity as the religion of the people, new settlements, and diverse influences from west and east as Romano-British culture decayed and the impact was felt of Anglo-Saxon hostilities and then Viking incursions. There was a transformation of tribal groupings into larger, more stable kingdoms, and fleetingly the idea of Wales was translated into a political unity (*ibid*).

4.1.10 While historical records highlight the activities and interests of the powerful, remarkably little is known about settlements or population. Archaeological evidence is frustratingly elusive — though it certainly exists hidden from view. In many areas timber was favoured over stone for building, leaving less visible remains, and substantial earthworks were rare apart from the great linear dykes. The lack of a strong tradition of using ceramics also means that the scattered fragments of pottery that indicate settlement in other periods are absent (www.RCAHMW.gov.uk).

4.1.11 The nearest site relating to this period is Coed yr Abad Grange, a woodland which lies immediately north of the study area. The woodland is thought to be connected with Greendown Grange, a Benedictine monastery, located in an area that formed part of the parish of Bonvilston and is recorded on the 1839 Bonvilston tithe apportionment as fields owned by Robert Savayrs and Thomas Edwards and as 'Down Mawr' (Great Down), in the ownership of Llewellyn Trehearne and Thomas Meezy (www.ggat.org.uk).

Post-medieval Period (AD1540 – AD1750)

4.1.12 The most significant recorded event in the area during this period the Battle of St Fagans, a pitched battle in the 1648 English Civil War that took place between the Royalists and the Parliamentarians in open ground to the north west of the village of St Fagans, 5 km east of the study area. It was near the village of St Nicholas, immediately north of the study area that the Royalist army assembled prior to the battle, taking up positions on the high ground (Walklate 2012, 23). On Monday 8th May the Royalists advanced north-east from their vantage point towards St Fagans, where the battle lasted till mid-morning. The Parliamentarians overcame the Royalists, who retreated in disorder (*ibid*). Two inhumations (**00380s** and **00381s**) comprising multiple individuals were discovered in the mid-nineteenth century in the

central part of the study area. It is considered by some, that these are the remains of retreating royalists making for Fonmon Castle (located 3.8 km south-west of the study area), who, on the way were involved in a second skirmish on the border of Llancarvan parish (GGAT HER). The age of the recovered skeletons were not confirmed.

- 4.1.13 Other sites with possible origins in this period include a number of lime kilns (**03951s**, **02625s**, **02624s**, **03051s**) the sites of which are found dispersed across the southern and central parts of the study area, and including one within the footprint of the proposed scheme (**02626s**). From the seventeenth century onwards farmers found that they could increase their crop yield by spreading lime on the fields, hence the distribution of these across the agricultural land.

Industrial Period (AD 1750 – AD 1901)

- 4.1.14 This period is represented by the enclosed field systems that are evident across the study area. These "parliamentary" enclosures consolidated strips in the former medieval open fields into more compact units, and enclosed much of the remaining pasture commons or wastes (Walklate 2012, 23).
- 4.1.15 The eastern extent of the Bonvilston Amalgamated Fieldscape (HLCA010) lies in the north of the outer study area. This historic landscape is largely a post-medieval agricultural landscape, although the remnants of the medieval strip field system also exist. Although now amalgamated into larger fields, the boundaries of the former strip fields are still visible as cropmarks in aerial photographs, despite continued agricultural practice and heavy ploughing in particular (GGAT).
- 4.1.16 Other assets associated with this period lie immediately outside the study area and include Whitten Bush Farm to the west, Northcliff Farm to the east, and Redlands Farm to the north.

Modern Period (Post-1901)

- 4.1.17 The primary industry and land use during the Modern period remains agricultural, and is represented by the expansion of the Industrial period farmsteads mentioned above. The most significant modern development in the study area is an extensive solar farm located within a former enclosed field system immediately east of the Moulton Roman Villa site (**GM253**) and the existing A4226.

4.2 Archaeological Interventions

- 4.2.1 An archaeological excavation and two geophysical surveys have been undertaken within the footprint of the Scheme, The details of these are presented below:
- 4.2.2 Whitton Lodge Roman Villa (**00382s**) was fully excavated between 1956 and 1976 and proved to be a square enclosure defined by a bank and ditch (GGAT HER). Geophysical surveys undertaken in 2010 (Tanner and Attwood) immediately north of Whitton Lodge detected numerous ditches, enclosures and pits that indicate the settlement is more extensive than previously thought. The surveys also identified three circular structures in the same area that are suggestive of Prehistoric Period ring ditches (**04147s** and **04148s**).
- 4.2.3 Aerial photographs (APs) of the study area were analysed as part of the *Environmental Assessment for Cardiff International Airport and Culverhouse Cross Access Improvements* (Arup 2009b). The AP's indicated the presence of extensive

archaeological remains in the vicinity of Whitton Lodge Roman villa (**00382s**), comprising possible buried ditches and enclosures of potential Iron Age or Romano-British date. The settlement area and the outer enclosures and fields were visible as marks in a ripe cereal crop.

- 4.2.4 The geophysical surveys and aerial photography analysis show that the central part for the Scheme Area has high potential for archaeological remains associated with the Prehistoric and Romano British periods to be present.

4.3 Development of the Scheme Area

- 4.3.1 The earliest detailed maps to depict the Scheme Area comprise a series of Tithe Maps dating from 1839 to 1842 which cover the parishes of Bovilston, St Nicholas, Penmark, Wenvoe, Llancarfan and St Lythan. The present A4226 can be identified on the mapping as a main thoroughfare serving as a multiple parish boundary, and extending from the St Nicolas and Bonviston in the north to Penmark in the south. The apportionments show that part of the Scheme comprised an enclosed field system predominantly used for arable farming or retained as meadow. Named landowners include *Samuel Evan* and *Samuel John*, *College Jesus Fellows* and *Robert Francis*. In general the landscape is predominantly agricultural, featuring small dispersed settlements located along a network of interconnecting lanes. The closest settlement to the Scheme Area is the hamlet of Moulton located along an east/west aligned lane that joins the present A4226 in the central part of the Study Area.
- 4.3.2 The field systems depicted on the tithe maps are present on the 1:2,500 Ordnance Survey (OS) map of 1878 and the 1:10,560 OS map of 1885 (Figure 3). The OS maps show no significant change to the Scheme Area. The 1885 map details a number of isolated buildings lining the route of the A4226, and which include Blackland Farm in the north and Whitton Lodge and Northcliff Cottage in the central part of the Scheme. The map also shows the location of inhumations **00380s** and **00381s** which are described as '*Human Remains and Silver Coins found A.D 1845*' and '*Human Remains found in A.D 1840*'. A number of small-scale quarries and '*Old Lime Kilns*' are located in the immediate vicinity of the Scheme. These include **03952s** which is located within the footprint of the Scheme.
- 4.3.3 Subsequent OS maps do not indicate any significant changes to the Scheme Area. Whitton Lodge Roman Villa (**00382s**) appears as '*Settlement & ROMAN VILLA (Site of)*' on the 1:10,560 Ordnance Survey map of 1975 following its excavation during the 1950's, 1960's and 1970's. The field systems shown on the tithe maps remain largely unchanged, and characterise the agricultural landscape that exists today (Figures 4 and 5).

SECTION 5

GAZETTEER OF HERITAGE ASSETS

5 GAZETTEER OF HERITAGE ASSETS

5.1.1 A total of fourteen heritage assets have been identified within the inner study area using data from the GGAT HER. Three of the assets are within the footprint of the Scheme Area and one is likely to extend into it. The location of the assets is shown in plan on Figure 2.

Table 10: Gazetteer of Heritage Assets within the Inner Study Area

HER Ref	Inside or Outside Scheme Area	Designation	Description	Value	NGR	Period
03951s	Outside	None	Site of Limekiln	Local	ST095686	Industrial
03952s	Outside	None	Site of Quarry	Local	ST09726872	Industrial
00381s	Outside	None	Site of inhumation	Potentially National	ST08057135	Unknown (potentially Post-medieval)
02626s	Inside	None	Site of Lime Kiln	Local	ST08107130	Industrial
00382s	Inside	None	Site of Whitton Lodge Roman Villa	National	ST08117133	Iron Age/Romano-British
00380s	Outside	None	Site of Inhumation	Potentially National	ST08007177	Unknown (Potentially Post-medieval)
02625s.	Outside	None	Site of Lime Kiln	Local	ST07707180	Industrial
02624s	Outside	None	Site of Lime Kiln	Local	ST07707170	Industrial
03121s	Inside	None	An extensive series of rectangular enclosures identified by geophysics near Whitton Lodge	Potentially Regional	ST08367127	Iron Age /Romano British
03051s	Outside	None	Site of Lime Kiln	Local	ST08317129	Industrial
04147s 04147s	Outside	None	Two ring ditches identified by geophysical survey at Whitton Cross	Potentially Regional	ST0776271815, ST0779471797	Prehistoric
04148s	Inside	None	One ring ditch identified by geophysical survey at Whitton Cross	Potentially Regional	ST0778272208	Prehistoric
01434s	Outside	None	Hearth with Clinker and Sherds	Local	ST083719	Romano-British

5.1.2 A total of five designated heritage assets lie within or just outside of the outer study area (ZVI). These assets were considered as part of the setting assessment (see Section 6) and were all Scheduled Monuments.

Table 11: Gazetteer of Designated Heritage Assets within or close to the Outer Study Area

HER Ref/Name	Inside or outside Scheme Area	Designation	Description	Value	NGR	Period
GM117 Coed y Cwm Ringwork	Outside	Scheduled Monument	A sub-circular enclosure measuring 27-29.5m in diameter, defined by a strong bank and ditch. Excavations revealed some structural elements associated with twelfth century pottery.	High	ST08277367	Late-medieval
GM116 Coed y Cwm Long Barrow	Outside	Scheduled Monument	A possible collapsed or unfinished burial chamber associated with the Neolithic period. The remains comprise three large slabs of highly weathered tabular limestone.	High	ST081087377 9	Prehistoric
GM253 Moulton Roman Site	Outside	Scheduled Monument	A Romano-British site discovered in 1956 comprising the remains of a stone building, a hearth and area of occupation.	High	ST07406968	Romano-British
GM344 Remains of Highlight Church	Outside	Scheduled Monument	Overgrown stone footings of a Medieval period church, or chapel, comprising of nave and chancel.	High	ST09686989	Medieval
GM613 Castle Ringwork 850m ENE of Ty'n-y-Coed	Outside	Scheduled Monument	A sub-oval enclosure, c.40m NW-SE by 30m, defined by a bank and ditch. Thought to be an early medieval castle enclosure, abandoned by c.1250 when the land hereabouts was granted to Margam Abbey.	High	ST07057334	Medieval

SECTION 6

SETTING ASSESSMENT

6 SETTING ASSESSMENT

6.1 Introduction

6.1.1 An assessment of the significance of the setting was carried out on designated heritage assets within the inner (200m) and outer study areas (extent of ZVI) in order to assess the significance of the setting to the value of the assets. Those designated assets lying outside of but close to the ZVI were also considered. The study areas were visited and assessed during the summer months. The heritage assets comprise five Scheduled Monuments and a Historic Landscape.

6.1.2 Each individual asset was visited on foot. A photographic archive was compiled and a selection of views is presented in Appendix 2 as Plates 4 to 9. *Pro-forma* record sheets were also compiled and will form part of the project archive.

6.1.3 The setting of each heritage asset has been described and the significance of the setting assessed using the terminology presented in Section 3.3, above. Although all of the assets were visited, a brief mention rather than a full description is made of those assets and their settings that will not be affected by the Scheme. A description of each asset can be found in the Gazetteer (Section 5, above).

6.1.4 The proposed road scheme lies within Landscape Character Areas 21 (Central Vale Ridges and Slopes) and 22 (Upper WayCock Valley and Duffryn). The Central Vale Ridges and Slopes are described as a largely agricultural area that exhibits a range of dry terrestrial habitats, with areas of arable cultivation and grassland, bounded by hedgerows and hedgerow trees and feature wooded areas, mostly deciduous, that are found on the higher ground to the north (DLCA 96). The Upper WayCock Valley and Duffryn are typical of the farmed Vale and comprise low-lying habitats, hedges, hedgerow trees and woodland (DLCA 92).

6.2 Setting Assessment

Coed y Cwm Long Barrow (GM116)

6.2.2 The asset is located 1km northeast of the proposed Scheme and on the north-eastern limit of the ZVI. The asset sits on a slight rise within a pastoral field approximately 200m east of Coed y Cwm Ringwork (GM117). The approaches to and views from the asset are extensive in all directions and comprise undulating agricultural land, mature tree-lined hedgerows, swathes of woodland belts and overhead electricity lines. The view to the west is dominated by the modern farm buildings at Redlands Farm which enhances the agricultural context of the setting. Views towards the proposed Scheme incorporate the existing A4226, which is partially screened by dense and mature hedgerows and trees. Despite the relative closeness of the road, a sense of tranquillity can be attributed to the setting.

6.2.3 The section of the proposed scheme that is likely to be seen and experienced from the asset will be within the existing road. The proposed land-take areas will be located further to the south, and will be well screened by a dense woodland belt (Betty Lucas Wood). The woodland belt will be more permeable during the winter months which may result in the proposed area of land-take being visible. There will be some temporary disturbance to this view during the construction process. Following construction it is likely that there will be an increase in noise pollution resulting from an increase in traffic flow, which is likely to have an adverse effect upon the present tranquillity of the setting.

- 6.2.4 **Assessment:** the setting of the Scheduled Monument makes a moderate contribution to the significance of the asset. Due to intervening woodland belts it is very unlikely that the proposed land-take areas will be seen from the asset (or from the approaches to and from it). There will be a minor adverse impact upon the setting, and therefore, the impact significance upon the setting of the asset is considered to be slight/moderate.
- Coed y Cwm Ringwork (GM117)
- 6.2.5 The asset is located 920m northeast of the proposed Scheme and inside the ZVI at the western tip of a woodland belt. The asset and the setting are surrounded by mature trees which restrict views to the east, but offer a degree of permeability to the north, south and west, incorporating views of an undulating agricultural (primarily pasture) and wooded landscape. The A4226, located 467m to the west of the asset, can neither be seen nor heard from the asset and does not impact upon the experience of asset, which is one of tranquillity and seclusion.
- 6.2.6 The proposed land-take areas will be located to the south, and will be well screened by a dense woodland belt (Betty Lucas Wood). It is very unlikely that the proposed land-take areas will be seen from the asset or from the approaches to and from it during the summer months. The trees that surround the asset and Betty Lucas Wood will be more permeable during the winter months which may result in the proposed road being visible. There will be some temporary disturbance to this view during the construction process. It is likely that there will be an increase in noise pollution resulting from an increase in traffic movement which is likely to have an adverse effect upon the present tranquillity of the setting
- 6.2.7 **Assessment:** the setting of the Scheduled Monument makes a substantial contribution to the significance of the asset. There will be slight harm to the setting of the asset, and therefore, the impact significance upon the setting of the asset is considered to be slight/moderate.
- Moulton Roman Site (GM253)
- 6.2.8 The asset is located 750m west of the proposed Scheme and outside of the ZVI. It lies within an arable field west of the A4226. Despite the asset being set within an open rural landscape, the original setting has been largely altered and comprises an agricultural landscape which originates to the Post-medieval and Industrial periods. An extensive solar farm located three fields to the west of the asset serves to further lessen the significance of the setting, which subsequently detracts value from the asset. The solar farm and the topographical undulations in the landscape shield the monument from views of the A4226, although there is an element of noise pollution.
- 6.2.9 As the proposed land-take areas will be located beyond the A4226 to the east, it is not envisaged that the scheme will be seen or experienced from the asset and any additional noise pollutants will have a negligible impact.
- 6.2.10 **Assessment:** the setting of the Scheduled Monument makes a minor contribution to the significance of the asset. There will be negligible harm to the setting of the asset, and therefore, the impact significance upon the setting of the asset is considered to be neutral/slight.

Castle Ringwork 850m ENE of Ty'n-y-Coed (GM613)

- 6.2.11 The asset is located 850 m northwest of the proposed Scheme and outside the ZVI. The setting comprises an agricultural landscape featuring field boundaries defined by hedgerows and trees and a dense woodland belt to the east. The ringwork itself is topped with a crown of trees that serve to define the limits of the asset and protect the integrity of its form. Bonvilston Amalgamated Fieldscape (HLCA010) is located immediately north of the asset and is broadly contemporary with it.
- 6.2.12 Due to the undulating topography and intervening woodland, it is unlikely that the proposed scheme will be seen or experienced from the Scheduled Monument; therefore no further assessment is required.
- 6.2.13 **Assessment:** the setting of the Scheduled Monument makes a substantial contribution to the significance of the asset. There will be no change to the setting of the asset.

Remains of Highlight Church (GM344)

- 6.2.14 The asset is located 892 m east of the proposed Scheme and outside the ZVI. The asset is set within the undulating grounds of Brynhill Golf Club on a rise with clear views of the landscape to the east. It is nested within trees which provide the remains of the asset with a secluded and enclosed setting.
- 6.2.15 Due to topography and intervening woodland, the proposed scheme will not be seen or otherwise experienced from the Scheduled Monument.
- 6.2.16 **Assessment:** the setting of the Scheduled Monument makes a moderate contribution to the significance of the asset. There will be no change to the setting of the asset.

Historic Landscape: Bonvilston Amalgamated Fieldscape (HLCA010)

- 6.2.17 The eastern extent of the Bonvilston Amalgamated Fieldscape (HLCA010) lies within the ZVI in the north of the outer study area, and 380 m north of the proposed Scheme and 868 m northwest of new land-take areas (see Section 2.2.3, above for a description). The busy A4226 borders the historic landscape from the east, and the view of the road from the asset is partially screened by lines of mature tree lines that serve to protect the integrity of the asset. It is noted that A4226 follows the course of the original parish boundary and associated thoroughfare that is likely to be broadly contemporary with the field systems that characterise the historic landscape and is therefore significant to the value the fieldscape. A view southeast from its eastern boundary encompasses the undulating agricultural landscape that has remained unchanged since the early nineteenth century.
- 6.2.18 It is likely that the proposed scheme will be seen from the eastern boundary of the historic landscape as it will traverse a number of field systems within the view from this location. The proposed road will create new land divisions and patterns of movement that will serve to diminish the understanding of the relationship between the parish boundary (A4226) and the historic landscape.
- 6.2.19 **Assessment:** the setting of the HLCA makes a significant contribution to the significance of the asset. There will be moderate harm to the setting of the asset, and therefore, the impact significance upon the setting of the asset is considered to be moderate/large

SECTION 7

SIGNIFICANCE OF THE HERITAGE ASSETS

7 SIGNIFICANCE OF THE HERITAGE ASSETS

7.1 Introduction

Assessment Criteria

7.1.1 When applied to a heritage asset, the term 'significance' can be taken to have several definitions. The first is importance, suggesting that there is something about the asset that is valuable, has status and should not be ignored. An asset site may be important because it is a rare survival, or the earliest known example of its type. It may represent a benchmark in terms of the application of technological development, or be a typical example of such sites. The level to which an asset has remained intact is also an important factor in determining its value. The next is the idea of conveying meaning, implying that the asset is a source of knowledge. Finally, there is the concept of a sign, that the asset is symbolic, and acts as a pointer to something beyond itself. The significance of any heritage asset is to a large extent embodied in its surviving fabric, which can retain evidence for how the asset developed and was adapted over time.

7.1.2 It is necessary to define what it is that gives significance to a heritage asset and therefore warrants protection. The scheme area and its immediate environs encompass layers of archaeological and historical development, which may be valued for different reasons by different people, all of which should be taken into account in determining the overall significance. In their 'Conservation Principles', Cadw have identified four areas of heritage values, which will be considered in determining the overall significance of the assets (Cadw, 2011). The definitions are provided in Table 12, below.

Table 12: Definition of Heritage Values

Criteria	Definition
Historical	This originates from the ways in which past people, events and aspects of life can be connected through a place to the present. This may include illustrative value, such as its connection to an important development, such as technology, or associative value, such as the connection to an important event or person.
Aesthetic	This is derived from the ways in which people draw sensory and intellectual stimulation from a place or building. These may be related to the design of a place, for example, through defensive reasons, or the informal development over time, such as the relationship of structures to their setting.
Communal	This derives from the meanings of a place for the people who relate to it or for whom it figures in their collective experience of memory. Communal values are closely bound up with historical (particularly associative) and aesthetic values, but tend to have additional and specific aspects, such as commemorative, symbolic, social and spiritual values.
Evidential	This is drawn from the potential of a place to yield evidence about past human activity. This evidence comes from the physical remains and its removal diminishes our ability to understand and interpret that evidence.

7.1.3 In addition to the above, and particularly relevant to assets of an archaeological nature can further be determined with reference to the Secretary of State's criteria for assessing the national importance of monuments, as contained in Annex 1 of the

policy statement on scheduled monuments (DCMS, 2013). These criteria relate to period, rarity, documentation, group value, survival/condition, fragility/vulnerability, diversity, and potential. The definition of these criteria is presented in Table 13, below.

Table 13: Definition of Criteria used to determine Archaeological Significance

Criteria	Definition
Period	Heritage Assets that characterise a category of asset or period.
Rarity	This should take account of all aspects of the distribution of a particular class of Heritage Asset, both in a national and a regional context.
Documentary Evidence	The significance of a Heritage Asset may be enhanced by the existence of records of previous investigation or, in the case of more recent assets, by the supporting evidence of contemporary written records
Group Value	The value of a single Heritage Asset (such as a field system) may be greatly enhanced by its association with related contemporary assets (such as a settlement and cemetery) or with assets of different periods.
Survival/Condition	The survival of an asset's archaeological potential both above and below ground is a particularly important consideration and should be assessed in relation to its present condition and surviving features.
Fragility/Vulnerability	Highly important archaeological evidence from some field monuments can be destroyed by a single ploughing or unsympathetic treatment; there are also existing standing structures of particular form or complexity whose value can again be severely reduced by neglect or careless treatment.
Diversity	Some Heritage Assets may possess a combination of high quality features, others a single important attribute.
Potential	On occasion, the nature of the evidence cannot be specified precisely but it may still be possible to document reasons anticipating its existence and importance. This is usually confined to buried remains rather than upstanding Heritage Assets.

7.2 Statement of Significance

7.2.1 The assessment has identified a total of 14 heritage assets within the inner study area. Of those, four are located within the footprint of the Scheme. These are a limekiln (**02626s**); Iron Age enclosure (**03121s**); ring ditches (**04148s**) and Whitton Lodge Roman Villa (**00382s**).

Historical

7.2.2 Although historical criteria are usually applied to Built Heritage the limekilns (**03951s**, **02626s**, **02625s**, **02624s**, **03051s**), or their former presence, have an illustrative value that demonstrates technological changes in agriculture as farmers realised that it could be spread on agricultural land to increase crop productivity. Individual small kilns were often constructed by farmers for their own personal or localised use. Similarly the cessation in their use and therefore their decline is linked to the rise, in the early 20th century, of bulk commercial production.

Aesthetic

- 7.2.3 Little aesthetic value can be drawn from the heritage assets as they represent buried archaeology or sites that have no visible remains and therefore can't be, or haven't been, interpreted within their wider landscape.

Communal

- 7.2.4 As with aesthetic values, a lack of interpretation means that people have been unable draw stimulation from the assets and therefore could create no communal value in relation to the assets.

Evidential

- 7.2.5 Evidential significance can be drawn through the presence of the limekilns in the study area that illustrates the continual agricultural nature of the area. Although evidential criteria are more often applied to built heritage, the archaeology present within the study area also has evidential significance. Although the inhumations (**00381s** and **00380s**) remain undated they are purported to be evidence of Royalist soldiers who were killed whilst retreating from the Battle of St. Fagans. The Roman Villa near Whitton Lodge (**00382s**) is a good example of the continual occupation and development of settlements from the Iron Age into the Roman period.

Period

- 7.2.6 All assets within the inner study area are considered to be typical of their period in Glamorganshire, these include the potential Prehistoric period ring ditches (**04148s** and **04147s**) and Iron Age field systems (**03121s**). The Whitton Lodge Roman villa (**00382s**) is one of many such site types recorded in Glamorgan as are the Industrial period Lime Kilns (**03951s**, **02626s**, **02625s** and **02624s**).

Rarity

- 7.2.7 As mentioned previously (Section 4.1.8) Romano-British villas, such as Whitton Lodge (**00382s**), are particularly prevalent in the Vale of Glamorgan although this in no way lowers their significance but rather should be seen as the prolific exploitation of the agricultural potential of the area. Limekilns are particularly numerous in, or very close to, limestone areas. Additionally coastal sites are particularly common in south Wales.

Documentation

- 7.2.8 The Roman villa at Whitton Lodge (**00382s**) was initially discovered and excavated in 1956 and presumably generated some form of documentation, although no reference to an initial report is made in the HER entry. Subsequent episodes of both intrusive and non-intrusive fieldwork have added to the documentary record for this site and its hinterland.
- 7.2.9 The limekilns (**03951s**, **03051s**, **02626s**, **02625s** and **02624s**) and the quarry (**03952s**) were identified within wider schemes of survey by GGAT.

Group value

- 7.2.10 The three potential ring ditches at Whitton Cross (**04148s** and **04147s**) have significant group value with each other and with the complex of prehistoric funerary

and ritual monuments which occupy the Vale of Glamorgan. The Whitton Lodge Roman Villa (**00328s**) and the potential Iron Age enclosures (**03121s**) also have a significant group value as together the remains could represent the continuation of settlement from the Prehistoric through to the Romano British period.

- 7.2.11 The proximity of the limekiln (**03951s**) and the quarry (**03952s**) would suggest that they share an association and group value. Similarly the limekilns in the north of the study area (**02624s and 02625s**) are located close enough to each other to suggest either simultaneous use for the continual production of lime or the sequential operation of one kiln then the other.

Survival/Condition

- 7.2.12 As the majority of the proposed Scheme Area comprises agricultural land, and although some ploughing may have been carried out, generally there is high potential for the survival of buried archaeological remains. Geophysical survey data in the central part of the proposed Scheme indicates that below ground remains have survived with a good degree of preservation.

- 7.2.13 The limekilns within the study area (**03951s, 03051s, 02626s, 02625s and 02624s**) are only noted from cartographic evidence which would suggest that any upstanding remains are already lost. Similarly the quarry (**03952s**) is also noted from map evidence. Whilst there is greater potential for evidence of the quarry to remain, physical remains of the limekilns may already be destroyed.

Fragility/Vulnerability

- 7.2.14 Any surviving archaeology within the proposed Scheme Area is vulnerable should any development take place. Any heritage assets, both known and unknown, that lie within the proposed Scheme that will be impacted upon by any groundworks. The identification of several assets within the HER, in particular the limekilns, is not indicative of the presence of physical remains.

Diversity

- 7.2.15 The landscape is considered to be highly diverse, comprising prehistoric (**03121s, 04148s, 04148s**), Romano-British (**00382s**) and rural industrial sites (**03051s, 02625s, 02624s and 03051s**). The villa at Whitton (**00382s**) contains not only remains from the Roman period, but earlier Iron Age remains and is an important example of the transition between the periods.

Potential

- 7.2.16 Within the proposed Scheme, there is significant potential for buried archaeological remains as the land has continuously been used for agriculture since at least the Iron Age. Furthermore geophysical and aerial photography data indicate the presence of three ring ditches (**04148s and 04147s**) and an extensive settlement with origins in the Iron Age (**03121s**). The two inhumations (**00380s and 00381s**) discovered in the central part of the study area have the potential to represent an extensive burial site, either associated with the Battle of Fagan or a previously unknown cemetery site.

SECTION 8

LIKELY IMPACT OF THE DEVELOPMENT

8 LIKELY IMPACT OF THE DEVELOPMENT

8.1 Sensitivity (Value) of the Asset

8.1.1 Initially, and prior to calculating the magnitude of impact, the value or importance of the heritage asset is established in a neighbourhood, local, regional, national and international context, which results in the cultural sensitivity of the asset being determined, along with the appropriate form of mitigation (Table 14, below).

Table 14: Value of Sensitivity of the Heritage Assets Identified

Value/sensitivity	Heritage Assets	Mitigation
International	None	To be avoided
National	00382 (largely demolished)	To be avoided
Regional/County	None	Avoidance recommended
Local/Borough	03952s, 03951s, 02626s, 02625s, 02624s, 030351s, 01434s	Avoidance recommended
Neighbourhood	None	Avoidance not envisaged
Uncertain	03121s, 04148s, 044147s, 00381s and 00380s	Avoidance unnecessary

8.1.2 The consideration of the sensitivity of statutory designated assets such as Scheduled Monuments, Listed Buildings, and Registered Parks and Gardens is reflected in their Grade. For example, Grade I Listed Buildings are those which are considered to be of exceptional national architectural or historic importance. Grade II* Listed Buildings are of particular national importance and special interest. Both Grade I and II* Listed Buildings are of great importance to the nation's built heritage and their importance will generally be beyond dispute. Grade II Listed Buildings are usually designated for their architectural and historic interest. They are usually of a more local or regional significance and make up around 95 per cent of all Listed Buildings.

8.2 Impact Assessment

8.2.1 Current planning policy guidance for the historic environment, embodied in PPW (Cymru 2012), advises that Heritage Assets are an irreplaceable resource. It has been the intention of this study to identify the archaeological and heritage significance and potential of the Study Area, and assess the impact of proposed development, thus allowing the policy stated in PPW (Cymru 2012) to be enacted upon. The following assessment considers the impact of proposed road scheme.

Up-standing Archaeological Remains (including earthworks)

- 8.2.2 The impacts upon the up-standing archaeology are solely associated with setting and the harm caused by the proposed Scheme upon the significance of the setting to the value of the asset. The setting of the historic landscape (**HLCA010**), long barrow (**GM116**), ring works (**GM117**), and Roman site (**GM253**) will be harmed to varying degrees. There will be no harm to setting of the remaining designated assets.

Table 15: Assessment of harm to setting

Asset	Degree of harm
HLCA010	Moderate/large
GM116	Slight/moderate
GM117	Slight/moderate
GM253	Neutral/slight

Below-ground Archaeology

- 8.2.3 The construction-related works associated with the proposed Scheme include:
- The construction of a new 4.8km long, two lane wide single carriageway road across agricultural land to the east of the existing A4226
 - The widening of the existing A4226 from the Welsh Hawking centre to the Waycock Cross roundabout at the southern end of the scheme. This will require some clearance of the adjacent S.S.S.I. Waycock woodland and a re-grading of the adjacent land.
 - The excavation of a series of attenuation ponds located along the length of the new road.
- 8.2.4 The construction of the new road will have a direct physical impact on known below-ground archaeological remains, which include ring ditches (**04148s**) and part of an extensive Iron Age/Romano-British settlement (**03121s**). Although the Whitton Lodge Roman Villa (**00382s**) has been fully excavated, there is potential for groundwork's to disturb potential remains associated with it.
- 8.2.5 The two inhumations (**00380s** and **00381s**) which potentially represent an extensive burial site, that may lie within the footprint of the proposed Scheme, and are therefore at risk of disturbance. The potential for further buried remains has been assessed as high along the length of the proposed Scheme, where to date, significant ground disturbance has been minimal. Unknown remains are therefore likely to survive with a good degree of preservation and are at risk of harm.
- 8.2.6 The widening of the existing A4226 at the southern end of the proposed Scheme and the construction of the attenuation ponds along the length of the new road has the potential to disturb hitherto unknown archaeological remains through requirements for excavation, topsoil stripping and re-grading.
- 8.2.7 The significance of impact upon all 14 of the non-designated heritage assets is presented in Table 16, below.

Table 16: Likely Significance of Impact on non-designated assets

HA Number	Importance/Value	Impact	Significance of impact
03951s	Local (Low)	No Change	Neutral
03952s	Local (Low)	No Change	Neutral
00381s	Potentially National (High)	No Change	Neutral
02626s	Local (Low)	Major	Slight/Moderate Adverse
00382s	High (National)	Major	Large/Very Large Adverse
00380s	Potentially National (High)	No Change	Neutral
02625s	Local (Low)	Major	Slight/Moderate Adverse
02624s	Local (Low)	No Change	Neutral
03121s	Potentially Regional (Medium)	Major	Moderate/Large Adverse
03051s	Local (Low)	No Change	Neutral
04147s	Potentially Regional (Medium)	No Change	Neutral
04148s	Potentially Regional (Medium)	Major	Moderate/Large
01434s	Local (Low)	No Change	Neutral

SECTION 9

MITIGATION STRATEGY

9 MITIGATION STRATEGY**9.1 Recommendations**

9.1.1 Current legislation draws a distinction between archaeological remains of national importance and other remains considered to be of lesser significance. Those perceived to be of international or national importance may require preservation *in situ*, whilst those of lesser significance may undergo preservation by record, where Regional/County or Local/Borough significance can be demonstrated.

Archaeological remains

9.1.2 Whitton Lodge Roman Villa (**00382s**) is considered by Cadw to hold national importance. Additionally, there is potential for an extensive burial ground of national significance to survive within the footprint of the Scheme, as indicated by the presence of two burials (**00380s** and **00381s**). The three non-designated heritage assets being a limekiln, Iron Age enclosure and ring ditch (**02626s**, **03121s** and **04148s**) are of potential regional significance and are located within the footprint of the proposed Scheme. These will be directly impacted upon by construction works associated with the development.

9.1.3 A scheme of investigative fieldwork has been devised in consultation with the Planning Archaeologist at GGAT. A programme of geophysical survey has been carried out along the length of proposed new road where it crosses agricultural land. A programme of evaluation trenching will be undertaken post-submission. The fieldwork will be informed by the results of the geophysical survey and is intended to determine the extent, depth, function, chronology and relative significance of any archaeological deposits, and if necessary will serve to inform a mitigation strategy for a final stage of more detailed archaeological investigation of significant remains. The investigation will target those known heritage assets impacted upon by proposed works, those areas that are shown to have positive results for archaeology as identified by the geophysical surveys from 2010 and 2015 and all other previously undisturbed areas that are viable for archaeological investigation, including the footprint of all proposed attenuation ponds.

9.1.4 An archaeological watching brief should be maintained during any widening of the existing road, where previously undisturbed land is subject to topsoil stripping or re-grading. This is with particular reference to the widening of the existing A4226 from the Welsh Hawking centre to the Waycock Cross roundabout at the southern end of the scheme.

9.1.5 The proposed Scheme is likely to truncate a number of post-medieval field boundaries within areas of new land-take. It is considered best practice to record an archaeological sample section through each affected boundary where the opportunity arises. It is also envisaged that a watching brief will be implemented during ground disturbance associated with any geotechnical investigations.

Setting of Heritage Assets

9.1.6 Although no specific mitigation is offered to reduce the harm to the setting of the identified assets, the following Historic England (2015) principles should be considered:

- 9.1.7 *Mitigation through design:* changes to design, the creation of effective long-term visual or acoustic screening or management measures secured by planning conditions or legal agreements. For some developments affecting setting, the design of a development may not be capable of sufficient adjustment to avoid or significantly reduce the harm, for example where impacts are caused by fundamental issues such as the proximity, location, scale, prominence or noisiness of a development. In other cases, good design may reduce or remove the harm, or provide enhancement, and design quality may be the main consideration in determining the balance of harm and benefit.
- 9.1.8 *Screening:* Where attributes of a single development may cause some harm to significance and cannot be adjusted, screening may have a part to play in reducing harm. As screening can only mitigate negative impacts, rather than removing impacts or providing enhancement, it ought never to be regarded as a substitute for well-designed developments within the setting of heritage assets. Screening may have as intrusive an effect on the setting as the development it seeks to mitigate, so where it is necessary, it too merits careful design. This should take account of local landscape character and seasonal and diurnal effects such as changes to foliage and lighting. The permanence or longevity of screening in relation to the effect on the setting also requires consideration. Ephemeral features, such as hoardings, may be removed or changed during the duration of the development, as may woodland or hedgerows, unless they enjoy statutory protection. Management measures secured by legal agreements may be helpful in securing long-term effect of screening.

SECTION 10

BIBLIOGRAPHY

10 BIBLIOGRAPHY**10.1 Cartographic sources**

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10.3

Principal Aerial Photographs

NGR	Ref
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ST 078 700	Oblique 965109-59
ST 078 708 - 084 712	N955176-41, JAS 2281 189

APPENDIX 1

PLATES



Plate 1: Looking east towards proposed land-take in the central part of the Scheme Area



Plate 2: Looking north towards proposed land-take in the central part of the Scheme Area



Plate 3: Looking southeast towards proposed land-take area and location of ring ditches (04147s), site of inhumation (00381s) and site of lime kiln (02624s) in the north of the Scheme Area



Plate 4: Looking southeast towards Coed y Cwm Ringwork (GM117)



Plate 5: Looking south from Coed y Cwm Ringwork (GM117) towards Scheme Area that lies beyond the tree line and woodland belt in the foreground



Plate 6: Looking northeast towards the remains of Coed y Cwm Long Barrow (GM116), located on a slight rise in the foreground



Plate 7: Looking west towards Scheme Area from the site of Coed y Cwm Long Barrow (GM116)



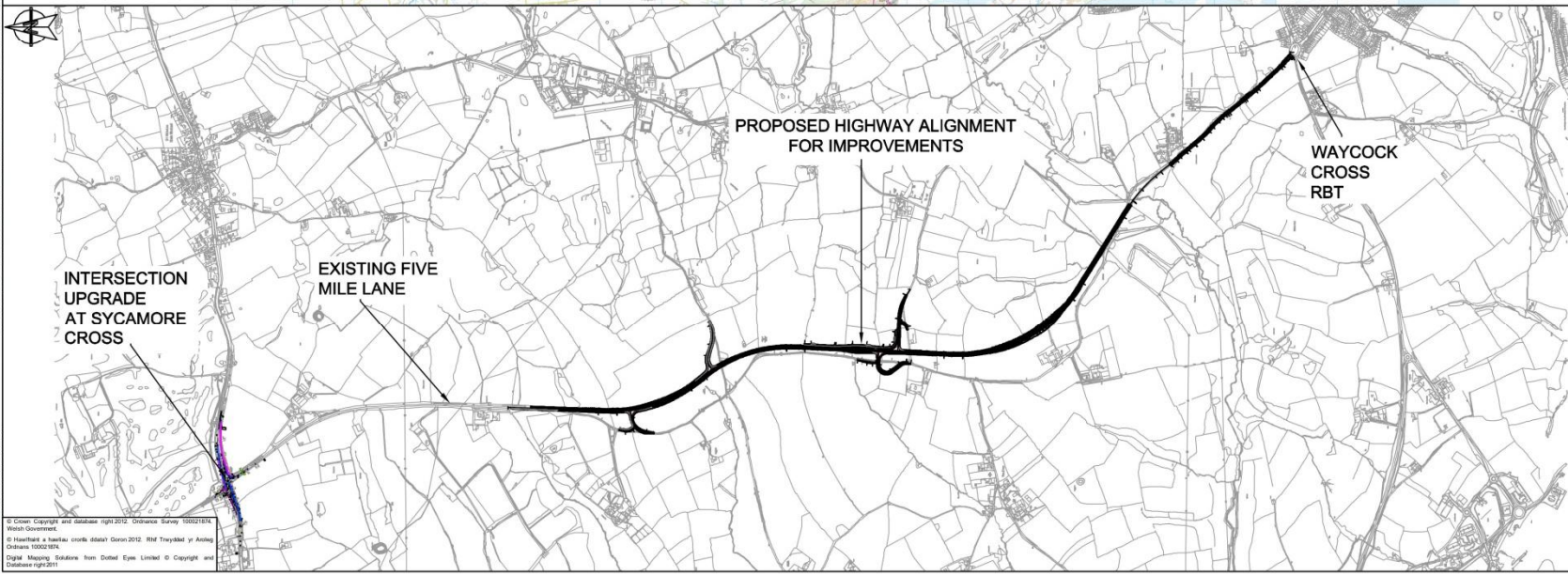
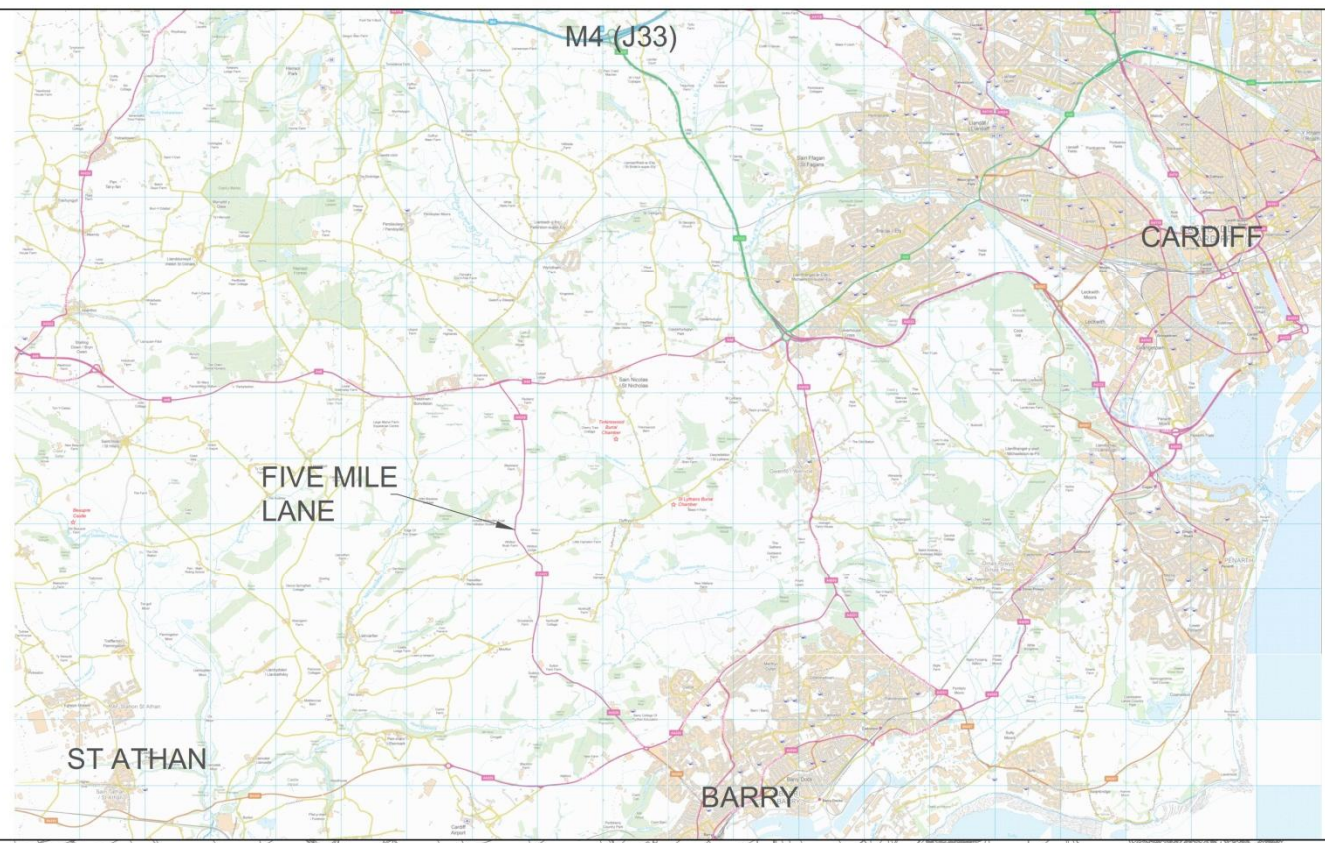
Plate 8: Looking northwest towards proposed land-take in the south of the Scheme Area. HLCA010 can be seen in the foreground right to the west of its associative parish boundary (A4226)



Plate 9: Looking southeast towards proposed land-take from the eastern boundary of HLCA010 located to the right of the image.

APPENDIX 2

FIGURES



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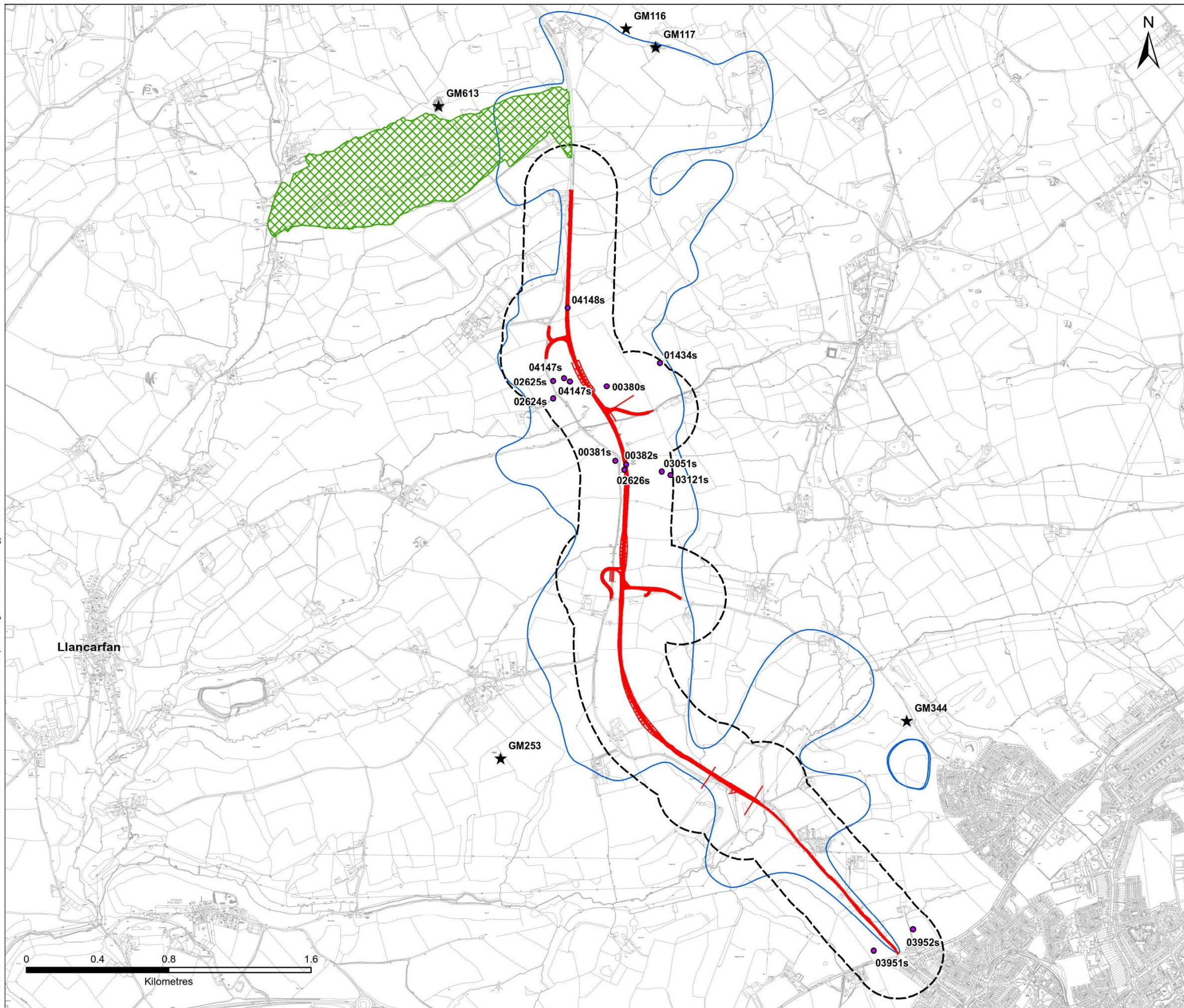
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Title: **SCHEME LOCATION**

Drawn: GS	Checked:
Designed: JM	Approved:
Date: 13/05/2015	Scale: 1:25,000
Project Number:	Drawing Number: 1 OF 1
Revision:	

3512646D-HHC **FIGURE 1** -

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- Scheme Layout
- 250m Study Area
- Non-designated Heritage Asset
- ★ Scheduled Monument
- HLCA 010 Bonvilston Amalgamated Fieldscape
- Zone of Visual Influence

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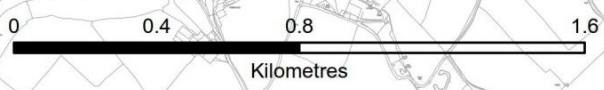
**ST ATHAN AND
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**HERITAGE ASSET
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3512646D-HHC	FIGURE 2	

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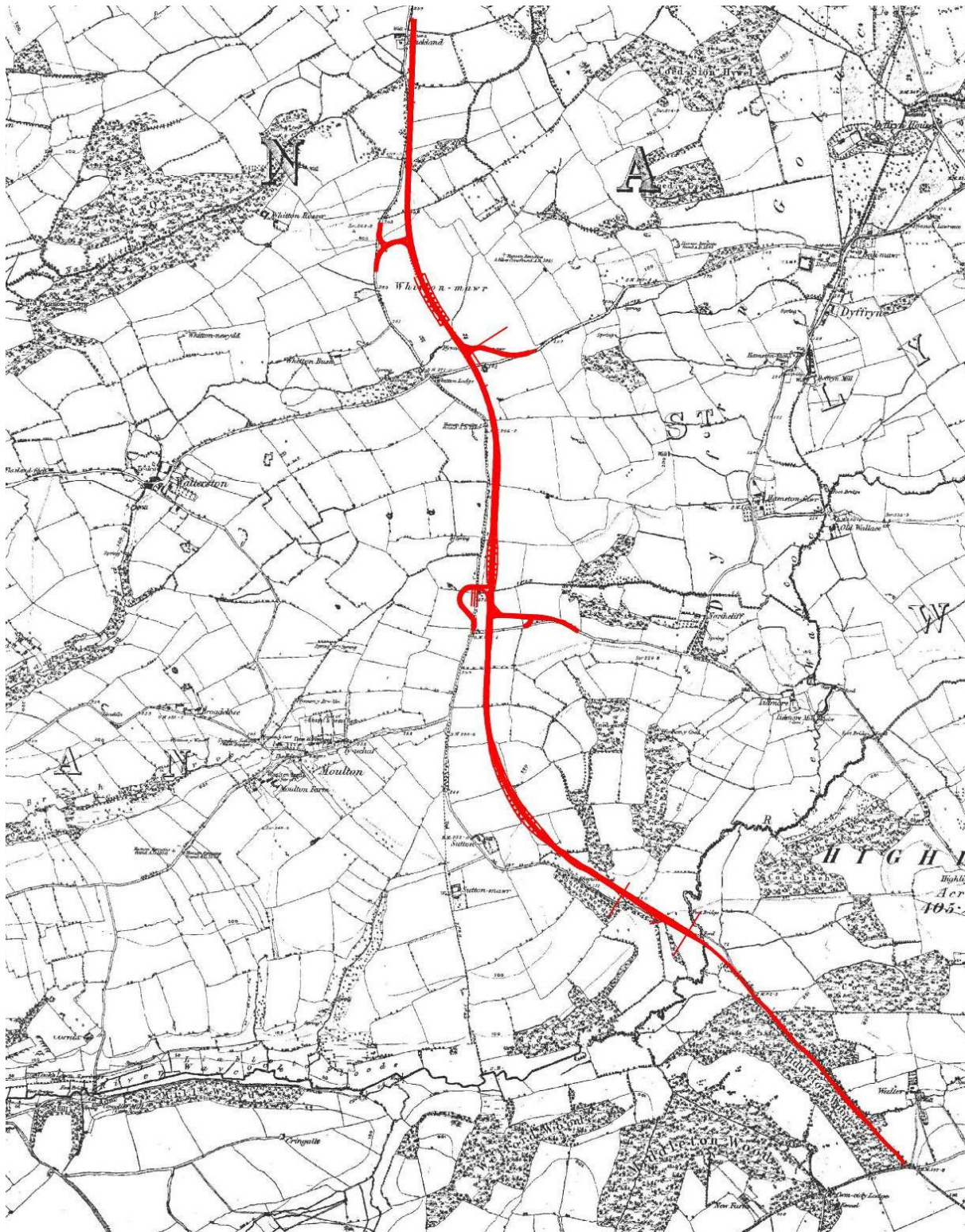


Figure 3: Scheme Area superimposed over the Ordnance Survey map of 1885, 1:10,560

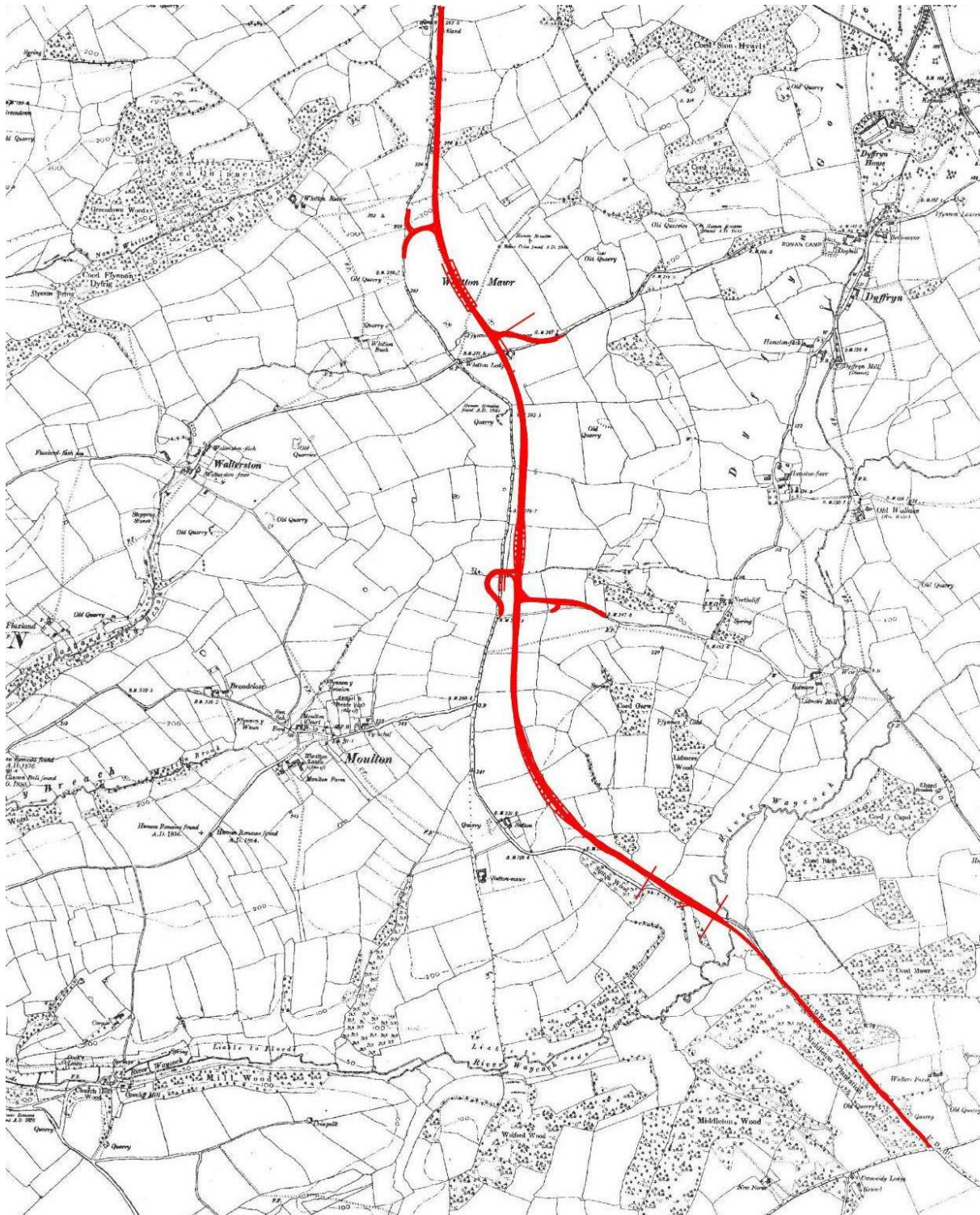


Figure 4: Scheme Area superimposed over the Ordnance Survey map of 1900-1901, 1:10,560

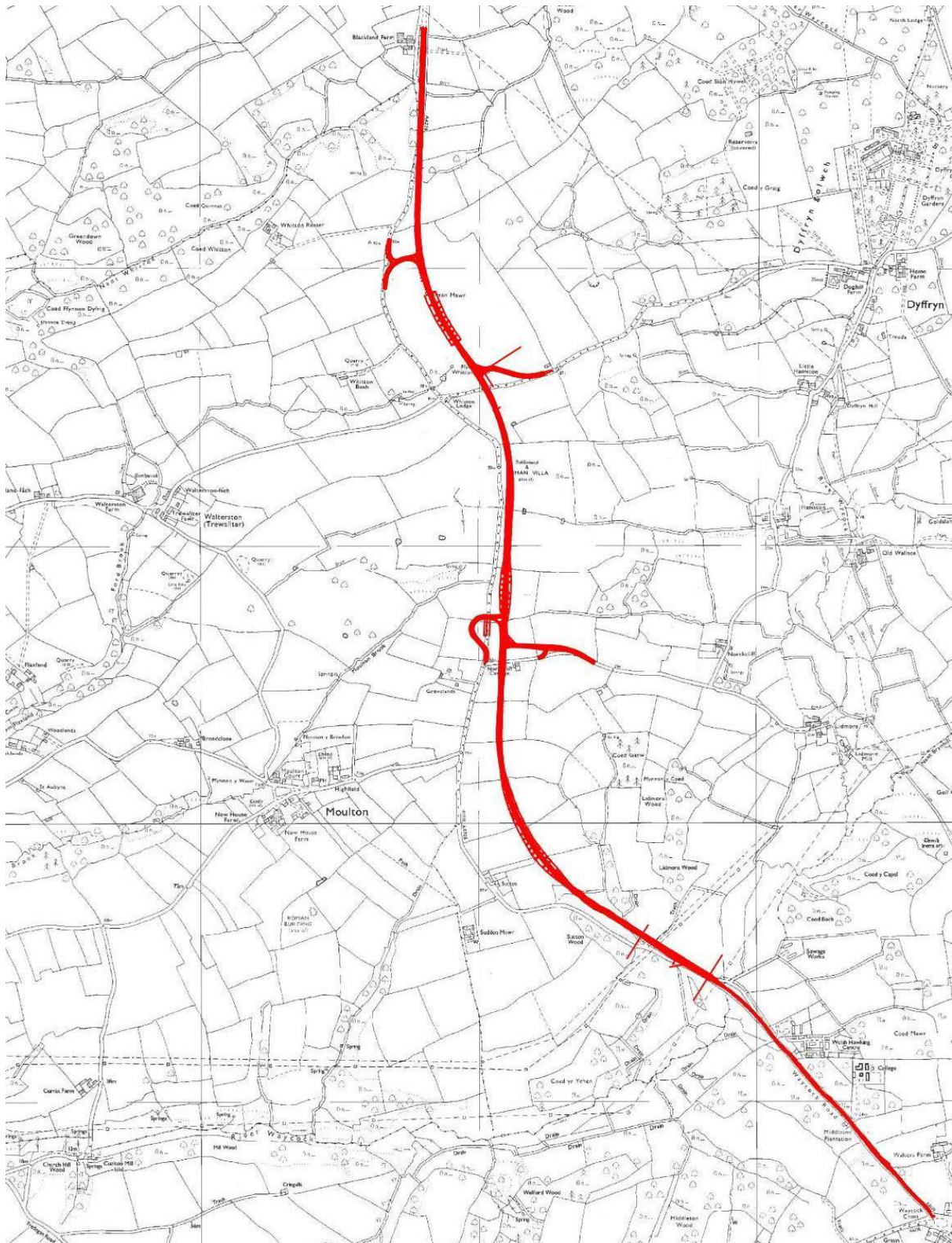


Figure 5: Scheme Area superimposed over the Ordnance Survey map of 1989, 1:10,000