



# Archaeology Impact Assessment

Hunterston B Switchgear Replacement and Tower  
Refurbishment

02/02/2021



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# 1. INTRODUCTION

## BACKGROUND

- 1.1. Neo Environmental Ltd has been appointed by Bruno Agochukwu of Scottish Power Energy Networks to undertake a desk-based Archaeological Impact Assessment (AIA) for the proposed switchgear replacement and refurbishment of two steel lattice towers at Hunterston B Power Station (the “Development”). The AIA is intended to support the planning application being submitted for the aforementioned development.

## DEVELOPMENT DESCRIPTION

- 1.2. The Development will consist of two primary elements: the first of which is the proposed construction of a replacement 132kV switchgear structure, including any associated hardstanding areas, access tracks and services. The second element comprises the proposed refurbishment of two steel lattice towers (XB002 and XB003) on the associated overhead electricity lines. See **Appendix B** (Switchgear Replacement Boundary) and **Appendix C** (Tower Refurbishment Boundary) for the boundary extents of the proposed Development.

## SITE DESCRIPTION

- 1.3. The area containing the Development (the “Site”) comprises two separate sections within the grounds of Hunterston B Power Station, including a smaller northern section c. 0.65ha in size and a larger southern section of c. 5.44ha.
- 1.4. The northern section comprises mostly unused hardstanding which was previously utilised as a construction compound for various developments associated with the power station. Some peripheral areas within the section include undeveloped green land and mature hedgerow. This section is centred approximately on E218690 N651266 and lies at an elevation of c. 22 – 24m AOD.
- 1.5. The southern section comprises mostly greenfield land to the south of the main power station grounds. Some development is present within the boundary, including the aforementioned electricity pylons XB002 and XB003, as well as the local access track labelled as Goldenberry Road. Land use for this southern section is mostly grazing land while it is bound on the east and west by mature woodland. This section is centred approximately on E218810 N650875 and lies at an elevation of c. 30 – 43m AOD.

- 1.6. Underlying superficial geology for both sections of the Site comprises 'Glaciofluvial Ice Contact Deposits – Gravel, Sand and Silt', while underlying bedrock comprises 'Kelly Burns Sandstone Formation – Sandstone'.

## SCOPE OF THE ASSESSMENT

- 1.7. This desk-based assessment has been produced to evaluate the archaeological potential of the Site and the impacts that may occur on known and unknown archaeology as a result of the Development. Designated sites were identified within an approximate 1km study area around the full Development, including both the northern and southern sections, while non-designated sites were identified within an approximate 250m study area around the outer extents of both sections. Where duplicate assets from more than one database are identified, attempts have been made to remove the duplicate records from the assessment.
- 1.8. The aims of this report are as follows:
- To identify all known heritage assets within and near to the Site, based on all available public resources;
  - To identify the archaeological potential of the Application Site;
  - To determine what if any level of recording will be required for any extant remains;
  - To assess the significance of any direct or indirect effects of the Development on nearby cultural heritage assets and their settings, as well as upon hitherto-unknown archaeological remains, including at relevant construction, operation and decommissioning phases;
  - To identify mitigation measures where possible and aid in the design process to reduce the potential impacts of the proposed scheme; and
  - To provide recommendations for any further archaeological/heritage assessment work that should be undertaken prior to, during or following the Development.
- 1.9. The report is supported by the following Figures and Technical Appendices:
- Appendix A: Figures
    - Figure 1 – Designated Heritage Assets
    - Figure 2 – Archaeological Sites within 250m
    - Figure 3 – OS 1857-8 Historic Map

- Figure 4 – OS 1897 Historic Map
- Appendix B: Switchgear Replacement Boundary
- Appendix C: Tower Refurbishment Boundary

## STATEMENT OF AUTHORITY

- 1.10. The assessment has been conducted by registered archaeologists with the Chartered Institute for Archaeologists (CIfA), of Associate (ACIfA) level or above and/or members of the Institute of Archaeologists of Ireland (IAI). The assessment has been conducted in accordance with the appropriate professional guidance outlined in the Code of Conduct published by CIfA<sup>1</sup>.
- 1.11. Michael Briggs BSc (Hons) MSc ACIfA MIAI was the primary author of this assessment. He has undertaken a large number of cultural heritage and archaeological impact assessments for developments across the UK and Ireland, with a particular focus on renewable projects, including numerous solar farms throughout the Republic of Ireland and Northern Ireland. He has over six years of experience, including assessments for the initial stages of feasibility and heritage impacts through to any final mitigation measures required for each site, such as geophysical surveys and trial trenching.
- 1.12. Paul Neary BA H.Dip MA MSc MIEEnvSc MIAI ACIFA CEnv was the primary editor of the report. Paul is dual-qualified as a Chartered Environmentalist and archaeologist. Paul has over 14 years of archaeology and heritage experience, the majority of which relates to Ireland. Paul has worked on large road projects, EIA developments and energy projects across Ireland and the UK. He is licensed to direct archaeology work in the Republic of Ireland and has also held archaeology director licenses in Northern Ireland.

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<sup>1</sup> CIfA (2014) *Code of Conduct*. CIfA: Reading.

## 2. ASSESSMENT METHODOLOGY

### DESK BASED ASSESSMENT

- 2.1. This desk-based assessment has been produced to evaluate the archaeological potential of the Site and the impacts that may occur on known and unknown archaeology as a result of the Development. Designated sites were identified within an approximate 1km study area around the full Development, including both the northern and southern sections, while non-designated sites were identified within an approximate 250m study area around the outer extents of both sections. Where duplicate assets from more than one database are identified, attempts have been made to remove the duplicate records from the assessment.
- 2.2. Historical databases and various archives were consulted to identify the designated assets and undertake the assessment. The main sources which were consulted include the:
- National Monuments Record of Scotland (NMRS);
  - Historic Environment Scotland (HES);
  - Historic Environment Record (HER) held by the West of Scotland Archaeology Service (WoSAS);
  - Published sources available in the WoSAS HER;
  - National Record of the Historic Environment (Canmore);
  - National Library of Scotland;
  - Aerial imagery via Google Earth, Bing Maps and ArcGIS Pro global mapping;
  - Britain from Above;
  - Cambridge University Collection of Aerial Photography; and
  - National Collection of Aerial Photography.

### MAP REGRESSION ANALYSIS

- 2.3. Analysis of historic maps can reveal the changes in landuse and field boundaries in the area and can highlight potential areas of archaeological interest that may have been lost in the subsequent years. Relevant maps were consulted to undertake this analysis as part of the desk-based assessment.



## AERIAL PHOTOGRAPHY

- 2.4. To identify potential archaeological features within the Application Site that are not recorded within the relevant databases, aerial photography of the land was examined in order to identify any cropmarks or markings within the Application Site that may be indicative of previously unknown features. This includes both modern aerial photography and historical aerial photography, where available.

## ASSESSMENT OF DIRECT EFFECTS

- 2.5. Potential direct impacts during the construction phase are considered as physical disturbance of known or associated archaeological remains. These impacts can be caused through the construction processes within the footprint of the Development, including ancillary works such as access tracks. Direct impacts can affect both above ground and subsurface remains, which will both be considered within this assessment. The presence and character of any existing archaeological features will be identified within the site boundary, and the archaeological potential of the site assessed through a desk-based assessment of the surrounding archaeological resource and landscape.
- 2.6. The significance of any impacts will be determined by considering the construction methodology within the Application Site and to what extent this would disturb any sub-surface remains. The significance and resultant sensitivities of heritage assets can be derived by consultation with the following guidance table:

Table 2-1 Grading of the Significance of Cultural Heritage Resources Based on DMRB 2009

Significance	Assessment Considerations		
	Archaeological Remains	Historic Buildings	Historic Landscapes
Very High	<ul style="list-style-type: none"> <li>World Heritage Sites</li> <li>Assets inscribed as of universal importance</li> <li>Assets that can contribute substantial knowledge to international research</li> </ul>	<ul style="list-style-type: none"> <li>World Heritage Sites</li> <li>Structures of recognised international importance</li> </ul>	<ul style="list-style-type: none"> <li>World Heritage Sites</li> <li>Historic landscapes of international historic value</li> </ul>
High	<ul style="list-style-type: none"> <li>Scheduled Monuments of national importance</li> </ul>	<ul style="list-style-type: none"> <li>Scheduled Monuments which incorporate standing remains</li> </ul>	<ul style="list-style-type: none"> <li>Designated or undesignated historic landscapes of outstanding interest</li> </ul>

	<ul style="list-style-type: none"> <li>• Undesignated structures of clear national importance</li> <li>• Designated or undesignated assets that contribute to national research objectives</li> </ul>	<ul style="list-style-type: none"> <li>• Category A Listed Buildings</li> <li>• Some Category B Listed Buildings that have exceptional historic or architectural qualities or associations not adequately reflected in their listing</li> <li>• Some Conservation Areas containing very important buildings</li> <li>• Undesignated assets of clear national importance</li> </ul>	<ul style="list-style-type: none"> <li>• Historic landscapes of demonstrable national value</li> </ul>
<p><b>Medium</b></p>	<ul style="list-style-type: none"> <li>• Undesignated assets that contribute to regional research objectives</li> <li>• Scheduled Monuments compromised by poor preservation or poor survival of contextual associations</li> </ul>	<ul style="list-style-type: none"> <li>• Category B and some Category C Listed Buildings of regional importance</li> <li>• Unlisted buildings containing exceptional qualities in their fabric or historical associations</li> <li>• Conservation Areas containing buildings important to its historic character</li> <li>• Historic townscapes with important historic integrity in their buildings or settings</li> </ul>	<ul style="list-style-type: none"> <li>• Designated historic landscapes</li> <li>• Undesignated historic landscapes showing quality justifying designation</li> </ul>
<p><b>Low</b></p>	<ul style="list-style-type: none"> <li>• Undesignated assets of local importance</li> <li>• Assets compromised by very poor preservation or survival of contextual associations</li> </ul>	<ul style="list-style-type: none"> <li>• Category C Listed Buildings of local importance</li> </ul>	<ul style="list-style-type: none"> <li>• Undesignated historic landscapes of local interest</li> </ul>

	<ul style="list-style-type: none"> <li>Assets with potential to contribute to local research objectives</li> </ul>	<ul style="list-style-type: none"> <li>Undesignated structures of modest fabric or historical association</li> <li>Historic townscapes of limited integrity features within urban areas</li> </ul>	<ul style="list-style-type: none"> <li>Historic landscapes whose value is limited by poor preservation or survival of contextual associations</li> </ul>
<b>Negligible</b>	<ul style="list-style-type: none"> <li>Assets with little or no surviving evidence</li> </ul>	<ul style="list-style-type: none"> <li>Buildings of no architectural or historical note</li> </ul>	<ul style="list-style-type: none"> <li>Landscapes with little or no historic interest</li> </ul>

## ASSESSMENT OF INDIRECT EFFECTS

2.7. The assets that were identified through the sources previously listed are also assessed for potential indirect impacts by considering their significance and sensitivity. The magnitude of the visual impacts upon these assets are determined by the views and intervisibility shared with the Proposed Development, as well as the nature, character, date, extent, setting and surviving remains of the feature where relevant. Impacts were assigned on the following scale:

- Major
- Major to moderate
- Moderate
- Moderate to low
- Low
- Low to negligible
- Negligible

2.8. Indirect impacts of ‘moderate’ or above are considered significant and appropriate mitigation measures have been recommended where appropriate in order to lower the potential impact.

## THE IMPORTANCE OF SETTING

- 2.9. Setting can be important to the way in which historic assets or places are understood, appreciated and experienced.
- 2.10. Where development is proposed it is important to identify and define the setting of the heritage asset and to assess how development might impact upon this resource. Setting often extends beyond the property boundary, or 'curtilage', of an individual historic asset into a broader landscape context. Less tangible elements can also be important in understanding the setting. These may include function, sensory perceptions or the historical, artistic, literary and scenic associations of places or landscapes. In the light of this guidance, development proposals should seek to avoid or mitigate detrimental impacts on the settings of historic assets.

## ASSESSMENT LIMITATIONS

- 2.11. The consulted sources contain records of known archaeological and historic features. The record is not an exhaustive record of all surviving historic environment features and does not preclude the possible existence of archaeological remains of significance within the study zone, which are at present unknown or have been added to the records recently. It was assumed that official data provided by public bodies was accurate and up-to-date.

### 3. BASELINE CHARACTERISATION

- 3.1. The following section outlines the historical and archaeological background within and around the Site. This provides a clear depiction of the context and significance of the heritage assets that could potentially be impacted by the Proposed Development. The potential for disturbing any remains within the footprint of the Development has been assessed and recommendations produced for any further investigative work.

#### ARCHAEOLOGICAL PERIOD CLASSIFICATIONS

- 3.2. The period classifications below provide chronological context for the archaeological assets which are discussed as part of this report.
- Mesolithic (10,000BC – 4,500BC)
  - Neolithic (4,500BC – 2,500BC)
  - Bronze Age (2,500BC – 700BC)
  - Iron Age and Roman (700BC – AD410)
  - Early Historic and Medieval (AD410 - AD1560)
  - Post Medieval & Modern (AD1560 onwards)

#### ARCHAEOLOGICAL SITES AND CULTURAL HERITAGE ASSETS

- 3.3. There are four listed buildings within a 1km study area, including one Category A, one Category B and two Category C. No other designated heritage assets are present within this study area, including no scheduled monuments, properties in care, conservation areas, gardens and designated landscapes, world heritage sites, historic battlefields or heritage coasts.
- 3.4. A total of 14 non-designated archaeological records are present within the 250m study area around the Site, including seven point records and six event records from the WoSAS HER, as well as one record from the Canmore database which is not a duplication.
- 3.5. A table of the designated assets identified is presented in **Table 3-1** below while a table of non-designated assets is presented in **Table 3-2**. Their locations relative to the proposed development boundaries are presented within **Figures 1 & 2: Appendix A**.

Table 3-1: Designated Heritage Assets within 1km of the Site

Database No.	Name	Distance to Site
<b>Scheduled Monuments</b>		
<i>None</i>		
<b>World Heritage Sites</b>		
<i>None</i>		
<b>Historic Battlefields</b>		
<i>None</i>		
<b>Gardens and Designed Landscapes</b>		
<i>None</i>		
<b>Category A Listed Buildings</b>		
LB14313 (DES)	Hunterston Castle	580m to ENE
<b>Category B Listed Buildings</b>		
LB14286 (DES)	Hunterston House	660m to NE
<b>Category C Listed Buildings</b>		
LB14288 (DES)	Hunterston House, Walled Garden	500m to ENE
LB14287 (DES)	Hunterston House, Well	680m to NE
<b>Conservation Areas</b>		
<i>None</i>		

Table 3-2: Non-designated Sites within 250m of the Site

Database No.	Name	Type
<b>WoSAS Historic Environment Record (Points)</b>		
5234	'Fences' find spot (flints)	Find spot
5235	'Fences' find spot (cinerary urn and bead)	Find spot
5244	Hunterston, Nuclear Generating Stations / Hunterston Power Station	Modern structure
14108	Hunterston 'B' Power Station / Hunterston Nuclear Generating Station	Modern structure
67724	Roundhouse; Pits; Postholes; Carved Stone	Sub-surface features (prehistoric)
67725	Roundhouse; Pits; Postholes; Carved Stone	Sub-surface features (prehistoric)

67726	Roundhouse; Pits; Postholes; Carved Stone	Sub-surface features (prehistoric)
<b>WoSAS Historic Environment Record (Events)</b>		
5359	Archaeological Mitigation: Hunterston Converter and Substation, West Kilbride, North Ayrshire	Evaluation (8% sample)
5405	Archaeological Mitigation, Area B: Hunterston East Substation, West Kilbride, North Ayrshire	Open area strip and excavation
5406	Archaeological Mitigation: Area D, Hunterston Converter and Substation, West Kilbride, North Ayrshire	Open area strip and excavation
5407	Hunterston Converter and Substation, West Kilbride, North Ayrshire: Strip Map Sample	Strip, map and sample
5424	Archaeological Watching Brief: Western Link Northern Point of Connection - Hunterston To Ardneil Bay	Monitoring
5582	Archaeological Mitigation: Hunterston North Substation, West Kilbride, North Ayrshire	Open area strip and excavation
<b>Canmore Records (Points)</b>		
40668	Find spot (axe hammer)	Find spot

### Mesolithic, Neolithic and Bronze Age Periods (10,000BC – 700BC)

- 3.6. The Mesolithic record is represented within the 250m study area by the ‘Fences’ find spot (5234), for which Mesolithic flints were recorded as having been found to the north of the proposed development boundary (based on its approximate grid reference) in 1976. Reference to artefactual evidence from the 2013/2014 excavations by Rathmell Archaeology here (5405) suggests a *“time-frame dating back to the Mesolithic, although the majority of lithics represent date of late Bronze Age/iron Age”*<sup>2</sup>. No other indications of Mesolithic activity are present.
- 3.7. While no records are definitively tied to the Neolithic period, a number of sub-surface features and artefacts, especially flints, discovered throughout the 2013/2014 evaluations and excavations in the area are dated broadly to the prehistoric period. Similarly, the axe hammer found (40668) is of prehistoric origin but has not been refined to the Neolithic or Bronze Age. With respect to the above, some degree of Neolithic settlement activity in the local area is likely.
- 3.8. The majority of the prehistoric evidence recovered from the 2013/2014 fieldwork at Hunterston was associated with the Bronze Age period. Such works identified a number of pits, postholes and hearths contained within a multi-phase settlement site. Features and artefactual evidence dating to both the Bronze Age and Iron Age were recorded, with some evidence for later Medieval occupation. Separate to these excavations, the nearby find spot

<sup>2</sup> [http://www.wosas.net/wosas\\_event.php?id=5405](http://www.wosas.net/wosas_event.php?id=5405)

for the cinerary urn in 1927 (5234), which was found inverted over a cremation and containing a single bead, is typical of the Early Bronze Age.

### Iron Age and Roman Period (700BC – AD410)

- 3.9. As previously mentioned, the multi-phase settlement site investigated during the 2013/2014 works by Rathmell Archaeology contained evidence for Iron Age activity within several of the sub-surface features. The thesis for the site was that the Iron Age settlement was a re-use of a previous settlement due to the intercutting features.
- 3.10. No evidence for any Romano-British activity is present in the area.

### Early Historic and Medieval (AD410 - AD1560)

- 3.11. The 2013/2014 fieldwork identified a number of medieval pottery fragments, particularly from a refuse pit found within Area 2 of the open area strip. No further evidence beyond this was recovered.

### Post Medieval & Modern (AD1560 onwards)

- 3.12. The post-medieval record within the local area is largely represented by the listed buildings located to the northeast and east-northeast of the proposed development boundaries. These buildings are associated with Hunterston Castle and Hunterston House and originate from the 15<sup>th</sup> century onwards. Their entries within the HES database are as follows:

#### Hunterston Castle (14313)

*“A 15th century or early 16th century Keep with a 17<sup>th</sup> century house attached to it. Originally a morass stretched round the castle with a protecting moat and rampart; Keep is of small dimensions and contained four stories of which the undermost is vaulted; main entrance on 1st floor from which a wheel-stair in the thickness of the wall led to the top where the parapet walk is protected by a battlement projected on small corbels round three sides only.*

*The 17th century house addition has a staircase turret projecting in the middle of the south side. The building is in good preservation and was the home of the Hunter family until the Georgian mansion was built. There were ranges of offices attached to the castle which no longer exist, the site being now occupied by a modern homestead, but the small courtyard on the south side seems, however, to be old. What remains is a picturesque range, with courtyards to north and south.”*

#### Hunterston House (LB14286)

*“1799. Georgian mansion, somewhat recast and extended towards end of 19th century and later. Pink harling, white stone dressings, 3 storeys, high pitched slate roof containing modern*



*dormers. Principal facade to north has pedimented porch with fluted Doric columns; bay treatment of windows on either side."*

#### Hunterston House, Walled Garden (LB14288)

*"Possibly 18th century, partly recent rebuilding."*

#### Hunterston House, Well (LB14287)

*"Round stone well-head, wrot-iron standards, wheel and chain. Has inscription inside."*

- 3.13. Two modern structures associated with the Hunterston B nuclear power station (5244 & 14108) are also included within the HER. The power station currently dominates the local landscape and the proposed development is associated with construction elements related to such.

## MAP REGRESSION ANALYSIS

- 3.14. **Figure 3: Appendix A** contains the OS 1857-8 historic map of the Site, while **Figure 4: Appendix A** shows OS 1897 historic map. These maps show the progression of land use and field boundaries in the area, and can highlight potential areas of archaeological interest that may have been lost in the subsequent years.
- 3.15. The 1857-8 map shows that land within the Site, including both the northern and southern sections, was largely undeveloped and contained only trackways, field boundaries and small sections of woodland. Land use within the sections appears to have been entirely agricultural, likely associated with the Goldenberry farmstead depicted to the west and connected to the Site by the trackways, while some quarrying activity is depicted in the surrounding area. Nothing of archaeological significance is discernible in either section of the proposed development boundary.
- 3.16. The 1897 map shows that land within the Site did not undergo any notable changes in the latter half of the 19<sup>th</sup> century. The land still appears to be entirely in agricultural use and the Goldenberry farmstead and associated trackways into the Site are still depicted. Nothing of archaeological significance is discernible in either section of the proposed development boundary.

## AERIAL PHOTOGRAPHY

- 3.17. Since the depiction of the Site on the historic OS maps, development associated with the Hunterston power station has expanded into the boundaries. Modern aerial photography

identifies the northern section as being occupied by hardstanding areas that were utilised as a construction compound and parking for previous developments associated with the power station. This area now lies disused and vacant but with the hardstanding area remaining. Aerial imagery of the southern section remains largely similar to its historic map depictions, comprising mainly greenfield. However, some development is present within the boundary, including electricity pylons XB002 and XB003. The local access track labelled as Goldenberry Road still runs through the site as it did on the 19<sup>th</sup> century mapping. No archaeological features or cropmarks of archaeological potential have been identified in either section of the Site from the review of modern aerial photography on Google Earth, Bing Maps and ArcGIS Pro global mapping.

- 3.18. A review of historical aerial photography contained within the online databases for the National Collection of Aerial Photography, Cambridge University Collection and Britain from Above identified three such images of the Site: one from 1971<sup>3</sup> and two from 1988<sup>45</sup>. However, while the 1988 NCAP images show the entirety of the Site and the 1971 Cambridge image shows part of the southern section, these images do not show any cropmarks or hitherto-unknown features within any of these fields.

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<sup>3</sup> <https://www.cambridgeairphotos.com/location/bgz97/>

<sup>4</sup> <https://ncap.org.uk/frame-download/8-1-26-1-52-56>

<sup>5</sup> <https://ncap.org.uk/frame-download/8-1-3-1-13-155>

## 4. ASSESSMENT OF DIRECT IMPACTS

### KNOWN ARCHAEOLOGICAL AND HERITAGE ASSETS

- 4.1. No designated assets are present within or adjacent to the Site that may be directly impacted as a result of the proposed development. In addition, while non-designated assets 5234, 5259, 5405 and 5407 extend into the northern section and 5359, 5424, and 5582 extend into the southern section, these records comprise an approximate find spot and events associated with monitoring, evaluation and excavation fieldwork by Rathmell Archaeology in 2013 and 2014. As such, no standing features are associated with these records and sub-surface remains were investigated and preserved 'by record' prior to disturbance from their associated developments. Therefore, no known features associated with these records are considered to be at risk of direct impacts. In addition, no features of archaeological significance were identified during the map regression analysis or analysis of aerial photographs that may be directly impacted. As such, **no direct effects** upon known archaeological and heritage assets are anticipated.

### ARCHAEOLOGICAL POTENTIAL

#### Northern Section

- 4.2. Construction within the northern section is expected to include topsoil stripping and excavation works for the proposed 132kV switchgear replacement, including any associated ancillary development required such as cable trenches, access tracks, etc.
- 4.3. In consideration of the local historic environment record and the results of the extensive 2013/2014 excavations and fieldwork undertaken by Rathmell Archaeology, land within the northern section is located within an area of high archaeological potential, particularly related to the Bronze Age and Iron Age periods. Land within this section was part of the 8% evaluation in 2013 but it is not clear how much of the section itself was investigated during this. Nonetheless, the proximity of this section to the multi-phase settlement site identified during the previous excavations emphasises this potential for sub-surface remains of significance. However, as the switchgear replacement is proposed within an area previously utilised as a construction compound, it has already been largely disturbed and currently consists of existing hardstanding. Only fringe sections along the outside of this section are left undisturbed and so the likelihood for sub-surface remains in this section is low. The potential for direct effects upon hitherto-unknown archaeology in the northern section are therefore anticipated to be **Low to negligible**.

## Southern Section

- 4.4. Construction within the southern section is expected to comprise the groundworks for refurbishing/replacement two steel lattice towers. The worst-case scenario for these works is anticipated to require excavations for a 60m by 60m 'platform' for each tower, separate to the existing towers, with possible topsoil stripping required for any new access tracks to link with the existing local roads.
- 4.5. As with the northern section, the local historic environment record and excavation results indicate that land within the southern section has a high archaeological potential, particularly related to the Bronze Age and Iron Age periods. While this section is located further south than the confirmed prehistoric remains and the identified multi-phase settlement site, land here is considered to be a prime location for associated prehistoric remains. However, it is noted that limited prehistoric remains were recorded during the stretch of the Hunterston to Ardsneil Bay cable route watching brief (5424) through this section. Nonetheless, as large sections of this area are undeveloped greenfield with no recorded ground disturbance, the potential to contain preserved remains is considered to be considerably higher than the northern section. The potential for direct effects upon hitherto-unknown archaeology in the southern section are therefore anticipated to be **High to moderate**.

## 5. ASSESSMENT OF INDIRECT EFFECTS

### DESIGNATED ASSETS

- 5.1. Four designated assets were identified within the 1km study area, including one Category A, one Category B and two Category C listed buildings located to the northeast and east-northeast of the proposed development boundaries. These buildings are associated with Hunterston Castle and Hunterston House and originate from the 15<sup>th</sup> century onwards. These buildings are set within well-contained grounds and benefit from a group setting with one another. However, views with the Site are expected to be largely screened by mature woodland along the western boundaries of these grounds. In addition, the existing large-scale development within the grounds of the power station indicates that the listed buildings are not sensitive to any further visual changes in this direction and at this distance. The switchgear replacement and tower refurbishments will not make any considerable visual changes to this viewscape. Indirect effects upon the listed buildings will therefore be **Negligible**.

### NON-DESIGNATED ASSETS

- 5.2. Of the 14 non-designated assets identified within the 250m study area, only two records have associated standing remains that could be visually impacted. These are the 20<sup>th</sup> century generation stations (5244 & 14108) associated with the Hunterston B Power Station. These structures are set within the wider power station and are not considered to be at all sensitive to any visual impacts resulting from the proposal. Indirect effects upon non-designated assets will therefore be **Negligible**.

## 6. RECOMMENDED MITIGATION MEASURES

### DIRECT EFFECTS UPON KNOWN ASSETS

- 6.1. As no direct effects upon known archaeological and heritage assets are anticipated for either the northern or southern section, **no mitigation measures are considered to be necessary in relation to known assets.**

### ARCHAEOLOGICAL POTENTIAL

- 6.2. Due to the previous ground disturbance and existing hardstanding area within the northern section, the likelihood for sub-surface remains in this section is low and the potential for direct effects upon hitherto-unknown archaeology is 'Low to negligible'. As such, **no mitigation measures are considered to be necessary in relation to the archaeological potential of the northern section.**
- 6.3. As the southern section is located within an area considered to have a high potential for prehistoric remains, particularly associated with the Bronze Age and Iron Age periods, the potential for direct effects upon hitherto-unknown archaeology in this area is therefore anticipated to be 'High to moderate'. **Some degree of archaeological mitigation is therefore recommended in relation to the groundworks proposed for the development in the southern section. A programme of archaeological monitoring, outlined within a written scheme of investigation produced by a qualified archaeologist, is considered to be appropriate for the following construction elements anticipated for the southern section:**
- Any excavations required in relation to foundations required for refurbishment/relocation of two steel lattice towers (XB002 and XB003);
  - Topsoil stripping associated with any new access tracks, whether temporary or permanent; and
  - Topsoil stripping and excavations associated with any ancillary groundworks for the two towers, including construction compounds, cable trenches or other services.
- 6.4. Any archaeological mitigation measures required will be at the discretion of North Ayrshire Council and their advisors WoSAS, both in response to the planning application as well as any further work that may be needed in response to fieldwork results.

## INDIRECT EFFECTS

- 6.5. As indirect effects upon known archaeological and heritage assets are anticipated to be 'Negligible' as a result of the proposed development, **no mitigation measures are considered to be necessary in relation to indirect effects.**

## 7. SUMMARY

- 7.1. Neo Environmental Ltd has been appointed by Bruno Agochukwu of Scottish Power Energy Networks to undertake a desk-based Archaeological Impact Assessment for the proposed switchgear replacement and refurbishment of two steel lattice towers at Hunterston B Power Station. The AIA is intended to support the planning application being submitted for the aforementioned development.
- 7.2. As no direct effects upon known archaeological and heritage assets are anticipated for either the northern or southern section, no mitigation measures are considered to be necessary in relation to known assets.
- 7.3. Due to the previous ground disturbance and existing hardstanding area within the northern section, no mitigation measures are considered to be necessary in relation to the archaeological potential of the northern section. As the southern section is located within an area considered to have a high potential for prehistoric remains, particularly associated with the Bronze Age and Iron Age periods, **archaeological mitigation in the form of a programme of archaeological monitoring, outlined within a written scheme of investigation produced by a qualified archaeologist, is considered to be appropriate for groundworks in the southern section of the proposed development boundary.**
- 7.4. As indirect effects upon known archaeological and heritage assets are anticipated to be 'Negligible' as a result of the proposed development, no mitigation measures are considered to be necessary in relation to indirect effects.



## 8. APPENDICES

### Appendix A – List of Figures

- Figure 1 – Designated Heritage Assets within 1km
- Figure 2 – Archaeological Sites within 250m
- Figure 3 – OS 1857-8 Historic Map
- Figure 4 – OS 1897 Historic Map

### Appendix B – Switchgear Replacement Boundary

### Appendix C – Tower Refurbishment Boundary



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