

10 Cultural Heritage

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10 Cultural Heritage

10.1 Executive Summary

- 10.1.1 This chapter identifies the archaeological and cultural heritage value of the site and assesses the potential for direct and setting effects on archaeological features and heritage assets resulting from the construction and operation of the Proposed Development. This chapter also identifies measures that should be taken to mitigate predicted adverse effects.
- 10.1.2 This assessment has identified 163 non-designated heritage assets and two designated assets within the site, the majority of which date to military activity from the Second World War. The Proposed Development has been designed to avoid directly impacting upon the known below ground footprint of the Category A Listed Underground Oil Fuel Storage tanks underneath Wee Fea Hill (Site 153).
- 10.1.3 The Proposed Development has also been designed so as to avoid impacts upon known heritage assets where possible. Given the density of known remains it has not been possible to avoid all impacts and there would be direct impacts on 13 non-designated heritage assets. All of these assets are military remains and comprise slit trenches, access tracks and earthwork and concrete remains relating to the construction and use of the Underground Fuel Reservoir (Site 153) and Communications Centre (Site 127). Individually these assets are of local importance, but together they form part of a wider group of remains on the slopes of Wee Fea that formed a distinct sector relating to the construction and defence of the vital Underground Fuel Reservoir (Site 53) and wider defence of the Lyness Naval Base. The Proposed Development would impact upon a small proportion of this wider complex of remains, leading to some loss of information content. A **moderate** and significant direct effect on these remains has been predicted.
- 10.1.4 The presence of extensive peat cover across the site indicates the potential for historic environmental evidence to be contained within and underlying the peat. Additionally, the identification of archaeological remains of prehistoric to post-medieval date in and around the site indicate the potential for sub-surface archaeological deposits to be present.
- 10.1.5 Planning policies and guidance require that account is taken of potential effects upon heritage assets by proposed developments and that where possible such effects are avoided. Where avoidance is not possible, effects on any significant remains should be minimised or offset. Given the identified significant effects and the potential for presently unknown archaeological remains, in particular of post-medieval and wartime remains to survive within the site, a programme of archaeological works designed to record known remains, avoid inadvertent damage to known remains and to investigate and mitigate against the possibility of uncovering hitherto unknown remains will be undertaken.
- 10.1.6 The implementation of the above outlined mitigation measures will record known remains, prevent inadvertent damage to known heritage assets; investigate the potential for previously unknown assets and disseminate the results of the archaeological works to the public. Following the implementation of mitigation measures there may be a slight loss of overall information content and as such a marginal magnitude of residual direct impact is anticipated. The residual direct effect would be **negligible** and not significant.
- 10.1.7 There would be a medium magnitude of impact on the setting of the Former Naval Headquarters and Communications Centre (Site 127) and the Underground Fuel Reservoir, Wee Fea (Site 153); during construction of the Proposed Development which would necessitate heavy goods vehicles using the tracks adjacent to both monuments and the creation of a construction compound within 30 m of the Communications Centre. The frequent passing of heavy goods vehicles and associated noise would temporarily interrupt and affect the ability to understand these monuments in their remote upland setting and there would be a **moderate** and significant effect on the setting of the Former Naval Headquarters and Communications Centre (Site 127) and a **minor** and not significant effect on the setting of the Underground Fuel Reservoir, Wee Fea (Site 153) during construction.

The potential effects of construction activities upon setting would be temporary, short term and reversible and would cease on completion of construction.

- 10.1.8 Potential operational effects on the settings of designated heritage assets within the 5 km and 10 km study areas and selected assets within the 20 km study area have been considered in detail as part of this assessment. **Moderate** and significant effects have been predicted upon the setting of the Category A Listed Former Naval Headquarters and Communications Centre, Wee Fea (Site 127) which is located within the site boundary and upon the setting of the Category B Listed Royal Naval Cemetery (Site 147) at Lyness.
- 10.1.9 A Heritage Trail will be established within the site as compensatory mitigation to partially offset potential impacts of the Proposed Development on the setting of Second World War heritage assets in its vicinity and in particular the Category A Listed Former Naval Headquarters and Communications Centre.
- 10.1.10 There would be **moderate** and significant residual effects on the setting of the Category A Listed Former Naval Headquarters and Communications Centre, Wee Fea and the Category B Listed Royal Naval Cemetery at Lyness, although the core components and integrity of the setting of these assets would not be adversely affected.
- 10.1.11 The possibility of cumulative effects has been considered and assessed. No additional cumulative effects have been predicted.

10.2 Introduction

- 10.2.1 This chapter considers the issues associated with the potential cultural heritage effects of the Proposed Development at Hoy, Orkney. The Proposed Development is for a wind farm of six turbines with a maximum tip height of up to 149.9 m and is described in detail in EIA Report Chapter 3.
- 10.2.2 This chapter identifies the archaeological and cultural heritage value of the site (Figure 10.1 and Figure 10.2) and known heritage assets within 1 km of it (Figure 10.3). The assessment also identifies all designated heritage assets up to 5 km from the site (Figure 10.4) and all nationally important designated assets up to 10 km from the site (Figure 10.5). At greater distances up to and beyond 20 km (Figure 10.6) nationally and internationally important designated assets identified by this assessment and/or stakeholders as particularly sensitive to potential impacts upon their settings have been identified. The assessment includes descriptions of the context of the assessment; methodology; baseline conditions; potential effects (both direct and upon setting) and mitigation proposals as necessary. The assessment considers the effects of the construction and operational phases of the Proposed Development in detail. An assessment of potential cumulative effects is also made.

Statement of Capability

- 10.2.3 This chapter has been produced by Lynne Roy (BA (Hons), MSc, MCIfA, FSA Scot) and Mark Littlewood (BA (Hons), MSc, ACIfA) of AOC Archaeology Group. AOC is a Registered Organisation of the Chartered Institute for Archaeologists (CIfA). This chapter conforms to the standards of professional conduct outlined in the Chartered Institute for Archaeologists' Standards and Guidance for Historic Environment Desk Based Assessments (CIfA 2017); Commissioning Work or Providing Consultancy Advice on the Historic Environment (CIfA 2014) and follows IEMA's EIA Guidelines (as updated) (IEMA, 2016).

10.3 Legislation, Policy and Guidelines

Legislation

- 10.3.1 Relevant legislation documents have been reviewed and taken into account as part of this cultural heritage assessment. Of particular relevance are:
- The Ancient Monuments and Archaeological Areas Act 1979 (as amended);
 - The Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997 (as amended);

- Town and Country Planning (General Development Procedure) (Scotland) Order 1992
- The Planning etc. (Scotland) Act 1997 (as amended);
- Historic Environment (Amendment) (Scotland) Act 2011;
- Historic Environment (Scotland) Act 2014; and
- The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 (as amended).

Planning Policy

- Full details of the relevant planning policy are provided in Chapter 5. The most relevant planning policy to this chapter are contained within: Scottish Planning Policy (Scottish Government, 2014);
- The National Planning Framework for Scotland (NPF3) (Scottish Government, 2014)
- Historic Environment Policy for Scotland 'HEPS' (HES, 2019a);
- Our Place in Time. The Historic Environment Strategy for Scotland (Scottish Government, 2014)
- PAN2/2011 'Planning and Archaeology' (Scottish Government, 2011); and
- The adopted Orkney Local Development Plan (Orkney Islands Council (OIC), 2017a).

10.3.2 SPP (Scottish Government 2014), HEPS (HES 2019a), PAN 2/2011 'Archaeology and Planning' (Scottish Government 2011) and Policy 8 of the adopted Orkney Local Development Plan (LDP) (OIC 2017a) deal specifically with planning policy and guidance in relation to heritage and collectively express a general presumption in favour of preserving heritage remains in situ. Their 'preservation by record' (i.e. through excavation and recording, followed by analysis and publication, by qualified archaeologists) is a less desirable alternative.

10.3.3 OIC's approach to proposals which effect the historic environment is set out in Policy 8(A) of the LDP which states that:

'Development which preserves or enhances the archaeological, architectural, artistic, commemorative or historic significance of cultural heritage assets, including their settings, will be supported. Development which would have an adverse impact on this significance will only be permitted where it can be demonstrated that:

- i. Measures will be taken to mitigate any loss of this significance; and*
- ii. Any lost significance which cannot be mitigated is outweighed by the social economic, environmental or safety benefits of the development' (OIC 2017a, 31).*

10.3.4 The setting of Listed Buildings and Scheduled Monuments is also an important consideration when determining applications. This principle is outlined in paragraphs 141 and 145 of SPP and Policy 8 of the Local Development Plan for Orkney. These policies express the importance of preservation of the integrity of the setting of Scheduled Monuments and also the preservation of the special interest and character of Listed Buildings and their settings.

10.3.5 The Historic Environment Policy for Scotland (HES 2019a) sets out the Scottish Government's policy for the sustainable management of the historic environment. Key principles of the policy note that *"Changes to specific assets and their context should be managed in a way that protects the historic environment...If detrimental impact on the historic environment is unavoidable, it should be minimised. Steps should be taken to demonstrate that alternatives have been explored, and mitigation measures should be put in place"* (HEP4).

Guidance

10.3.6 Consideration has been taken of the following best practice guidelines/guidance in preparing this assessment:

- OIC Supplementary Guidance; Historic Environment and Cultural Heritage (OIC 2017b) and the further information which accompanies it; OIC Planning Policy Advice: Historic Environment (Topics and Themes) (OIC 2017c);
- The Heart of Neolithic Orkney World Heritage Site Management Plan 2014-19 (Historic Environment Scotland (HES), Royal Society for the Protection of Birds (RSPB), Scottish Natural Heritage (SNH) & OIC, 2016);
- OIC Supplementary Planning Guidance: The Heart of Neolithic Orkney World Heritage Site (OIC 2010);
- OIC Supplementary Guidance (2017): Energy (OIC 2017d)
- Chartered Institute for Archaeologists (CIfA) Standards and Guidance for Historic Environment Desk Based Assessments (CIfA 2017) and Commissioning Work or Providing Consultancy Advice on the Historic Environment (CIfA 2014);
- HES "Managing Change in the Historic Environment" guidance note series, particularly Historic Environment Scotland's Managing Change in the Historic Environment: Setting (HES 2016a);
- SNH published guidance for 'Assessing the Cumulative Impact of Onshore Wind Energy Developments' (SNH 2012); and
- SNH & HES's published guidance contained within 'Environmental Impact Assessment Handbook v5' (SNH & HES 2018).

10.3.7 HES's setting guidance defines setting as '*the way the surroundings of a historic asset or place contribute to how it is understood, appreciated, and experienced*' (HES 2016a). The guidance further notes that '*planning authorities must take into account the setting of historic assets or places when drawing up development plans and guidance, when considering various types of environmental and design assessments/statements, and in determining planning applications*' (*ibid*). It advocates a three-stage approach to assessing potential impacts upon setting:

- Stage 1: Identify the historic asset.
- Stage 2: define and analyse the setting.
- Stage 3: evaluate the potential impact of the proposed changes.

10.3.8 OIC's Planning Policy Advice on the Historic Environment (Topics and Themes) contains further guidance on setting which it notes '*usually consists mainly of [a site's] visual relationships with the surrounding landscapes and other sites, such as the views to and from the site*', observing that '*a site's setting may have changed over time, and is likely to be made up of a combination of:*

- *It's original extent, functional relationships and design.*
- *Associations, relationships and meanings which it has accumulated since it was created.*
- *How the site is experienced now*' (OIC 2017c, 10, 2.03).

OIC also highlights the role that non-visual settings can play using the example of the relationship between the sunken wreck of the First World War armoured cruiser HMS *Hampshire* and the memorial to those lost on it which overlooks it from the shore at Marwick Head (OIC 2017c: 10, para 2.07).

10.4 Consultation

Table 10.1 summarises the responses from statutory and non-statutory consultation bodies in regard to cultural heritage and the Proposed Development.

Table 10.1 - Consultation

Consultee	Summary of Response	Where and how addressed
<p>Historic Environment Scotland (HES)</p>	<p>A scoping opinion for an earlier iteration of the Proposed Development was issued in April 2018 and noted that:</p> <p>Consideration should specifically be given to inter-related groups of monuments, such as the complex of later prehistoric brochs and the military defensive systems of the two World Wars.</p> <p>Consideration should be given to the design of the access to ensure that it avoids any direct impacts on the Underground Fuel Reservoir (LB 52318) and Former Naval Headquarters and Communications Centre, Wee Fea, Lyness, Hoy (LB 48378). Potential setting impacts from the access tracks as well as the turbines should be assessed.</p> <p>Recommend that, to inform further constructive discussion regarding the potential impacts of the development, a ZTV with much higher detail/definition and visualisations from the key elements of the World Heritage Site and other key scheduled monuments such as the Dwarfie Stane and the monuments around Scapa Flow should be provided.</p> <p>In their response to draft layout plans and draft visualisations dated the 18th of December 2019 HES stated that they considered that <i>'the listed World War structures around Lyness have a strong relationship to one another...this contributes to the significance of the buildings and their setting. Consideration should be given in the assessment as to how the proposed turbines will impact on</i></p>	<p>The assessment has taken into account the interrelationship of the assets within the ZTV.</p> <p>Infrastructure has been designed to avoid direct impacts on the Underground Fuel Reservoir and Former Naval Headquarters and Communications Centre and assessment of effects on their settings has been undertaken.</p> <p>A detailed ZTV was provided to HES in September 2019 following issue of a proposed list of visualisations. A plan of proposed draft layout and draft visualisations were provided to HES for comment on 3rd December 2019.</p> <p>The assessment has taken into account the interrelationship of the assets around Lyness. Detailed assessment is presented in Section 10.9 and Appendix 10.2 and supported by visualisations (Figures 10.12 – 10.27) as appropriate.</p> <p>All of the visualisations include cumulative schemes.</p>

Consultee	Summary of Response	Where and how addressed
	<p><i>this aspect of their settings.</i> They highlighted three designated assets:</p> <p>The Former Naval Headquarters and Communications Centre, Wee Fea, Lyness, Hoy (Category A Listed Building LB48378) (Site 127);</p> <p>Crockness Martello Tower, Long Hope, (Scheduled Monument, List Entry SM2726) (Site 96), and;</p> <p>Hackness, Battery and Martello Tower (PIC and Scheduled Monument, List Entry SM90211) (Site 173)</p> <p>In regard to the latter two designated assets and following consultation between AOC and HES in December 2019 HES requested <i>'that a photomontage is provided taken from SM 90211, Hackness, battery and Martello Tower looking towards the corresponding tower at SM 2726, Crockness, Martello Tower, Long Hope. The visualisation should include the proposed turbines in the view to demonstrate the level of effect on the settings of these assets given their key visual relationship with one another.'</i></p> <p>HES also requested that effects on the setting of inter-related groups of monuments in the surrounding area such as scheduled military remains and brochs be considered and consideration is given to providing visualisations to demonstrate these impacts</p> <p>HES also noted the potential for direct and indirect impacts on category A listed Underground Fuel Reservoir, Wee Fea, Lyness, Hoy (LB 52318) and specified that impacts caused by vibration for example, from construction and operation of the wind farm should also be given</p>	<p>In the light of HES'S comments the Applicant commissioned an additional photomontage (Figure 10.14) from Hackness, Battery and Martello Tower (PIC and Scheduled Monument, SM90211) (Site 173) Crockness Martello Tower, Long Hope, (Scheduled Monument, SM2726) (Site 96).</p> <p>The potential for effects upon the settings of heritage assets is included in Section 10.9 and Technical Appendix 10.2 and photomontages (Figures 10.12 - 10.14) have been prepared for the Former Naval Headquarters and Communications Centre (Site 127) and Royal Naval Cemetery, Lyness, Hoy (Site 147) and for Hackness, Battery and Martello Tower (Site 173). A range of wireframes have also been prepared.</p> <p>The Proposed Development has been designed to avoid direct impacts upon the Underground Fuel Reservoir and a buffer of 30 m put in place by design team engineers to ensure no adverse impacts from vibration during construction and operation.</p>

Consultee	Summary of Response	Where and how addressed
	<p>proper consideration and assessment in the design process to ensure there are no adverse impacts to the listed structure.</p>	
<p>Orkney Islands Council (OIC) Planning Officers</p>	<p>OIC noted the potential for direct impacts on the site itself recommending that a walkover survey and desk-based assessment be undertaken.</p> <p>It was noted that OIC have detailed plans of the Category A Listed Underground Fuel Reservoir at Wee Fea, Lyness (Site 153, LB52318) which lie beneath the site and turbines should be positioned so as to avoid them.</p>	<p>This chapter is informed by a desk-based assessment and the results of a walkover survey.</p> <p>OIC supplied AOC with shapefiles of the footprint of the Category A Listed Underground Fuel Reservoir at Wee Fea, Lyness (Site 153, LB52318) as shown on Figures 10.1 and 10.2.</p>
<p>Orkney County Archaeologist (OIC)</p>	<p>AOC attended a meeting with the Orkney County Archaeologist on the 7th of October 2019.</p> <p>A recent survey of Hoy's wartime remains has identified a lot of assets and features at the eastern end of the site, although these are not designated (Legacies of Conflict: Hoy & Walls Wartime Heritage Project 2013-14, Online resource and report).</p> <p>The County Archaeologist's main concern was the setting of the Category B Listed Royal Naval Cemetery at Lyness (Site 147, LB48348) and she wondered whether it would be possible to plant a tree belt to limit views of the turbines.</p> <p>AOC consulted the Orkney County Archaeologist in March 2020 with regards to proposed visualisations. Additional visualisations were requested from selected assets</p>	<p>Assets recorded on The Legacies of Conflict: Hoy & Walls Wartime Heritage Project 2013-14 that are within the site and the 1 km study area have been incorporated into AOC's gazetteer for this project. These assets were available to view and check during the site walkover survey using an iPad incorporating ESRI's ArcGIS Collector software.</p> <p>The potential for previously unrecorded remains to be present on the site is acknowledged and a detailed mitigation strategy, is included in section 10.8 of this chapter.</p> <p>Photomontages (Figures 10.13) have been prepared for the Royal Naval Cemetery, Lyness, Hoy (Site 147). Given the scale of turbines it is considered unlikely that planting of trees would block views of turbines from Lyness. Planting of trees close to the cemetery would change the setting</p>

Consultee	Summary of Response	Where and how addressed
	<p>beyond the 10 km study area as follows:</p> <p>Orphir round church scheduled area and property in care;</p> <p>St Magnus Cathedral, tower (including cumulative). Listed A</p> <p>Hoxa head battery;</p> <p>Castle of Burwick stack site; and</p> <p>Unstan cairn.</p>	<p>of the cemetery and would limit views out across the landscape.</p> <p>Selected assets beyond the 10 km study area have been assessed and wireframes for each of these assets have been produced (Figures 10.23-10.27). These assets are shown on Figure 10.6 and detailed assessment is presented in Appendix 10.2.</p>

10.5 Assessment Methodology and Significance Criteria

Consultation

10.5.1 EIA Scoping Opinion was received from OIC via the Scottish Government in August 2018. AOC met with the Orkney County Archaeologist on the 7th of October 2019 to discuss the project and a walkover survey of the site was undertaken on the 14th and 15th of October 2019. Setting assessment visits were undertaken to designated assets within 10 km of the site throughout October 2019. AOC consulted directly with Historic Environment Scotland (HES) with regard to the potential effects on nationally important heritage assets and a proposed list of visualisations was discussed with HES in December 2019 and with OIC in March 2020. Detail regarding consultation responses and how points raised by consultees are addressed is presented in Table 10.1 above.

Study Area

10.5.2 Five study areas were identified for this assessment:

- A core study area (the site) which includes land within the site boundary which is subject to assessment for potential direct effects. This study area was subject to walkover survey and was used to identify cultural heritage assets which may be directly affected by the Proposed Development (Figure 10.1 and Figure 10.2).
- A 1 km study area from the site for the identification of all known heritage assets and known previous archaeological interventions in order to help predict whether any similar hitherto unknown archaeological remains are likely to survive within the site and thus be impacted by the Proposed Development (Figure 10.3).
- A 5 km study area for the assessment of potential effects on the settings of all designated heritage assets including Scheduled Monuments; all Listed Buildings; Inventoried Gardens and Designed Landscapes; Inventoried Battlefields and Conservation Areas. This study area is covered by the Zone of Theoretical Visibility (ZTV) (Figure 10.4).
- A 10 km study area for the assessment of potential effects on the settings of all designated heritage assets including Scheduled Monuments; Category A Listed Buildings; Inventoried Gardens and Designed Landscapes; Inventoried Battlefields and Conservation Areas. This study area is covered by the Zone of Theoretical Visibility (ZTV) (Figure 10.5).
- A 20 km study area for the assessment of potential effects on setting of assets of international importance namely the Heart of Neolithic Orkney (HONO) World Heritage Site (WHS) as well as selected designated assets identified by the Orkney County Archaeologist as requiring assessment (Figure 10.6).

10.5.3 Each heritage feature referred to in the text is listed in the Gazetteer in Technical Appendix 10.1. Each has been assigned a 'Site No.' unique to this assessment. The 'Site No.' is a Unique ID associated

with a record. Records may be deleted upon further assessment; for example, if they are found to duplicate other records for that particular asset. However, to preserve the Unique ID's of succeeding sites the database is not renumbered and the deleted number remains deleted. The Gazetteer includes information regarding the type, period, grid reference, NRHE number, SMR number, statutory protective designation, and other descriptive information, as derived from the consulted sources.

Desk Study

10.5.4 The following sources were consulted for the collation of data:

- The Orkney County Archaeologist;
- The National Record for the Historic Environment (NRHE) as held by HES;
- The Historic Land-use Assessment Data (HLAMap) for Scotland as hosted by HES;
- Spatial data and descriptive information for designated assets held on Historic Environment Scotland Data website;
- Ordnance Survey maps (principally First and Second Edition), and other published historic maps held in the Map Library of the National Library of Scotland;
- Online aerial satellite imagery, Google Earth, Bing, ESRI aerial mapping;
- Scottish Remote Sensing Portal for LiDAR data;
- The Scottish Palaeoecological Database (Coles et al., 1998);
- Unpublished historic maps and documents held by Orkney Library and Archive, Kirkwall;
- Vertical and oblique aerial photographs held by the National Collection of Aerial Photographs (NCAP, as held by HES);
- Published bibliographic sources, including historical descriptions of the area (Statistical Accounts, Parish Records); and
- Legacies of Conflict: Hoy & Walls Wartime Heritage Project 2013-14 (Online resource, including interactive map and report).

Site Visit

10.5.5 An archaeological walkover survey of the site was undertaken from 14th-16th October 2019 with the aim of identifying any previously unknown archaeological features. All known and accessible heritage assets were assessed in the field to establish their survival, extent, significance and relationship to other assets. Weather and any other conditions affecting the visibility during the survey were also recorded. All heritage assets encountered were recorded and photographed. The location of assets noted in the field was recorded on an US GPS Navstar enabled iPad using ESRI's ArcGIS Collector software. All assets were recorded directly through ArcGIS Collector in full British National Grid coordinates.

Assessment of Potential Effect Significance

10.5.6 This assessment distinguishes between the term 'impact' and 'effect'. An impact is defined as a physical change to a heritage feature or its setting, whereas an effect refers to the significance of this impact. The first stage of the assessment involves establishing the value and importance of the heritage feature and assessing the sensitivity of the asset to change (impact). Using the design for the Proposed Development, an assessment of the impact magnitude is made and a judgement regarding the level and significance of effect is arrived at.

Direct Effect Assessment

Establishing Cultural Heritage Importance

- 10.5.7 The definition of cultural significance is readily accepted by heritage professionals both in the UK and internationally and was first fully outlined in the Burra Charter, which states in article one that ‘cultural significance’ or ‘cultural heritage value’ means aesthetic, historic, scientific, social or spiritual value for past, present or future generations (ICOMOS 2013, Article 1.2). This definition has since been adopted by heritage organisations around the world, including HES. HEPS notes that to have cultural significance an asset must have a particular “*aesthetic, historic, scientific or social value for past, present and future generations*” (2019a). Heritage assets also have value in the sense that they “*...create a sense of place, identity and physical and social wellbeing, and benefits the economy, civic participation, tourism and lifelong learning*” (Scottish Government, 2014).
- 10.5.8 For clarity, and to avoid confusion with ‘significance’ in EIA terms, the term ‘cultural value’ will be applied throughout this assessment though, as outlined above, it is acknowledged this is the same as cultural significance as defined in HEPS.
- 10.5.9 All heritage assets have some value; however, some heritage assets are judged to be more
- 10.5.10 important than others. The level of that importance is, from a cultural resource management perspective, determined by establishing the asset’s capacity to contribute to our understanding or appreciation of the past (HES, 2019a: para 17b). In the case of many heritage assets their importance has already been established through the designation (i.e. Scheduling, Listing and Inventory) processes applied by Historic Environment Scotland.
- 10.5.11 The criteria used to rate importance of heritage assets are presented in Table 10.2 below and relate to the criteria for designations, as set out in Designation Policy and Selection Guidance (2019c), Scotland’s Listed Buildings (2019d), and professional judgement.

Table 10.2 - Criteria for Establishing Relative Importance of Heritage Assets

Importance	Criteria
International and National	World Heritage Sites; Scheduled Monuments (as protected by the Ancient Monuments and Archaeological Areas Act 1979 (the "1979 Act")); Category A Listed Buildings (as protected by the Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997) (the "1997 Act"); Inventory Gardens and Designed Landscapes (as protected by the 1979 Act, as amended by the Historic Environment (Amendment) (Scotland) Act 2011); Inventory Battlefields (as protected by the 1979 Act, as amended by the 2011 Act); and Non-Designated assets considered to be of national importance including, outstanding examples of some particular period, style or type (as protected by SPP, 2014).
Regional	Category B Listed Buildings (as protected by the 1997 Act); Conservation Areas (as protected by the 1997 Act); Major examples of some period, style or type, which may have been altered (as protected by SPP, 2014); and Assets of a type which would normally be considered of national importance that have been partially damaged (such that their ability to inform has been reduced) (as protected by SPP, 2014).
Local	Category C Listed Buildings (as protected by the 1997 Act);

Importance	Criteria
	<p>Representative examples of any period, style or type, as originally constructed or altered, and simple, traditional sites, which group well with other significant remains, or are part of a planned group such as an estate or an industrial complex (as protected by SPP, 2014); and</p> <p>Assets of a type which would normally be considered of regional importance that have been partially damaged or asset types which would normally be considered of national importance that have been largely damaged (such that their ability to inform has been reduced) (as protected by SPP, 2014).</p>
Negligible	<p>Relatively numerous types of remains;</p> <p>Findspots of artefacts that have no definite archaeological remains known in their context; and</p> <p>Assets of a type which would normally be considered of local importance that have been largely damaged (such that their ability to inform has been reduced).</p> <p>(The above assets are protected by Paragraph 137 of SPP, 2014).</p>

Direct Impact Magnitude

- 10.5.12 Potential direct impacts, that is the physical change to known heritage assets, and unknown buried archaeological remains, in the case of the Proposed Development relate to the possibility of disturbing, removing or destroying in situ remains and artefacts during ground-breaking works on this site. The magnitude of the direct impact upon heritage assets caused by the Proposed Development is rated using the classifications and criteria outlined in Table 10.3.

Table 10.3 - Criteria for Classifying Direct Impact Magnitude

Impact Magnitude	Criteria
High	<p>Major loss of information content resulting from total or large-scale removal of deposits from an asset; and/or</p> <p>Major alteration of an asset's baseline condition.</p>
Medium	<p>Moderate loss of information content resulting from material alteration of the baseline conditions by removal of part of an asset site; and/or</p> <p>Moderate alteration of an asset's baseline condition.</p>
Low	<p>Minor detectable impacts leading to the loss of information content; and/or</p> <p>Minor alterations to the baseline condition of a monument.</p>
Marginal	<p>Very slight or barely measurable loss of information content;</p> <p>Loss of a small percentage of the area of an asset's peripheral deposits; and/or</p> <p>Very slight alterations to the baseline conditions of a monument.</p>
None	No physical impact anticipated.

10.5.13 Assessment of Direct Effect Significance

The predicted level of direct effect on each heritage asset is determined by considering the asset’s importance in conjunction with the predicted magnitude of the impact. The method of deriving the level of direct effect and effect significance is provided in Table 10.4.

Table 10.4 - Level of Direct Effect based on Inter-Relationship between the Importance of the Heritage Asset and the Impact Magnitude

Impact Magnitude	Importance of Asset			
	International / National	Regional	Local	Negligible
High	major	major/moderate	moderate	minor
Medium	major/moderate	moderate	minor	minor
Low	moderate	minor	minor	negligible
Marginal	minor	minor	negligible	neutral

10.5.14 Using professional judgment and with reference to the Guidelines for Environmental Impact Assessment (as updated) (IEMA, 2016), this assessment considers **moderate** and greater effects to be significant, whilst **minor** and lesser effects are considered not significant.

Setting Effect Assessment

Relative Sensitivity

10.5.15 Determining the relative cultural value of an asset is essential for establishing its importance. As set out in HEPS (HES 2019a) and its accompanying Designation Policy and Selection Guidance (2019c) a determination of value can be made with reference to the intrinsic, contextual and associative characteristics of an asset. HEPS Designation Policy and Selection Guidance (2019c) indicates that the relationship of an asset to its setting or the landscape makes up part of its contextual characteristics. The Xi’an Declaration (ICOMOS 2005) set out the first internationally accepted definition of setting with regard to cultural heritage assets, indicating that setting is important where it forms part of or contributes to the significance of a heritage asset. SPP does not differentiate between the importance of the asset itself and the importance of the asset’s setting. Indeed, under the section on Scheduled Monuments it states that ‘*where there is potential for a proposed development to have an adverse effect on a scheduled monument or on the integrity of its setting, permission should only be granted where there are exceptional circumstances*’ (Scottish Government 2014). However, it is widely recognised (Lambrick 2008) that the importance of an asset is not the same as its sensitivity to changes to its setting. Elements of setting may make a positive, neutral or negative contribution to the value of an asset (Historic England 2017). Thus, in determining the nature and significance of impacts upon assets and their settings by the Proposed Development, the contribution that setting makes to an asset’s value and importance and thus its sensitivity to changes to setting need to be considered.

10.5.16 This approach recognises the importance of preserving the integrity of the setting of an asset in the context of the contribution that setting makes to the experience, understanding and appreciation of a given asset. It recognises that setting is a key characteristic in the understanding and appreciation of some, but by no means all, assets. Indeed, a nationally important asset does not necessarily have high sensitivity to changes to its setting (e.g. does not necessarily have a high relative sensitivity). An asset’s relative sensitivity to alterations to its setting refers to its capacity to retain its ability to contribute to our understanding and appreciation of the past in the face of changes to its setting. The ability of an asset’s setting to contribute to an understanding, appreciation and experience of the asset and its value also has a bearing on the sensitivity of that

asset to changes to its setting. While all nationally important heritage assets are likely to be sensitive to direct impacts, not all will have a similar sensitivity to impacts on their setting; this would be true where setting does not appreciably contribute to their value or importance. Assets with high sensitivity to settings impacts may be vulnerable to any changes that affect their settings, and even slight changes may reduce their information content or the ability of their settings to contribute to the understanding, appreciation and experience of them. Less sensitive assets will be able to accommodate greater changes to their settings without material reduction in their ability to contribute to our understanding of the past and in spite of such changes the relationship between the asset and its setting will still be legible.

10.5.17 The criteria for establishing an asset’s relative sensitivity to changes to its setting is detailed in Table 10.5. This table has been developed based on AOC’s professional judgement and experience in assessing setting impacts. It has been developed with reference to the policy and guidance noted above including SPP, HEPS (2019a) and its Designation Policy and Selection Guidance (2019b), the Xi’an Declaration (ICOMOS 2005) and Historic Environment Scotland’s guidance on the setting of heritage assets (2016).

Table 10.5 - Criteria for Establishing Relative Sensitivity of a Heritage Asset to Changes to its Setting

Sensitivity	Criteria
High	<p>An asset whose setting contributes significantly to an observer’s understanding, appreciation and experience of it should be thought of as having High Sensitivity to changes to its setting. This is particularly relevant for assets whose settings, or elements thereof, contribute directly to their cultural value (e.g. form part of their Contextual Characteristics (HES, 2019a, Annex 1). For example, an asset which retains an overtly intended relationship with its setting and the surrounding landscape. These may in particular be assets such as ritual monuments which have constructed sightlines to and/or from them or structures intended to be visually dominant within a wide landscape area e.g. castles, tower houses, prominent forts etc.; and/or</p> <p>An asset, the current understanding, appreciation and experience of which, relies heavily on its modern setting. In particular an asset whose setting is an important factor in its protection and in retention of its cultural value (as per SPP 2014 definition of setting).</p>
Medium	<p>An asset whose setting contributes moderately to an observer’s understanding, appreciation and experience of it should be thought of as having Medium Sensitivity to changes to its setting. This could be an asset for which setting makes a contribution to value but whereby its value is derived mainly from its other characteristics (HES, 2019b, Annex 1). This could for example include assets which had an overtly intended relationship with their setting and the surrounding landscape but where that relationship (and therefore the ability of the assets’ surroundings to contribute to an understanding, appreciation and experience of them) has been moderately compromised either by previous modern intrusion in their setting or the landscape or where the asset itself is in such a state of disrepair that the relationship cannot be fully determined;</p> <p>An asset the current understanding, appreciation and experience of which, relies partially on its modern setting regardless of whether or not this was intended by the original constructors or users of the asset; and/or</p> <p>An asset whose setting is a contributing factor to its protection and the retention of its cultural value.</p>

Sensitivity	Criteria
Low	An asset whose setting makes some contribution to an observer's understanding, appreciation and experience of it should generally be thought of as having Low Sensitivity to changes to its setting. This may be an asset whose value is mainly derived from its other characteristics and whereby changes to its setting will not materially diminish our understanding, appreciation and experience of it. This could for example include assets which had an overtly intended relationship with their setting and the surrounding landscape but where that relationship (and therefore the ability of the assets' surroundings to contribute to an understanding, appreciation and experience of them) has been significantly compromised either by previous modern intrusion to its setting or the landscape or where the asset itself is in such a state of disrepair that the relationship cannot be determined.
Marginal	An asset whose setting makes minimal contribution to an observer's understanding, appreciation and experience of it should generally be thought of as having Marginal Sensitivity to changes to its setting. This may include assets for which the original relationship with their surrounding has been lost, possibly having been compromised by previous modern intrusion, but which still retain cultural value in their intrinsic and possibly wider contextual characteristics.

10.5.18 The determination of a heritage asset's sensitivity to impacts upon its setting is first and foremost reliant upon the determination of its setting and the elements of setting which contribute to its cultural value and an understanding and appreciation of that cultural value. The criteria set out in Table 10.5 are intended as a guide. Assessment of individual heritage assets is informed by knowledge of the asset itself, of the asset type if applicable and by site visits to establish the current setting. This allows for the use of professional judgement and each heritage asset is assessed on an individual basis. Individual heritage assets may fall into several of the sensitivity categories outlined above, e.g. a country house may have a high sensitivity to alterations within its own landscaped park or garden, but its level of sensitivity to changes may be less when considered within the wider landscape context.

Settings Impact Magnitude

10.5.19 Having assessed the relative sensitivity of an asset to changes to its setting (Table 10.5) it is necessary to consider the nature of the predicted change itself, taking the factors that are set in Table 10.6 below into consideration and drawing upon both GIS analysis and site visits. In cultural heritage terms the critical issue is the effect of a proposed change upon an asset's cultural heritage value, those attributes which define its identity, which if the asset has been designated will have informed this decision. The assessment is therefore a two staged process; to identify what the change will be (Table 10.6) and then predict the magnitude of this change (impact) upon the cultural heritage value of the asset (Table 10.7).

Table 10.6 - Factors affecting Magnitude of Setting Impact

Site Details	Importance of Detail for Setting Impact Magnitude
Proximity to the Proposed Development (for this assessment this is measured to the nearest turbine)	Increasing distance of an asset from the Proposed Development will, in most cases, diminish the impacts on its setting.

Site Details	Importance of Detail for Setting Impact Magnitude
Visibility of Proposed Development	<p>The proportion of the view from each asset which will feature the Proposed Development will also affect the magnitude of impact.</p> <p>The existence of features (e.g. tree belts, forestry, landscaping or built features) that could partially or wholly obscure the development from view, will also affect the magnitude of impact.</p>
Complexity of landscape	<p>The more visually complex a landscape is, the less prominent the new development may appear within it. This is because where a landscape is visually complex the eye can be distracted by other features and will not focus exclusively on the new development. The presence, extent, character and scale of the existing built environment and how the Proposed Development compares to and fits in with this also affects the magnitude of setting impact (HES 2016).</p>
Design of Development	<p>This refers to the perceived scale of the proposed change relative to the scale of the historic asset or place and its setting. Depending on the individual asset, the design of the Proposed Development could affect the perception of dominance or foci of a particular asset and its relationship with other cultural and natural features within the landscape (SNH 2017). For example, whether the development would be seen against the skyline or against a backdrop of hills may affect the perception of the prominence of an asset and/or the Proposed Development.</p>

10.5.20 It is acknowledged that Table 10.6 above primarily deals with visual factors affecting setting. While the importance of visual elements of settings, e.g. views, inter-visibility, prominence etc., are clear, it is also acknowledged that there are other, non-visual factors which could potentially result in setting impacts. These could be other sensory factors, e.g. noise or smell, or could be associative. Where applicable these are considered in assessment of magnitude of impact upon setting.

10.5.21 Once the above has been considered, the prediction of the magnitude of impact upon setting will be based upon the criteria set out in Table 10.7 below. In applying these criteria, consideration will be given to the relationship of the Proposed Development to those elements of setting which have been defined as most important in contributing to the ability to understand, appreciate and experience the heritage asset and its cultural value.

Table 10.7 - Criteria for Assessing Impact Magnitude upon Setting

Impact Magnitude	Criteria
High	<p>Direct and substantial visual impact on a key sightline to or from an asset;</p> <p>Direct and substantial visual impact on a key 'designed-in' view or vista from an asset;</p> <p>Direct severance of the relationship between an asset and its setting; and</p> <p>An impact that changes the setting of an asset such that it affects the integrity of its setting (SPP 2014) and materially affects an observer's ability to understand, appreciate and experience the asset.</p>

Impact Magnitude	Criteria
Medium	<p>Oblique visual impact on an axis adjacent to a key sightline to or from an asset but where the key sightline of the asset is not obscured;</p> <p>Oblique visual impact on a key 'designed-in' view or vista from an asset;</p> <p>Partial severance of the relationship between an asset and its setting;</p> <p>Notable alteration to the setting of an asset beyond those elements of the setting which directly contribute to the understanding of the cultural value of the asset; and</p> <p>An impact that changes the setting of an asset such that an observer's ability to understand, appreciate and experience the asset and its cultural value is marginally diminished.</p>
Low	<p>Peripheral visual impact on a key sightline, a designed in view or a vista to or from an asset;</p> <p>Slight alteration to the setting of an asset beyond those elements of the setting which directly contribute to the understanding of the cultural value of the asset; and</p> <p>An impact that changes the setting of an asset, but where those changes do not materially affect an observer's ability to understand, appreciate and experience the asset.</p>
Marginal	All other setting impacts
None	No setting impacts anticipated

Indirect Effect Significance

10.5.22 The level of effects on the setting of heritage assets is judged to be the interaction of the asset's relative sensitivity (Table 10.5) and the magnitude of the impact (Table 10.7) and takes into consideration the importance of the asset (Table 10.2). The interactions determining level of effect on the settings of heritage assets are shown in Table 10.8. A qualitative descriptive narrative is also provided for each asset to summarise and explain each of the professional value judgements that have been made.

Table 10.8 - Interactions determining level of effect on setting

Magnitude of Impact	Relative Sensitivity of Receptor			
	High	Medium	Low	Marginal
High	major	moderate	minor/moderate	minor
Medium	moderate	minor/moderate	minor	negligible
Low	minor/moderate	minor	negligible	neutral
Marginal	minor	negligible	neutral	neutral

10.5.23 Using professional judgment, and with reference to the Guidelines for Environmental Impact Assessment (IEMA, 2016), effects established as **moderate** and greater are defined as significant, while those determined to be **minor/moderate** and less, are considered not significant.

Cumulative Effect Assessment

- 10.5.24 It is necessary to consider whether the effects of other schemes in conjunction with the Proposed Development would result in an additional cumulative change upon the settings of heritage assets, beyond the levels predicted for the Proposed Development alone. However, only those assets which are judged to have the potential to be subject to significant cumulative effects will be included in the detailed cumulative assessment provided.
- 10.5.25 The cumulative assessment will have regard to the guidance on cumulative effects upon heritage assets as set out in Environmental Impact Assessment Handbook V5 (SNH & HES 2018) and will utilise the criteria for assessing setting impacts as set out above. The assessment of cumulative effects will consider whether there would be an increased impact, either additive or synergistic, upon the setting of heritage assets as a result of adding the Proposed Development to a baseline, which may include operational, under construction, consented or proposed developments as agreed with the OIC.
- 10.5.26 In determining the degree to which a cumulative effect may occur as a result of the addition of the Proposed Development into the cumulative baseline, a number of factors are taken into consideration including:
- the distance between wind farms;
 - the interrelationship between their Zones of Theoretical Visibility (ZTV);
 - the overall character of the asset and its sensitivity to wind farms;
 - the siting, scale and design of the wind farms themselves;
 - the way in which the asset is experienced;
 - the siting of the cumulative wind farm(s) in relation to both the individual proposal being assessed and the heritage asset under consideration; and
 - the contribution of the cumulative baseline schemes to the significance of the effect, excluding the individual proposal being assessed, upon the setting of the heritage asset under consideration.
- 10.5.27 This assessment is based upon a list of operational or consented developments along with developments where permission has been applied for. Cumulative developments are listed in EIA Report Chapter 4. While all have been considered, only those which contribute to, or have the possibility to contribute to, cumulative effects on specific heritage assets are discussed in detail in the text. Additionally, given the emphasis SNH place on significant effects, and the requirements of the EIA Regulations, cumulative effects have only been considered in detail for those assets where the effects upon the setting from the Proposed Development, alone, have been judged to be an effect of **minor/moderate** level or greater. Where the effects on the setting of assets would be less than **minor/moderate** level, it is unlikely that cumulative effects would reach the threshold of significance as defined in Table 10.8.

Requirements for Mitigation

- 10.5.28 National and local planning policies and planning guidance outline in Section 10.3 of this report, require a mitigation response that is designed to take cognisance of the possible impacts upon heritage assets by a proposed development and avoid, minimise or offset any such impacts as appropriate. The planning policies and guidance express a general presumption in favour of preserving heritage remains in situ [wherever possible]. Their ‘preservation by record’ (i.e. through excavation and recording, followed by analysis and publication, by qualified archaeologists) is a less desirable alternative (SPP 2014, paragraphs 137, 150; OIC 2017a Policy 8).
- 10.5.29 The Proposed Development has been designed where possible to avoid direct impacts upon known heritage assets through careful siting of infrastructure. Where possible, impacts upon the setting of heritage assets have been avoided or minimised during the iterative design process.

Assessment of Residual Effect Significance

- 10.5.30 The residual impact is what remains following the application of mitigation and management measures, and construction has been completed and is thus the final level of impact associated with the Proposed Development. The level of direct residual effect is defined using criteria outlined in Tables 10.2, 10.3 and 10.4. No direct mitigation, beyond that inherent in the Proposed Development design, is possible for setting effects of the Proposed Development and therefore residual effects on the setting of heritage assets will be the same as predicted without mitigation.

Limitations to Assessment

- 10.5.31 This assessment is based upon data obtained from publicly accessible archives as described in the Data Sources in Section 10.5.4 as well as walkover surveys. NRHE data and HES designation data was downloaded from HES in February 2020. This assessment does not include any records added or altered after this date.
- 10.5.32 No intrusive archaeological evaluation has been undertaken to inform this assessment, as such there is the potential for hitherto unknown archaeological remains to survive within the site and to be disturbed by the works associated with the Proposed Development. This limitation is taken account of in the Mitigation Section where measures to avoid or minimise any such effects on hitherto unknown remains are provided for.

10.6 Baseline Conditions

Designations

- 10.6.1 There are two designated heritage assets within the site (Figure 10.1 and Figure 10.2); the Former Naval Headquarters and Communications Centre, Wee Fea, Lyness (Site 127, Category A Listed, National List Number LB48378) and the Category A Listed Underground Fuel Reservoir, Wee Fea Lyness (Site 153, Category A Listed, LB52318). No Scheduled Monuments lie within 1 km of the site. Seven Scheduled Monuments; Crockness Martello Tower (Site 86, SM2726), the Chapel of Brims (Site 98, SM10977), Hackness Battery and Martello Tower (Site 173, SM90211), The Skeo broch (Site 463, SM10982), Greenhill Broch (Site 465, SM10974), Quoy anti-aircraft battery (Site 466; SM13560) and Stromabank Hotel (Site 467, SM 13558) lie within the 5 km study area (Figure 10.4), whilst 28 lie within 10 km (Figure 10.5);
- 10.6.2 Eight Listed Buildings are located within the 1 km study area, three of Category A Status, three of Category B Status and two of Category C Status (Figure 10.3). Fifty-eight Listed Buildings, 10 of Category A Status, 16 of Category B Status and 32 of Category C Status stand within the 10 km study area (Figure 10.5). Within the Inventoried Garden and Designed Landscape (GDL) (Site 165, National List Number GDL00281) of Melsegger House there are five Listed Buildings of Category A Status, 11 Listed Buildings of Category B Status and one Listed Building of Category C Status.
- 10.6.3 There are no Inventory Battlefields or World Heritage Sites (WHS) within the 10 km study area. There are no Conservation Areas within the 5 km study area. HONO WHS is located 19 km north of the site.

Archaeological and Historical Background

Context

- 10.6.4 The site lies on the island of Hoy and extends westwards into the island, predominantly along the north slope of the valley of the Burn of Ore and along the east facing hill slope of Wee Fea overlooking Lyness. The site is occupied by rough moorland vegetation. The eastern part of the site preserves abundant evidence for Second World War activity in the form of upstanding concrete structural remains and earthworks of defensive positions.

Prehistoric Evidence

- 10.6.5 The NRHE records no prehistoric assets within the site. A potential prehistoric cist (Site 493) and a potential cairn (Site 492) were noted in the centre of the site, to the west of the turbines during a walkover survey. A possible cup marked stone (Site 494) was also recorded near to Site 493.
- 10.6.6 To the south of the site within 1 km, at the eastern end of Heldale Water, wave action exposed the remains of a drystone structure within the underlying peat. The feature appeared to be a stone lined, c.1 m in diameter and c.1.3 m deep, pit with a stoney, sandy floor (Site 22). The floor was recorded as extending along the bank for 7 m. However, Site 22 has not been dated, and therefore cannot be confidently ascribed to the prehistoric period, although it may be of an early date.
- 10.6.7 Approximately 2.5 km south-west of the site is the Scheduled Greenhill Broch (Site 465), a substantial prehistoric building with associated midden sediments. A further two Scheduled broch's (Sites 463 & 464) are located within the 10 km study area, on the south coast of Hoy.
- 10.6.8 To the north of the site, within the 10 km study area, are four prehistoric Scheduled Monuments (Sites 97, 99, 100 & 101). Three Scheduled Monuments share the name Whaness Burn (Sites 99-101) and comprise the prehistoric domestic and defensive remains of a settlement (Sites 99-101) and an associated rock cut tomb (Site 97), known as the Dwarfie Stane. The rock cut tomb has been dated to the Neolithic (Site 97); its interpretation as a chambered tomb is periodically questioned; its chamber is no more than 0.76 m high and consists of a central passage with a compartment on either side. The chamber has some similarity to the Bookan-type chambered cairn at Huntersquoy (Henshall 1990, 91). The Whaness Burn remains (Sites 99-101) have been interpreted as being Bronze Age in date, thus it is likely that activity in the wider study area continued from the Neolithic into the Bronze Age period.
- 10.6.9 No confirmed prehistoric remains or artefacts are recorded within the 1 km study area, although potential prehistoric monuments (Site 492) were recorded during the walkover survey. Iron Age settlement (Sites 463-5) appears to be focused around the coast and Neolithic/Bronze Age remains have been recorded to the north along a burn.

Early Historic Evidence

- 10.6.10 No Early Historic remains or artefacts are recorded either on the site or within the 1 km study area.
- 10.6.11 The etymology of Hoy suggests that it was named in the Early Historic period as the word comes from the Old Norse Háey meaning "High Island" (Towrie, 2020). This most likely references the fact that Hoy has the highest hills of the Orkney Islands. Further a legend associated with the creation of Hoy, which tells that a giant carrying a basket of soil from Caithness for his garden, dropped his basket and the contents formed the hills of Hoy, is thought to be of Norse origin (UHI, n.d.). Giants are prominent figures in Norse mythology and parts of the Scandinavian landscape are said to have been formed by the activities of giants (UHI, n.d.). The place name and mythology indicate a Viking or Norse presence on the island in the Early Historic period (from the 8th and 9th centuries AD (Towrie, 2020)). However, no Early Historic remains or artefacts are recorded either on the site or within the 1 km study area.

Medieval Evidence

- 10.6.12 No medieval remains or artefacts are recorded on the site. It is possible that the post-medieval settlement remains recorded within 1 km of the site have earlier antecedents, which date from the medieval period.
- 10.6.13 The Scheduled Chapel of Brims (Site 98) is located on the southern coast of Hoy and is believed to be the remains of the chapel of St John which dates from the medieval period. The chapel is recorded within two larger enclosures, and several boundary walls have been identified, one of which has been interpreted as a potential precinct or graveyard wall. HES record that the chapel is believed to have early origins, associated with the adoption of Christianity in Orkney. A broch (Site 43) is located within 320 m of the chapel (Site 9) which HES have suggested is evidence that the chapel (Site 9) was erected close to a settlement, the broch and therefore the chapel (Site 9) are likely to be of an early date.

- 10.6.14 Within 10 km lies the Scheduled remains of Houton, chapel (Site 9). The remains, which are grass covered, are located on the southern coast of The Mainland of Orkney and are believed to date from the medieval period.

Post-Medieval Evidence

- 10.6.15 No post-medieval remains or artefacts are recorded on the site. The NRHE records four post-medieval buildings (Sites 38, 39, 49 & 166), largely from the first edition Ordnance Survey map, to the east of the site. Post-medieval agricultural practices are evidenced by a watermill (Site 25), and a threshing machine (Site 36) within the 1 km study area. A quarry (Site 168) has also been recorded within the 1 km study area.
- 10.6.16 Snelsetter House (formerly House of Walls) in South Walls near Site 469 was the seat of the Moodie family, until they moved to Melsetter House. The Moodies were the principal landowners in Hoy from the later 16th century until early 19th century. Snelsetter House no longer remains, however, it is thought to have been a fortified house and remains of the building materials may be incorporated within the Category B Listed barn (Site 469).
- 10.6.17 There are a large number of Listed Buildings which date from the 18th to 19th century within the 10 km study area. Full details can be found in the Gazetteer (Appendix 10.1). To the south of the site, centred on Melsetter are numerous Listed Buildings (Sites 103, 104, 111, 112, 116, 117, 123-125, 130-137, 142, 143, 148-150, 154 & 155) and an Inventory Designed Landscape (Site 165). These originated in the late 18th century but were renovated and added to in the late 19th century. The buildings are variously designated as Category A, B and C Listed buildings and together are considered to have a national group value.
- 10.6.18 There are two Scheduled Monuments which date to the post-medieval period within 10 km of the site. Constructed between 1813-15, during the Napoleonic Wars and the American War of 1812, the Scheduled Crockness Martello Tower (Site 96 & 180) was designed, in conjunction with the Scheduled Hackness Martello Tower and Battery (Site 173) on the opposing coast of South Walls, to protect, Baltic convoys sheltering in Longhope anchorage from American privateers.
- 10.6.19 The Old Statistical Account for Hoy (and Gaemsay) was published in 1795 (Sands, 1975) and records Hoy within the county of Orkney. Arable land on Hoy is described as being wet, spongy, light and better suited to grass than grain. Small farms are recorded although the quantity of grain produced is said to feed a family not to be produced for market. A Category B Listed granary (Site 121) within 1 km to the east of the site reflects the importance of protecting grain on Hoy in the post-medieval period and is an example of a well-preserved traditional farm building. Sheep are documented as being the principle animal within the parish and the sheep are noted as being allowed to wander. Hoy's population in 1755 is noted as being 520 which is documented as having diminished to 250 by 1795. By 1845 the New Statistical Account reported that the population of Hoy had risen to 647 (Hamilton, 1845).

Modern Evidence

- 10.6.20 Scapa Flow was of immense strategic significance as in order to avoid the Straits of Dover, German vessels would need to pass north of the British mainland and the most direct routes would take them through sea lanes that were guarded by Orkney, Fair Isle and Shetland. The Royal Navy's Grand Fleet was based at Scapa Flow during the First World War and the Second World War, and ships sailed from the Flow for numerous engagements including the Battle of Jutland (1916) and the Battle of the North Cape (1943), before the fleet finally departed for the coast of Normandy at the end of May 1944. The German High Seas Fleet was interned at Scapa following the 1918 armistice. Although the technological and engineering significance of the WWII remains on Hoy should not be underestimated, it also needs to be acknowledged that the remains at Wee Fea within the site formed part of a suite of major military works that were undertaken on Orkney during the Second World War which also included the construction of airfields on the Mainland of Orkney, the expansion of the naval bases on Hoy and Flotta and the construction of coastal batteries and are therefore a components of a much larger military system.

- 10.6.21 A Grade II Listed Paravane shed (Site 122) is located to the east of the site at Lyness. The shed was constructed in 1917 as a near rectangular shed, composed of corrugated iron. The structure (Site 122) was later repurposed and was partially demolished in 2019. A non-designated timber accommodation hut (Site 454) dating to the First World War has also been identified to the east of the site.
- 10.6.22 The Category C Listed War Memorial (Site 106) on Hoy is located 3.5 km south of the site. The memorial was erected in 1921 and added to following the Second World War.
- 10.6.23 Hoy is said to host one of the best preserved and least disturbed Second World War landscapes within the British Isles (Lindsay & Dobney, 2014: 13). In 1939, in response to the threat of enemy landings and raiding parties, defences were established across areas of Hoy considered to be at risk, this included Lyness and a range of anti-invasion defences were established at Wee Fea overlooking Lyness (Konstam 2009, 33). The Lyness Naval Base expanded rapidly during 1940 and developed into a major command and communication centre, particularly after a new communications building (Site 127) was constructed on Wee Fea Hill. The Category A Listed Wee Fea Communications Centre (Site 127) within the site was operational by 1943 and handled over 25,000 messages a day, providing a link between the Admiral Commanding Orkney and Shetland (ACOS), the ships of the fleet, other shore bases, and the Admiralty. The above-ground oil tanks at Lyness were operational when the war began and the Category A Underground Fuel Reservoir (Site 153; Figure 10.2) was constructed during the conflict (Konstam 2009, 42).
- 10.6.24 During the Second World War, the population of Hoy was said to be as high as 12,500 (Miller 2000). Lyness played an important defensive role in the Battle of Britain in 1940 and continued to play a vital supply and defence role for the British Navy throughout the Second World War (Lindsay & Dobney, 2014: 23). Lyness to the east of the site housed the heavy anti-aircraft guns intended to protect the British Fleet at Scapa Flow and was developed by the armed forces and civilians as a naval base, including defensive, supply, domestic and administrative structures as well as a functioning town hosting dances for 250 people and a theatre hosting 900 people from 1939 (Lindsay & Dobney, 2014:15-16).
- 10.6.25 In addition to the two Category A Listed Buildings within the site, a further three Category A Listed Buildings are located c. 1 km east of the site and include the former pumping station and oil storage tanks (Site 119), the Second World War Royal Naval recreation centre (Site 122) which was constructed from a First World War military shed, and the former diesel engine pump house (Site 157). Within 1 km of the site, to its east, are further Category B and C Listed Buildings including the Category B Listed pier and Golden Wharf (Site 108), and the Category C Air raid shelter (Site 156), which has subsequently been converted into the Scapa Flow visitor centre and museum (currently under renovation), Romney hut (Site 109), and the former gas decontamination building (Site 114).
- 10.6.26 Several companies of the King's Own Scottish Borderers (KOSB) posted to Hoy in 1943 dug training firing positions which were used not only for training the KOSB but also for 13 other infantry units during the Second World War (Lindsay & Dobney, 2014: 24). Sketch maps in infantry war diaries of the 7th Battalion of the KOSB, 1st Battalion South Wales, 2nd Battalion East Surrey Regiment and 7th Battalion North Staffordshire Regiment depict areas of demarcation across Wee Fea annotated as defensive positions for each of the aforementioned individual companies (Lindsay and Dobney 2014, 36). These training features, recorded as slit trenches, firing positions, and mortar pits (see LoC Entry on Figure 10.3 and Gazetteer Appendix 10.1) survive as earthworks and are predominantly recorded around the summit of Wee Fea and also extending beyond the site boundary across the north facing slopes of Wee Fea. Numerous military installations of the 20th century are recorded within the east of the site. The remains of a dummy gun emplacement (Site 231), anti-aircraft batteries (Sites 297 & 462), a searchlight battery platform (Site 309), air raid shelters (Sites 310, 438, 442), hut bases (Sites 299, 308, 428, 429, 439, 441, 446), explosives stores (Sites 319, 337, 341 & 421), areas of hardstanding (Site 323), works buildings (Sites 329, 356, 423 & 424) as well as access tracks (Sites 320, 322, 324-333, & 359) and a railway (Sites 339, 340, 353-355, 357, 360, 362, 366 425 & 426) are recorded on Wee Fea. The remains of these military installations alongside the training defences form part of a wider island defence scheme intended to protect vital points, such as the Underground Fuel Reservoir (Site 153) within the site and Lyness Naval Base to the east, from attack by the landing of airborne forces or a seaborne commando force.

- 10.6.27 A post office (Site 436), pillboxes (Sites 435 & 448), a garage (Site 434), a church (Site 445) and numerous other buildings, including ablutions blocks, Royal Marine Engineers (RME) store, Royal Navy (RN) Laundry and dining centre described as breeze block structures have been identified within the 1 km study area and to the east of the site and are associated with the Royal Naval oil terminal at Lyness.
- 10.6.28 Further Listed Buildings which relate to the defence of Orkney during the First and Second World Wars are recorded beyond the 1 km study area and are shown on Figure 10.4 and detailed in the Gazetteer (Appendix 10.1). The majority of military installations on Hoy have been abandoned in the second half of the 20th century.
- 10.6.29 The NRHE records no non-military modern heritage assets within the 1 km study area.

Cartographic Evidence

- 10.6.30 Early maps of Orkney such as Blaeu's 1654 map of Orkney and Shetland (Figure 10.7) are highly schematic although Blaeu does show general features on Hoy such as Lyrwa Burn (labelled '*Lyrwa B:*'), Pegal Burn (labelled '*Patgil B:*'), Lyness (labelled '*Lienes*') and Heldale Water to the west of the site. Later 17th and 18th century maps and navigational charts such as Nicholas Sanson's '*Les Isles Orkney*' (1665), Herman Moll's '*Orkney Shire*' (1745) and William Aberdeen's '*Chart of the Orkney Isles*' (1769) continue to be schematic, the notable exception being Murdoch Mackenzie's 1750 map of the South Isles of Orkney (Figure 10.8).
- 10.6.31 Mackenzie's charts of the Orkney Islands were a direct response to the wrecking of the Swedish East Indiamen *Svecia* on the reef dyke east of North Ronaldsay in 1740. Mackenzie's chart marks the start of the process of accurate charts for the use of seafarers to utilise for sailing, anchoring and fishing. Although this tends to limit the features depicted on the terrestrial components of the charts, the critical need for accuracy and navigational points on land resulted in the first charts of Orkney that can be considered reasonably accurate when compared with modern Ordnance Survey maps and UKHO Admiralty charts with depictions of the prominent features of the terrestrial components of the Orkney Islands. In the case of Hoy (Figure 10.8), Heldale Water to the west of the site is not depicted; this is not surprising as it is low lying and would not provide a suitable navigation mark. To the east of the site Thurvoe (labelled '*Thurnway*'), Lyness (labelled '*Lynefs*') and Crockness (labelled '*Crocknefs*') are depicted. Further features such as headlines, bays and prominent houses and settlements on Hoy and South Walls are all clearly and accurately depicted. Melsetter House (Site 103,) is clearly labelled as '*Melseter*'; Mackenzie's chart symbology categorises it as '*a remarkable, or Gentlemans House*' (sic).
- 10.6.32 Large-scale (25 inch) OS maps are not available for the majority of the site as it was located outwith the inhabited areas which were targeted for detailed survey in the 19th century. The First Edition Ordnance Survey map dates from 1882 (Figure 10.9) and shows the site to form part of largely featureless interior of Hoy. The summits of Wee Fea, Little Fea and Sky Fea are shown, as are the watercourses of Black Pows, Burn of Ore and Burn of Longigill. A small footbridge is shown crossing the Burn of Ore in the south-east of the site. In the north-east of the site a farmstead (Site 39) comprising one roofed building, two unroofed buildings and one enclosure is depicted west of the farmstead annotated Haybrake. Tracks are shown leading into the site from the north-east aligned roughly with the modern tracks into the site.
- 10.6.33 OS mapping from 1903 (Figure 10.10) shows very little change to have occurred within the site since the publication of the 1882 edition. The farmstead (Site 39) is no longer shown and thus had likely been removed by this time.

Aerial Photographic Evidence

- 10.6.34 A search of aerial photographs held by HES's National Collection of Aerial Photography (NCAP) revealed four vertical sorties dating from 1946 to 1997 that covered the site.
- 10.6.35 The aerial photographs revealed numerous features relating to the Second World War activity on Wee Fea and reflect the scale of military activity across the site. Features visible on historical aerial photographs include earthworks and depressions as well as structural remains and largely correspond with features that can be seen on modern aerial photography and satellite imagery. The

clearest features are the infrastructure established around Wee Fea; where the roads are very clear and not overgrown. The majority of features identified corresponded to assets recorded in the NRHE and/or by the Legacies of Conflict project which also included a study of these photographs (Lindsay and Dobney 2014, 31). Features recorded during aerial photographic consultation were cross-referenced to the Legacies of Conflict records and checked on the ground during the walkover survey.

- 10.6.36 A list of all aerial photographs consulted is included in Section 10.14 of this chapter.

Walkover Survey

- 10.6.37 The walkover survey was undertaken on the 14th and 15th of October 2019. Weather conditions during the survey were variable and consisted of a mix of clear weather interspersed with light rain showers.
- 10.6.38 The site is predominantly open moorland with occasional areas of slightly improved land suitable for grazing. The summit and upper slopes of the hill of Wee Fea are open moorland except when crossed by trackways. These trackways, some of which are still used by modern farm traffic, were predominantly created as part of the Second World War military facilities on Wee Fea (Appendix 10.3; Plate 1). The walkover survey also identified areas of standing water, peat erosion and areas of former peat cuttings (Appendix 10.3; Plate 2)
- 10.6.39 There are few fixed land divisions present. There was one, low, un-barbed wire fence mounted on wooden posts crossing the site on a north to south alignment and running across roughly two thirds of the length of the site from the east to the west. Although the wire is rusty, the wooden posts are in good condition indicating that this fence is relatively new and post-dates the Second World War; although it may utilise part of the wartime estate boundary of Wee Fea hill its function is associated with modern land divisions and land usage. There is evidence for further land divisions within the site surrounding Wee Fea Hill. However, this relates to the limits of the Second World War facilities on Wee Fea. They mark its boundaries and are no longer in use or maintained.
- 10.6.40 The eastern and southern slopes of Wee Fea feature slightly overgrown metalled roads and evidence of narrow gauge railways (Appendix 10.3; Plate 3); these are primarily associated with the construction of the Category A Listed Underground Fuel Reservoir (Site 153) rather than the Category A Listed Former Naval Headquarters and Communications Centre (Site 127). This metalled trackway partially forms an access way one third of the way into the site, but more ephemeral farm vehicle tracks, that exist higher up slope near the summit of Wee Fea, provide a rough level of access to the open moorlands and occasional areas of slightly improved pastureland further west. It is important to note the ephemeral nature of some of these tracks; there is no evidence that the tracks heading further west follow previous, overgrown trackways and metalled roads. It is unlikely that any of the vehicle tracks can be directly associated with any historical or prehistorical access to the area of the site to the west of Wee Fea.
- 10.6.41 The walkover survey recorded two potential prehistoric features at Sites 493 and 494. Site 493 (Appendix 10.3; Plate 4) consisted of a large sub-rectangular stone which appeared to be set within a square frame of set stones forming a 1 m x 1 m shape. The bounding stones were overgrown but their existence was confirmed by slight probing of the ground with the tip of a 4 inch WHS pointing trowel. It is possible that Site 493 is a cist. Site 494 (Appendix 10.3; Plate 5) is located 15 m south-west of Site 493; it is a sub rectangular stone 1 m by 1 m and may feature a cup mark. Both of these assets are within an area of slightly improved land suitable for grazing.
- 10.6.42 A potential prehistoric cairn was recorded during the site walkover at Site 492 (Appendix 10.3; Plate 6). This feature was recorded in open moorland on slightly sloping ground above the Burn of Ore. The mound was approximately 4 m in diameter and slightly spongy in firmness. This could indicate that this feature was natural. However, it was observed that the feature was still firmer in consistency than features that had been definitively classed as natural.
- 10.6.43 Most of the Second World War features on Wee Fea have been previously recorded in the NRHE or in the Legacies of Conflict project of 2014. The walkover survey checked the condition and location

of the assets, particularly within the vicinity of the proposed infrastructure. Records for the assets have been updated as appropriate and are presented in Appendix 10.1 Site Gazetteer.

- 10.6.44 A small square structure was recorded at Site 491 (Appendix 10.3; Plate 7). This feature was constructed out of stone although occasional flat asbestos tiles were visible in the collapse of this feature along with some metal piping and evidence of burning. Site 491 is close to the western extent of the metalled roadway that was constructed around the east and south sides of Wee Fea during the Second World War. This metalled roadway was notably overgrown in comparison to the road surfaces further east. The proximity of a modern feature to this Second World War infrastructure, the burning and the asbestos tiles indicate that it could be a stove feature from a Second World War building.
- 10.6.45 Further north up the slope on Wee Fea at Site 495, a pair of Second World War gate posts were recorded (Appendix 10.3; Plate 8). These gate posts mark the western limit of the military estate on Wee Fea during the Second World War. There was no wire attached to these posts, although remnants of wire were found further to the south, along the southern and eastern boundaries of the Wee Fea military estate.
- 10.6.46 Site 496 comprises a low square earthwork 3 m x 2 m aligned with the Second World War military access road; there is an entrance off the road. There was no visible evidence of any hard concrete base or walls. This feature is probably part of the gun emplacements of LH 4, a light anti-aircraft battery (Site 35) recorded in the NRHE. A possible searchlight base (Appendix 10.3: Plate 9) was also noted at Site 309 on the east facing slopes of Wee Fea.
- 10.6.47 Site 498 (Appendix 10.3; Plate 10) marks the position of a Second World War slit trench recorded during the walkover survey, it is 15 m from the nearest slit trench recorded in the Legacies of Conflict project. The accuracy of the hand-held US Navstar Global Positioning System (GPS) instrument used by the Legacies of Conflict project team and the onboard GPS of the iPad used by the AOC Archaeology walkover survey team means that it cannot be discounted that this feature was recorded during the Legacies of Conflict project, either as Site 282 or Site 285. However, Site 498 also suggests that there may be features still unrecorded on Wee Fea. Despite the intensity of the survey conducted by the Legacies of Conflict project this would not be difficult due to the high number of features that were recorded; some features may have been overlooked or isolated survey errors may have occurred such as the accuracy of the hand held GPS leading the survey team to believe that two features were one, with the difference of survey points explained by the level of accuracy of hand held GPS. This is possible with hand-held GPS and, despite the stated accuracies of hand-held GPS, such surveyed points can have an accuracy of plus or minus 20 m in Orkney (Littlewood *pers comm*).
- 10.6.48 Site 497 (Appendix 10.3; Plate 11) marks an area where the moorland has been cut back. This area is crossed by a trackway linking to the accessways established during the Second World War on Wee Fea. The cleared area measures approximately 15 m by 5 m and a rusted sealed vent and an area of at least five railway sleepers were observed. This feature is 130 m north-east of “N° 2 BOREHOLE” depicted on the “LYNESS. U.O.F.S RESERVOIRS. LAYOUT OF SURFACE ROADS, & BUILDINGS IN RELATION TO UNDERGROUND RESERVOIRS.” (SFP/6/76 [B2], Drawing No. 28/42 (Figure 10.11)) drawn on the 21st of February 1942. By this date the Underground Fuel Reservoir (Site 153) was just one year away from completion; construction had commenced in 1938. This map is a scaled map and geo-rectifies reasonably well to modern Ordnance Survey maps (See Figure 10.11), including the modern, surveyed footprint of Site 15. Therefore, this map from 1942 was probably reasonably accurate and depicted features that had been constructed or were due for completion. However, it still seems likely that Site 497 marks the actual location of “N° 2 BOREHOLE” or another borehole that is not marked on the 1942 map. The rusting nature of the sealed vent and the slightly overgrown nature of the track leading from the rest of the Second World War accessways suggests that this area of clearing is quite old. Although it cannot be ruled out that this is an additional borehole established on Wee Fea during the continuation operations of Site 153 after the Second World War, it is more likely that Site 497 is a borehole location dating to the Second World War.

10.7 Receptors Brought Forward for Assessment

- 10.7.1 The baseline assessment (Section 10.6) has identified two designated assets and 163 non-designated assets located within the site which could potentially be affected by the Proposed Development. Other non-designated assets are recorded within 1 km of site boundary and overall, there is considered to be a high potential for further previously unrecorded buried remains to be present on the site.
- 10.7.2 Two Category A Listed Buildings are located within the site; the Former Naval Headquarters and Communications Centre and the Underground Fuel Reservoir, Wee Fea, Lyness, Hoy (Sites 127 and 153) (Figure 10.1 and 10.2). Sixty-six Listed Buildings stand within 5 km of the site. ZTV analysis indicates that the Proposed Development would have intervisibility with 63 Listed Buildings. Twenty-nine Scheduled Monuments are located within 10 km of the site. ZTV analysis (Figure 10.6) indicates that the Proposed Development would have intervisibility with 18 Scheduled Monuments. The Melsetter House GDL (Site 165, List Entry GDL00281) is situated within the south-west portion of the 5 km study area.

Receptors Brought Forwards for Assessment of Construction Effects

- 10.7.3 A total of 165 cultural heritage assets have been identified within the site. Their relative importance has been classified according to the method shown in Table 10.2 and is discussed below and summarised in Table 10.9.
- 10.7.4 The Category A Listed Former Naval Headquarters and Communications Centre and the Underground Fuel Reservoir, Wee Fea, Lyness, Hoy (Sites 127 and 153) are of national importance. The Underground Fuel Reservoir comprises a network of six rectangular underground fuel storage reservoir tanks with operational and maintenance access tunnels and valve chambers carved out of the hillside bedrock (See Figure 10.2). A number of these individual features within the site such as entrances to tunnels (Sites 321, 338 and 361) are within the curtilage of the Underground Fuel Reservoir and thus are also of national importance.
- 10.7.5 As shown on Figures 10.1 and 10.2 the site contains a dense concentration of individual assets recorded as part of the Legacies of Conflict project. The Legacies of Conflict: Hoy & Walls Wartime Heritage Project was a community and visitor engagement initiative run by the Island of Hoy Development Trust between 2013 and 2014 and involved detailed study of Hoy's rich Second World War archaeological heritage. Individually most of these assets are of local importance each attesting to a specific use of the landscape or construction event. Eighty-five (Sites 213-273, 274-318, 342-377, 404-406, 417, 419, 420 and 500) of the 159 non-designated assets comprise the remains of small slit trenches typically 2 m long by 1 m wide and 1 m in depth (Appendix 10.3; Plates 10 and 12). Individually they provide limited information regarding the defence of Wee Fea Hill and are of local importance. However, these assets form part of a wider group of 156 slit trenches and 14 supporting weapons pits and are the best surviving and densest concentration of prepared trench positions from the Second World War in the United Kingdom and, as a group, are of national importance. Other Second World defensive features such as foxhole firing positions (Site 275), weapons pits (Sites 280, 313, 333-336 and 345), gun emplacements (Sites 297 and 496), dummy gun emplacements (Site 281) and searchlight batteries (Sites 309 and 499) are all individually of local importance but are part of the wider group of defensive features on Wee Fea and thus, as a group, are also of national importance.
- 10.7.6 In association with those assets designed specifically either to defend Lyness or provide training for troops are a range of features which survive as the remains of the extensive infrastructure required to construct the Former Naval Headquarters and Communications Centre (Site 127) and the Underground Fuel Reservoir (Site 153). These include cement and concrete works (Sites 329, 356, 423, 424), concrete hut bases (Sites 299, 363, 428, 429, 489 and 490), railway cuttings and embankments (Sites 339, 340, 353-355, 357, 360, 366, 425-427, 431), locomotive sheds (Sites 422 and 430) and access tracks (Site 320, 322, 324-332, 359, 362 and 365). Individually these assets are of local or negligible value representing relatively modern remains which are common throughout the Scottish landscape. However, as a group these assets are associated with the monumental effort and resources required to construct both the Underground Fuel Reservoir and the Former Naval Headquarters and Communications Centre and thus these assets have a group value of regional importance.

10.7.7 Walkover survey within the site identified the remains of a possible prehistoric cairn (Site 492) and sub-rectangular stone cist (Site 493). As a possible early burial or ritual assets in an area in which known settlement and early activity is scarce, the remains of this feature have the potential to inform about funerary practices in Hoy and as such are judged to be of regional importance. A possible cup mark in a sub-rectangular stone (Site 494) also has the potential to inform further about prehistoric ritual practices in Hoy and is judged to be of regional importance.

10.7.8 The remaining identified assets largely relate to historical land division and land management practices, specifically upland grazing, and are typical of abandoned late post-medieval occupation evidence that abounds in this part of Hoy. They are consequently judged to be of local importance. However, some of the features identified are subtle in nature and have an indistinct form and could thus potentially be of earlier date or natural origin. It is also possible that identified later features may obscure and/or incorporate earlier features and as such the importance levels should be read as indicative.

Table 10.9 - Archaeological and Cultural Heritage Importance of Features within the Site

Site No	Name/Description	Status	Importance	Group Value
35	Hoy, Wee Fea, Second World War Gun Emplacements/huts	Non-designated	Regional	National
39	Hoy, Lyness, Farmstead	Non-designated	Local	n/a
76	Hoy, Wee Fea, Royal Naval Signal Station; Second World War Buildings/water tanks	Non-designated	Regional	National
127	Former Naval Headquarters and Communications Centre, Wee Fea, Lyness, Hoy	Category A Listed Building, LB48378	National	National
153	Underground Fuel Reservoir, Wee Fea, Lyness, Hoy	Category A Listed Building, LB52318	National	National
213-221, 227-232, 260, 265, 266, 269-274, 276-296, 298, 300-306, 311-318, 342344, 346-352, 367-377, 404-406, 417-420, 498, 500,	Legacies of Conflict – Second World War slit trenches	Non-designated	Local	National
275	Legacies of Conflict Second World War Foxhole firing position	Non-designated	Local	National

Site No	Name/Description	Status	Importance	Group Value
280, 313, 333-336, 345	Legacies of Conflict – weapons pit - Second World War defensive firing position	Non-designated	Local	National
281	Legacies of Conflict Dummy Gun Emplacement. Second World War decoy site	Non-designated	Local	National
297	Legacies of Conflict Anti-Aircraft Battery	Non-designated	Local	National
299,363, 428, 429, 489, 490	Wee Fea – Second World War concrete hut bases	Non-designated	Local	Regional
307	Wee Fea – Second World War timber hut base	Non-designated	Local	Regional
309, 499	Legacies of Conflict – Second World War Searchlight battery	Non-designated	Local	National
310	Legacies of Conflict – Second World War Air Raid Shelter	Non-designated	Local	National
319, 337, 341, 421	Legacies of Conflict – Mining Explosives store	Non-designated	Local	National
320, 322, 324-332, 359, 362, 364-365	Legacies of Conflict — access tracks relating to construction of underground fuel store and later land use	Non-designated	Negligible	Regional
323	Underground Fuel Reservoir – Hardstanding for construction works	Non-designated	Local	Regional
329, 356, 358, 423	Legacies of Conflict – Second World War cement works associated with Underground Fuel Reservoir	Non-designated	Local	Regional

Site No	Name/Description	Status	Importance	Group Value
338, 361, 418, 321,	Underground Fuel Reservoir- Sealed Tunnel Entrances	Non-designated	National	National
359, 365, 364	Legacies of Conflict – vehicle access tracks	Non-designated	Negligible	Regional
339, 340, 355, 357, 360, 366, 426, 425, 427, 431	Legacies of Conflict – railway embankments and earthworks relating to construction of underground fuel store	Non-designated	Local	Regional
422, 430	Legacies of Conflict – Locomotive Shed	Non-designated	Local	Regional
432	Legacies of Conflict - Second World War Radio Mast	Non-designated	Local	Regional
491	Wee Fea- Stove	Non-designated	Negligible	Regional
492	Black Pows Burn - Possible prehistoric cairn	Non-designated	Regional	n/a
493	Sky Fea - Possible cist	Non-designated	Regional	n/a
494	Sky Fea - Cup marked stone	Non-designated	Regional	n/a
495	Wee Fea - Gate posts	Non-designated	Local	Regional
496	Wee Fea - Gun emplacement	Non-designated	Local	National
497	Wee Fea Hill - Vent and Sleepers	Non-designated	Local	Regional
501	Ore Burn - Footbridge	Non-designated	Negligible	n/a
507	Hoy, Lyness, Farmstead	Non-designated	Negligible	n/a

Receptors Brought Forwards for Assessment of Effects on Setting

- 10.7.9 Twenty-nine Scheduled Monuments are located within 10 km of the site. ZTV analysis (Figure 10.5) indicates that the Proposed Development would have intervisibility with 18 Scheduled Monuments. The 18 Scheduled Monuments within the ZTV within the 10 km study area include two scheduled areas that cover the remaining coherent, intact wrecks of three dreadnought type battleships and four cruisers left on the seabed of Scapa Flow after the scuttling of the interned World War One,

German High Seas Fleet on the 21st of June 1919. For the purposes of this assessment each individual wreck has been assigned an AOC number (Sites 481 and 483-488) within the gazetteer (Appendix 10.1). OIC highlight the role that non-visual settings can play using the example of the relationship between the sunken HMS Hampshire and the memorial to those lost on it which overlooks it from the shore (OIC 2017c: 10, para 2.07). The High Seas Fleet can be considered to have a relationship with their anchorage positions around the island of Cava during their time of internment within Scapa Flow. However, the significance of this relationship can be considered to be low. Instead, these monuments have their primarily relationship underwater. These wrecks were subject to subsequent salvage activities in the years after their sinking; there are areas of collapse of these wrecks due to natural processes and as a result of the salvage activities. The positioning of the Proposed Development on Wee Fea above Scapa Flow would not inhibit an observer's understanding and appreciation of the position of the fleet during the internment period nor their subsequent scuttling position on the 21st of June 1919. As such, the settings of these wrecks would not be affected by the Proposed Development and therefore they have not been brought forward for further assessment further within this EIA Report.

- 10.7.10 Sixty-six Listed Buildings stand within 5 km of the site. ZTV analysis indicates that the Proposed Development would have intervisibility with 60 Listed Buildings. The Melsetter House GDL (Site 165, List Entry. GDL00281) is situated within the south-west portion of the 5 km study area and would have inversibility with the Proposed Development.
- 10.7.11 Assets located beyond 10 km are considered to be unlikely to be subject to significant effects due to the distance from the Proposed Development and as such only those identified as particularly sensitive to change were included as receptors for assessment. HONO WHS, is located approximately 19 km to the north of the site and consists of six individual monuments set within two separate Buffer Zones at Stenness within the core of West Mainland and at the Bay of Skail on its western coast, where the Neolithic Settlement of Skara Brae is located. The two Buffer Zones and the wider Sensitive Area which surrounds the WHS are identified in the 2014-19 WHS management plan (HES 2016a, 7). Five of the WHS Scheduled Monuments are located at Stenness within proximity to the lochs of Stenness and Harray; the Maeshowe chambered cairn (Scheduled Monument, List Entry. SM90209), the Barnhouse Stone (Scheduled Monument, List Entry SM90341) which is aligned with Maeshowe's passageway, the Stones of Stenness stone circle (Scheduled Monument, List Entry SM90285), the adjacent Watch Stone (Scheduled Monument, List Entry SM90352) and finally the Ring of Brodgar stone circle (Scheduled Monument, List Entry SM90042). Only monuments within the care of Scottish Ministers (directly managed by HES) are included within the WHS although the management plan notes that *'other sites within the immediate vicinity... contribute greatly to our understanding of the WHS and support its OUV'* (ibid.8).
- 10.7.12 ZTV analysis indicates that there would be no visibility from Maeshowe, the Barnhouse Stone, the Stones of Stenness, the Watch Stone or the Ring of Brodgar, so consideration of the potential for effects upon the setting of these assets individually will be excluded from further assessment. The ZTV does however suggest that the Proposed Development would be visible from the WHS Buffer Zone to the north of the Ring of Brodgar and therefore the potential for visibility in views of the Ring of Brodgar from the north will be addressed by this assessment.
- 10.7.13 A further five heritage assets were identified by the Orkney Council Archaeologist as requiring visualisations to assess impacts upon their settings and have thus been subject to detailed settings assessment.
- 10.7.14 Given the preliminary findings outlined above the following assets have been carried forward for detailed assessment:
- Two Category A Listed Buildings located within the site; the Former Naval Headquarters and Communications Centre and the Underground Fuel Reservoir, Wee Fea, Lyness, Hoy (Sites 127 and 153) (Figure 10.1 and 10.2);
 - Sixty Listed Buildings located between 1 km and 5 km from the site (Sites 103-109, 111-122, 124-125, 127-157 and 468-478);
 - The Melsetter House GDL (Site 165) situated 3.5 km to the south of the site (Figure 10.4);

- Five Scheduled Monuments located between 1 km and 5 km from the site (Sites 98, 173 and 465-467) (Figure 10.4);
- Sixteen Scheduled Monuments located between 5 km and 10 km from the site (Sites 9-10, 96, 102, 171-177, 481 and 483-488) (Figure 10.5);
- The HONO WHS Sensitive Area around the Ring of Brodgar Scheduled Monument (SM90042; Site 502). Other designated assets within the World Heritage Site Sensitive Area including the Wasbister Burial Mounds and Settlement (SM7700; Site 503), Bookan Chambered Cairn (SM1243; Site 504) and the Ring of Bookan Chambered Cairn (Scheduled Monument SM1370; Site 505) have also been brought forward for assessment to aid in assessment of potential effects in views to and from the Ring of Brodgar element of the HONO WHS. The Ring of Brodgar lies 19 km north of the site (Figure 10.6);
- Four Scheduled Monuments located between 10 km and 20 km from the site (Sites 509-512) and identified by the OIC Archaeologist as requiring further assessment (Figure 10.6); and
- The Category A Listed St. Magnus Cathedral, Kirkwall (Site 508) located 22.5 km from the site and identified by the Orkney Council Archaeologist as requiring assessment (Figure 10.6).

10.8 Standard Mitigation

10.8.1 National planning policies and planning guidance as well as the local planning policies require that account is taken of potential effects upon heritage assets by proposed developments and that where possible such effects are avoided. Where avoidance is not possible these policies require that any significant effects are minimised or offset.

10.8.2 It is acknowledged that despite the extensive previous survey undertaken as part of the Legacies of Conflict project and the walkover undertaken to inform this assessment, there may be further previously unrecorded subtle archaeological features within the site. The presence of peat within the site also means that archaeological features may also be buried by peat growth, and therefore undetectable by survey. Given the presence of known assets and the potential for presently unknown archaeological remains, in particular of Second World War date, to survive within the site, a programme of archaeological works will be undertaken prior to the commencement of construction of the Proposed Development.

Detailed Survey of Upstanding Remains

10.8.3 The walkover survey undertaken to inform this assessment and the Legacies of Conflict project have recorded a wide range of heritage assets in close proximity to the proposed infrastructure. These assets have primarily been recorded as point data as shown on Figures 10.1 and 10.2. Many of the assets such as embankments, access tracks and building footprints are more extensive than suggested by this data. Further the walkover survey for this assessment suggests that there may be some duplication of records/slight inaccuracies in mapping due to the errors inherent in hand-held GPS. A detailed earthwork survey using survey grade GPS which would map the full extent and nature of these assets in the vicinity of proposed infrastructure would thus be undertaken prior to the commencement of development. This would provide a clearer understanding of the network of defensive features within the site, including a better understanding of their current condition.

Protection of Archaeological Sites

10.8.4 Following completion of the survey all known heritage assets within 50 m of the proposed working areas, including all areas to be used by construction vehicles, will, where appropriate, be fenced off under archaeological supervision prior to construction. This fencing will be maintained throughout the construction period to ensure the preservation of these assets.

10.8.5 The Applicant is seeking in-perpetuity consent for the Proposed Development. If further groundworks are required in the event of decommissioning, or replacement of turbines then all known sites within 50 m of the proposed working areas will be fenced off with a visible buffer under archaeological supervision. This will be undertaken prior to decommissioning in order to avoid accidental damage by heavy plant movement.

Archaeological Trial Trenching

- 10.8.6 The potential for previously unrecorded buried remains to be affected will be addressed by a programme of archaeological works, undertaken as a condition of planning consent which will be undertaken prior to the commencement of construction of the Proposed Development. These works will include archaeological trial trenching targeted on a representative percentage of the total footprint of the development infrastructure. Depending on the results of these investigations further works prior to or during construction including further excavations and/or an archaeological watching brief are likely to be required. The purpose of such works will be to identify any archaeological remains threatened by the Proposed Development, to assess their significance and to mitigate any impact upon them either through avoidance or, if preservation in situ is not warranted, through preservation by record. Depending upon the results post-excavation analyses and publication of results, could be required. Details of mitigation will be agreed with OIC in consultation with the Orkney Country Archaeologist through a WSI.
- 10.8.7 Any archaeological fieldwork commissioned in order to mitigate direct effects will result in the production and dissemination of a professional archive, which will add to our understanding of the cultural heritage value of the site.

Development Design

- 10.8.8 The Landscape and Visual Assessment (Chapter 6) discusses the measures taken to reduce the appearance or visual presence of the turbines within the wider landscape. The Proposed Development has been designed to present a clearly structured, balanced arrangement which responds positively to key landscape features and local topography. Steps have been taken to promote a simple balanced composition that minimises overlapping turbines, skyline effects and back-grounding (see Chapter 2 for further details). Consideration has also been given to other design issues, including turbine colour, size and siting; the design and form of the substation building; and the alignment of access tracks to ensure these proposed features relate to the key characteristics of the landscape. As setting effects largely result from the visual presence of the turbines within the landscape the same mitigation measures apply to setting effects on cultural heritage assets.

10.9 Likely Effects

Construction

- 10.9.1 During construction, direct physical impacts are likely to occur from site vegetation clearance, earthmoving operations, creation of the substation, road construction, and all associated infrastructure (turbine bases, compounds, drainage etc.). Setting impacts are likely to occur due to the introduction of construction machinery on site, additional construction traffic and construction of compounds. Settings impacts relating to construction are limited to those assets in close proximity to the proposed works and thus are largely limited to assets within the site.
- 10.9.2 There would be a medium magnitude of impact on the setting of the Former Naval Headquarters and Communications Centre (Site 127) and the Underground Fuel Reservoir, Wee Fea (Site 153); during construction of the Proposed Development which would necessitate heavy goods vehicles using the tracks adjacent to both monuments and the creation of a temporary construction compound within 30 m of the Communications Centre. The frequent passing of heavy goods vehicles and associated noise would temporarily interrupt and affect the ability to understand these monuments in their remote upland setting. As a defensive structure the Communications Centre is of high sensitivity to changes in its setting. The level of effect on the setting of the building would be **moderate** and significant. As a primarily buried structure the Underground Fuel Reservoir (Site 153) is of less sensitivity to changes in its setting although its remote upland location contributes to an understanding of its placement in the landscape and it is of medium sensitivity to changes in its setting. The level of effect on the setting of this structure would be **minor** and not significant. Following completion of construction, the area of the construction compound would be grassed over and impact on the setting of these monuments from frequent heavy vehicle traffic would cease.

- 10.9.3 The likely effects of construction activities upon setting would be temporary, short term and reversible, however, direct physical impacts and new infrastructure are usually permanent in nature and therefore have a lasting effect.
- 10.9.4 The Proposed Development has been designed to avoid direct impacts on known heritage assets where possible. The turbines and associated infrastructure have been sited to avoid directly impacting upon the known footprint of the Category A Listed Underground Fuel Reservoir underneath Wee Fea Hill (Site 153). A buffer of 30 m from the known footprint of the Underground Fuel Reservoir (See Figure 10.2 and 10.11) has also been applied to ensure that there would be no damage to the buried structures from vibrations caused by earthworks required for construction of the Proposed Development.
- 10.9.5 Thirteen of the 163 non-designated assets that have been identified on the site could potentially be directly impacted by the Proposed Development (Sites 266, 365-366, 368-375, 429 and 491) (Figures 10.1 and 10.2). All of these assets, with the exception of Site 491, were identified as part of the Legacies of Conflict project. Site 491 was identified during the walkover survey. All of these types of assets are commonly encountered across military sites in Scotland and individually these examples are considered to be of negligible or local importance (Table 10.9). The Proposed Development would result in disturbance or removal of individual assets which would constitute a high magnitude of impact. As per Table 10.9, Sites 266, 365-366, 368-375, and 429 and 491 are judged to be of local value. The level of direct effect would therefore be **moderate** and significant. Sites 365 constitutes the remains of an access track and is of negligible value. The Proposed Development would reuse some of these tracks although ground breaking works and disturbance to underlying deposits would be required for upgrading works. The Proposed Development would impact on a small proportion of the overall length of track and would maintain the alignment of the track in the landscape. This would constitute medium magnitude of impact. The level of direct effect on Site 365 would therefore be **minor** and not significant.
- 10.9.6 As noted in Section 10.7.5, as a group the assets on Wee Fea comprise some of the best surviving examples and densest concentrations of defensive earthwork features in Scotland and thus have a national group value. Removal of these assets by the Proposed Development would result in the loss of some information content from this wider group of assets. As per the criteria in Table 10.3 this would constitute an impact of low magnitude across the wider group. Given their national importance this would constitute a **moderate** level of direct effect (Table 10.4) which is significant.
- 10.9.7 Aerial photographic analysis and historic map regression have shown that, the site has been subject to previous substantial ground disturbance required for the excavation and construction of the underground fuel store, communications centre and associated infrastructure. However, there remains a potential for further previously unknown buried remains, including Second World War remains, to be disturbed during the construction phase of the Proposed Development.
- 10.9.8 Given this a mitigation strategy will be required to safeguard and, where necessary, record any such remains. A four-stage mitigation strategy; survey, trial trenching followed by excavation and/or watching brief and post-excavation analysis will be undertaken as set out in Section 10.8 above.
- 10.9.9 The level of any likely effect on previously unrecorded remains cannot be quantified at present as the value of any further assets which may be present on the site is, by their very nature unknown. However, should any previously unrecorded significant remains be identified on the site, either through survey, trial trenching or subsequent works they will be subject to an appropriate archaeological mitigation strategy, the results of which will contribute to our overall understanding of Orkney's past and therefore create a beneficial legacy.
- 10.9.10 The Proposed Development may also impact on palaeoenvironmental deposits. The peat survey has demonstrated the existence of peat deposits across the site which are, on average, less than 1 m in depth. However, localised areas of peat more than 2m deep were identified (in less than 3% of the peat probes) and indicate the presence of isolated pockets of deeper peat. Any such deeper peat deposits have the potential to preserve paleoenvironmental remains which in turn have the potential to provide information on vegetation change over time. Given the relatively small construction footprint of the Proposed Development, it is considered that the magnitude of impact on the palaeoenvironmental deposits would be 'low'.

Operation

- 10.9.11 Direct effects upon any previously unknown archaeological remains which may be present on the site would cease with the completion of the groundworks stage of construction and consequently no direct effects are predicted during the operational phase of the Proposed Development. All operational phase effects would thus be upon the settings of heritage assets.
- 10.9.12 Operational phase effects would be limited to impacts upon the settings of assets such as World Heritage Sites, Scheduled Monuments, Listed Buildings and GDLs.
- 10.9.13 ZTV analysis and mapping have been used to identify those designated assets that could potentially be affected by changes to their settings during the operational phase of the Proposed Development and the assets that will be carried forward for detailed assessments have been outlined in paragraphs 10.7.9 to 10.7.14(above). The detailed assessments have included a review of the contextual characteristics of each asset using information drawn from their designation documentation, supplemented by observations on the morphology, condition and character of each asset and the nature of their settings made during site visits undertaken in October 2019.
- 10.9.14 The settings assessment found that the effect of the Proposed Development upon the setting of two Listed Buildings the Former Naval Headquarters and Communications Centre at Wee Fea (Site 127) and the Royal Naval Cemetery (Site 147) at Lyness would be **moderate** and significant. The assessment found that the effect of the Proposed Development on the setting of the remaining 76 designated assets would not be significant as the effect levels would be **neutral to minor/moderate**. These findings are listed in Table 1 within Technical Appendix 10.2. A summary discussion for the assets subject to detailed assessment is provided within Appendix 10.2 and has been informed by ZTV modelling, site visits, photomontages and wireframes (Figures 10.12-10.27) as appropriate.

Former Naval Headquarters and Communications Centre at Wee Fea: Site 127

- 10.9.15 The Category A listed Naval Headquarters and Communication Centre (Site 127; Appendix 10.3; Plate 13) comprises a large concrete, rectangular-plan Second World War communications and signal station set on Wee Fea overlooking Lyness. The building is set into a bank with a ditch between the building and hill to the north-west and south-west. The north-west elevation has an opening to its left for a former timber stair and a porthole opening to right flank, with two more openings to right. An opening is set back to far left and concrete stairs lead up to a door below. The south-east elevation has numerous porthole openings which afford the building extensive strategic views over Lyness and beyond to Scapa Flow. The flat roof contains the remains of signal mountings, a brick water tank and other concrete structures. All communications for the fleet at Scapa Flow were processed in this building, communicating through both telephone and wireless transmission. It was strategically important, handling over 25,000 messages per day. The Communication Centre has a distinctive profile and is a highly visible physical landmark which serves as an upstanding reminder of the military activity at Lyness from the Second World War. Its remote hillside setting is key to understanding it as an important strategic military site with extensive views across Lyness and Scapa Flow and it is of high sensitivity to changes in its setting.
- 10.9.16 As shown on the appended photomontage (Figure 10.12d-f) five of the Proposed Development turbines would be visible from the Communications Centre and would be seen in an arc of view from south-west through to west. Three turbines would be seen to hub height with two visible to tip height. The nearest turbine (Turbine 1) would be set at a distance of approximately 310 m west-south-west of the Communication Centre and would thus appear as a prominent feature in views west, inland from the Centre. Turbine 1 would also require to be set into the hill and would result in creation of a cut which would be visible at close proximity in views from the Communications Centre and would also be seen behind the Communications Centre in views towards it from the east. As shown on Figure 10.13g when viewed from the Royal Naval Cemetery at Lyness (Site 153) Turbine 1 would appear directly behind the Communications Centre. Turbine 1 would break the skyline and thus may challenge the apparent dominance of the Communication Centre in this view towards it. When viewed from Lyness, the Communication Centre is viewed against the hillside and the addition of the Proposed Development turbines would draw the eye upwards away from the Communication Centre. Views towards the Communication Centre on approach from roads to the

north and south of Lyness (from where it currently appears against the skyline) would have clear views of turbines breaking the skyline but would be offset from the distinctive profile of the Communications Centre. Views out from the Communications Centre to the west would be dominated by views of the Proposed Development and in particular the cut of Turbine 1. However, key views out from the principle south-east elevation of the Communications Centre as shown on Figure 10.12b and Figure 10.12c would remain unaffected by the Proposed Development. One of the key design features of the Communication Centre is the positioning of the majority of portholes within is south-east facing elevation overlooking Scapa Flow. It is these views out from the Communications Centre that are most integral to gaining an understanding and appreciation of the strategic importance of this structure.

- 10.9.17 The Proposed Development would represent a notable alteration to the setting of the monument beyond those elements which directly contribute to an understanding and appreciation of its cultural value, i.e. strategic views over Scapa Flow, but would encroach upon the wider topographic landscape setting as shown in Figure 10.13g. The Proposed Development would not adversely affect the ability to understand the critical strategic positioning of the Communications Centre on the slopes of Wee Fea. The key relationship between the Listed Building and the military remains at Lyness which it overlooks would not be altered and thus the overall integrity of the setting would not be adversely affected. The magnitude of impact would be medium. The level of effect would be **moderate** and significant.

Royal Naval Cemetery at Lyness: Site 147

- 10.9.18 The Category B Listed Royal Naval Cemetery (Site 147; Appendix 10.3; Plate 14) at Lyness was acquired by the Admiralty in 1915 when Scapa Flow was the administrative base of the grand fleet, and the Navy needed a resting place for fallen seamen. By 1st July 1927 the cemetery was officially under the care and maintenance of the International War Graves Commission (IWGC). It may be one of the earliest cemeteries administered by the IWGC. The cemetery was officially purchased by the Commonwealth War Graves Commission (CWGC) in 1977. The cemetery contains the graves of sailors from both World Wars marked by Admiralty Crosses, including the graves of 445 Commonwealth sailors from the First World War, 109 of which are unidentified. Some of the fallen lost their lives locally, and therefore have a direct association with Scapa Flow. The focal point of the Royal Naval Cemetery at Lyness is the Cross of Sacrifice, erected in 1925, which is commonly associated with UK war graves cemeteries. The Cross of Sacrifice in Scotland at Lyness is unusually large for the relatively low number of casualties buried in the cemetery and may have been selected to recognise the status of the cemetery and to be visible from the sea. The cemetery also has the largest concentration of war graves in Scotland. A primary visual setting within the cemetery is aligned along the two structures containing the books of remembrance with the Cross of Sacrifice in between (Appendix 10.3; Plate 15). The cemetery is of high sensitivity to changes in its setting.
- 10.9.19 As shown on Figure 10.13g the Proposed Development would be located 1.2 km west-south-west of the cemetery from where it would be seen to break the skyline above the Communications Centre (Site 127). The Proposed Development would appear as a prominent skyline feature and would constitute a change to the wider setting of the cemetery. The Proposed Development would be seen offset to the west of key sightlines within the cemetery and thus would not challenge the appearance of the Cross of Sacrifice on the skyline when viewed from the entrance to the cemetery to the north or indeed for other local points within the landscape where the cross appears against the skyline. The visual and contextual relationship between the cemetery and the former Naval Base at Lyness and its associated visible military remains, as shown on Figure 10.13e, would not be affected. The magnitude of impact would therefore be low. The level of effect would be **moderate** and significant.
- 10.9.20 No other significant residual operational effects are anticipated.

Decommissioning

- 10.9.21 The Applicant is seeking in-perpetuity consent for the Proposed Development. In the event of decommissioning, or replacement of turbines, it is anticipated that the levels of effect would be similar but of a lesser level than those identified during construction. Decommissioning would be

undertaken in line with best practice processes and methods at that time and will be managed through an agreed Decommissioning Environmental Management Plan.

10.10 Additional Mitigation and Enhancement

- 10.10.1 This assessment has identified a **moderate** and significant effect on the setting of the Communications Centre at Wee Fea (Site 127) and the Royal Naval Cemetery at Lyness (Site 147). In the case of the Proposed Development, the creation of a Heritage Trail within the site could partially offset likely impacts of the Proposed Development on the setting of heritage assets in its vicinity. As an impact upon setting is ultimately an impact upon the ability of the surroundings of the monument to contribute to an observer's understanding, appreciation and experience of the asset, compensatory measures which will increase the understanding, appreciation and experience of the asset and the wider archaeology of the area, are therefore an appropriate way to offset such impacts (as per PAN 2013).
- 10.10.2 A detailed review of the Second World War remains within the site has been undertaken as part of the Legacies of Conflict project (Lindsay and Dobney 2014) this included community survey, workshops, presentations and work in local schools. The Legacies of Conflict report contained a range of recommendations for further works that could be undertaken to further increase our understanding of the historic landscape of the site and increase the knowledge of local communities, empowering them in understanding their local heritage. The mitigation proposals outlined above which would involve detailed survey and recording would allow for additional information to be gained about the assets within the site which may be beneficial to their interpretation. As noted by Lindsay and Dobney (2014) the military assets within the site were largely constructed in haste and were only intended to last five years and some are now in a poor state of repair and difficult to understand within the current landscape. A way marked Heritage Trail will be established within the site which will improve physical access to the Second World War heritage remains and will direct visitors from the Command Bunker to the selected heritage assets on Wea Fea. Interpretation boards will be provided at key points along the trail to explain the importance of the Command Bunker and nearby Underground Fuel Reservoirs as well as the more subtle earthwork features on Wea Fea. Links with the military remains and visitor centre at Lyness will also be highlighted. The establishment of a Heritage Trail within the site will make Hoy's wartime heritage more accessible and engaging for local communities and visitors to the island. The ability to enjoy, appreciate, learn from and understand Scotland's historic environment, now and in the future, is one of the key principles outlined in HEPS (HES 2019; HEP2).
- 10.10.3 A detailed methodology for addressing direct impacts has been described in Section 10.8 above. Depending on the results, the proposed investigations have the potential to add to our understanding of Orkney's archaeological heritage and could provide opportunities for further academic studies going forward. The publication of the results would therefore constitute a beneficial enhancement.

10.11 Residual Effects

Construction

- 10.11.1 The Proposed Development has been designed, where possible, to avoid direct impacts on known heritage assets. The implementation of the mitigation measures outlined in Section 10.8 will prevent inadvertent damage to known heritage assets; and investigate the potential for previously unknown assets. Following the completion of construction, no further groundworks would be undertaken. Following the implementation of mitigation measures there may be a slight loss of overall information content and as such a marginal magnitude of impact is anticipated. The residual direct effect would be **negligible** and not significant. The effects of construction activities upon the setting of heritage assets would be temporary, short term and reversible and thus there would be **no** residual construction effects on the setting of heritage assets.

Operation

- 10.11.2 The predicted residual effects on the settings of designated heritage assets will be the same as assessed for the operational and cumulative effects. There would be **moderate** significant residual effects on the setting of the Former Naval Headquarters and Communications Centre at Wee Fea (Site 127) and the Royal Naval Cemetery at Lyness (Site 147). In both cases the ability to appreciate, experience and understand the relationship of the assets to their surrounding would be maintained and thus the integrity of their settings would not be adversely affected.
- 10.11.3 No other significant residual operational effects are anticipated.

Decommissioning

- 10.11.4 The Applicant is seeking in-perpetuity consent for the Proposed Development. In the event of decommissioning, the majority of operational effects upon the settings of designated assets would be reversed. There would be a **negligible** residual effect on the setting of the Communications Centre (Site 127) at Wee Fea and the Royal Naval Cemetery (Site 147) at Lyness resulting from the cut required for construction for Turbine 1. It is anticipated that the cut will be masked by natural vegetation growth over time and thus will meld with the hillside when viewed at greater distances.

10.12 Cumulative Assessment

- 10.12.1 As set out above in paras 10.5.23 – 10.5.26, cumulative effects relating to cultural heritage are for the most part limited to effects upon the settings of heritage assets.
- 10.12.2 With regard to the likely significant cumulative effects on cultural heritage assets, the assessment considers operational, under construction, consented and within-planning wind farm developments (that are greater than 50 m to blade tip) at distances up to 40 km from the Proposed Development. The location of cumulative developments is shown on Figure 6.12. Developments at the scoping stage are not considered. A full list of the cumulative developments is included in Chapter 4. The cumulative schemes include the operational West Hill Flotta, Ore Brae Hoy and Howe Shapinsay; the under construction Work Farm and Akla; the consented Hesta Head, Costa Head, and the application development at Quanterness.
- 10.12.3 Archaeological remains are by their very nature an irreplaceable resource and are subject to threats both within and outwith the planning system. The range of non-development threats is broad and includes damage through weathering and slow vegetation growth. Any archaeological remains which may be present on the site need to be understood within this context of gradual loss which occurs on an Orcadian, regional and national scale. Archaeological investigations allow any loss to be controlled through programmes of recording, sampling and analysis. The consequence of this is that where direct impacts occur through either development or academic research, then our understanding of these assets is enhanced, and the results of these investigations inform our knowledge of Orkney's past. Indeed, our understanding of Orkney's archaeological heritage is itself the cumulative product of the results of numerous investigations undertaken over many generations. Any direct impacts which may result from the Proposed Development would be addressed through the detailed programme of mitigation that has been set out in Section 10.8, which will include comprehensive investigations, the results of which will contribute to our overall understanding of Orkney's past and therefore create a beneficial cumulative legacy. The significance of the cumulative impact on archaeology during construction combined with other developments or causes of loss will thus be **negligible** and not significant. As such this assessment will focus on the likely significant cumulative effects upon the setting of heritage assets which have the potential to occur during the operational phase.
- 10.12.4 As indicated in the methodology section paragraphs 10.5.23 – 10.5.26 only heritage assets where effects of **minor/moderate** or above have been predicted for the Proposed Development alone are considered in the detailed cumulative assessment. Cumulative effects on assets for which effects of **minor** or less have been predicted for the Proposed Development alone are not considered to have the potential to reach the EIA threshold of significance and have therefore been excluded from the detailed assessment. When viewed from the Category A Listed Former Naval Headquarters and

- Communications Centre Wee Fea (Site 127) the Proposed Development would appear as a dominant feature in views to the west which are not currently occupied by wind farm development. Views from the Communications Centre out over Lyness feature the operational turbines at West Flotta and Ore Brae (Figure 10.12c). These turbines would appear smaller than the Proposed Development due to their lower blade tip height. Overall, the developments within this part of the cumulative baseline are smaller and more limited in scale than the Proposed Development which means that the weight of the effect upon the setting of the Communications Centre would result from the addition of the Proposed Development rather than from the underlying cumulative baseline and no additional cumulative effects are predicted.
- 10.12.5 The operational turbine at Ore Brae is visible from the Royal Navy Cemetery at Lyness (Site 147). As shown on Figure 10.13b the operational turbine at West Flotta is theoretically visible from the cemetery but visibility is blocked by intervening structures at Lyness (Figure 10.13e). Turbines within the cumulative baseline are both smaller scale and lower lying than the Proposed Development and are set at a greater distance from the cemetery, and as such the principal effect will come from the Proposed Development rather than the cumulative schemes. For this reason, no additional cumulative effects are predicted.
- 10.12.6 The Scheduled Monument of Crockness Martello Tower (Site 96) and twin Hackness Martello tower (Site 173) have an interrelated setting relationship which is key to their understanding and appreciation. Both towers were built to provide surveillance of the coast from the sea and their relationship with the coast is considered to form the critical part of the setting of both monuments. The towers at Crockness and Hackness are of high sensitivity to changes in their setting. All six of the Proposed Development turbines would be visible from both towers and tips of turbines would appear to break the skyline above Wee Fea. As shown on Figure 10.14b the Proposed Development would be seen within the same views as the Ore Brae turbine but would appear as distinct and separate due to the larger tip height of the Proposed Development turbines. Views of the Proposed Development alongside the operational and consented turbines would not distract from the key visual relationship between the towers or their key defensive outward seaward views. The weight of the non-significant effects upon the setting of the towers would therefore result from Proposed Development itself and for this reason, no additional cumulative effects are predicted.
- 10.12.7 The Category A Listed Building of Rysa Lodge at Site 139 commands views south across Mill Bay, east across Gutter Sound, north across Rysa Sound and west across open rolling moorland. The operational West Flotta turbines are visible beyond Gutter Sound. As shown on Figure 10.15c Rysa Lodge would also have theoretical visibility with numerous developments to the north and east although their actual visibility would be limited by distance to very clear days. The Proposed Development would be visible south-west of Rysa Lodge. As shown on Figure 10.15b it would be seen against the skyline and would be seen offset from the operational Ore Bay turbine. Key views towards Rysa Lodge from across the landscape, particularly from the west from approaches along the road where the Lodge is seen profiled against the skyline, would not be affected by the increase in wind farm development. As such no additional cumulative effects have been predicted.
- 10.12.8 When viewed from the Category A Listed Underground Oil Fuel Storage Reservoir (Site 153) the Proposed Development would appear as a dominant feature within an open moorland setting. Views from the Underground Fuel Storage Reservoir out over Lyness, to which its setting primarily relates, feature the operational turbine at West Flotta and Ore Brae. These turbines would appear smaller than the Proposed Development due to their lower blade tip height. Overall, the developments within this part of the cumulative baseline are smaller and more limited in scale than the Proposed Development which means that the weight of the effect upon the setting of the Underground Oil Fuel Storage Reservoir would result from the addition of the Proposed Development rather than from the underlying cumulative baseline. For this reason, no additional cumulative effects are predicted.
- 10.12.9 The Scheduled Monument of the Green Hill of Hestiegeo Broch, at Site 464, is set within open improved pasture on the edge of a south-east facing sea cliff at less than 10 m above sea level. The broch is visible as a large turf-covered mound with traces of outerworks; irregular ground indicates possible structures and dwellings outside the broch. The south-east facing aspect of the broch affords it views across Pentland Firth where operational turbines at Stroupster in Highland can be

seen. As a defensive monument in a coastal setting the broch is judged to be of high sensitivity to changes in its setting. The nearest turbine of the Proposed Development would be set 7 km north-west of the monument within the same view as the operational Ore Brae Wind Farm but would be seen offset to its north-west and would appear as a distinct separate development. Neither the Proposed Development nor the Ore Brae developments would appear in strategic coastal sightlines to the south. The increase in views of wind farm development in views north and north-west from the monument, beyond the intervening lower slopes of the Hill of Wards, would not affect the ability to understand this defensive prehistoric monument in its current setting and as such no additional cumulative effects have been predicted.

- 10.12.10 Greenhill Broch, South Walls (Site 465) is located on a low cliff above the north shore of South Walls. The summit of the mound is slightly depressed, and some small exposures of coursed stonework are visible amongst dense vegetation. To the north-east of the broch are the grass-covered remains of one or more burnt mounds and to the north-west are the low footings of rectangular buildings of medieval or post-medieval date. The broch commands extensive views north across Longhope Bay and north-east over to Weddel Sound and beyond. The operational turbine at west Hill Flotta is clearly visible in this view (see Figure 10.22b). To the north-west, the broch has open views across Longhope and North Bay to Little Ayre with the hills of the site visible in the distance. As a defensive monument, with key coastal views, the broch is of high sensitivity to changes in its setting. The Proposed Development would be seen partially against the skyline, north-west of the broch, and would be seen in the same views as the Ore Brae turbine as shown on Figures 10.22b. The Proposed Development would thus increase the overall proportion of view occupied by turbines and would be seen in the same view as existing consented and operational wind farm development. Views of the Proposed Development turbines, alongside those at Ore Brae, would be located beyond the prevalent coastal views out from the broch and would not affect the ability to understand and appreciate the broch in its setting. As such no additional cumulative effects are predicted.

10.13 Summary

- 10.13.1 This chapter identifies the archaeological and cultural heritage value of the site and assesses the potential for direct and setting effects on heritage assets resulting from the construction and operation of the Proposed Development. This chapter also identifies measures that should be taken to mitigate predicted adverse effects.
- 10.13.2 This assessment has identified 163 non-designated heritage assets and two Category A Listed Buildings from the Second World War on the site. With the exception of the potential prehistoric assets at Sites 492 to 494 and a post-medieval farmstead (Site 39), footbridge (Site 501) and well (Site 507) all identified assets within the site date to the Second World War.
- 10.13.3 The Proposed Development has been designed so as to avoid impacts upon known heritage assets where possible. Given the density of known remains it has not been possible to avoid all impacts and there would be direct impacts on 13 non-designated heritage assets. All of these assets are military remains and comprise slit trenches, access tracks and earthwork remains relating to the construction of the underground fuel storage bunker. Individually these assets are of local or negligible importance but together they form part of a wider group of remains on the slopes of Wee Fea that formed a distinct sector relating to the construction and defence of the vital underground fuel store and wider defence of the Lyness Naval Base. The Proposed Development would impact upon a small proportion of this wider complex of remains leading to some loss of information content. A **moderate** and significant direct effect on these remains has been predicted.
- 10.13.4 The presence of extensive peat cover across the site indicates the potential for historic environmental evidence to be contained within and underlying the peat. Additionally, the identification of archaeological remains of prehistoric to post-medieval date in and around the site indicate the potential for sub-surface archaeological deposits.
- 10.13.5 Planning policies and guidance require that account is taken of potential effects upon heritage assets by proposed developments and that where possible such effects are avoided. Where avoidance is not possible, effects on any significant remains should be minimised or offset. Given the identified significant effects and the potential for presently unknown archaeological remains,

in particular of post-medieval and modern date, to survive within the site, a programme of archaeological works designed to record known remains, avoid inadvertent damage to known remains and to investigate and mitigate against the possibility of uncovering hitherto unknown remains will be undertaken.

- 10.13.6 The implementation of the above outlined mitigation measures will record known remains, prevent inadvertent damage to known heritage assets; investigate the potential for previously unknown assets and disseminate the results of archaeological works to the public. Following the implementation of mitigation measures there may be a slight loss of overall information content and as such a marginal magnitude of residual direct impact is anticipated. The residual direct effect would be **negligible** and not significant.
- 10.13.7 There would be a medium magnitude of impact on the setting of the Former Naval Headquarters and Communications Centre (Site 127) and the Underground Fuel Reservoir, Wee Fea (Site 153); during construction of the Proposed Development which would necessitate heavy goods vehicles using the tracks adjacent to both monuments and the creation of a construction compound within 30 m of the Communications Centre. The frequent passing of heavy goods vehicles and associated noise would temporarily interrupt and affect the ability to understand these monuments in their remote upland setting and there would be **moderate** and significant effect on the setting of the Former Naval Headquarters and Communications Centre (Site 127) and a **minor** and not significant effect on the setting of the Underground Fuel Reservoir, Wee Fea (Site 153) during construction. The likely effects of construction activities upon setting would be temporary, short term and reversible and would cease on completion of construction.
- 10.13.8 Likely operational effects on the settings of designated heritage assets within the 5 km and 10 km study areas and selected assets within the 20 km study area have been considered in detail as part of this assessment. A **moderate** and significant effect has been predicted upon the setting of the Category A Listed Former Naval Headquarters and Communications Centre, Wee Fea (Site 127) which is located within the site boundary and the Category B Listed Royal Naval Cemetery (Site 147) at Lyness.
- 10.13.9 A Heritage Trail will be established within the site as compensatory mitigation to partially offset likely effects of the Proposed Development on the setting of Second World War heritage assets in its vicinity and in particular the Category A Listed Former Naval Headquarters and Communications Centre.
- 10.13.10 There would be a **moderate** and significant residual effect on the setting of the Category A Listed Former Naval Headquarters and Communications Centre, Wee Fea (Site 127) and the Category B Listed Royal Naval Cemetery at Lyness (Site 147) although the core components and integrity of the setting of both assets would not be adversely affected.
- 10.13.11 The possibility of cumulative effects has been considered and assessed however; no additional cumulative effects have been predicted.

Table 10.10 – Summary of Effects

Description of Effect	Significance of Likely Effect		Mitigation Measure	Significance of Residual Effect	
	Significance	Beneficial/ Adverse		Significance	Beneficial/ Adverse
Construction					
Direct impacts on known non-designated group of nationally important archaeological remains on Wee Fea.	Moderate	Adverse	A mitigation strategy in four stages is proposed; earthwork survey and trial trenching will be undertaken in the first instance. Should the results of the trial trenching indicate that further works are required further excavation and post-excavation analysis will be undertaken. A Heritage Interpretation and Conservation Management Plan (HICMP) for these assets is also proposed.	Negligible	Adverse
Direct impacts on known non-designated remains of local importance that are present on the site.	Minor	Adverse	A mitigation strategy in four stages is proposed; earthwork survey and trial trenching will be undertaken in the first instance. Should the results of the trial trenching indicate that further works are required further excavation and post-excavation analysis will be undertaken.	Negligible	Adverse
Direct impacts on known non-designated remains of negligible importance that are present on the site.	Minor	Adverse	A mitigation strategy in four stages is proposed; earthwork survey and trial trenching will be undertaken in the first instance. Should the results of the trial trenching indicate that further works are required further excavation and post-excavation analysis will be undertaken.	Negligible	Adverse
Direct impacts on previously unrecorded non-designated regionally or nationally important	Major	Adverse	A four-stage mitigation strategy is proposed; survey and trial trenching will be undertaken initially and will be followed by excavation and post-excavation analysis as	Negligible	Adverse

Description of Effect	Significance of Likely Effect		Mitigation Measure	Significance of Residual Effect	
	Significance	Beneficial/ Adverse		Significance	Beneficial/ Adverse
archaeological remains that could be present on the site.			necessary. Any significant remains will be preserved in situ wherever possible.		
Temporary significant effects on the settings of Category A Listed Former Naval Headquarters and Communications Centre (Site 127), Wee Fea and Underground Fuel Reservoir (Site 153).	Moderate	Adverse	Effects on setting from construction compound and heavy traffic movement would cease on completion of construction.	Neutral	-
Operation					
Moderate significant effects on the settings of Category A Listed Former Naval Headquarters and Communications Centre, Wee Fea and Category B Listed Royal Naval Cemetery at Lyness.	Moderate	Adverse	Heritage Interpretation and Conservation Management Plan to be put in place to ensure better understanding and appreciation of the Second World War heritage on Wee Fea and ensure its preservation for future generations.	Moderate	Adverse
Decommissioning					
The Applicant is seeking in-perpetuity consent for the Proposed Development. In the event of decommissioning, or replacement of turbines, it is anticipated that the levels of effect would be similar but of a lesser level than those during construction. Decommissioning would be undertaken in line with best practice processes and methods at that time and will be managed through an agreed Decommissioning Environmental Management Plan.					

Table 10.11 – Summary of Cumulative Effects

Receptor	Effect	Cumulative Developments	Significance of Cumulative Effect	
			Significance	Beneficial/ Adverse
Former Naval Headquarters and Communications Centre Wee Fea; Royal Navy Cemetery Lyness; Crockness Martello Tower; Hackness Martello Tower; Rysa Lodge; Underground Fuel Storage Reservoir; Green Hill of Hestigo Broch; Greenhill Broch South Walls.	Settings Effects	West Hill Flotta, Ore Brae Hoy, Howe Shapinsay, Work Farm, Akla, Hesta Head, Costa Head, Quanterness	No additional cumulative effect	N/A
Direct impacts on known non-designated group archaeological remains on Wee Fea.	Direct Effects	West Hill Flotta, Ore Brae Hoy, Howe Shapinsay, Work Farm, Akla, Hesta Head, Costa Head, Quanterness	Negligible effect	N/A
Unknown archaeological remains	Direct Effects	West Hill Flotta, Ore Brae Hoy, Howe Shapinsay, Work Farm, Akla, Hesta Head, Costa Head, Quanterness	Negligible effect	N/A

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