

Archaeology Wales

Rush Wall Solar Farm, Redwick, Newport

ASIDOHL2



By
Philip Poucher MCifA


Report No. 1866


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Summary

In October 2019 Archaeology Wales was commissioned to carry out an ASIDOHL2 study to determine the potential impact of the proposed development of Rush Wall Park Solar Farm, Longlands, Redwick. The proposed development lies within the Gwent Levels Landscape of Outstanding Historic Interest (HLW (Gt) 2). The proposed development site currently comprises agricultural land on the Levels, to the north of Longlands Farm.

The ASIDOHL has been carried out in five stages. Stage 1, the introduction, identifies contextual information regarding the site. It describes the current understanding of the form and appearance of the development along with relevant planning policies. Previous assessment of the area includes a Desk Based Assessment, which identified one existing archaeological site within the development area, no longer visible, a low to moderate potential for other archaeological remains, and a generally low indirect impact on surrounding archaeological assets. Subsequent updates to the development area now includes a further archaeological site, an area of common land.

Stage 2 considers the direct, physical impact of the proposed development, assessed in absolute, relative terms and landscape terms. This development lies within HLCA 006 Redwick/Magor/Undy and HLCA 008 Northern Redwick. The overall magnitude of the direct physical impact on both HLCAs is considered to be Moderate.

Stage 3, assesses the indirect impacts of the proposed development, in terms of indirect, physical impacts, and indirect (non-physical) visual impacts. These indirect impacts affect a wider area and surrounding HLCAs are considered. The overall magnitude of indirect impact on HLCA 006 and HLCA 008 was scored as Considerable, HLCA 010 Magor Lower Grange was scored as Slight, HLCA 009 Green Moor and HLCA 005 Redwick Village was scored as Very Slight, with the impact on the latter being so minimal it was excluded from the remaining assessment.

Stage 4, forms an evaluation of the relative importance of the HLCA, and the parts within them that are affected by the proposed development. This considers the overall value of all four HLCAs to be Considerable.

Stage 5, forms an assessment of the overall significance of the impact. The impact of the development and the reduction in the value of the HLCA on the Register, combined with the relative values of the HLCAs, scores the impact on HLCA 006 and HLCA 008 as Moderate, and HLCA 010 and HLCA 009 as Slight.

Crynodeb

Ym mis Hydref 2019 cafodd Archaeoleg Cymru ei gomisiynu i gynnal astudiaeth ASIDOHL2 i benderfynu os bydd effaith bosibl o'r datblygiad arfaethedig ar Fferm Solar Park Rush Wall, Lonchwarennau, Y Redwig ar unrhyw nodweddion archeolegol. Mae'r datblygiad arfaethedig o fewn Tirwedd Hanesyddol o Ddiddordeb Hanesyddol Eithriadol Gwastadeddau Gwent (HLW (GT) 2). Ar hyn o bryd, mae'r safle datblygu arfaethedig yn cynnwys tir amaethyddol ar y lefelau, i'r gogledd o Fferm Longlands.

Cafodd yr ASIDOHL wedi'i gynnal mewn pum cam. Mae Cam 1, y cyflwyniad, yn nodi gwybodaeth gyd-destunol am y safle. Mae'n disgrifio'r ddealltwriaeth bresennol o ffurf ac ymddangosiad y datblygiad ynghyd â'r polisiâu cynllunio perthnasol. Mae asesiad blaenorol o'r ardal yn cynnwys asesiad desg, a oedd yn nodi un safle archeolegol a oedd yn bodoli eisoes o fewn yr ardal ddatblygu, nad oedd i'w weld bellach, potensial isel i gymedrol ar gyfer olion archeolegol eraill, ac effaith anuniongyrchol isel yn gyffredinol i asedau archeolegol cyfagos.

Mae Cam 2 yn ystyried effaith uniongyrchol, ffisegol y datblygiad arfaethedig, wedi'i asesu mewn termau absoliwt, termau cymharol a themau tirwedd. Mae'r datblygiad hwn yn sefyll o fewn HLCA 006 Y Redwig/Magwyr/Gwndy a HLCA 008 gogledd Y Redwig. Ystyrir bod maint cyffredinol yr effaith ffisegol uniongyrchol ar y ddau HLCAs yn gymedrol.

Mae Cam 3 yn asesu effeithiau anuniongyrchol y datblygiad arfaethedig, o ran effeithiau anuniongyrchol, ffisegol ac effeithiau gweledol (nad ydynt yn ffisegol) anuniongyrchol. Mae'r effeithiau anuniongyrchol hyn yn effeithio ar ardal ehangach ac ystyrir yr HLCAs o'i hamgylch. Cafodd maint cyffredinol yr effaith anuniongyrchol ar HLCA 006 a HLCA 008 ei sgorio fel tir sylweddol, HLCA 010 Magwyr Lower Grange yn cael ei sgorio fel mân, HLCA 009 yn y Waun a HLCA 005 Redwick yn cael ei sgorio'n fychan iawn, gyda'r effaith ar yr olaf mor fach fel yr oedd e ar wahân i'r asesiad sy'n weddill.

Mae Cam 4, yn ffurfio gwerthusiad o bwysigrwydd cymharol yr HLCA, a'r rhannau ynddynt y mae'r datblygiad arfaethedig yn effeithio arnynt. Mae hyn yn ystyried bod gwerth cyffredinol y pedwar HLCAs yn sylweddol.

Mae Cam 5, yn ffurfio asesiad o arwyddocâd cyffredinol yr effaith. Mae effaith y datblygiad a'r gostyngiad yng ngwerth yr HLCA ar y gofrestr, ynghyd â gwerthoedd cymharol yr HLCAs, yn sgorio'r effaith ar HLCA 006 a HLCA 008 fel ychydig yn gymedrol, ac HLCA 010 a HLCA 009 fel mân.

1 Introduction

1.1.1 In October 2019 Archaeology Wales Ltd (AW) was commissioned to carry out an ASIDOHL2 study to investigate the possible impact on the historic environment of the proposed development of Rush Wall Park Solar Farm, Longlands, Redwick. The site lies within the Gwent Levels Landscape of Outstanding Historic Interest (HLW (Gt) 2). As such an ASIDOHL2 (Assessment of the Significance of the Impact of Development on the Historic Landscape) was requested by the Local Planning Authority and Cadw to help inform the planning decision on the proposed development. AW was commissioned by Renplan Consulting Ltd, on behalf of British Solar Renewables Ltd (BSR). The AW project number is 2663.

1.2 ASIDOHL Layout

1.2.1 In assessing the impact of the proposed development, guidelines are laid out in 'Guide to Good Practice on Using The Register Of Landscapes Of Historic Interest In Wales In The Planning And Development Process' (Revised 2nd Edition) which includes revisions to the assessment process (ASIDOHL2). This guidance lays out a process for assessing the impacts, based on five stages.

- **Stage 1** consists of gathering the contextual information and provides the introduction to the report.
- **Stage 2** is an assessment of the direct physical impacts of the proposed development, in absolute terms, relative terms and landscape terms. Within this, tables are provided to quantify these impacts and their magnitude.
- **Stage 3** is an assessment of the indirect impacts of the development, in terms of both indirect, physical impacts and also indirect (non-physical) visual impacts. Again, tables are provided to quantify these impacts and their magnitude.
- **Stage 4** is an evaluation of the relative importance of the Historic Character Area directly and/or indirectly affected by the proposed development. This is done in relation to the whole of the Historic Character Area concerned and the whole of the historic landscape area on the Register, followed by an evaluation of the relative importance of the Historic Character Area concerned in the national context.
- **Stage 5** is an assessment of the overall significance of the impact. This combines stages 2 and 4 to produce an assessment of the overall significance of the impact of the proposed development and the affect that altering the Historic Character Area has on the whole of the historic landscape area on the Register. This stage also includes an examination of mitigation or positive benefits and a concluding statement.

2 ASIDOHL STAGE 1

2.1 The Proposed Development (Figures 2 & 3)

- 2.1.1 The proposed development comprises plans for a solar farm development to export renewable energy to the local electricity network. The development area as a whole totals approximately 121.7 hectares.
- 2.1.2 Details of the proposed layout and construction details have been provided. Solar photovoltaic (PV) panels will be mounted on a railing substructure, at will be approximately 3.3m high, and laid out in east – west orientated lines across the site (with the exception of approximately 30 hectares of undeveloped fields at the southern end of the site). A 300m buffer is in place between the solar panels and the nearest residence (beside the landowner), other buffers include a 12.5m buffer from the banks of any reens, 7m buffers from the banks of ditches, and buffers from any hedgerows as well as no panels installed beneath two overhead cables that cross the site from east to west. Approximately 19 inverter stations will be spread across the site, approximately 4.1m high. A substation and concrete-based compound measuring approximately 50m by 40m is located within the site adjacent to an existing pylon. The site will be accessed by compacted gravel tracks, and surrounded by fencing and gates within each field to allow sheep to continue grazing within the fields. All field boundaries, reens and ditches and existing crossings will be retained within the development.
- 2.1.3 The construction phase of the development will include largely piled foundations, the establishment of trackways and excavated cable trenching. The PV panel sub-structure will be piled into the ground to a depth of 2.5m. The ground disturbance associated with the substation is expected to be up to 2m below ground level. Trackways will be surface mounted on sub-layer geogrid membranes. Cable trenching will include stripping topsoil from a 10m wide working lane, trenches will then be excavated approximately 1.2m deep for high voltage cables (approximately 4km), 0.6m deep for low voltage cables (approximately 7km) and 0.6m deep for communications cables (potentially 1km). When crossing reens cables should make use of existing crossings, otherwise they will be placed under the inert level of the reen. The total area of the development site disturbed for cable trenching is expected to be 1% of the total. Foundation piles and the substation station base is also expected to take up 1% of the total development area.
- 2.1.4 The development is estimated to have a minimum lifetime of 35 years. Decommissioning will include the removal of all above ground infrastructure and underground cabling. Tracks will be removed, unless the landowners wishes for them to be retained. The site will be reinstated to the former state and condition prior to development.
- 2.1.5 The Local Planning Authority is the Newport City Council.

2.2 The Site

- 2.2.1 The site is located within the Caldicot and Gwent Levels, which cover an area of 71 km² to the southeast of Newport between the rivers Usk and Wye. The Gwent Levels Landscape of Outstanding Historic Interest (HLW (Gt) 2) is described as three distinct and extensive areas of alluvial wetlands and intertidal mudflats formed from tidal

deposits and alluvium, entirely artificial and 'hand crafted', which have been recurrently inundated and reclaimed from the Severn Estuary since at least Roman times. There are distinctive patterns of settlement, enclosure and drainage systems belonging to successive periods of use, which help subdivide the area into distinctive character areas. The Levels are extremely rich archaeologically, with finds from the Mesolithic, Bronze Age and Iron Age periods as well as later eras, and have proven and potentially extensive, well-preserved, buried, waterlogged archaeological and palaeoenvironmental deposits. They are also an important wetland resource.

- 2.2.2 The Levels lie below 8mOD and are bounded to the south by the Severn Estuary and to the north by the change in geology and topography where the land rises and the solid geology changes from mudstone to limestone (BGS, 2018).
- 2.2.3 The proposed scheme is located some 1.5km to the west-south-west of Magor in Monmouthshire and some 7.5km to the south-east of Newport. The scheme is centred on NGR ST 41705 85554 and covers approximately 121.7ha. The area comprises several enclosed fields, used as both arable and pasture, bounded by hedgerows, ditches and reens.
- 2.2.4 The underlying bedrock geology of the area consists of mudstone of the Mercia Mudstone Group, overlain by clay and silt tidal flat deposits (BGS 2018).

2.3 Previous Assessments

- 2.3.1 The area is included in the Gwent Level Landscape of Outstanding Historic Interest (HLW (Gt) 2) within the Register of Landscapes of Historic Interest in Wales, published by Cadw, CCW and ICOMOS UK in 1998. The site and the area around it have been assessed as they sit within Historic Landscape Character Areas 006 Redwick and 008 Northern Redwick. The area has also been assessed as part of LANDMAP, which includes an assessment of the Historic Landscape (Redwick - NWPRTL018 & Whitson - NWPRTL019), based around similar boundaries and reasoning as the HLCAs.
- 2.3.2 Studies have been undertaken in association with the current proposed development. These include a Desk Based Assessment (Nikolic & Barrett 2018) undertaken by Archaeology Wales Ltd. This study examined the potential for archaeological remains to exist on the site and included a search area of 1.5km from the centre of the development site. One enclosure was identified within the site boundary (PRN 08960g/NPRN 309437), of uncertain date and function, previously identified from aerial photography, but no longer evident. Areas of ridge and furrow agricultural remains were also identified in the area, but again these are no longer evident within the current proposed development boundary. Given archaeological evidence in the wider landscape there was considered to be a low to moderate potential for Prehistoric and Roman remains, and a high potential for Medieval and Post Medieval remains, although these would be of low significance. The report also examined the potential visual impact on designated archaeological sites in the surrounding landscaping. This identified Wilcrick Hill Camp Scheduled Ancient Monument (MM127) to the north, with extensive views including the development site. The impact however was considered to be low.

- 2.3.3 A number of other archaeological assessments and investigations have been undertaken in the wider area. These include an evaluation and watching brief undertaken in association with the construction of a wind turbine on adjacent land to the west (Thomas 2013 & Poucher 2015). These identified a former palaeochannel, a number of post medieval agricultural and drainage features, and a layer of mixed peaty-clay at a depth of 2.2m. A variety of other investigations in the surrounding landscape have found largely Medieval and Post-Medieval archaeological remains, with some more limited evidence of Prehistoric and Roman activity, but these investigations are summarised within the recent Desk Based Assessment, and help inform the general archaeological background illustrated in the report.
- 2.3.4 A further part of the studies undertaken in association with the proposed development includes a Landscape and Visual Impact Assessment, which is currently ongoing but provides content of use in an ASIDOHL study.
- 2.3.5 To the west another solar scheme was proposed at Llanwern, near Newport in 2014/2015. This site is of particular relevance as it also lies on the Gwent Levels, and within the Gwent Level Landscape of Outstanding Historic Interest (HLW (Gt) 2). An ASIDOHL2 study was produced in association with that proposed development, undertaken by Glamorgan-Gwent Archaeological Trust in 2015 (Dunning 2015), revised due to changes in layout by Savills in 2017 (Lutescu-Jones 2017). This work provides a useful comparison piece for the current proposals.

2.4 Planning Policy Context

- 2.4.1 National Policies relating to archaeology and cultural heritage include the following:
- Ancient Monuments and Archaeological Areas Act 1979.
 - Planning (Listed Buildings and Conservation Areas) Act 1990.
 - Planning Policy Wales – Edition 10, Section 6, 2018.
 - Technical Advice Note (TAN) 24: The Historic Environment, 2017.
- 2.4.2 There are a number of elements within the Adopted Newport Local Development Plan (LDP) 2011 – 2026 of relevance to the historic environment in this area.
- 2.4.3 **Strategic Policy (SP) 9 Conservation of the Natural, Historic and Built Environment** promotes the conservation, enhancement and management of recognised sites within the natural, historic and built environment within all development proposals. The registered landscape of Outstanding Historic Interest is specifically mentioned, and the policy goes on to state:
- “The protection, retention, safeguarding, conservation and enhancement of heritage assets will be sought, and where new development is proposed that affects the building or site or its setting, this should be of the highest quality.”
- 2.4.4 Further policies within the LDP address development within the countryside. Specific policies of relevance include **CE4 Historic Landscape, Parks, Gardens and Battlefields**,

which should be protected, conserved, enhanced and where appropriate, restored. It goes on to state that:

“The Register of Landscapes of Outstanding Historic Interest in Wales identifies the Gwent Levels as an area which is uniquely rich in archaeological and historical resource. The Register does not preclude development but as advised in Welsh Office Circular 61/9659, it should be used in determining planning applications where the development is of a sufficient scale to have more than a local impact on the historic landscape. Such developments may require an Environmental Impact Assessment. Therefore an Assessment of the Significance of the Impact of Development on Historic Landscape (ASIDOHL2) will be required and the outcomes implemented for those developments deemed to have more than a local impact on the historic landscape.”

- 2.4.5 Other policies, not directly related to the historic landscape, but still of relevance to the historic environment include **CE3 Environmental Spaces and Corridors (The Historic Environment)**, **CE5 Locally Listed Buildings and Sites**, **CE6 Archaeology** and **CE7 Conservation Areas**.

2.5 Limitations

- 2.5.1 This ASIDOHL2 study was carried out by Philip Poucher MCifA, Project Manager at Archaeology Wales, using the guidelines and methodology set out in the *Guide to Good Practice on Using the Register of Landscapes of Historic Interest in Wales in the Planning and Development Process Revised 2nd edition* (Cadw and CCW 2007).
- 2.5.2 Open access was available to the majority of relevant locations and viewpoints within the affected HLCAs, which were visited in November 2018 and December 2019. The timing of the visits meant vegetation levels were relatively low, good visibility was achieved during the visits. A Zone of Theoretically Visibility has been produced, but such an image is problematical due to the low-lying nature of the surrounding landscape but the lack of vegetation and built structures that are taken into account in the production of a ZTV. The results therefore may not be an accurate reflection of likely visibility, and information from the site visits is used in preference to the ZTV.
- 2.5.3 The Historic Landscape is described in the Register of Landscapes of Historic Interest in Wales, published by Cadw, CCW and ICOMOS UK in 1998, and the relevant HLCAs have been subject to a detailed characterisation exercise, described in detail by Glamorgan-Gwent Archaeological Trust at the following website:

http://www.ggat.org.uk/cadw/historic_landscape/main/english/historical.htm

- 2.5.4 Confidence levels for this ASIDOHL are therefore high in most respects.

3 ASIDOHL Stage 2 – Assessment of direct, physical impacts of development

3.1 Introduction

- 3.1.1 This section comprises a description and quantification of the direct physical impacts of development on the Historic Character Area(s) affected by the proposed development.
- 3.1.2 The description and quantification is considered in three ways:
- a) In absolute terms, *i.e.* the proportion of the surface area of the HLCA affected
 - b) In relative terms, *i.e.* the proportion of each of the key historic landscape characteristics (as identified in the Historic Landscape Characterisation report) that will be permanently lost or removed by the proposed development.
 - c) In landscape terms, the contribution that the affected elements of the key historic landscape characteristics make to the value of the Historic Character Area as a whole.
- 3.1.3 In each case, the physical impacts are assigned a score, and the overall scores for the impacts on the individual Historic Character Area are used to produce a quantified expression of the overall magnitude of direct impact on a 24 point scale. For each Historic Landscape Character Area these are presented as a table; each table is supplemented with qualifying statements and background information.

3.2 Impact Assessment

- 3.2.1 The proposed development lies within two specific Historic Landscape Character Areas, separated by the Ynys Mead Reen. To the south approximately 72% (87.7 hectares) of the development area lies within HLCA 006 Redwick, the remaining 28% (34 hectares) lies within HLCA 008 Northern Redwick. Any associated access routes for the development will also be contained within these HLCAs, and therefore both areas are assessed for direct, physical, impacts.

HISTORIC LANDSCAPE CHARACTER AREA 006 – REDWICK/MAGOR/UNDY

- 3.2.2 This area is characterised by its irregular pattern of small fields, with some more regular areas included, with visible drainage features, including some major reens, and seawall defences, occupying low-lying coastal lands. The village of Redwick stands in the centre of this area, although characterised as its own HLCA. A mix of scrubby and cut hedges form many of the upstanding boundaries, with more wooded areas to the south of Redwick, and more enlarged enclosures and well-cut hedges to the north.
- 3.2.3 This pattern has developed through gradual enclosure and reclamation, probably between the 11th and 14th century, with more regular enclosure representing 19th century alterations.
- 3.2.4 Specific features of interest include some major Medieval reens (such as Windmill and Coldharbour Reens) and sea defences along the coastline and Cillister Pill, as well as some fine bridges. Important Prehistoric, Roman and Medieval archaeological sites have been recorded in the intertidal zone, and it is likely associated remains exist below

built up colluvium in this area. Visible ridge and furrow agriculture also exists, particularly to the south of Redwick village and in Undy.

A – In Absolute Terms

- 3.2.5 The entire development area within the HLCA consists of 10% (c.87.7 hectares) of the area of the HLCA (865 hectares). The proposed development will establish PV panels on frames across approximately a third of the area, with buffer zones around reens, ditches and hedges, and fields left undeveloped along the south, along with several inverter stations, cable trenching, access tracks and fencing. Foundations will be piled, trackways will be surface mounted. The field layout, and all field boundaries and drainage channels will remain unchanged by the development. It is estimated that excavation work required for the development will affect approximately 2% of the development area, which equates to approximately 0.2% of the HLCA.
- 3.2.6 The direct physical impact of such a solar farm scheme has been open to debate. Field boundaries and other physical elements of the current landscape will be retained, construction will only directly affect a small percentage of the area, and solar farms are considered to have a limited lifespan, in this case a minimum of 35 years. However, piling foundations of this nature, although physically affecting only a small percentage of the area, is cumulatively regarded as having an impact across the whole development area, and responses from Cadw on the nearby solar scheme at Llanwern indicate that a lifespan of at least 35 years for a solar farm is considered to have a permanent impact upon the landscape, particularly given the potential for renewal of the site. That being said, the proposed development will at most affect 10%, which is considered a *Slight* impact.

Table 1. A - Assessment of Direct, Physical Impacts on Historic Character Area 006 Redwick/ Magor/Undy

Absolute Impact (loss of area)	Magnitude and Score
c.87.7ha, 10% area	Slight – 2

B – In Relative Terms

- 3.2.7 The main characteristics of the HLCA consists of irregular field enclosures, drainage features and hedge boundaries. Characteristic archaeological remains include these boundaries and drainage features, along with some bridges and sea walls, and evidence of ridge and furrow agriculture. Category A assets include a sea wall along Collister Pill, Category B assets include the Grade II listed Brick House and some possible medieval enclosures. Along with much of the registered Landscape this area retains potential for important buried waterlogged archaeological and palaeoenvironmental deposits.
- 3.2.8 The characteristic field enclosure layout, along with drainage features including reens and ditches, and simple bridge crossings of these features, are well represented within the proposed development area. However, these individual features will remain, with mitigation measures proposed to ensure they remain both unaffected and maintained.
- 3.2.9 The proposed development site will not affect any known Category A assets, although one specific archaeological asset (06219g) was noted within the bounds of the development area within this HLCA. The potential for buried archaeological and

palaeoenvironmental remains is currently unknown within the development area, as is its potential to be affected by construction techniques.

3.2.10 Poorly preserved ridge and furrow remains, and a further possible enclosure were identified during a recent desk-based assessment. The confidence in these features is relatively low and given that they lie within the development area but are in the southern part of the development not subject to groundworks they have not been considered for relative impacts.

3.2.11 The active agricultural use of the land is a characteristic element that will be affected by proposed development. The retention of pasture, field gates and design of the PV panels will allow pastoral agriculture to continue, and the land can be returned to its original use at the end of the lifespan of the development, however agricultural options will be more limited during its lifespan. The land itself is of low archaeological importance (Category C), but as a distinctive element of the landscape character has a High Landscape Value.

Table 2. B - Relative and Landscape Impacts (Loss of Known Elements or Characteristics) & Scores

Element / % Loss	Magnitude	Category	Landscape Value	Landscape Value Effect
Field pattern/ Less than 10%	Very Slight - 1	B - 3	Very High – 6 (Main characteristic element of HLCA)	Slightly Reduced – 2
Drainage features and boundaries (reens, ditches, surface drainage, hedgerows) / Less than 10%	Very Slight - 1	B - 3	High – 5 (Distinctive characteristic element of HLCA)	Very Slightly Reduced – 1
Potential buried archaeological and palaeoenvironmental remains/ Less than 10%	Slight - 2	B - 3	High – 5 (Distinctive characteristic element of HLCA)	Slightly Reduced – 2
Archaeological asset – Common land PRN 06219g/ Less than 1%	Very Slight - 1	C - 2	Medium – 3 (Distinctive and characteristic of the main HLCA character)	Very Slightly Reduced – 1
Agricultural landuse/ Less than 10%	Slight – 2	C – 2	Medium – 3 (Distinctive and characteristic of the main HLCA character)	Moderately Reduced – 3
Total score (1+3+6+2) + (1+3+5+1) + (2+3+5+2) + (1+2+3+1) + (2+2+3+3) / 5 = 10.2				

Table 3. Overall Magnitude of Direct Physical Impacts on Historic Character Area 006 Redwick /Magor/Undy

Score	Grading
2+10.2=12 (rounded to nearest whole number)	Moderate

HISTORIC LANDSCAPE CHARACTER AREA 008 – NORTHERN REDWICK

- 3.2.12 This is a relatively uniform area of land characterised by its regular field boundaries, a few straight lanes and little settlement around the periphery. Although a coherent area, its integrity has been reduced through intense farming, with the western end better preserved with scrubby hedges, some well wooded. The area acts as an important buffer zone between better preserved landscapes to the south, and industrial development to the north, although it offers little in the way of visual screening.
- 3.2.13 Historically the area was probably enclosed and drained around the 13th or 14th century. The area around Grangefield farm to the west was a medieval grange of Tintern Abbey, and it is likely the eastern area was also enclosed and drained by the monks.
- 3.2.14 Specific features of interest include the field divisions and drains, including a number of reens. The main feature of interest is the farmstead of Grangefield and the adjacent site of a medieval moated enclosure, potentially the monastic grange centre, now a Scheduled Ancient Monument (MM205). Less significant post-medieval enclosures are also noted along the northern edge.

A – In Absolute Terms

- 3.2.15 The entire development area within the HLCA (c.34 hectares) consists of 13% of the area of the HLCA (258.4 hectares). The proposed development will establish PV panels on frames across most of the area, with buffer zones around reens, ditches and hedges, along with a substation and compound, several small inverter stations, cable trenching, access tracks and fencing. Foundations will be piled, although a raft foundation will be used for the substation compound, trackways will be surface mounted. The field layout, and all field boundaries and drainage channels will remain unchanged by the development. It is estimated that excavation work required for the development will directly affect approximately 2% of the development area, which equates to approximately 0.2% of the HLCA. However, the direct physical impact is considered as occurring across the entire development area, and 13% equates to a *Slight* impact.

Table 4. A - Assessment of Direct, Physical Impacts on Historic Character Area 008 northern redwick

Absolute Impact (loss of area)	Magnitude and Score
c.34ha, 13% area	Slight – 2

B – In Relative Terms

- 3.2.16 The main characteristics of the HLCA consists of its regular field pattern, defined by ditches, reens and hedgerows. This pattern, and boundary features, are well represented within the development area, with reens forming the south, east, west and part of the north boundary, with a regular pattern of fields within, albeit slightly enlarged along the southern edge. Category A assets within the HLCA include the medieval moated enclosure near Grangefield farm to the west. The only recorded asset within the development site being a possible enclosure (PRN08960g) of low importance (Category C), this however is no longer visible at surface level. Along with much of the registered Landscape this area retains potential for important buried waterlogged archaeological and palaeoenvironmental deposits.

3.2.17 Similar to the previous HLCA the characteristic field enclosure layout, along with boundary and drainage features including reens, ditches and hedgrows, will remain within the development area, with mitigation measures proposed to ensure they remain both unaffected and maintained, although the active agricultural use of the land will be effected by proposed development.

3.2.18 The proposed development site will not affect any known Category A assets. The possible enclosure (PRN08960g) previously identified within the development area no longer appears identifiable, therefore it is unlikely to be well-preserved and has presumably been affected by the modern agricultural regime. Ridge and furrow remains have been identified within the development from previous aerial photography, but such remains are no longer identifiable at surface level, or from recent aerial photography and Lidar. The potential for buried archaeological and palaeoenvironmental remains is currently unknown within the development area, as is its potential to be affected by construction techniques.

Table 5. B - Relative and Landscape Impacts (Loss of Known Elements or Characteristics) and Scores

Element / % Loss	Magnitude	Category	Landscape Value	Landscape Value Effect
Regular field pattern/ Less than 12%	Very Slight - 1	B - 3	Very High – 6 (Main characteristic element of HLCA)	Slightly Reduced – 2
Drainage features and boundaries (reens, ditches, surface drainage, hedgerows) / Less than 12%	Very Slight - 1	B - 3	High – 5 (Distinctive characteristic element of HLCA)	Very Slightly Reduced – 1
Archaeological asset – enclosure PRN 08960g/ Unknown%	Moderate - 3	C - 2	Low – 2 (Not a visible or common element)	Very Slightly Reduced – 1
Potential buried archaeological and palaeoenvironmental remains/ Less than 12%	Slight - 2	B - 3	High – 5 (Distinctive characteristic element of HLCA)	Slightly Reduced – 2
Agricultural landuse/ Less than 12%	Slight – 2	C – 2	Medium – 3 (Distinctive and characteristic of the main HLCA character)	Moderately Reduced – 3
Total score (1+3+6+2) + (1+3+5+1) + (3+2+2+1) + (2+3+5+2) + (2+2+3+3) / 5 = 10.4				

Table 6. Overall Magnitude of Direct Physical Impacts on Historic Character Area 008 Northern Redwick

Score	Grading
2 + 10.4 = 12 (rounded to nearest whole number)	Moderate

4 ASIDOHL Stage 3 – Assessment of indirect impacts of development

4.1 Introduction

4.1.1 This section comprises a description and quantification of the indirect impacts of development on all the Historic Character Area(s) affected (Figures 1 & 2).

4.1.2 A clearly defined area will be directly or physically affected by the development, but a much greater area could be indirectly affected due to fragmentation or changes to the setting of features in the landscape. Changes to views of, or views from, a landscape feature are also important potential impacts. This stage is divided into two categories: the first (A) assesses the indirect physical impacts, the second (B) the indirect (non-physical) visual impacts.

4.1.3 A – indirect, physical impacts

The principal types of indirect physical impact listed in the Guide to Good Practice are:

- (i) An increased risk of exposure, erosion, disturbance, decay, dereliction or any other detrimental physical change to elements, during or consequent to development.
- (ii) Related to (i), the likelihood of increased management needs to maintain elements as, for example, through altered habitats, water levels, increased erosion, new access provision etc., during or consequent to development.
- (iii) The severance, fragmentation, dislocation or alteration of the functional connections between related elements, for example, a field system becomes 'severed' from its parent farmstead by an intervening development.
- (iv) The frustration or cessation of historic land use practices, for example, it becomes more difficult or impossible to manage an area in a traditional manner as a result of development.
- (v) The frustration of access leading to decreased opportunities for education, understanding or enjoying the amenity of elements, during or consequent to development.

4.1.4 B – indirect (non-physical) visual impacts

The principal types of indirect (non-physical) visual impact listed in the Guide to Good Practice are:

- (i) Visual impacts on elements from which a development can be seen (considered up to its maximum height). The impact might be on 'views to' or 'views from' these elements, and it should be assessed with reference to key historic viewpoints and essential settings. These should be considered in relation to a site's original character and function, as well as to the vantage points and visual experience of a visitor today.

- (ii) Impact on the visual connections between related elements, by occlusion, obstruction, etc.
- (iii) Conversely, the creation of inappropriate visual connections between elements not intended to be inter-visible originally.
- (iv) Visual impact of the development itself in relation to the existing historic character of the area considering:
 - its form — the scale, number, density, massing, distribution etc.
 - its appearance — the size, shape, colour, fabric etc. of its constituent features

4.1.5 There are twelve HLCAs within this central section of the Registered Landscape (Figure 1). These cover a wide area, but as far as can be ascertained from the information available, the proposed development will impact in either a physical or non-physical (visual) way on only five Character Areas at most; these are described below.

4.2 Impact Assessment

HISTORIC CHARACTER AREA 006 REDWICK/MAGOR/UNDY

4.2.1 This area is described in 3.2.2 to 3.2.4 above.

4.2.2 Approximately 87.7 hectares of the proposed development lies within the bounds of this HLCA. Direct impacts on this HLCA are discussed in Stage 2. The following indirect physical impacts are laid out in relation to the references given in 4.1.3 above:

- A (i):* As mitigation measures will be put in place to ensure that existing field drainage systems within the development site will not be affected by the development, either during construction or operation phases, and that they will be maintained, there is not considered to be an increased risk of detrimental physical damage to these characteristic elements outside the development area. Similarly, although agricultural practices will be more limited within the development area, the site will still be available for pastoral agriculture and the agricultural use of the HLCA will not be affected.
- A (ii):* With the potential change in agricultural regime within the development area there may be a change in need for maintenance of drainage features, but this should not lead to increased management needs to retain the existing character elements throughout the HLCA.
- A (iii):* The change in agricultural regime could be seen as a fragmentation of the field system, however, as the enclosure layout is maintained, along with drainage and boundary elements, and pastoral agriculture is still possible, then the magnitude of this impact is reduced.
- A (iv):* As stated, although the development area will still be available for pastoral agriculture, and associated boundaries and drainage features retained, for the duration of the development life some aspects of its current and traditional agricultural function will be lost.

A (v): The proposed development will not prevent access to the rest of the HLCA.

Table 7. Assessment of Indirect, Physical Impacts on Historic Character Area 006 Redwick /Magor/Undy

Impacts	Category & Score	Magnitude & Score
A (iii) Potential fragmentation of coherent agricultural field system	B – 3	Slight – 2
A (iv) Cessation of some historic land use practices	C – 2	Slight – 2
Average Score $(3+2) + (2+2) / 2 = 4.5$		

4.2.3 The following indirect non-physical (visual) impacts are laid in relation to the references given in 4.1.4 above:

B (i): The HLCA is not defined by any specific viewpoint, indeed the flat low-lying nature of the landscape makes any long-ranging viewpoints difficult, with vegetation and built obstructions quickly restricting any low-level views. The HLCA is probably best appreciated as one passes through it, therefore some of the most significant viewpoints within this area are from the roads through the area (North Row, Green Street, South Row, Pill Street, Whitewall and The Causeway), public footpaths feeding Redwick village and publicly accessible tracks along reens, including Longlands Lane. More static viewpoints include the scattered farmsteads and the sea wall that defines the southern edge of the area. The main sites of archaeological interest are generally focused on these routeways through the area, including one Grade II listed building at Brick House Farm on North Row. The HLCA occupies relatively level, low-lying ground, therefore views are particularly susceptible to being obscured by vegetation and built obstructions, and this would appear to be the case for the majority of these viewpoints.

Due to nature of views across this landscape, viewpoints that take in elements of the development are limited. The clearest view is probably from the publicly accessible Longlands Lane, which continues to run alongside the western edge of the development area to the north of this HLCA. Despite proximity, views are still intermittent through boundary vegetation. Partial intermittent views may also be possible along North Row and Green Street when vegetation levels are low, although development is set back from these routes, and the intermittent nature and surrounding boundary vegetation should serve to reduce the visual impact of the development. The Grade II listed Brick House lies along North Row. More prominent vegetation around Brick House, and along Longlands Lane, restricts any ground level view, but from the rear elevation of the building views are likely to incorporate some elements of the development, potentially set against a backdrop of industrial buildings along the A4810 but again this route in particular is heavily vegetated. There are distant partial views from Whitewall Road, again interrupted by ground level boundary vegetation. Vegetation and buildings build up to prevent any views for any other significant viewpoint within this area.

B (ii): The site area forms part of an extensive area of farmland. The physical fragmentation of this landscape is discussed in A(iii), but the visual fragmentation is perhaps more significant as the physical aspects of the landscape are unlikely to change significantly, but the visual imposition of solar panels on an agricultural landscape such as this is more prominent, obstructing a continued view of a reclaimed agricultural landscape. This however is reduced somewhat by the lack of prominent viewpoints as illustrated in point B (i) above.

B (iii): The development does not open up new views.

B (iv): The visual appearance of the proposed development will be different from the stated existing historic character, which is at present an agricultural fieldscape, The appearance will be dominated by PV panels, rather than managed agricultural crops or pasture, and will extend across approximately 55 hectares, which although only a small percentage of the area as a whole, is nevertheless a significant area visually. Although field patterns will be maintained, visually it will still appear markedly different.

Table 8. Assessment of Indirect (Non-Physical) Visual Impacts on Historic Character Area 006 Redwick/Magor/Undy

Impacts	Category & Score	Magnitude & Score
B (i) Visual impact on HLCA elements	C - 2	Slight – 2
B (ii) Visual fragmentation of landscape coherence	B - 3	Slight – 2
B (iv) Visual impact of development itself	A - 4	Moderate – 3
Average Score $(2+2) + (3+2) + (4+3) / 3 = 5.3$		

Indirect, physical impacts + indirect, non-physical (visual impact): $4.5 + 5.3 = 9.8$

To create number on a 28-point scale - $(9.8 \times 28) / 20 = 14$ (rounded off)

Table 9. Overall Magnitude of Indirect Impacts on Historic Character Area 006 Redwick /Magor/Undy

Score	Grading
14	Considerable

HISTORIC CHARACTER AREA 008 NORTHERN REDWICK

- 4.2.4 This area is described in 3.2.12 to 3.2.14 above.
- 4.2.5 The proposed development lies partly within this HLCA. Direct impacts on this HLCA are discussed in Stage 2. The following indirect physical impacts are in fact the same as for the previous HLCA, see 4.2.2.

Table 10. Assessment of Indirect, Physical Impacts on Historic Character Area 008 Northern Redwick

Impacts	Category & Score	Magnitude & Score
A (iii) Potential fragmentation of coherent agricultural field system	B – 3	Slight – 2
A (iv) Cessation of some historic land use practices	C – 2	Slight – 2
Average Score $(3+2) + (2+2) / 2 = 4.5$		

- 4.2.6 The following indirect non-physical (visual) impacts are laid out in relation to the references given in 4.1.4 above:

B (i): The issues with specific viewpoints are discussed for the previous HLCA, within this area the most significant viewpoints are likely from the system of regular routeways through the landscape, which includes the north – south routes of North Row, Longlands Lane, and the track alongside Elver Pill Reen to the west, and the east – west route along Rush Wall Reen. Views from Grangefield farm and the adjacent Scheduled Medieval moated site (MM205) are also significant viewpoints. Views from the A4810 to the north are slightly elevated and offer some potentially more wide-ranging views across this HLCA. Magor is the major local settlement with a number of important archaeological assets, it lies outside the HLCA but only 1km to the northwest and therefore views from this area would be significant.

Views of the development site from these viewpoints are however quite limited. The clearest viewpoints are offered by the publicly accessible Longlands Lane, which runs along the western boundary of the development. Views from this particular route however are more extensive westward, where the landscape is generally better preserved. The track edge is heavily vegetated along the eastern side, and is intermittent and not particularly extensive when viewed eastward. However, due to the proximity it is very likely that elements of the development will be visible. There are intermittent views from North Row that extend across the enclosed farmland, but boundary vegetation is a significant factor in preventing long distance views across the landscape. The proposed development may be partial visible, during reduced periods of vegetation. Similarly, potential views may be possible from the A4810, as this route is slightly elevated, but the roadside is generally well vegetated, and no pedestrian footway exists, so views will be fleeting and intermittent. Views from Grangefield and MM205 are blocked by vegetation. Views from the northeast (Magor) are blocked by particularly dense vegetation within an intervening nature reserve.

B (ii): The site area forms part of an extensive area of farmland. The physical fragmentation of this landscape is discussed in A (iii), but the visual fragmentation is perhaps more significant as the physical aspects of the landscape are unlikely to change significantly, but the visual imposition of solar panels on an agricultural landscape such as this is more prominent, obstructing a continued view of a reclaimed agricultural landscape. This however is reduced somewhat by the lack of prominent viewpoints as illustrated in point B (i) above, and also by this area containing more recently amalgamated fields, and therefore poorer preservation.

B (iii): The development does not open up new views.

B (iv): The visual appearance of the proposed development will be different from the stated existing historic character, which is at present an agricultural fieldscape. The appearance will be dominated by PV panels, rather than managed agricultural crops or pasture, and will extend across approximately 17 fields, which although only a small percentage of the area as a whole, is nevertheless a significant area visually. Although field patterns will be maintained, visually it will appear markedly different.

Table 11. Assessment of Indirect (Non-Physical) Visual Impacts on Historic Character Area 008 Northern Redwick

Impacts	Category & Score	Magnitude & Score
B (i) Visual impact on HLCA elements	C – 2	Slight – 2
B (ii) Visual fragmentation of landscape coherence	B – 3	Slight – 2
B (iv) Visual impact of development itself	A - 4	Moderate – 3
Average Score $(2+2) + (3+2) + (4+3) / 3 = 5.3$		

Indirect, physical impacts + indirect, non-physical (visual impact): $4.5 + 5.3 = 9.8$

To create number on a 28-point scale - $(9.8 \times 28) / 20 = 14$ (rounded off)

Table 12. Overall Magnitude of Indirect Impacts on Historic Character Area 008 Northern Redwick

Score	Grading
14	Considerable

HISTORIC CHARACTER AREA 010 MAGOR LOWER GRANGE

- 4.2.7 This is an area of reclaimed farmland similar to both HLCA 006 and HLCA 008, but with specific historic connections. The enclosure pattern is one of large rectilinear fields, enclosed by three major reens, Whitewall to the east, Pill Street to the south and Blackwall to the west. Roads runs along these reens to the east and south, and a track to the west, with wide strips of roadside waste. Ribbon settlement has development within the roadside waste along Whitewall to the east, the only farmstead being that of Lower Grange Farm to the south.

This area has an important monastic association, the current landscape developing from the mid-13th century when the monks of Tintern were given permission to enclose and drain it. The area is described as very rare due to its documented origins, and remains very coherent with a high group value and integrity, well defined boundaries and retains much of its original character. Extensive views of the uplands, as a contrast to the flat Levels, is particularly noted.

- 4.2.8 The HLCA borders the development area, but there will be no indirect physical impact on this Character Area by this proposed development.
- 4.2.9 The following indirect non-physical (visual) impacts are laid out in relation to the references given in 4.1.4 above:

B (i): The prominent reens that surround three sides of this landscape are all publicly accessible, and provide prominent historic viewpoints across the landscape. Views from these points of this landscape will be unaffected by the proposed development. Views from the east along Whitewall take in the flat landscape, but the development area is likely to be largely hidden from view by boundary vegetation and not of sufficient height to detract from the flat nature of the view. Views from Pill Street to the south will take in some intermittent views of the development area but are largely focused on views northward across the landscape with the uplands in the background. Views along the Black Wall reen are immediately adjacent to the site and will therefore take in some of the clearest views from this landscape of the development area. The farmstead of Lower Grange provides a focal point of potential archaeological activity. Views from this point northwest may take in some elements of the proposed development, however modern agricultural buildings line the west side of the farmstead, and tall natural vegetation is also prominent at the site, and along the development boundary, restricting such views.

B (ii): There will be some impact, particular along Black Pill, of visual connections across the landscape. Although separate HLCAs, there is clearly a visual connection with enclosed agricultural land across the flat landscape of the Levels of all the above HLCAs. This link will be interrupted by the presence of the proposed development, although it does not remove the area from any agricultural activity, nor does it disrupt the layout of the landscape with the retention of all boundaries.

B (iii): The development does not open up new views or visual links.

B (iv): The visual appearance of the proposed development will not affect this specific HLCA.

Table 13. Assessment of Indirect (Non-Physical) Visual Impacts on Historic Character Area 010 Magor Lower Grange

Impacts	Category & Score	Magnitude & Score
B (i) Visual impact on HLCA elements	C - 2	Slight – 2
B (ii) Visual fragmentation of landscape continuity in adjacent HLCAs	C - 2	Slight – 2
Average Score $(2+2) + (2+2) / 2 = 4$		

To create number on a 28-point scale - $(4 \times 28) / 20 = 6$ (rounded off)

Table 14. Overall Magnitude of Indirect Impacts on Historic Character Area 010 Magor Lower Grange

Score	Grading
6	Slight

HISTORIC CHARACTER AREA 009 GREEN MOOR

4.2.10 Similar to the aforementioned areas this too is an area of reclaimed farmland, but with a later enclosure pattern, notable archaeological sites and modern development. It has a strong wetland feel, with a regular field pattern, straight roads on a grid layout and typical drainage features of reens, ditches, grips and bridges. Settlement has encroached along the northern edge, including the village of Llandevenny. The condition of the landscape is mixed. Most boundaries survive, and some fields retain surface ridging and fragmentary hedges, and original fen-edge is retained along the northern edge. The area to the south of Magor is now a nature reserve, with traditional management methods used to preserve meadow and 'fen carr' vegetation. Ash dumps from a former steelworks lie to the southwest, and the recent Gwent Europark has expanded across the centre of the area, with a modern road layout superimposed upon it.

During the construction of the Europark a nearly complete Roman boat was discovered beside a stone and timber quay. The framework for the enclosures in this area date to at least the mid-16th century, although the field enclosures themselves are later, prior to this much of the area was used as common. The northern edge of the area was enclosed first, possibly in the 17th or 18th century, much of the remaining enclosure pattern dating to in the mid-19th century.

The area is noted as a rare survival of a once common type of back-fen enclosed landscape, with areas to the north and east of the Europark particularly noted as having high integrity and coherence. Fine views of the adjacent uplands are also a feature, although the Europark does overshadow some areas.

4.2.11 The HLCA borders the northern edge of the development area, but there will be no indirect physical impact on this Character Area by this proposed development.

4.2.12 The following indirect non-physical (visual) impacts are laid in relation to the references given in 4.1.4 above:

B (i): There are limited viewpoints from this HLCA that also take in the proposed development area. Views from the northern part of the area are obscured by the Europark and the A4810. There are some views from the A4810, but these will be both intermittent and fleeting, particularly as there is no walkway associated with the road. Views from the west are limited by the build-up of boundary vegetation over distance. Views from the northeast are similarly obscured by greater vegetation within the nature reserve, with more open southward views largely missing the development area. The prominent reens that define both the southern edge of this HLCA and the northern edge of the development area are publically accessible, and do offer clearer views due to their proximity. From these specific viewpoints the proposed development will serve to provide a visual break to the expanse of enclosed farmland which surround this HLCA to the south.

B (ii): There will be some impact, particular along Rush Wall and Ynys Wall reens, of visual connections across the landscape. Although separate HLCAs, there is clearly a visual connection with enclosed agricultural land across the flat

landscape of the Levels of all the above HLCAs. This link will be interrupted by the presence of the proposed development, leading to potential perceived fragmentation of the landscape, although affected viewpoints are limited, it does not remove the area from potential agricultural activity, nor does it disrupt the layout of the landscape with the retention of all boundaries.

B (iii): There is the potential that when viewed from the Rush Wall ree the proposed development could add to a sense of modern development across the Levels with the Europark development lying a short distance to the north. However, views towards the Europark are greatly obscured by the raised route of the A4810 and its surrounding vegetation, so such impacts are likely to be a minimal addition to the impact of the Europark itself.

B (iv): The visual appearance of the proposed development will not affect this specific HLCA.

Table 15. Assessment of Indirect (Non-Physical) Visual Impacts on Historic Character Area 009 Green Moor

Impacts	Category & Score	Magnitude & Score
B (i) Visual impact on HLCA elements	C - 2	Very Slight – 1
B (ii) Visual fragmentation of landscape continuity in adjacent HLCAs	C - 2	Very Slight – 1
B (iii) Increased sense of modern development	C - 2	Very Slight – 1
Average Score $(2+1) + (2+1) + (2+1) / 3 = 3$		

To create number on a 28-point scale - $(3 \times 28) / 20 = 4$ (rounded off)

Table 16. Overall Magnitude of Indirect Impacts on Historic Character Area 009 Green Moor

Score	Grading
4	Very Slight

HISTORIC CHARACTER AREA 005 REDWICK VILLAGE

4.2.13 This area is drawn around the nucleated village of Redwick, centred on a medieval church and cross-roads, and containing a number of traditional post-medieval buildings, modern dwellings, working farms and orchards, roadside commons, traditional orchards and typical drainage features. It forms the largest nucleated village on the Levels.

The village likely originated in the late 11th/12th century. The church of St Thomas, Grade I listed, may originate in the 12th century, but with 14th and 15th century elements noted, restored in 1875. A number of late medieval and post-medieval surveys document the village, and traditional buildings are evident in good conditions, and earthworks of abandoned buildings to the south of the village.

Its well preserved medieval layout and church are noted characteristics, and its traditional buildings. The buildings are diverse, with many traditional buildings in good condition, and along with landscape features including orchards it has a high coherence and group value, and retains a high degree of integrity as a working agricultural village.

4.2.14 The HLCA lies over 150m from the edge of the development area, and there will be no indirect physical impact on this Character Area by this proposed development.

4.2.15 The following indirect non-physical (visual) impacts are laid in relation to the references given in 4.1.4 above:

B (i): Prominent viewpoints within the village include the Grade I listed Church. The church tower provides a high point in the local area, the church itself on slightly raised ground, however there are no extensive views from the churchyard, and the tower is generally inaccessible. Other general views from the triangle of roads that surround the village core (Bryn Road, Church Row and South Row) are also limited by surrounding vegetation and built environment, particularly in the direction of the development area. Even from the northeast tip of the HLCA views towards the proposed development area are limited by particularly dense vegetation around Redwick House. Views of the HLCA are also largely limited to the road approaches and along the sea wall to the south, from which the proposed development does not feature as a prominent visual element.

B (ii): The situation of the village within a landscape of flat reclaimed farmland is a distinguishing feature of its character. There is the potential for the proposed development to detract from this visual link, but as argued above this visual impact is limited.

B (iii): The development does not open up new views or links.

B (iv): The visual appearance of the proposed development will not affect this specific HLCA.

Table 17. Assessment of Indirect (Non-Physical) Visual Impacts on Historic Character Area 005 Redwick Village

Impacts	Category & Score	Magnitude & Score
B (i) Visual impact on HLCA elements	C - 2	Very Slight – 1
B (ii) Visual fragmentation of surrounding landscape	C - 2	Very Slight – 1
Average Score $(2+1) + (2+1) / 2 = 3$		

To create number on a 28-point scale - $(3 \times 28) / 20 = 4$ (rounded off)

Table 18. Overall magnitude of indirect impacts on historic character area 005 redwick village

Score	Grading
4	Very Slight

5 ASIDOHL Stage 4 - Evaluation of relative importance

5.1 Introduction

5.1.1 The following section comprises an evaluation of the relative importance of the Historic Character Area(s) (or part(s) thereof) directly and/or indirectly affected by development in relation to:

(a) the whole of the Historic Character Area(s) concerned, and/or

(b) the whole of the historic landscape area on the Register, followed by

(c) an evaluation of the relative importance of the Historic Character Area(s) concerned in the national context, and a determination of the average overall value of all the Historic Character Areas (or parts thereof) affected.

5.1.2 The section (Stage 4) will be completed with a determination of the average, overall value of all the Historic Character Areas (or part(s) thereof) affected.

5.1.3 The evaluation criteria used is that suggested within the *Good Practice on Using the Register of Landscapes of Historic Interest in Wales in the Planning and Development Process* (Cadw and CCW 2007).

5.2 Evaluation of the relative importance of the part of Historic Landscape Character Areas directly and/or indirectly affected by development.

5.2.1 **HLCA 006 Redwick/Magor/Undy:** The affected part of the HLCA is a common feature throughout the area, therefore rarity is low, but the area still remains a generally representative part of the main HLCA characteristics and has a good group value and remains coherent, however as any remaining ridge and furrow has clearly been denuded in this area the survival, condition and integrity is slightly lower. There is little documentary evidence for these specific fields, and although likely to have a long history of enclosure there are no specific associations with this area. The potential for future analysis of this area of historic landscape is moderate largely because of the potential for well-preserved archaeological and paleoenvironmental remains in anaerobic conditions. As private farmland potential to develop it as a public amenity is very low.

Table 19. Evaluation of the relative importance of the part of HLCA 006 Redwick/Magor/Undy directly and/or indirectly affected by development.

Value	V-High / V-Good	High/ Good	Mod/ Med	Low	V-Low/ Poor	V-High/ V-Good	High/ Good	Mod/ Med	Low	V-Low/ Poor
In relation to:	a) Whole of Historic Character Area					b) Whole of Historic Landscape Area on the Register				
Criterion:										
Rarity				✓					✓	
Representativeness		✓					✓			
Documentation				✓						✓
Group Value		✓						✓		
Survival			✓					✓		
Condition			✓					✓		
Coherence		✓					✓			
Integrity			✓					✓		
Potential			✓					✓		
Amenity					✓					✓
Associations					✓					✓

Calculations for the relative importance of the HLCA for:

Step A: (3 x High @ 4) + (4 x Moderate @ 3) + (2 x Low @ 2) + (2 x V Low @ 1) = 30

Step B: (2 x High @ 4) + (5 x Moderate @ 3) + (1 x Low @ 2) + (3 x V Low @ 1) = 28

5.2.2 **HLCA 008 – Northern Redwick:** The affected elements of this HLCA are very similar to the previous HLCA. A slight distinction however is that generally this area of the HLCA is considered one of the less well-preserved areas, with intensive farming leading to more recent adjustments of field boundaries and size of enclosures, therefore survival, condition, coherence and integrity are all affected.

Table 20. Evaluation of the relative importance of the part of HLCA 008 Northern Redwick directly and/or indirectly affected by development.

Value	V High/ V Good	High/ Good	Mod/ Med	Low	V Low/ Poor	V High/ V Good	High/ Good	Mod/ Med	Low	V Low/ Poor
In relation to:	a) Whole of Historic Character Area					b) Whole of Historic Landscape Area on the Register				
Criterion:										
Rarity				✓					✓	
Representativeness			✓					✓		
Documentation				✓					✓	
Group Value		✓						✓		
Survival				✓					✓	
Condition			✓						✓	
Coherence			✓					✓		
Integrity				✓				✓		
Potential			✓					✓		
Amenity					✓					✓
Associations				✓						✓

Calculations for the relative importance of the HLCA for:

Step A: (1x High @ 4) + (4 x Moderate @ 3) + (5 x Low @ 2) + (1 x V Low @ 1) = 27

Step B: (5 x Moderate @ 3) + (4 x Low @ 2) + (2 x V Low @ 1) = 25

5.2.3 **HLCA 010 – Magor Lower Grange:** The affected elements within this HLCA are very limited and confined largely to visual impacts from the Black Wall reen, but given the small area of this HLCA the impact on a just one element gains more significance. Reens are a relatively common and representative element of this HLCA, and this area is relatively rare in having documentary evidence of its enclosure, and creation of reens, during the medieval period. As a single feature group value is low, but survival and coherence are high, and condition and integrity are also relatively good. The potential in one particular reen is perhaps limited, but it is publicly accessible therefore has some amenity. The historical associations with the monks of Tintern Abbey is also important.

Table 21. Evaluation of the relative importance of the part of HLCA 010 Magor Lower Grange directly and/or indirectly affected by development.

Value	V High/ V Good	High/ Good	Mod/ Med	Low	V Low/ Poor	V High/ V Good	High/ Good	Mod/ Med	Low	V Low/ Poor
In relation to:	a) Whole of Historic Character Area					b) Whole of Historic Landscape Area on the Register				
Criterion:										
Rarity				✓						✓
Representativeness		✓					✓			
Documentation		✓					✓			
Group Value				✓					✓	
Survival		✓					✓			
Condition			✓					✓		
Coherence		✓					✓			
Integrity			✓					✓		
Potential				✓					✓	
Amenity			✓						✓	
Associations			✓					✓		

Calculations for the relative importance of the HLCA for:

Step A: (4 x High @ 4) + (4 x Moderate @ 3) + (3 x Low @ 2) = 34

Step B: (4 x High @ 4) + (3 x Moderate @ 3) + (3 x Low @ 2) + (1 x V Low @ 1) = 32

5.2.4 **HLCA 009 – Green Moor:** As with the previous HLCA the affected elements within this area are very limited, confined largely to views from adjacent reens, and more limited views from modern viewpoints to the north. The reens are common features of the area, reasonable well represented, but the limited number of affected features means group value is low. The reens themselves are relatively well-preserved and coherent part of the landscape. The potential is somewhat limited when considering the landscape as a whole, but they are publically accessible which offers some amenity. There are no clear associations with these particular reens.

Table 22. Evaluation of the relative importance of the part of HLCA 009 Green Moor directly and/or indirectly affected by development.

Value	V High/ V Good	High/ Good	Mod/ Med	Low	V Low/ Poor	V High/ V Good	High/ Good	Mod/ Med	Low	V Low/ Poor
In relation to:	(a) Whole of Historic Character Area					(b) Whole of Historic Landscape Area on the Register				
Criterion:										
Rarity				✓					✓	
Representativeness		✓					✓			
Documentation					✓					✓
Group Value				✓					✓	
Survival			✓					✓		
Condition			✓					✓		
Coherence			✓					✓		
Integrity			✓					✓		
Potential				✓						✓
Amenity			✓						✓	
Associations					✓					✓

Calculations for the relative importance of the HLCA for:

Step A: (1 x High @ 4) + (5 x Moderate @ 3) + (3 x Low @ 2) + (2 x V Low @ 1) = 27

Step B: (1 x High @ 4) + (4 x Moderate @ 3) + (3 x Low @ 2) + (3 x V Low @ 1) = 25

5.2.5 **HLCA 005 – Redwick Village:** As the indirect impact upon this HLCA is so minimal, it is not considered worthwhile further assessing the relative importance of affected elements associated with this HLCA.

5.3 Evaluation of the relative importance in the national context, of the Historic Character Areas directly and/or indirectly affected by the proposed development (Step C)

5.3.1 Several coastal areas are included in the Register of Landscape of Outstanding and Special Historic Interest, particularly along the South Wales coastline, including areas such as Merthyr Mawr & Kenfig, Gower and Laugharne & Pendine Marshes. The Gwent Levels are however the most extensive, with the greatest time-depth, and have produced some important archaeological and paleoenvironmental remains within its waterlogged deposits, as well as having early documentary references to its enclosure.

5.3.2 The overall value of the HLCAs in the national context is calculated using the same criterion as laid out in Table 19 to 22, but applied nationally. The scores are summarised below:

- HLCA 006 – Redwick/Magor/Undy = 26
- HLCA 008 – Northern Redwick = 25
- HLCA 010 – Magor Lower Grange = 30
- HLCA 009 – Green Moor = 27

5.3.3 In order to determine an average overall value for the HLCA on a scale of 1 – 100 the results of each individual step was divided by 55, then multiplied by 100. This was then divided by 3 (the number of steps) and the average overall value is then rounded off and is presented in the table below:

Table 23. Average, overall value of all the Historic Character Areas (or part(s) thereof) affected

HLCA	Calculations	Grading
HLCA 006 – Redwick/Magor/Undy	$(54.5+50.9+47.3)/3$	51 – Considerable
HLCA 008 – Northern Redwick	$(49.1+45.5+45.5)/3$	47 - Considerable
HLCA 010 – Magor Lower Grange	$(61.8+58.2+54.5)/3$	58 - Considerable
HLCA 009 – Green Moor	$(49.1+45.5+49.1)/3$	48 - Considerable

5.3.4 The average overall figure for all areas combined would be 51 - Considerable

6 ASIDOHL Stage 5 - Assessment of overall significance of impact

6.1 Introduction

6.1.1 This section comprises an assessment of the overall significance of impact of development, and the effects that altering the Historic Character Area(s) concerned has on the whole of the historic landscape area on the Register. This combines the results of previous stages of the ASIDOHL, with the reasoning behind those results laid out in the relevant sections. Although scoring is used extensively in the previous sections, this does not convert directly into the following table, rather the previous scorings are used to help inform a professional judgement on the value of and impact upon the historic landscape.

Table 24. Summary of the overall significance of the impact of development on Gwent Levels Landscape of Outstanding Historic Interest (HLW (Gt) 2)

HLCA	Value of Historic Character Area (based on Stage 4 results)	Impact of Development (based on Stages 2 & 3 results)	Reduction of Value of the Historic Landscape Area on Register	Overall Significance of Impact
HLCA 006 –Redwick/Magor/Undy	Medium - 5	Medium – 5	Low - 2	5+5+2=12 Moderate
HLCA 008 – Northern Redwick	Medium - 4	Medium – 5	Low - 2	4+5+2=11 Moderate
HLCA 010 – Magor Lower Grange	Medium - 6	Low - 2	Very Low – 1	6+2+1=9 Slight
HLCA 009 – Green Moor	Medium - 5	Very Low - 1	Very Low – 1	5+1+1=7 Slight

7 Conclusion

- 7.1.1 An Assessment of the Significance of Impact of Development on the Historic Landscape (ASIDOHL2) has been undertaken on a proposed development of Rush Wall Park Solar Farm, Longlands, Redwick. The proposed development comprises plans for a solar farm development, covering an area of approximately 121.7 hectares. The proposed development lies within the Gwent Levels Landscape of Outstanding Historic Interest (HLW (Gt) 2). This Landscape is further subdivided into individual Historic Landscape Character Areas (HLCAs).
- 7.1.2 The ASIDOHL is laid out in five stages. Stage 1, the introduction, identified the contextual information regarding the site. Details of the proposed development are provided here, as well as the planning policy context. The final design of the development has yet to be decided, although outline layout plans and construction details, including form and appearance, have been provided. Previous assessments of the site include a Desk Based Assessment undertaken by Archaeology Wales Ltd (Nikolic & Barrett 2018).
- 7.1.3 Stage 2 assessed the direct, physical impact of the proposed development, assessed in absolute, relative terms and landscape terms. This was considered in terms of its impact on both HLCA 006 Redwick/Magor/Undy and HLCA 008 Northern Redwick. The development area is split between these two HLCAs. The overall magnitude of the direct physical impact on both HLCAs is considered to be Moderate.
- 7.1.4 Stage 3 assessed the indirect impacts of the proposed development, in terms of indirect, physical impacts, and indirect (non-physical) visual impacts. These indirect impacts affect a wider area and several surrounding HLCAs were considered. Due to views to and from the site the development could have a potential visual impact on five HLCAs, these included both HLCA 006 Redwick/Magor/Undy and HLCA 008 Northern Redwick, but also included an adjacent area to the east, HLCA 010 Magor Lower Grange, and adjacent area to the north, HLCA 009 Green Moor and a nearby area of HLCA 005 Redwick Village. The overall magnitude of indirect impact on HLCA 006 and HLCA 008 was scored as Considerable, the indirect impact on HLCA 010 was scored as Slight, the indirect impact on HLCA 009 was scored as Very Slight. The impact upon HLCA 005 was also scored as Very Slight, and was considered too minimal an impact to require any further assessment of this particular HLCA.
- 7.1.5 Stage 4 formed an evaluation of the relative importance of the HLCA, and the parts within them that were affected by the proposed development. When combined, this considered the overall value of all four HLCAs to be Considerable.
- 7.1.6 Stage 5 formed an assessment of the overall significance of the impact. The impact on both HLCA 006 Redwick/Magor/Undy and HLCA 008 Northern Redwick is considered to be Moderate. The impact on HLCA 010 Magor Lower Grange and HLCA 009 Green Moor is considered to be Slight. The impact upon HLCA 006 and HLCA 008 is greater due to the placing of the development within these areas. The impact will however largely be an indirect, visual one. Many of the characteristic features of this landscape, namely the field patterns, drainage features and boundaries, will remain intact and

unaffected. The development will however be a distinct visual change, potentially fragmenting the continuous agricultural landscape currently visible. That being said, significant viewpoints are limited, long distance views across the landscape are soon obscured by boundary vegetation. Steps have been taken to reduce visual impacts, through positioning development back from the main publicly accessible thoroughfares, creating buffer zones around ditches and reens, and retaining existing boundary vegetation.

8 Bibliography

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Figures

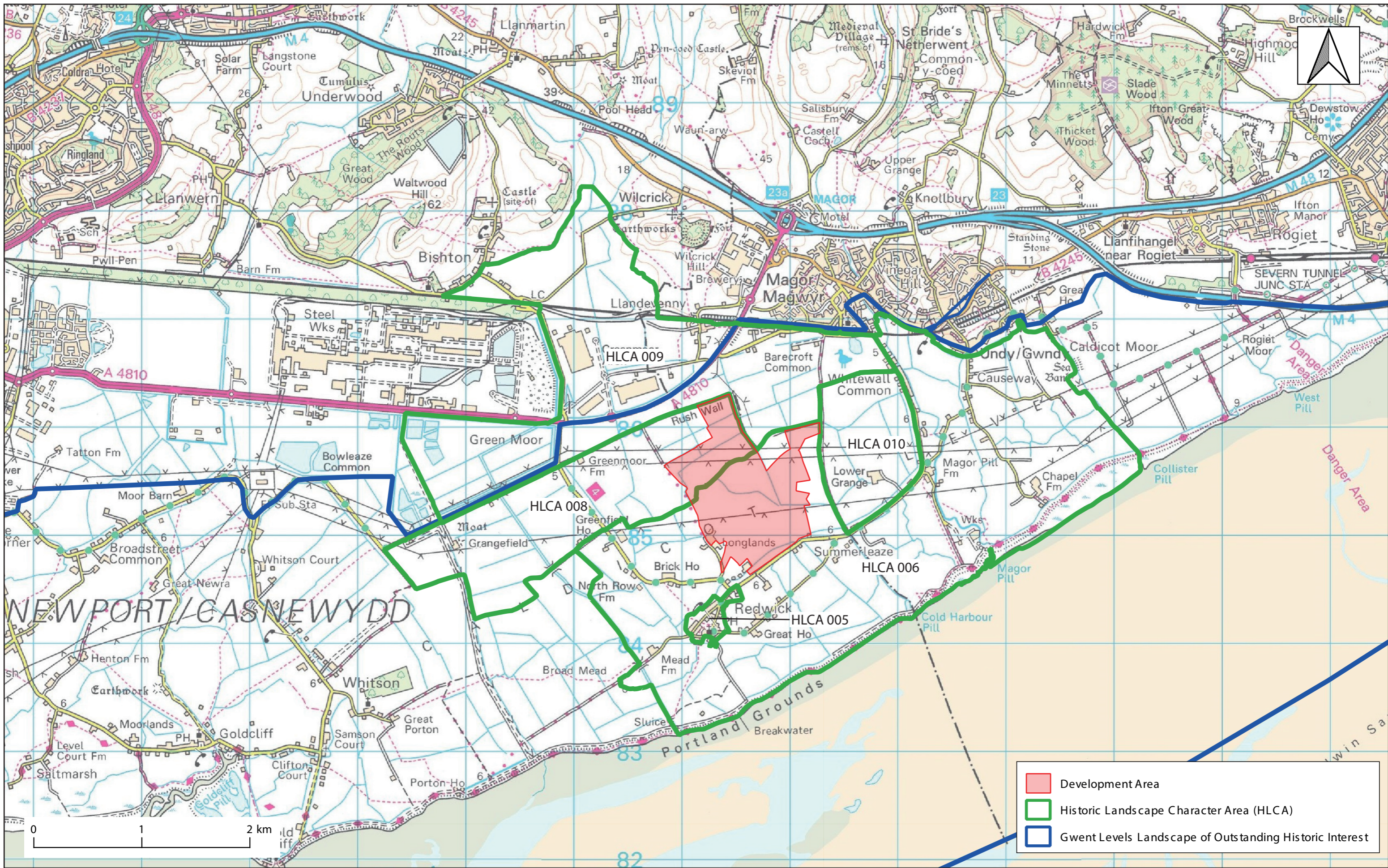
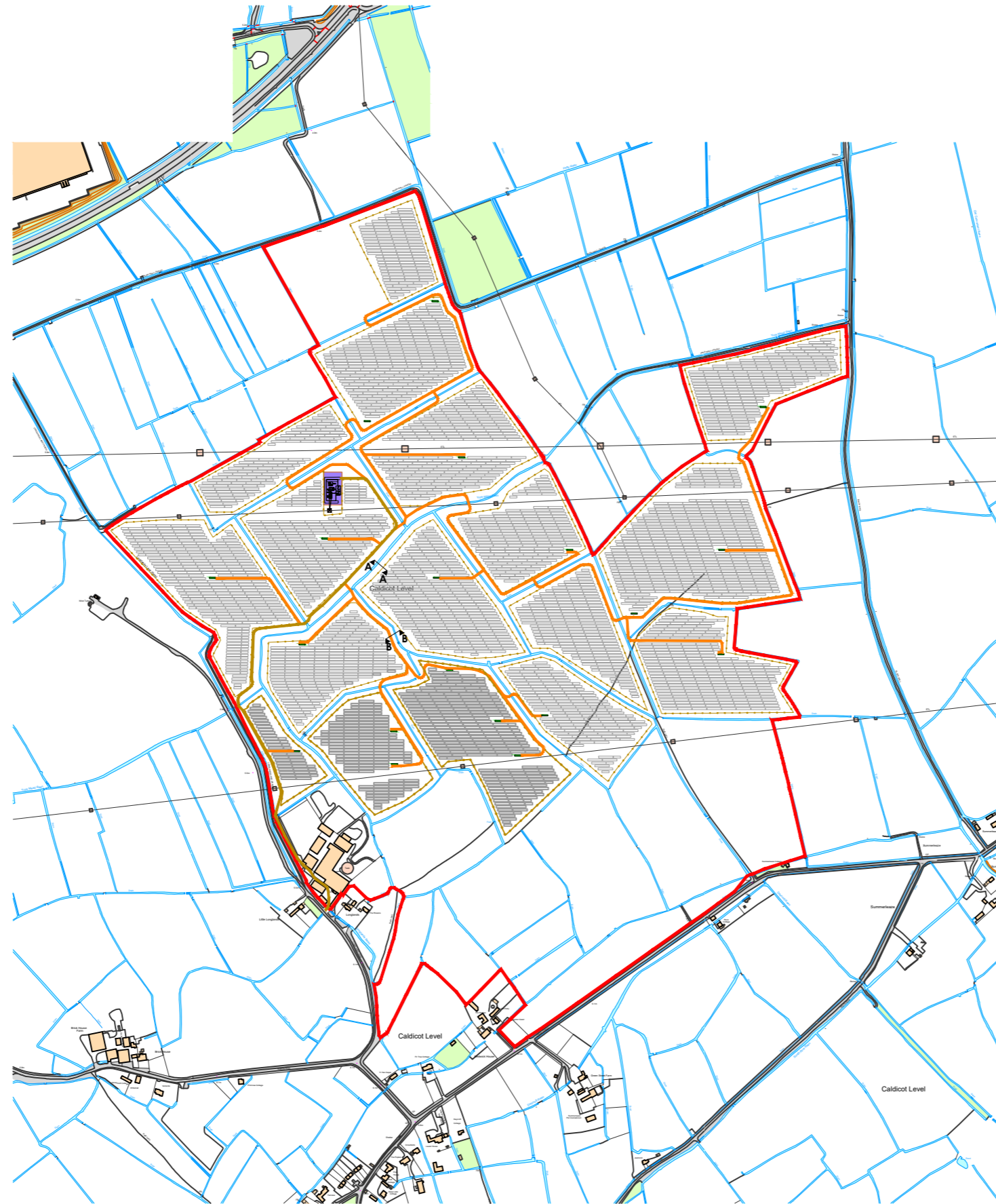


Figure 1. Location of site within the Historic Landscape with the surrounding Historic Landscape Character Areas (HLCAs)



Notes: Unless otherwise stated, this drawing is for information only. Do not scale. Use figured dimensions only. Check all dimensions on site and advise of any discrepancies before commencing work on site.

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- Key:**
- Planning Boundary
 - Security Fence
 - Substation Area
 - Inverter Stations
 - Access to Substation
 - Inverter Access
 - A A Buffer Section Views (see drawing 1578-0201-50)

- Fenced Area Acres (Approx) :163.14
- Red Line Area Acres (Approx) :300.9
- Red Line Area Hectares (Approx) :121.7

Rev:	Revision History:	Date:	By:
01	Initial Issue	30/05/19	MB
02	Added access to Substation	21/10/19	AK
03	Added access Inverters Amended Planning Boundary Updated notes	12/12/19	MB
04	Arrays amended due to Reen buffer	24/01/20	MB
05	Updated Fields	24/02/20	AK
06	Updated Route to Inverters	18/03/20	AK
07	Fence line brought away from Reens	23/04/20	MB

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Project:
 Rush Wall Farm Solar Park

Location:
 Rush Wall Farm
 Redwick, Nr Newport
 Gwent
 NP26 3DX

Title:
 Planning Layout

Issue Notes:
 Fence line brought away from Reens

BSR Energy

Drawn By: MB Issue Date: 23/04/20
 Checked By: CR Checked Date: 23/04/20
 Approved By: CR Approved Date: 23/04/20

Drawing Number:
 1578-0201-00

Drawing Status: Approved Issue: 07

Figure 2. Planning Layout forming the basis of the current assessment

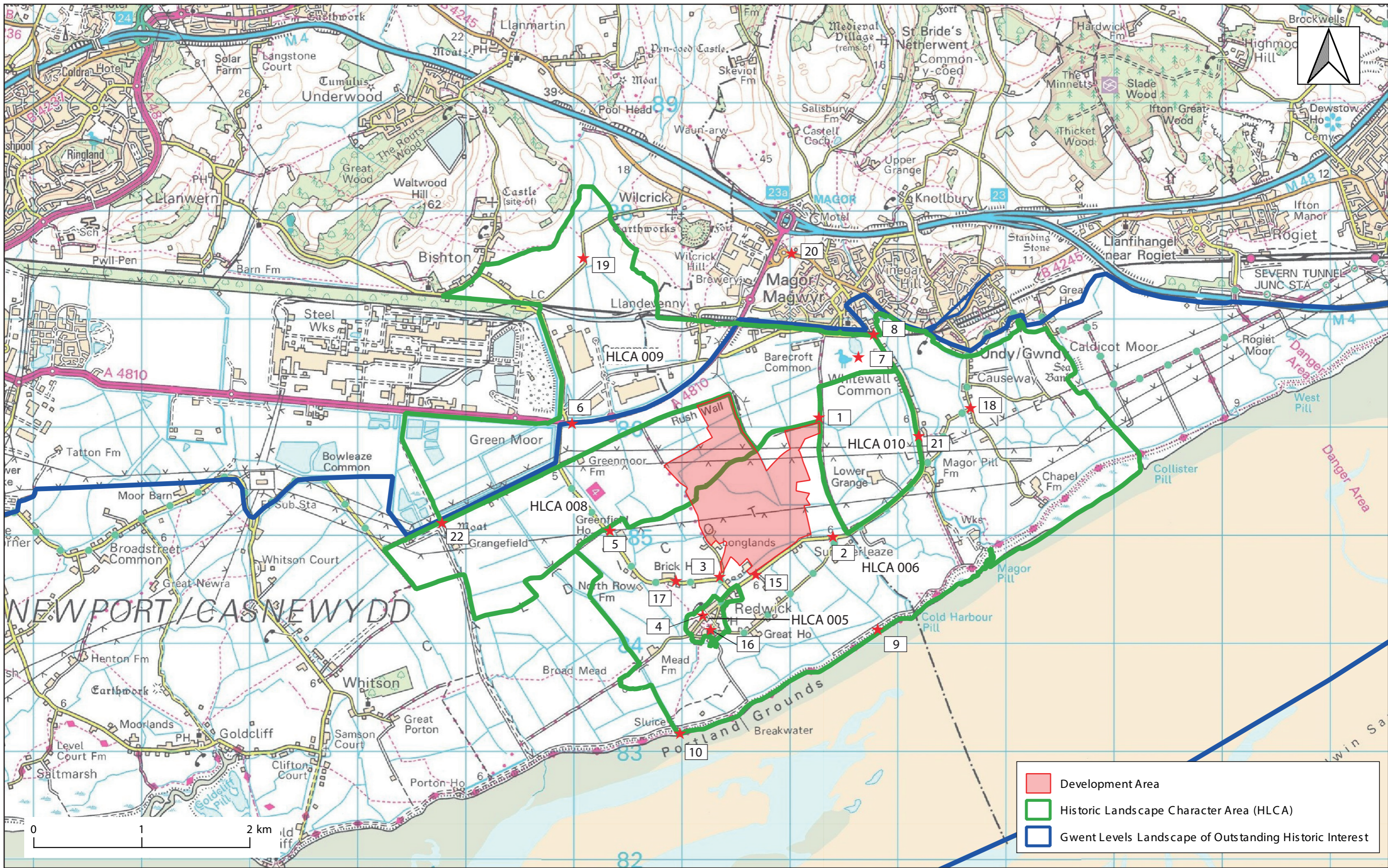


Figure 3. Location of representative viewpoints illustrated in the assessment

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Plates



Photo 1: View from viewpoint (VP) 1, along Black Wall looking WSW. Proposed development would occupy the field to the left, this part of it therefore clearly visible from this location.



Photo 2: View from VP 2, on Green Street, looking NW. The two foreground fields would be free of development, which would therefore only be partially visible beyond.



Photo 3: View from VP 3, at the start of Longlands Lane, looking N. Development would lie beyond Longlands Farm buildings visible on the horizon.



Photo 4: View from VP 4, within Redwick Village, looking N. Garden vegetation blocks any view.



Photo 5: View from VP 5, along North Row, looking ENE. The Longlands Lane wind turbine is visible, the proposed development would lie in fields beyond that point, largely hidden by hedgerows.



Photo 6: View from VP 6, the A4810, looking ESE. The proposed development lies beyond the farthest hedgerow, not visible from this location.



Photo 7: View from VP 7, within the nature reserve to the south of Magor, looking SW. Relatively open views southward, the proposed development would lie beyond the hedgerow on the horizon.



Photo 8: View from VP 8, on the edge of the railway embankment around the southern edge of Magor. Proposed development would lie beyond the hedgerow on the horizon.



Photo 9: View from VP 9, on the sea wall, looking NNW. Proposed development area obscured by hedgerow vegetation and distance.



Photo 10: View from VP 10, where Windmill Reen meets the sea wall, looking NE. Proposed development lies beyond the village of Redwick, itself largely obscured by vegetation.



Photo 11: View from VP 11, the M4 south of Rogiet, looking west. The proposed development area is not visible in the far distance.



Photo 12: View from VP 12, overlooking the village of Bishton, looking SE. The proposed development site is hidden by topography.



Photo 13: View from VP 13, the sea wall near Gold Cliff Point, looking NE. The proposed development is not visible in the far distance.



Photo 14: View from VP 15, Green Street to the south of Redwick House, looking north. The proposed development lies beyond the high hedgerow in the middle distance, and is therefore largely obscured.



Photo 15: View from VP 16, within the ground of the Church of St Thomas (Grade I listed), looking NNE. Views from the churchyard are obscured by garden and boundary vegetation.



Photo 16: View from VP 17, North Row adjacent to Brick House (Grade II listed), looking NE. Proposed development would lie beyond the buildings (Longlands Farm) on the horizon, largely obscured at ground level.



Photo 17: View from VP 18, the meeting of Chapel Reen and the Causeway, looking west. The proposed development is not visible beyond boundary vegetation.



Photo 18: View from VP 19, along Ridings Reen, looking SSE. Proposed development lies beyond the Europark Development, itself hidden by boundary vegetation.



Photo 19: View from VP 21, Whitewall, looking W. Proposed development lies several fields beyond, the area obscured by even the relatively low boundary vegetation in this area.



Photo 20: View from VP 22, entrance to Grangefield farm, looking ENE. The proposed development lies several fields beyond, obscured by boundary vegetation.

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