



Dean Moor Solar Farm

Environmental Statement: Chapter 6 – Cultural Heritage on behalf of **FVS Dean Moor Limited**

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DEAN MOOR SOLAR FARM
ENVIRONMENTAL STATEMENT
CHAPTER 6 – CULTURAL HERITAGE
PLANNING INSPECTORATE REFERENCE EN10155
PREPARED ON BEHALF OF FVS DEAN MOOR LIMITED

The Infrastructure Planning (Applications: Prescribed Forms and Procedure)
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6 Environmental Statement (ES) Chapter 6: Cultural Heritage

6.1 Introduction

6.1.1 This Chapter of the ES considers relevant heritage policy and guidance, sets out the methodologies and approaches and assessment of effects of the Proposed Development and proposed mitigation with respect to cultural heritage.

6.1.2 This Chapter is supported by the following appendices:

- Appendix 6.1: Historic Environment Desk-Based Assessment ('HEDBA') [REF: 6.3];
- Appendix 6.2: Archaeological Geophysical Survey Report [REF: 6.3];
- Appendix 6.3: Archaeological Mitigation Strategy ('AMS') [REF: 6.3]; and
- Appendix 6.4: Stakeholder Engagement [REF: 6.3].

6.1.3 This Chapter is supported by the following figures:

- Figure 6.1: Designated Heritage Receptors within 3km of the Order Limits [REF: 6.2];
- Figure 6.2: Non-Designated Heritage Receptors within 1km of the Order Limits [REF: 6.2]; and
- Figure 6.3: Zone of Theoretical Visibility [REF: 6.2].
- Figure 6.4 Stone Circle and Proposed Development
- Figure 6.5 Stone Circle with Landscape Strategy Plan

6.2 Legislation and Planning Policy Context

6.2.1 The following legislative provisions, policy, and guidance, as well as the EIA Regulations¹, provide the context for the cultural heritage assessment.

Legislation

6.2.2 The applicable legislative framework comprises:

¹ HM Government (2014, last updated 2020). Ministry for Housing, Communities and Local Government (MHCLG). Guidance Environmental Impact Assessment

- Ancient Monuments and Archaeological Areas Act ('AMAAA') 1979², which provides specific protection for monuments of national interest;
- Planning (Listed Buildings and Conservation Areas) Act 1990³, which provides specific protection for buildings and areas of special architectural or historic interest;
- Historic Buildings and Ancient Monuments Act 1953⁴, which makes provision for the compilation of a register of gardens and other land (parks and gardens, and battlefields); and
- Hedgerows Regulations 1997⁵ make provision for the protection of important hedgerows, which may be afforded statutory protection should they qualify as being 'important' for, inter alia, historical, or archaeological reasons.

National Policy

6.2.3 In the Overarching National Policy Statement ('NPS') for Energy ('EN-1')⁶ 'Section 5.9: The Historic Environment' is the section of EN-1 of most relevance to this Chapter, and the key points relevant to this assessment are as follows:

Paragraph 5.9.9 - *'The applicant should undertake an assessment of any likely significant heritage impacts of the proposed development as part of the EIA and describe these along with how the mitigation hierarchy has been applied in the ES ... This should include consideration of heritage assets above, at, and below the surface of the ground. Consideration will also need to be given to the possible impacts, including cumulative, on the wider historic environment. The assessment should include reference to any historic landscape or seascape character assessment and associated studies as a means of assessing impacts relevant to the proposed project'.*

Paragraph 5.9.10 - *'As part of the ES the applicant should provide a description of the significance of the heritage assets affected by the proposed development, including any contribution made by their setting. The level of detail should be proportionate to the importance of the heritage assets and no more than is sufficient to understand the potential impact of the proposal on their significance. As a minimum, the applicant should have consulted the relevant Historic Environment Record (or, where the development is in English or Welsh waters, Historic England or Cadw) and assessed the heritage assets themselves using expertise where necessary according to the proposed development's impact'.*

Paragraph 5.9.11 - *'Where a site on which development is proposed includes, or the available evidence suggests it has the potential to include, heritage assets with an archaeological interest, the applicant should carry out appropriate desk-based assessment and, where such desk-based research is insufficient to properly assess the interest, a field evaluation. Where proposed development will*

² Ancient Monuments and Archaeological Areas Act (AMAAA) (1979)

³ Planning (Listed Buildings and Conservation Areas) Act (1990)

⁴ Historic Buildings and Ancient Monuments Act (1953)

⁵ Hedgerows Regulations (1997)

⁶ HM Government (2024). DESNZ. Overarching National Policy Statement for Energy (EN-1)

affect the setting of a heritage asset, accurate representative visualisations may be necessary to explain the impact’.

Paragraph 5.9.12 - *‘The applicant should ensure that the extent of the impact of the proposed development on the significance of any heritage assets affected can be adequately understood from the application and supporting documents. Studies will be required on those heritage assets affected by noise, vibration, light and indirect impacts, the extent and detail of these studies will be proportionate to the significance of the heritage asset affected’.*

Paragraph 5.9.13 - *‘The applicant is encouraged, where opportunities exist, to prepare proposals which can make a positive contribution to the historic environment, and to consider how their scheme takes account of the significance of heritage assets affected. This can include, where possible:*

- *enhancing, through a range of measures such a sensitive design, the significance of heritage assets or setting affected*
- *considering measures that address those heritage assets which are at risk or which may become at risk, as a result of the scheme*
- *considering how visual or noise impacts can affect heritage assets, and whether there may be opportunities to enhance access to, or interpretation, understanding and appreciation of, the heritage assets affected by the scheme’.*

Paragraph 5.9.14 - *‘Careful consideration in preparing the scheme will be required on whether the impacts on the historic environment will be direct or indirect, temporary or permanent’.*

Paragraph 5.9.16 - *‘Applicants should look for opportunities for new development within Conservation Areas and World Heritage Sites, and within the setting of heritage assets, to enhance or better reveal their significance. Proposals that preserve those elements of the setting that make a positive contribution to the asset (or which better reveal its significance) should be treated favourably’.*⁷

6.2.4 The NPS for Renewable Energy Infrastructure (‘EN-3’)⁸ contains Section 3.10 - Solar photovoltaic generation: cultural heritage. Key paragraphs within this section include:

Paragraph 3.10.98 - *‘The impacts of solar PV developments on the historic environment will require expert assessment in most cases and may have effect both above and below ground’.*

Paragraph 3.10.99 - *‘Above ground impacts may include the effects on the setting of Listed Buildings and other designated heritage assets as well as on Historic Landscape Character’.*

Paragraph 3.10.100 - *‘Below ground impacts, although generally limited, may include direct impacts on archaeological deposits through ground disturbance associated with trenching, cabling, foundations, fencing, temporary haul routes etc’.*

⁷ ibid

⁸ HM Government (2024). DESNZ. National Policy Statement for Renewable Energy Infrastructure (EN-3)

Paragraph 3.10.101 - *‘Equally solar PV developments may have a positive effect, for example archaeological assets may be protected by a solar PV farm as the site is removed from regular ploughing and shoes or low-level piling is stipulated’.*

Paragraph 3.10.103 - *‘Applicant assessments should be informed by information from Historic Environment Records (HERs) or the local authority’.*

Paragraph 3.10.104 - *‘Where a site on which development is proposed includes, or has the potential to, include heritage assets with archaeological interest, the applicant should submit an appropriate desk-based assessment and, where necessary, a field evaluation. These should be carried out, using expertise where necessary and in consultation with the local planning authority, and should identify archaeological study areas and propose appropriate schemes of investigation, and design measures, to ensure the protection of relevant heritage assets’.*

Paragraph 3.10.105 - *‘In some instances, field studies may include investigative work (and may include trial trenching beyond the boundary of the proposed site) to assess the impacts of any ground disturbance, such as proposed cabling, substation foundations or mounting supports for solar panels on archaeological assets’.*

Paragraph 3.10.106 - *‘The extent of investigative work should be proportionate to the sensitivity of, and extent of proposed ground disturbance in, the associated study area’.*

Paragraph 3.10.107 - *‘Applicants should take account of the results of historic environment assessments in their design proposal’.*

Paragraph 3.10.108 - *‘Applicants should consider what steps can be taken to ensure heritage assets are conserved in a manner appropriate to their significance, including the impact of proposals on views important to their setting’.*

Paragraph 3.10.109 - *‘As the significance of a heritage asset derives not only from its physical presence but also from its setting, careful consideration should be given to the impact of large-scale solar farms which depending on their scale, design and prominence, may cause substantial harm to the significance of the asset’.*

Paragraph 3.10.110 - *‘Applicants may need to include visualisations to demonstrate the effects of a proposed solar farm on the setting of heritage assets’.*

Paragraph 3.10.128 - *‘The ability of the applicants to microsite specific elements of the proposed development during the construction phase should be an important consideration by the Secretary of State when assessing the risk of damage to archaeology’.*

Paragraph 3.10.129 - *‘Where requested by the applicant, the Secretary of State should consider granting consents which allow for the micrositing within a specified tolerance of elements of the permitted infrastructure so that precise locations can be amended during the construction phase if unforeseen circumstances, such as the discovery of previously unknown archaeology, arise’.*

Paragraph 3.10.151 - *‘Solar farms are generally consented on the basis that they will be time-limited in operation. The Secretary of State should therefore consider the length of time for which consent is sought when considering the impacts of any indirect effect on the historic environment, such as effects on the setting of designated heritage assets’.*

- 6.2.5 The NPS for Electricity Networks Infrastructure (EN-5)⁹ only refers to archaeology or heritage on two occasions, both with regard to the laying of below ground electricity cables:

Paragraph 2.2.10 - *‘As well as having duties under Section 9 of the Electricity Act 1989, (in relation to developing and maintaining an economical and efficient network), applicants must take into account Schedule 9 to the Electricity Act 1989, which places a duty on all transmission and distribution licence holders, in formulating proposals for new electricity networks infrastructure, to “have regard to the desirability of preserving natural beauty, of conserving flora, fauna and geological or physiographical features of special interest and of protecting sites, buildings and objects of architectural, historic or archaeological interest; and ...do what [they] reasonably can to mitigate any effect which the proposals would have on the natural beauty of the countryside or on any such flora, fauna, features, sites, buildings or objects.’*

Paragraph 2.9.25 - *‘... the potentially very disruptive effects of undergrounding on local communities, habitats, archaeological and heritage assets, marine environments, soil (including peat soils), hydrology, geology, and, for a substantial time after construction, landscape and visual amenity. (Undergrounding an overhead line will mean digging a trench along the length of the route, and so such works will often be disruptive – albeit temporarily – to the receptors listed above than would an overhead line of equivalent rating)’.*

Planning Policy and Guidance

- 6.2.6 National and Local planning policy frameworks and associated guidance can further aid the heritage assessment methodology. These include:

- National Planning Policy Framework (‘NPPF’)¹⁰;
- Planning Practice Guidance (‘PPG’): Historic Environment¹¹;
- Cumberland Council planning policy¹²;
- Carlisle Local Plan 2015 - 2030¹³ (Policy SP 7: Valuing our Heritage and Cultural Identity and Chapter 9 Historic Environment); and
- Allerdale Local Plan (Policy S24)¹⁴.

- 6.2.7 Cumberland Council became the planning authority for Carlisle and the wider district from 1 April 2023.

- 6.2.8 Sectorial guidance documents relevant to the EIA include:

⁹ HM Government (2024). DESNZ. National Policy Statement for electricity networks infrastructure (EN-5)

¹⁰ HM Government (2024). MHCLG National Planning Policy Framework (NPPF) - Section 16: Conserving and Enhancing the Historic Environment, paragraphs 189-208

¹¹ HM Government (2014, last updated 2019) MHCLG Planning Practice Guidance: Historic environment

¹² Cumberland Council (2023). Cumberland Consolidated Planning Policy Framework

¹³ Carlisle City Council (2015) Carlisle Local Plan 2015 – 2030

¹⁴ Allerdale Borough Council (2014). Allerdale Local Plan (Policy S24)

- UNESCO Guidance and Toolkit for Impact Assessment in a World Heritage Context¹⁵;
- Institute of Environmental Management and Assessment ('IEMA') Principles of Cultural Heritage Impact Assessment¹⁶;
- Design Manual for Roads and Bridges (DMRB) LA 106 - Cultural heritage assessment¹⁷;
- Design Manual for Roads and Bridges (DMRB) LA 104 - Environmental assessment and monitoring¹⁹;
- Historic Environment Good Practice Advice in Planning 2: Managing Significance in Decision Taking in the Historic Environment²⁰;
- Historic Environment Good Practice in Planning Note 3 – The Setting of Heritage Assets ('HEAN3')²¹;
- Historic England Advice Note 12: Statement of Heritage Significance: Analysing Significance in Heritage Assets²²;
- Historic England Advice Note 15: Commercial Renewable Energy Development and the Historic Environment²³;
- Chartered Institute for Archaeologists ('CIfA') Code of Conduct: Professional ethics in archaeology²⁴; and
- Chartered Institute for Archaeologists ('CIfA') Standard and Guidance for Historic Environment Desk-based Assessment²⁵.

6.2.9 The NPPF is primarily used to guide the creation of local plans and the granting of developments under the Town and Country Planning Act 1990²⁶. The Proposed Development is an NSIP and so falls under the Planning Act 2008²⁷ (PA 2008) regime. Whilst the NPSs are the most relevant, the NPPF (along with other guidance) provides a useful framework in understanding heritage assets and development impacts which is reflected in the Development Consent Order ('DCO') regime.

¹⁵ UNESCO (2022) UNESCO Guidance and Toolkit for Impact Assessments in a World Heritage Context

¹⁶ IEMA (2021). IEMA's Principles of Cultural Heritage Impact Assessment

¹⁷ Department for Transport (2020) Design Manual for Roads and Bridges [DMRB] LA 106

¹⁹ Department for Transport (2020) Design Manual for Roads and Bridges [DMRB] LA 104 (this has been updated in response to Historic England RR-016 Para 2)

²⁰ Historic England (2015) Historic Environment Good Practice Advice in Planning 2: Managing Significance in Decision Taking in the Historic Environment

²¹ Historic England (2017) Historic Environment Good Practice in Planning Note 3 – The Setting of Heritage Assets 4

²² Historic England (2019) Historic England Advice Note 12: Statement of Heritage Significance: Analysing Significance in Heritage Assets

²³ Historic England (2021) Historic England Advice Note 15: Commercial Renewable Energy Development and the Historic Environment

²⁴ Chartered Institute for Archaeologists (CIfA) (2022). Code of conduct: professional ethics in archaeology

²⁵ Chartered Institute for Archaeologists (CIfA) (2020). Standard and Guidance for Historic Environment Desk-based Assessment.

²⁶ Town and Country Planning Act 1990.

²⁷ Planning Act 2008.

6.2.10 For the purposes of this ES the Applicant is required to assess the significance of the different magnitudes of change resulting from the Proposed Development; the development impacts have to be considered along with the ‘value’ of each cultural heritage receptor. This ‘value’ is broadly equivalent to an asset’s ‘significance’ in NPPF terminology²⁸, but the term ‘value’ has been retained in this ES (see Section 6.3) in order that this is not confused with the ‘significance of effects’ which is discussed in section 6.3.

6.2.11 The PPG²⁹ provides the following interpretation of archaeological, architectural, artistic, or historic interest which guides the assessment of ‘significance’ of a cultural heritage ‘asset in NPPF terms:

‘Archaeological interest: As defined in the Glossary to the National Planning Policy Framework, there will be archaeological interest in a heritage asset if it holds, or potentially holds, evidence of past human activity worthy of expert investigation at some point.’

‘Architectural and artistic interest: These are interests in the design and general aesthetics of a place. They can arise from conscious design or fortuitously from the way the heritage asset has evolved. More specifically, architectural interest is an interest in the art or science of the design, construction, craftsmanship and decoration of buildings and structures of all types. Artistic interest is an interest in other human creative skill, like sculpture.’

‘Historic interest: An interest in past lives and events (including pre-historic). Heritage assets can illustrate or be associated with them. Heritage assets with historic interest not only provide a material record of our nation’s history but can also provide meaning for communities derived from their collective experience of a place and can symbolise wider values such as faith and cultural identity.’

6.2.12 The contribution the setting makes to the receptor is also a consideration in the assessment. ‘Setting’ is defined in Annex 2 of the NPPF as:

‘The surroundings in which a heritage asset is experienced. Its extent is not fixed and may change as the asset and its surroundings evolve. Elements of a setting may make a positive or negative contribution to the significance of an asset, may affect the ability to appreciate that significance or may be neutral.’

²⁸ Significance is defined in Annex 2 of the NPPF as: ‘The value of a heritage asset to this and future generations because of its heritage interest. That interest may be archaeological, architectural, artistic, or historic. Significance derives not only from a heritage asset’s physical presence, but also from its setting.’

²⁹ HM Government (014, last updated 2019) MHGLG. Planning Practice Guidance: Historic environment (Paragraph: 006 Reference ID: 18a-006-20190723)

6.3 Assessment Methodology

Introduction

- 6.3.1 The application of the EIA methodology relies on professional judgement to establish the sensitivity/value of a receptor and the magnitude of impact. In line with EIA terminology the term ‘receptor’ will be used within this Chapter to refer to the heritage assets.
- 6.3.2 This section sets out the approach and methodology followed for the assessment of the likely significant effects of the Proposed Development on known or potential below ground heritage receptors (archaeological remains) and above ground heritage receptors (such as buildings and structures of heritage value).
- 6.3.3 The thresholds for ‘significant effects’ on heritage receptors are determined by considering the sensitivity/value of receptors alongside the magnitude of impact that will be experienced³⁰. Within this Chapter, effects that are graded as being major or moderate are considered significant with respect to the EIA Regulations. Effects that are graded as minor and/or negligible are considered as non-significant.
- 6.3.4 The sensitivity/value of a heritage receptor is determined by its designated status and desk-based research to inform a professional judgement as to its heritage interest which accounts for the likely nature, date, extent, survival, condition, rarity, and group value, along with an assessment of the contribution its setting makes to this value.
- 6.3.5 The assessment of setting has been undertaken with reference to the assessment steps set out in HE Advice Note 3: The Setting of Heritage Assets (2017) (‘HEAN3’)³¹. This guidance produced by Historic England (HE) has been used to adopt a stepped approach for settings

³⁰ Regarding the NPPF, an assessment of ‘*less than substantial harm*’ therefore does not always equate to a ‘significant effect.’ A receptor could therefore be subject to ‘less than substantial harm’ under the NPPF and fall within ‘significant effect’ by the EIA assessment matrix. For example, a receptor that falls within ‘less than substantial harm’ under the NPPF and is of medium or low sensitivity/value could fall within significant effects if the magnitude of impact is moderate or major.

³¹ Historic England (2017) Historic Environment Good Practice in Planning Note 3 – The Setting of Heritage Assets 4

assessment. The former sets out five steps, of which the first four are relevant:

- Step 1: asset identification. National policy requires an approach that is proportional to the significance of the asset, and for this reason only the settings of the most sensitive (i.e. designated) heritage assets are considered in this assessment. A scoping exercise filters out those assets which would be unaffected, typically where there are no views to/from the site.
- Step 2: assess the contribution of setting. This stage assesses how setting contributes to the overall significance of a designated asset.
- Step 3: assess change. This considers the effect of the proposals on asset significance. It is noted however that it can be difficult to quantify such change to the overall significance of a designated heritage asset (for example, significance would rarely be downgraded from 'high' to 'medium' due to changes in setting). For this reason, the impact is reported in this assessment in terms of the extent to which the proposals would change how the asset is understood and experienced (in terms of no harm, less than substantial harm, substantial harm or total loss of significance).
- Step 4: mitigation. This explores the way to maximise enhancement and avoid or minimise harm. This is typically considered at the design stage (i.e. embedded design mitigation).
- Step 5: reporting. Making and documenting decisions and outcomes. This reports the assessment of effects.

6.3.6 This cultural heritage assessment has taken into account the physical surroundings of the asset, including topography and intervening development and vegetation. It also considers how the asset is currently experienced and understood through its setting and the extent to which setting may have already been compromised.

Sources of Information

6.3.7 The following sources of information have been consulted to inform this ES Chapter:

- The HEDBA for the Site (Appendix 6.1);
- The Geophysical Survey Report for the Site (November 2023) (Appendix 6.2);
- The Local Historic Environment Record ('HER')³²;
- Historic England's National Heritage List for England ('NHLE')³³;
- Relevant Conservation Area appraisals³⁴;
- NPPF (December 2024)³⁵;
- Google Earth Pro for aerial photography³⁶;
- DEFRA Magic Maps for an initial review of statutory and non-statutory designations³⁷; and
- Site walkover surveys (by both the cultural heritage consultants and the landscape consultants).

Impact Assessment Methodology

6.3.8 This assessment has been carried out in relation to the NPS. The relevant policy and guidance are accepted practice for assessing projects within the NSIP or PA 2008 regime (see section 6.2 above).

6.3.9 The scope of this assessment includes the following designated³⁸ and non-designated heritage receptors:

Designated Heritage Receptors:

- World Heritage Sites ('WHS');
- Scheduled monuments ('SM');
- Listed buildings (LB, listed as Grades I, II and II*);

³² Westmorland and Furness Council HER data (received pers comm 25.05.2023)

³³ Historic England (2023) <https://historicengland.org.uk/listing/the-list/data-downloads> Accessed September 2024

³⁴ Cumberland Council <https://www.cumberland.gov.uk/planning-and-building-control/conservation/conservation-areas> Accessed September 2024

³⁵ HM Government (2024). MHCLG National Planning Policy Framework (NPPF) - Section 16: Conserving and Enhancing the Historic Environment, paragraphs 202 to 214

³⁶ Google Inc

³⁷ DEFRA. Magic Maps Available at: www.magic.defra.gov.uk Accessed September 2024

³⁸ NPPF Paragraph 213 states that heritage assets '*of the highest significance*' include scheduled monuments, protected wreck sites, battlefields, grade I and II* listed buildings, grade I and II* registered parks and gardens, as well as world heritage sites. Consequently, all of these 'assets' have been grouped into the single category of 'high' value rather than 'high' and 'very high' (for world heritage sites)

- Registered parks and gardens ('RP&G'); and
- Conservation areas ('CA').

Non-designated heritage receptors may include:

- Locally listed buildings, buildings of local merit;
- Monuments listed in the local HER; and
- Potential below ground heritage receptors (archaeological remains).

- 6.3.10 Professional expert opinion has been used to assess the value of these receptors based on historic, archaeological, architectural, and artistic interests³⁹, taking account past works which may have compromised survival.
- 6.3.11 The Scoping Report for the Proposed Development (Appendix 2.1) **[REF: 6.3]** included proposed methodologies for assessing archaeology and built heritage in the ES. The Planning Inspectorate's Scoping Opinion (Appendix 2.2) **[REF: 6.3]** identified further receptors to be considered for determining 'significant' effects.
- 6.3.12 Collaboration has been undertaken with authors of the other technical Chapters in the ES throughout the assessment to ensure robustness, consistency, and consideration of interdependencies. For example, it has been necessary to work with the author of Chapter 7 – Landscape and Visual as matters such as visual impact are relevant to both disciplines. The methodology used for undertaking the Landscape and Visual assessment is set out in detail at ES Appendix 7.1 **[REF: 6.3]** and Chapter 7 – Landscape and Visual **[REF: 6.1]**.

Study Area

- 6.3.13 A Study Area comprising the land within the Site and a 3km buffer from the Site boundary has been used to assess designated heritage receptors (as shown in Figure 6.1). The extent of the Study Area for designated heritage receptors (consisting of SM, LB, CA, RP&G, and WHS) has been determined by the low-rise nature of the Proposed Development and the

³⁹ Historic England (2019) Historic England Advice Note 12: Statement of Heritage Significance: Analysing Significance in Heritage Assets

way the receptor is experienced, including the views that the surrounding topography afford towards the Site along with the Zone of Theoretical Visibility ('ZTV') analysis.

- 6.3.14 The extent of the Study Area is considered proportionate and appropriate to identify those designated receptors to which the Site may form part of their setting and therefore contribute to their sensitivity/value, which is informed by HEAN3. Table 6.5 below details each receptor.
- 6.3.15 Figure 6.1 sets out the locations of the non-designated receptors (and other local HER data points⁴⁰) with the unique site and monument record number ('SMR no'). Figure 6.2 sets out the locations of the designated receptors.
- 6.3.16 An initial Study Area comprising the land within the Site and a 1km buffer from the Site boundary was used to assess the potential for non-designated heritage receptors (consisting of receptors of archaeological interest, locally listed buildings, and parks and gardens of local interest) (as shown in Figure 6.2). This is considered an appropriate and proportionate Study Area in response to the scale and nature of the Proposed Development, the Site and its surroundings, and the local interest of such receptors. It is consistent with best practice guidance set out in HEAN3.

Zone of Theoretical Visibility

- 6.3.17 ZTV analysis is a computer-generated tool to identify the theoretical extent of visibility. A ZTV for the Proposed Development is shown in Figure 6.3.
- 6.3.18 The ZTV shows theoretical visibility only, and so it is important to fully understand that its accuracy is limited to the digital information upon which it is based and the algorithm used in its calculation. The ZTV is used as a tool only in the landscape and visual impact assessment of the Proposed Development.

⁴⁰ HER online mapping.

<https://maps.cumbria.gov.uk/eggp/eggp.aspx?dept=Environment&scriptname=Historic%20Environment&scale=600000>
Accessed September 2024

- 6.3.19 A ZTV alone cannot indicate the potential visual impacts, nor show the likely significance of impacts that the Proposed Development will have. However, it does guide an appreciation of the potential and maximum visibility of the Proposed Development, that can then be used to focus the assessment process on those areas affected and avoids those areas which will not be affected.
- 6.3.20 A series of ZTV analysis has been undertaken based upon the design parameters that are listed in Chapter 3 – Site and Development Description [REF: 6.1]. The ZTV calculation is performed using particular geographic information systems ('GIS') software (ESRI ArcGIS Pro 3.0.2) under the Viewshed Spatial Analyst tool.
- 6.3.21 The ZTV computer software processes landform data and other selected features influencing the extent of visibility such as woodland and settlements, in order to identify the theoretical extent of the area from which the Proposed Development is likely to be visible. For this ZTV analysis, two datasets have been considered:
- A Digital Terrain Model ('DTM') ZTV illustrates the worst-case scenario, in that it will only consider the landform, i.e., it is solely the terrain surface, or bare earth model; and
 - A Digital Surface Model ('DSM') ZTV includes heights of objects, such as principal areas of woodland and settlements as well as the terrain surface. Using the DSM allows for a more pragmatic approach to analysing where the potential and maximum visibility of the Proposed Development will occur, due to having a live screening effect from both the buildings and vegetation contained within the DSM. This Screened ZTV ('SZTV') is considered a realistic worst case, however, important to note that other features, such as hedgerows or street trees, which have not been included are likely to provide additional filtering of views.
- 6.3.22 The analysis undertaken herein demonstrates a screened scenario accounting for features such as existing vegetation and other forms of screening which provide additional filtering and reduction of theoretical visibility. Visibility is typically focused within short range views (~1km) from the Site.

- 6.3.23 Given the sensitivity/value of The English Lake District WHS, its landscape and visual amenity and intervisibility has been considered within this assessment.

Site Visit

- 6.3.24 The Site and surrounding area were visited in February 2023 to undertake an historic environment assessment, and to collect the photographic record of the baseline (further Site visits have been undertaken by the landscape consultants, see Chapter 7 – Landscape and Visual for timings of these). This exercise has enabled this ES to:
- a. Determine the extent of visibility of the Site and any existing heritage receptors (both below and above ground);
 - b. Determine the visibility of the Proposed Development, utilising the results from the ZTV plan to guide the Site visit and assessment;
 - c. Gain further understanding of the landscape components which create the landscape character; and
 - d. Carry out the assessment of visual effects.
- 6.3.25 A further Site visit was undertaken in November 2024 to further test the conclusions of the ES and HEDBA report (Appendix 6.1). The Site visit also ensured that fieldwork recommended by the mitigation strategy can take place in a timely manner, and that suitable access for further assessment is possible within the Site.

Criteria for Establishing sensitivity/value of Heritage Receptors

- 6.3.26 The methodology for appraising sensitivity/value is an exercise of professional judgement informed by the guidance detailed in previous sections and an evidence base comprising desk-top research of primary and secondary source material, together with the visit to the Site and the surrounding area. Source material consulted as part of this exercise include historic Ordnance Survey ('OS') maps, archival records, and interrogation of historic photographs on online sources (see section 6.3.3).
- 6.3.27 NPS EN-1 states that: *'there should be a presumption in favour of the conservation of designated heritage assets and the more significant the*

designated heritage asset, the greater the presumption in favour of its conservation should be’.

6.3.28 Heritage receptors can include above and below ground archaeological remains, historic buildings/built environment, and/or historic landscapes, and different criteria are provided for establishing a ‘value’ for each of these receptors, each heritage receptors are ascribed a value in accordance with a four-point scale in line with the overall EIA methodology detailed in Chapter 2 of the ES (see Table 6.1 below).⁴¹

Table 6.1: Criteria for Establishing sensitivity/value of Heritage Receptors

Sensitivity / Value	Receptor Categories
High	<ul style="list-style-type: none"> Remains of inscribed international value, such as world heritage sites; Grade I and grade II* listed buildings; Grade I and grade II* registered parks and gardens; Scheduled monuments; Registered battlefields; Conservation areas containing important buildings; and Undesignated archaeological receptors of clear national or international value.
Medium	<ul style="list-style-type: none"> Grade II listed buildings; Grade II registered parks and gardens; Conservation areas; Undesignated buildings, monuments, sites, or landscapes that can be demonstrated to have heritage value equivalent to the designation criteria; and Designated or undesignated archaeological receptors or sites that have regional interest.
Low	<ul style="list-style-type: none"> Locally listed buildings as recorded on a local authority list; Undesignated buildings, monuments, sites, or landscapes that can be demonstrated to have heritage value equivalent to the local listing criteria; and Archaeological receptors of limited value but with a potential to have interest at a local level.
Very low	<ul style="list-style-type: none"> Buildings, monuments, sites, or landscapes identified as being of negligible or no historic, evidential, aesthetic, or communal interest; and Archaeological receptors that have little or no surviving archaeological interest.

- 6.3.29 An impact can be characterised in terms of timing, scale, duration, and reversibility. These can be described as short, medium, or long-term, permanent, or temporary and can be positive or negative.
- 6.3.30 A direct impact on a heritage receptor is likely to result from changes to the physical fabric of the receptor. An indirect impact is likely to result from changes to the receptor's setting.
- 6.3.31 In considering the potential magnitude of an impact, a professional judgement has been made about the receptor's susceptibility to change as a result of the Proposed Development. Table 6.2 below sets out criteria that has been used to determine the magnitude of an impact, which can vary from 'major to 'no change'.

Table 6.2: Criteria for Establishing Magnitude of Impact

Magnitude of Impact	Criteria for Assessing Impact
Major	Change such that the value of the receptors is totally altered or destroyed; Changes to most or all key archaeological elements, such that the resource is totally altered; and Comprehensive changes to setting (where this affects the value of the receptors).
Moderate	Changes to many key archaeological elements, such that the resource is clearly modified; Change to the fabric of the receptors, such that it is significantly modified; and Change to the setting such that it is significantly modified.
Minor	Change to the receptors, such that the receptors are slightly different; Slight changes to setting (where this affects the value of the receptors); and Changes to key archaeological elements, such that the receptor is slightly altered.
Negligible	Little change to the fabric or setting that would materially harm value, approximating to a 'no change' situation; and Very minor changes to elements or setting (where this affects the value of the receptor).
No Change	No change

- 6.3.32 The assessment to determine the significance of the effect uses a matrix that considers the sensitivity/value of the receptor against the magnitude of impact from the Proposed Development. The significance of effect is

determined by the interaction of the receptor's sensitivity to change and the magnitude of impact (change) (Table 6.3).

6.3.33 Effects that are graded as major or moderate are considered 'significant' with respect to the EIA. The direction of the effects can either be adverse or beneficial. Therefore, the possible effect significance can be one of the following.

- Major (adverse or beneficial);
- Moderate (adverse or beneficial);
- Minor (adverse or beneficial); and
- Negligible (adverse or beneficial).

6.3.34 Certain effects will also result in 'no change'.

6.3.35 Table 6.3 below has been adapted from the DMRB 'Significance of Effects' matrix to accord with the terminology described above. It is considered that 'significant' effects are those that are scored as moderate or higher. This illustrates the interaction between impact magnitude and receptor sensitivity/value.

Table 6.3: Effect Significance Matrix

	Sensitivity/value			
Magnitude	High	Medium	Low	Very Low
Major	Major Adverse / Beneficial	Major Adverse / Beneficial	Moderate Adverse / Beneficial	Minor Adverse / Beneficial
Moderate	Major Adverse / Beneficial	Moderate Adverse / Beneficial	Minor Adverse / Beneficial	Negligible Adverse / Beneficial
Minor	Moderate Adverse / Beneficial	Minor Adverse / Beneficial	Negligible Adverse / Beneficial	Negligible Adverse / Beneficial
Negligible	Minor Adverse / Beneficial	Negligible Adverse / Beneficial	Negligible Adverse / Beneficial	Negligible Adverse / Beneficial

6.3.36 The following section details the historic environment baseline and heritage receptors located within the Site as well as in the study area.

Heritage Receptors

- 6.3.37 Following the baseline assessments within the HEDBA (Appendix 6.1), this section details the receptors taken forward for the assessment as these have the potential for ‘significant effects’ as indicated above.
- 6.3.38 There is one designated heritage receptor located within the Site, the ‘Large Irregular Stone Circle and a Round Cairn on Dean Moor’ Scheduled Monument (referred to herein as the ‘Stone Circle and Cairn’). The western boundary of the Site bisects the receptor.
- 6.3.39 Within the wider 3km Study Area around the Site, there are:
- 2 no. Grade I Listed Buildings;
 - 1 no. Grade II* Listed Buildings; and
 - 25 no. Grade II Listed Buildings.
- 6.3.40 Beyond the wider 3km Study Area is the Grade II RP&G at Workington Hall approximately 3.3km to the northwest, and The English Lake District WHS, approximately 3.2km to the east.
- 6.3.41 Cumberland Council is in the process of preparing a ‘local list’ of heritage receptors. Certain sites have been approved for inclusion in the Westmorland and Furness Council Local List⁴³ which remains the relevant list for this assessment.
- 6.3.42 The HER identifies several features within or adjacent to the Site boundary which could be considered heritage receptors of archaeological interest. The only designated heritage receptor of archaeological interest within the Site boundary is a SM, which comprises a Stone Circle and Cairn (HE ref: 1014588, SMR no 3048).

⁴³ Local heritage lists are lists of buildings and sites with heritage interest of local significance, that are formally identified by plan-making bodies, as part of the wider range of designation, so that their significance can be taken into account in planning applications affecting the building or site or its setting. Further information can be found in Historic England (2021). HE Advice Note 7- Local Heritage Listing: Identifying and Conserving Local Heritage <https://historicengland.org.uk/images-books/publications/local-heritage-listing-advice-note-7/heag301-local-heritage-listing/> the current page for the local list of approved assets for Westmorland and Furness Council can be found at <https://www.westmorlandandfurness.gov.uk/planning-and-building-control/conservation/cumbria-local-heritage-list> Accessed February 2025

- 6.3.43 Three SM lie outside the 1km Study Area but within the wider 3km Study Area. These are Calva Hall Bridge (HE ref: 1003051), a medieval standing cross in St Oswald's churchyard (HE ref: 1014805), and a settlement 25m southeast of Gatra (HE ref: 1007139).
- 6.3.44 Beyond the Site boundary, there is evidence of a possible alignment of a Roman road approximately 330m to the east of the Site (HER ref: 4672), and Bronze Age activity (craft and a pile dwelling) approximately 350m to the east of the Site and to the southwest of the village of Branthwaite (HER ref: 45049).
- 6.3.45 The ZTV analysis (Figure 7.4) **[REF: 6.2]** developed in association with ES Chapter 7 - Landscape and Visual has identified areas of no theoretical visibility of Site. Designated heritage receptors located within these identified areas which hold visual link in association with the Site and are not considered to experience any change to their setting, or by extension their significance, are proposed to be scoped out of the assessment of likely significant effects in the ES.
- 6.3.46 Professional experience of other assessments and appraisals for this type of development has shown that effects on landscape and visual receptors would typically not be significant beyond 3km from a site. Despite this, there are designated receptors located outside the 3km Study Area which have been highlighted by the Planning Inspectorate as having the potential to experience effects and so, for robustness, have been included for assessment within Appendix 6.1.
- 6.3.47 Table 6.4 below lists the heritage receptors located within the 1km Study Area for non-designated receptors and within the 3km Study Area for designated receptors. As explained above, a select group of receptors within 5km of the Site have also been considered and is included for robustness. Also included are the non-designated heritage receptors located within the Site and the 3km Study Area (these receptors have been evidenced within the HER).

Table 6.4: Heritage Receptors

Receptor	Designation	Direction from the Site	Approximate Distance from the Site	Within ZTV?
Designated Heritage Receptors (archaeological remains) within the Site				
Stone Circle and Cairn	SM NHLE: 1014588	Southwest corner of the Site	Within the Site	Yes
Designated Heritage Receptors (archaeological remains) within 3km of the Site				
Settlement 25m south-east of Gatra	SM NHLE: 1007139	Southeast	2km	No
Designated Heritage Receptors (built heritage) within 3km of the Site				
Wythemoor Sough and adjoining barn and stable	Grade II LB NHLE: 1327185	Northwest	160m	Yes
Far Branthwaite Edge, Dairy and Barn	Grade II LB NHLE: 1138216	East	1.1km	Yes
Wadsworth Farmhouse	Grade II LB NHLE: 1145203	Northeast	1.2km	No
Whitekeld and Barns adjoining	Grade II LB NHLE: 1311871	East	1.2km	No
The Raise	Grade II LB NHLE: 1138216	East	1.4km	Yes
Roche House	Grade II LB NHLE: 1138202	Northeast	1.5km	No
Hill Crest	Grade II LB NHLE: 1326858	Northeast	1.5km	No
Brow Top	Grade II LB NHLE: 1138205	Northeast	1.6km	No
Todhole Farmhouse	Grade II LB NHLE: 1086631	East-southeast	1.7km	No
Havercroft Farmhouse	Grade II LB NHLE: 1336041	East-southeast	1.9km	No
Stubsgill Farmhouse, area wall and gate piers, and byre adjoining to the southwest	Grade II LB NHLE: 1086701	West	2.1km	No
Crakeplace Hall	Grade II* LB NHLE: 1326884	East	2.2km	No
Calva Hall Bridge	Grade II LB NHLE: 1138225 SM NHLE: 1003051	Northeast	2.2km	No
Branthwaite Hall	Grade I LB NHLE: 1145204	East-northeast	2.2km	Yes

Receptor	Designation	Direction from the Site	Approximate Distance from the Site	Within ZTV?
Milestone east of Distington Secondary School	Grade II LB NHLE: 1312130	West	2.3km	No
Church of St Michael	Grade II LB NHLE: 1086721	South	2.4km	No
War Memorial in St Michael's Churchyard to the east of Lych Gate	Grade II LB NHLE: 1086722 SM NHLE: 1014805	South	2.4km	No
Lych Gate and churchyard wall, incorporating drinking trough and belvedere, to west of St Michael's Church	Grade II LB NHLE: 1336007	South	2.4km	No
Church of St Oswald	Grade I LB NHLE: 1145164	Northeast	2.5km	Yes
Barn North of Ullock Mains on opposite side of road	Grade II LB NHLE: 1146311	East-northeast	2.6km	No
Barn west of Ullock Mains on opposite side of road	Grade II LB NHLE: 1145174	East-northeast	2.6km	No
Whinnah Cottages and adjoining Store	Grade II LB NHLE: 1086632	Southeast	2.6km	No
Hillcrest and Barns adjoining	Grade II LB NHLE: 1138364	East	2.6km	No
Croft House and adjoining barn	Grade II LB NHLE: 1145175	North-east	2.7km	No
The Rectory	Grade II LB NHLE: 1145165	East	2.7km	Yes
Low Millgillhead with adjoining Coach House and Stables	Grade II LB NHLE: 1336022	Southeast	2.9km	No
Coffin Rest at low Millgillhead in garden circa 35 yards north-east of house	Grade II LB NHLE: 1068696	Southeast	2.9km	No
Churchyard Cross south of Church of St Oswald	Grade II LB NHLE: 1326878	East	2.9km	Yes
Designated Heritage Receptors (built heritage) within 5km of the Site				
Rose Farmhouse	Grade II LB NHLE: 1145167	East-northeast	2.7km	No
Dean Mains	Grade II LB NHLE: 1326879	East-northeast	2.7km	No
Manor House	Grade II LB NHLE: 1145166	East-northeast	2.7km	No
Orchard House	Grade II LB NHLE: 1326880	East	2.7km	No

Receptor	Designation	Direction from the Site	Approximate Distance from the Site	Within ZTV?
The English Lake District	WHS NHLE:14526155	East	3.2km	Yes
High Trees West farmhouse and adjoining Byre Range	Grade II LB NHLE: 1068657	Southeast	3.4km	Yes
High Trees East farmhouse and adjoining Cart Shed and Store	Grade II LB NHLE: 1086672	Southeast	3.4km	Yes
Workington Hall	Grade II RP&G NHLE:1001262	Northwest	3.4km	No
Heritage Receptors (built heritage) within 1km of the Site				
Rigg House	Non-designated Heritage Receptor	East	65m	Yes
Heritage Receptors (archaeological remains) within the Site (from the HER)				
Whitebanks Wood Mines	Non-designated Heritage Receptor	Within the Site	Within the Site	N/A
Thief's Gill Quarry	Earthwork (SMR no 45802)	Within the Site	Within the Site	N/A
Dean Moor Mine Workings	Non-designated Heritage Receptor	Within the Site	Within the Site	N/A
Rigg House Earthworks, Dean	Quarry (SMR no 11699)	Within the Site	Within the Site	N/A
Dean Moor Unclassified Cropmarks	Non-designated Heritage Receptor	Within the Site	Within the Site	N/A
Below ground heritage receptors (if surviving)	Non-designated Heritage Receptor	Within the Site	Within the Site	N/A

Consultation

- 6.3.48 The Scoping Report (Appendix 2.1) was submitted to the Planning Inspectorate, which included the proposed scope, approach, and methodology for the Chapter. The Scoping Opinion was adopted by the Planning Inspectorate on 14 September 2023 (Appendix 2.2), and scoping comments relevant to Cultural Heritage and the responses to those comments, are set out in this Chapter in Table 6.5 and Table 6.6.
- 6.3.49 Following this scoping exercise and comments by the Planning Inspectorate (Table 6.5) consideration of these receptors has been included in the HEDBA assessment (Appendix 6.1).

6.3.50 The statutory consultation period took place following PEIR publication, and the relevant responses are set out in this Chapter within Table 6.5 and Table 6.6.

6.3.51 The receptors referred to within this table are discussed in Appendix 6.1, and the agreement to scoping the receptors is set out in ES Appendices 2.1 and 2.2, as well as correspondence in Appendix 6.4 [REF: 6.3].

Table 6.5: Planning Inspectorate comments

Applicants Proposed matters to Scope out	Planning Inspectorate Comments	Response to Consultee
Planning Inspectorate - SCOPING OPINION: Proposed Dean Moor Solar Farm Case Reference: EN010155		
Archaeological receptors (below ground) – scheduled monuments: <ul style="list-style-type: none"> • Settlement 25m southeast of Gatra • Calva Hall Bridge • Churchyard Cross South of Church of St Oswald 	<i>‘The Inspectorate does not agree that, given the distance from the Proposed Development site to the heritage receptors, and because the site has no associative or functional relationship with them, it is unlikely that the Proposed Development will have any direct impact or indirect likely significant effect to the setting of these scheduled monuments, and the assessment of these archaeological receptors can be scoped out, without sufficient evidence to support this ... the ES should include an assessment of these matters or the information referred to demonstrating agreement with the relevant consultation bodies and the absence of a likely significant effect.’</i>	These receptors have been discussed within the HEDBA (Appendix 6.1) which forms part of this ES. These receptors have been assessed within this Chapter and agreed with HE, the Westmorland and Furness Council (‘WFC’) Archaeological Advisor (‘the Council’s Archaeological Advisor’) who provides development control advice to the Council) and the Conservation Officer.
Designated heritage receptors: <ul style="list-style-type: none"> • Church of St Oswald - Grade I • Branthwaite Hall - Grade I • Crakeplace Hall - Grade II* • Far Branthwaite Edge, Dairy and Adjoining Barn - Grade II • The Raise - Grade II • The Rectory - Grade II • Workington Hall - Grade II RP&G 	<i>‘The Inspectorate does not agree that, given the distance from the Proposed Development site to the designated heritage receptors, and because the site has no associative or functional relationship with them, it is unlikely that the Proposed Development will have any direct impact or indirect likely significant effect, and the assessment of these receptors can be scoped out, without insufficient evidence to support this ...the ES should include an assessment of these matters or the information referred to demonstrating agreement with the relevant consultation bodies and the absence of a likely significant effect.’</i>	These receptors have been discussed within the HEDBA (Appendix 6.1). These receptors have been assessed within this Chapter and agreed with HE, the Council’s Archaeological Advisor and the Conservation Officer.
Designated heritage receptors – listed buildings:	<i>‘The Inspectorate does not agree that these listed buildings can be scoped out of the assessment, as there is uncertainty over the impact that the Proposed Development will</i>	These receptors have been discussed within the HEDBA (Appendix 6.1). These receptors have

Applicants Proposed matters to Scope out	Planning Inspectorate Comments	Response to Consultee
<ul style="list-style-type: none"> High Trees West Farmhouse and adjoining Byre Range - Grade II High Trees East Farmhouse and adjoining Cart Shed and Store - Grade II 	<p><i>have on these receptors. The ES should include an assessment of these listed buildings outside the 3km study area to determine whether any adverse impact may be significant.'</i></p>	<p>been assessed within this Chapter and agreed with HE, the Council's Archaeological Advisor and the Conservation Officer.</p>
<p>Non-designated heritage receptors:</p> <ul style="list-style-type: none"> Rigg House Rigg House Earthworks, Dean (within the Site) Whitebanks Wood Mines (within the Site) Thief's Gill Quarry (within the Site) Dean Moor Mine Workings (within the Site) 	<p><i>'The Inspectorate does not agree that, given the distance from the Proposed Development site to the non-designated heritage receptors, and because the site has no associative or functional relationship with these receptors, it is unlikely that the Proposed Development will have any direct impact to either the receptors or an indirect likely significant effect to their setting, and the assessment of these receptors can be scoped out without sufficient evidence to support ... the ES should include an assessment of these matters or the information referred to demonstrating agreement with the relevant consultation bodies and the absence of a likely significant effect.'</i></p>	<p>These receptors have been discussed within the HEDBA (Appendix 6.1). These receptors have been assessed within this Chapter and agreed with HE, the Council's Archaeological Advisor, and Conservation Officer.</p>
<p>The English Lake District WHS change in setting</p>	<p><i>'The Inspectorate does not agree that the setting of the WHS can be scoped out, as mitigation such as appropriate siting of structures and screening has not been set out in sufficient detail at the scoping stage. The ES should include an assessment of the Proposed Development's impact on the setting of the WHS where there is potential for likely significant effects to occur or demonstrate the absence of likely significant effects with agreement from the relevant consultation bodies.'</i></p>	<p>These receptors have been discussed within the HEDBA (Appendix 6.1) These receptors have been assessed within this Chapter and agreed with HE, the Council's Archaeological Advisor, and the Conservation Officer.</p>
<p>Zone of Theoretical Visibility</p>	<p><i>'The preliminary ZTV and its analysis should be justified in the ES, consulted on, and agreed with relevant consultation bodies'</i></p>	<p>Included within this ES Chapter and has been issued to relevant stakeholders (consultation bodies), no comments in regard to the methodology have been received.</p>
<p>Baseline conditions – Historic Environment Desk Based Assessment</p>	<p><i>'The ES should clearly set out what data has informed the HEDBA, to show how this has been used to determine sensitivity of heritage receptors. The HEDBA should be consulted on and agreed where possible with relevant consultation bodies.'</i></p>	<p>Detailed within the HEDBA (Appendix 6.1).</p>
<p>Construction effects – archaeological remains below ground</p>	<p><i>'Construction effects on archaeological remains below ground will be identified using professional judgement, considering the</i></p>	<p>Addressed within this Chapter and mitigation measures agreed with the</p>

Applicants Proposed matters to Scope out	Planning Inspectorate Comments	Response to Consultee
	<p><i>type, scale and duration of construction activity likely to affect the heritage assets. The ES should justify how the archaeological remains within the site have been assessed and how any mitigation measures that may be required are to be secured before construction work commences. An approach should be consulted on and agreed with relevant consultation bodies.</i></p> <p><i>As the Proposed Development will involve ground disturbing activity and the extent of archaeological assets is yet to be established, the Inspectorate considers that in addition to site walkover and geophysical survey the need for selective trial trenching should be established with the relevant local authority archaeologists.'</i></p>	Council's Archaeological Advisor.
Methodology – Professional judgement	<i>'Where professional judgement has been used to determine the level of significance this should be made clear in the ES.'</i>	Identified within this Chapter.

6.3.52 The Scoping Opinion (Appendix 2.2) [REF: 6.3] includes statutory consultee comments, including WFC and representatives of the Lake District National Park Authority ('LDNPA'). Relevant comments from these stakeholders are also addressed within the HEDBA, this Chapter, and provided in Appendix 6.4.

Table 6.6: Consultee and stakeholder comments

Reference	Topic	Summary of Consultation Response	Response to Consultee
Archaeology - Archaeological Advisor (Westmorland and Furness Council)			
Personal communication ('Pers comm') 20/06/2023	Archaeology	Initial response set out a requirement for archaeological assessment and walkover survey along with a geophysical magnetometer survey. Recommendation to liaise with HE in regard to the 'Dean Moor Stone Circle'.	Confirmed that these issues would be addressed in the HEDBA (Appendix 6.1) and would consult again on the scope of the geophysical survey.
Pers comm 12/07/2023	Archaeology	Agreement of proposed geophysical magnetometer survey area.	The Written Scheme of Investigation ('WSI') for the survey informally issued to the Council's Archaeological Advisor

Reference	Topic	Summary of Consultation Response	Response to Consultee
Pers comm 29/11/2023	Archaeology	Confirmed receipt of the Geophysical Survey Report	Included as Appendix 6.2.
Pers comm 29/12/2023	Archaeology	Confirmed receipt of EIA scoping report: <i>'Paragraphs 6.7.10-6.7.14 of the scoping report outline a broad process of archaeological evaluation and mitigation which I am mostly content with, although I didn't notice any reference to assessing the palaeo-environmental potential of the site, which I recommended to you in an email dated 20th June.'</i>	Assessment of palaeo-environmental potential included in HEDBA.
Pers comm 01/11/2024	Archaeology	Agreement on scope and methodology of archaeological fieldwork (to be secured by DCO Requirement)	Detailed in the AMS. Included as Appendix 6.3.
Cultural Heritage - Planning Manager, Thriving Places & Investment Places, Sustainable Growth & Transport Cumberland Council			
Pers comm 14/12/2023	Cultural Heritage	Confirmed receipt of EIA scoping report: <i>'To confirm the two heritage areas of focus for the ES are the Scheduled Ancient Monument (Large Irregular stone circle and a round cairn on Dean Moor) and the Grade II listed property (Wythemoor Sough and Adjoining Barn and Stable).'</i>	Assessment of these receptors included within this Chapter.
Cultural Heritage - Historic England Development Advice Team Leader Northwest Region			
Pers comm 20/07/2023	Cultural Heritage	Discussion regarding the Proposed Development and key Cultural Heritage receptors.	Addressed within the ES.
Historic England EIA Scoping Response ⁴⁴	Cultural Heritage	No comments regarding the Dean Moor Solar Farm EIA Scoping Report.	N/A

6.3.53 The HER notes several instances of cropmarks along with industrial features (Thief's Gill Quarry, for example) within the Site. Areas A and B of the Site have been subject to disturbance as part of opencast mining in the 1990s, and thus its archaeological potential is considered to be low. The HEDBA shows an aerial photograph of the Site taken in 1992 which

⁴⁴ Historic England Case Ref. PL00793740; EN010155-000008-230808

reinforces this consideration. Therefore, there is only potential for unknown below ground archaeological remains to be present on the land within the Site to the south of the Gilgarran Road.

- 6.3.54 It was agreed with Council's Archaeological Advisor that *'the area of mining can therefore be discounted from any further archaeological work'* (refer to Table 6.5). It is noted that there is also evidence of areas of previous mining (noted in the HER) across the southern part of Area C, which could have impacted any surviving pre-industrial heritage receptors (of archaeological interest).
- 6.3.55 The LDNPA consultation response on 28 March 2024 concluded there would be a minor adverse visual effect over a 40-year period, translating to less than substantial harm to the WHS. The LDNPA recognise that the Proposed Development is not permanent, that the Proposed Development includes new landscaping and an element of co-located agricultural use during operations, and that the infrastructure from the Proposed Development will be removed with full restoration of the Site and return to agriculture at the end of the Proposed Development's operational life. The assessment from the LDNPA reflects the assessment within the PEIR and this ES Chapter.

Limitations and Assumptions

- 6.3.56 The following assumptions and limitations apply to this assessment:
- The baseline assessment has been based on information readily available at the time of undertaking the assessment;
 - The baseline assessment relies on the accuracy of secondary source data. There is always some degree of uncertainty in relation to these sources;
 - During the visits to the Site and surrounding area, weather conditions, the time of day and seasonal factors influenced the visual assessment and photographic record of the environment;
 - The ZTV analysis remains only as a tool in the landscape and visual impact assessment of the Proposed Development. A ZTV alone cannot indicate the potential visual impacts, nor show the likely significance of impacts from the Proposed Development;

- DSM has been based on EA National LiDAR Programme 2019/20 DSM LiDAR data (1 metre resolution); and
- The ZTV analysis has been clipped to a 7.5km search area.
- The duration of the construction period for the Proposed Development does not alter the environmental effects identified in this ES chapter, as the assessment of the construction phase represents a 'worst case' scenario (that comprises effects from the construction of the Proposed Development and associated activities just before the beginning of the operational phase, when these effects are at their highest magnitude of impact. An increase in duration of the construction period for the Proposed Development beyond the assumed 18 months would not alter the identified effects in this Chapter.

6.4 Baseline Conditions

6.4.1 The HEDBA (Appendix 6.1) provides a full baseline of known or potential above ground heritage receptors (structures and landscapes of heritage interest) within the Site and the Study Area.

6.4.2 In accordance with the HEDBA cultural heritage assessment, the methodology described in section 6.3, and consultation with external stakeholders, the following receptors (Table 6.7: Figures 6.1 and 6.2) have been included in this Chapter due to their sensitivity/value and potential for significant effects.

Table 6.7: Cultural Heritage Receptors Scoped in

Receptor	Designation	Direction from the Site	Approximate Distance from the Site	Within ZTV?
Designated Heritage Receptors (archaeological remains) within the Site				
Stone Circle and Cairn	SM NHLE: 1014588	South-west corner of the Site	Within the Site	Yes
Heritage Receptors (archaeological remains) within the Site				
Potential Below Ground Heritage Receptors (Archaeological Remains)	NA	NA	Within the Site	NA
Designated Heritage Receptors (built heritage) within 3km of the Site				
Wythemoor Sough and adjoining barn and stable	Grade II LB NHLE: 1327185	Northwest	160m	Yes
Designated Heritage Receptors (built heritage) within 5km of the Site				

Receptor	Designation	Direction from the Site	Approximate Distance from the Site	Within ZTV?
The English Lake District	WHS NHLE:14526155	East	3.2km	Yes

Sensitivity of Built Heritage Receptors Scoped In

- 6.4.3 The following section describes the sensitivity of the receptors scoped into this ES Chapter and their setting.

Large Irregular Stone Circle and Round Cairn on Dean Moor

- 6.4.4 The Stone Circle and Cairn (NHLE: 1014588) is considered to have high archaeological significance. The Stone Circle and Cairn is an irregular stone circle with 15 Sandstone monoliths, only seven of which remain standing in England. The monument is intersected by a modern dry-stone wall, which incorporates one of the monoliths. As one of only 45 examples of known large irregular circles in England, the Stone Circle and Cairn has high significance as a rare monument type with high evidential value and archaeological interest.
- 6.4.5 The Stone Circle and Cairn is positioned at the highest point of Dean Moor at 200m AOD on a moorland head with excellent visibility extending over the surrounding landscape (see Figure 6.4 Stone Circle and Proposed Development). The monument was designed to be permeable and draw links to the wider landscape in order for the communities who built it to create a sense of place. The position of the Stone Circle and Cairn at the highest point of the moor with wide ranging views towards the LDNP comprise a part of the monument's special interest.
- 6.4.6 The setting of the SM is defined primarily by its historic relationship to the wider landscape and its spiritual connection to the wider landscape. By design the SM incorporates the surrounding landscape, with the stones mirroring the surrounding hills and leaving gaps for views of other monuments and the wider the landscape. The immediate surroundings of the Stone Circle and Cairn is the barren plateau of the wider landscape. The lack of fertile farmland on Dean Moor has helped to retain the wild

landscape in which prehistoric communities (likely late Neolithic to the Middle Bronze Age in this case) erected the monument and the immediate landscape has not experienced profound change since the period. There are long distance views from the monument across the Site to the wider landscape to the north, northwest and east. It is however noted that modern infrastructure is prominent within the landscape from views to the north including the Wind Farm (Area D), distant groups of turbines, pylons, and some built form visible near the horizon.

- 6.4.7 The Stone Circle and Cairn is positioned within the boundary of the Site, towards the southwest of Area C, with this part of the Site forming the immediate landscape setting of the monument (location is shown on Figure 6.1, NHLE: 1014588). The receptor is positioned within a high point within the landscape and long-distance views are visible across the large area of the Site. The Site will therefore be experienced within the views from the monument towards the surrounding landscape. The archaeological interest of the receptor is the physical material which makes up the receptor itself, the surviving stones, and the land beneath. Overall, the land which comprises the Site does contribute to the setting of this receptor (and therefore its significance) by way of its open rural nature.

Potential Below Ground Heritage Receptors

- 6.4.8 The potential below ground heritage receptors consists of unclassified crop marks and potential ridge and furrow within discrete parts of Area C. A geophysical survey of Area C was undertaken in October 2023 (see Appendix 6.2) and identified a series of anomalies therein. It was however concluded that the majority of anomalies were caused by geological, agricultural, or modern causes rather than the presence of archaeology. Nine anomalies of uncertain origin were recorded as well as an anomaly locating a former field boundary, former field drains and modern agricultural features. The unclassified receptors are considered to hold archaeological potential; however, this is largely as a result of their lack of

investigation. As part of this application an AMS has been agreed (see Appendix 6.3).

- 6.4.9 The setting of the potential below ground heritage receptors largely comprises the land within the Site. The area consists of open agricultural fields in predominantly pastoral use atop the promontory of Dean Moor. The elevated position of the potential below ground receptors enables long distance and wide-ranging views across the moorland and the wider landscape.

Wythemoor Sough and Adjoining Barns and Stables

- 6.4.10 Wythemoor Sough (NHLE: 1327185) consists of a Grade II listed farmhouse stables and barn all under a graduated green slate roof. The receptor's architectural and historical significance lies in its character as an 18th century vernacular farmhouse that retains its traditional rural character. The buildings are constructed of local stone which has been rendered and painted in areas. The barn has a projecting cart entrance, and the return wall has pigeon openings which further reflect its use as an agricultural building.
- 6.4.11 The setting of Wythemoor Sough comprises the building's curtilage which includes modern barns and a residential garden. The wider setting of the receptor comprises the agricultural landscape (including the Site) which has undergone substantial change, with a history of farming and periods of mining within the area throughout the 19th and 20th centuries. The land which comprises the Site does not make a substantial contribution to the setting of this receptor. The land which comprises the Site contributes to views from the south; however, the receptor itself is best appreciated from within its immediate setting.

The English Lake District WHS

- 6.4.12 The English Lake District WHS is an internationally recognised heritage receptor (NHLE: 14526155). A statement of Outstanding Universal Value ('OUV') was agreed and adopted in 2017 by the World Heritage Committee. The full statement of OUV of The English Lake District WHS

is not represented here for brevity. While there are many conservation areas within the LDNP the designation of WHS takes precedence.

- 6.4.13 OUV is defined by the United Nations Educational, Scientific and Cultural Organization ('UNESCO') as '*cultural and/or natural significance which is so exceptional as to transcend national boundaries and to be of common importance for present and future generations of all humanity*' (UNESCO, 2017). The PPG notes that Statements of OUV are reference documents for the protection and management of world heritage (paragraph 26).
- 6.4.14 The Guidance and Toolkit⁴⁵ issued by UNESCO, 2022, with regards to assessing impact in a '*World Heritage Context*', heavily centres around the attributes relating to the OUV of a WHS and the potential impact development may cause to the attribute. Impacts of development are defined under the categories of change to the attribute including reversibility, longevity, degree and quality. This process of evaluation should therefore conclude the impact of a proposal on the OUV of a WHS.
- 6.4.15 The English Lake District WHS represents a very large area and does not have a designated buffer zone. The Site is situated some 3.2km from the WHS and due to the rural character of the wider area, in some sections of the Site, there are almost uninterrupted views across to the WHS. However, due to the undulating nature of the landscape and its overall topography many areas of the Site have no visibility to the WHS.
- 6.4.16 On balance, taking into account the views towards to the WHS (which defines the wider region in regard to landscape), it is judged that the contribution that the Site makes to the OUV of the WHS is low as a result of industrial nature of the surrounding landscape (in areas such as Lillyhall and Workington) and the fact that the Site only represents a small proportion of a much wider rural landscape surrounding the WHS itself.

⁴⁵ UNESCO (2022) Guidance and Toolkit for Impact Assessments in a World Heritage Context. ISBN 978-92-3-100535-0

Future Baseline Conditions

- 6.4.17 The cultural heritage baseline is likely to change very slightly in locations where established trees, woodland, and other vegetation that is retained, is still growing and developing. The growth of that vegetation by 2026 would entail a minimal increase in screening efficacy for views to and from the Site and surrounding area. Conversely, ongoing management, including pruning and tree felling, may periodically increase views of the Site.
- 6.4.18 Overall, the baseline conditions in 2023-24 are unlikely to experience noticeable change up to the year 2026, which is the earliest the construction phase for the Proposed Development could commence.
- 6.4.19 In relation to this Chapter, the identified baseline could evolve through the changes to vegetation species composition due to changes in rainfall and average temperatures. The extent and nature of such changes is unquantifiable, but may include, for example, decreasing prevalence of beech trees within the area as a result of increasing temperatures. However, within the timescales considered in this assessment, such changes are unlikely to be discernible, and it is not anticipated that the effects of climate change would result in material changes to the baseline conditions as described above.
- 6.4.20 Therefore, for the purposes of this assessment it is assumed that the baseline vegetation of 2026 would provide similar function to that in 2024.

Decommissioning of the Potato Pot Wind Farm

- 6.4.21 The Potato Pot Wind Farm (the Wind Farm) is scheduled for decommissioning by 2043 which falls during the operational phase of the Proposed Development. The assessment undertaken within this Chapter has considered the effects of the Proposed Development on the current baseline with the the Wind Farm present. This is considered a worst-case scenario as discussed below.

- 6.4.22 This worst-case scenario is taken given the presence of the existing wind turbines as part of the current baseline. Whilst these features do have an influence on the existing characteristics of the Site, given the presence of other infrastructure (electricity pylons and farm buildings), it is not considered that their removal would alter the overall susceptibility or sensitivity of the heritage receptors, considered within this chapter.
- 6.4.23 Furthermore, the assessment considers the combination of the effects of Proposed Development on heritage receptors with the presence of the wind turbines (as existing). Their removal would not materially alter the magnitude or likely effects resulting from the Proposed Development or lead to an increase in adverse impacts in respect of any assessed heritage effects (via a change in setting).
- 6.4.24 Regarding archaeological remains, the future baseline post-removal of the turbines remains unchanged. This is because the land which hosts the Wind Farm was subject to coal mining operations during the 1990s which will have caused extensive disturbance and removed any coherent stratified deposits which may have existed prior to that time.

6.5 Likely Significant Effects

- 6.5.1 The assessment of likely significant effects has been carried out by assessing the parameters outlined in Chapter 3 – Site and Proposed Development Description and secured through the Design Parameters Document ('DPD') [REF: 5.7]. As well as assessing maximum flexibility for development components that are set out in the Work Plans [REF: 2.3], the Parameter Plan (Figure 3.4) [REF: 6.2], and Table 3.2 of Chapter 3.
- 6.5.2 All effects arising from the Proposed Development on the identified heritage receptors are set out in the HEDBA (Appendix 6.1) which establishes the heritage sensitivity/value of the receptors, as well as any contribution made by their setting. The following section provides a summary of the potential effects (in EIA terms) and impacts on the heritage receptors at this stage of the assessment process.

- 6.5.3 The Proposed Development has the potential to have significant effects on the identified designated heritage receptors. However, the Proposed Development would not result in any physical impact or change to these receptors and therefore, there would be no direct physical impacts arising from the Proposed Development. Any impacts would be indirect, arising through a change to the landscape setting of the receptors.
- 6.5.4 Therefore, due to the landscape character of the Study Area, combined with topography, intervening vegetation, existing landscape features, and in some instances the distance from the Site, the majority of the designated heritage receptors are unlikely to experience any change to their value as a result of the Proposed Development, and have therefore been scoped out of the ES Chapter (for completeness these have been referenced and considered in the HEDBA (Appendix 6.1)).
- 6.5.5 Within the 3km Study Area, those heritage receptors identified as being sensitive to change within their setting and with the greatest potential to be affected by the Proposed Development are considered in turn below, together with the specific design objectives that will be important in mitigating the potential for significant adverse effects. Additionally, The English Lake District WHS that lies within the wider 5km Study Area has been considered due to its elevated position, sensitivity/value, and the large extent of the WHS resulting in greater potential intervisibility between the Site and the receptor.

Embedded Mitigation

- 6.5.6 Embedded mitigation measures are part of an iterative EIA process and therefore heritage matters have had an influence on the parameters of the Proposed Development.
- 6.5.7 Mitigation of adverse impacts and effects (primarily on the setting of designated heritage receptors) includes the exclusion of development in the Green Infrastructure (Work No. 6) area to the south of Area C (Figure 3.4), careful consideration of the positioning of solar panels and associated infrastructure in relation to topography and the existing built

form, and the use of appropriate landscape screening (new woodland and scrubland planting and hedgerow enhancement).

6.5.8 The embedded mitigation measures which are relevant to the operational phase include:

- Retention of existing Site boundary vegetation where practicable, particularly established/mature woodland habitats, as outlined in the Landscape Strategy Plan (Figure 7.6.1-7.6.5) and Appendix 7.7: Outline Landscape and Ecological Management Plan ('OLEMP') **[REF: 6.3]**;
- Use of existing field entrances during delivery / construction of the Proposed Development to minimise impact on field boundaries;
- Green Infrastructure area within the south of Area C as shown on Work No. 6 (Green Infrastructure) **[REF: 2.3]** and Figure 3.4 (Parameter Plan) around the SM (Stone Circle and Cairn);
- Careful siting of infrastructure to minimise visual intrusion, including areas of no development of solar infrastructure on the elevated open moorland within Area C;
- Reinforcement of existing field boundaries where required;
- As shown on the Landscape Strategy Plan (Figure 7.6.1-7.6.5), there are opportunities for new native structural landscape planting to provide visual screening, including native hedgerows, hedgerow trees, scrub / shrub planting, with the aim of breaking up views of the extent of development, and linking existing habitats / landscape features where possible to provide enhanced green infrastructure and biodiversity opportunities; and
- Additional scrub and woodland planting on the steeper, southern section of Thief's Gill Quarry in line with green infrastructure policies within the Allerdale Borough Council Local Plan (Policy S24).

Construction Phase

Stone Circle and Cairn

6.5.9 There is potential for indirect impacts on the setting of this heritage receptor through noise and the location of construction machinery. Prior to additional mitigation, the construction phase is therefore assessed as likely having a short-term, **moderate adverse** and **significant** effect on this receptor.

Wythemoor Sough and adjoining barn and stable

- 6.5.10 There is potential for indirect impacts on the setting of this heritage receptor through noise, dust, and vibration, as well as the location of construction machinery. Prior to additional mitigation, the construction phase is therefore assessed as likely having a short-term, **moderate adverse** and **significant** effect on this receptor.

The English Lake District WHS

- 6.5.11 There is no potential for indirect impacts on the setting of this heritage receptor during the construction phase due to distance and nature of the expected construction impacts is therefore assessed as likely having a short-term, **minor adverse** and **non-significant** effect on this receptor.

Potential Below Ground Heritage Receptors (archaeological remains)

- 6.5.12 There is potential for below ground heritage receptors (non-designated heritage assets of archaeological interest in NPPF terms), either known or unknown, to be impacted (where they survive within the Site) during the construction of the Proposed Development.
- 6.5.13 Works during the construction phase with the potential to impact upon below ground archaeological remains include (but not be limited to) the following:
- The creation of temporary construction compounds (as shown on Figure 3.4) and permanent or temporary new access tracks; and
 - Excavation/groundworks associated with the Proposed Development.
- 6.5.14 All effects upon the buried archaeological resource will occur within the construction phase as a result of any intrusive groundworks (including compaction) associated with the Proposed Development.
- 6.5.15 Any element of the Proposed Development which may remove or disturb the entirety of archaeological remains within its footprint (dependant on the nature of the below ground impacts) will be assessed. As a result, this assessment presents a 'worst case scenario' regarding the likely significance of the effects.

- 6.5.16 The land within the Site to the north of the Gilgarran Road (Areas A, B, and D) (as shown on Figure 3.1) [REF: 6.2] has been subject to extensive opencast mining; these activities will have had a destructive impact upon the archaeological resource. Further mining activities (as noted on the HER) within the southern part of Area C will have also impacted (removed) any archaeological remains that may have been present in these areas.
- 6.5.17 The assumption has been made that without additional mitigation, the Proposed Development would result in a major magnitude of impact to below ground heritage receptors of archaeological interest (where these survive). However, the archaeological interest and sensitivity/value of a receptor (and therefore the magnitude of impact) will depend on its nature, value, and condition (as well as the nature of the below ground impact from the Proposed Development).
- 6.5.18 In summary, if a worst-case scenario is applied, prior to mitigation, the construction phase is therefore assessed as likely having a permanent, **major adverse** and **significant** effect on below ground heritage receptors of archaeological interest (where these survive).

Operational Phase

Stone Circle and Cairn

- 6.5.19 The Stone Circle and Cairn (see ES Figure 6.1, see Figure 19a, Figure 19b and Figure 19c in the HEDBA), within which there is a round funerary cairn, is situated close to the highest point of Dean Moor and commands extensive views in all directions. As one of only 45 examples of known large irregular circles in England, the Stone Circle and Cairn has high sensitivity/value as a rare monument type with very high evidential value.
- 6.5.20 The immediate setting of the Stone Circle and Cairn is the stark plateau of Dean Moor. There are long distance views from the monument across the Site to the wider setting to the north, northwest and east. Modern infrastructure is prominent within the landscape from views to the north including the Wind Farm, distant groups of turbines, pylons, and some

built form visible near the horizon. The contribution that the Site makes to the setting of the monument is the largely open rural character of the fields surrounding the receptor and to the north.

- 6.5.21 The archaeological interest of the receptor is the physical material which makes up the receptor itself (i.e., the surviving stones and the land beneath). There would be no direct impact on the SM nor change to its immediate setting arising from the Proposed Development. The introduction of the Proposed Development would change the rural character of the wider setting of the receptor. However, the new built elements of the Proposed Development (Figure 6.4) would be set at a distance from the receptor (which will be at a higher elevation) and long-distance sight lines from points of high elevation would not be substantially impacted by the Proposed Development.
- 6.5.22 Mitigation measures including the exclusion of built features and green infrastructure enhancements within the Dean Moor escarpment (Figure 6.5), would facilitate the visual separation of the receptor from the Proposed Development at lower levels, so that the significance of effect is likely to be a long-term (temporary), **moderate adverse** and **significant** effect (due to the 'high' sensitivity/value of the receptor and 'minor' magnitude of impact).

Wythemoor Sough and Adjoining Barn and Stable

- 6.5.23 Wythemoor Sough (Figure 6.1) has heritage value as an 18th century vernacular farmhouse that retains its traditional rural character. As a Grade II LB, the heritage sensitivity/value of the receptor is medium due to its designation.
- 6.5.24 The wider setting beyond the curtilage of Wythemoor Sough is a landscape that has undergone substantial change with a history of farming and periods of mining within the area throughout the 19th and 20th centuries.
- 6.5.25 The contribution that the setting makes to the sensitivity/value of the receptor relates to the industrious use of the land within an open rural

landscape. There would be a change in the open rural setting as development features are introduced to the south and east. The ability to appreciate the special interest of the receptor is unlikely to be significantly diminished due to a change in its wider setting, and the magnitude of the impact would be moderate adverse.

- 6.5.26 The use of a mitigation and enhancement area, landscape screening, and the sensitive design and positioning of elements of the Proposed Development are potential mitigation measures that would reduce the magnitude of impact on the receptor. Due to the medium sensitivity/value of the receptor and the potential for mitigation measures, the significance of effect is therefore likely to be a long-term (temporary), **moderate adverse** and **significant** effect (due to the 'medium' sensitivity of the receptor and 'moderate' magnitude of impact).

The English Lake District WHS

- 6.5.27 The English Lake District WHS, located approximately 3.2km to the east of the Site, has OUV due to its distinctive cultural landscape that reflects a vital interaction between the spectacular natural landscape and an agro-pastoral land-use system and traditions that have evolved in response to the environment. The 19th century Romantic and Picturesque interest in the area led to the recognition of the universal value of scenic landscapes and the subsequent development of the conservation movement. The receptor does not have a designated 'buffer zone'.
- 6.5.28 The special qualities of the WHS are largely contained within its boundaries. However, there are sensitive areas within the upland edge of the Loweswater Fells that are receptive to change within the wider landscape setting to the west. Views of the Site from the WHS are partially screened by the intervening topography of the low hills and ridges to the east of Dean Moor. However, there is the potential for parts of the Site to be visible from some viewpoints within the receptor, resulting in a change in setting.

- 6.5.29 The impact on the setting is lessened by the Site's visibility in a context that includes the Wind Farm and existing infrastructure to the west of the Site seen in the views within and near the Site (Chapter 7 – Landscape and Visual Impact). Mitigation measures such as appropriate siting of the solar PV panels and any associated structures as well as the introduction of landscape screening would help to reduce this impact.
- 6.5.30 Overall, the significance of effect is likely to be a long-term (temporary), **minor adverse** and **non-significant** effect following embedded mitigation (due to the 'high' sensitivity of the receptor and 'negligible' magnitude of impact).

Potential Below Ground Heritage Receptors (archaeological remains)

- 6.5.31 There would be no further below-ground disturbance occurring within the Site during the operational phase, this would not result in any physical impacts to below-ground archaeological remains, given the archaeological remains would have been recorded during the construction phase. Therefore, the operational phase activities of the Proposed Development are assessed as having a '**no change**' effect on this receptor.

Decommissioning Phase

- 6.5.32 The visual impacts during the decommissioning phase will be less than those of the construction phase due to the implemented screening (as outlined in the Landscape Strategy Plan (LSP) (Figure 7.6.1-7.6.5) and the OLEMP (Appendix 7.7) will have matured.

Stone Circle and Cairn

- 6.5.33 There is potential for indirect impacts on the setting of this heritage receptor through noise as well as the location of plant. Prior to additional mitigation, the decommissioning phase activities of the Proposed Development is therefore assessed as likely having a short-term, **minor adverse** and **non-significant** effect on this receptor.

Wythemoor Sough and Adjoining Barn and Stable

- 6.5.34 There is potential for indirect impacts on the setting of this heritage receptor through noise, dust, and vibration, as well as the location of plant. Prior to additional mitigation, the decommissioning phase activities of the Proposed Development is therefore assessed as likely having a short-term, **minor adverse** and **non-significant** effect on this receptor.

The English Lake District WHS

- 6.5.35 There is no potential for indirect impacts on the setting of this heritage receptor during the decommissioning phase due to distance and nature of the expected impacts is therefore assessed as likely having a short-term, **minor adverse** and **non-significant** effect on this receptor.

Potential Below Ground Heritage Receptors (archaeological remains)

- 6.5.36 Should the below-ground disturbance occur within the Site as part of decommissioning this would also not result in any physical impacts to below-ground archaeology given the archaeological remains would have been removed and recorded during the construction phase. Therefore, the decommissioning phase activities of the Proposed Development is assessed as having a '**no change**' effect on this receptor.

6.6 Mitigation Measures

Construction Phase

Above Ground Heritage Receptors

- 6.6.1 Mitigation measures would be implemented through a Construction Environmental Management Plan ('CEMP') and a Construction Traffic Management Plan ('CTMP') secured by a DCO Requirement. This Chapter assumes these construction practices and CTMP will be adopted.
- 6.6.2 Measures are included in the Outline Construction Environmental Plan ('OCEMP') (Appendix 5.1) and the Outline Construction Traffic Management Plan ('OCTMP') (Appendix 5.2) **[REF: 6.3]**, upon which the CEMP and CTMP will be based.

- 6.6.3 Mitigation measures proposed in the LSP in relation to the Stone Circle and Cairn are shown on Figure 6.5.

Potential Below Ground Heritage Receptors (archaeological remains)

- 6.6.4 Archaeological mitigation will comprise a staged approach based on the AMS (Appendix 6.3) **[REF: 6.3]** which details the proposed archaeological works to be undertaken at the Site. Following this, an evaluation of the surviving archaeological resource in relation to the below ground impacts of the Proposed Development will be produced which will inform any final design requirements which may entail either mitigation (e.g., ‘no dig’ technology) or exclusion zones which protections for sensitive locations to be set out in the CEMP.
- 6.6.5 The scope of any intrusive evaluation will be determined following more detailed pre-commencement design work. Once a potential final design is established this will be assessed against the nature and extent of potential archaeological material within the Site to provide sufficient detail to inform the scope and extent of the second stage of any further fieldwork. The details of any further mitigation will be set out in a supplementary AMS, if required.
- 6.6.6 The requirement for any final mitigation will be dependent on the results of any further fieldwork required following the procedure set out in the AMS (Appendix 6.3) and to be secured by a DCO Requirement. Construction and design alternatives could also be used to mitigate potential impacts to archaeological receptors (i.e., ballasted arrays, on-ground cable trays, and no-dig access track or fencing).
- 6.6.7 In summary, several methodologies may be required:
- Evaluation fieldwork (intrusive site investigations to determine nature and extent of the identified archaeological potential), this will comprise a set of archaeological trial trenches targeted on areas of archaeological potential highlighted in the HER and Geophysical Survey Report (Appendix 6.2);
 - Archaeological monitoring and recording and/or excavation (preservation by record) during construction;

- Strip, Map and Sample Excavation (if applicable)
- Construction management practices; and
- Public dissemination of archaeological and historical data.

6.6.8 All archaeological fieldwork will be monitored by the Council's Archaeological Advisor to ensure that the works comply with the agreed scope and methodology detailed in an appropriate WSI. The Council's Archaeological Advisor will also review all reporting on the archaeological fieldwork.

Operational Phase

Above Ground Heritage Receptors

6.6.9 A Landscape and Ecological Management Plan ('LEMP') will be implemented to ensure that the embedded design mitigation will be sustained throughout the operational life of the Proposed Development. The LEMP will be secured by DCO Requirement. An OLEMP (Appendix 7.7) details mitigation and enhancement measures relating to landscape management.

6.6.10 An Operational Management Plan ('OMP'), to be substantially in accordance with the Outline Operational Management Plan ('OOMP') (ES Appendix 3.1) **[REF: 6.3]** will be implemented to manage and mitigate the operation of the Proposed Development.

Potential below ground heritage receptors (archaeological remains)

6.6.11 All below-ground disturbance on potential below ground heritage receptors would occur within the Site as part of the construction phase, so no additional mitigation measures are required during the operation and decommissioning phase. Measures are detailed in the OLEMP to ensure there remains a 'no change' effect.

Decommissioning Phase

Above Ground Heritage Receptors

6.6.12 Mitigation measures would be implemented through a Decommissioning Management Plan ('DMP') suite secured by a DCO Requirement. The

Chapter assumes relevant construction practices will be adopted similar to those required during the construction phase to control working hours, traffic, and to prevent adverse effects on amenity.

Potential Below Ground Heritage Receptors (archaeological remains)

- 6.6.13 Should the below-ground disturbance occur within the Site as part of the decommissioning, this would also not result in any physical impacts to below-ground archaeology given the archaeological remains disturbed by the below ground impacts would have been mitigated during the construction phase. Therefore, no additional mitigation measures are required. Measures will be detailed in the DMP suite to ensure this effect.

6.7 Residual Effects

Construction Phase

Stone Circle and Cairn

- 6.7.1 Considering construction impacts on the setting of this heritage receptor, along with the proposed additional mitigation (within the CEMP and CTMP), the construction phase is therefore assessed as likely having a short-term, **moderate adverse** and **significant** effect on this receptor.

Wythemoor Sough and Adjoining Barn and Stables

- 6.7.2 Considering construction impacts on the setting of this heritage receptor, along with the proposed additional mitigation (within the CEMP and CTMP), the construction phase is therefore assessed as likely having a short-term, **moderate adverse** and **significant** effect on this receptor.

The English Lake District WHS

- 6.7.3 Considering potential indirect impacts on the setting of this heritage receptor along with the proposed additional mitigation (within the CEMP and CTMP), the construction phase activity is therefore assessed as likely having a short-term, **minor adverse** and **non-significant** effect on this receptor.

Potential Below Ground Heritage Receptors (archaeological remains)

- 6.7.4 Following additional mitigation, the construction of the Proposed Development is therefore assessed as likely having a permanent, **moderate beneficial** and **significant** effect on below ground heritage receptors of archaeological interest (where these survive).

Operational Phase

Stone Circle and Cairn

- 6.7.5 Considering the sensitivity/value of the receptor and the potential for mitigation measures, the significance of effect is therefore likely to be a long-term (temporary), **moderate adverse**, and **significant** effect (due to the 'high' sensitivity of the receptor and 'minor' magnitude of impact and additional mitigation).

Wythemoor Sough and Adjoining Barn and Stables

- 6.7.6 Considering the medium sensitivity/value of the receptor and the potential for mitigation measures, the significance of effect is therefore likely to be a long-term (temporary), **moderate adverse**, and **significant** effect (due to the 'medium' sensitivity/value of the receptor and 'moderate' magnitude of impact and additional mitigation).

The English Lake District WHS

- 6.7.7 Considering the nature of the Proposed Development impacts, embedded mitigation, and distance to the receptor the significance of effects is likely to be a long-term (temporary), **minor adverse**, and **non-significant** effect (due to the 'high' sensitivity/value of the receptor and 'negligible' magnitude of impact, following embedded design mitigation and additional mitigation).

Potential Below Ground Heritage Receptors (archaeological remains)

- 6.7.8 There would be no new areas of below-ground disturbance occurring within the Site during the operational phase as any physical impacts to below ground archaeological remains as these assets would have been designed-out in the pre-commencement phase or removed and recorded

during the construction phase. Therefore, the operational phase activities of the Proposed Development are assessed as having a ‘**no change**’ effect on this receptor.

- 6.7.9 Furthermore, any requirements arising from potential below ground receptors found during the construction phase, such as archaeological exclusion zones for machinery and planting that would need to be adhered to for any post-construction maintenance activities will be included in the OMP to be secured by a DCO Requirement.

Decommissioning Phase

Stone Circle and Cairn

- 6.7.10 There is potential for indirect impacts on the wider setting of this heritage receptor through decommissioning related activities (further information is available from Chapter 5 – Construction and Decommissioning Methodology and Phasing). Following additional mitigation, the decommissioning phase activities of the Proposed Development is therefore assessed as having a short-term, **minor adverse** and **non-significant** effect on this receptor.

Wythemoor Sough and Adjoining Barn and Stable

- 6.7.11 Considering potential indirect impacts on the setting of this heritage receptor along with the proposed additional mitigation the decommissioning phase activity is therefore assessed as likely having a short-term, **minor adverse** and **non-significant** effect on this receptor.

The English Lake District WHS

- 6.7.12 Following additional mitigation, the decommissioning phase activities of the Proposed Development is therefore assessed as having a short-term, **minor adverse** and **non-significant** effect on this receptor.

Potential Below Ground Heritage Receptors (archaeological remains)

- 6.7.13 Should the below-ground disturbance occur within the Site as part of the decommissioning, this would also not result in any physical impacts to

below-ground archaeological remains as these will have been removed and recorded during the construction phase of the Proposed Development. Therefore, the decommissioning phase activities of the Proposed Development are assessed as having a ‘**no change**’ effect on this receptor.

6.8 Cumulative Effects

6.8.1 The following section of this Chapter assesses the potential effects of other relevant development proposals within the 3km Study Area which may give rise to potential cumulative effects with the Proposed Development. The full list of cumulative developments that are considered as part of this ES are presented within Chapter 2 – EIA Methodology [REF: 6.1].

6.8.2 There are two cumulative developments within 3km of the Site with potential for cumulative effects relevant to this Chapter due to their size and distance from receptors. These are:

- Land at Lillyhall North, Branthwaite Road, Winscales, Workington (Ref. FUL/2021/0009) (‘Land at Lillyhall North’). The development was approved with conditions in February 2021.
- Lostrigg Solar (Case Reference EN0110004), which, at its closest point, is 15m north of the Site is a large-scale solar farm which was first publicised when a scoping request was made to the SoS in June 2024. While this has since been withdrawn as a DCO project, it remains under consideration within the ES due to the expectation that it may come forward under the Town and Country Planning Act regime.

6.8.3 Regarding the scoping of heritage assets into this cumulative assessment. The Grade II LB Wythemoor Sough and adjoining barn and stable is situated in proximity to the identified cumulative developments and subsequently there is a potential for cumulative effects on this receptor. Therefore, the Grade II LB Wythemoor Sough and adjoining barn and stable has been brought forward into this assessment of cumulative effects.

6.8.4 Table 6.9 provides a summary of potential cumulative effects on heritage receptors at this stage of the assessment process.

Construction Phase

Land at Lillyhall North

- 6.8.5 Land at Lillyhall North is located 1.3km northwest of the Site; therefore, due to distance between the Site and the development and the expected timings of the construction phase, it is expected that cumulative effects during the construction phase (relating to traffic management, noise, and dust) in conjunction with the Proposed Development would not be significant and could be mitigated within a CEMP.

Lostrigg Solar

- 6.8.6 At its closest point, the Lostrigg Solar (formerly EN0110004) site is located 15m north of the Site; due to the proximity it could have a potential cumulative effect in conjunction with the Proposed Development. The Grade II LB Wythemoor Sough and adjoining barn and stable is situated adjacent to the two schemes. Should Lostrigg Solar, be consented it is possible there could be an overlap in the construction activities of the two schemes. However, it is expected that cumulative effects during the construction phase of Lostrigg Solar in conjunction with those of the Proposed Development can be mitigated within a CEMP and CTMP. The cumulative impact of the construction phase is therefore assessed as likely having a short-term, **moderate adverse** and **significant** effect on this receptor.

Operational Phase

Land at Lillyhall North

- 6.8.7 No significant cumulative cultural heritage effects are predicted (other than those as a consequence of the Proposed Development itself) despite Areas A and B of the Site and Land at Lillyhall North lying within the same wider landscape. It is predicted that due to distance any change, including indirect effects, would not result in significant cumulative residual effects given the limited intervisibility and lack of distinct historic connection between the Land at Lillyhall North site and the Site.

Lostrigg Solar

- 6.8.8 Should Lostrigg Solar be consented this would result in an increase in the amount of land covered by ground mounted solar panels within the setting of the identified built heritage receptor of Wythemoor Sough and adjoining barn and stable. Considering the medium sensitivity/value of the receptor and the potential for mitigation measures, the cumulative significance of effect is therefore likely to be a long-term (temporary), **moderate adverse** and **significant** effect (due to the 'medium' sensitivity/value of the receptor and 'moderate' magnitude of impact and additional mitigation).

Decommissioning Phase

Land at Lillyhall North

- 6.8.9 Land at Lillyhall North is for industrial development and would not be subject to reinstatement in the same way as the Proposed Development. However, any expected cumulative effects during the decommissioning phase (relating to traffic management, noise, and dust) in conjunction with the Proposed Development would not be significant and could be mitigated via the DMP due to distance between the Site and the development and the expected timings of the decommissioning phase.

Lostrigg Solar

- 6.8.10 Lostrigg Solar will likely be subject to reinstatement in the same way as the Proposed Development. This would therefore mean that the proposals (for Lostrigg Solar and the Proposed Development) will form long-term features within the setting of the receptor of Wythemoor Sough and adjoining barn and stable. Although, embedded mitigations within both Lostrigg Solar and the Proposed Development will reduce the magnitude of impact, as depicted in Table 6.9. There is potential for indirect impacts on the wider setting of this heritage receptor through noise, dust, and vibration, as well as the location of plant. Following additional mitigation, the decommissioning phase activities of the Proposed Development are therefore assessed as having a short-term, **negligible adverse** and **non-significant** effect on this receptor.

Cumulative Effects Summary

- 6.8.11 Taken together, there is a **significant** cumulative effect to Wythemoor Sough and adjoining barn and stable (a **moderate adverse** effect). No other significant cumulative effects have been identified.

6.9 Summary

- 6.9.1 An assessment of the likely cultural heritage effects arising from the Proposed Development has been undertaken. Initial desktop study has been followed by Site and Study Area visits to gain an understanding of the baseline conditions of the Site and its surrounding landscape.
- 6.9.2 Overall significant cultural heritage effects are broadly limited to the Site itself, and receptors in close proximity of the Site. Generally, as time passes and the mitigation becomes established, the significance of these effects will reduce, with potentially beneficial effects predicted for vegetation within the Site.
- 6.9.3 However, it is considered that the Proposed Development will not result in substantial harm to any assessed designated heritage assets (in NPPF terms).
- 6.9.4 Table 6.8 contains a summary of the preliminary assessment of the likely significant effects of the Proposed Development.
- 6.9.5 Table 6.9 provides a summary of potential cumulative effects on heritage receptors at this stage of the assessment process.

Table 6.8: Table of Significance – Residual Effects

Potential Effect	Nature of Effect	Likely Significant Effect (including embedded mitigation)	Secondary / Tertiary Additional Mitigation	Geographical Importance						Residual Effect
				I	UK	E	R	UA	L	
Construction Phase (accounting for Embedded Mitigation)										
Effects on Stone Circle and Cairn	Short-term Construction activities associated with the Proposed Development have the potential for indirect impacts on the setting of the receptor.	Moderate Adverse	CEMP and CTMP to be substantially in accordance with the measures set out in the OCEMP and OCTMP.			X				Moderate Adverse (a significant effect) Less than substantial harm (moderate level) (NPPF/ NPS terms)
Effects on Wythemoor Sough	Short-term Construction activities associated with the Proposed Development have the potential for indirect impacts on the setting of the receptor.	Moderate Adverse	CEMP and CTMP to be substantially in accordance with the measures set out in the OCEMP and OCTMP.			X				Moderate Adverse (a significant effect) Less than substantial harm (moderate level) (NPPF/ NPS terms)

Potential Effect	Nature of Effect	Likely Significant Effect (including embedded mitigation)	Secondary / Tertiary Additional Mitigation	Geographical Importance						Residual Effect
				I	UK	E	R	UA	L	
Effects on The English Lake District WHS	'No Change' Construction activities associated with the Proposed Development do not have the potential for indirect impacts on the setting of this receptor	Minor Adverse	CEMP and CTMP to be substantially in accordance with the measures set out in the OCEMP and OCTMP.	X						Minor Adverse Less than substantial harm (low level) (NPPF/ NPS terms)
Effects on Potential Below Ground Heritage Receptors (Archaeological Remains)	Permanent Potential physical impact during construction phase on surviving unknown non-designated below ground heritage receptors (archaeological remains)	Major Adverse	Archaeological fieldwork and mitigation detailed in the AMS (Appendix 6.3)						X	Moderate Beneficial (a significant effect) no harm
Operational Phase (accounting for Embedded Mitigation)										
Effects on Stone Circle and Cairn	Long-term (temporary) Located within the Site and potential for the Proposed Development to affect its value through development within its setting. Embedded mitigation (Figure 3.4) considered.	Moderate Adverse	Maintenance and management of comprehensive landscape mitigation strategy implemented substantially in accordance with OLEMP. Operational measures substantially in accordance with OOMP.			X				Moderate Adverse (a significant effect) Less than substantial harm (moderate level) (NPPF/

Potential Effect	Nature of Effect	Likely Significant Effect (including embedded mitigation)	Secondary / Tertiary Additional Mitigation	Geographical Importance						Residual Effect
				I	UK	E	R	UA	L	
										NPS terms)
Effects on Wythemoor Sough	Long-term (temporary) Located within close proximity to the Site and potential for the Proposed Development to affect its value through development within its setting.	Moderate Adverse	Maintenance and management of comprehensive landscape mitigation strategy implemented substantially in accordance with OLEMP. Operational measures substantially in accordance with OOMP.			X				Moderate Adverse (a significant effect) Less than substantial harm (moderate level) (NPPF/ NPS terms)
Effects on The English Lake District WHS	Long-term (temporary) Given the substantial distance from the Site to the receptor and intervening topography and landscaping, it is considered that there will be no direct impact to either the receptor itself or a significant indirect effect on its setting.	Minor Adverse	Maintenance and management of comprehensive landscape mitigation strategy implemented substantially in accordance with OLEMP. Operational measures substantially in accordance with OOMP.	X						Minor Adverse Less than substantial harm (low level) (NPPF/ NPS terms)
Effects on Potential Below Ground Heritage Receptors (Archaeologi	'No Change' During the operational phase. Archaeological remains will have been mitigated within construction phase.	'No Change'	Maintenance and management of comprehensive landscape mitigation strategy implemented substantially in accordance with OLEMP.						X	'No Change'

Potential Effect	Nature of Effect	Likely Significant Effect (including embedded mitigation)	Secondary / Tertiary Additional Mitigation	Geographical Importance						Residual Effect
				I	UK	E	R	UA	L	
cal Remains)			Operational measures substantially in accordance with OOMP.							
Decommissioning Phase (accounting for Embedded Mitigation)										
Effects on Stone Circle and Cairn	Short-term Decommissioning activities associated with the Proposed Development have the potential for indirect impacts on the setting of the receptor (from decommissioning activities).	Minor Adverse	Decommissioning Management Plan ('DMP') suite will be implemented, to be substantially in accordance with measures outlined in the FDMP.			X				Minor Adverse Less than substantial harm (low level) (NPPF/ NPS terms)
Effects on Wythemoor Sough	Short-term Decommissioning activities associated with the Proposed Development have the potential for indirect impacts on the setting of the receptor (from decommissioning activities).	Minor Adverse	DMP suite will be implemented, to be substantially in accordance with measures outlined in the FDMP.			X				Minor Adverse Less than substantial harm (low level) (NPPF/ NPS terms)
Effects on The English Lake District WHS	Short-term Decommissioning activities associated with the Proposed Development have the potential for indirect impacts on the setting of the receptor due to the nature	Minor Adverse	DMP suite will be implemented, to be substantially in accordance with measures outlined in the FDMP.	X						Minor Adverse Less than substantial harm (low level)

Potential Effect	Nature of Effect	Likely Significant Effect (including embedded mitigation)	Secondary / Tertiary Additional Mitigation	Geographical Importance						Residual Effect
				I	UK	E	R	UA	L	
	of the impacts and distance to the receptor.									(NPPF/ NPS terms)
Effects on Potential Below Ground Heritage Receptors (Archaeological Remains)	'No Change' During decommissioning phase. Archaeological remains will have been mitigated within construction phase.	'No Change'	DMP suite will be implemented, to be substantially in accordance with measures outlined in the FDMP.						X	'No Change'

Table 6.9: Table of Significance – Cumulative Effects

Potential Effect	Nature of Effect	Likely Significant Effect (including embedded mitigation)	Secondary / Tertiary Additional Mitigation	Geographical Importance						Residual Effect
				I	UK	E	R	UA	L	
Construction Phase (accounting for Embedded Mitigation)										
Effects on Wythemoor Sough and Adjoining Barn and Stable	Short-term Construction activities associated with the Proposed Development have the potential for indirect impacts on the setting of the receptor.	Moderate Adverse	CEMP and CTMP to be substantially in accordance with the measures set out in the OCEMP and OCTMP.			X				Moderate Adverse (a significant effect) Less than substantial harm (NPPF/ NPS terms)
Operational Phase (accounting for Embedded Mitigation)										
Effects on Wythemoor Sough and Adjoining Barn and Stable	Long-term (temporary) Located within close proximity to the Site and potential for the Proposed Development to affect its value through development within its setting.	Moderate Adverse	Maintenance and management of comprehensive landscape mitigation strategy implemented substantially in accordance with OLEMP. Operational measures substantially in accordance with OOMP.			X				Moderate Adverse (a significant effect) Less than substantial harm (NPPF/ NPS terms)
Decommissioning Phase (accounting for Embedded Mitigation)										
Effects on Wythemoor Sough and Adjoining Barn and Stable	Short-term Decommissioning activities have the potential for indirect impacts on the setting of the receptor (from construction activities).	Minor Adverse	Decommissioning Management Plan ('DMP') suite will be implemented, to be substantially in accordance with measures outlined in the FDMP.			X				Minor Adverse Less than substantial harm (NPPF/ NPS terms)

Nature of Effect * Permanent or Temporary Short-term, Medium-term, or Long-term
 Significance of Effect** Major/ Moderate/ Minor/ Negligible Beneficial/ Adverse
 Geographical Importance *** I = International; UK = United Kingdom; E = England; R = Regional; UA = Unitary Authority; L = Local
 Residual Effects **** Major / Moderate / Minor / Negligible Beneficial / Adverse