

BERWICK BANK WIND FARM ONSHORE ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Chapter 10: Cultural Heritage

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CONTENTS

10. Cultural heritage	1
10.1. Introduction	1
10.2. Purpose of this Chapter	1
10.3. Study Areas	1
10.3.1. Intertidal Area	2
10.4. Policy and Legislative context.....	2
10.5. Consultation	3
10.6. Methodology to Inform Baseline	4
10.6.1. Desktop Study	5
10.6.2. Site-Specific Surveys.....	5
10.7. Baseline Environment.....	7
10.7.1. Overview of Baseline Environment.....	7
10.7.2. Future Baseline Scenario	13
10.7.3. Data Assumptions And Limitations	13
10.7.4. Intertidal Area	13
10.7.5. Data Assumptions And Limitations	14
10.8. Key Parameters for Assessment	14
10.8.1. Maximum Design Scenario.....	14
10.8.2. Impacts Scoped out of the Assessment	15
10.8.3. Intertidal Area	15
10.9. Methodology for Assessment of Effects	16
10.9.1. Overview	16
10.9.2. Impact Assessment Criteria.....	16
10.10. Primary & tertiary mitigation	19
10.11. Assessment of Significance	21
10.11.1. Proposed Monitoring.....	31
10.12. Cumulative Effects Assessment	32
10.12.1. Methodology	32
10.12.2. Maximum Design Scenario.....	33
10.12.3. Intertidal area Maximum Design Scenario.....	33
10.12.4. Cumulative Effects Assessment.....	33
10.13. Inter-Related Effects	36
10.14. Summary of Impacts, Mitigation Measures, Likely Significant Effects and Monitoring..	36
10.14.1. Intertidal Area	37
10.15. References.....	41

TABLES

Table 10.1:	Policy Relevant to Cultural Heritage.....	2
Table 10.2:	Legislation Relevant to Cultural Heritage	2
Table 10.3:	Summary of Key Consultation Undertaken for the Proposed Development Relevant to Cultural Heritage.....	3
Table 10.4:	Summary of Key Desktop Studies & Datasets	5
Table 10.5:	Summary of Site-Specific Survey Data	6
Table 10.6:	Impacts Scoped Out of the Assessment for Cultural Heritage.....	15
Table 10.7:	Impacts Scoped Out of the Intertidal Assessment for Cultural Heritage	15
Table 10.8:	Definition of Terms Relating to the Magnitude of an Impact	17
Table 10.9:	Definition of Terms Relating to the Sensitivity of the Receptor	17
Table 10.10:	Matrix Used for the Assessment of the Significance of the Effect.....	19
Table 10.11:	Measures Adopted as Part of the Proposed Development (Primary & Tertiary Mitigation)	20
Table 10.12:	List of Other Projects Considered Within the CEA for Cultural Heritage	32
Table 10.13:	Summary of Likely Significant Effects, Mitigation and Monitoring.....	38
Table 10.14:	Summary of Likely Significant Cumulative Environment Effects, Mitigation and Monitoring	40

FIGURES

Figure 10.1	Cultural Heritage Inner Study Area
Figure 10.2	Cultural Heritage Outer Study Area
Figure 6.16	Landscape & Visual Viewpoint 2 Innerwick
Figure 6.20	Landscape & Visual Viewpoint 6 Blackcastle Hill
Figure 6.21	Cultural Heritage Viewpoint 1 Doon Hill
Figure 6.22	Cultural Heritage Viewpoint 2 Pinkerton (Thurston Fort)
Figure 6.23	Cultural Heritage Viewpoint 3 Dunglass
Figure 6.24	Cultural Heritage Viewpoint 4 Crowhill
Figure 6.25	Cultural Heritage Viewpoint 5 Dryburn
Figure 6.26	Cultural Heritage Viewpoint 6 Thurston Enclosures

10. CULTURAL HERITAGE

10.1. INTRODUCTION

1. This chapter presents the assessment of the likely significant effects of the Berwick Bank Wind Farm Onshore Transmission Works (OnTW) (the Proposed Development) on cultural heritage. Specifically, this chapter considers the potential impact of the Proposed Development landward of Mean Low Water Springs (MLWS) during the construction, operational and maintenance, and decommissioning phases.
2. This chapter focuses on the assessment of effects of the onshore infrastructure (the Proposed Development) on archaeological remains and the settings of cultural heritage assets. The effects of the offshore infrastructure seaward of MLWS on the setting of cultural heritage assets are assessed within the Offshore EIA Report (Volume 2, Chapter 16).
3. This chapter summarises information contained within Volume 4, Appendix 10.1 to 10.4.

10.2. PURPOSE OF THIS CHAPTER

4. This chapter:
 - Presents the existing environmental baseline established from desk studies, site-specific surveys, and consultation with stakeholders;
 - Identifies any assumptions and limitations encountered in compiling the environmental information;
 - Presents the potential environmental impacts on cultural heritage arising from the Proposed Development, and reaches a conclusion on the likely significant effects on cultural heritage based on the information gathered and the analysis and assessments undertaken; and
 - Highlights any necessary monitoring and/or mitigation measures recommended to prevent, minimise, reduce, or offset the likely significant adverse environmental effects of the Proposed Development on cultural heritage.

10.3. STUDY AREAS

5. Two cultural heritage study areas have been used for the assessment:
 - The cultural heritage inner study area: the Proposed Development plus a 100 m buffer forms the cultural heritage inner study area to the south of the A1 Trunk Road. To the north of the A1 Trunk Road the cultural heritage inner study area includes the Proposed Development area plus a 100 m buffer to the west, while to the east the cultural heritage inner study area was extended, at the request of East Lothian Council Archaeology Service (ELCAS), to include the whole of Chapel Point. This study area was agreed with Historic Environment Scotland (HES) and ELCAS. This study area was adopted for the identification of heritage assets that could receive impacts arising from the construction of the Proposed Development. The adoption of a buffer is to ensure that a broad understanding of the archaeological context of the Proposed Development is understood and presented. A summary of the heritage assets identified within the cultural heritage inner study area is provided in Section 10.7 and their locations and extents are shown on Volume 2, Figure 10.1.
 - The cultural heritage outer study area: an area extending 5 km from the onshore substation forms the cultural heritage outer study area for identification of designated heritage assets whose settings may be affected by the Proposed Development. This study area was agreed with Historic Environment Scotland (HES) and ELCAS. A list of these assets is provided in Volume 4, Appendix 10.3 and 10.4, along with a summary assessment of the

predicted effect on their setting from the Proposed Development. The locations of the heritage assets within the cultural heritage outer study area are shown on Volume 2, Figure 10.2.

10.3.1. INTERTIDAL AREA

6. The onshore topic of cultural heritage study area includes the intertidal area. This intertidal area overlaps with the offshore topic of Cultural Heritage Settings. An assessment of the offshore topic is set out in the offshore EIA Report (Volume 2, Chapter 16).
7. One cultural heritage study area has been used for the assessment:
 - The cultural heritage intertidal study area: the Proposed Development plus a 500m buffer forms the cultural heritage inner intertidal study area. This study area was agreed with ELCAS for the identification of heritage assets that could receive impacts arising from the construction of the Proposed Development. The adoption of a buffer is to ensure that a broad understanding of the archaeological context of the Proposed Development is understood and presented.

10.4. POLICY AND LEGISLATIVE CONTEXT

8. Policy and legislation in relation to cultural heritage, is set out in detail in Volume 4, Appendix 10.1 of the Onshore EIA Report. The policy provisions which have been given due consideration within the cultural heritage assessment are listed in Table 10.1 below. The legislative provisions relevant to cultural heritage are listed in Table 10.2 below.

Table 10.1: Policy Relevant to Cultural Heritage

Relevant Policy
Historic Environment Policy for Scotland (HEPS) (2019);
National Planning Framework 4 (NPF4) Policy 7
Planning Advice Note 2/2011: Planning and Archaeology (PAN 2/2011).
SESPlan (2013) Policy 1B
East Lothian Council Local Development Plan (2018)
<ul style="list-style-type: none"> • Policy CH1: Listed buildings • Policy CH2: Conservation Areas • Policy CH4 Scheduled Monuments and Archaeological Sites • Policy CH6: Gardens and Designed Landscapes
East Lothian Council Local Development Plan, Cultural Heritage and the Built Environment, Supplementary Planning Guidance 2018

Table 10.2: Legislation Relevant to Cultural Heritage

Relevant Legislation
The Ancient Monuments and Archaeological Areas Act 1979
Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997
The Historic Environment Scotland Act 2014
The Electricity Act (1989) Schedule 9 (paragraph 3)
Town and Country Planning (Development Management Procedure) (Scotland) Regulations 2013
Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017
The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017

10.5. CONSULTATION

9. A summary of the key issues raised during consultation activities undertaken to date specific to cultural heritage is presented in Table 10.3 below, together with how these issues have been considered in the production of this Cultural Heritage chapter. Further detail is presented within Volume 1, Chapter 2 of the Onshore EIA Report and the Pre-Application Consultation (PAC) Report.

Table 10.3: Summary of Key Consultation Undertaken for the Proposed Development Relevant to Cultural Heritage

Date	Consultee and Type of Consultation	Issue(s) Raised	Response to Issue Raised and/or Where Considered in this Chapter
Consultation on the Proposed Development Scoping Opinion			
1 October 2020	HES, Scoping Opinion	HES requested that ZTV information overlaid on a map of historic environment assets, such as at Figure 11.1 of the EIA Scoping Report, should be provided. This allows identification of assets from where there is visibility of the proposal and assets where the development and heritage assets may be captured in the same view	HES were provided with the requested map on 17 January 2022.
1 October 2020	ELCAS, Scoping Opinion	Drew attention to Supplementary Planning Guidance on 'Cultural Heritage and the Built Environment'	Reference has been made to this guidance as noted in Appendix 10.1 Policy.
Relevant Consultation Undertaken to Date			
20 April 2021	ELCAS, Consultation Meeting	Recommended confirming had most up to date HER data. Agreed that not carrying out geophysical surveys and trial trenching pre-application would be acceptable.	A HER data refresh for the Cultural Heritage Inner Study Area was acquired on 5 May 2021.
4 May 2021	ELCAS, Consultation Meeting	Discussed the scope of works	Agreed the scope of works and to continue consultation as below.
20 July 2021	HES, Consultation Meeting	Provided HES with a project update and discussed the potential route options in the area of Castledene Scheduled Monument (SM) (SM5849) A minimum construction buffer of 10 m from Scheduled Monuments was agreed. Concluded that trenchless techniques (e.g., horizontal directional drilling (HDD)) in the area of Castledene Scheduled Monument (SM5849) may be possible if avoidance was not feasible.	Due to spatial constraints in the area including a residential property and the SPEN Eastern Link cable route it was not possible to avoid the location of the Castledene Scheduled Monument (SM5849) through design (refer to Volume 1, Chapter 4 for further details on site selection and consideration of alternatives). Trenchless technique (e.g. HDD) beneath the Scheduled Monument is proposed and built into the primary mitigation in the design of the development refer to Table 10.11 A minimum construction buffer of 10 m from Scheduled Monuments was built into the primary mitigation in the design

Date	Consultee and Type of Consultation	Issue(s) Raised	Response to Issue Raised and/or Where Considered in this Chapter
20 January 2022	ELCAS, Consultation response (email)	<p>Agreed a change to the proposed cultural heritage inner study area to reflect the reduction in the construction footprint since Scoping.</p> <p>Requested that north of the A1 Trunk Road the cultural heritage inner study area be extended to the east, to the limit of the planning application boundary (the site).</p>	<p>of the development refer to Table 10.11</p> <p>The cultural heritage inner study area as agreed with the ELCAS has been used for this assessment and is set out in Section 10.3 Study Areas and shown on Figure 10.1.</p>
20 January 2022	ELCAS, Consultation response (email)	<p>Confirmed ELCAS content with proposed list of viewpoints.</p> <p>Requested that any visualisations taken for the LVIA are properly assessed for Heritage impacts if they are included in the Heritage assessment.</p>	<p>Noted.</p> <p>Assessment of all viewpoints and designated assets are provided in Appendices 10.3 and 10.4 with detailed assessments provided for selected assets identified by consultees or through professional judgement in Section 10.11 Assessment of Significance.</p>
3 February 2022	HES, Consultation response (letter)	<p>Following consultation on the ZTV and the proposed list of visualisations, HES replied that they were content with most of the proposed viewpoints.</p> <p>They queried the reason for inclusion of a viewpoint at Innerwick Castle fort and ring ditch and requested additional viewpoints.</p>	<p>Follow up consultation was undertaken to clarify HES requirements.</p> <p>An amended list of visualisation viewpoints was provided for agreement (see below).</p>
10 February 2022	HES, Consultation response (email)	HES agreed the final list of viewpoints for inclusion in the assessment.	<p>These viewpoints are the visualisations presented as Volume 3, Figures 6.21-6.26. The potential impacts on these assets are assessed in Appendices 10.3 and 10.4 with detailed assessments of likely significant effects presented in Section 10.11 Assessment of Significance.</p>

10.6. METHODOLOGY TO INFORM BASELINE

10. A desk-based assessment was conducted covering the cultural heritage inner study area (including the intertidal zone). The purpose of the research was to identify all known heritage assets, designated or otherwise, that could be affected by the Proposed Development, and to inform an assessment of the archaeological potential of the Proposed Development site. The Baseline was established by desk-based research and field surveys.
11. Data was gathered for the cultural heritage outer study area to identify designated heritage assets that may be subject to effects on their settings and to provide baseline information for the assessment of setting effects.

10.6.1. DESKTOP STUDY

12. Information on cultural heritage within the cultural heritage study areas was collected through a detailed desktop review of existing datasets. These are summarised in Table 10.4 below.

Table 10.4: Summary of Key Desktop Studies & Datasets

Title	Source	Year	Author
HES Spatial Data Warehouse	HES, (https://portal.historicenvironment.scot/downloads)	2022	HES
The National Record of the Historic Environment (NHRE) database (Canmore):	HES (https://canmore.org.uk/site/search)	2022	HES
Historic Land-Use Assessment Data for Scotland	HES HLA (https://hlapmap.org.uk/)	2022	HES
East Lothian Council Historic Environment Record (HER)	ELCAS	2021	ELCAS

10.6.2. SITE-SPECIFIC SURVEYS

13. To inform the Cultural Heritage chapter, site-specific surveys were undertaken, as agreed with HES and ELCAS through Scoping. A summary of the surveys undertaken to inform the cultural heritage assessment of effects is outlined in Table 10.5 below.

Table 10.5: Summary of Site-Specific Survey Data

Title	Extent of Survey	Overview of Survey	Survey Contractor	Date	Reference to Further Information
Field reconnaissance survey.	Cultural Heritage Inner Study Area	<p>The aim of the reconnaissance survey was to:</p> <ul style="list-style-type: none"> • Assess the present baseline conditions of those heritage assets, identified through the desk study, that could be affected by the Proposed Development, • Identify any features of cultural heritage interest not detected through the desk study, that could be affected by the Proposed Development; and, • Assess the potential for the site to contain currently unrecorded, buried archaeological remains in areas that could be affected by the Proposed Development. 	CFA Archaeology Ltd	November 2021	Volume 4, Appendix 10.2
Setting site visits	Cultural Heritage Inner and Outer Study Areas	<p>Site visits to designated heritage assets in the Outer Study Area were carried out, where necessary and in as far as access was possible, to assess the predicted effect of the Proposed Development on their settings.</p> <p>Site visits included assets specifically identified by consultees as requiring assessment and those identified through analysis of the onshore substation ZTV, where it was considered, on the basis of professional judgement, that the effects on their settings could be significant.</p>	CFA Archaeology Ltd	January 2022	Volume 4, Appendix 10.3 and Appendix 10.4

10.7. BASELINE ENVIRONMENT

10.7.1. OVERVIEW OF BASELINE ENVIRONMENT

Heritage Assets within the Cultural Heritage Inner Study Area (Figure 10.1, Volume 2, Appendix 10.2, Appendix 10.3 and Appendix 10.4, Volume 4)

14. Six designated heritage assets and 45 non-designated heritage assets have been identified within the cultural heritage inner study area.
15. Numbers in brackets and in bold in the following text refer to the heritage assets shown on Volume 2, Figure 10.1. The sensitivity of these assets is given based on the criteria detailed in Table 10.9 Sensitivity of Receptor. Full descriptions, and an assessment of their heritage value/sensitivity, are provided in Volume 4 Appendix 10.2 (Undesignated Assets in the Cultural Heritage Inner Study Area), Appendix 10.3 (Scheduled Monuments in the Cultural Heritage Study Areas) and Appendix 10.4 (Designated Assets (Not Including Scheduled Monuments) in the Cultural Heritage Study Areas).

Designated Heritage Assets in the Cultural Heritage Inner Study Area (Appendix 10.1)

16. There are five Scheduled Monuments and one Listed Building within the cultural heritage inner study area. No part of the cultural heritage inner study area falls within a Conservation Area, Inventory Garden and Designed Landscape, or Inventory Historic Battlefield.

Scheduled Monuments

17. The five Scheduled Monuments are all cropmark features interpreted as dating to the prehistoric period.
 - Dryburn Bridge, enclosure 300 m SE of (**SM 4038**) is the cropmark of a late prehistoric enclosed settlement. This cropmark is unusual in that it appears as a scorch mark suggesting a double palisade or rampart rather than an enclosing ditch.
 - Skateraw, ring ditches and cropmarks 300 m NW of (**SM 4040**) are the cropmarks of numerous ring ditches representing a settlement of late prehistoric date. However, a Bronze Age short cist (**MEL 1813**) was recorded within the scheduled area in 1958, suggesting that some of the cropmarks may be barrow burials.
 - Crowhill, enclosure WNW of (**SM 5770**) is the cropmark of a late prehistoric oval enclosed settlement.
 - Innerwick Castle, fort and ring ditch (**SM 5771**) is the cropmark of a multivallate fort and external ring ditch of probable Iron Age date. Located to the immediate north-west of Innerwick Castle (**SM 773**), it appears likely that the fort's defences remained extant at the time of construction of the medieval Innerwick Castle and were incorporated into the defences of the Castle.
 - Castledene, enclosure SW of (**SM 5849**) is a sub-square cropmark interpreted in the HES listing as a possible high status domestic settlement dating to the late prehistoric period and the Roman occupation of Scotland.
18. As cropmarks of probable prehistoric settlements, and possibly burials, these assets have the potential to increase our knowledge of society, domestic occupation, monument construction, and burial practices during the later prehistoric period. The value of these assets is enhanced by the number of likely contemporary cropmarks in the local landscape and what this can tell us about the settlement of East Lothian during the late prehistoric period. As such, these Scheduled Monuments are of heritage value at national level and are of high sensitivity.

Listed Buildings

19. There is one Listed Building within the cultural heritage inner study area: the Category B Listed Building Skateraw Farmhouse (**LB 7706**). As a well-preserved example of a 19th Century farmhouse, with associations to Robert Burns, this asset is of heritage value at regional level and is of medium sensitivity.

Non-Designated Heritage Assets in the Cultural Heritage Inner Study Area (Appendix 10.2)

Prehistoric

20. The HER records the site of four Early Bronze Age burial sites: two short cists (**MEL 1813** and **MEL 1812**), a burial cairn (**MEL 1814**), and a cremation surrounded by upright stones (**MEL 1850**) which appear to have been recorded and removed between the mid-19th and mid-20th centuries. As former prehistoric burial sites, these have the potential to contain *in situ* remains and are assessed to be of heritage value at a local level and to be of low sensitivity.
21. An upstanding circular earthwork (**MEL 1777**) with an outer ditch (possibly a roundhouse) was recorded in 1966. It appears to have subsequently been removed by ploughing. As the largely (if not wholly) removed remains of a possible prehistoric roundhouse, this asset is assessed to be potentially of heritage value at a local level and to be of low sensitivity.
22. The HER records the location of four other cropmarks, identified from aerial photography. The typology of these assets is not such that they can be confidently dated, but it is possible that some, if not all, are of later prehistoric date. The assets include two rectilinear enclosures (**MEL 1899** and **MEL 2499**), an enclosure (**MEL 1774**), of unspecified character, and two large pits (**MEL 11411**). Without intrusive archaeological investigation the true date and value of these assets cannot be confidently appraised. However, in the absence of further information these assets are assessed based on professional judgement to be at most of heritage value at a regional level and to be of medium sensitivity.

Medieval

23. The HER records the sites of three possibly Early Christian sites which would likely date to the early medieval period. A long cist (**MEL 2156**) was recorded during trial trenching in 1994 in advance of the upgrade of the A1 Trunk Road, close to the location of the former Innerwick Free Church (**MEL 1799**). In 1964, a possible long cist (**MEL 1770**) was recorded at Skateraw. The third possible long cist burials are recorded in the HER as stone coffins (**MEL 1848**) discovered in 1913 in a field to the east of Innerwick Farm. The long cists (**MEL 1770** and **MEL 1799**) have been removed through excavation, and it is presumed that the stone coffins (**MEL 1848**) were also removed, at the time of their discovery. As excavated and/or removed probable early medieval funerary monuments, any residual remains of these assets are assessed to be at most of heritage value at a local level and to be of low sensitivity.
24. Also of medieval date, is the site of St. Denis's Chapel and Graveyard (**MEL 1764**), at Chapel Point. The chapel was recorded in the New Statistical Account (1845), and in the Ordnance Survey Name Book (1853), as having been washed away by the sea some years previously and that bones found in the vicinity suggest the presence of a burial ground. It is not clear however whether the entire site of the chapel and burial ground has been lost to erosion. In 2006 (**MEL 9365**) and 2015 (**MEL 11001** and **MEL 10836**) medieval pottery sherds and animal bones were recorded in coastal erosion on Chapel Point, perhaps indicating that remains of medieval date still survive on this headland. However, in 2016 a geophysical survey (**EEL 1007**) of Chapel Point was undertaken to identify any possible remains of the chapel or burial ground. No definitive geophysical anomalies were identified that could confidently correspond to the former chapel and burial ground. Without intrusive archaeological investigation, the extent to which the chapel or associated remains survive subsurface, remains unknown. As such, the site of St. Denis's Chapel and Graveyard is

assessed based on professional judgement to be of heritage value at a regional level and to be of medium sensitivity.

Post Medieval

25. Ten buildings and structures of post medieval date and of heritage interest have been identified. These are:
- A building (**MEL 2369**) recorded in the HER at Chapel Point may be a building annotated as 'Knowehead' on Roy's 'Military Survey of Scotland' map (1747-55) giving it an early 18th century date. The building survives as an upstanding ruin.
 - Edinken Bridge (**MEL 1897**) was recorded in the New Statistical Account (1845), and in the Ordnance Survey Name Book (1853), as having been an ancient bridge that was removed prior to 1836. Late 20th century visits to the bridge recorded masonry remains on either side of the stream, but these were not identified during the site visit for this assessment, possibly because of dense vegetation in the area.
 - The bridges (**MEL 2607** and **MEL 4071**) were first depicted on the First edition Ordnance Survey map (Haddingtonshire, sheet 12, 1854) suggesting an early 19th century date. The bridges survive, upstanding and in use.
 - Crowhill Farmstead (**MEL 1878**) was first depicted on the First edition Ordnance Survey map (Haddingtonshire, sheet 12, 1854) suggesting an early 19th century date. The farmstead survives, upstanding and in use.
 - Innerwick Free Church (**MEL 1799**) and Manse (**MEL 1800**) were first depicted on the First edition Ordnance Survey map (Haddingtonshire, sheet 12, 1854) suggesting an early 19th century date. The church and manse have been demolished and removed and their former locations now lie under the upgraded A1 Trunk Road.
 - Skateraw Boat House and slipway (**MEL 2371**) and Chapel Point building (**MEL 2370**) were both first recorded from 1946 aerial photography, but both have subsequently been removed. The floor and slipway of the boathouse remain, however there is no surface trace of the building.
 - Ford Bridge Dovecot (**MEL 7922**) was a Category C Listed Building until it was demolished between 1939 and 1945. There are now no surface traces of this building.
26. The demolished and removed buildings (**MEL 1799**, **MEL 1800**, **MEL 2370** and **MEL 7922**) have little or no residual archaeological potential and are assessed as being of limited heritage value and of negligible sensitivity.
27. The upstanding and partially upstanding assets (**MEL 1878**, **MEL 1897**, **MEL 2369**, **MEL 2371**, **MEL 2607** and **MEL 4071**) are elements of the local historic landscape. As such, they are assessed as being of heritage value at a local level and of low sensitivity.

Miscellaneous

28. A cropmark (**MEL 1861**) to the immediate north of the A1 Trunk Road was originally interpreted as a prehistoric roundhouse and designated a scheduled monument. Subsequent examination of aerial photographs taken in the 1970s revealed this to be an area of quarry pits and the site was subsequently de-scheduled in 1993. As quarry pits are a common site type throughout the county, this site is assessed as being of little or no heritage value and to be of negligible sensitivity.
29. The HER records the cropmarks of two possible trackways (**MEL 10316** and **MEL 11438**). As cropmarks, it is not possible to confidently give a date to these features. However, **MEL 10316** appears to run between a gap in a field wall (possibly a former gateway) and a building on the opposite side of the field, so it may be a post-medieval farm trackway. The second cropmark (**MEL 11438**) appears to be very wide where visible on aerial photography, which may suggest the cropmark is that of a paleochannel rather than a trackway. Without intrusive investigation it is not possible to confirm the true nature of either of these cropmark features, it is assessed based on professional judgement that they are likely to be heritage value at no more than a local level and of low sensitivity.

30. A Hurricane aircraft crash site (**MEL 9792**) in 1940 is recorded at Innerwick Farm. As the recorded location is within an arable field, it is presumed that all wreckage of the plane would have been removed relatively soon after the crash to allow the continued farming of the land. As such it is assessed as being of little residual heritage value and of negligible sensitivity.
31. The HER records the site of a World War I emergency aircraft landing ground (**MEL 10407**) at Skateraw. A 1918 RAF survey of air stations listed it as comprising an area of 21.5ha on the coast adjacent to a sea cliff. The recorded location places it in a large open field to the east of Skateraw Farm. As the landing ground may have been little more than a greenfield site and a safe area to land an aircraft in difficulty, it is assessed as being of little residual heritage value and of negligible sensitivity.
32. A War Memorial (**MEL 9125**), to the memory of boys of the St Giles Club who died in World War II, stands at Chapel Point. The monument was moved to this location in the 1980s, from an unspecified other place. As an element of the local historic landscape and a memorial, it is assessed as being of heritage value at local level and of low sensitivity.
33. The HER records that a modern sculpture of a large fish (**MEL 9366**) was set on the route of the John Muir Way at Chapel Point in 2000. Field survey for this assessment found that, as it is no longer present, this sculpture has been removed. The site of this former modern (20th century) sculpture is assessed as being of no heritage value and to be at most of negligible sensitivity.

Previous Archaeological Events

34. The HER records that a series of archaeological investigations (**MEL 2154**) were carried out along the route of the A1 Trunk Road between the Tarmac Cement Works and Innerwick Road in 1994. These included geophysical survey (**EEL 282**), a fieldwalking survey (**EEL 283**) and evaluation trenching (**EEL 285**). From these, the Long Cist (**MEL 2156**) and an undatable circular pit (**MEL 2157**) were recorded in the area of the former Innerwick Manse.
35. The HER records that a series of archaeological investigations (**MEL 10227**) were carried out between 2000 and 2003 at Skateraw in advance of opening a proposed quarry. A geophysical survey (**EEL 713**), a watching brief (**EEL 69**) and an evaluation (**EEL 714**) were carried out. These investigations targeted two assets, which had previously been identified as cropmarks: a possible ring ditch (**MEL 1958**) and a possible settlement (**MEL 1959**). These were revealed upon excavation to be the result of the natural geology and not of archaeological interest. The evaluation did though record a number of isolated features of archaeological interest and evidence of rig and furrow cultivation (**MEL 10228**). This area was subsequently quarried (**MEL 7947**), as evidenced through examination of aerial photography¹, and has subsequently been returned to agricultural use.
36. The HER identifies three areas of geophysical anomalies (**MEL 11230**, **MEL 11231** and **MEL 11232**) which were recorded during geophysical surveys (**EEL 1008**) along the route of the onshore cable associated with the Neart na Gaoithe Offshore Wind Farm. The geophysical anomalies were interpreted mainly as being ditches and areas of increased magnetic response. Subsequently, a programme of archaeological trial trenching (**EEL 1184**, Malone et al 2019) was carried out along the route of the Neart na Gaoithe onshore cable route which targeted the geophysical anomalies. No archaeological features were recorded in those trenches that were excavated within the cultural heritage inner study area.

¹ <http://canmore.org.uk/collection/1681248> accessed 17.01.2022

Archaeological Potential of the Proposed Development Site

37. The Historic Land Use Assessment (HLAmap) records the majority of the Cultural Heritage Inner Study Area as 'Rectilinear Fields and Farms', which it describes as follows: *"rectilinear field boundaries and associated farm steading and other buildings are typical of agricultural improvements since the 1700s. Recent amalgamation of these fields is common."*
38. Roy's 'Military Survey of Scotland' map (1747-55) shows settlement at 'Knothead', 'Skateraw' and 'Innerwick', surrounded by unenclosed rig and furrow cultivation indicating that the area has been farmed since at least the 18th century, and most probably much earlier. A small remnant of medieval/post-medieval agricultural activity, in the form of relict rig and furrow (CFA 001) remains, was recorded during field survey for this assessment in the area to the immediate south of Chapel Point, at the location of the proposed cable landfall.
39. Examination of early Ordnance Survey maps (1856-7, 1909) indicates that much of the cultural heritage inner study area was improved, enclosed farmland during the latter part of the 19th century. This land use largely continues today.
40. The Proposed Development area lies in an area in which the presence of a substantial amount of archaeological remains have been recorded through aerial photography. The number of sites identified demonstrates that the area has seen occupation throughout history and prehistory. It should also be noted that the formation of cropmarks is dependent on the nature of the underlying geology and agricultural regimes, and their identification is a result of campaigns of aerial photographic reconnaissance in the area. Cropmarks also tend to be less evident in areas of pasture. As such, there are potential gaps in the cropmark evidence where the agricultural regime or geology has not been conducive to cropmark formation. Also, the recorded cropmarks largely relate to later prehistoric features, such as enclosed settlements and forts, where large enclosing ditches readily appear as cropmarks. Such features are more readily identifiable than the smaller features (such as post holes and pits) that are also associated with buried archaeological sites. However, previous archaeological evaluations within the cultural heritage inner study area have largely produced no archaeological evidence suggesting that perhaps the available cropmark evidence is a reasonable reflection of the extent of subsurface archaeological remains present in the area. Also of note, is the 2000 evaluation at Skateraw (MEL 10227) which targeted two cropmark sites, identified from aerial photography as a settlement (MEL 1958) and a ring ditch (MEL 1959). When excavated these were revealed not to be archaeological remains and it was concluded that the cropmarks were the result of the natural geology.
41. The archaeological potential therefore varies along the cable route of the Proposed Development:
 - The fields at the north of the cultural heritage inner study area have moderate potential for archaeological remains to be present. This is largely due to the proximity of the Proposed Development to Chapel Point, and the potential for medieval ecclesiastical assets and medieval to post medieval agricultural remains to survive subsurface in this area.
 - Quarrying at Skateraw will have effectively removed all potential for archaeological remains to survive within this area and this part of the Proposed Development area has no residual archaeological potential.
 - In the areas of the cultural heritage inner study area immediately surrounding the Scheduled Monuments present there is greater potential for further archaeological remains to survive subsurface than have been identified by aerial reconnaissance. It is therefore assessed that in these areas there is medium to high archaeological potential.
 - For the remainder of the cultural heritage inner study area, where the Proposed Development crosses farmland fields, it is assessed that there is low to medium potential for archaeological remains to survive subsurface. The potential is largely for small, discrete features of prehistoric date, reflecting the baseline evidence which identifies continued occupation of the landscape throughout prehistory with larger assets showing as cropmarks.

Heritage Assets within the Cultural Heritage Outer Study Area (Figure 10.2, Appendix 10.2 – 10.4)

Properties in Care

42. There are two Properties in Care (Volume 4, Appendix 10.3, and Volume 2, Figure 10.2) within the cultural heritage outer study area. These are: the excavated remains of two probable Neolithic Timber Halls; Doon Hill, hall, Innerwick (**PiC 140, SM 90098**); and the upstanding remains of the early 15th century Dunglass Collegiate Church, 70 m E of 2 Stable Cottages (**PiC 142, SM 13313**). As Properties in Care and Scheduled Monuments, these are assets of heritage value at national level and of high sensitivity.

Scheduled Monuments

43. There are 30 other Scheduled Monuments (Volume 4, Appendix 10.3, and Volume 2, Figure 10.2), within the cultural heritage outer study area. These include 26 assets identified as cropmarks visible on aerial photographs. The cropmark assets include 21 that have been interpreted as prehistoric enclosed settlements and five interpreted as forts of prehistoric date. In addition to the cropmark assets, there are four others that survive as earthwork remains: Blackcastle Hill, homestead 1300 m SSE of Thurston Mains (**SM 3933**), Blackcastle Hill, homestead 1300 m SSE of Thurston Mains (**SM 3933**), Innerwick Castle (**SM 773**) and French Camp, fort, Dunglass (**SM 3191**). As scheduled monuments these are assets of heritage value at national level and of high sensitivity.

Listed Buildings

44. There are 62 Listed Buildings in the cultural heritage outer study area (Volume 4, Appendix 10.4, and Volume 2, Figure 10.2). Of these, five are Category A Listed Buildings of heritage value at national and of high sensitivity.
45. There are 37 Category B Listed Buildings of heritage value at a regional level and of medium sensitivity and 20 Category C Listed Buildings of heritage value at a local level and of low sensitivity.
46. The listed buildings are mainly located within the Conservation Areas of Innerwick (**CA 285**) and Oldhamstocks (**CA 288**) or are within the grounds of the Inventory Gardens and Designed Landscapes of Broxmouth Park (**GDL 00076**) and Dunglass (**GDL 00154**).

Inventory Gardens and Designed Landscapes

47. There are two Inventory Gardens and Designed Landscapes within the cultural heritage outer study area: Broxmouth Park (**GDL 00076**) and Dunglass (**GDL 00154**) assets of heritage value at national level and of high sensitivity (Volume 4, Appendix 10.4, and Volume 2, Figure 10.2).

Inventory Battlefields

48. There are two Inventory Battlefields within the cultural heritage outer study area: Battle of Dunbar I (**BTL 31**), which took place in April 1296, and Battle of Dunbar II (**BTL 7**), in September 1650. These are assets of heritage value at national level and of high sensitivity (Volume 4, Appendix 10.4, and Volume 2, Figure 10.2).

Conservation Areas

49. There are two Conservation Areas within the Cultural Heritage Outer Study Area: Innerwick (CA 285) and Oldhamstocks (CA 288), assets of heritage value at a regional level and of medium sensitivity (Volume 4, Appendix 10.4, and Volume 2, Figure 10.2).

10.7.2. FUTURE BASELINE SCENARIO

50. If the Proposed Development was not to proceed, it is probable that there would be little or no change to the baseline condition of the various heritage assets and features that presently survive within the cultural heritage inner study area. For the majority of the area, agricultural land-use would be likely to continue, and that activity would continue to exert an attritional influence on any buried archaeological remains or deposits that may be present within the Proposed Development site.
51. The surviving designated assets within the cultural heritage outer study area would continue to receive statutory protection.

10.7.3. DATA ASSUMPTIONS AND LIMITATIONS

52. This assessment has been completed using data derived from HES's Spatial Warehouse and from the ELC HER, obtained in 2021 and 2022 (Table 10.4). It is assumed that, at the time of the acquisition of the data, the information provided was accurate and up to date.

10.7.4. INTERTIDAL AREA

Overview of Baseline Environment

53. There are no designated or non-designated cultural heritage assets within the cultural heritage intertidal study area.
54. There are 12 maritime records (Volume 4, Appendix 10.5, and Volume 2, Figure 10.1) recorded in the HER within the onshore cultural heritage inner study area. Due to the nature of these recorded events (shipwrecks/losses at sea) and the uncertainty around the actual location of wrecks, in all cases the grid references cited appear to be located on land; but this is because they are normally mapped to the south-west corner of a grid square (1 km, or in some cases 10 km). The site visit found no evidence of any of these wrecks surviving within the cultural heritage intertidal study area. It is reasonable to assume that given the bare rock surface of the Intertidal Area on which no wrecks are visible, all the recorded maritime wreck sites were either recovered or salvaged from the shoreline, swept away by the sea or were offshore somewhere along the coastline between Barn Ness in the north and Torness in the south.

Archaeological Potential

55. As a rocky, exposed shoreline any previously unrecorded archaeological remains would have been identified during the site visit, therefore there is no potential for subsurface remains as the bedrock is visible. It is assessed by professional judgement that there is no potential for previously unrecorded archaeological remains to survive within the cultural heritage intertidal study area. As such, it is determined that the cultural heritage intertidal study area has no archaeological potential.

10.7.5. DATA ASSUMPTIONS AND LIMITATIONS

56. This assessment has been completed using data derived from HES's Spatial Warehouse and from the ELC HER, obtained in 2021 and 2022 (Table 10.4). It is assumed that, at the time of the acquisition of the data, the information provided was accurate and up to date.

10.8. KEY PARAMETERS FOR ASSESSMENT

10.8.1. MAXIMUM DESIGN SCENARIO

57. The maximum design scenario(s) summarised here have been selected as those having the potential to result in the greatest effect on an identified receptor or receptor group. These scenarios have been selected from the details provided in Volume 1, Chapter 5 of the Onshore EIA Report. Effects of greater adverse significance are not predicted to arise should any other development scenario, based on details within the Project Design Envelope (e.g. different infrastructure layout), to that assessed here, be taken forward in the final design scheme.
58. For the purposes of this chapter the maximum design scenario refers to the maximum construction extent as detailed in Volume 1, Chapter 5 and the assessment is written presuming that construction works will be to the maximum extent proposed. As such, the assessment of the maximum design scenario will be equally valid for lesser parameter values as the assessment covers the whole of the Proposed Development envelope (including the applied micro-siting allowance).
59. Operational impacts, those affecting the settings of designated heritage assets, presume the maximum design scenario of the onshore substation. That is, dimensions of 390 m length by 250 m width, with a maximum building height of 21 m. All cables will be subsurface, and all construction compounds will be temporary. As such, the assessment of potential effects on the settings of designated heritage assets will be equally valid for lesser parameter values (i.e. a building of lesser dimensions).

10.8.2. IMPACTS SCOPED OUT OF THE ASSESSMENT

60. Impacts scoped out of the assessment were agreed with key stakeholders; HES and ELCAS through the scoping opinion 1 October 2020. These impacts, together with a justification, are presented in Table 10.6.

Table 10.6: Impacts Scoped Out of the Assessment for Cultural Heritage

Potential Impact	Phase ²			Justification
	C	O	D	
The potential for Construction Impacts on the setting of cultural heritage assets in the Study Areas	✓			As construction activities result in temporary impacts on setting it is considered there is no potential for significant effects.
The potential for Operational Impacts on the setting of cultural heritage assets beyond 5 km of the proposed substation.		✓		Using professional judgement, no cultural heritage assets were identified within the ZTV beyond 5 km with the potential for significant effects from the Proposed Development. No heritage assets beyond 5 km were raised by HES or ELCAS as requiring consideration in respect of potential effects on their settings.
The potential for Decommissioning Impacts on cultural heritage assets			✓	No potential for direct physical impacts as decommissioning will be within the construction footprint as all cultural heritage assets will have been previously recorded/ removed during the mitigation of the construction phase.

10.8.3. INTERTIDAL AREA

61. Impacts scoped out of the assessment, together with a justification, are presented in Table 10.7.

Table 10.7: Impacts Scoped Out of the Intertidal Assessment for Cultural Heritage

Potential Impact	Phase ²			Justification
	C	O	D	
The potential for Construction Impacts on cultural heritage assets	✓		✓	No cultural heritage assets are recorded in the Intertidal Area. As the intertidal area is exposed bedrock, there is no archaeological potential. There is no potential for Construction impacts on the setting of cultural heritage assets arising from aspects of the Proposed Development within the intertidal zone.
The potential for Operational Impacts on the setting of cultural heritage		✓		There will be no visibility of the Intertidal infrastructure (Volume 1, Chapter 5) beyond its immediate surroundings.

² C = Construction, O = Operational and maintenance, D = Decommissioning

Potential Impact	Phase ²	Justification
	C O D	

There is no potential for Operational impacts on the setting of cultural heritage assets arising from aspects of the Proposed Development within the intertidal zone.

10.9. METHODOLOGY FOR ASSESSMENT OF EFFECTS

10.9.1. OVERVIEW

62. The Cultural Heritage assessment of effects has followed the methodology set out in Volume 1, Chapter 2 of the Onshore EIA Report. Specific to the assessment of cultural heritage, the following guidance documents have also been considered:
- Scottish Natural Heritage (SNH) & HES (2018) ‘Environmental Impact Assessment Handbook’;
 - HES (2019) ‘Designation Policy and Selection Guidance’;
 - HES (2016) ‘Managing Change in the Historic Environment: Setting’;
 - ClfA (2017) ‘Standard and Guidance for the Historic Environment Desk-Based Assessment’; and,
 - Institute of Environmental Management and Assessment (IEMA) (2021) ‘Principles of Cultural Heritage Impact Assessment’.
63. In addition, the assessment of cultural heritage has considered the legislative and policy framework as defined by:
- The Ancient Monuments and Archaeological Areas Act 1979 (as amended);
 - Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997 (as amended);
 - Town and Country Planning (Development Management Procedure) (Scotland) Regulations 2013 (as amended);
 - Historic Environment Scotland Act 2014;
 - National Planning Framework 4 (NPF4) (2023);
 - Historic Environment Policy for Scotland (HEPS) (2019);
 - Planning Advice Note 1/2013 (PAN 1): Environmental Impact Assessment; and
 - Planning Advice Note 2/2011 (PAN 2): Planning and Archaeology.

10.9.2. IMPACT ASSESSMENT CRITERIA

64. Determining the significance of effects is a two-stage process that involves defining the magnitude of the potential impacts and the sensitivity of the receptors. This section describes the criteria applied in this chapter to assign values to the magnitude of potential impacts and the sensitivity of the receptors. The terms used to define magnitude and sensitivity are based on those which are described in further detail in Volume 1, Chapter 2 of the Onshore EIA Report.
65. The effects of the Proposed Development on heritage assets will be assessed on the basis of their type (direct effects, indirect effects, secondary effects, and cumulative impacts), nature (adverse or beneficial), duration (temporary or permanent, short, medium or long term) and reversibility (reversible or irreversible). The assessment will take into account the value/sensitivity of the heritage asset, and its setting, and the magnitude of the predicted impact.
- Adverse effects are those that detract from or reduce cultural significance or special interest of heritage assets.

- Beneficial effects are those that preserve, enhance or better reveal the cultural significance or special interest of heritage assets.

66. The magnitude of impact (adverse or beneficial) will be assessed in the categories, high, medium, low and negligible and described in Table 10.8, following the guidance laid out in the SNH & HES EIA Handbook (2018).

Table 10.8: Definition of Terms Relating to the Magnitude of an Impact

Magnitude of Impact	Definition	
	Adverse	Beneficial
High	Changes to the fabric or setting of a heritage asset resulting in the complete or near complete loss of the asset's cultural significance.	Preservation of a heritage asset in situ where it would otherwise be completely or almost completely lost.
	Changes that substantially detract from how a heritage asset is understood, appreciated and experienced	Changes that appreciably enhance the cultural significance of a heritage asset and how it is understood, appreciated and experienced.
Medium	Changes to those elements of the fabric or setting of a heritage asset that contribute to its cultural significance such that this quality is appreciably altered.	Changes to important elements of a heritage asset's fabric or setting, resulting in its cultural significance being preserved (where this would otherwise be lost) or restored.
	Changes that appreciably detract from how a heritage asset is understood, appreciated and experienced.	Changes that improve the way in which the heritage asset is understood, appreciated and experienced.
Low	Changes to those elements of the fabric or setting of a heritage asset that contribute to its cultural significance such that this quality is slightly altered.	Changes that result in elements of a heritage asset's fabric or setting detracting from its cultural significance being removed.
	Changes that slightly detract from how a heritage asset is understood, appreciated and experienced.	Changes that result in a slight improvement in the way a heritage asset is understood, appreciated and experienced.
Negligible	Changes to fabric or setting of a heritage asset that leave its cultural significance unchanged and do not affect how it is understood, appreciated and experienced.	

67. Cultural heritage assets are given weight through the designation process. Designation ensures that sites and places are recognised by law through the planning system and other regulatory processes. The level of protection and how a site or place is managed varies depending on the type of designation and its laws and policies (HES, 2019). Table 10.9 defines the relative sensitivity of heritage assets (including their settings) relevant to the Proposed Development.

Table 10.9: Definition of Terms Relating to the Sensitivity of the Receptor

Value (Sensitivity of the Receptor)	Description
Very High	Assets valued at an international level, including: World Heritage Sites
High	Assets valued at a national level, including: Scheduled Monuments

Value (Sensitivity of the Receptor)	Description
	Category A Listed Buildings Inventory Gardens and Designed Landscapes Inventory Historic Battlefields Non-designated assets that meet the relevant criteria for designation
Medium	Assets valued at a regional level, including: Archaeological sites and areas that have regional value (contributing to the aims of regional research frameworks) Archaeologically Sensitive Areas (ASA) (where these are identified in Local Authority records) Non-Inventory Designed Landscapes (NIDL) (where these are identified in Local Authority records) Category B Listed Buildings Conservation Areas
Low	Assets valued at a local level, including: Archaeological sites that have local heritage value Category C listed buildings Unlisted historic buildings and townscapes with local (vernacular) characteristics
Negligible	Assets of little or no intrinsic heritage value, including: Artefact find-spots (where the artefacts are no longer <i>in situ</i> and where their provenance is uncertain) Poorly preserved examples of particular types of features (e.g. quarries and gravel pits, dilapidated sheepfolds, etc)

68. The significance of the effect upon cultural heritage is determined by correlating the magnitude of the impact and the sensitivity of the receptor, as outlined in Table 10.10 below. Where two outcomes are possible, professional judgment supported by reasoned justification, will be employed to determine the level of significance. Major and moderate effects are considered to be 'significant' in the context of Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (EIA Regulations). Minor and negligible effects are considered to be 'not significant'

Table 10.10: Matrix Used for the Assessment of the Significance of the Effect

		Magnitude of Impact			
		Negligible	Low	Medium	High
Sensitivity of Receptor	Negligible	Negligible	Negligible/ Minor	Negligible/Minor	Minor
	Low	Negligible/ Minor	Negligible/ Minor	Minor	Minor/ Moderate
	Medium	Negligible/ Minor	Minor	Moderate	Moderate/ Major
	High	Minor	Minor/ Moderate	Moderate/ Major	Major
	Very High	Minor	Moderate / Major	Major	Major

69. HES’s guidance document, 'Managing Change in the Historic Environment: Setting' (HES, 2016), notes that:

“Setting can be important to the way in which historic structures or places are understood, appreciated and experienced. It can often be integral to a historic asset’s cultural significance.”

“Setting often extends beyond the property boundary or ‘curtilage’ of an individual historic asset into a broader landscape context.”

70. The guidance also advises that:

“If proposed development is likely to affect the setting of a key historic asset, an objective written assessment should be prepared by the applicant to inform the decision-making process. The conclusions should take into account the significance of the asset and its setting and attempt to quantify the extent of any impact. The methodology and level of information should be tailored to the circumstances of each case”.

71. The guidance recommends that there are three stages in assessing the impact of a development on the setting of a historic asset or place:

- Stage 1: identify the historic assets that might be affected by the proposed development;
- Stage 2: define and analyse the setting by establishing how the surroundings contribute to the ways in which the historic asset or place is understood, appreciated and experienced; and,
- Stage 3: evaluate the potential impact of the proposed changes on the setting, and the extent to which any negative impacts can be mitigated.

72. The approach suggested in the guidance has been used in the following assessment.

10.10. PRIMARY & TERTIARY MITIGATION

73. As part of the project design process, a number of measures have been proposed to reduce the potential for impacts on cultural heritage (see Table 10.11). These include measures which have been incorporated as part of the Proposed Development’s design (referred to as ‘primary mitigation’) and measures which will be implemented regardless of the impact assessment (referred to as ‘tertiary mitigation’). As there is a commitment to implementing these measures, they are considered inherently part of the design of the Proposed Development and have therefore been considered in the assessment presented in Section 10.11 below (i.e. the determination of magnitude and therefore significance assumes implementation of these measures). These measures are considered standard industry practice for this type of development.

Table 10.11: Measures Adopted as Part of the Proposed Development (Primary & Tertiary Mitigation)

Measures Adopted as Part of the Proposed Development (Primary & Tertiary Mitigation)	Justification
<p>Scheduled Monument Consent (SMC) will be sought to enable trenchless technology (e.g. HDD) beneath the Castledene Enclosure (SM 5849)</p>	<p>Due to spatial constraints in the area including a residential property and the SPEN Eastern Link cable route it was not possible to avoid the location of the scheduled monument through design (refer to Volume 1, Chapter 4 for further details on site selection and consideration of alternatives). Trenchless technique (e.g. HDD) will enable the route of the cable corridor to progress without causing a direct impact on the fabric of the Scheduled Monument.</p> <p>Discussions with HES (20/07/2021) concluded that, in this case, Trenchless technique (e.g. HDD) may be acceptable to HES.</p> <p>The Trenchless technique (e.g. HDD) chosen will allow a settlement of no more than 10 mm (further details on the Trenchless technique (e.g. HDD) are provided in Volume 1, Chapter 5 Proposed Development Description)</p>
<p>With the exception of Castledene Enclosure (SM 5849), avoidance of Scheduled Monuments by design, including a buffer of at least 10 m. Fencing off, of designated extents of Scheduled Monument to ensure no risk of accidental damage to the scheduled monuments during construction works.</p>	<p>As designated assets, Scheduled Monuments are of national value and high sensitivity. No construction works will be allowed within the designated extents of Scheduled Monuments (with the exception of Castledene Enclosure (SM 5849)).</p> <p>At a meeting with HES on 20 July 2021, a minimum buffer of 10 m from the Scheduled Monuments was agreed and has been implemented in the design.</p>
<p>A professionally qualified archaeological contractor will be appointed to act as an Archaeological Clerk of Works (ACoW) during construction phase.</p>	<p>The ACoW will advise on all archaeological mitigation measures and ensure compliance with planning conditions.</p>
<p>Construction phase archaeological guidelines will be provided to the Principal Contractor for dissemination to all construction contractors, advising on the need to avoid adverse effects on buried archaeological remains and to inform the ACoW if any suspected archaeological remains are uncovered.</p>	<p>Knowledge by the contractor of the need to avoid known archaeological assets and to inform the ACoW of suspected archaeological remains will reduce the potential for accidental impacts from uninformed contractors.</p>
<p>A Written Scheme of Investigation (WSI) will be included in the Construction Environmental Management Plan laying out the scope of archaeological works, the scope of which will be prepared in consultation with ELCAS.</p>	<p>Any archaeological works required as a result of the agreed scope of works will require a WSI developed in consultation with ELCAS in advance of works.</p>
<p>A professionally qualified archaeological contractor will be appointed to act as an Archaeological Clerk of Works (ACoW) during decommissioning phase.</p>	<p>The ACoW will advise on all archaeological mitigation measures and ensure compliance with planning conditions.</p>
<p>Decommissioning phase archaeological guidelines will be provided to the Principal Contractor for dissemination to all construction contractors, advising on the need to avoid adverse effects on buried archaeological remains and to inform the ACoW if any suspected archaeological remains are uncovered.</p>	<p>Knowledge by the contractor of the need to avoid known archaeological assets and to inform the ACoW of suspected archaeological remains will reduce the potential for accidental impacts from uninformed contractors.</p>
<p>Fencing off, of designated extents of Scheduled Monument to ensure no risk of accidental damage to the scheduled monuments during decommissioning works.</p>	<p>As designated assets, Scheduled Monuments are of national value and high sensitivity. No decommissioning works will be allowed within the designated extents of Scheduled Monuments.</p>

10.11. ASSESSMENT OF SIGNIFICANCE

74. The potential impacts arising from the construction, operational, and maintenance of the Proposed Development and an assessment of the likely significance of the effect of the Proposed Development on Cultural Heritage receptors caused by each identified impact is given below.

DIRECT IMPACTS ON CULTURAL HERITAGE ASSETS

Construction

75. Direct (physical) effects on cultural heritage assets are most likely to arise from ground-disturbing activities that occur during development construction works (such as those required for construction of haul roads, compounds, topsoil stripping, and excavation of cable trenches), which may damage and possibly destroy, cultural heritage remains. Direct effects on cultural heritage assets are normally adverse, permanent, and irreversible.
76. Taking the Primary and Tertiary Mitigation Measures set out in Table 10.11, into account, there remains the potential for construction phase impacts on three non-designated heritage assets (MEL 2499, MEL 10316 and HA 01) and on any previously unrecorded archaeological assets that may be present as buried remains. These impacts are assessed below. The potential for construction impacts on other cultural heritage assets in the Inner Study Area will be avoided via the implementation of the Primary and Tertiary Mitigation Measures in particular by design measures to avoid areas of known cultural heritage assets and providing a buffer between the assets and areas of construction. Accordingly, because no potential for construction impacts is identified, no assessment of possible likely significant effects is required.

Thornton Law MEL 2499

Magnitude of Impact

77. The Proposed Development cable corridor crosses Thornton Law enclosure (Volume 2, Figure 10.1). At this section, the whole construction corridor will have the topsoil stripped, a haul road will be instated, and open-cut cable trenches will be excavated to a depth of up to 2.5 m. (Full details of the construction methodology are provided in Volume 1, Chapter 5). The ground-breaking works³ associated with construction of the Proposed Development cable corridor will result in the loss of approximately half of this asset and will adversely affect the integrity of the asset as a whole.
78. The impact is predicted to be of local spatial extent, permanent, continuous and not reversible. It is predicted that the impact will affect the receptor directly. The magnitude is therefore considered to be high adverse as half of this asset will be removed.

Sensitivity of the receptor

79. The non-designated Thornton Law enclosure is a cropmark site (representing the presence of buried archaeological features and deposits) which appears to be the remains of a rectilinear enclosure: most likely a late prehistoric/Romano British settlement. The cropmark is located in the same field as the Scheduled Monument Castledene, enclosure SW of (SM 5849), a heritage asset of value at a national level and of high sensitivity. The

³ All works having a direct impact on the ground, i.e., ground excavations

proximity of the Thornton Law enclosure to this Scheduled Monument increases the potential for it to be a broadly contemporary, or at least related, monument and potentially of similar heritage value. This asset has the potential to increase our knowledge of settlement practices in later prehistory.

80. The Thornton Law enclosure is deemed to be of high vulnerability, is not recoverable and is a heritage asset of at least regional value. The sensitivity of the receptor is therefore, considered to be medium.

Significance of the effect

81. There will be a direct construction impact on the Thornton Law enclosure. Overall, the magnitude of the impact is deemed to be high, and the sensitivity of the receptor is considered to be medium. The effect, based on professional judgement, and taking into consideration that half of this asset will be removed, however half will survive *in-situ* will therefore be of **moderate** adverse significance, which is **significant** in EIA terms.

Secondary mitigation and residual effect

82. The impact on Thornton Law enclosure will be mitigated through a programme of archaeological works in accordance with the requirements in NPF4 Policy 7(o) and PAN2/2011, sections 25-27. The programme of works will be developed in consultation with ELCAS. This work will allow for the site to be investigated and recorded to an appropriate standard and is likely to comprise a targeted evaluation prior to construction commencing with further set-piece excavation of any vulnerable remains and reporting to an acceptable standard undertaken as appropriate.
83. The magnitude of the impact is deemed to be high and the sensitivity of the receptor is considered to be medium. Following mitigation, the asset will have been appropriately recorded and the findings will increase our knowledge and understanding of the function and construction of the asset and of others of similar type. It will also provide an understanding of the level of preservation of cropmark sites in this area. It is therefore assessed that, following mitigation, there will be an adverse residual effect of **minor** significance, which is not significant in EIA terms.

Thornton Law Trackway (MEL 10316)

Magnitude of Impact

84. The Proposed Development cable corridor crosses the eastern end of the Thornton Law trackway (Volume 2, Figure 10.1). At this location, the construction corridor will have the topsoil stripped, a trenchless technique (e.g. HDD) compound will be instated, and open-cut cable trenches will be excavated to depths of up to 2.5 m (Full details of the construction methodology are provided in Volume 1, Chapter 5). The ground-breaking works associated with construction of the Proposed Development cable corridor will result in the loss of the eastern part of the Thornton Law trackway.
85. The impact is predicted to be of local spatial extent, permanent, continuous and not reversible. It is predicted that the impact will affect the receptor directly. The magnitude is therefore considered to be medium adverse as it will remove the eastern end of this asset but the majority of the asset will survive *in-situ*.

Sensitivity of the receptor

86. The non-designated Thornton Law trackway is a cropmark site which appears as a linear feature, perhaps a trackway, which appears to line up with a gateway in the east of the field

and run west to a building on the far side of the field. In doing so, it cuts across the Scheduled Monument Castledene, enclosure SW of (SM 5849). It seems probable that this is the cropmark of a post medieval trackway.

87. The Thornton Law trackway is deemed to be of high vulnerability, is not recoverable and is a heritage asset of at most local value. The sensitivity of the receptor is therefore, considered to be low.

Significance of the effect

88. There will be a direct construction impact on the Thornton Law trackway. Overall, the magnitude of the impact is deemed to be medium, and the sensitivity of the receptor is considered to be low. Based on professional judgement and taking into consideration that while a relatively small section of this low sensitivity asset will be removed, the majority of the asset will survive *in-situ*, the effect is assessed to be of **minor** adverse significance, which is not significant in EIA terms.

Secondary mitigation

89. No cultural heritage secondary mitigation is considered necessary, because the likely effect in the absence of secondary mitigation is not significant in EIA terms.

Area of Rig and Furrow (CFA 001)

Magnitude of Impact

90. The Proposed Development landfall crosses the area of surviving rig and furrow (Volume 2, Figure 10.1). At this location the whole construction corridor and trenchless technology (e.g. HDD) compound area will have the topsoil stripped, a trenchless technology compound and a haul road will be instated and opencut cable trenches will be excavated to a depth of up to 2.5 m (Full details of the construction methodology are provided in Volume 1, Chapter 5). The ground-breaking works associated with construction of the Proposed Development landfall will result in almost total loss of the remains of the rig and furrow.
91. The impact is predicted to be of local spatial extent, permanent, continuous and not reversible. It is predicted that the impact will affect the receptor directly, removing almost all of the asset. The magnitude is therefore considered to be high as almost all the asset will be removed.

Sensitivity of the receptor

92. An area of rig and furrow cultivation is visible in the field immediately to the south of the shoreline. Rig and furrow is a type of post-medieval, and possibly earlier, cultivation. The rig and furrow cultivation is deemed to be of high vulnerability, is not recoverable and is of local value. The sensitivity of the receptor is therefore, considered to be low.

Significance of the effect

93. Without mitigation there is potential for a direct impact on the rig and furrow cultivation. Overall, the magnitude of the impact is deemed to be high, and the sensitivity of the receptor is considered to be low. Based on professional judgement, and taking into consideration that the majority of this low sensitivity asset will be removed, the effect is assessed to be of **minor** adverse significance, which is not significant in EIA terms.

Secondary mitigation

94. No cultural heritage secondary mitigation is considered necessary because the predicted effect in the absence of secondary mitigation is not significant in EIA terms.

Archaeological Potential

Magnitude of Impact

95. Within the Proposed Development area, there is potential for any ground disturbing works to disturb or destroy previously unrecorded, buried archaeological remains that may be present. It has been assessed that there is high potential for unrecorded discoveries in the areas surrounding Scheduled Monuments, medium to high potential in the field to the immediate south of the shoreline near Chapel Point, and low to medium potential for the remainder of the route. The exception to this assessment is the area of Skateraw quarry (Volume 2, Figure 10.1) where there is no residual archaeological potential following the use of the area as a quarry for construction of the A1 Trunk Road.
96. The potential impact on any previously unrecorded receptors is unknown and cannot be reliably determined. However, if any hitherto unidentified buried archaeological remains are present, an impact arising from construction of the Proposed Development will likely be of local spatial extent, permanent, continuous and not reversible. It is predicted that the impact will affect the receptor directly. It is therefore considered that the magnitude of the impact could be up to high, resulting in the removal of the receptor.

Sensitivity of the receptor

97. The sensitivity of previously unidentified subsurface archaeological remains is unknown and cannot be reliably determined. However, based on the baseline evidence gathered through the assessment, it is probable that any such assets are most likely to be small, discrete features of prehistoric date.
98. Any previously unidentified subsurface archaeological remains, if present, are deemed to be of high vulnerability, are not recoverable and could be of heritage value up to national level. The sensitivity of the receptor is therefore, considered likely to be up to high.

Significance of the effect

99. If previously unrecorded subsurface archaeological remains survive within the Proposed Development area, they will be subject to a direct impact. Overall, the magnitude of the impact could be high and the sensitivity of the receptor also high. The effect could, therefore, be of **major** adverse significance, which is **significant** in EIA terms.

Secondary mitigation and residual effect

100. The impact on previously unidentified archaeological remains will be mitigated through a programme of archaeological works in accordance with the requirements in NPF4 Policy 7(o) and PAN2/2011, sections 25-27. The programme of works would be developed in consultation with ELCAS and detailed in the WSI. This work will allow for features to be investigated and recorded to an appropriate standard and is likely to comprise targeted evaluation prior to construction commencing with further set-piece excavation of any vulnerable remains and reporting to an acceptable standard undertaken as appropriate.

The magnitude of the impact is deemed to be high and the sensitivity of the receptor is considered to be high. Following mitigation, any newly discovered assets will have been appropriately recorded and the findings will increase the knowledge and understanding of

the archaeological remains present within the area. It is therefore assessed that following mitigation there will be an adverse residual effect of no more than **minor** significance, which is not significant in EIA terms.

Operation and Maintenance

101. No direct or indirect impacts have been identified during operation, therefore no significant effects. It is presumed that any repair and maintenance works will take place within the construction footprint therefore there is no further potential for impacts on cultural heritage assets

Decommissioning

102. It is presumed that any decommissioning works will take place within the construction footprint therefore there is no further potential for impacts on cultural heritage assets.

SETTING IMPACTS ON CULTURAL HERITAGE ASSETS

Construction

103. As per Table 10.6, settings impacts during construction are scoped out.

Operational and Maintenance

104. The Proposed Development onshore substation, which is the only infrastructure that will be visible above ground during operation, could result in adverse effects on the setting of cultural heritage assets, within the cultural heritage outer study area (Volume 2, Figure 10.2), although such effects will diminish with increasing distance from the onshore substation.
105. Volume 4, Appendices 10.3 and 10.4 contain tabulated assessments of the predicted effects on the settings of all designated assets within the cultural heritage outer study area.
106. There are no heritage assets beyond 5 km of the onshore substation that have been identified through appraisal of the Bare-Earth ZTV, or notified through consultation with HES and ECLAS, that require consideration of potential impacts on their settings.
107. The assessment of operational effects on the settings of these heritage assets has been carried out with reference to the location and maximum design scenario parameters for the onshore substation and the locations of the cultural heritage assets shown on Volume 2, Figure 10.2. The criteria detailed in Tables 10.8 (Magnitude of Impact), 10.9 (Sensitivity of Asset) and 10.10 (Significance of Effect) have been used to assess, in combination with professional judgement, the nature and significance of the effects.
108. Once operational, the cables for the Proposed Development will be subsurface, the compounds will be removed, and the ground surface reinstated to current conditions. Therefore, the only component of the Proposed Development that would have an impact on the settings of heritage assets, beyond the construction phase, is the onshore substation and associated infrastructure. It is therefore the presence of the onshore substation within the settings of the assets discussed that is considered in the following assessments. As the Proposed Development onshore substation will not affect the assessed assets directly, but will affect their settings, the impacts are, in each case, assessed as affecting the receptors indirectly.
109. The following discussion addresses those assets where potentially significant adverse effects have been identified through the tabulated assessment (Volume 4, Appendix 10.3 and 10.4) and those assets identified by HES as requiring detailed consideration.

Dryburn Bridge, enclosure 300 m SE of (SM 4038), Cultural Heritage Viewpoint 5 (Volume 3, Figure 6.25)

Magnitude of Impact

110. The Proposed Development onshore substation will be visible from the site of this prehistoric enclosed settlement as the onshore substation will be located approximately 440 m to its south-east.
111. The Proposed Development onshore substation will add an industrial element to the wider views to the south of this monument, although at present it will be partly screened by the trees that line the A1 Trunk Road. It will remain possible to understand and appreciate the siting of the settlement, for its proximity to the coast, the water source of the Dry Burn and its position, which even in prehistoric times, will have been on fertile agricultural land. As a cropmark, this site and the contemporary cropmarks in the surrounding area are not visible at ground level but to the visitor with knowledge of these assets it will remain possible for them to understand the possible intervisibility between the sites. While the Proposed Development onshore substation will slightly alter the wider views from this asset, being visible in only one direction from the site of the settlement, the integrity of the setting will remain intact.
112. The impact is predicted to be of local spatial extent, long term duration, continuous and low reversibility. It is predicted that the impact will affect the receptor indirectly. The magnitude is therefore considered to be low.

Sensitivity of the receptor

113. Dryburn Bridge, enclosure appears as a cropmark on aerial photography and is interpreted as an enclosed settlement of prehistoric date. Its sensitivity is primarily gained from the intrinsic value of its fabric and the potential for archaeological deposits within and around it to provide information on late prehistoric agricultural, domestic, and socio-economic practices. As a cropmark feature, this asset survives as subsurface remains, and no above ground remains are visible. While the landscape that surrounds the cropmark has changed to one largely characterised by intensive modern agriculture and modern transport infrastructure, with some industrial activity and energy generation facilities nearby, the site gains some value from its setting. In that regard, it is clear that it was sited on the agriculturally fertile East Lothian Plain close to the coast and in a position that was evidently not chosen for defensive reasons. The sensitivity of this asset is enhanced by the number of possibly contemporary cropmark sites in the surrounding area which together may inform our knowledge and understanding of development of the late prehistoric settlement landscape of this area.
114. The current setting of the settlement is in a flat arable field south of the coast with wide views over the surrounding landscape. The scheduled area is split into two parts by the raised track of the East Coast Mainline (ECML) which crosses northwest to southeast through the asset, with a Railhead to the immediate northwest of the scheduled area which includes an overhead gantry and street lighting. The minor road to East Barns and Skateraw Quarry forms its northern boundary.
115. From the site of the settlement, there are views to the north, towards the Firth of Forth, over the arable field that contains Skateraw, ring ditches and cropmarks 300 m NW of (SM 4040). To the east, the view is limited by a large agricultural shed at Skateraw, with Torness Power Station visible beyond. To the west, the view is over agricultural fields with the Tarmac Cement Works a prominent feature in that direction. To the south, the view is over an arable field to the tree lined route of the A1 Trunk Road, beyond which arable fields extend to the village of Innerwick and on to the rising ground of Blackcastle Hill, which is surmounted by a large telecommunications mast. Located close to the A1 Trunk Road and

cut by the ECML, the noise from the traffic on these routes is a notable feature of the current setting of this settlement.

116. Dryburn Bridge, enclosure, including its setting, is a heritage asset of national value deemed to be of high vulnerability, the sensitivity of the receptor and its setting are considered to be high. The setting is potentially recoverable, in the event of decommissioning.

Significance of the effect

117. The Proposed Development onshore substation will slightly alter the wider views from the Dryburn Bridge, enclosure, being visible in only one direction from the site of the settlement. However, the settlement will not be isolated from its surroundings, neither will its relationship and associations with contemporary monuments be disrupted, nor its setting appreciably fragmented. It will remain possible for any visitor to understand and appreciate the setting of the monument. As such, the integrity of the setting of the settlement and its capacity to inform and convey its cultural significance, will not be compromised. Overall, the magnitude of the impact is deemed to be low, and the sensitivity of the receptor is considered to be high. The effect based on professional judgement will, therefore, be of **minor** adverse significance, which is not significant in EIA terms.

Skateraw, ring ditches and cropmarks 300 m NW of (SM 4040), Cultural Heritage Viewpoint 5 (Volume 3, Figure 6.25)

Magnitude of Impact

118. The Proposed Development onshore substation will be visible from the site of this prehistoric enclosed settlement as the onshore substation will be located approximately 565 m to the south.
119. The Proposed Development onshore substation will add an industrial element to the wider views to the south of this monument, although at present it will be screened through the trees that line the A1 Trunk Road. It will remain possible to understand and appreciate the siting of this settlement site for its proximity to the coast and its position, which even in prehistoric times, would have been on fertile agricultural land. As a cropmark, this site and the contemporary cropmarks in the surrounding area are not visible at ground level but to the visitor with knowledge of these assets it will remain possible for them to understand the possible intervisibility between the sites. While the Proposed Development onshore substation will slightly alter the wider views from this asset, being visible in only one direction from the site of the settlement, the integrity of the cropmarks setting will remain intact.
120. The impact is predicted to be of local spatial extent, long term duration, continuous and low reversibility. It is predicted that the impact will affect the receptor indirectly. The magnitude is therefore considered to be low.

Sensitivity of the receptor

121. Skateraw, ring ditches and cropmarks appear as a cropmark on aerial photography and the site is interpreted as an unenclosed settlement of prehistoric date. Antiquarian records of cist burials (MEL 1813) having been identified within the site suggest that some of the ring ditch features may represent burial barrows. The site's sensitivity is primarily gained from the intrinsic value of its fabric and the potential for archaeological deposits within and around it to provide information on late prehistoric, agricultural, domestic, socio-economic, and funerary practices. As a cropmark feature, this asset survives as subsurface remains, and no above ground remains are visible. While the landscape that surrounds the

cropmarks has largely changed to one largely characterised by intensive modern agriculture and modern transport infrastructure, with some industrial activity and energy generation facilities nearby, the site gains some value from its setting. In that regard, it is clear that it was sited on the agriculturally fertile East Lothian Plain close to the coast and the water source of the Dry Burn and in a position that was evidently not chosen for defensive reasons. The sensitivity of this asset is enhanced by the number of possibly contemporary cropmark sites in the surrounding area which together may inform our knowledge and understanding of development of the late prehistoric settlement landscape of this area.

122. The current setting of Skateraw, ring ditches and cropmarks is on a level arable field south of the coast with wide views over the surrounding landscape. Views to the north are over the course of the Dry Burn to the coast and the Firth of Forth, to the east the view is limited by the treebelts and large agricultural shed at Skateraw although Torness Power Station is visible beyond. To the west the view is over agricultural field at the same elevation with the Tarmac Cement Works a prominent feature in the distance. To the south the view is over a small arable field to the raised route of the ECML railway, beyond this is a further arable field and the tree lined A1 Trunk Road, beyond which arable fields rise to the village of Innerwick and on to the rising ground of Blackcastle Hill which is surmounted by a large telecommunications mast. Located close to the A1 Trunk Road and the ECML the noise from the traffic on these routes is a notable feature of the current setting of this cropmark.
123. Skateraw, ring ditches and cropmarks, including its setting, is a heritage asset of national value deemed to be of high vulnerability, the sensitivity of the receptor and its setting are considered to be high. The setting is potentially recoverable, in the event of decommissioning.

Significance of the effect

124. The Proposed Development onshore substation will slightly alter the wider views from the Skateraw, ring ditches and cropmarks, being visible in only one direction from the site of the settlement. However, the settlement will not be isolated from its surroundings, neither will its relationship and associations with contemporary monuments be disrupted, nor its setting appreciably fragmented. It will remain possible for any visitor to understand and appreciate the setting of the monument. As such, the integrity of the setting of the settlement and its capacity to inform and convey its cultural significance, will not be compromised. Overall, the magnitude of the impact is deemed to be low, and the sensitivity of the receptor is considered to be high. The effect, based on professional judgement will therefore, be of **minor** adverse significance, which is not significant in EIA terms.

Crowhill, enclosure WNW of (SM 5770), Cultural Heritage Viewpoint 4 (Volume 3, Figure 6.24)

Magnitude of Impact

125. The Proposed Development onshore substation will be visible as the substation will be located approximately 250 m to the north-west of this cropmark.
126. The Proposed Development onshore substation will add a large industrial structure dominating views to the northwest of this asset. While it will remain possible to understand the siting of this enclosure for its position, which even in prehistoric times, would have been in the more fertile land, with views over the surrounding agricultural landscape to the south, east and west, the view to the north will change from one of an arable farming landscape to industrial infrastructure. As a cropmark, this site and the contemporary cropmarks in the surrounding area are not visible at ground level but to the visitor with knowledge of these assets it will remain to an extent possible to understand the potential intervisibility between the assets, while the onshore substation will stand between the Crowhill enclosure and the

cropmarks at Skateraw (SM4038 and SM4040) it is unlikely that there would have been intervisibility between the Crowhill Enclosure and Skateraw at any point due to the local topography.

127. The impact is predicted to be of local spatial extent, long term duration, continuous and low reversibility. It is predicted that the impact will affect the receptor indirectly. The magnitude is therefore considered to be medium.

Sensitivity of the receptor

128. Crowhill, enclosure appears as a cropmark on aerial photography and is interpreted as an enclosed settlement defined by a single ditch. The sensitivity of Crowhill, enclosure is primarily gained from the intrinsic value of its fabric and the potential for archaeological deposits within and around it to provide information on late prehistoric agricultural, domestic and socio-economic practices. As a cropmark feature, this asset survives as subsurface remains, and no above ground remains are visible. While the landscape that surrounds the cropmark has largely changed to one of intensive modern agriculture, the cropmark gains some value from its setting, in that it is clear that it was sited on a locally high though non-defensive location with views over the surrounding fertile land. The sensitivity of this asset is enhanced by the number of possibly contemporary cropmarks in the surrounding area which together may inform the knowledge of the late prehistoric landscape of this area.
129. The current setting of Crowhill, enclosure is in an arable field on a gentle southeast facing slope, immediately above the small agricultural settlement of Crowhill. Views to the north are slightly restricted by the rising ground however from the north edge they are over arable fields to the coast, the Firth of Forth and include Torness Power Station, the view to the east and west is over arable fields and to the south the fields rise to the Lammermuirs.
130. Crowhill, enclosure including its setting, is a heritage asset of national value deemed to be of high vulnerability, the sensitivity of the receptor and its setting are considered to be high. The setting is potentially recoverable, in the event of decommissioning.

Significance of the effect

131. The Proposed Development onshore substation will alter the wider views to the north from the Crowhill, enclosure due to its close proximity. While the integrity of the setting of this settlement will be compromised to some extent, it will remain possible for any visitor to understand and appreciate the settlement and its relationship with Thornton Burn and the contemporary settlements along it. Overall, the magnitude of the impact is deemed to be medium, and the sensitivity of the receptor is considered to be high. The effect based on professional judgement will therefore be of **moderate** adverse significance, which is **significant** in EIA terms.

Castledene, enclosure SW of (SM5849)

Magnitude of Impact

132. The Proposed Development onshore substation will be visible as the onshore substation is located approximately 950m to the north from this enclosure.
133. The Proposed Development onshore substation will add an industrial element to the wider views to the north of this monument, however this view already contains the larger industrial structures of Torness Power Station and Tarmac Cement Works. It will remain possible to understand and appreciate the siting of this enclosure for views over the surrounding lower lands. As a cropmark, this site and the contemporary cropmarks in the surrounding area are not visible at ground level but to the visitor with knowledge of these assets it will remain possible for them to understand the possible intervisibility between the assets. While the

Proposed Development onshore substation will slightly alter the wider views from this asset the integrity of the cropmark's setting will remain.

134. The impact is predicted to be of local spatial extent, long term duration, continuous and low reversibility. It is predicted that the impact will affect the receptor indirectly. The magnitude is therefore considered to be low.

Sensitivity of the receptor

135. Castledene enclosure appears as a cropmark and is interpreted as a sub-square enclosure defined by ditch, possibly representing a domestic settlement occupied by natives at the time of the Roman invasions of Scotland. The sensitivity of Castledene Enclosure is primarily gained from the intrinsic value of its fabric and the potential for archaeological deposits within and around it to provide information on late prehistoric/Romano-British settlement, agricultural and socio-economic practices. As a cropmark feature, this asset survives as subsurface remains, and no above ground remains are visible. While the landscape that surrounds the cropmarks has largely changed to one of intensive modern agriculture, the cropmarks gain some value from their setting, in that it is clear that they were built of the small natural rise between the valleys of Braidwood Burn and Thornton Burn looking over the relatively flat landscape to the north. The sensitivity of this asset is enhanced by the number of possibly contemporary cropmarks in the surrounding area which together may inform the knowledge of the late prehistoric landscape of this area.
136. The current setting of the Castledene enclosure is in an arable field just below the crest of an east to west running ridge, with open views to the north, currently partially screened by intervening hedgerows. Views to the south are restricted by the rising ground to the crest of the hill and views to the east and west are over arable fields at a similar elevation. The view to the north is over the lower arable lands of the East Lothian Plain, on which are the cropmark remains of several possibly contemporary settlement sites. Views in this direction also include Torness Power Station to the northeast and Tarmac Cement Works to the northwest.
137. The Castledene enclosure including its setting, is a heritage asset of national value deemed to be of high vulnerability, the sensitivity of the receptor and its setting are considered to be high. The setting is potentially recoverable, in the event of decommissioning.

Significance of the effect

138. The Proposed Development onshore substation will slightly alter the wider views from the Castledene enclosure. However, the enclosure will not be isolated from its surroundings, neither will its relationship and associations with contemporary monuments be disrupted, nor its setting appreciably fragmented. It will remain possible for any visitor to understand and appreciate the setting of the monument. As such, the integrity of the setting of the enclosure and its capacity to inform and convey its cultural significance, will not be compromised. Overall, the magnitude of the impact is deemed to be low and the sensitivity of the receptor is considered to be high. The effect based on professional judgement will, therefore, be of **minor** adverse significance, which is not significant in EIA terms.

Innerwick Conservation Area (CA285) Landscape & Visual Viewpoint 2 (Volume 3, Figure 6.16)

Magnitude of Impact

139. The Proposed Development onshore substation will be visible from the buildings along the northeast edge of Innerwick Conservation Area, from Innerwick Farm and from the arable

field included within the conservation area at its northeast edge. The Proposed Development onshore substation will be located approximately 410m to the northeast of Innerwick CA on the south facing slope of Corsick Hill. The Proposed Development will not be visible from the majority of the village of Innerwick as the built environment of the village blocks views out to the east and the view from the church knoll is largely to the north. While the Proposed Development onshore substation will not be visible from many of the buildings within Innerwick (See Volume 4, Appendix 10.4 for individual listed buildings) it will bring a large industrial building into the immediate arable land to the northeast of the Innerwick, further reducing the agricultural character of the Conservation Area.

140. The impact is predicted to be of local spatial extent, long term duration, continuous and low reversibility. It is predicted that the impact will affect the receptor indirectly. The magnitude is therefore considered to be medium.

Sensitivity of receptor

141. Innerwick Conservation Area is largely an 18th century agricultural village centred around Innerwick Church which is set on a knoll in the centre of the village. The village is mainly composed of single or two storey cottages which lie at the foot of a steeply rising slope to the south. Views out of the conservation area are largely restricted by the built environment of the village. Where views out are possible from the church knoll, they look over the agricultural land to the north to the Forth. At the east end of the conservation area Innerwick Farm and the arable field to its north are included in the Conservation Area providing evidence of the agricultural origins of this village and from this end of the Conservation Area the views are out to the surrounding agricultural landscape. The historic and agricultural sense of place within Innerwick Conservation Area is diminished by the constant noise from the A1 Trunk Road which passes approximately 700m to the north.
142. Innerwick Conservation Area including its setting, is a heritage asset of regional value deemed to be of medium vulnerability, the sensitivity of the receptor and its setting are considered to be medium. The setting is potentially recoverable, in the event of decommissioning.

Significance of the effect

143. The Proposed Development onshore substation will alter the wider views to the northeast from Innerwick Conservation Area. The setting of Innerwick Conservation Area will be compromised to a degree but not to an extent that the overall integrity of the setting will be affected. The internal relationships between the built environment will remain unchanged and that the Conservation Area was originally an agricultural settlement surrounded by agricultural field will remain appreciable. As such, the integrity of the setting of the settlement, its capacity to inform and convey its cultural significance, will not be compromised. Overall, the magnitude of the impact is deemed to be medium, and the sensitivity of the receptor is considered to be medium. The effect based on professional judgement will, therefore, be of **moderate** adverse significance, which is **significant** in EIA terms.

Decommissioning

144. No settings impacts during decommissioning.

10.11.1. PROPOSED MONITORING

145. No cultural heritage monitoring to test the predictions made within the impact assessment in relation to construction impacts is considered necessary, as with the inclusion of primary, secondary and tertiary mitigation there will be no further potential for construction impacts

on cultural heritage assets. Following mitigation all cultural heritage assets within the construction footprint will have been recorded by professional archaeologists and removed.

146. No cultural heritage monitoring to test the predictions made within the assessment of likely significance effects on cultural heritage is considered necessary as such impacts will remain for the duration of the operation of the Proposed Development.

10.12. CUMULATIVE EFFECTS ASSESSMENT

10.12.1. METHODOLOGY

147. The Cumulative Effects Assessment (CEA) takes into account the impact associated with the Proposed Development together with other relevant plans, projects and activities. Cumulative effects are therefore the combined effect of the Proposed Development in combination with the effects from a number of different projects, on the same receptor or resource. Please see Volume 1, Chapter 2 of the Onshore EIA Report for detail on CEA methodology.
148. The projects and plans selected as relevant to the CEA presented within this chapter are based upon the results of a screening exercise (see Volume 4, Appendix 2.4). Each project or plan has been considered on a case by case basis for screening in or out of this chapter's assessment based upon data confidence, effect-receptor pathways and the spatial/temporal scales involved.
149. The specific projects scoped into the CEA for Cultural Heritage, are outlined in Table 10.12.

Table 10.12: List of Other Projects Considered Within the CEA for Cultural Heritage

Project/Plan	Status [i.e. Application, Consented, Under Construction, Operational]	Distance from Study Area (km)	Description of Project/Plan
Tier 1			
Berwick Bank Offshore Infrastructure	Application	Approximately 43 km from the Cultural Heritage Inner Study Area to turbine	Offshore infrastructure and associated works of the Berwick Bank Project
Tier 2			
SPEN Branxton Grid Substation (21/01569/PM)	Application (Application Withdrawn but expected to be submitted again in near future)	Within Cultural Heritage Inner Study Area	Construction of a 400 kilovolt (kV) gas insulated switchgear (GIS) substation and associated works
SPEN Eastern Link Project (22/00852/PPM & 22/00002/SGC)	Application	Cable route crosses Cultural Heritage Inner Study Area	Planning permission in principle for a convertor station and associated development including a landfall at Thorntonloch and connected buried cabling, all in association with the Scottish Power eastern Link 1 project, for a new subsea High Voltage Direct Current (HVDC) link.
			Also includes S37 application

Project/Plan	Status [i.e. Application, Consented, Under Construction, Operational]	Distance from Study Area (km)	Description of Project/Plan
			(22/00002/SGC) to install and keep a new 265m section of 400 kV overhead line east of the proposed Branxton Grid substation
Crystal Rig IV Wind Farm (18/00004/SGC)	Consented	Approximately 8 km from the Cultural Heritage Inner Study Area	Construction and operation of crystal rig wind farm (phase iv) – 11 turbines

10.12.2. MAXIMUM DESIGN SCENARIO

150. The maximum design scenario(s) summarised here have been selected as those having the potential to result in the greatest effect on an identified receptor or receptor group. The cumulative effects presented and assessed in this section have been selected from the details provided in Volume 1, Chapter 5 of the Onshore EIA Report as well as the information available on other projects and plans, to inform a 'maximum design scenario'. Effects of greater adverse significance are not predicted to arise should any other development scenario, based on details within the Project Design Envelope, to that assessed here, be taken forward in the final design scheme.
151. For the purposes of this chapter the maximum design scenario refers to the maximum construction extent of the Proposed Development as detailed in Volume 1, Chapter 5 and the assessment is written presuming that construction works will be to the maximum extent proposed together with the full extent of the cumulative developments as given in Planning Applications. As such, the assessment of the maximum design scenario will be equally valid for lesser parameter values as the assessment covers the whole of the Proposed Development envelope (including the applied for micro-siting allowance).
152. Operational impacts, i.e. those affecting the settings of designated heritage assets, presume the maximum design scenario of the onshore substation together with the full extent of the cumulative developments as given in Planning Applications. As such, the assessment of potential effects on the settings of designated heritage assets will be equally valid for lesser parameter values (i.e. a building of lesser dimensions).

10.12.3. INTERTIDAL AREA MAXIMUM DESIGN SCENARIO

153. As no potential impacts on cultural heritage have been identified within the Cultural Heritage Intertidal Area there is no potential for cumulative impacts as a result of any combination of the cumulative developments with the Proposed Development.

10.12.4. CUMULATIVE EFFECTS ASSESSMENT

154. An assessment of the likely significance of the cumulative effects of the Proposed Development upon cultural heritage receptors arising from each identified impact is given below.

DIRECT IMPACTS ON CULTURAL HERITAGE ASSETS

Tier 2

155. There is no potential for cumulative direct impacts on cultural heritage assets in combination with Berwick Bank offshore infrastructure.

Tier 2

Construction

156. Cumulative construction impacts may arise from the Proposed Development in combination with developments that have the potential to impact on the same heritage assets.
157. The cumulative developments have no predicted construction impacts on any of the known cultural heritage assets effected by the Proposed Development. It is predicted that only one asset type; previously unrecorded receptors, surviving as buried archaeological remains, will potentially be affected by the Proposed Development, would also be potentially directly affected by ground disturbance works relating to the cumulative developments.

Magnitude of impact

158. Cumulative construction impacts on previously unidentified buried archaeological remains are possible from construction of the Proposed Development together with any combination of the cumulative developments (Table 10.12).
159. The potential impact on any previously unrecorded receptors, surviving as buried archaeological remains, is unknown and cannot be reliably determined. However, if any hitherto unidentified buried archaeological remains are present, an impact arising from construction of the Proposed Development together with any combination of the cumulative developments will likely be of local spatial extent, long term duration, continuous and not reversible. It is predicted that the impact will affect the receptor directly. It is therefore considered that the magnitude of the impact could be up to high, resulting in the removal of the receptor.

Sensitivity of the receptor

160. The sensitivity of previously unidentified subsurface archaeological remains is unknown and cannot be reliably determined. However, based on the baseline evidence gathered through the assessment, it is probable that any such assets are most likely to be small, discrete features of prehistoric date.
161. Any previously unidentified subsurface archaeological remains, if present, are deemed to be of high vulnerability, are not recoverable and could be of heritage value up to national level. The sensitivity of the receptor is therefore, considered likely to be up to high.

Significance of the impact

162. If previously unrecorded subsurface archaeological remains survive within the Proposed Development area and within the cumulative development construction footprints, they will be subject to a direct cumulative impact.
163. Overall, the magnitude of the cumulative effect could be high, and the sensitivity of the receptor could be up to high. The cumulative effect could, therefore, be of **major** adverse significance, which is **significant** in EIA terms.

Secondary mitigation and residual effect

164. The impact on previously unidentified archaeological remains as a result of the construction works associated with the Proposed Development will be mitigated through a programme

of archaeological works in accordance with the requirements in NPF4 Policy 7(o) and PAN2/2011, sections 25-27. The programme of works would be approved in advance by ELCAS.

165. Following mitigation, any newly discovered assets will have been appropriately recorded and the findings will increase the knowledge and understanding of the archaeological remains present within the area. It is therefore assessed that following mitigation there will be an adverse residual effect of no more than **minor** significance, which is not significant in EIA terms.

SETTING IMPACTS ON CULTURAL HERITAGE ASSETS

166. Cumulative impacts on the setting of cultural heritage assets are possible as a result of a combination of the operation of the Proposed Development along with the cumulative developments.

Tier 1

167. The Berwick Bank Wind Farm is located approximately 43 km north east from the East Lothian Coast. The offshore infrastructure consists of:
- Up to 307 wind turbines (each comprising a tower section, nacelle and three rotor blades) and associated support structures and foundations;
 - Up to ten Offshore Substation Platforms (OSPs) and associated support structures and foundations;
 - Estimated scour protection area of up to 2,280 m² per wind turbine and 11,146 m² per OSP;
 - A network of inter-array cabling linking the individual wind turbines to each other and to the OSPs plus inter-connections between OSPs (approximately 1,225 km of inter-array cabling and 94 km of interconnector cabling); and
 - Up to eight offshore export cables connecting the OSPs to Skateraw Landfall. It is possible that either High Voltage Alternating Current (HVAC) or High Voltage Direct Current (HVDC) cables will be used at the Proposed Development. The options currently considered include:
 - Up to eight HVAC offshore export cables; or
 - Up to four HVDC offshore export cables.
 - Construction to start 2025 with an 8 year build programme.

168. The cultural heritage assets assessed related to the Proposed Development have local onshore settings, the addition of the Berwick Bank Wind Farm 43 km offshore will not have a cumulative impact on their local onshore setting due to the separation provided by the distance.

Tier 2

Operation and Maintenance

169. The EIA Report for SPEN Branxton Grid Substation (21/01569/PM) predicts one impact on the setting of cultural heritage assets: an impact of 'slight' negative significance on the scheduled monument Branxton, enclosure 350 m NNW of (SM 5958). This assessment has identified an impact of minor adverse significance on the Branxton, enclosure 350 m NNW of (SM 5958) an asset of high sensitivity. It is considered that given the limited visibility of the Proposed Development onshore substation downhill to the north of the SPEN Branxton Grid Substation the cumulative impact of the two substations will remain of negligible magnitude with the combined impact constituting a slight change to the wider views obtained from the enclosure, any effect on the enclosures localised setting will be as a sole

result of the SPEN Branxton Grid Substation (21/01569/PM) which is located 270 m to the west of the scheduled area not the Proposed Development which is 1.9km to the north west. It is therefore considered that there will be a cumulative impact of **minor** significance on Branxton, enclosure 350 m NNW of (SM 5958).

170. The convertor station of the SPEN Eastern Link Project (22/00852/PPM) will be located approximately 2 km to the northeast of the Proposed Development onshore substation. The SPEN convertor station will be located to the immediate east of the Tarmac Cement Works and the Dunbar Energy Recovery Facility. Given the separation from the Proposed Development onshore substation and the baseline of large industrial structures in this view direction it is considered that there is no potential for a cumulative operational impacts on the setting of the cultural heritage assets.
171. Crystal Rig IV Wind Farm is located approximately 8 km to the southwest of the Proposed Development. Given the separation distance and as the turbines will be located in the Lammemuir Hills, beyond operational wind farms it is considered that there is no potential for a cumulative operational impacts on the setting of the cultural heritage assets.

10.13. INTER-RELATED EFFECTS

172. No inter-related effects arising from the Proposed Development on cultural heritage have been identified.

10.14. SUMMARY OF IMPACTS, MITIGATION MEASURES, LIKELY SIGNIFICANT EFFECTS AND MONITORING

173. Information on cultural heritage within the cultural heritage study areas was collected through a desk-based assessment, site surveys and informed by comments and information supplied by ELCAS and HES.
174. A total of 51 heritage assets have been identified within the cultural heritage inner study area. The majority of these are cropmarks interpreted as prehistoric enclosed settlements, although the area also contains evidence of medieval and later settlement.
175. While the majority of the cultural heritage inner study area is arable fields, it is considered that there is medium to high potential for further buried archaeology to survive subsurface, with the greatest potential being in the areas surrounding scheduled monuments and in the fields to the southwest of Chapel Point. Table 10.13 presents a summary of the potential impacts, mitigation measures, and the conclusion of likely significant effects in EIA terms in respect to cultural heritage. The impacts assessed include:
- Potential for construction works within the cultural heritage inner study area to result in direct effects on three cultural heritage assets. In the absence of secondary mitigation, the effect on Thornton Law (MEL2499) is assessed as being of likely moderate significance (significant in EIA terms). The effects on Thornton Law Trackway (MEL10316) and an area of rig and furrow (CFA001) are assessed as being of minor significance (not significant in EIA terms). Mitigation measures have been set out that would avoid or reduce the predicted effects and residual effects are of no more than minor significance (not significant in EIA terms).
 - Potential for construction works within the cultural heritage inner study area to result in direct effects on Areas of Archaeological Potential. In the absence of secondary mitigation, this is assessed as being potentially of up to major significance (significant in EIA terms). Mitigation measures have been set out that would avoid or reduce the predicted effects and residual effects are of no more than minor significance (not significant in EIA terms).
 - Potential for operational impacts on the settings of designated cultural heritage assets in the Outer Study Area. Two effects, on the scheduled monument Crowhill, enclosure WNW of (SM 577) and Innerwick Conservation Area (CA 285), are assessed as being of moderate significance (significant in EIA terms). Effects on other designated assets in the

cultural heritage study areas are assessed as no more than minor significance (not significant in EIA terms).

176. Overall, it is concluded that there will be one likely significant effect arising from the Proposed Development during the construction phase on Thornton Law (MEL2499) and one potential significant effect on areas of archaeological potential both of which will be reduced to minor and not significant in EIA terms with secondary mitigation. Two significant effects arising from the Proposed Development during the operational phase are identified, on Crowhill, enclosure WNW of (SM 577) and Innerwick Conservation Area (CA 285).
177. Likely cumulative effects have been assessed. The cumulative effects assessed include construction phase impacts on cultural heritage assets and operational phase impacts on cultural heritage assets. Overall, it is concluded that there is potential for a significant cumulative effect on previously unrecorded subsurface archaeology from the Proposed Development alongside other projects, this cumulative effect will be reduced to not significant following secondary mitigation.

10.14.1. INTERTIDAL AREA

178. Information on the cultural heritage intertidal study area was collected through a desk-based assessment, site surveys and informed by information supplied by ELCAS and HES.
179. No cultural heritage assets were identified within the cultural heritage intertidal study area and it was assessed that there is no potential for previously unrecorded archaeological assets to survive within the area. It is therefore concluded that there will be no likely significant effects in the intertidal area from the Proposed Development on cultural heritage.

Table 10.13: Summary of Likely Significant Effects, Mitigation and Monitoring

Description of Impact	Phase			Magnitude of Impact	Sensitivity of Receptor	Significance of Effect	Secondary Mitigation	Residual Effect	Proposed Monitoring
	C	O	D						
Direct impact on Thornton Law (MEL2499)	✓			High	Medium	Moderate	Programme of archaeological works to be developed in consultation with ELCAS, likely to comprise a targeted evaluation prior to construction commencing with further excavation and reporting undertaken as appropriate	Minor (which is not significant in EIA terms)	N/A
Direct impact on Thornton Law Trackway (MEL10316)	✓			Medium	Low	Minor	N/A	Negligible (which is not significant in EIA terms)	N/A
Direct impact on Area of Rig and Furrow (CFA 001)	✓			High	Low	Minor	N/A	Minor (which is not significant in EIA terms)	N/A
Direct impacts on Areas of Archaeological Potential	✓			Up to High	Up to High	Up to Major	Programme of archaeological works to be developed in consultation with ELCAS, likely to comprise, in the first instance prior to construction commencing, targeted trial trenching. Depending on the results of the trial trenching further investigation and reporting will be	Minor (which is not significant in EIA terms)	N/A

Description of Impact	Phase			Magnitude of Impact	Sensitivity of Receptor	Significance of Effect	Secondary Mitigation	Residual Effect	Proposed Monitoring
	C	O	D						
Setting impact on the scheduled monument; Crowhill, enclosure WNW of (SM5770)	✓			High	Medium	Moderate	N/A	Moderate (which is significant in EIA terms)	N/A
Setting impact on scheduled monuments (SM773, SM3916, SM3990, SM4039, SM4040, SM5771, SM5849, SM5870, SM5895, SM5896 and SM90098)	✓			High	Low	Minor	N/A	Minor (which is not significant in EIA terms)	N/A
Setting impact on scheduled monuments (SM3191, SM3933, SM5675, SM5764, SM5831, SM5838, SM5844, SM5845, SM5847, SM5890, SM5958, SM5843, SM5850, SM5876 and SM13313)	✓			High	Negligible	Minor	N/A	Minor (which is not significant in EIA terms)	N/A
Setting impact on Thurston Home Farm (LB7711)	✓			High	Negligible	Minor	N/A	Minor (which is not significant in EIA terms)	N/A
Setting impact on Barns Ness Lighthouse with Keepers' Cottages and retaining walls (LB1465)	✓			Medium	Negligible	Negligible	N/A	Negligible (which is not significant in EIA terms)	N/A
Setting impact on Innerwick House with gatepiers and parapet (LB7704)	✓			Low	Medium	Minor	N/A	Minor (which is not significant in EIA terms)	N/A
Setting impact on Listed Buildings (LB7718 and LB7719)	✓			Low	Negligible	Negligible	N/A	Negligible (which is not significant in EIA terms)	N/A

Description of Impact	Phase			Magnitude of Impact	Sensitivity of Receptor	Significance of Effect	Secondary Mitigation	Residual Effect	Proposed Monitoring
	C	O	D						
Setting impact on Innerwick Conservation Area (CA285)	✓			Medium	Medium	Moderate	N/A	Moderate (which is significant in EIA terms)	N/A

Table 10.14: Summary of Likely Significant Cumulative Environment Effects, Mitigation and Monitoring

Description of Impact	Phase			Cumulative Impact Assessment Tier	Magnitude of Impact	Sensitivity of Receptor	Significance of Effect	Secondary Mitigation	Residual Effect	Proposed Monitoring
	C	O	D							
Direct impacts on Areas of Archaeological Potential	✓			Tier 2	Up to High	Up to High	Up to Major	Programme of archaeological works to be developed in consultation with ELCAS, likely to comprise, in the first instance prior to construction commencing, targeted trial trenching. Depending on the results of the trial trenching further investigation and reporting will be undertaken as appropriate.	Minor (which is not significant in EIA terms)	N/A

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