

BERWICK BANK WIND FARM ONSHORE ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Chapter 6: Landscape and Visual Impact

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6. LANDSCAPE AND VISUAL IMPACT

6.1. INTRODUCTION

1. This chapter presents the assessment of the likely significant effects (as per the “EIA Regulations”) on the environment of the Berwick Bank Wind Farm onshore transmission works (OnTW) (the Proposed Development) on the landscape and visual resource. 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 assessment is informed by the following chapters:
 - Volume 1, Chapter 2: Approach to EIA;
 - Volume 1, Chapter 4: Analysis of Alternatives; and
 - Volume 1, Chapter 5: Proposed Development Description.
3. This chapter should be read in conjunction with the following technical chapters:
 - Volume 1, Chapter 7: Ecology;
 - Volume 1, Chapter 10: Cultural Heritage; and
 - Offshore EIA Report, Volume 1, Chapter 15: Seascape, Landscape and Visual (SLVIA).
4. The landscape and visual impact assessment (LVIA) is supported by plan graphics and visual representations within Volume 3: LVIA Figures and Visualisations. LVIA figures include Zone of Theoretical Visibility (ZTV) maps; reference photography; outline landscape mitigation and visual representations, including baseline panorama views and photomontages.
5. Assessment of the likely significant effects of the Berwick Bank Wind Farm offshore infrastructure on seascape, landscape and visual receptors is presented in section 15.11, Assessment of Significance, of the Offshore EIA Report – Chapter 15: SLVIA.

6.2. PURPOSE OF THIS CHAPTER

6. This LVIA chapter:
 - Presents the existing environmental baseline established from desktop studies, site-specific surveys and consultation with stakeholders;
 - Presents the methodology and approach to assessment including assessment criteria;
 - Identifies any assumptions and limitations encountered in compiling the environmental information;
 - 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 the baseline landscape and visual environment; and
 - Presents the potential environmental impacts on the landscape and visual resource arising from the Proposed Development and reaches a conclusion on the likely residual significant effects on landscape and visual resource based on the information gathered and the analysis and assessments undertaken.

6.3. STUDY AREA

7. The initial step in the assessment is the establishment of the LVIA study area. The LVIA study area for the Proposed Development extends to define a limit beyond which professional judgement considers it would be unlikely for significant effects to arise. This

judgement is based on knowledge of similar projects, the extent of ZTV for the onshore substation, an understanding of the character of the local landscape and the scale of the construction and development of the OnTW of the Proposed Development.

8. As agreed with consultees during scoping, the study area for the onshore substation extends to a 5 km radius from the onshore substation, see Volume 3, Figure 6.1. Within this study area a more focussed study area for the proposed onshore cable route and landfall extends to a 1 km buffer from the cable corridor. The cable corridor broadly consists of a 60 m wide corridor along the cable route, with a wider area at landfall.
9. The LVIA study area is not intended to provide a boundary beyond which the Proposed Development would not be seen, but rather to define the area within which there is potential for significant landscape or visual effects to occur. It is considered very unlikely that a significant effect would occur towards the boundary of the LVIA study area.

6.3.1. INTERTIDAL AREA

10. This intertidal area overlaps with the offshore topic of Seascape, Landscape and Visual Impact Assessment (SLVIA). Please refer to Volume 2, Chapter 15: Seascape, Landscape and Visual of the Offshore EIA Report for further detail.
11. The Offshore EIA Report is available online at the Berwick Bank Wind Farm website; www.berwickbank.com. An electronic copy will be available to East Lothian Council Planning Department.
12. The intertidal area (Mean Low Water to Mean High Water Springs) throughout the LVIA study area includes the rocky coastline and beaches from Dunbar Golf Course, east of Dunbar, to Castle Dykes, north of Cove. The intertidal area at the proposed landfall incorporates the rock platform and shingle beach west of Chapel Point. As trenchless technology (e.g. horizontal directional drilling (HDD)) will be employed to bring the offshore export cable ashore, no physical disturbance of the beach or intertidal area is predicted and as a result, there would be no physical landscape effect on the intertidal area.
13. The intertidal area also includes seascape character areas and the potential effect of the Proposed Development on these seascape areas (whilst not a direct physical effect on the intertidal area itself) are considered within the LVIA chapter. The SLVIA chapter within the Offshore EIA report also considers the interrelated effects of both onshore and offshore elements of the Proposed Development, which includes potential effects on the seascape character areas within the intertidal area.

6.4. POLICY AND LEGISLATIVE CONTEXT

14. A summary of national and local policy provisions relevant to LVIA are provided in Table 6.1 and 6.2 below.
15. The LVIA study area encompasses parts of East Lothian Council and Scottish Borders Council administrative boundaries. The relevant local planning policies are contained within East Lothian Local Development Plan 2018 and Scottish Borders Local Development Plan 2016.

Table 6.1: Summary of National Planning Policy Relevant to the LVIA Chapter

Relevant Policy	Summary of Relevant Policy Framework	How and Where Considered in the Onshore EIA Report
National Planning Framework 4 (NPF4)	Scotland's fourth National Planning Framework (NPF4) was adopted in February 2023. It replaces both NPF3 and Scottish Planning Policy (SPP).	Annex B in part 3 of NPF4 identifies a series of <i>'significant developments of national importance that will help to deliver our spatial</i>

Relevant Policy	Summary of Relevant Policy Framework	How and Where Considered in the Onshore EIA Report
	<p>NPF4 sets out <i>‘spatial principles, regional priorities, national developments and national planning policy.’</i></p> <p>Part 1 sets out the National Spatial Strategy for Scotland in 2045, Part 2 sets out the National Policy and Part 3 includes a series of annexes.</p>	<p><i>strategy.’</i> The 3rd of these is <i>‘Strategic Renewable Electricity Generation and Transmission Infrastructure’</i>. The Proposed Development falls into the class of Development described as <i>‘a) On and offshore electricity generation, including electricity storage, from renewables exceeding 50 megawatts capacity;’</i> and <i>‘c) New and/or upgraded Infrastructure directly supporting on and offshore high voltage electricity lines, cables and interconnectors including converter stations, switching stations and substations.’</i></p>
<p>National Planning Framework 4 (NPF4)</p>	<p>A key focus of the strategy in Part 1 includes a commitment to reducing emissions and create net zero places that are adaptive to the impact of climate change - <i>‘Meeting our climate ambition will require a rapid transformation across all sectors of our economy and society. This means ensuring the right development happens in the right place. Every decision on our future development must contribute to making Scotland a more sustainable place. We will encourage low and zero carbon design and energy efficiency, development that is accessible by sustainable travel, and expansion of renewable energy generation.’</i></p>	<p>Primary mitigation proposals for the Proposed Development have involved the sensitive siting and design of the onshore substation, during the site selection process, to avoid or reduce potential effects.</p> <p>Please also refer to Volume 1, Chapter 4 for an analysis of alternatives.</p>
<p>National Planning Framework 4 (NPF4)</p> <p>Policy 4 Natural Places</p>	<p><i>‘a) Development proposals which by virtue of type, location or scale will have an unacceptable impact on the natural environment, will not be supported.’</i></p>	<p>This LVIA has been prepared to consider the likely effects of the Proposed Development on the landscape and visual resource of the natural environment within the LVIA study area.</p>
<p>National Planning Framework 4 (NPF4)</p> <p>Policy 4 Natural Places</p>	<p><i>‘c) Development proposals that will affect a National Park, National Scenic Area, Site of Special Scientific Interest or a National Nature Reserve will only be supported where:</i></p> <p><i>i. The objectives of designation and the overall integrity of the areas will not be compromised; or</i></p> <p><i>ii. Any significant adverse effects on the qualities for which the area has been designated are clearly outweighed by social, environmental or economic benefit of national importance.’</i></p>	<p>As described previously, the Proposed Development is considered to be a <i>‘Development of National Importance’</i> following the criteria set out in Annex B in part 3 of NPF4.</p> <p>There are no effects on National Parks or Scenic areas and none within the LVIA study area.</p> <p>The likely impacts of the Proposed Development upon the importance/ setting of GDLs (considered to be of <i>‘national</i></p>

Relevant Policy Summary of Relevant Policy Framework		How and Where Considered in the Onshore EIA Report
<p>National Planning Framework 4 (NPF4)</p> <p>Policy 4 Natural Places</p>	<p><i>'d) Development proposals that affect a site designated as a local nature conservation site or landscape area in the LDP will only be supported where:</i></p> <p><i>i. Development will not have significant adverse effects on the integrity of the area or the qualities for which it has been identified; or</i></p> <p><i>ii. Any significant adverse effects on the integrity of the area are clearly outweighed by social, environmental or economic benefits of at least local importance.'</i></p>	<p>importance' in NPF4) are assessed in section 6.11 of the LVIA.</p> <p>The likely significant effects of the Proposed Development upon designated landscapes are assessed in section 6.11 of the LVIA.</p>
<p>National Planning Framework 4 (NPF4)</p> <p>Policy 5 Soils</p>	<p><i>'a) Development proposals will only be supported if they are designed and constructed:</i></p> <p><i>i. In accordance with the mitigation hierarchy by first avoiding and then minimising the amount of disturbance to soils on undeveloped land; and</i></p> <p><i>ii. In a manner that protects soil from damage including from compaction and erosion, and that minimises soil sealing.</i></p> <p><i>b) Development proposals on prime agricultural land, or land of lesser quality that is culturally or locally important for primary use, as identified by the LDP, will only be supported where it is for:</i></p> <p><i>i. Essential infrastructure and there is a specific locational need and no other suitable site;</i></p> <p><i>ii. Small-scale development directly linked to a rural business, farm or croft or for essential workers for the rural business to be able to live onsite;</i></p> <p><i>iii. The development of production and processing facilities associated with the land produce where no other local site is suitable;</i></p> <p><i>iv. The generation of energy from renewable sources or the extraction of minerals and there is secure provision for restoration; and</i></p> <p><i>In all of the above exceptions, the layout and design of the proposal minimises the amount of protected land that is required'.</i></p>	<p>The likely significant physical landscape effects of the Proposed Development upon the Agricultural Landscape is assessed in section 6.11.2 of the LVIA.</p> <p>It should be noted that the focus of the physical landscape assessment relates to the extent of landscape elements that would be lost and the contribution of that element to the character of the landscape.</p>
<p>National Planning Framework 4 (NPF4)</p> <p>Policy 6 Forestry, woodland and trees</p>	<p><i>'a) Development proposals that enhance, expand and improve woodland and tree cover will be supported.</i></p> <p><i>b) Development proposals will not be supported where they will result in:</i></p> <p><i>i. Any loss of ancient woodlands, ancient and veteran trees, or adverse impact on their ecological condition;</i></p> <p><i>ii. Adverse impacts on native woodlands, hedgerows and individual trees of high biodiversity value, or identified for protection in the Forestry and Woodland Strategy;</i></p> <p><i>iii. Fragmenting or severing woodland habitats, unless appropriate mitigation measures are identified and implemented in line with the mitigation hierarchy;</i></p> <p><i>iv. Conflict with Restocking Direction, Remedial Notice or Registered Notice to Comply issued by Scottish Forestry.</i></p>	<p>Mitigation measures proposed to prevent and reduce adverse landscape and visual effects attributable to the Proposed Development are described in section 6.10.</p> <p>These include proposed tree and hedgerow planting and areas of habitat enhancement.</p> <p>The loss of trees and hedgerows as a result of the Proposed Development has been minimised through design and no woodlands would be</p>

Relevant Policy	Summary of Relevant Policy Framework	How and Where Considered in the Onshore EIA Report
	<p><i>c) Development proposals involving woodland removal will only be supported where they will achieve significant and clearly define additional public benefits in accordance with relevant Scottish Government policy on woodland removal. Where woodland is removed, compensatory planting will most likely be expected to be delivered.</i></p> <p><i>d) Development proposals on sites which include an area of existing woodland or land identified in the Forestry and Woodland Strategy as being suitable for woodland creation will only be supported where the enhancement and improvement of woodlands and the planting of new trees on the site (in accordance with the Forestry and Woodland Strategy) are integrated into the design.'</i></p>	<p>disrupted. The likely significant physical landscape effects of the Proposed Development upon trees and hedgerows is assessed in section 6.11.2.</p>
<p>National Planning Framework 4 (NPF4) Policy 7 Historic assets and places</p>	<p><i>i) Development proposals affecting nationally important Gardens and Designed Landscapes will be supported where they protect, preserve or enhance their cultural significance character and integrity and where proposals will not significantly impact on important views to, from and within the site, or its setting.</i></p>	<p>The likely impacts of the Proposed Development upon the importance/ setting of GDLs are assessed in section 6.11 of the LVIA.</p>
<p>National Planning Framework 4 (NPF4) Policy 10 Coastal Development</p>	<p><i>'b) Development proposals in undeveloped coastal areas will only be supported where they:</i></p> <p><i>i. are necessary to support the blue economy, net zero emissions or to contribute to the economy or wellbeing of communities whose livelihood depend on marine or coastal activities, or is for essential infrastructure, where there is a specific locational need and no other suitable site;</i></p> <p><i>ii. do not result in the need for further coastal protection measures taking into account future sea level change; or increase the risk to people of coastal flooding or coastal erosion, including through the loss of natural coastal defences including dune systems; and</i></p> <p><i>iii. are anticipated to be supportable in the long-term, taking into account projected climate change; or</i></p> <p><i>iv. are designed to have a very short lifespan.'</i></p>	<p>The likely significant physical landscape effects of the Proposed Development upon the Coastal Landscape is assessed in section 6.11.2 of the LVIA.</p> <p>The coastal landscape is also considered in relation to the effects on the landscape and seascape character of the study area including landscape designations in section 6.11 of the LVIA.</p>
<p>National Planning Framework 4 (NPF4) Policy 11 Energy</p>	<p><i>a) Development proposals for all forms of renewable, low-carbon and zero emissions technologies will be supported. These include:</i></p> <p><i>i. wind farms including repowering, extending, expanding and extending the life of existing wind farms;</i></p> <p><i>ii. enabling works, such as grid transmission and distribution infrastructure;</i></p> <p><i>iii. energy storage, such as battery storage and pumped storage hydro;</i></p> <p><i>iv. small scale renewable energy generation technology;</i></p> <p><i>v. solar arrays;</i></p> <p><i>vi. proposals associated with negative emissions technologies and carbon capture; and</i></p> <p><i>vii. proposals including co-location of these technologies.'</i></p>	<p>The Proposed Development falls into parts I and ii of the description of development proposals listed in this policy.</p> <p>This LVIA has been prepared to consider the likely effects of the Berwick Bank Wind Farm onshore transmission works (OnTW) (Proposed Development) on the landscape and visual resource within the LVIA study area.</p>
<p>National Planning</p>	<p><i>b) Development proposals for wind farms in National Parks and National Scenic Areas will not be supported.</i></p>	<p>There are no effects on National Parks or Scenic</p>

Relevant Policy Summary of Relevant Policy Framework	How and Where Considered in the Onshore EIA Report
<p>Framework 4 (NPF4) <i>c) Development proposals will only be supported where they maximise net economic impact, including local and community socio-economic benefits such as employment, associated business and supply chain opportunities.</i></p> <p>Policy 11 Energy <i>d) Development proposals that impact on international or national designations will be assessed in relation to Policy 4.</i></p>	<p>areas and none within the LVIA study area.</p> <p>The likely impacts of the Proposed Development upon the importance/ setting of GDLs (considered to be of 'national importance' in NPF4) are assessed in section 6.11 of the LVIA.</p>
<p>National Planning Framework 4 (NPF4) <i>e) In addition, project design and mitigation will demonstrate how the following impacts are addressed:</i></p> <p>Policy 11 Energy</p> <ul style="list-style-type: none"> <i>i. impacts on communities and individual dwellings, including, residential amenity, visual impact, noise and shadow flicker</i> <i>ii. significant landscape and visual impacts, recognising that such impacts are to be expected for some forms of renewable energy. Where impacts are localised and/ or appropriate design mitigation has been applied, they will generally be considered to be acceptable;</i> <i>iii. public access, including impact on long distance walking and cycling routes and scenic routes;</i> <i>iv. impacts on aviation and defence interests including seismological recording;</i> <i>v. impacts on telecommunications and broadcasting installations, particularly ensuring that transmission links are not compromised;</i> <i>vi. impacts on road traffic and on adjacent trunk roads, including during construction;</i> <i>vii. impacts on historic environment;</i> <i>viii. effects on hydrology, the water environment and flood risk;</i> <i>ix. biodiversity including impacts on birds;</i> <i>x. impacts on trees, woods and forests;</i> <i>xi. proposals for the decommissioning of developments, including ancillary infrastructure, and site restoration;</i> <i>xii. the quality of site restoration plans including the measures in place to safeguard or guarantee availability of finances to effectively implement those plans; and</i> <i>xiii. cumulative impacts.</i> <p><i>In considering these impacts, significant weight will be placed on the contribution of the proposal to renewable energy generation targets and on greenhouse gas emissions reduction targets.</i></p> <p><i>Grid capacity should not constrain renewable energy development. It is for developers to agree connections to the grid with the relevant network operator. In the case of proposals for grid infrastructure, consideration should be given to underground connections where possible.</i></p> <p><i>f) Consents for development proposals may be time-limited. Areas identified for wind farms are, however, expected to be suitable for use in perpetuity.</i></p>	<p>Mitigation measures proposed to prevent and reduce adverse landscape and visual effects, including mitigation by design and appropriate landscape works, attributable to the Proposed Development are described in section 6.10.</p> <p>In relation to points i), ii), iii), x) and xiii), this LVIA has been prepared to consider the likely effects of the Berwick Bank Wind Farm onshore transmission works (OnTW) (Proposed Development) on the landscape and visual resource within the LVIA study area.</p>

Table 6.2: Summary of Local Planning Policy Relevant to the LVIA Chapter

Relevant Policy	Summary of Relevant Policy Framework	How and Where Considered in the Onshore EIA Report
<p>East Lothian Local Development Plan 2018</p> <p>Policy T4: Active Travel Routes and Core Paths as part of the Green Network Strategy:</p>	<p><i>“The Council will protect its existing core path and active travel networks and ensure that new development does not undermine them, including the convenience, safety and enjoyment of their use.”</i></p>	<p>The effect of the Proposed Development on the visual amenity of receptors using long distance routes, core paths and cycle routes are assessed in section 6.11 of the LVIA.</p>
<p>East Lothian Local Development Plan 2018</p> <p>Policy DC6: Development in the Coastal Area</p>	<p>The siting and design of new development must respect the qualities of the particular coastal location.</p>	<p>The likely impacts of the Proposed Development upon the landscape and seascape character and special qualities of landscape designations, including SLAs, are assessed in section 6.11 of the LVIA. Please also refer to Volume 1, Chapter 4 for an analysis of alternatives.</p>
<p>East Lothian Local Development Plan 2018</p> <p>Policy DC9: Special Landscape Areas</p>	<p><i>“Development within or affecting areas designated as Special Landscape Areas will only be permitted if:</i></p> <ol style="list-style-type: none"> <i>1. it accords with the Statement of Importance and does not harm the special character of the area; or</i> <i>2. the public benefits of the development clearly outweigh any adverse impact and the development is designed, sited and landscaped to minimise such adverse impacts.</i> <p><i>The Council will refer to the Statement of Importance of the relevant site in assessing planning applications.”</i></p>	<p>The effect of the Proposed Development on landscape character and visual amenity are assessed in sections 6.11, 6.12 and 6.13 of the LVIA.</p> <p>The ZTVs (please refer to Volume 3 Figure 6.8 and 6.9) demonstrate theoretical visibility of the Proposed Development from the setting of a number of SLAs in the East Lothian Council (ELC) administrative area. The likely impacts of the Proposed Development upon the special qualities of SLAs are assessed in section 6.11.</p>
<p>East Lothian Local Development Plan 2018</p> <p>Policy CH6: Gardens and Designed Landscapes</p>	<p><i>“Development that would significantly harm the elements justifying designation of sites of national importance listed in the Inventory of Gardens and Designed Landscapes, or sites of local or regional importance included in the historic gardens and designed landscape records, will not be permitted.”</i></p>	<p>The ZTVs (please refer to Volume 3 Figure 6.8 and 6.9) demonstrate theoretical visibility of the Proposed Development from the setting of Broxmouth Park GDL. The Dunglass GDL, located on the administrative boundary between ELC and Scottish Borders Council (SBC), is predicted to experience very limited theoretical visibility.</p> <p>The likely impacts of the Proposed Development upon the importance/ setting of GDLs are assessed in section 6.11 of the LVIA.</p>
<p>East Lothian Local Development Plan 2018</p> <p>Policy DP1: Landscape Character</p>	<p><i>“All new development, with the exception of changes of use and alterations and extensions to existing buildings, must:</i></p>	<p>The likely impacts of the Proposed Development upon landscape character are assessed in section 6.11 of the LVIA.</p>

Relevant Policy	Summary of Relevant Policy Framework	How and Where Considered in the Onshore EIA Report
	<p><i>1. Be well integrated into its surroundings by responding to and respecting landform, and by retaining and where appropriate enhancing existing natural and physical features at the site, including water bodies, which make a significant contribution to the character and appearance of the area and incorporate these into the development design in a positive way;</i></p> <p><i>2. Include appropriate landscaping and multifunctional green infrastructure and open spaces that enhance, provides structure to and unifies the development and assists its integration with the surroundings and extends the wider green network where appropriate.”</i></p>	<p>Mitigation measures proposed to prevent and reduce adverse landscape and visual effects, including mitigation by design and appropriate landscape works, attributable to the Proposed Development are described in section 6.10.</p>
<p>Scottish Borders Local Development Plan 2016 Policy EP5: Special Landscape Areas</p>	<p><i>“In assessing proposals for development that may affect Special Landscape Areas, the Council will seek to safeguard landscape quality and will have particular regard to the landscape impact of the proposed development. Proposals that have a significant adverse impact will only be permitted where the landscape impact is clearly outweighed by social or economic benefits of national or local importance.”</i></p>	<p>The likely impacts of the Proposed Development upon the special qualities of SLAs are assessed in section 6.11 of the LVIA.</p>
<p>Scottish Borders Local Development Plan 2016 Policy EP10: Gardens and Designed Landscapes</p>	<p><i>“The Council will support development that safeguards or enhances the landscape features, character or setting of:</i></p> <p><i>sites listed in the Inventory of Gardens and Designed Landscapes; or</i></p> <p><i>sites included in historic gardens and designed landscapes records.</i></p> <p><i>All development should be carefully sited, be of the highest standards of design using appropriate finishing materials and planting and be informed by and respectful of the historic landscape structure. Proposals that will result in an unacceptable adverse impact will be refused.”</i></p>	<p>The likely impacts of the Proposed Development upon the importance/ setting of GDLs are assessed in section 6.11 of the LVIA.</p> <p>Mitigation measures proposed to prevent and reduce adverse landscape and visual effects attributable to the Proposed Development are described in section 6.10 of the LVIA.</p> <p>Dunglass is the only GDL within the SBC administrative area located within the LVIA Study area.</p>

6.5. CONSULTATION

16. A summary of the key issues raised during consultation activities undertaken to date specific to LVIA is presented in Table 6.3 below, together with how these issues have been considered in the production of this LVIA chapter. Further detail is presented within Volume 1, Chapter 2 of the Onshore EIA Report and the Pre-Application Consultation (PAC) Report.

Table 6.3: Summary of Key Consultation Undertaken for the Proposed Development Relevant to LVIA

Date	Consultee and Type of Consultation	Issue(s) Raised	Response to Issue Raised and/or Where Considered in this Chapter
October 2020	East Lothian Council scoping opinion	ELC identified that the proposed landfill overlaps the Barns Ness Coast Site of Special Scientific Interest (SSSI) at Skateraw, designated for geological and biological features, and stated the importance of visual amenity in this location.	Barns Ness Coast SSSI at Skateraw is assessed as part of the Dunbar to Barns Ness Coast SLA in section 6.11.
		ELC requested assessment of effects upon SLAs (East Lothian Local Development Plan (LDP), 2018) and designated landscapes (inventory and local) within the LVIA Study area.	East Lothian SLAs and designated landscapes within the LVIA Study area are assessed in section 6.11.
		ELC stated that a ZTV taking account of the screening influence of tree belts, woodland and built form accompany the LVIA Chapter.	A screened ZTV is presented in Volume 3, Figure 6.9.
		ELC stated the cumulative effects of the Proposed Development should be assessed with: Onshore works related to the Neart na Gaoithe offshore wind farm; Grid strengthening proposals known as 'the Eastern Link,' if sufficiently advanced to be included; and Proposed plastic recycling facility at Oxwellmains.	Cumulative effects are considered in section 6.12.
January 2022	ELC discussion (via email)	ELC confirmed final viewpoint locations were acceptable and stated the cumulative effects of the Proposed Development should be assessed with the proposed Branxton Substation.	Cumulative effects are considered in section 6.12.

6.6. METHODOLOGY TO INFORM BASELINE

6.6.1. DESKTOP STUDY

17. Information on the baseline landscape and visual resource within the LVIA study area was collected through a detailed desktop review of existing studies and datasets. These are summarised in Table 6.4 below. The baseline environment presented in section 6.7 outlines currently available information for the LVIA study area.

Table 6.4: Summary of Key Desktop Studies & Datasets

Title	Source	Year	Author
Aerial photography	N/A	2022	Google Earth Pro
Any specific visitor attractions / tourist destinations	available online: https://www.nts.org.uk/visit/places	2022	National Trust
East Lothian Core Paths	available online: https://www.eastlothian.gov.uk/info/210569/countryside_and_wildlife/12044/core_paths/2	2011	East Lothian Council
East Lothian Local Development Plan 2018 – East Lothian Special Landscape Areas	available online: https://www.eastlothian.gov.uk/	2018	East Lothian Council
East Lothian Local Development Plan 2018 – Green Network Strategy SPG	available online: https://www.eastlothian.gov.uk/	2018	East Lothian Council
East Lothian Walking Routes	available online: https://www.visiteastlothian.org/activities/walking	2022	Visit East Lothian
Inventory of Gardens and Designed Landscapes	available online: https://www.historicenvironment.scot/advice-and-support/listing-scheduling-and-designations/gardens-and-designed-landscapes/	2022	Historic Environment Scotland
National Cycle Network (GIS dataset)	available online: https://sustrans.org.uk	2022	Sustrans
National Parks (GIS dataset)	available online: https://spatialdata.gov.scot/	2022	Scottish Government
National Scenic Areas (GIS dataset)	available online: https://spatialdata.gov.scot/	2022	Scottish Government
NatureScot Landscape Character Assessment	available online: https://www.nature.scot/professional-advice/landscape/landscape-character-assessment/scottish-landscape-character-types-map-and-descriptions	2019	NatureScot
NatureScot National Coastal Character Map	available online: https://www.nature.scot/national-coastal-character-map	2010	NatureScot

Title	Source	Year	Author
Overview map for Long Distance Paths and Walks	available online: https://ldwa.org.uk/ldp/public/ldp_overview_map.php	2021	Long Distance Walkers Association
Scottish Borders Local Development Plan 2016 - Special Landscape Areas	available online: https://www.scotborders.gov.uk/	2016	Scottish Borders Council
1:50,000 scale Ordnance Survey (OS) mapping	N/A	2022	Ordnance Survey
1:25,000 scale OS mapping	N/A	2022	Ordnance Survey

6.6.2. IDENTIFICATION OF LANDSCAPE BASELINE AND DESIGNATED SITES

Landscape Baseline

18. The baseline conditions of the landscape throughout the LVIA study area were established by desktop review of relevant landscape character assessments and the ZTV to identify landscape receptors that have the potential to be directly or indirectly affected by the Proposed Development.
19. During the desktop review, written descriptions of the key characteristics and value of landscape receptors were prepared.

Designated Sites

20. Landscape designations within the LVIA study area with the potential to be affected by the construction, operation and maintenance and decommissioning of the Proposed Development were identified using various sources (including both the ELC LDP, 2018, and SBC LDP, 2012, as well as opensource GIS datasets as identified in Table 6.4).
21. Landscape receptors were then appraised, via desktop study and field survey, and included for further consideration with the LVIA chapter if:
 - located, either wholly or partly, within the ZTV;
 - likely to have actual visibility of the Proposed Development; considering the proportion of the designated area identified as having theoretical visibility, the distance between it and the Proposed Development and any intervening screening influences; and
 - there is potential for significant effects attributable to the Proposed Development resulting from the above factors.

6.6.3. SITE SPECIFIC SURVEYS

22. A series of field surveys were undertaken between April 2021 and February 2022 for those receptors identified for inclusion in the detailed assessment process. Field surveys were carried out throughout the LVIA study area from publicly accessible locations, and included the following:
 - Field survey verification of the character areas of the LVIA study area and verification of how these might be affected by the Proposed Development;
 - Assessment of the Proposed Development site area and LVIA study area to identify specific features that contribute to landscape character or that are important to the wider landscape setting;

- Field survey of the visual amenity of the LVIA study area from receptors representative of the range of views and viewer types likely to experience the Proposed Development including views from a variety of distances, receptors, aspects, elevations and extents;
- Micro-siting of viewpoint locations; and
- Panoramic baseline photography and visual assessment from viewpoints locations;

23. Field survey of the onshore substation focusses on the areas shown to have theoretical visibility of the Proposed Development on the Bare Ground ZTV shown on Volume 3, Figure 6.8 and Screened ZTV shown on Volume 3, Figure 6.9. For the proposed onshore export cable and landfall, the focus of the field survey is on the landscape, which is physically affected, although visibility of these elements is also considered as part of the wider field survey analysis. The field survey allows the assessors to judge the likely scale, distance, extent and prominence of the Proposed Development directly. Site specific survey data is summarised in Table 6.5.

Table 6.5: Summary of Site-Specific Survey Data

Title	Extent of Survey	Overview of Survey	Survey Contractor	Date
Viewpoint photography.	Largely coastal region of East Lothian between Dunbar in the north and Cockburnspath in the south.	Undertake viewpoint photography in accordance with methodology and technical guidance including Guidelines for Landscape and Visual Impact Assessment 3 rd Edition (GLVIA3) (Landscape Institute and IEMA, 2013) and Technical Guidance Note (TGN) 06/19 (Landscape Institute, 2019).	OPEN	April 2021 and January to February 2022
Collation of baseline data.	Largely coastal region of East Lothian between Dunbar in the north and Cockburnspath in the south.	Landscape and visual assessment surveys to collect baseline data on landscape character and visual amenity and verify findings of desktop studies.	OPEN	April 2021 - February 2022

6.7. BASELINE ENVIRONMENT

6.7.1. INTRODUCTION

24. This section identifies aspects of the landscape and visual resource that may be significantly affected by the Proposed Development and provides a description of the existing landscape and visual conditions in the area that may be affected (landscape and visual baseline). Establishing the baseline will, when reviewed alongside the description of the Proposed Development provided in Volume 1, Chapter 5 Proposed Development Description, form the basis for the identification and description of landscape and visual effects.
25. The baseline description of the landscape and visual resource that may be affected is primarily determined by the physical footprint of the Proposed Development and the onshore substation ZTV, Volume 3, Figure 6.8. The baseline also describes current pressures that may cause change in the landscape in the future, and which need to be considered cumulatively with the Proposed Development, in particular drawing on information regarding other developments that are not yet present in the landscape but are in the planning process.
26. This section provides an overview of the landscape and visual baseline. A detailed baseline description is provided separately within the assessment of significance section for each

landscape or visual receptor that may be significantly affected by the Proposed Development.

6.7.2. LANDSCAPE BASELINE OVERVIEW

Site Context

27. The Proposed Development is located within the administrative boundary of East Lothian Council. Located south-east of Dunbar, the proposed onshore cable corridor extends from the landfall at Chapel Point, north of Skateraw Harbour, to the proposed onshore substation site north-east of Innerwick and then southeast to land near Branxton. The onshore substation site lies on gradually sloping agricultural land south of the A1 trunk road.
28. The landscape of the LVIA study area exhibits a coastal and underlying rural character across landform that gradually slopes to the north-east, transitioning from upland fringes to the coastal lowlands of East Lothian with coastal views to the North Sea. The landscape of the LVIA study area is primarily in agricultural use, however, the stretch of coast to the north of the A1 trunk road contains a range of industrial development including Torness Power Station and connecting overhead line infrastructure, Dunbar Landfill Site, Dunbar Energy Recovery Facility and Dunbar Cement Works and Quarry. These industrial sites are prevalent in views along this stretch of coastline. The Barns Ness Lighthouse is also seen in coastal views throughout the LVIA study area, set against the sea east of White Sands beach.
29. Landform within close proximity of the Proposed Development is gently sloping, affording open and unobstructed views to the North Sea. To the south and west of the LVIA study area, the terrain rises from the coastal plain to form a transitional upland character of rounded hill summits with both steep and gentle hill slopes. These hills allow views across the coastal, rolling farmlands and form a backdrop of inland views from the coast.
30. The East Lothian coast throughout the LVIA study area is characterised by a dramatic landscape of intricate and rugged features. Narrow, and at times stony, beaches and coves are sheltered by rounded headlands and isolated by rugged cliffs and raised beach platforms of dune grassland, salt marsh and shingle habitat. Beaches face out to the North Sea and are frequently windswept. Despite this, the coastline forms an accessible recreational resource with a number of car parks and picnic spots in evidence. White Sands and Thorntonloch beaches, located north and east of the onshore substation site respectively, are both popular resources with local residents and visitors to the area. Both beaches provide access to the John Muir Link which follows the East Lothian coastline through the LVIA study area, with White Sands providing access to Barns Ness Lighthouse.
31. The agricultural landscape of this part of the East Lothian is primarily arable in coastal areas and on lower hill slopes. Fields are of a medium to large scale and are bound by broken hedgerows of hawthorn or beech and post-and-wire fencing. With increased elevation, towards the south-east of the LVIA study area, land cover transitions to improved grassland pasture bound by pink or grey stone walls with rough grassland and occasional heather moorland on more elevated rounded hill summits.
32. Deciduous scrub woodland tends to follow the route of water courses, beyond which tree cover towards the coast is restricted to small groups of trees around farmsteads and tree planting following the route of the A1 trunk road. On hill slopes and at higher elevations more frequent coniferous shelterbelts and occasional field boundary trees are exhibited with more extensive areas of woodland (including instances of ancient woodland) limited to the steep slopes of incised river channels. Coniferous plantation only becomes an evident feature of the landscape composition at the south-western edge of the LVIA study area, at High Wood.
33. The arrangement of settlement across the LVIA study area is predominantly scattered and limited to small groups of residential properties, traditional farms, converted steadings

(including Crowhill) and villages such as Innerwick, Skateraw and Oldhamstocks. Thurston Manor Caravan Park, 1.5 km west of the Proposed Development, is a 176 acres recreational facility including caravan accommodation set in an enclosed woodland setting. These areas of settlement are connected by a rural road network comprising mainly minor and single-track roads, bridges, and fords.

34. The A1 trunk road and East Coast Main Line (ECML) are prominent linear infrastructural elements of the landscape composition, in close proximity to the site. The A1 trunk road is a dualled carriageway within the western part of the LVIA study area, transitioning to single carriageway to the north of the Proposed Development and throughout the eastern parts of the study area to the Cove roundabout. Bridges, tunnels and embankments associated with these routes are found throughout the LVIA study area.
35. The industrial context of the coastal landscape is a notable influence on the landscape character, within the immediate context of the onshore substation site this is particularly notable in relation to the large buildings and stack with tall plume of Dunbar Cement Works, located at 2.5 km to the north-west and the distinctive Torness Power Station, located 1.2 km north-east of the onshore substation site and 900 m east of the landfall. In addition to this, the active quarrying operations at Dunbar Cement Works, Dunbar Landfill Site, Dunbar Energy Recovery Facility, and electricity overhead lines associated with the Torness Power Station are also features in this industrial context. Beyond this immediate context, the Blackcastle Hill radio tower and operational Crystal Rig wind farm (located outside the LVIA study area) are noticeable features of the inland visible horizon from coastal areas.

Landscape Character

36. In 2019, NatureScot published a revised and updated version of their digital, map-based Landscape Character Assessment (LCA) for Scotland. During 2005, ELC published the Landscape Capacity Study for Wind Turbine Development in East Lothian (East Lothian LCS). Whilst the East Lothian LCS presents baseline descriptions for the landscape of the LVIA study area, it does not consider the sensitivity of the baseline landscape context to offshore wind energy development or energy infrastructure related development. The 2019 NatureScot programme of LCA for Scotland is therefore considered the current and most relevant landscape characterisation study for the LVIA study area and the Landscape Character Type (LCT) boundaries and descriptions it defines will form the basis of the assessment of effects on landscape character in this LVIA chapter, as agreed with consultees during Scoping.
37. The Proposed Development is located within LCT 277: Coastal Margins – Lothians, which encompasses a wide central strip of the study area and East Lothian coastline from Broxburn, south of Dunbar, to the local authority boundary with SBC, north of Cockburnspath. The south-west quadrant of LVIA study area (and much of the remainder of the landscape within the study area) is characterised as LCT 269: Upland Fringes – Lothian.
38. LCT boundaries are mapped on Volume 3 Figure 6.3 and with the onshore substation screened ZTV on Volume 3 Figure 6.10.

Seascape Character

39. NatureScot Commissioned Report 103¹ characterises the portion of the East Lothian Coast within the LVIA study area as National Seascape Character Type 2: Rocky Coastline with Open Sea Views.
40. At a regional level, the coastal character of the LVIA study area is defined by the Regional Seascape Character Assessment Aberdeen to Holy Island (Forth and Tay Offshore Windfarm Developer Group, 2011). The Forth and Tay Offshore Wind Developers Group (FTOWDG) Seascape Character Assessment (SCA) outlines Regional Seascape Character Areas (SA) along the coastline of the LVIA study area as SA17: Eyebroughty to Torness Point and SA18: Torness Point to St Abbs Head. SAs are mapped on Volume 3 Figure 6.3 as coloured lines along the coast.
41. ELC have also described the coastline within the LVIA study area in Supplementary Planning Guidance (SPG) accompanying the East Lothian LDP (2018) titled Countryside and Coast. This SPG segregates National Seascape Character Type 2: Rocky Coastline with Open Sea Views into two distinct areas of seascape character: Area 12 – Barns Ness Coast and Area 13 – Thorntonloch Coast and have broadly similar extents to SA17 and SA18.
42. For consistency with the Offshore EIA Report Volume 2, Chapter 15: Seascape, Landscape and Visual; and as it considers the specific sensitivity of the coastline throughout the LVIA study area to offshore wind farms; the FTOWDG SCA is considered the most relevant seascape characterisation study and will form the basis of the assessment of effects on seascape character in this LVIA chapter.

Landscape Designations

43. A landscape designation is an area of landscape identified as being of importance at international, national or local level, either defined by statute or identified in development plans or other documents. These landscapes are designated in relation to their special qualities or features which warrant special consideration through the planning system.
44. There are three ways in which such designations are relevant to the LVIA:
 - The presence of a designation can give an indication of a recognised value that may increase the sensitivity of a landscape character receptor, viewpoint or visual receptor, and may therefore affect the significance of the effect on that receptor;
 - The presence of a relevant designation can lead to the selection of a representative viewpoint within the designated area, as the viewpoint will provide a representative outlook from that area; and
 - Designated areas may be included as landscape character receptors so that the effects of the Proposed Development on the landscapes that have been accorded particular value can be specifically assessed.
45. In relation to the Proposed Development, landscape designations within the LVIA study area include:
 - SLA 29: Dunbar to Barns Ness Coast;
 - SLA 30: Thorntonloch to Dunglass Coast;
 - SLA 4: Monynut to Blackcastle;
 - SLA 7: Doonhill to Chesters;
 - SLA 6: Halls to Bransley Hill;
 - Broxmouth Park GDL; and

¹ NatureScot (2005). An assessment of the sensitivity and capacity of the Scottish seascape in relation to offshore windfarms. Scottish Natural Heritage Commissioned Report No.103 (ROAME No. F03AA06).

- Dunglass GDL.
46. The onshore substation site is not covered by any of these Landscape Designations. The northern part of the site boundary (including the proposed landfall and cable corridor) crosses SLA 29 Dunbar to Barns Ness Coast, the southern part of the site boundary and cable corridor crosses the edges of SLA 4 Monymut to Blackcastle. Landscape Designations are mapped on Volume 3 Figure 6.4 and on the onshore substation screened ZTV in Volume 3 Figure 6.10.

6.7.3. VISUAL BASELINE

Overview

47. Principle visual receptors within the LVIA study area include people in small settlements and at small groups of properties, users of roads and recreational routes or at destinations. The locations of principle visual receptors are mapped in Volume 3 Figure 6.5 and with the proposed onshore substation screened ZTV in Volume 3 Figure 6.11.
48. The main areas of settlement throughout the LVIA study area are Innerwick, south-west of the proposed onshore substation, Skateraw, which lies south of the proposed landfall and east of the onshore cable corridor, and Oldhamstocks, which is located 2.3 km south of the Proposed Development. Beyond this, settlement is limited to scattered small groups of properties, traditional farms and converted steadings including Thornton, Crowhill and Thurston. The Thurston Manor Caravan Park is also located within the LVIA study area, 1.5 km west of the Proposed Development.
49. Areas of settlement are linked via a minor, rural road network comprising mostly single-track roads, bridges, and fords. The LVIA study area is also crossed by the main route of the A1 trunk road and the ECML which follow a wide transport corridor across the coastal margins, south of Dunbar. Existing industrial sites are serviced via a network of private roads and also utilise the main railway line. Farm access tracks and the minor road network navigate both major routes via a network of bridges and tunnels that are a feature of the LVIA study area.
50. National Cycle Route (NCR) 76 traces the route of the ECML south from Broxmouth Park, having followed the A1087 south-east from Dunbar. The route then skirts the industrial works at Dunbar Cement Plant and Dunbar Landfill before following the minor road network, west of Skateraw. This section of the route also forms part of the core path network. NCR 76 then joins the A1 trunk road at the Skateraw Junction, west of Torness Power Station. At this point, the cycle route continues as a traffic free cycle path and core path following the A1 trunk road south, however from here NCR 76 has been reclassified and is not part of the National Cycle Network.
51. The John Muir Link a long-distance walking route, traces the East Lothian coastline through the LVIA study area linking the beaches at White Sands, Skateraw Harbour and Thorntonloch via the Barns Ness Lighthouse. This part of the route also passes in close proximity to the recently restored and active quarries at Dunbar Cement Plant as well as the cooling water intake and breakwater at Torness Power Station. The John Muir Link is also included as part of the core path network.
52. A number of core paths provide additional recreation access opportunities throughout the LVIA study area. The most relevant of these routes to the LVIA is the core path that leaves the north-east edge of Innerwick, bordering Innerwick Primary School, joining the minor road west of the proposed onshore substation. There is potential for recreational users of this route to be affected by the construction activity of the proposed cable corridor and onshore substation as well as the operation of the proposed onshore substation.
53. Beyond this, the remaining core paths distributed throughout the southern and western LVIA study area have no potential to experience significant effects as a result of the

Proposed Development. The screened ZTV in Volume 3 Figure 6.11. demonstrates no theoretical visibility from these recreational routes.

Representative Viewpoints

54. The representative viewpoints identified for inclusion in the detailed assessment process have been selected to reflect the variety of landscape character types, landscape designations and receptor types as well as view directions and distance that may be significantly affected, primarily by the onshore substation of the Proposed Development. The representative viewpoints also assist in defining the likely extent of significant visual effects associated with the Proposed Development from principle visual receptors located throughout the LVIA study area.
55. Six viewpoints for the landscape and visual assessment have been selected through consultation and agreement with ELC. The precise viewpoint locations have been finalised based on site survey and potential visibility of the Proposed Development. Representative viewpoints for assessment are identified in Table 6.6 below and mapped in Volume 3 Figure 6.8 and Figure 6.9. Further context photographs of the Proposed Development are also provided in Volume 3 Figure 6.7.

Table 6.6: Representative Viewpoints

ID	Name	Grid Reference		Receptor Type/ LCT/ Designation
1	A1, Skateraw Junction	373932	674813	Road users/ LCT 277: Coastal Margins – Lothian/ Thorntonloch to Dunglass Coast SLA
2	Innerwick	372418	673866	Road users, residential/ LCT 269: Upland Fringes – Lothian
3	John Muir Link near Skateraw Harbour	373970	675321	Recreational walkers, visitors to the area/ LCT 277: Coastal Margins – Lothian/ Thorntonloch to Dunglass Coast SLA, Dunbar to Barns Ness Coast SLA
4	Minor road near Thornton	374328	673756	Road users, residential/ LCT 277: Coastal Margins – Lothian
5	Minor road near Thurston	371320	674183	Road users, recreational visitors to the area/ LCT 269: Upland Fringes – Lothian/ Doonhill to Chester SLA
6	Blackcastle Hill	371778	672142	Recreational walkers, visitors to the area/ LCT 269: Upland Fringes – Lothian/ Monynut to Blackcastle SLA

6.7.4. FUTURE BASELINE SCENARIO

56. The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017, require that a “*description of the relevant aspects of the current state of the environment (the “baseline scenario”) and an outline of the likely evolution thereof without development as far as natural changes from the baseline scenario can be assessed with reasonable effort, on the basis of the availability of relevant information and scientific knowledge*” is included within the Onshore EIA Report.
57. In order to ensure that the Proposed Development is assessed against a realistic baseline scenario, i.e., what the baseline conditions are likely to be once the Proposed Development is operational, a description of the likely future baseline conditions is provided within this section.

58. In the absence of the Proposed Development proceeding on the site, the land is considered most likely to remain in its present condition. Pastoral and arable agriculture would continue as the principal land uses, subject to the discussion below on climate change, land use and decommissioning of Torness Power Station.
59. The main driver of future change within the landscape and visual resource is climate change. Aspects that may cause change are likely to take two forms; measures to mitigate against the adverse effects of climate change and measures put in place to try and limit the future effects of it.
60. The need for increased flood defence measures is likely to be a driver for change in relation to the coastline and water courses as well as potential changes to other land use practices.
61. Net Zero carbon emission targets are likely to see an increase in renewable energy development, which is likely to include further onshore and offshore wind farm development, tidal and wave power projects and solar development. A number of operational wind farms are located within the Lammermuir Hills, south of the LVIA study area, and it is expected that additional applications for renewable energy development in this area will be forthcoming in the future. This may result in a need for further grid infrastructure development to connect with the national grid and consumers.
62. Torness Power Station is currently located within the LVIA study area, south-east of Dunbar at Torness Point, and was scheduled to be decommissioned in 2023. However, the operation lifespan of the power station was recently extended to 2028, when it will then be decommissioned. Given the scale and complexity of this facility, as well as the hazardous nature of the materials used on the site, the decommissioning process would be lengthy and the power station is expected to remain in its current form for years beyond 2028.
63. Decommissioning of the power station could result in a number of future offshore renewable energy proposals or other electricity generating proposals given the national grid infrastructure currently in place for Torness that would subsequently be unused.
64. Increased walking, cycling and public transport infrastructure may result in changes within urban and rural areas to accommodate this with the aim of reducing vehicular travel and providing increased amenity resources.
65. Following the United Kingdom's exit from the European Union new policies are being drawn up to replace the Common Agricultural Policy. This may result in different agricultural practices being subsidised so that land-uses and land management practices that can reduce or offset carbon emissions become more prevalent. These may include increased tree cover; hedgerow planting and areas being left ungrazed. There may also be increases in food production in the UK in order to reduce our need to import, which may also change farming infrastructure and practices.
66. The recent change in how people work – at home rather than travelling to offices- is likely to continue and may result in changes to town centres where there is a focus on commercial property. Such changes may also put more development pressure on rural communities.
67. In summary, whilst it is acknowledged that there is anticipated to be some change in the future baseline, the LVIA has not assessed these due to the uncertainty surrounding the nature, type and timing of changes to the baseline.

6.7.5. DATA ASSUMPTIONS AND LIMITATIONS

68. While there are some limitations related to the LVIA chapter, these are not considered to affect the identification or assessment of likely significant effects for landscape and visual receptors.
69. The preparation of ZTVs, wireline visualisations and photomontages as assessment tools incorporates certain limitations, including the accuracy of digital terrain modelling (DTM). These limitations are described in section 6.9.7. The use of detailed terrain models such

- as OS Terrain 5, production of visualisations and photomontages to recognised standards and field survey assessment of potential impacts aids in minimising these limitations.
70. Field survey was restricted, at times, during periods of COVID-19 lockdown in 2020 and early 2021. It is not possible to visit every part of the LVIA study area when undertaking field surveys and therefore some aspects of the assessment are based on desktop study and professional experience.
 71. For example, large parts of the LVIA study area comprises agricultural land that has restricted public access. In addition, sites such as Torness Power Station and the Dunbar Cement Plant are not readily accessible by members of the public. It is considered that public roads and footpaths across the LVIA study area have provided sufficient coverage to form the basis of a robust assessment throughout the LVIA chapter.
 72. The photomontages supporting the LVIA chapter include indicative High Voltage Alternating Current (HVAC) and High Voltage Direct Current (HVDC) layout options, in a neutral finish, to illustrate the potential scale and massing of onshore substation infrastructure within a defined Project Design Envelope (PDE). Illustrative substation infrastructure has been presented in a neutral 'Merlin' grey colour, however, consideration of the colour and finish of the proposed onshore substation buildings should form a component of the detailed design process, when a finalised layout option is confirmed, and be informed by any locally appropriate building vernacular. Figures 6.15j&k shows a visualisation which provides an indicative example of building design finish and colour that is regarded to be suitable for the Proposed Development. This initial colour selection is based on experience of other similar large structures either experienced in the landscape or within proposals for other substation developments. This initial concept is further explained in section 6.10.5.
 73. The preparation of the supporting photomontages has adopted a finished ground level for the onshore substation platform of 43.4m AOD, as detailed in Volume 1, Chapter 5: Proposed Development Description. The maximum design scenario and the indicative HVAC and HVDC layout options, have been included in supporting photomontages on the basis of this finished ground level, which may be subject to change.

6.8. KEY PARAMETERS FOR ASSESSMENT

6.8.1. POTENTIAL EFFECTS FOR ASSESSMENT

74. This section sets out the potential effects for consideration within the detailed assessment.

Potential effects during construction
75. The potential effects of the Proposed Development during the construction process would include effects upon the physical features found at each construction area. Effects may also be exerted upon the landscape character and visual amenity of construction areas and surrounding areas.
76. Potential effects during the construction process would relate to the processes involved, associated plant, materials and material storage areas and temporary construction compounds including structures and fencing. The emerging presence of the proposed onshore substation structure, as a visible feature above ground level, may also present potential effects during construction.
77. Along the cable route, excavations, material storage, trenchless technology (e.g. HDD) and construction compounds are likely to have the greatest effect on landscape and visual amenity, please refer to Volume 3 Figure 6.6. Attributable impacts associated with the construction of the cable corridor are considered to be localised to the close vicinity of the cable route.

78. Volume 1, Chapter 5: Proposed Development Description outlines proposed construction working hours which could extend across 24 hours for trenchless technology (e.g. HDD) activities, however, all other construction activities will be limited as far as practicable during the hours of darkness to occur between the hours of 07:00 and 19:00 Monday to Sunday. This means that potential effects related to the use of construction lighting during the hours of darkness would largely be limited to early morning or late afternoon/ early evening during winter months when daylight hours are more limited, except for trenchless technology activities which could extend through the night in order to complete particular sections. Whilst trenchless technology activities have been assessed as potentially occurring across 24 hours, this would be a rare occurrence.

Potential effects during operation

79. The potential landscape and visual effects of the Proposed Development during operation are primarily related to the introduction of the proposed onshore substation.
80. Visible operational components of the onshore cable corridor would be limited to ground level access hatches at the landfall Transition Joint Bays and Cable Joint Bays and comms boxes/ link boxes along the onshore cable corridor. At landfall, the Transition Joint Bays would also be protected by permanent security fencing.
81. Upon completion of the construction phase, land excavated to install onshore cables would be backfilled and reinstated to its former agricultural use. Any physical features of the landscape disrupted during the construction process (including hedgerows, walls or road surfaces) would be replaced. Similarly, construction compounds and material storage areas would be restored to agricultural land use. Consequently, the potential operational effects of the onshore cable corridor on landscape character and visual amenity are considered to be negligible as the infrastructure would primarily be underground.
82. If required, scheduled maintenance or unplanned replacement of any onshore cable infrastructure would result in localised and temporary effects of a considerably reduced scale to the landscape and visual effects associated with the construction process. Therefore, operational effects of the onshore cable corridor and landfall are scoped out of the assessment of operational effects.

Potential effects during decommissioning

83. Volume 1, Chapter 5: Proposed Development Description details that the Proposed Development is likely to remain a permanent installation to the transmission network with a minimum operating period of 35. Confirmation of any potential decommissioning process would be determined by the relevant legislation and guidance at that time.
84. The attributable effects upon the baseline landscape character and visual resource as a result of decommissioning are predicted to be comparable, and no greater than, those identified for the construction process.
85. As a result, potential decommissioning effects upon landscape character and visual amenity are not considered further in the LVIA Chapter.

Potential cumulative effects

86. Potential cumulative effects may arise as a result of the introduction of the Proposed Development in conjunction with consented and proposed industrial sites, electrical grid infrastructure and energy developments in the LVIA study area. Please refer to section 6.12: Cumulative Effects Assessment.

Potential effects summary

87. Table 6.7, below, sets out the potential landscape and visual effects that may arise from the introduction of the Proposed Development. It is important to note that the inclusion of a potential effect within Table 6.7 does not indicate that the effect would occur or be significant.

Table 6.7: Summary of Potential Effects for Assessment

Specific Element	Potential Effect	Potential Sensitive Receptors
Construction	Temporary and permanent physical effects on landscape fabric (i.e., permanent, or short-term removal of vegetation or ground cover)	Physical landscape features
	Temporary effects on landscape character	Landscape character and designated landscape receptors
	Temporary effects on visual amenity during the hours of darkness and daytime.	Visual receptors
	Temporary cumulative effects	
Operation	Permanent effects on landscape character	Landscape character and designated landscape receptors
	Permanent effects on visual amenity	Visual receptors
	Permanent cumulative effects	

88. The principal effects of the Proposed Development on the baseline landscape and visual resource result from the construction of the cable corridor and onshore substation, as well as the operation of the onshore substation.
89. As the onshore export cable is proposed to be buried there would be little or no visual effects resulting from the proposed onshore cable once operational. In addition, the relatively discreet nature of the proposed onshore cable corridor means that only the views of close-range receptors (within around 100m) would be potentially significantly affected during construction. The duration and extent of the construction phase, coupled with the amount of excavation and material storage, would also have an effect on landscape character and visual amenity.
90. The outline construction programme for the Proposed Development is scheduled to last for 40 months, incorporating general enabling works. Construction effects identified by the LVIA Chapter are therefore considered to occur during this period and conclude with the restoration of the onshore cable corridor and operation of the onshore substation including mitigation planting.
91. The built infrastructure proposed as part of the onshore substation has a greater extent of potential visibility and therefore visual receptors over a wider area would potentially be affected. Visual effects as a result of the proposed onshore substation would be likely to occur during the construction process and upon operation.

Impacts Scoped out of the Assessment

92. This LVIA chapter includes a 'Preliminary Assessment' which identifies those aspects of the landscape and visual resource that do not have potential to undergo a significant effect as a result of the Proposed Development. These aspects of the landscape and visual resource are then scoped out of the detailed assessment. The Preliminary Assessment is presented in sections 6.11.4, 6.11.6 and 6.12. of the LVIA chapter.

6.8.2. MAXIMUM DESIGN SCENARIO

93. The LVIA has adopted a maximum design scenario approach based on details within the Project Design Envelope (PDE), as described in Volume 1, Chapter 5. The PDE sets out

the design options for the Proposed Development including the maximum extents for key components of the onshore infrastructure, including the onshore substation, cable corridors and landfall.

94. This assessment considers the maximum design scenario (i.e., volume and height parameters) for the Proposed Development to ensure the upper limit of attributable effects can be illustrated and assessed by the LVIA chapter.
95. A degree of flexibility must be maintained in relation to the final size and location of the proposed infrastructure within the PDE, which would be finalised during the detailed design process. However, sufficient information regarding the design parameters for the development is needed to inform the LVIA. Effects of greater adverse significance are not predicted to arise should any other development scenario, based on details within the PDE (e.g. different infrastructure layout), to that assessed here, be taken forward in the final design scheme. Further details of the use of a PDE are also provided in Volume 1, Chapter 2: Approach to EIA.
96. Table 6.8 below describes the key PDE parameters for the LVIA from Volume 1, Chapter 5: Proposed Development Description, to establish the maximum design scenario for the LVIA for each potential impact.

Table 6.8: PDE Maximum Design Scenario for LVIA

Potential change/ impact	Maximum design scenario	Justification
Construction		
Landfall Landscape and visual effects	trenchless technology (e.g. HDD) and intertidal works on the rocky foreshore at Chapel Point and trenchless technology landfall on the raised beach/ semi-improved pasture west of Skateraw Harbour. Landfall construction area includes compound totalling 25,610 m ² incorporating trenchless technology activities and construction of transition joint bays. The landfall construction also includes a separate construction compound and material storage area.	The PDE includes the maximum dimensions of construction compounds, material storage and the greatest number, area and associated plant required for trenchless technology compounds comprising the maximum area of potential land disturbance and visible construction activities.
Cable corridor – landfall to onshore substation Landscape and visual effects	The onshore cable corridor from landfall to the proposed onshore substation has an approximate length of 1,260 m and a width of approximately 142 m. This maximum width includes eight trenches (each containing three high voltage cable and one fibre cable), the proposed haul road and material storage areas.	The PDE includes the maximum parameters of the proposed cable corridor, representing the greatest area of potential disturbance and visible construction activities.
Cable corridor – onshore substation to Branxton Grid substation Landscape and visual effects	The onshore cable corridor from the proposed onshore substation to the Branxton Grid substation has an approximate length of 2,100 m and a width of approximately 140 m. This maximum width includes six trenches (each containing three high voltage cables and one fibre cable), the proposed haul road and material storage areas.	The PDE includes the maximum parameters of the proposed cable corridor, representing the greatest area of potential disturbance and visible construction activities.

Potential change/ impact	Maximum design scenario	Justification
Cable construction compounds and material storage areas Landscape and visual effects	Construction compounds along the whole cable corridor with total area of 97,800 m ² . Material storage areas along the entire cable corridor would total 74,476 m ² .	The PDE includes the maximum number and associated area of construction compounds, reflecting the largest area of potential land disturbance and visible construction activities.
Cable trenchless technology (e.g. HDD) compounds	Trenchless technology (e.g. HDD) compounds along the whole cable corridor with total area of 53,200 m ² . Each trenchless technology compound would likely include a drill rig, electrical generator, water tanker and a mud recycling unit.	The PDE includes the maximum number, area and associated plant required for trenchless technology compounds therefore considering the greatest area of physical land disturbance and visible construction activities.
Onshore substation construction activities Landscape and visual effects	Onshore substation construction compound and material storage areas. Up to 2 trenchless technology (e.g. HDD) compounds with a total area of 9,950 m ² are also required to construct the onshore substation. Each trenchless technology compound would likely include a drill rig, electrical generator, water tanker and a mud recycling unit.	The PDE includes the maximum dimensions of construction compounds, material storage and the greatest number, area and associated plant required for trenchless technology compounds comprising the maximum area of potential land disturbance and visible construction activities.
Construction period	Trenchless technology (e.g. HDD) construction activities could occur 24 hours a day. All other construction activities are assessed as occurring between 07:00 to 19:00, Monday to Sunday. The total construction period would be approximately 40 months.	The PDE considers the greatest extent of construction activity, reflecting the maximum duration of potential effects. However, construction of sections of the cable corridor would be shorter than the maximum duration of the construction phase.
Construction lighting	Temporary flood lighting for working hours during winter months and for construction compound security. Lighting also required through the night for trenchless technology (e.g. HDD) construction activities.	Construction lighting required with the lights of construction traffic adding to lighting levels.
Operation and maintenance		
Cable corridor and landfall Landscape and visual effects	Maximum of 42 comms box/ link box along onshore export cable, constructed underground with manhole access. Transition Joint Bays and comms box/link box at landfall would be protected by permanent security fencing.	The PDE includes the maximum amount of visible above ground cable infrastructure.
Onshore substation Landscape and visual effects	Proposed onshore substation to include maximum area of 97,500 m ² (390m length x 250m width): Maximum elevation of Substation platform finished ground level is 43.4m AOD; and Maximum height of Substation buildings – 21m.	The LVIA chapter considers a maximum potential substation area, within which a layout option would be taken forward. A maximum building height (21m) has been applied to this area to present a three-dimensional maximum design scenario, ensuring the LVIA is considering the maximum potential effects of the proposed substation.

6.9. METHODOLOGY FOR ASSESSMENT OF EFFECTS

6.9.1. OVERVIEW

97. The LVIA has been undertaken in accordance with the Landscape Institute and IEMA (2013) Guidelines for Landscape and Visual Impact Assessment, 3rd Edition (GLVIA3) and other best practice guidance. An overview of the LVIA process is provided here.
98. The LVIA is undertaken using the following steps:
- The features of the Proposed Development that may result in landscape and visual effects are described;
 - The overall scope of the assessment is defined, including the study area and range of possible landscape and visual effects;
 - The landscape baseline is established using landscape character assessment and the ZTV maps, to identify landscape receptors that may be affected and their key characteristics and value;
 - The visual baseline is established by identifying the extent of possible visibility, identifying the people who may be affected, identifying visual receptors and selecting viewpoints;
 - A preliminary assessment is undertaken of landscape and visual receptors to identify which landscape and visual receptors are unlikely to be significantly affected and those that are more likely to be significantly affected, which require to be assessed in more detail;
 - Interactions are identified between the Proposed Development and landscape and visual receptors, to predict potentially significant effects arising and measures are proposed to mitigate effects;
 - An assessment of the susceptibility of landscape and visual receptors to specific change and the value attached to landscape receptors and views is undertaken, combining these judgements to assess the sensitivity of the landscape and visual receptor to the Proposed Development;
 - An assessment of the size/ scale of landscape effect, the degree to which landscape elements are altered and the extent to which the effects change the key characteristics of the landscape is undertaken, combining these judgements to assess the magnitude of change on the landscape receptor;
 - An assessment of the size/ scale of visual effect, the extent to which the change would affect views, whether this is unique or representative of a wider area, and the position of the Proposed Development in relation to the principal orientation of the view and activity of the receptor. These judgements are combined to assess the magnitude of change on the visual receptor; and
 - The assessments of sensitivity to change and magnitude of change are combined to assess the significance of landscape and visual effects.
99. GLVIA3 sets out an approach to the assessment of magnitude of change in which three separate considerations are combined within the magnitude of change rating. These are the size or scale of the effect, its geographical extent and its duration and reversibility. Notably GLVIA3 is not a prescriptive methodology but guidance. The guidance suggests that this approach is to be applied in respect of both landscape and visual receptors. It is considered that the process of combining all three considerations in one rating can distort the aim of identifying likely significant effects of development. For example, a high magnitude of change, based on size or scale, may be reduced to a lower rating if it occurred in a localised geographical area and for a short duration. This might mean that a potentially significant effect would be overlooked if effects are diluted down due to their limited geographical extents and/ or duration or reversibility.
100. As advocated by GLVIA3 the assessment has used professional judgement in defining the methodology for the LVIA. Page 21 of GLVIA3 states – *‘Professional judgement is a very important part of LVIA.....Professional judgements must be based on both training and experience and in general suitably qualified and experienced landscape professionals should carry out Landscape and Visual Impact Assessments. Even with qualified and*

Experienced professionals there can be differences in the judgements made. This may result from using different approaches or different criteria, or from variation in judgements based on the same criteria. In this LVIA, the consideration of the size or scale of the effect, its geographical extent and its duration and reversibility has been undertaken separately, by basing the magnitude of change on size or scale to determine where significant and not significant effects occur, and then describing the geographical extents of these effects and their duration and reversibility separately. Duration and reversibility are stated separately in relation to the assessed effects (i.e., as short/medium/long-term and temporary/permanent) and are considered as part of drawing conclusions about likely significance, combining with other judgements on sensitivity and magnitude, to allow a final judgement to be made on whether each effect is significant or not significant.

101. The assessment methodology utilises six scales of magnitude of change - high, medium-high, medium, medium-low, low and negligible/none; which are preferred to the 'maximum of five categories' suggested in GLVIA3 as a means of clearly defining and summarising magnitude of change judgements.
102. The LVIA Chapter has followed the methodology set out section 6.9.2 of the Onshore EIA Report. Specific to the assessment of LVIA, the following guidance documents have also been considered:
 - Landscape Institute and IEMA (2013). Guidelines for Landscape and Visual Impact Assessment: Third Edition (GLVIA3);
 - NatureScot (2021). Assessing the Cumulative Impact of Onshore Wind Energy Developments;
 - NatureScot (2019). Digital Map-Based Landscape Character Assessment; and
 - Landscape Institute (2019). Visual Representation of Development Proposals.

6.9.2. APPROACH TO ASSESSMENT AND ASSESSMENT CRITERIA

Landscape Effects

Sensitivity of landscape receptor

103. The sensitivity of a landscape character receptor is a combination of the judgements made about the value associated with that receptor and the susceptibility of the receptor to the development proposed.

Value of the landscape receptor

104. The value of a landscape character receptor is a reflection of the value that society attaches to that landscape. The assessment of the landscape value is classified as high, medium-high, medium, medium-low or low and the basis for this assessment is made clear using evidence and professional judgement, based on the following range of factors.
105. **Landscape designations** - A receptor that lies within the boundary of a recognised landscape related planning designation is of increased value, depending on the proportion of the receptor within it and the level of importance of the designation which may be international, national, regional or local. The absence of designations does not however preclude value, as an undesignated landscape character receptor may be valued as a resource in the local or immediate environment.
106. **Landscape quality** - The quality of a landscape character receptor is a reflection of its attributes, such as scenic quality, sense of place, rarity and representativeness and the extent to which its valued attributes have remained intact. A landscape with consistent, intact, well-defined and distinctive attributes is considered to be of higher quality and, in turn, higher value, than a landscape where the introduction of elements has detracted from its character.

107. **Landscape experience** - The experiential qualities that can be evoked by a landscape receptor can add to its value and relates to a number of factors including:

- the perceptual responses it evokes;
- the cultural associations that may exist in literature or history, or the iconic status of the landscape in its own right;
- the recreational value of the landscape; and
- the contribution of other values relating to the nature conservation or archaeology of the area.

Landscape susceptibility to change

108. The susceptibility of a landscape character receptor to change is a reflection of its ability to accommodate the changes that would occur as a result of the addition of the Proposed Development. Some landscape receptors are better able to accommodate change as a result of the development than others due to certain characteristics that are indicative of capacity to accommodate change. These characteristics may or not also be special landscape qualities that underpin designated landscapes.

109. The assessment of the susceptibility of the landscape receptor to change is classified as high, medium-high, medium, medium-low or low and the basis for this assessment has been made clear using evidence and professional judgement. The following indicators of landscape susceptibility are considered in the context of the development proposed:

- **Overall strength and robustness:** Collectively the overall characteristics and qualities of a particular landscape result in a strong and robust landscape that is capable of reasonably accommodating the influence of the Proposed Development without undue adverse effects on the special landscape qualities (in the case of a designated landscape) or the key characteristics.
- **Landscape scale and topography:** The scale and topography are large enough to physically accommodate the influence of the Proposed Development. Topographical features such as more complex, distinctive or small-scale coastal landforms are likely to be more susceptible than simple, broad and homogenous coastal landforms.
- **Openness and enclosure:** Openness in the landscape may increase susceptibility to change because it can result in wider visibility, however an open landscape may also be larger scale and simple, which would decrease susceptibility. Conversely, enclosed landscapes can offer more screening potential, limiting visibility to a smaller area, however they may also be smaller scale and more complex which would increase susceptibility.
- **Skyline:** Prominent and distinctive skylines and horizons with important landmark features that are identified in the landscape character assessment, are generally considered to be more susceptible to development in comparison to broad, simple skylines which lack landmark features or contain other infrastructure features.
- **Relationship with other development and landmarks:** Contemporary landscapes where there are existing similar developments or other forms of development (industry, mineral extraction, masts, urban fringe / large settlement, major transport routes) that already have a characterising influence result in a lower susceptibility to development in comparison to areas characterised by limited development or smaller scale, historic development and landmarks.
- **Perceptual qualities:** Notable landscapes that are acknowledged to be particularly scenic, wild or tranquil are generally considered to be more susceptible to development in comparison to ordinary, cultivated or farmed / developed landscapes where perceptions of 'wildness' and tranquillity are less tangible. Landscapes which are either remote or appear natural may vary in their susceptibility to development.
- **Landscape context and association:** the extent to which the Proposed Development would influence the character of landscape receptors across the study area relates to the associations that exist between the landscape receptor within which the Proposed Development is located and the landscape receptor from which the Proposed Development is experienced. In some situations, this association is strong, where the landscapes are directly related, and in other situations weak, where the landscape

association is weak. The context and visual connection to areas of adjacent landscape character or designations has a bearing on the susceptibility to development.

Landscape sensitivity rating

110. An overall sensitivity assessment of the landscape receptor is made by combining the assessment of the value of the landscape character receptor and its susceptibility to change. The evaluation of landscape sensitivity has been applied for each landscape receptor - high, medium-high, medium, medium-low and low - by combining individual assessments of the value of the receptor and its susceptibility to change.

Landscape magnitude of change

111. The magnitude of change affecting landscape receptors is an expression of the scale of the change that would result from the Proposed Development and is dependent on a number of variables regarding the size or scale of the change and the geographical extent over which the change would be experienced.

Size or scale of change

112. This criterion relates to the size or scale of change to the landscape that would arise as a result of the Proposed Development, based on the following factors.
- **Landscape elements:** The degree to which the pattern of elements that makes up the landscape character is altered by the Proposed Development, by removal or addition of elements in the landscape. The magnitude of change will generally be higher if the features that make up the landscape character are extensively removed or altered, and/or if many new elements are added to the landscape.
 - **Landscape characteristics:** The extent to which the effect of the Proposed Development changes, physically or perceptually, the key characteristics of the landscape that may be important to its distinctive character. This may include, for example, the scale of the landform, its relative simplicity or irregularity, the nature of the landscape context, the grain or orientation of the landscape, the degree to which the receptor is influenced by external features and the juxtaposition of the Proposed Development in relation to these key characteristics. If the Proposed Development is located in a landscape receptor that is already affected by other similar development, this may reduce the magnitude of change, particularly if there is a high level of integration and the developments form a unified and cohesive feature in the landscape.
 - **Landscape designation:** In the case of designated landscapes, the degree of change is considered in light of the effects on the special landscape qualities which underpin the designation and the effect on the integrity of the designation. All landscapes change over time and much of that change is managed or planned. Often landscapes will have management objectives for 'protection' or 'accommodation' of development. The scale of change may be localised, or occurring over parts of an area, or more widespread affecting whole landscape receptors and their overall integrity.
 - **Distance:** The size and scale of change is also strongly influenced by the proximity of the Proposed Development to the receptor. Distance may be an influential factor to the extent that over a long range the scale of the influence on landscape receptors may be small or very limited. Conversely, landscapes closest to the development are likely to be most affected. Where the development is located within a 'host' landscape character area this would be directly affected whilst adjacent areas of landscape character would be indirectly affected.
 - **Amount and nature of change:** The amount of the Proposed Development that is seen. Generally, the greater the amount of the Proposed Development that can be seen, the higher the scale of change. Generally, the magnitude of change is likely to be lower where the Proposed Development is largely perceived to be at a distance, rather than 'within' the landscape being considered.

Geographical extent

113. The geographic extent over which the landscape effects are experienced is also assessed, which is distinct from the size or scale of effect. This evaluation is not combined in the assessment of the level of magnitude, but instead expresses the extent of the receptor that will experience a particular magnitude of change and therefore the geographical extents of the significant and non-significant effects.
114. The extent of the effects will vary depending on the specific nature of the Proposed Development and is principally assessed through analysis of the extent of perceived changes to the landscape character through visibility of the Proposed Development.

Duration and reversibility

115. The duration and reversibility of landscape effects is based on the period over which the Proposed Development is likely to exist (during construction, operation and decommissioning). As it is anticipated that the onshore substation would remain as a permanent addition to the transmission network, a decommissioning phase to remove components is not expected. Consequently, effects related to the onshore substation operational phase are considered permanent.
116. Long-term, medium-term and short-term landscape effects are defined as follows:
- long-term - more than 10 years (or defined as permanent/ irreversible);
 - medium-term - 5 to 10 years; and
 - short-term - 0 to 5 years.

Landscape magnitude of change rating

117. The 'magnitude' or 'degree of change' resulting from the Proposed Development is described as 'high', 'high-medium', 'medium', 'medium-low' 'low' or 'negligible'. In assessing magnitude of change, the assessment focuses on the size or scale of change, the geographical extent, duration and reversibility are stated separately in relation to the assessed effects.

Evaluating landscape effects and significance

118. The level of landscape effect is evaluated primarily through the combination of landscape sensitivity and magnitude of change. Once the level of effect has been assessed, a judgement is then made as to whether the level of effect is 'significant' or 'not significant'. This process is assisted by the matrix in Table 6.9 which is used to guide the assessment. Geographical extent and duration and reversibility are considered relevant in drawing conclusions about significance, combining with other judgements on sensitivity and magnitude, to allow a final judgement to be made on whether each effect is significant or not significant.
119. Further information is also provided about the nature of the effects (whether these would be direct / indirect; temporary / permanent / reversible; beneficial / neutral / adverse or cumulative).
120. A significant effect occurs where the combination of the variables results in the Proposed Development having a defining effect on the landscape receptor, or where changes of a lower magnitude affect a landscape receptor that is of particularly high sensitivity. A major loss or irreversible effect over an extensive area or landscape character, affecting landscape elements, characteristics and / or perceptual aspects that are key to a nationally valued landscape are likely to be significant, particularly if they are of long duration and irreversible.
121. A non-significant effect would occur where the effect of the Proposed Development is not defining, and the landscape character of the receptor continues to be characterised principally by its baseline characteristics. Equally a small-scale change experienced by a

receptor of high sensitivity may not significantly affect the special landscape quality or integrity of a designation. Reversible effects, on elements, characteristics and character that are of small-scale or geographical extent or affecting lower value receptors, are unlikely to be significant.

Visual Effects

122. Visual Effects are concerned wholly with the effect of the Proposed Development on views, and the general visual amenity. Visual Effects are defined by the Landscape Institute in GLVIA 3, paragraphs 6.1 as follows:

"An assessment of visual effects deals with the effects of change and development on views available to people and their visual amenity. The concern ... is with assessing how the surroundings of individuals or groups of people may be specifically affected by changes in the context and character of views."

123. Visual effects are identified for different receptors (people) who would experience the view at their place of residence, within their community, during recreational activities, at work, or when travelling through the area. The visual effects may include the following:
- **Visual effect:** a change to an existing static view, sequential views, or wider visual amenity as a result of development or the loss of particular landscape elements or features already present in the view; or
 - **Cumulative visual effects:** the cumulative or incremental visibility of similar types of development may combine to have a cumulative visual effect.
124. The level of visual effect (and whether this is significant) is determined through consideration of the sensitivity of the visual receptor and their view and the magnitude of change that would be brought about by the Proposed Development.

Zone of Theoretical Visibility (ZTV)

125. Plans mapping the ZTV are used to analyse the extent of theoretical visibility of the onshore substation. The ZTVs provide a starting point in the assessment process and tend towards giving the greatest calculation of the theoretical visibility. ZTV production for the LVIA, including limitations, is described in section 6.9.3 of this report.

Viewpoint Analysis

126. Viewpoint analysis is used to assist the assessment and is conducted from selected viewpoints within the study area. The purpose of this is to assess both the level of visual effect for particular receptors and to help guide the design process and focus of the assessment. A range of viewpoints are examined in detail and analysed to determine whether a significant visual effect would occur.
127. The assessment involves visiting the viewpoint location and viewing visualisations prepared for each viewpoint location. Field survey is generally conducted in periods of fine weather with good visibility and considers seasonal changes such as reduced leaf cover or hedgerow maintenance. The viewpoint analysis is used to assist in the assessment of effects on visual receptor locations as well as landscape character effects reported in the LVIA.

Evaluating visual sensitivity to change

128. In accordance with paragraphs 6.31-6.37 of GLVIA3, the sensitivity of visual receptors is determined by a combination of the value of the view and the susceptibility of the visual

receptors to the change likely to result from the Proposed Development on the view and visual amenity.

Value of view

129. The value of a view or series of views reflects the recognition and the importance attached either formally through identification on mapping or being subject to planning designations, or informally through the value which society attaches to the view(s). The value of a view has been classified as high, medium-high, medium, medium-low or low and the basis for this assessment has been made clear using evidence and professional judgement, based on the following criteria.

- **Formal recognition** - The value of views can be formally recognised through their identification on OS or tourist maps as formal viewpoints, sign-posted and with facilities provided to add to the enjoyment of the viewpoint such as parking, seating and interpretation boards. Specific views may be afforded protection in local planning policy and recognised as valued views. Specific views can also be cited as being of importance in relation to landscape or heritage planning designations, for example the value of a view has been increased if it presents an important vista from a designed landscape or lies within or overlooks a designated area, which implies a greater value to the visible landscape.
- **Informal recognition** - Views that are well-known at a local level and/or have particular scenic qualities can have an increased value, even if there is no formal recognition or designation. Views or viewpoints are sometimes informally recognised through references in art or literature and this can also add to their value. A viewpoint that is visited or appreciated by a large number of people will generally have greater importance than one gained by very few people.

Susceptibility to change

130. Susceptibility relates to the nature of the viewer experiencing the view and how susceptible they are to the potential effects of the Proposed Development. A judgement to determine the level of susceptibility therefore relates to the nature of the viewer and their experience from that particular viewpoint or series of viewpoints, classified as high, medium-high, medium, medium-low or low and based on the following criteria:

- **Nature of the viewer** - The nature of the viewer is defined by the occupation or activity of the viewer at the viewpoint or series of viewpoints. The most common groups of viewers considered in the visual assessment include residents, motorists, and people taking part in recreational activity or working. Viewers, whose attention is focused on the landscape, or with static long-term views, are likely to have a higher susceptibility. Viewers travelling in cars or on trains will tend to have a lower susceptibility as their view is transient and moving. The least sensitive viewers are usually people at their place of work as they are generally less susceptible to changes in views.
- **Experience of the viewer** - The experience of the visual receptor relates to the extent to which the viewer's attention or interest may be focused on the view and the visual amenity they experience at a particular location. The susceptibility of the viewer to change arising from the Proposed Development may be influenced by the viewer's attention or interest in the view, which may be focused in a particular direction, from a static or transitory position, over a long or short duration, and with high or low clarity. For example, if the principal outlook from a settlement is aligned directly towards the Proposed Development, the experience of the visual receptor is altered more notably than if the experience relates to a glimpsed view seen at an oblique angle from a car travelling at high speed. The visual amenity experienced by the viewer varies depending on the presence and relationship of visible elements, features or patterns experienced in the view and the degree to which the landscape in the view may accommodate the influence of the Proposed Development.

Visual sensitivity rating

131. An overall level of sensitivity is applied for each visual receptor or view - high, medium-high, medium, medium-low or low by combining individual assessments of the value of the view and the susceptibility of the visual receptor to change. Each visual receptor, meaning the particular person or group of people likely to be affected at a specific viewpoint, is assessed in terms of their sensitivity.

Visual magnitude of change

132. The visual magnitude of change is an expression of the scale of the change that will result from the Proposed Development and is dependent on a number of variables regarding the size or scale of the change. A separate assessment is also made of the geographical extent, duration and reversibility of visual effects.

Size or scale of change

133. An assessment is made regarding the size or scale of change in the view that is likely to be experienced as a result of the Proposed Development, based on the following criteria:
- **Distance:** the distance between the visual receptor/viewpoint and the Proposed Development. Generally, the greater the distance, the lower the magnitude of change, as the Proposed Development will constitute a smaller scale component of the view.
 - **Size:** the amount and size of the Proposed Development that is seen. Visibility may range from small or partial visibility of the Proposed Development to wider visibility of the onshore elements. Generally, the larger and greater number of elements of the Proposed Development that appear in the view, the higher the magnitude of change. This is also related to the degree to which the Proposed Development may be wholly or partly screened by landform, vegetation (seasonal) and / or built form. Conversely open views are likely to reveal more of the Proposed Development, particularly where this is a key characteristic of the landscape context.
 - **Scale:** the scale of the change in the view, with respect to the loss or addition of features in the view and changes in its composition. The scale of the Proposed Development may appear larger or smaller relative to the scale of the receiving landscape.
 - **Field of view:** the vertical / horizontal field of view (FoV) and the proportion of the view that is affected by the Proposed Development. Generally, the more of the proportion of a view that is affected, the higher the magnitude of change. If the Proposed Development extend across the whole of the open part of the outlook, the magnitude of change is higher as the full view has been affected. Conversely, if the Proposed Development covers just a narrow part of an open, expansive and wide view, the magnitude of change is likely to be reduced as it will not affect the whole open part of the outlook. This can in part be described objectively by reference to the horizontal / vertical FoV affected, relative to the extent and proportion of the available view.
 - **Contrast:** the character and context within which the Proposed Development are seen and the degree of contrast or integration of any new features with existing landscape elements, in terms of scale, form, mass, line, height, colour, luminance and motion. Developments which contrast or appear incongruous in terms of colour, scale and form are likely to be more visible and have a higher magnitude of change.
 - **Consistency of image:** the consistency of image of the Proposed Development in relation to other developments. The magnitude of change of Proposed Development is likely to be lower if its layout design is broadly similar to other developments in the landscape, in terms of its scale, form and general appearance. New development is more likely to appear as logical components of the landscape with a strong rationale for their location.
 - **Skyline / background:** Whether the Proposed Development would be viewed against the skyline or a background landscape may affect the level of contrast and magnitude. If the Proposed Development add to an already developed skyline the magnitude of change would tend to be lower.

- **Number:** generally, the greater the number of separate elements of the Proposed Development seen simultaneously or sequentially, the higher the magnitude of change. Further effects could also occur in the case of separate developments and their spatial relationship to each other would affect the magnitude of change. For example, development that appears as an extension to an existing development would tend to result in a lower magnitude of change than a separate, new development.
- **Nature of visibility:** the nature of visibility is a further factor for consideration. The Proposed Development may be subject to various phases of development change and the manner in which the Proposed Development may be viewed could be intermittent or continuous and / or vary seasonally, due to periodic management or leaf fall.

Geographical extent

134. The geographic extent over which the visual effects has been experienced is also assessed, which is distinct from the size or scale of effect and is described in terms of the physical area or location over which it is experienced (described as a linear or area measurement). The extent of the effects varies according to the specific nature of the Proposed Development and is principally assessed through ZTV, field survey and viewpoint analysis of the extent of visibility likely to be experienced by visual receptors.

Duration and reversibility

135. The duration and reversibility of visual effects are based on the period over which the Proposed Development is likely to exist (during construction and operation). As it is anticipated that the Onshore Substation would remain as a permanent addition to the transmission network, a decommissioning phase to remove components is not expected. Consequently, effects related to the onshore substation operational phase are considered permanent.
136. Long-term, medium-term and short-term visual effects are defined as follows:
- long-term - more than 10 years (or defined as permanent/ irreversible);
 - medium-term - 5 to 10 years; and
 - short-term - 0 to 5 years.

Visual magnitude of change rating

137. The 'magnitude' or 'degree of change' resulting from the Proposed Development is described as 'High', 'High-medium', 'Medium', 'Medium-low' 'Low' and 'Negligible'. In assessing the magnitude of change the assessment focuses on the size or scale of change and its geographical extent. The duration and reversibility are stated separately in relation to the assessed effects (i.e., as short / medium / long-term and temporary / permanent). The basis for the assessment of magnitude for each receptor is made clear using evidence and professional judgement.

Evaluating visual effects and significance

138. The level of visual effect is evaluated through the combination of visual sensitivity and magnitude of change. Once the level of effect has been assessed, a judgement is then made (using professional judgement) as to whether the level of effect is 'significant' or 'not significant'. This process is assisted by the matrix in Table 6.9 which is used to guide the assessment. Geographical extent and duration and reversibility are considered as part of drawing conclusions about significance, combining with other judgements on sensitivity and magnitude, to allow a final judgement to be made on whether each effect is significant or not significant. Further information is also provided about the nature of the effects (whether these would be direct / indirect; temporary / permanent / reversible; beneficial / neutral / adverse or cumulative).

- 139. A significant effect is more likely to occur where the Proposed Development would have a defining effect on the view or visual amenity or where changes affect a visual receptor that is of high sensitivity.
- 140. A non-significant effect is more likely to occur where the Proposed Development would have a non-defining effect on the view or visual amenity or where changes affect a visual receptor that is of low sensitivity.

Cumulative, Landscape and Visual Effects

- 141. NatureScot's guidance, *Assessing the Cumulative Impact of Onshore Wind Energy Developments (2021)* is widely used across the UK to inform the specific assessment of the cumulative landscape and visual effects of different types of development. Whilst the focus of the NatureScot guidance relates to wind farm development, both GLVIA3 and NatureScot's guidance provides the basis for the methodology for the cumulative LVIA and so it is relevant to this LVIA.

Approach to Cumulative Effects

- 142. The Cumulative Effects Assessment (CEA) considers 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.
- 143. GLVIA3 (Landscape Institute and IEMA, 2013, p120) defines cumulative landscape and visual effects as those that *'result from additional changes to the landscape and visual amenity caused by the proposed development in conjunction with other developments (associated with or separate to it), or actions that occurred in the past, present or are likely to occur in the foreseeable future.'*
- 144. 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 1, Chapter 2 and 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.
- 145. Other proposed developments that have the potential for cumulative effects in combination with the Proposed Development are typically considered to be those developments that are found within the LVIA study area. Beyond the LVIA study area cumulative effects are limited by distance and a lack of intervisibility with other proposed developments.
- 146. Adjacent developments may complement one another, or may be discordant with one another, and it is the increased or reduced level of significance of effects which arises as a result of this change that is assessed. Where this occurs, the magnitude of change varies according to cumulative effect factors such as its consistency of image and degree of contrast or integration with the onshore elements of the Proposed Development, as well as other 'non-cumulative' factors, such as its distance, lateral spread and amount of visibility.
- 147. NatureScot's guidance, *Assessing the Cumulative Impact of Onshore Wind Energy Developments (NatureScot 2021)* is widely used across the UK to inform the specific assessment of the cumulative effects of windfarms. Both GLVIA3 and NatureScot's guidance provide the basis for the methodology for the CEA undertaken in the LVIA. NatureScot's guidance highlights that:

'The purpose of a Cumulative Landscape and Visual Impact Assessment (CLVIA) is to describe, visually represent and assess the ways in which a proposed wind farm would have additional impacts when considered with other consented or proposed wind farms. It

should identify the significant cumulative impacts arising from the proposed wind farm. The assessment should be proportionate to the likely impacts and all CLVIA should accord with the guidelines within GLVIA3. The emphasis should be on the production of relevant and useful information, highlighting why the proposals assessed have been included and why others have been excluded, rather than the provision of a large volume of information.' (NatureScot 2021, p8);

'Cumulative impacts can change either the physical fabric of character of the landscape, or any special values attached to it' (NatureScot 2021, p7); and

'Cumulative impacts on visual amenity can be caused by 'combined visibility' and/or 'sequential impacts'.' (NatureScot 2021, p7).

148. GLVIA3, p120 also highlights that *'the focus of the cumulative assessment will be on the additional effect of the project in conjunction with other developments of the same type (as for example, in the case of wind farms)'*
149. In line with NatureScot guidance and GLVIA3, cumulative effects are assessed in this LVIA as the additional changes caused by the Proposed Development in conjunction with other similar developments (not the totality of the cumulative effect). The CEA assesses the cumulative effect of the proposed development with other projects against the baseline, with the assessment of significance apportioning the amount of the effect that is attributable to the Proposed Development. Adjacent developments may complement one another, or may be discordant with one another, and it is the increased or reduced level of significance of effects which arises because of this change that is assessed in the CEA, such as through design discordance or proliferation of multiple developments affecting characteristics or new geographic areas, and ultimately if character changes occur because of multiple developments becoming a prevailing characteristic of the landscape / seascape or view.

Tiered Approach to CEA

150. In accordance with NatureScot guidance and GLVIA3 (para 7.13), existing projects are included in the LVIA baseline and described as part of the baseline conditions, including the extent to which these have altered character and views, and affected sensitivity to windfarm development. These developments have an existing influence on the baseline landscape and visual environment. The nearby Torness Power Station, Dunbar Energy Recovery Facility and Dunbar Cement Plant are prominent industrial developments that exert a considerable influence on the character of the LVIA study area, particularly in coastal areas. Electrical infrastructure is a common feature of the landscape in close proximity to the Proposed Development and includes large-scale overhead power lines and a number of electrical substations.
151. A further assessment of the additional cumulative landscape, seascape and visual effects of the Proposed Development with other potential future projects is undertaken in this CEA. In undertaking this CEA for the Proposed Development, it is important to bear in mind that other projects and plans under consideration will have differing potential for proceeding to an operational stage and hence a differing potential to ultimately contribute to a cumulative impact alongside the Proposed Development. Therefore, a tiered approach has been adopted. This provides a framework for placing relative weight upon the potential for each project/plan to be included in the CEA to ultimately be realised, based upon the project/plan's current stage of maturity and certainty in the projects' parameters. The tiered approach which will be utilised within the Proposed Development CEA employs the following tiers:
- tier 1 assessment – Proposed Development (Berwick Bank Wind onshore transmission works) with Berwick Bank Wind Farm offshore infrastructure (whole project effect assessment); and
 - tier 2 assessment – Proposed Development with other proposed onshore developments.
152. A comprehensive list of projects that have the potential to contribute to the cumulative effects of the Proposed Development has been compiled and this 'long list' and the

approach to compiling this list is described in Volume 1 Chapter 2, with the long list presented in Volume 4, Appendix 2.4 and shown on Figure 2.4.1. In order to focus the cumulative assessment on the potential for significant cumulative effects, Appendix 2.4 has undertaken a process of screening out projects and activities from this list where it is assessed there would be no potential for a significant cumulative effect as a result of the addition of the Proposed Development resulting in a shortlist of projects to be taken into the CEA.

153. In addition to this, the LVIA has undertaken a further preliminary assessment of the shortlisted tier 2 cumulative projects based on professional judgement, assessment rationale and guidance relevant to landscape and visual impacts. The results of this are presented in Table 6.13 in Section 6.12.

Cumulative Sensitivity of Landscape and Visual Receptors

154. In evaluating cumulative sensitivity, the value component of the assessments of sensitivity would not change, however, in an evolving development context, the susceptibility of a landscape and visual receptor to the introduction of the Proposed Development may increase or decrease. This is based on the criteria contained in the landscape and visual susceptibility criteria sections of this methodology.

Cumulative Magnitude of Change

155. The cumulative magnitude of change is an expression of the degree to which landscape character receptors and visual receptors/views would be changed by the addition of the Proposed Development to other relevant developments that are already operational, consented or at application stage. Where required, scoping stage developments may exceptionally be included. The cumulative magnitude of change is assessed according to a number of criteria, described as follows:
- The location of the Proposed Development in relation to other relevant developments. If the Proposed Development is seen in a part of the view or setting to a landscape receptor that is not affected by other development, this would generally increase the cumulative magnitude of change as it would extend influence into an area that is currently unaffected by development. Conversely, if the Proposed Development is seen in the context of other sites, the cumulative magnitude of change may be lower as development is not being extended to otherwise undeveloped parts of the outlook or setting. This is particularly true where the scale and layout of the Proposed Development is similar to that of the other sites as where there is a high level of integration and cohesion with an existing site the various developments may appear as a single site.
 - The extent of the developed skyline. If the Proposed Development would add notably to the developed skyline in a view, the cumulative magnitude of change would tend to be higher as skyline development can have a particular influence on both views and landscape receptors.
 - The number and scale of developments seen simultaneously or sequentially. Generally, the greater the number of clearly separate developments that are visible, the higher the cumulative magnitude of change would be. The addition of the Proposed Development to a view or landscape where a number of smaller developments are apparent would usually have a higher cumulative magnitude of change than one or two large developments as this can lead to the impression of a less co-ordinated or strategic approach.
 - The scale comparison between developments. If the Proposed Development is of a similar scale to other visible developments, particularly those seen in closest proximity to it, the cumulative magnitude of change would generally be lower as it would have more integration with the other sites and would be less apparent as an addition to the cumulative situation.

- The consistency of image of the Proposed Development in relation to other developments. The cumulative magnitude of change of the Proposed Development is likely to be lower if its turbine height, arrangement and layout design are broadly similar to other developments in the landscape, as they are more likely to appear as relatively simple and logical components of the landscape.
- The context in which the developments are seen. If developments are seen in a similar landscape context, the cumulative magnitude of change is likely to be lower due to visual integration and cohesion between the sites. If developments are seen in a variety of different landscape settings, this can lead to a perception that wind farm development is unplanned and uncoordinated, affecting a wide range of landscape characters and blurring the distinction between them; and
- The magnitude of change of the Proposed Development as assessed in the main assessment. The lower this is assessed to be, the lower the cumulative magnitude of change is likely to be. Where the Proposed Development itself is assessed to have a negligible magnitude of change on a view or receptor there would not be a cumulative effect as the contribution of the Proposed Development would equate to the 'no change' situation.

Evaluating cumulative effects and significance

156. The level of visual effect is evaluated through the combination of receptor sensitivity and cumulative magnitude of change. Once the level of effect has been assessed, a judgement is then made (using professional judgement) as to whether the level of effect is 'significant' or 'not significant'. This process is assisted by the matrix in Table 6.9 which is used to guide the assessment. Further information is also provided about the nature of the effects (whether these would be direct / indirect; temporary / permanent / reversible; beneficial / neutral / adverse).
157. Significant cumulative effects are considered likely to occur where the addition of the Proposed Development to the baseline under consideration (which may include other developments), leads to these developments becoming a prevailing landscape and visual characteristic or where the Proposed Development adversely contrasts with the scale or design of an existing or proposed cumulative development. A non-significant cumulative effect is more likely to occur where the Proposed Development would have a non-defining effect on the receptor or where changes affect a receptor that is of low sensitivity.

Evaluation of significance

Table 6.9: Matrix Used for the Assessment of the significance of the Effect

		Sensitivity				
		High	Medium-high	Medium	Medium-low	Low
Magnitude of change	High	Major (Significant)	Major (Significant)	Moderate-Major (Significant)	Moderate (Significant/ Not Significant)	Moderate (Significant/ Not Significant)
	Medium-high	Major (Significant)	Moderate-Major (Significant)	Moderate (Significant/ Not Significant)	Moderate (Significant/ Not Significant)	Moderate-Minor (Not Significant)
	Medium	Moderate-Major (Significant)	Moderate (Significant/ Not Significant)	Moderate (Significant/ Not Significant)	Moderate-Minor (Not Significant)	Minor (Not Significant)

Medium-low	Moderate (Significant/ Not Significant)	Moderate (Significant/ Not Significant)	Moderate-Minor (Not Significant)	Minor (Not Significant)	Minor (Not Significant)
	Moderate-Minor (Not Significant)	Moderate-Minor (Not Significant)	Minor (Not Significant)	Minor (Not Significant)	Negligible (Not Significant)
	Minor (Not Significant)	Minor (Not Significant)	Minor (Not Significant)	Negligible (Not Significant)	Negligible (Not Significant)

158. The matrix in Table 6.9 is used as a guide to help inform the threshold of significance when combining sensitivity and magnitude to assess significance. On this basis potential effects are assessed as Negligible, Minor, Moderate-Minor, Moderate, Moderate-Major and Major. In those instances where the magnitude has been assessed as 'no change', the level of effect is recorded as 'no effect'.
159. For the purposes of this assessment, any effects with a significance level of Major and Moderate-Major have been deemed significant in EIA terms (dark shaded boxed in Table 6.9). 'Moderate' levels of effect have the potential, subject to the assessor's professional judgement, to be considered as significant or not significant, depending on the sensitivity and magnitude of change factors evaluated. The use of professional judgement is advocated throughout GLVIA3 and in relation to significance of effects, paragraph 3.23, page 37 of GLVIA3 states that '*This is a key part of the LVIA process and is an evidence-based process combined with professional judgement.*' Significance can therefore occur at a range of levels depending on the magnitude and sensitivity, however in all cases, a significant effect is considered more likely to occur where the Proposed Development would have a defining effect on the landscape/seascape character or view. Definitions are not provided for the individual categories of significance shown in the matrix and the reader should refer to the detailed definitions provided for the factors that combine to inform sensitivity and magnitude.
160. Effects assessed as being either Moderate-Minor, Minor or Negligible level are assessed as not-significant (white shaded boxes in Table 6.9).
161. In line with the emphasis placed in GLVIA3 upon the application of professional judgement, an overly mechanistic reliance upon a matrix is avoided through the provision of clear and accessible narrative explanations of the rationale underlying the assessment made for each landscape and visual receptor.

Nature of effects

162. The EIA Regulations 2017 state that the EIA should define '*the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the development*'.
163. In accordance with the EIA Regulations 2017, in this assessment the nature of effects refers to whether the landscape and / or visual effect of the Proposed Development is positive or negative (herein referred to as 'beneficial', 'neutral' or 'adverse').
164. Guidance provided in GLVIA3 on the nature of effect states that '*in the LVIA, thought must be given to whether the likely significant landscape and visual effects are judged to be positive (beneficial) or negative (adverse) in their consequences for landscape or for views and visual amenity*', but it does not provide guidance as to how that may be established in practice. The nature of effect is therefore one that requires interpretation and, where applied, this involves reasoned professional opinion.

165. In this LVIA a precautionary approach has been adopted, which assumes that significant landscape and visual effects are weighed on the adverse side of the planning balance, unless otherwise stated. Beneficial or neutral effects may, however, arise in certain situations and are stated in the assessment where relevant, based on the following definitions.

- **Beneficial effects** - contribute to the landscape and visual resource through the enhancement of desirable characteristics or the introduction of new, beneficial attributes. The development contributes to the landscape by virtue of good design or the introduction of new landscape planting. The removal of undesirable existing elements or characteristics can also be beneficial, as can their replacement with more appropriate components.
- **Neutral effects** - occur where the development fits with the existing landscape character or visual amenity. The development neither contributes to nor detracts from the landscape and visual resource and can be accommodated with neither beneficial or adverse effects, nor where the effects are so limited that the change is hardly noticeable. A change to the landscape and visual resource is not considered to be adverse simply because it constitutes an alteration to the existing situation.
- **Adverse effects** - are those that detract from the landscape character or quality of visual attributes experienced, through the introduction of elements that contrast, in a detrimental way, with the existing characteristics of the landscape and visual resource, or through the removal of elements that are key in its characterisation.

6.9.3. PROPOSED ONSHORE SUBSTATION ZONE OF THEORETICAL VISIBILITY ANALYSIS

166. The ZTVs (Volume 3 Figure 6.8 and 6.9) have been generated using Geographic Information Systems software to demonstrate the extent to which the onshore substation may theoretically be seen from any point in the study area. ZTV analysis has been carried out for a maximum parameter model based on the maximum onshore substation height of 21 m applied to the finished ground level within the onshore substation platform. The onshore substation platform level has been established using a balanced cut and fill in order to determine the ground level of 43.4 m Above Ordnance Datum (AOD).

167. The HVAC and HVDC Proposed Development options vary in size, scale and design. The ZTV has been calculated to illustrate the maximum levels of theoretical visibility for the onshore substation. In order to achieve this a maximum design parameter for the onshore substation, 390m x 250m with a maximum building height of 21m above the platform level, has formed the basis of the ZTV calculations.

168. ZTVs are primarily calculated based on the visibility at 2 m above the height of the landform (i.e., viewer height of 2 m), relative to the height of the project (21m). The ZTV shown in Volume 3 Figure 6.8 reflects bare ground theoretical visibility. There are limitations in the production of the ZTV and these should be borne in mind in its consideration and use:

- The ZTVs are based on 5 m data grid (Ordnance Survey Terrain 5) with a viewer height of 2m above ground level;
- The bare ground ZTV does not consider the screening effects of woodlands, vegetation, buildings, or other local features that may prevent or reduce visibility;
- The ZTV does not indicate the decrease in visibility that occurs with increased distance from the onshore substation. The nature of what is visible from 1 km away would differ markedly from what is visible from 3 km away, although both are indicated on the ZTV as having the same level of visibility; and
- There is a wide range of variation within the visibility shown on the ZTV. For example, an area shown as having visibility of the onshore substation may only gain views of the slightest extremity rather than all of it as may be the case elsewhere.

169. These limitations mean that while the ZTV is used as a starting point in the assessment, providing an indication of where the onshore substation would theoretically be visible, the

information drawn from the ZTV is not the sole factor relied upon to accurately represent visibility of the onshore substation.

170. Volume 3 Figure 6.9 presents the modified theoretical visibility of the Proposed Development, taking consideration of the screening effects of woodlands, vegetation, buildings, or other local features that may prevent or reduce visibility. Areas of existing woodland have been modelled at an indicative height of 10 m above the underlying Terrain 5 DTM, on the basis of 1:25,000 scale OS mapping (see Volume 3 Figure 6.9). ZTVs have been prepared in line with guidance presented in GLVIA3.

6.9.4. VISUALISATIONS

171. The viewpoint assessment of the onshore substation is illustrated by a range of visualisations, including photographs and block model photomontages, which are in line with current best practice and the guidance provided in Landscape Institute - Visual Representation of Development Proposals (2019). Visualisations have a number of limitations when used to form a judgement on a development. These include:

- The images provided give a reasonable impression of the scale and distance to the onshore substation, but can never be 100% accurate;
- The viewpoints illustrated are representative of views in the area but cannot represent visibility at all locations;
- To form the best impression of the visual impacts of the onshore substation these images are best viewed at the viewpoint location shown;
- The visualisations must be printed at the correct size to be viewed properly (A1 width) and viewed at a comfortable arm's length viewing distance;
- The first visualisation sheets for each of the viewpoints illustrate the existing views using baseline photography presented cylindrically in 90-degree field of view increments; and
- Subsequent visualisation sheets for viewpoints 1-6 illustrate the onshore substation PDE as a dashed white line using the dimensions 390m x 250m with a maximum height of 21m.

172. The photographs used to produce the photomontages have been taken using Canon EOS 5D and 6D Digital SLR cameras, with a fixed lens and a full-frame (35 mm negative size) complementary metal oxide semiconductor (CMOS) sensor. The photographs are taken on a tripod with a panoramic head at a height of approximately 1.5 m above ground. To create the baseline panorama, the frames are individually cylindrically projected, digitally joined and then modified to create a planar projected panorama with a 53.5-degree field of view. Tonal alterations are made using Adobe software to create an even range of tones across the photographs once joined.

173. The photographs and photomontages used in this assessment are for illustrative purposes only and, whilst useful tools in the assessment, are not considered to be completely representative of what will be apparent to the human eye. The assessments are carried out from observations in the field and therefore may include elements that are not visible in the photographs.

6.10. PRIMARY & TERTIARY MITIGATION

174. As part of the project design process, a number of measures have been proposed to reduce the potential for effects on the landscape and visual resource. These include measures which have been incorporated as part of the Proposed Development's design (referred to as 'primary mitigation') and measures which would 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 of residual effects presented in section 6.11 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.

175. Landscape and visual effects change over time as mitigation proposals, such as planting, and restoration of habitat types included as part of the Proposed Development, establish and mature and the existing landscape evolves. Mitigation proposals described below would (where relevant) be designed in detail post-consent as part of the discharge of consent conditions.
176. The landscape mitigation proposals would make a positive contribution to the character of the landscape, encouraging biodiversity at a local level, enhancing the environment and creating and enhancing habitat throughout the Proposed Development. Vegetation and habitat loss across the cable corridor would be reduced so far as reasonably practicable and proposed landscape mitigation planting would seek to retain and enhance the character of the local area for future benefit.
177. This section of the LVIA outlines the general approach and principles used to define mitigation measures for the Proposed Development and provides an overview of the landscape and visual mitigation strategy.

6.10.1. PRIMARY MITIGATION

178. Primary mitigation proposals for the Proposed Development have involved the sensitive siting and design of the onshore substation, during the site selection process, to avoid or reduce potential effects, please refer to Volume 1, Chapter 4, Analysis of Alternatives.
179. The site selection process considered constraints relating to physical landscape elements (including woodland, trees and hedgerows), landscape character and visual amenity, together with other environmental and technical constraints. The sensitivity of the surrounding landscape and of residents, road-users and recreational users of the landscape was also a key consideration. The capacity of the landscape to accommodate the Proposed Development is assessed in relation to the natural screening provided by landform and vegetation cover. In particular, the orientation and location of the substation platform has been considered in detail with regard to minimising disruption to landform and existing landscape features whilst taking advantage of the sloping landform to the south to reduce the visual influence of the Proposed Development from Innerwick to the south-west.
180. The close proximity of existing industrial development and land uses, combined with existing electricity generation and distribution sites, provide a context of electrical infrastructure within the immediate setting of the Proposed Development. This context was considered during the site selection process.
181. Whilst there is a localised intensification of such electrical developments, this reflects a critical need to be in close proximity to the high-voltage distribution network. Coastal access to this distribution network can be limited and the availability of such infrastructure in this location indicates that electricity generation and distribution is an existing characteristic of the area.
182. It is also considered, in this instance, to be beneficial to locate such developments within an existing partially industrialised context of electricity generation and distribution – that includes the Neart na Gaoithe onshore substation and cable route, the proposed Eastern Link converter station and the proposed Branxton grid substation - when compared to possible alternatives that could spread such developments more widely across the landscape and visual resource.

6.10.2. CONSTRUCTION MITIGATION

183. Mitigation opportunities during the construction process would principally relate to potential restrictions or conditions imposed to avoid disturbance or damage to the baseline

landscape and visual resource, where reasonably practicable. Such measures would be identified via a Construction Environmental Management Plan (CEMP).

184. Post-consent, the development of the landscape mitigation proposals in combination with the CEMP would seek to stipulate measures to avoid, reduce or offset environmental effects of the construction works, including those related to landscape and visual amenity.

6.10.3. OPERATIONAL MITIGATION

Onshore cable corridor and landfall

185. The precise location of the cable trenches within the onshore cable corridor will not be finalised until subsequent detailed design stages. However, the location of the onshore cable corridor is known and informs the assessment of likely significant effects on landscape and visual receptors that may be caused by the cable installation.
186. Taking this into account, the following principles considered an appropriate approach to the detailed design of the onshore export cable and landfall are also considered to form an appropriate landscape and visual mitigation strategy for the onshore export cable and landfall:
- As far as reasonably practicable, reduce hedgerow and tree loss along the onshore cable corridor through careful siting of the works areas;
 - Protection of trees during the construction phase where appropriate;
 - Reinstatement or replacement of removed trees (where reasonably practicable) and sections of hedgerow;
 - Restoration of all temporary construction, material storage and laydown areas to reinstate ground cover and return to previous land-use, where practical; and
 - During the detailed design process, the specification and design of permanent security fencing at landfall Transitional Joint Bays should be consistent with the coastal and agricultural setting, where possible, to reduce effects upon visual amenity in this location.

Onshore Substation

187. The position of the onshore substation site on the gradually sloping agricultural land of the East Lothian coast provides existing elements of visual screening throughout the LVIA study area. The pattern of screened theoretical visibility illustrated on Volume 3 Figure 6.9 shows views of the proposed onshore substation are generally confined to within 3 km. A degree of mitigation of landscape and visual effects for a number of visual receptors is therefore provided by landform and existing scrub woodland and deciduous shelterbelts, from the outset.
188. Landscape mitigation principles have been developed for the onshore substation to avoid or reduce further landscape and visual effects in areas where visibility of the Proposed Development is found. These mitigation principles include proposed native species woodland and hedgerow planting and areas of proposed coastal grassland and wet meadow for ecological mitigation.
189. An outline of the proposed landscape mitigation is presented in Volume 3 Figure 6.12 and is also shown at the predicted height after 15 years' establishment on the LVIA visualisations (Volume 3 Figure 6.15 – 6.20). The following key principles are considered to form an appropriate landscape and visual mitigation strategy for the onshore substation:
- Proposed native species woodland to the north, west and south of the onshore substation to assist in mitigating visual effects from the A1 trunk road southbound, Innerwick and nearby properties and the minor road network west and south of the site;

- Proposed native species woodland to the east of the onshore substation to help mitigate visual effects from the A1 trunk road northbound, the ECML and aid in visually integrating the Proposed Development, as far as possible, within inland views from coastal areas;
 - Understorey of native species woodland to be sown with a locally appropriate meadow wildflower mix or species rich coastal grassland;
 - Extend and strengthen the existing coniferous screen planting on the margins of the A1 trunk road carriageway to reduce the potential for successive visibility of the onshore substation by road users, travelling in both directions, as they pass the site;
 - Proposed native species hedgerows to onshore substation boundaries to complement existing hedgerows which, in conjunction with proposed woodland planting, would help to mitigate visibility of the onshore substation and increase habitat connectivity across the site;
 - Proposed areas of locally appropriate meadow wildflower mix, species rich coastal grassland and wet meadow habitat to enhance biodiversity, see Volume 3 Figure 6.12;
 - Colour and finish of onshore substation buildings specified during the detailed design process should be consistent with the vernacular of large-scale agricultural buildings within the context of the site;
 - Reinstatement of sections of hedgerow removed during the construction process; and
 - Restoration of all temporary construction, material storage and laydown areas to reinstate ground cover and return to previous land-use, where practical.
190. The proposed woodland would comprise native species and is intended to enclose the onshore substation, avoiding access roads and the proposed cable corridor ingress and egress. Native hedgerows would be located on onshore substation boundaries to increase connectivity between structural woodlands and existing areas of planting in close proximity to the site.
191. Woodland planting would be designed to include a mixture of faster growing 'nurse' species and slower growing 'core' species. Nurse species, including alder, birch and pine, would grow at a faster rate reaching approximately 7-10 m in height after 15 years. Once established, nurse species would provide a sheltered environment for core, canopy species, such as oak and field maple, to mature. The nurse species would be sufficiently fast growing to provide considerable screening of the onshore substation after 15 years. These species would subsequently be outlived by the core species, which would establish as a robust, native woodland reflecting the broader character of woodlands found in the wider LVIA study area.

6.10.4. ADDITIONAL MITIGATION

192. In addition to the mitigation proposals detailed above, the following additional landscape and visual mitigation measures will be developed as part of the detailed design process:
- Detailed planting proposals for the onshore substation, including the potential for any advance planting;
 - Finalised layout, design and materials specification for the onshore substation; and
 - Detailed consideration of the colour and finish of onshore substation buildings.

Potential Advance Planting

193. As the proposed landscape matures, the degree of adverse effect would reduce. Consequently, where practical, advance planting of mitigation proposals during the early phases of the Proposed Development is recommended. This approach would give mitigation planting additional growth time, from the start of the pre-construction phase, meaning a screening influence is establishing on site prior to completion of construction and commencement of operation. This approach may be possible for mitigation planting to the north, west and east of the onshore substation, outside areas required for construction

compounds, material storage areas or laydown areas. Advance planting measures would only be possible once the design of the onshore substation has been finalised.

194. It is important to note that LVIA visualisations (Volume 3 Figure 6.15 – 6.20) demonstrate mitigation planting after a 15-year period of growth but do not take account of any growth during potential advance planting. Consequently, should advance planting be viable, the potential screening effect of the mitigation proposals after a 15-year period could be slightly greater than that illustrated.
195. Landscape mitigation proposals would be developed in consultation with key stakeholders, including ELC, local landowners and Transport Scotland.

Potential Material Finish of the Onshore Substation

196. Whilst the detail regarding specific materials and finish are subject to detailed design, it is understood that the wall cladding will likely comprise corrugated metal sheeting which can be installed with a range of colours.
197. Figure 6.15j&k shows a visualisation which provides an indicative example of building design finish and colour that is regarded to be suitable for the Proposed Development. This initial colour selection is based on experience of other similar large structures either experienced in the landscape or within proposals for other substation developments.
198. The design concept is to provide a darker colour for the lower parts of the buildings and a lighter colour for the upper parts of the buildings. The darker colour is a muted green (RAL 6009) to help integrate the buildings with the underlying colours of the surrounding landscape, which would also help to form a backdrop to the mitigation planting. The lighter colour is a grey (RAL 7038) selected to be reflective of various atmospheric conditions of the sky and minimise the visual intrusion from views within the surrounding landscape. The roof material would utilise the same RAL 7038 colour as used in the upper parts of the buildings.

6.11. ASSESSMENT OF SIGNIFICANCE

6.11.1. INTRODUCTION

199. The potential impacts arising from the construction and operational phases of the Proposed Development are listed in Table 6.7. The maximum design scenario against which each impact has been assessed is outlined in Table 6.8.
200. An assessment of the likely significance of the effects of the Proposed Development on the landscape and visual resource caused by each identified impact is given below.
201. The effects are residual effects as all landscape and visual mitigation is included within the Proposed Development as set out in the outline landscape mitigation principles and illustrated on Volume 3, Figure 6.12 and shown on the photomontage visualisations presented for each of the Viewpoints.

6.11.2. PHYSICAL LANDSCAPE

Preliminary Assessment

202. The construction of the onshore substation, open-cut trenching and trenchless technology (e.g. HDD) to construct the onshore cable corridor and the creation of temporary accesses, construction compounds and material storage areas would result in physical landscape effects on hedgerows and trees, agricultural land and the coastal landscape. Disturbance

of larger woodlands in the LVIA study area has been avoided by considered design of the onshore cable corridor.

203. Subsequently, for the purpose of assessment, the physical landscape elements with the potential to experience significant effects as a result of the construction of the Proposed Development have been separated into three categories, as follows:

- Agricultural land;
- Hedgerows and trees; and
- Coastal landscape.

Detailed Assessment of construction effects on landscape elements

AGRICULTURAL LAND

204. Arable and pastoral agriculture is the principal land use throughout the proposed route of the onshore cable corridor, the onshore substation and landfall site. While semi-improved grazing is in evidence in exposed coastal areas (at landfall) and on more elevated hillslopes to the south of the cable corridor, the majority of the route crosses arable fields between Skateraw and Thornton Law. The onshore substation site occupies a number of agricultural fields immediately south of the A1 trunk road carriageway.

205. Agricultural practices including ploughing or sowing of fields, harvesting crops and operating farm machinery are a fundamental characteristic of the landscape throughout the LVIA study area. The nature of such land use means the appearance of the landscape, particularly in terms of ground cover, evolves and changes throughout the year (see site context photographs in Volume 3 Figure 6.7a).

Sensitivity of the receptor

206. The proposed landfall location and northern-most part of the onshore cable corridor are located in pastoral fields that are part of the Dunbar to Barns Ness Coast SLA. A short section of the southern cable corridor crosses the Monynut to Blackcastle SLA. The broader agricultural landscape occupied by the proposed cable corridor and onshore substation comprise agricultural fields of varying quality and are not designated. The value of agricultural land is therefore considered to be medium.

207. Areas of improved pasture are considered straight-forward to reinstate following disturbance and due to the level of existing disruption resulting from crop cultivation, combined with the widespread occurrence of agricultural land as a landscape element, susceptibility is considered to be low.

208. Taking this into account, the sensitivity of agricultural land is considered to be medium-low.

Magnitude of change

209. The construction process of the onshore cable corridor would involve open-cut trenching and trenchless technology (e.g. HDD) in predominantly arable fields, resulting in localised and short-term changes to parts of the landscape accustomed to agricultural activity. The construction phase would also introduce temporary access tracks, haul roads, material storage areas and compounds and plant operating across the landscape.

210. Following installation of the onshore cables, open-cut trenches would be backfilled, and the land reinstated. Material storage areas, construction compounds and temporary access roads would also be fully restored to their previous agricultural land use and productivity.

211. Similarly, the construction of the onshore substation would involve compounds, plant, material storage areas and potentially laydown areas. Conversely, this process would

involve the permanent loss of existing areas of agricultural land as preparatory groundworks and stripping and regrading of soils are undertaken before the foundations of the onshore substation are excavated and constructed. The permanent loss of arable land would be limited to the footprint of the onshore substation area, although still only occupying a small proportion of the wider agricultural landscape of the LVIA study area.

212. Taking this into account magnitude of change is considered to be medium – low.

Significance of the effect

213. The sensitivity of the receptor is considered to be medium-low and the magnitude of change is deemed to be medium-low. The effect would, therefore, be **minor** and not significant in EIA terms during construction. The effect is adverse, direct with permanent effects limited to the area of the proposed onshore substation. Other effects such as along the cable corridor are temporary, localised and reversible.

HEDGEROWS AND TREES

214. Hedgerows found along the route of the cable corridor and at the site of the onshore substation predominantly enclose field boundaries and line the routes of the minor road network (see site context photographs 7-10 in Volume 3 Figure 6.7a). A common feature of the baseline landscape, hedgerows can vary in height and quality and are frequently combined with post-and-wire fences to enclose field margins. Although intermittent in their coverage, hedgerows are generally well maintained and of a good quality.
215. Tree cover throughout the Proposed Development site is mixed. In coastal areas, tree cover is restricted to small groups of trees around farmsteads and irregular bands of shelterbelt planting, including along the route of the A1 trunk road. Deciduous scrub woodland follows the route of water courses inland. At higher elevations coniferous belts and occasional field boundary trees are seen with larger areas of woodland limited river channels including at the Braidwood Burn, which is crossed by the cable corridor within the Monymut to Blackcastle SLA. Coniferous plantation is limited to the edge of the LVIA study area, at High Wood.

Sensitivity of the receptor

216. Hedgerows and trees are an important landscape feature and contribute to the rural character of the LVIA study area. Small groups of trees and areas of woodland are also characteristic features of the landscape, providing structure and enclosure. Hedgerows and trees support a reduction in carbon emissions and provide vital habitat corridors within the managed landscape, increasing their value. The value of hedgerows and trees is therefore considered to be medium-high.
217. The susceptibility of hedgerows and trees is related to the condition of the existing landscape feature, its maturity and the perceived overtness of its loss and the duration required for reinstatement. Where hedgerows and trees are in good, mature condition a higher susceptibility would apply, for example medium or high, as their loss would be more apparent and replacement planting would require longer to reach a comparable condition. Poorer quality, scrub vegetation is, in comparison, of lower susceptibility, i.e., medium-low. The hedgerows and trees that are potentially disturbed by the Proposed Development are deemed to be of overall good quality and as such susceptibility is considered to be medium-high.
218. Taking this into account, the sensitivity of hedgerows and trees is considered to be medium-high.

Magnitude of change

219. The considered onshore substation site selection process and routing of the cable corridor has sought to reduce the loss of hedgerows and trees as far as possible.
220. The construction of the onshore substation would require the permanent loss of a single section of mature hedgerow, at the centre of the site. A second poorer quality, irregular section of field boundary hedgerow would also be removed towards the west of the proposed onshore substation site. Beyond the onshore substation site, loss of hedgerows would be limited to smaller sections along the route of the cable corridor, at material storage areas and for access from the minor road network to construction compounds. Hedgerows along the cable route can generally be reinstated following completion of the works.
221. The proposed widening of the existing culvert to the Dry Burn, south of the landfall, would result in the permanent loss of a small number of damaged, poorer quality trees (see site context photograph 5 in Volume 3 Figure 6.7a). A proposed cable bridge crossing of the Braidwood Burn, in the Monymut to Blackcastle SLA, would not result in the loss of any mature trees. No further loss of trees is required for the Proposed Development.
222. The permanent loss of hedgerows would be limited to the footprint of the onshore substation area, comprising a small proportion of an extensive element of the LVIA study area. Similarly, permanent tree loss would be contained to the 12 m extension of the existing Dry Burn culvert. Sections of hedgerow removed during the construction phase would be replaced. The reinstatement of lost hedgerows would mitigate the physical effects by filling gaps resulting from the Proposed Development and restoring the previous boundary. This process is anticipated to take 3-5 years for lower hedgerows and 5-10 years for taller, more mature hedgerows.
223. Taking all of this into account, the magnitude of change is considered to be low.

Significance of the effect

224. The sensitivity of the receptor is considered to be medium-high and the magnitude of change is deemed to be low. The effect would, therefore, be **moderate-minor** and not significant in EIA terms during construction. The effect is adverse, direct with permanent effects localised to the area of the proposed onshore substation and Dry Burn. Other effects are considered to be adverse, localised, reversible and short-medium term. The proposed tree planting would more than replace and compensate for the relatively small amount of tree losses resulting from the Proposed Development.

COASTAL LANDSCAPE

225. The FTOWDG SCA characterises the coastline of the LVIA study area as SA17: Eyebroughty to Torness Point and SA18: Torness Point to St Abbs Head. A large portion of the coastline in this location is identified as an SSSI in recognition of both geological and ecological features that are rare in East Lothian and central Scotland and the Proposed Development landfall is within the Dunbar to Barns Ness Coast SLA. The area is also a popular local recreational resource as a result of striking coastal scenery, the John Muir Link and a number of public car parks and picnic spots.
226. The East Lothian coastline at the Proposed Development landfall comprises various distinct features that combine to create the coastal character experienced at Chapel Point. These features include the wave cut platform, the stony beach, the raised beach platform comprising dune grassland, salt marsh and shingle habitats, agricultural fields of semi-improved pasture and recreational routes (see site context photographs 1-4 in Volume 3 Figure 6.7a).

Sensitivity of the receptor

227. The coastal area at the Proposed Development landfall is within the Dunbar to Barns Ness Coast SLA and is identified as a SSSI, heightening its value. The raised beach platform, immediately inland, segregates the coast to a degree, creating a perception of isolation which is eroded by the visible presence of industrial sites such as Dunbar Cement Plant and Torness Power Station. Nevertheless, this is a robust, large-scale landscape that is exposed to the elements. The value of the coastal landscape is considered to be high.
228. The beach in this location is stony and narrow and acts as a link between the larger, sandy beaches at White Sands and Thorntonloch. The use of trenchless technology (e.g. HDD) to bring the offshore export cable from sea to the landfall location means there would be no open-cut trenching of the coastline and susceptibility to change is considered to be medium-low.
229. Taking this into account, the sensitivity of the coastal landscape is considered to be medium-high.

Magnitude of change

230. Potential physical change to the coast as a result of the Proposed Development would be limited to the process to bring the offshore export cable ashore. The landfall construction would involve trenchless technology (e.g. HDD) underneath the beach and rock platform to the pastoral field positioned on the raised beach platform, immediately behind the beach.
231. Disturbance of this area would involve construction compounds, material storage areas and temporary access tracks. The construction of Transition Joint Bays at the landfall would involve the excavation of ground, construction of a permanent underground chamber and the erection of a temporary structure to ensure a weatherproof working environment during cable jointing.
232. Construction activity would be contained within the existing field boundary with the beach (site context photograph 4 in Volume 3 Figure 6.7a). Following completion of the construction phase, disturbed areas would be reinstated to their previous pastoral land use meaning the disruption would be temporary and short-term in nature. Permanent security fencing will be constructed to protect the Transition Joint Bays during the operation of the Proposed Development.
233. The magnitude of change is therefore considered to be low.

Significance of the effect

234. The sensitivity of the receptor is considered to be medium-high and the magnitude of change is deemed to be low. The effect would, therefore, be **moderate-minor** and not significant in EIA terms during construction. The effect is direct, adverse, localised, temporary and reversible.

6.11.3. LANDSCAPE CHARACTER ASSESSMENT

Preliminary Landscape Character Assessment

235. Landscape character receptors within the LVIA study area (including LCTs and landscape designations) are assessed to identify those likely to be affected by the Proposed Development.

Onshore Cable Corridor and Landfall

236. While some semi-improved pasture is present along the proposed cable route (at the proposed landfall location and on hill slopes to the south), the majority of the route crosses arable fields of varying quality.
237. Agricultural practices - such as ploughing or seeding fields, harvesting crops and operating farm machinery – are a fundamental characteristic of LCT 277: Coastal Margins – Lothians and LCT 269: Upland Fringes – Lothians as well as the broader LVIA study area. The nature of this land use means the appearance of the landscape, particularly in terms of ground cover, evolves and varies at different times of the year. Ground excavation and crop cultivation form prominent features of existing agricultural practices and are a widespread characteristic of the LVIA study area.
238. Along the cable route, fields are bound by mature hedgerows of mixed quality and, at higher elevations, occasional stone walls. Tree cover is typically in the form of shelterbelt planting lining field boundary or roads, deciduous woodland on the steeper slopes of incised river channels including at the Braidwood Burn and scrub and broadleaf woodland lining the stream courses, such as the Dry Burn north of Skateraw Farm. Occasional field boundary trees are also evident.
239. The coastal area at the proposed landfall location comprises rocky foreshore, the narrow stony beach and large pastoral field that lies immediately inland. The landform of the raised beach segregates and contains this coastal area, creating a sense of isolation that is undermined by the industrial sites at Dunbar Cement Works and Quarry and Torness Power Station.
240. The construction of the proposed cable corridor would involve trenchless technology (e.g. HDD) and open-cut trenching in predominantly arable fields, resulting in short-term changes to parts of the landscape accustomed to arable agriculture. Construction would also introduce temporary access tracks, haul roads, material storage areas and compounds and plant operating within the landscape.
241. The considered routing of the cable corridor has sought to reduce the permanent loss of hedgerows and trees as far as reasonably practicable. The loss of hedgerows along the cable route would be limited to small sections at material storage areas and to allow access to compounds from the minor road network. The widening of the existing culvert to the Dry Burn, north of Skateraw Farm, would result in the permanent loss of a small number of damaged, poorer quality trees (see context photograph 5 in Volume 3 Figure 6.7a). The proposed cable bridge crossing of the Braidwood Burn, which lies within the Monynut to Blackcastle SLA, would not result in Mature tree loss. No woodland removal would occur.
242. Construction to bring the offshore export cable ashore, at landfall, would also utilise trenchless technology (e.g. HDD) meaning there would be no open-cut trenching of the coastline. However, disturbance of the pastoral field immediately inland would involve construction compounds, material storage areas and temporary access tracks. The construction of Transition Joint Bays at the landfall would involve the excavation of ground, construction of a permanent underground chamber and the erection of a temporary structure to ensure a weatherproof working environment during cable jointing.
243. Although crossing a sizeable portion of the landscape between Chapel Point and Branxton, the changes resulting from the construction process are limited to the extents of the cable route and are, on the whole, temporary and reversible.
244. Following installation of the onshore cables, open-cut trenches would be backfilled and then reinstated to their previous land use and productivity. Material storage areas, construction compounds and temporary access tracks would be fully restored to their current land use. Sections of hedgerow removed along the cable route would be reinstated following completion of works meaning the effects as a result of their removal would be temporary and confined, given the prevalence of hedgerows through the LVIA study area.

245. During construction of the landfall, changes to the key characteristics of the beach and seascape would be restricted to very localised disruption for a short period of time. Compounds, plant, material storage and any associated physical disturbance to facilitate the landfall construction would be contained within the existing field boundary west of Skateraw Harbour for a short duration, anticipated to be less than the 40-month construction programme. No physical disturbance of the beach or rock platform is required to bring the offshore export cable ashore to the landfall.
246. The outlined effects during the construction of the onshore cable corridor and landfall are associated with the key characteristics of LCT 277: Coastal Margins – Lothians and LCT 269: Upland Fringes – Lothians as well as SA17: Eyebroughty to Torness Point that these elements of the Proposed Development would be located within. However, temporary effects during the construction process would exert a limited influence upon landscape and seascape characteristics and are judged to be restricted to their physical extent over a short period of time.
247. It is considered that whilst these effects have some association with the landscape and seascape in which the proposed cable route and landfall are proposed, they are only likely to experience a low scale of change and/ or effects experienced over limited geographic areas. Upon completion of construction, there would be very limited or no permanent change to the key characteristics of the landscape or seascape. Consequently, it is predicted the proposed onshore cable corridor and landfall would not comprise defining or prevailing features of the baseline landscape or seascape.
248. The temporary nature of the construction process, in conjunction with the reinstatement of disturbed land to its previous use and productivity during operation of the Proposed Development, is considered to preclude significant landscape or seascape character effects. This includes potential effects upon the higher sensitivity designated landscapes at the Dunbar to Barns Ness Coast SLA, where the proposed landfall and onshore cable corridor are located, and the Monynut to Blackcastle SLA, which a short section of the onshore cable corridor negotiates via a proposed cable bridge crossing south of Thornton Law.
249. Attributable effects upon landscape and seascape character that may arise as a result of the onshore cable corridor and landfall are subsequently not considered further in the LVIA chapter, as it is judged there is no potential for significant effects to occur.

Onshore Substation

250. Table 6.10 below identifies the landscape character receptors within the LVIA study area with the potential to undergo significant effects as a result of the proposed onshore substation and, consequently, will be carried forward to the detailed assessment process. Please refer to Volume 3 Figure 6.3 Landscape Character, Figure 6.4 Landscape Designations and Figure 6.10 which overlays the screened substation ZTV with LCTs and landscape designations.

Table 6.10: Preliminary Landscape Character Assessment – Onshore Substation

Landscape / Seascape Character Receptor	Comment
Status – Potential for significant effects and included in detailed assessment.	
LCT 277: Coastal Margins – Lothians	The onshore substation is located in this LCT.
LCT 269: Upland Fringes – Lothians	This LCT lies 500 m south of the onshore substation. It is characterised by the gentle slopes of inland hills that attain predominantly broad and open views across the lowlands to the coast.

Landscape / Seascape Character Receptor	Comment
Status – Considered further in preliminary assessment but found to have no potential for significant effects and not included in detailed assessment.	
SA17: Eyebroughy to Torness Point	<p>No potential for significant effects. Potential effects of the onshore substation would largely be restricted due to viewing distance and screening provided by intervening built form, topography (raised beach and cliffs) and woodlands.</p> <p>In close proximity to the Proposed Development, short sections of theoretical visibility are demonstrated. The existing industrial context of Torness Power Station is a major influence in this location and it is judged that intervening landscape elements and landform will constrain the limited theoretical visibility identified even further. See Volume 3, Figure 6.9 which illustrates the screening effect of woodlands.</p>
SA18: Torness Point to St Abbs Head	<p>No potential for significant effects. Potential effects of the onshore substation would be limited by intervening buildings, vegetation and landform of the raised beach reducing marginal areas of lower theoretical visibility between the coast to the south of Torness Power Station and the edge of the study area.</p>
SLA 29: Dunbar to Barns Ness Coast	<p>No potential for significant effects. The ZTV shows limited theoretical visibility across this designated landscape. Theoretical visibility is limited to partial visibility of the onshore substation at Skateraw Harbour/ Chapel Point, Barns Ness and at the western boundary with Broxmouth Park GDL. Actual visibility would be further limited by intervening localised vegetation and field boundary trees not included on the screened ZTV. Each of these locations are in very close proximity to the existing industrial developments at Torness Power Station and Dunbar Cement Plant.</p> <p>The presence of the landscape designation has informed the sensitivity assessment of LCT 277: Coastal Margins – Lothians, which coincides with part of the SLA.</p> <p>For reference, potential visual effects are represented by viewpoint 3, which is located at the southeast boundary of SLA 29 on the John Muir Link.</p>
SLA 30: Thorntonloch to Dunglass Coast	<p>No potential for significant effects. Theoretical visibility of the Proposed Development is shown across the western extent of the designated area. This portion of the SLA is dominated by the existing industrial context of Torness Power Station and the busy dualled A1 road corridor. This area is also less connected to the more scenic coastal characteristics associated with other areas of SLA 30 to the southeast. Further, fragmented and much less extensive patches of theoretical visibility is found along the coast to the south-east. Actual visibility is predicted to be reduced by intervening screening influences such as terrain, built form, the A1 trunk road and structures associated with ECML.</p> <p>The presence of the landscape designation has informed the sensitivity assessment of LCT 277: Coastal Margins – Lothians, which the SLA is located within.</p> <p>For reference, potential visual effects are represented by viewpoint 3, which is located at the southeast boundary of SLA 29 on the John Muir Link.</p> <p>For reference, potential visual effects are represented by viewpoint 1 on the A1 and viewpoint 3 on the John Muir Link. Both of these viewpoints are within the area of the SLA that is</p>

Landscape / Seascape Character Receptor	Comment
	dominated by the strong influence of industrial and transport infrastructure context.
SLA 7: Doonhill to Chesters	<p>No potential for significant effects. Theoretical visibility of the Proposed Development is illustrated across northern and western hill slopes of the SLA. Further theoretical visibility is shown at the eastern-most extent of the designation, at Thurston. Coastal views from the SLA towards the Proposed Development are punctuated by existing industrial development at Torness Power Station, Dunbar Cement Plant and Dunbar Energy Recover Facility. With increased distance, the intervening topography of Pinkerton Hill will reduce actual visibility.</p> <p>The presence of the landscape designation has informed the sensitivity assessment of LCT 269: Upland Fringes – Lothians, which the SLA is located largely within.</p> <p>For reference, potential visual effects are represented by viewpoint 5, which is located at the eastern boundary of SLA 7 at its closest point to the Proposed Development.</p>
SLA 4: Monymut to Blackcastle	<p>No potential for significant effects. The ZTV shows three bands of theoretical visibility of the onshore substation across parts of the northern hill slopes of this designated landscape. Coastal views from the SLA towards the Proposed Development are punctuated by existing industrial development at Torness Power Station, Dunbar Cement Plant and Dunbar Energy Recover Facility.</p> <p>The presence of the landscape designation has informed the sensitivity assessment of LCT 269: Upland Fringes – Lothians, which the SLA is located largely within.</p> <p>For reference, potential visual effects are represented by viewpoint 6, located at Blackcastle Castle on the northern hill slopes of SLA 4.</p>
Broxmouth Park GDL	<p>No potential for significant effects. The ZTV illustrates theoretical visibility of the Proposed Development on the eastern boundary of the designation. Potential effects as a result of the onshore substation from this area would be restricted by distance, the intervening Dunbar Cement Plant, the A1 trunk road and structures associated with the ECML. The GDL is characterised by mature woodland boundaries which enclose the core of the designation. More recent woodland has also been planted along this eastern boundary adjoining the restored former quarry site at Dunbar Cement Plant and the access road to White Sands beach.</p>
<p>Status – Limited or no level of influence to the defining characteristics due to limited, distant or no visibility of the proposed development such that there is no potential for significant effects.</p>	
LCT 278: Coastal Terraces – Lothians	
LCT 275: Lowland Farmed Plain – Lothians	
LCT 110: Coastal Farmlands – Borders	
LCT 266: Plateau Moorland – Lothians	
SLA 6: Halls to Bransley Hill	
SLA 7: Berwickshire Coast (SBC)	
Dunglass GDL	

6.11.4. DETAILED LANDSCAPE CHARACTER ASSESSMENT - ONSHORE SUBSTATION CONSTRUCTION AND OPERATION

LCT 277: COASTAL MARGINS – LOTHIANS

251. NatureScot Landscape Character Assessment (LCA) for Scotland describes the key characteristics of the LCT as follows:

- Undulating agricultural hinterland of smooth convex curves.
- Shallow unobtrusive stream courses.
- Diverse coastal scenery provided by prominent rounded headlands and extensive rocky cliffs at the coast, with quiet sheltered coves containing small sand and pebble beaches backed by grassy dunes.
- Agricultural character with medium to large scale arable fields, contained by intermittent hedgerows and post-and-wire fences, although this has been fragmented in places to accommodate road, railway and power station development.
- Stone walls edge roadsides and occasional field boundaries on higher slopes.
- Stream courses delineated by scrub and broadleaf woodland.
- Scattering of traditional farms, houses and steadings served by numerous twisting minor roads.
- Parallel transport corridors of the A1 trunk road and rail line form significant linear features, with bridges, embankments and structures.
- Recreational facilities such as picnic sites, and caravan and camping sites.
- Extensive views of the open sea and industrial development due to flat terrain and few woodlands.

Sensitivity of the receptor

252. The coastline is a popular recreational resource with various car parks and picnic spots associated with its many beaches. The coastal parts of this LCT within the LVIA study area are locally designated as the Dunbar to Barns Ness Coast SLA, to the north-west, and the Thorntonloch to Dunglass Coast SLA, to the south-east. This stretch of the East Lothian coast is characterised as a historic, industrial landscape encompassing sites of pre-historic settlement, lime quarrying and is flanked within the LVIA study area by the GDLs at Broxmouth Park and Dunglass. However, the larger area of this LCT is not designated and not specifically recognised for its scenic quality. Taking this into account the value of this LCT is considered to be medium.

253. Although located within this LCT, the onshore substation would occupy a localised portion of the wider character area. The Coastal Margins – Lothians LCT comprises an expansive rolling plain of medium-large scale agricultural fields lying inland from a rocky and complex coastline. The nature of the agricultural land use means the appearance of the landscape, particularly in terms of ground cover, can evolve and change throughout the year as a result of human influence. The coastal plain is also crossed by the A1 trunk road and ECML which form considerable linear features of the landscape. Structures associated with both routes, including bridges, tunnels, overhead lines and lighting columns, are visible features of the landscape in the vicinity of the Proposed Development. The LCT offers open views to the North Sea, however, these extensive views are disrupted by prevalent industrial development along the coastline. Modern influences on the LCT include Torness Power Station, Dunbar Cement Plant and the Dunbar Energy Recovery Facility. Taking this into account, susceptibility to change is considered to be medium.

254. Taking into account the medium value and medium susceptibility, the sensitivity of this LCT is considered to be medium.

Magnitude of change

255. As the onshore substation is located within the Coastal Margins – Lothians LCT, it will directly change features that contribute to its character. The Proposed Development would result in the permanent loss of agricultural land and field boundary hedgerows within the footprint of the onshore substation and permanent access tracks. This agricultural land would be replaced by industrial land use.
256. Beyond these physical effects, remaining effects upon this LCT would relate to potential visibility of the onshore substation from the wider landscape. The ZTV on Figure 6.8 shows that the theoretical visibility of the onshore substation is largely contained within a 3km area of this LCT from the Dunbar Cement Plant in the northwest and Dunglass in the southeast. Figure 6.10 includes the screening effect of woodland blocks alongside landscape character which illustrates the reduced visibility across this area. The gradual rolling profile of the coastal plain would offer a degree of screening to the Proposed Development, as would shelterbelt planting following the route of the A1 trunk road (north of the site) and the deciduous woodland that follows the course of streams through the LCT. Visibility of the onshore substation is restricted in coastal areas by intervening topography, woodlands and existing industrial development. Actual visibility is therefore more restricted and unobstructed views of the onshore substation are limited to contained to a range of approximately 1 km.
257. The Proposed Development would introduce an area of industrial development to a landscape context currently subject to widespread human influence and agricultural management that are both characteristic features of the LCT. Existing industrial development forms a feature of existing views to the open sea.
258. During the construction phase, the increased parcel of land needed for material storage and laydown areas, construction compounds and temporary access tracks would exert a more prominent influence on the character of the LCT. Once operational, these areas would be reinstated to their former land use and productivity as agricultural fields.
259. Taking this into account, the magnitude of change is considered to be medium-high at the substation site, its immediate setting and extending to a range of approximately 1 km during construction, year 1 and in the years immediately following. Beyond this range, the magnitude of change is considered to be medium-low across the wider context of the LCT during construction and year 1.
260. In year 15 when landscape mitigation planting has matured the magnitude of change is considered to be medium for the localised area of the substation site and within approximately 1 km. Beyond this range, the magnitude of change is considered to be low across the wider context of the receptor in year 15.

Significance of the effect

261. The effect is considered to be **moderate** and significant in EIA terms to a range of approximately 1 km during construction, in year 1 and in the years immediately following. The significant effect is largely due to the introduction of large scale industrial infrastructure, which would permanently alter the key characteristics of a localised part of the LCT. The effect is considered to be **moderate-minor** in EIA terms and not significant beyond this localised area within the wider context of the LCT.
262. In year 15, the effect would reduce to **moderate** and not significant in EIA terms within the localised area (approximately 1 km) due to the effect of mitigation planting which would combine with existing strips of woodland to moderate the effect on key landscape characteristics in the area. The effect in year 15 within the wider context of this LCT is considered to reduce to **minor** and not significant in EIA terms.
263. Construction effects are direct, adverse, reversible and temporary. Operational effects are direct, adverse and permanent.

LCT 269: UPLAND FRINGES – LOTHIAN

264. NatureScot LCA for Scotland describes the key characteristics of the LCT as follows:

- Broadly undulating, landforms forming a series of smooth rounded hills and slopes, some steep-sided and some gently sloping, shelving gradually from the Uplands northward to merge with rolling farmlands.
- Occasional hills where underlying geology incorporates harder strata.
- Varied scale, openness and land use reflecting transitional nature between upland and lowland.
- Incised watercourses have etched V-shaped valleys into the slopes, often forming deep cleughs.
- Occasional larger rivers flow through similar, but larger-scale, V-shaped channels.
- Remnant heather moorland and rough grassland on high ground gives way to improved grassland and then to arable land on the lowest elevations, with a parallel transition from post and wire fence and walls to beech and hawthorn hedges.
- Some areas of extensive coniferous forest, but tree cover is more frequent in the form of shelterbelts.
- Deciduous woodland is restricted to steeper land in river channels, though this includes some important ancient woodlands.
- Dispersed settlement pattern of farmsteads and clusters of cottages, with occasional small villages.
- Distinctive character of rural road network, dense in places, including local features such as fords and bridges.
- Quarries, overhead lines and busy A roads which have localised influence in some parts of the landscape;
- Clearly transitional landscape between lowland and upland characters.
- Views across the lowland, and to the coast in the east, backed by the ridge lines of the hills to the south.

265. This is a large-scale LCT, extending from the east coast of Scotland across the Lothians to Penicuik, south of Edinburgh. Consequently, some of the key characteristics describe areas that are a considerable distance from the Proposed Development.

Sensitivity of the receptor

266. Notable landform within the LVIA study area include the Brunt, Doon, Pinkerton and Blackcastle (Cocklaw) Hills which extend easterly towards the coast. These hills are locally designated by ELC as the Doonhill to Chesters SLA and Monynut to Blackcastle SLA for their high scenic value and historic importance. The Upland Fringes – Lothians LCT comprises a range of rounded, low hills on the eastern fringe of the Lammermuir Hills that provide the backdrop to inland views from the coastal plain, south of Dunbar. The unit forms a transitional landscape between upland fringes and the coastal lowlands. The steeply sloped, wooded river valleys of the LCT dissect hill summits and are sheltered and visually contained, whereas a principally open aspect is experienced on hill slopes and at higher elevations, affording expansive views over the coastal plain to a horizon of open sea. Taking this into account the value of this LCT is considered to be medium-high.

267. The onshore substation is not located within this LCT and whilst the eastern boundary of the character type lies 500 m south of the site intervening topography limits the potential influence of the Proposed Development on the characteristics of this LCT. This large-scale LCT extends from the beyond the study area and across the Lothians, to Penicuik. Long range views from the LCT towards the coast is punctuated by the series of industrial developments south of Dunbar at Dunbar Cement Plant (including operational quarrying), the Dunbar Energy Recovery Facility and Torness Power Station. Existing major electrical infrastructure is also sited within this character type including overhead power lines that track east to west within coastal views. The Blackcastle Hill radio tower and Barns Ness

Lighthouse form visual landmarks within views into and out of the LCT, respectively. Susceptibility to change of this LCT is considered to be medium-low.

268. Taking into account the medium-high value and medium-low susceptibility, the sensitivity of the receptor is considered to be medium.

Magnitude of change

269. The Proposed Development is located outside this LCT and consequently would not result in the direct loss or alteration of features that contribute to its character.
270. The ZTV of the onshore substation demonstrates relatively limited theoretical visibility across the eastern Lammermuir Hills, in three bands across Thornton Hill and Blackcastle (Cocklaw) Hill. Further areas of theoretical visibility are shown on the eastern slopes of Pinkerton and Doon Hill, the southern slopes of Brunt Hill and in Innerwick. A greater degree of visual influence, as a result of the Proposed Development, is restricted by the topography of the character type and the presence of linear woodlands, shelterbelts and deciduous woodland following the steep slopes of incised river channels.
271. Resultant effects upon the features that contribute to the character and value of the LCT are judged to be restricted to the influence of the onshore substation upon outward visibility from the LCT, to the coast. The Proposed Development would appear as an additional industrial land use within expansive, long-range views from elevated locations. The ZTV shows that the extent of this influence is limited to eastern slopes of terrain extending from the upland fringes into the coastal plain. The onshore substation would also become a component of coastal views from Innerwick. Baseline sea views from these locations already encompass industrial development, major transport routes, such as the A1 trunk road and ECML, and other human influences, including agriculture which alters ground cover throughout the year.
272. Taking this into account, the magnitude of change is considered to be medium-high in closer proximity to the onshore substation along the northern boundary of the LCT (within around 1 km of the onshore substation), during construction, year 1 and in the years immediately following. Across the wider context of the LCT, the magnitude of change is considered to be medium-low during construction, year 1 and in the years immediately following. This includes the elevated eastern hill slopes of the Lammermuir fringe.
273. In year 15 when landscape mitigation planting has matured the magnitude of change is considered to reduce to medium in close proximity to the Proposed Development, on the northern boundary of the LCT (within around 1 km of the onshore substation). In the wider context, the magnitude of change is considered to remain medium-low at year 15. The elevated nature of the eastern hill slopes Lammermuir fringe means that the proposed planting has less mitigation potential to influence the effect on this part of the LCT.

Significance of the effect

274. The effect is considered to be **moderate** and significant in close proximity (within around 1 km) to the Proposed Development during construction, year 1 and in the years immediately following. The significant effect is largely due to the introduction of large scale industrial infrastructure, which would significantly influence key characteristics of a localised part of the LCT. The effect is considered to be **moderate-minor** and not significant in EIA terms beyond this localised area within the wider context of the LCT.
275. In year 15, the effect would reduce to **moderate** and not significant in close proximity (within around 1km) to the Proposed Development due to the effect of mitigation planting which would combine with existing vegetation to moderate the effect on key landscape characteristics in the area. The effect in year 15 within the wider context of this LCT is considered to remain **moderate-minor** and not significant.

276. Construction effects are indirect, adverse, reversible and temporary. Operational effects are indirect, adverse and permanent.

6.11.5. PROPOSED MONITORING

277. No monitoring to test the predictions made within the landscape effects section of the LVIA chapter is considered necessary.

6.11.6. ASSESSMENT OF VISUAL EFFECTS

Preliminary Visual Effects Assessment

278. Principle visual receptors and viewpoints within the LVIA study area are assessed to determine those likely to be influenced by the Proposed Development.

Preliminary Visual Effects Assessment – Onshore Cable Corridor and Landfall

279. As described in section 6.8.2, the visual effects of the onshore cable corridor and landfall would largely relate to the construction phase. The visual presence of open-cut trenching, trenchless technology (e.g. HDD) within construction compounds, material storage areas and temporary access tracks have the potential to exert attributable effects upon visual receptors in the LVIA study area.

280. The preliminary assessment of visual effects, as a result of the onshore cable corridor and landfall, therefore, identifies receptors considered to have the potential to experience significant visual effects during the construction phase. Table 6.11, below, identifies such receptors and determines those for inclusion in the detailed assessment process.

Table 6.11: Preliminary Visual Effects Assessment – Onshore Cable Corridor and Landfall (Construction)

Visual Receptor	Comment
Status – Potential for significant effects and included in detailed assessment.	
John Muir Link - west of Chapel Point	Potential for significant visual effects in close proximity to the landfall from cable installation using trenchless technology (e.g. HDD), the construction compound and associated access tracks and material storage areas. Included in the detailed assessment process. Potential effects from the elevated, coastal section of the John Muir Link, above Skateraw Harbour and west of Torness Power Station are assessed in detail by viewpoint 3 (see section 6.11.6 and Volume 3 Figure 6.17).
Individual property at Links Cottage, Skateraw Harbour	Potential for significant visual effects in close proximity to the landfall from cable installation using trenchless technology (e.g. HDD) the construction compound and associated access tracks and material storage areas. Included in the detail assessment process.
Individual property at Castledene	Potential for significant visual effects in close proximity to landfall from cable installation using trenchless technology (e.g. HDD), the construction compound and associated access tracks and material storage areas north of Castledene Scheduled Monument. Included in the detail assessment process.
Settlement at Innerwick	Potential for significant effects within views at relatively close range to the onshore cable corridor, 700 m south-west of the onshore substation site. Assessed in detail by Viewpoint 2 (see section 6.11.6 and Volume 3 Figure 6.16).
Thurston Manor Caravan Park	Potential for significant effects as a result of cable corridor construction within easterly views from the entrance to Thurston Manor Caravan Park. Assessed in detail by Viewpoint 5 (see section 6.11.6 and Volume 3 Figure 6.19). This viewpoint is also representative of potential visual effects from the minor road network 1.5 km west of the cable corridor and onshore substation.

Visual Receptor	Comment
Elevated Hills to the south of the coastal plain	Assessed in detail by Viewpoint 6 Blackcastle Hill (see section 6.11.6 and Volume 3 Figure 6.20).
Status – Considered further in preliminary assessment but found to have no potential for significant effects and not included in detailed assessment	
Group of properties at Skateraw	<p>Potential visibility at Skateraw is limited by intervening woodland and large agricultural buildings at Skateraw Farm that reduce views towards the cable corridor and associated construction activities. Some oblique visibility to the initial inshore section of cable corridor may be achieved from the single-track road that services these terraced properties. Temporary access tracks have been designed so that the road passing these properties is not needed for construction access.</p> <p>Similarly, Skateraw House is set within mature woodland that would limit views towards the onshore cable corridor. The temporary, short-term and reversible nature of any minor changes are not considered to have the potential to result in significant effects.</p>
Individual property at Fouracres	Potential visibility is limited by context of mature woodland that surrounds the property, restricting outward visibility towards the cable corridor and associated construction activities. The temporary, short-term and reversible nature of the change is not considered to have the potential to result in significant effects.
A1 trunk road	<p>Potential visibility in close proximity to trenchless technology (e.g. HDD) compounds and construction of the cable corridor would be restricted by coniferous shelterbelts and roadside vegetation. Where visible, it is judged that construction of the cable corridor, including trenchless technology (e.g. HDD), would be viewed for a short distance (as little as 1 km) and away from the direction of travel. The mitigation proposals detailed in section 6.10 include infilling a short gap in the shelterbelt planting on the southern margin of the road.</p> <p>Potential effects of the onshore substation and cable corridor from the A1 west of Torness Power Station, are assessed in detail by viewpoint 1 (see section 6.11.6 and Volume 3 Figure 6.15). Whilst the visual effects of users of this road are assessed at viewpoint 1, it is considered that the level of change along this route would not have the potential to result in significant sequential effects for the wider route within the study area.</p>
ECML	Potential visibility in close proximity to trenchless technology (e.g. HDD) compounds and construction of the cable corridor would be restricted by the embankments and bridge of the A1 trunk road, coniferous shelterbelt and large agricultural buildings west of Skateraw House. Where visible, it is judged that construction of the cable corridor, including trenchless technology, would be viewed fleetingly due to the speed of travel of receptors on the ECML and would not have the potential to result in significant sequential effects.
NCR 76	<p>Potential visibility in close proximity to trenchless technology (e.g. HDD) compounds and construction of the cable corridor would be limited to a 2.5 km section of the total 270 km route of NCR76, west of Skateraw. This portion of the NCR is in close proximity to the existing industrial sites at Dunbar Cement Plant (operational quarry), Dunbar Landfill, Dunbar Energy Recovery Facility and Torness Power Station.</p> <p>Construction activities would present a variation to the baseline visual resource and introduce new temporary features. However, this activity is not considered to be wholly out of context within the agricultural setting and the change presented within views would also be temporary, short-term and reversible. Disruption to the route to enable the cable corridor to cross the unclassified road would be limited to approximately two days.</p> <p>Whilst the visual effects of users of this route are assessed at viewpoint 1, it is considered that the level of change along other parts of this route would not have the potential to result in significant sequential effects for the wider route within the study area.</p>
Minor road network in vicinity of Proposed Development	The onshore cable corridor crosses the minor road network in three separate locations – west of Skateraw, west of Crowhill and west of the individual property at Fouracres.

Visual Receptor	Comment
	<p>The cable corridor would cross these points using open-cut trenching. This process would only take a short time to complete few and although road closures will be required, local access will be maintained via diversions. Resultant visual effects experienced by road users would therefore be temporary and entirely reversible.</p> <p>The construction phase for the cable corridor would introduce a greater number of vehicles to minor roads in the vicinity of the site and a number of new access points would be added to field boundaries. However, temporary access tracks incorporated within the Proposed Development have been designed to minimise effects upon the minor road network.</p> <p>The construction process would involve the excavation of agricultural land, the operation of machinery and storage of excavated materials within field boundaries. These activities would present a variation to the baseline agricultural activity and introduce new temporary features to the visual resource. However, this activity is not considered to be wholly out of context within the agricultural setting and the change presented within views would also be temporary, short-term and reversible. It is predicted that the extensive presence of roadside and field boundary hedgerows and walls would frequently screen views of the cable corridor construction activity.</p> <p>Taking this into account it is considered that the level of change would not have the potential to result in significant sequential effects.</p>
Core Path 18, north of Innerwick	<p>Potential visibility across northern part of the core path, where it meets the minor road south of the onshore substation, at close range. The construction of the cable corridor, involving the excavation of farmland, use of machinery in fields and storage of excavated material, is not considered wholly out of context with the agricultural setting. Although the Proposed Development would involve a variation to the baseline agricultural landscape, introducing new temporary features to the visual resource, this would be temporary, short-term and reversible.</p> <p>Taking this into account it is considered that the level of change would not have the potential to result in significant sequential effects.</p>
Status – Limited level of influence due to restricted or distant visibility of the proposed development such that there is no potential for significant effects.	
Skateraw Beach Car Park	No visibility of the landfall trenchless technology (e.g. HDD), construction compound and associated access tracks and material storage area is predicted at the car park, which sits in a sheltered cover and is enclosed to the west by mature woodland.
Other core paths in the LVIA study area	Attributable visual effects upon the broader core path network are considered unlikely. If attained, visibility towards the landfall or cable corridor are predicted to be distant, restricted, temporary and short-term.
Group of properties at Thorntonloch Holdings	No visibility of the onshore cable corridor construction activities.
Group of properties at Crowhill	Potential visibility is limited by intervening landform and adjoining, large agricultural buildings which limit westerly visibility towards the cable corridor and associated construction activities. The primary orientation and gardens of the properties are to the north-east. The temporary, short-term and reversible nature of the change is not considered to have the potential to result in significant effects.
Group of properties at Glenburn House	Potential visibility is restricted by location within steep sided river channel, lined with mature deciduous woodland, limiting views towards the cable corridor and associated construction activities. The temporary, short-term and reversible nature of the change is not considered to have the potential to result in significant effects.

Preliminary Visual Effects Assessment – Onshore Substation

281. Potential construction and operational visual effects as a result of the onshore substation are assessed and reported together to avoid duplication of detailed baseline and sensitivity assessments.

282. Accordingly, the preliminary assessment in Table 6.12, below, considers these phases of the Proposed Development together and identifies visual receptors that have the potential to undergo significant effects requiring inclusion in the detailed assessment process.

Table 6.12: Preliminary Visual Effects Assessment – Onshore Substation (Construction and Operation)

Visual Receptor	Comment
Status – Potential for significant effects and included in detailed assessment.	
John Muir Link	Potential for significant effects upon inland views from elevated coastal sections of the route, above Skateraw Harbour and west of Torness Power Station are assessed in detail by Viewpoint 3 (see section 6.11.6 and Volume 3 Figure 6.17).
Settlement at Innerwick	Potential for significant effects within views at relatively close range to the onshore substation site, 700 m south-west. Assessed in detail by Viewpoint 2 (see section 6.11.6 and Volume 3 Figure 6.16).
Thurston Manor Caravan Park	Potential for significant visual effects as a result of the onshore substation from the entrance to Thurston Manor Caravan Park. Other parts of the caravan park are set within woods limiting visibility. Assessed in detail by Viewpoint 5 (see section 6.11.6 and Volume 3 Figure 6.19). This viewpoint is also representative of potential visual effects from the minor road network 1.5 km west of the onshore substation.
Group of properties at Thorntonloch Holdings	Potential for significant effects within views to the onshore substation. Assessed in detail by viewpoint 4 (see section 6.11.6 and Volume 3 Figure 6.18).
A1 trunk road	<p>Potential for significant visual effects as a result of the onshore substation are assessed in detail by viewpoint 1 (see section 6.11.6 and Volume 3 Figure 6.15).</p> <p>This location is considered to represent the maximum attributable effects of the onshore substation upon receptors travelling through the landscape on the A1 trunk road. Theoretical visibility of the onshore substation is shown for an approximate 2.5 km section of the route across the centre of the LVIA study area. Actual visibility attained by receptors using the route is predicted to be considerably less due to the presence of mature shelterbelt planting, hedgerows and roadside vegetation to the margins of the road. The mitigation proposals detailed in section 6.10 include enhancement of this shelterbelt planting to preclude potential for significant sequential visual effects that would include other sections of the A1.</p>
NCR 76	<p>Potential for significant visual effects as a result of the onshore substation are assessed in detail by viewpoint 1 (see section 6.11.6 and Volume 3 Figure 6.15).</p> <p>The portion of the NCR demonstrated as having theoretical visibility of the onshore substation is in close proximity to the existing industrial sites at Dunbar Cement Plant (operational quarry), Dunbar Landfill and Dunbar Energy Recovery Facility which, in conjunction with intervening topography and mature woodland bordering the A1 trunk road, are considered to screen broader visibility from the route across the LVIA study area, reducing the potential for significant sequential effects. The route also passes in close proximity to the ECML in this location. This location is considered to represent the maximum attributable effects of the onshore substation upon receptors travelling through the landscape on NCR 76.</p>
Core Path 18, north of Innerwick	Potential for significant effects across the northern part of the core path, where it meets the minor road south of the onshore substation, at close range.
Elevated Hills to the south of the coastal plain	Assessed in detail by Viewpoint 6 Blackcastle Hill (see section 6.11.6 and Volume 3 Figure 6.20).
Minor road network in vicinity of Proposed Development	The substation would be visible from the minor road network in the vicinity of the Proposed Development. Representative viewpoints of the minor road network specifically include – viewpoint 4 Minor road near Thornton (see section 6.11.6 and Volume 3 Figure 6.18) and viewpoint 5 minor road near Thurston (see section 6.11.6 and Volume 3 Figure 6.19) both of which are assessed in detail.
Individual property at Railway Cottage, Skateraw Gate	Potential for significant effects within views in close proximity to the onshore substation site. Property located 250 metres east, adjoining the ECML.

Visual Receptor	Comment
Status – Considered further in preliminary assessment but found to have no potential for significant effects and not included in detailed assessment	
Group of properties at Crowhill	The primary orientation and curtilage of properties in this location are primarily orientated to the north-east, with the onshore substation lying to the north-west. Additionally, the potential visibility is restricted by intervening farm buildings and topography. As a result, it is considered actual visibility of the onshore substation would be limited and lacking the potential to result in significant effects.
Individual property at Castledene	Potential visibility is limited by intervening topography, south of the onshore substation. As a result, any actual visibility of the onshore substation is predicted to be limited to the upper limits of the lightning rods atop the substation buildings. This change is not considered to have the potential to result in significant effects.
Group of properties at Thorntonloch	Potential visibility is limited by intervening screening by hedgerows and roadside vegetation towards the onshore substation. Existing major transport infrastructure (the A1 and ECML) also occupy positions between Thorntonloch and the Proposed Development; which is located north-west of the group of properties. The primary orientation of properties being to the north or south. Subsequently the onshore substation is not predicted to result in significant visual effects upon receptors in this location.
Thorntonloch Caravan Park	Potential visibility is limited by intervening topography, inland, south of Torness Power Station. Existing built form and mixed woodland at Thorntonloch enclose the western boundary of the caravan park, restricting inland visibility to the onshore substation further. As a result, it is considered actual visibility of the onshore substation would be minimal, if attained at all, and without the potential to result in significant effects.
ECML	Potential visibility in close proximity to the onshore substation would be restricted by the embankments and bridge of the A1 trunk road and coniferous shelterbelt. Where visible, it is judged that the Proposed Development, would be viewed fleetingly due to the speed of travel on the ECML, for a very short portion of the route, and would not have the potential to result in significant effects.
Status – Limited level of influence due to restricted or distant visibility of the proposed development such that there is no potential for significant effects.	
Individual property at Links Cottage, Skateraw Harbour	No visibility of the onshore substation is predicted at the property, which sits in a sheltered cover and is bound to the south by mature woodland at Skateraw Waterfall and Skateraw House.
Group of properties at Skateraw	No visibility of the onshore substation is predicted. Views towards the Proposed Development are restricted by the mature woodland and large agricultural buildings at Skateraw House.
Group of properties Glenburn House	No visibility of the onshore substation is predicted. Potential for significant visual effects is ruled out by location within steep sided river channel, lined with mature deciduous woodland, limiting views towards the onshore substation.
Individual property at Fouracres	No visibility of the onshore substation is predicted. Potential for significant visual effects is limited by context of mature woodland that surrounds the property, restricting outward visibility towards the onshore substation. In addition, intervening terrain is predicted to limit visibility to the Proposed Development.
Skateraw Beach Car Park	No visibility of the onshore substation is predicted at the car park, which sits in a sheltered cover and is enclosed to the west by mature woodland.
Other core paths in the LVIA study area	No visibility of the onshore substation is predicted across the broader core path network in the LVIA study area.

Summary of Preliminary Visual Assessment

283. The preliminary visual assessment has identified visual receptors for inclusion in the detailed assessment process on the basis of potential effects of the Proposed Development. These are as follows:

- **Viewpoint 1: A1, Skateraw Junction** – Onshore cable corridor (construction) and onshore substation (construction and operational);
- **Viewpoint 2: Innerwick** – Onshore cable corridor (construction) and onshore substation (construction and operational);
- **Viewpoint 3: John Muir Link near Skateraw Harbour** – Onshore cable corridor and landfall (construction) and onshore substation (construction and operational);
- **Viewpoint 4: Minor road near Thornton** – Onshore substation (construction and operational);
- **Viewpoint 5: Minor road near Thurston** – Onshore cable corridor (construction) and onshore substation (construction and operational);
- **Viewpoint 6: Blackcastle Hill** – Onshore cable corridor and landfall (construction) and onshore substation (construction and operational);
- **Individual property at Links Cottage, Skateraw Harbour** – Onshore cable corridor and landfall (construction);
- **Individual property at Castledene** – Onshore cable corridor and landfall (construction); and
- **Core Path 18, north of Innerwick** – Onshore substation (construction and operational).
- **Individual property at Railway Cottage, Skateraw Gate** - Onshore substation (construction and operational).

6.11.7. DETAILED VISUAL EFFECTS ASSESSMENT

VIEWPOINT 1: A1, SKATERAW JUNCTION

Baseline

284. The viewpoint is located at the junction of the A1 trunk road and the minor road providing access to the properties and farm at Skateraw, as well as Skateraw Beach. The view in this location is representative of road users travelling north on the A1 trunk road and at the junction.
285. The southern margin of the A1 trunk road, towards the Proposed Development, exhibits a principally open aspect in this location and is bound by grass verges, road signage and lighting and post-and-wire fence field boundaries. To the west, the road is enclosed by mature coniferous shelterbelt as it passes the onshore substation site. South-westerly views towards the Proposed Development are across arable fields, bound by a combination of hedgerows and post-and-wire fences. Tree cover throughout the field of view includes small groups of trees associated with scattered individual properties and farms, linear shelterbelts and deciduous woodland following river channels at Thurston Manor Burn, Dry Burn and Braidwood Burn.
286. In addition to the A1 trunk road, the ECML and construction activity associated with the Neart na Gaoithe cable corridor cross the foreground of the view (albeit a temporary feature), vertical, man-made features are prevalent throughout the view with wooden pole and pylon mounted overhead electricity lines and overhead infrastructure associated with the ECML evident. Larger scale electricity pylons break the skyline within the southern part of the view, as does the Aikengall Wind Farm.
287. The visible horizon is defined by the eastern fringes of the Lammermuir Hills including Brunt Hill, Pinkerton and Blackcastle Hill. The radio tower on top of Blackcastle Hill is a notable landmark of views throughout the LVIA study area. The chimney stack of the Dunbar Cement Plant breaks the skyline to the north-west (Volume 3 Figure 6.15b), with Torness Power Station lying to the north-east (Volume 3 Figure 6.15d). The Barns Ness Lighthouse is also a landmark throughout the LVIA study area, set against the sea (Volume 3 Figure 6.15c).

Sensitivity of the receptor

288. The viewpoint is located on the south-western boundary of SLA 30: Thorntonloch to Dunglass Coast, as identified by ELC, albeit that the designation in this location is principally related to the coastline to the east and within the study area is also dominated by Torness Power Station. The value of this viewpoint is therefore considered to be medium.
289. The A1 trunk road forms a major transport corridor along the east coast and as such, is well used. This viewpoint location is also the end of NCR 76, where it joins the local cycle route and core path network that follows the A1 trunk road. Visual receptors on the A1 trunk road travel at speeds of around 60-70mph and whilst at relatively close proximity their experience of the view towards the site area is one of a short duration. Road users waiting at the junction and users of the walking and cycling network travelling at lower speeds for recreation experience a longer appreciation of inland views towards the site area. However, this experience is heavily influenced by the volume and speed of traffic travelling on the A1 trunk road which forms a closer focus for users. The close proximity of the ECML and Torness power Station also have a substantial influence on the view and bring a baseline context of existing infrastructure and industrial development. Taking this into account, susceptibility is considered to be medium.
290. In combining the medium value and medium susceptibility, the sensitivity of the receptor is, considered to be medium.

Magnitude of change

Onshore Substation (construction and operation)

291. As demonstrated by Volume 3 Figure 6.15f - 6.15i the onshore substation would markedly increase the portion of the field of view occupied by built form, breaking the visible horizon between the foothills to the southwest.
292. Viewed at close proximity, the introduction of industrial development would present a marked contrast to the more consistent agricultural ground cover of the baseline view with limited screening influences in situ. Although the onshore substation would predominantly appear as a large agricultural building, the perceived scale is at odds with other agricultural buildings when experienced from this distance, orientation and elevation. This change would be experienced for a short duration, in this location, and as users of the A1 trunk road pass the onshore substation and visibility is achieved through the gap in existing shelterbelt planting that flanks the road. Road users at the junction and recreational users would experience slightly more sustained visibility.
293. Construction of the onshore substation would introduce similarly evident features to the baseline visual resource. Taller elements involved in the construction process would break the skyline profile while ground based activities associated with the excavation and regrading of the substation platform would be viewed in close proximity with little screening offered. Construction lighting would be visible when working days would extend into the hours of darkness, although this section of the A1 trunk road is also lit at night, slightly moderating the effect that this might have.
294. The magnitude of change is considered to be high during construction, year 1 and in the years immediately following. At year 15, proposed woodland planting located to the east of the onshore substation would partially obscure the onshore substation, reducing its visual influence at this location. The magnitude of change at year 15 once mitigation planting has matured is considered to be medium.

Cable Corridor (construction)

295. Construction of the onshore cable corridor would benefit from a number of existing screening influences, when experienced from this location. Construction of the section of the cable corridor from landfall to the onshore substation would be entirely screened from view by intervening localised topography, the A1 trunk road and mature shelterbelt and woodland.
296. Construction of the southern section of the cable corridor, between the onshore substation and Branxton, east of Innerwick, would be visible in the middle-distance view following the eastern extent of the minor road between North Lodge and Thornton Law. The excavation of agricultural land, operation of machinery in fields and storage of excavated materials would present a change to baseline agricultural activity, introducing new temporary features to the view. However, this is not considered to be entirely incongruous with the agricultural setting.
297. The magnitude of change is therefore considered to be low during construction.

Significance of the effect

Onshore Substation (construction and operation)

298. The effect is considered to be **moderate-major** and significant in EIA terms during construction, year 1 and in the years immediately following. The effect would reduce to **moderate** and significant in EIA terms by year 15 once mitigation planting has matured. Whilst the effect reduces to moderate in year 15 it remains significant largely due to the close proximity and relative scale of the onshore substation to the viewpoint which is not entirely mitigated in year 15 from this location. Construction effects are adverse, reversible and temporary. Operational effects are adverse and permanent.

Cable Corridor (construction)

299. The effect is considered to be **minor** and not significant in EIA terms. Construction effects are adverse, reversible and temporary.

VIEWPOINT 2: INNERWICK

Baseline

300. This viewpoint is located on Barns Ness Terrace on the eastern edge of Innerwick. North-easterly coastal views towards the Proposed Development encompass large-scale arable fields of the coastal plain, bound by hedgerows of varying consistency. Torness Power Station forms the focus of the view, located on the promontory at Torness Point. Other human influences include wooden pole mounted overhead lines, the A1 trunk road and ECML. Although visible features of the view, the A1 trunk road and ECML are not dominant or intrusive elements when viewed from this location.
301. The foreshore of the East Lothian coast, including the proposed landfall location, are screened from view by the intervening terrain of the raised beach platform. The centre of the view is characterised by coniferous shelterbelt planting lining the path of the A1 trunk road, as it passed north of the onshore substation site. This structure is reinforced within the view by mature woodland enclosing the properties and agricultural buildings at Skateraw, Skateraw House and Skateraw Farm.

302. Dunbar Cement Plant and Energy Recovery Facility are visible to the north (Volume 3 Figure 6.16a). The Barns Ness Lighthouse is also a landmark of the view, set against the sea (Volume 3 Figure 6.16b).

Sensitivity of the receptor

303. The viewpoint is not located within any national, regional or local scenic designations or recognised scenic views. The majority of the Dunbar to Barns Ness Coast SLA is screened from view in this location by intervening landform. Views will however be valued by local residents particularly open views towards the coast for which much of the settlement is orientated towards. Value is therefore considered to be medium-high.
304. Barns Ness Terrace provides access to the village of Innerwick from the east and is reasonably quiet, mainly used by local residents. The view in this location is representative of the experience from a number of properties on this part of Barns Ness Terrace, which has an open aspect towards the Proposed Development. The site is at an angle to the direction of travel for road users but lies within a part of the open views particularly when travelling east. The surfaced pavement on the southern side of the road ends at Innerwick Farm. Despite this, the grass verge on the northern road margin is used by local residents for walking and is included in ELC's core path plan as a suggested link route (but is not a core path). Taking all of this into account susceptibility is considered to be high.
305. When considering the medium-high value and high susceptibility, sensitivity is considered to be high.

Magnitude of change

Onshore Substation (construction and operation)

306. Volume 3 Figure 6.16d – 6.16g illustrate that the Proposed Development would represent a noticeable change to the middle-distance view, increasing the developed nature of the view north.
307. Whilst intervening topography would screen lower parts of the onshore substation, the Proposed Development would partially break the coastline profile and impinge upon visibility of the coastal edge and landscape features such as around Skateraw.
308. The Proposed Development is located 722 m to the north-east with the existing Torness Power Station at 2.2 km north-east. The Proposed Development would extend industrial development to a greater portion of the field of the view north-east, albeit at differing scales and distances. It is important to note that this portion of the view is also subject to influence of infrastructure at the intersection of the A1 trunk road and ECML and the built form at Skateraw.
309. The quiet nature of the road means that some road users would experience this view for a short duration on the eastern extent of Innerwick, at an oblique angle to their direction of travel as part of the open view. However, walkers and properties on Barns Ness Terrace would experience visibility of greater duration.
310. Construction activities associated with the onshore substation would be visible from this viewpoint. The majority of the ground-based work associated with the excavation and re-grading of the onshore substation platform would be screened by intervening topography, however, taller elements of the construction process would appear above this topography and appear to sit in front of the visible coastal edge. Construction lighting would be visible when the working day would extend into the hours of darkness. However, construction lighting would be viewed in the context of road lighting along the A1 trunk road between the Skateraw and Thorntonloch junctions, as well as existing lighting at Torness Power Station, slightly moderating the effect of construction lighting.

311. The magnitude of change is considered to be medium-high during construction, year 1 and in the years immediately following. At year 15, proposed woodland planting located to the south of the onshore substation would obscure parts of the onshore substation from view, reducing the visual influence of built development seen from this location. The magnitude of change at year 15 once mitigation planting has matured is considered to be medium.

Cable Corridor (construction)

312. The majority of the construction of the cable corridor would be screened from view in this location by field boundary hedgerows, shelterbelt planting, mature woodland and intervening land. Some partial visibility of the trenchless technology (e.g. HDD) compound to the south of the A1 trunk road may be attained, as could construction activity to install the onshore substation to Branxton cable corridor to the north-east. Visibility of this activity would be limited to the taller elements of excavation machinery and would be experienced in the same field of view as the existing industrial development at Torness Power Station.
313. The magnitude of change is therefore considered to be low during construction.

Significance of the effect

Onshore Substation (construction and operation)

314. The effect is considered to be **major** and significant in EIA terms during construction, year 1 and in the years immediately following. The effect would reduce to **moderate-major** and significant in EIA terms in year 15. Construction effects are adverse, reversible and temporary. Operational effects are adverse and permanent.

Cable Corridor (construction)

315. The effect is considered to be **moderate-minor** and not significant in EIA terms. Construction effects are adverse, reversible and temporary.

VIEWPOINT 3: JOHN MUIR LINK NEAR SKATERAW

Baseline

316. The viewpoint is located on the John Muir Link, west of Torness Power Station and on the cliffs above Skateraw Harbour. The principal focus of views from this location is to the north and east towards the sea and along the coastline including rocky shorelines and sandy bays.
317. Inland views to the southwest have an immediate foreground of arable fields bound by post-and-fences and hedgerows. The A1 trunk road and ECML cross the middle-distance view, with the road bordered by coniferous shelterbelt and the railway passing behind the mature woodland of Skateraw House and the properties at Skateraw. The land rises up forming a backdrop and skyline of low hills with the village of Innerwick, including the agricultural buildings at Innerwick Farm occupying a central position in the southwest view, backdropped by the eastern fringe of the Lammermuir Hills. The transition from the arable farmland of the coastal plains to rough grassland bound by stone walls is a visible feature of the view, as is the radio tower on top of Blackcastle Hill, wind turbines at Aikengall wind farm and large-scale electricity pylons, crossing the view south-east of Innerwick. Wooden pole mounted electricity lines can also be seen.

318. Dunbar Cement Plant, Dunbar Energy Recovery Facility and Barns Ness Lighthouse are visible along the coast to the north (Volume 3 Figure 6.17c). Torness Power Station dominates visibility to the southeast (Volume 3 Figure 6.17a).

Sensitivity of the receptor

319. This viewpoint is located on the boundary between SLA 29: Dunbar to Barns Ness Coast and SLA 30: Thorntonloch to Dunglass Coast. The John Muir Way (of which the John Muir Link is an extension of) is one of Scotland's Great Trails. Value is considered to be high.
320. This route is a popular long-distance walking route with both local residents and visitors to the area. Although inland views are achieved, the primary focus of receptors in this location is on an appreciation of coastal views to the open sea over Skateraw Harbour, Chapel Point and along the coast to Barns Ness Lighthouse (Volume 3 Figure 6.17c and 6.17d). Susceptibility is therefore considered to be medium.
321. When considering the high value and medium susceptibility, sensitivity is considered to be medium-high.

Magnitude of change

Onshore Substation (construction and operation)

322. Volume 3 Figure 6.11 shows that the onshore substation is theoretically visible from the elevated section of this route between Skateraw Harbour and Torness, beyond this short section there is limited or no visibility of the onshore substation. Volume 3 Figure 6.17f - 6.17g shows the Proposed Development, at a range of 9.5 km, would increase the presence of industrial development but this would be experienced within an extent of the field of view already occupied by existing built form. Appearing as large-scale agricultural buildings, the onshore substation would be set within the same part of the view occupied by the village of Innerwick, screening the settlement from view at this location. Existing screening is afforded by the coniferous shelterbelt bordering the A1 trunk road, reducing potential visibility of the north-western part of the onshore substation.
323. Whilst construction activities within the eastern onshore substation site would be visible, existing screening would partially reduce visibility of ground-based activities. Taller elements of the construction process would be visible against a backdrop of the eastern fringe of the Lammermuir Hills. These elements are not predicted to break the horizon except when tall cranes are in use. Construction lighting would be visible when the working day would extend into the hours of darkness.
324. The magnitude of change is considered to be medium-high during construction, year 1 and in the years immediately following. At year 15, proposed woodland planting located to the north and east of the onshore substation would obscure parts of the onshore substation from view, reducing the visual influence of the onshore substation seen from this location. The magnitude of change at year 15 once mitigation planting has matured is considered to be medium-low.
325. These changes are considered to apply to the elevated section of the route between Skateraw Harbour and Torness, beyond this no change is predicted.

Landfall and Cable Corridor (construction)

326. Elevated visibility of the landfall location, compounds and storage areas would be attained from this location, with very few screening influences present (Volume 3 Figure 6.17c). Activity associated with the construction of the landfall and northern-most part of the onshore cable corridor would be visible for an approximate 2.2 km section of the route,

between north of Torness Power Station and the Barns Ness Lighthouse (see Volume 3 Figure 6.6). The trenchless technology (e.g. HDD) and construction compound, material storage areas, temporary access tracks and temporary structure to provide a weatherproof working environment for cable jointing at the transition joint bays would be visible in close proximity to the route within the pastoral field immediately inland. As trenchless technology is being deployed to bring the offshore export cable ashore, no physical disturbance of the route, beach or intertidal area are predicted. However, a short closure or diversion to the route could be required during trenchless technology activity.

327. The permanent security fencing required to protect the underground Transition Joint Bays would locally detract from the rural and coastal character of views but could be specified to accord with the setting if reasonably practicable.
328. Construction of the onshore cable corridor would benefit from a number of existing screening influences, when experienced from this location. Construction of the section of the cable corridor from landfall to the onshore substation would be predominantly screened from view by intervening localised topography and mature woodland.
329. Construction of the southern section of the cable corridor, between the onshore substation and Branxton, east of Innerwick, would be partially visible in the middle-distance view following the eastern extent of the minor road between North Lodge and Thornton Law. The excavation of agricultural land, operation of machinery in fields and storage of excavated materials would present a change to baseline agricultural activity, introducing new temporary features to the view. However, this is not considered to be entirely incongruous with the agricultural setting.
330. The magnitude of change during construction is considered to be medium at the viewpoint location and would extend for a localised section of the route (approximately 500m to the northwest and southeast of where the cable corridor crosses the route). The magnitude of change is considered to be low for other sections of the route between Barns Ness and Torness with no change predicted beyond this.

Significance of the effect

Onshore Substation (construction and operation)

331. The effect is considered to be **moderate-major** and significant in EIA terms during construction, year 1 and in the years immediately following. The effect would reduce to **moderate** and not significant in EIA terms in year 15. The moderate effect is considered not significant largely due to the screening effect of mitigation planting which although not entirely screening the Proposed Development from view does provide a substantial extension to existing trees in the same part of the view moderating the effect. These effects are considered to apply to the elevated section of the route between Skateraw Harbour and Torness, beyond this no change is predicted. Construction effects are adverse, reversible and temporary. Operational effects are adverse and permanent.

Landfall and Cable Corridor (construction)

332. The effect is considered to be **moderate** and significant in EIA terms over a localised portion of the route in close proximity to the proposed landfall and cable route (approximately 500m to the northwest and southeast). The moderate effect is considered significant because the effect of construction activity related to the landfall and cable corridor is visible in relatively close proximity and whilst not entirely incongruous with other agricultural activities the scale of this activity viewed from this medium-high sensitivity receptor viewed from this location is regarded high enough to trigger a significant effect.

333. The effect for other parts of the route between Barns Ness and Torness is considered to be **moderate-minor** and not significant in EIA terms with no effect for section beyond this. Construction effects are adverse, temporary and reversible.

VIEWPOINT 4: MINOR ROAD NEAR THORNTON

Baseline

334. This viewpoint is located on the minor road northeast of Thorntonloch Holdings. The road is single-track and is primarily used to access properties south of Torness Power Station. The road is flanked on both sides by, mature hedgerows which contain and partly obscure views from much of this section of road and nearby properties. Whilst the viewpoint has been positioned to take advantage of a gap in the hedgerow and largely represents road users, the viewpoint has also been selected to represent scattered properties in the area where similar (albeit less open) views occur to the northwest.
335. From the viewpoint location, views northwest towards the Proposed Development are across large-scale fields and interrupted by field boundary hedgerows and trees and deciduous woodland lining the Thornton Burn. Properties and agricultural buildings at Crowhill define a part of the visible horizon to the northwest, with wooden pole mounted overhead lines, Dunbar Cement Plant and Dunbar Energy Recovery Facility breaking the skyline. The A1 trunk road and ECML are visible but are more peripheral features to the north. Coniferous shelterbelt to the A1 trunk road and mature woodland enclosing Skateraw House foreshorten views to the coastline and open sea, although distant visibility to the Fife coast is possible in clear visibility.
336. Coastal views to the north are towards Torness Power Station (Volume 3 Figure 6.18b).

Sensitivity of the receptor

337. This viewpoint is not located within any national, regional or local scenic designations or recognised scenic views. The edges of Monynut to Blackcastle SLA are evident as only a small part of the middle-distance view, defined by the deciduous woodland accompanying the Thornton Burn. The Dunbar to Barns Ness Coast SLA is screened from view in this location by intervening landform and vegetation. Value is therefore considered to be medium-low.
338. The road is a minor, single-track road providing access to properties in the vicinity of Thorntonloch Holdings via a narrow stone bridge and restricted underpass beneath the ECML. The view is deemed representative of the scattered residential properties around Thorntonloch Holdings that have an appreciation of the surrounding landscape, particularly the immediate landscape context they are set in and the coastal fringes to the north. Susceptibility is considered to be medium-high.
339. In combining the medium-low value and medium-high susceptibility, sensitivity is considered to be medium.

Magnitude of change

Onshore Substation (construction and operation)

340. Although the Proposed Development would appear as principally large-scale agricultural buildings, the onshore substation is experienced in appropriate scale compared with existing built form from this distance, orientation and elevation.
341. In the view to the northwest, the onshore substation would marginally increase the portion of the field of view occupied by industrial development, breaking the skyline slightly. The

onshore substation would also screen visibility of Dunbar Energy Recovery Facility and reduce visibility of the Dunbar Cement Plant (Volume 3 Figure 6.18d - 6.18e).

342. This change to the view would be experienced at an oblique angle to the direction of movement if travelling north when the focus of receptors would be towards Torness Power Station.
343. Taller elements involved in the construction process would break the skyline profile while ground based activities associated with the excavation and regrading of the onshore substation platform would be predominantly screened by topography. Taller elements breaking the horizon would be experienced within the context of other man-made features that already rest upon the visible horizon. Construction activity within the western portion of the onshore substation site would also be screened from this location. Construction lighting would be visible when working days would extend into the hours of darkness, although this would be experienced in the context of the lit section of the A1 trunk road and Torness Power Station.
344. The magnitude of change is considered to be medium during construction, year 1 and in the years immediately following, reducing to medium-low in year 15 when landscape mitigation planting has matured.

Cable Corridor (construction)

345. Construction of the onshore cable corridor is not predicted to be visible from this location and would therefore result in no change.

Significance of the effect

Onshore Substation (construction and operation)

346. The effect is considered to be **moderate** and not significant in EIA terms during construction, year 1 and in the years immediately following. The moderate effect is not considered significant as the scale of change on this medium sensitivity receptor is not regarded high enough to trigger a significant effect, whilst the upper parts of substation buildings would be visible from this location above intervening landform, they would be viewed within the same part of the view as existing industrial infrastructure. The effect would reduce to **moderate-minor** and not significant in EIA terms in year 15. Construction effects are adverse, reversible and temporary. Operational effects are adverse and permanent.

Cable Corridor (construction)

347. No change and therefore no effect is predicted.

VIEWPOINT 5: MINOR ROAD NEAR THURSTON

Baseline

348. This viewpoint is located on the minor road at the entrance to Thurston Manor Caravan Park and gives access to Innerwick and outer-lying properties. The road in this location is bound by scrubby vegetation and post-and-wire fencing, creating an open aspect in views northeast to the coast.
349. The elevated view northeast is across the gradually sloping coastal plain to Torness Power Station, which forms the visual focus. The coastal plain encompasses large arable fields, bound by intermittent hedgerows and stone walls with wooden pole mounted overhead lines forming a linear feature across the centre view. Scattered properties, including Skateraw

House, are visible in the distance. The A1 trunk road and ECML are visible on the coast to the northeast, as are the shelterbelt enclosing the main trunk road and the mature woodland at Skateraw House. These areas of woodland are the only feature of the view to provide any context or definition to the major industrial development at Torness Power Station, which is set against the open sea. The village of Innerwick occupies the hillslopes to the east, backed by the deciduous woodland of the Braidwood Burn.

350. Construction activity associated with the NNG onshore cable corridor is apparent north of Innerwick and close to the A1 (albeit this is a temporary feature of the view at the time of photography fieldwork).

Sensitivity of the receptor

351. This viewpoint is not located within any national, regional or local scenic designations or recognised scenic views. The viewpoint is however located close to the eastern boundary of SLA 7: Doonhill to Chesters but does not have extensive views across this SLA. Value of this view is considered to be medium.
352. The view is largely representative of road users with distant and oblique views towards the Proposed Development site. A number of properties scattered along the minor road have similar views (albeit at less elevation than the viewpoint) and an appreciation of the surrounding landscape, particularly the immediate landscape context in which they are set. The location is close to the access to Thurston Manor Caravan Park and is popular with visitors to the area who use the outer-lying areas for walking and cycling. Views towards the Proposed Development site are within the context of Torness Power Station. On balance, susceptibility is considered to be medium.
353. In combining the medium value and medium susceptibility, sensitivity is considered to be medium.

Magnitude of change

Onshore Substation (construction and operation)

354. Volume 3 Figures 6.19d - 6.19e illustrate that the Proposed Development at a range of 1.6 km would extend the industrial influence on the view, increasing the portion of the field of view occupied by industrial development. At this distance, orientation and elevation, the Proposed Development represents a marked change to the principally arable and consistent land use approaching Torness Power Station. However, the onshore substation is experienced within the same part of the panorama and the existing Power Station which moderates the additional influence that the Proposed Development would have.
355. Limited screening influences exist in the view, resulting in relatively uninterrupted visibility of the Proposed Development which is 1.6 km to the east. The onshore substation would partially break the visible horizon, obscuring some of the open sea at Thorntonloch however, part of it would be back clothed by the buildings at Torness Power Station.
356. Construction activities associated with the onshore substation would be visible from this viewpoint. Whilst parts of the ground-based work associated with the excavation and re-grading of the onshore substation platform would be screened by intervening topography, taller elements of the construction process would marginally break the horizon and extend onto views of the open sea. Construction lighting would be visible when the working day would extend into the hours of darkness. However, this would be viewed in the context of road lighting along the A1 trunk road between the Skateraw and Thorntonloch junctions, as well as existing lighting at Torness Power Station, moderating the effect it would have.
357. Taking all of this into account, the magnitude of change is considered to be medium during construction and at year 1 once construction activity is complete. At year 15, proposed

woodland planting located to the west of the onshore substation would further obscure the proposed substation from view, and the magnitude of change is predicted to be medium-low at year 15.

Cable Corridor (construction)

358. Visibility of the cable corridor construction would be limited to a small portion of the landfall to onshore substation section, west of Skateraw House in the distance and partially restricted by intervening landscape elements. The magnitude of change is considered to be low during construction.

Significance of the effect

Onshore Substation (construction and operation)

359. The effect is considered to be **moderate** and not significant in EIA terms during construction, year 1 and in the years immediately following. The moderate effect is not considered significant as the scale of change to this medium sensitivity receptor is not regarded high enough to trigger a significant effect, whilst the upper parts of substation buildings would be visible from this location above intervening landform, they would be viewed within the same part of the view as existing industrial infrastructure.
360. The effect would reduce to **moderate-minor** and not significant in year 15. Construction effects are adverse, reversible and temporary. Operational effects are adverse and permanent.

Cable Corridor (construction)

361. The effect would be **minor** and not significant. Construction effects are adverse, reversible and temporary.

VIEWPOINT 6: BLACKCASTLE HILL

Baseline

362. This viewpoint is located north of the radio tower on top of Blackcastle Hill and represents views from the easternmost hillslopes of the Lammermuir fringe, looking over the coastal plain. The location is readily accessible due to the permanent access track to the top of Blackcastle Hill for maintenance of the radio tower which in part is a recognised core path. The hilltop location provides a wide panorama towards a horizon of open sea encompassing the coastline between Barns Ness Lighthouse and Torness Power Station, Skateraw Harbour and Chapel Point.
363. In the area of the Proposed Development site, the coniferous shelterbelt enclosing the A1 trunk road, mature woodland at Skateraw House and Skateraw Farm and deciduous woodland of the Braidwood Burn form the main areas of tree cover. Large field boundaries are predominantly defined by hedgerows. The coastline in this location is characterised by widespread human influence and historic industry. Large-scale electricity pylons are partially visible within the foreground view, the A1 trunk road and ECML also cross this view in the distance, with Torness Power Station a dominant industrial influence of the baseline environment set against the sea at Torness Point. The properties and agricultural buildings at Skateraw are visible in the distance on the coastal plain. Dunbar Cement Plant, including operational quarry, and Dunbar Energy Recovery Facility are visible to the north (Volume 3 Figure 6.20a).

364. Construction compounds, plant, material and reinstated agricultural land associated with the NNG onshore cable corridor are also evident in the distance (albeit this is a temporary feature of the view at the time of photography fieldwork).

Sensitivity of the receptor

365. Although not recognised as a scenic view, the viewpoint is located within SLA 4: Monynut to Blackcastle and demonstrates elevated outward visibility from the Lammermuir hill fringe over the coastal plains to the East Lothian Coast, incorporating the Dunbar to Barns Ness Coast and Thorntonloch to Dunglass Coast SLAs. Value is considered to be medium-high.
366. This viewpoint location represents recreational walkers who would have an appreciation of the surrounding landscape. Susceptibility is however slightly moderated by the existing influence of industrial development and other transport infrastructure seen in the same part of the view as the Proposed Development site. On balance, susceptibility is considered to be medium.
367. In combining the medium-high value and medium susceptibility, sensitivity is considered to be medium-high.

Magnitude of change

Onshore Substation (construction and operation)

368. Volume 3 Figure 6.20c - 6.16d illustrate that the Proposed Development at a range of 2.5 km would bring industrial land-use further inland, to the south of the A1 trunk road and ECML transport corridor, and would increase the presence of industrial development. The onshore substation would essentially appear as large-scale agricultural buildings. However, within such an expanse of open coastal plain, experienced from an elevated position, the change from arable fields to industrial land use would be notably apparent.
369. This change would be set within the context of a coastline that is characterised by both industrial development and human influence as well as a more recent history of electricity generation and distribution.
370. The introduction of the onshore substation is provided a degree of visual context by the properties and agricultural buildings at Skateraw and Skateraw Farm (set within woods), which form a backdrop and occupy the same part of the view. The large built forms of the nearby Torness Power Station also provide some local precedent and context for the scale of the Proposed Development at the onshore substation.
371. Construction of the onshore substation would be visible from this viewpoint including the ground-based work associated with the excavation and re-grading of the substation platform. Taller elements of the construction process would not break the horizon or extend onto views of the open sea. Construction lighting would be visible when the working day would extend into the hours of darkness. However, this would be viewed in the context of road lighting along the A1 trunk road between the Skateraw and Thorntonloch junctions, as well as existing lighting at Torness Power Station and recreational receptors are not likely to be visiting this location during the hours of darkness.
372. The magnitude of change is considered to be medium during construction, year 1 and in the years immediately following. Whilst the mitigation planting would obscure lower parts of the built development, the elevated nature of the viewpoint means that the mitigation planting has much less influence on the view of the Proposed Development overall and the magnitude of change remains medium at year 15 as a result.

Landfall and Cable Corridor (construction)

373. Distant visibility of the landfall location, compounds and storage areas would be attained from this location, with partial screening afforded by the buildings and woodland at Skateraw. The permanent security fencing required to protect the Transition Joint Bays is not predicted to be visible at this range.
374. Construction of the onshore cable corridor from landfall to the onshore substation would benefit from the screening influence of built form and mature woodland at Skateraw, when experienced from this location.
375. Construction of the southern section of the cable corridor, between the onshore substation and Branxton, east of Innerwick, would be visible within the field boundary east of the minor road between North Lodge and Thornton Law. The excavation of agricultural land, operation of machinery in fields and storage of excavated materials would present a change to baseline agricultural activity, introducing new temporary features to the view. However, this is not considered to be inconsistent with the agricultural setting.
376. The magnitude of change is considered to be low during construction.

Significance of the effect

Onshore Substation (construction and operation)

377. The effect is considered to be **moderate** and significant in EIA terms during construction, in year 1 and by year 15. The moderate effect is considered significant as the scale of change to this medium-high sensitivity receptor is regarded high enough to trigger a significant effect, whilst relatively distant in the view the introduction of industrial buildings to the largely arable coastal plain from this elevated position would be notably apparent. Construction effects are adverse, reversible and temporary. Operational effects are adverse and permanent.

Landfall and Cable Corridor (construction)

378. The effect is considered to be **moderate-minor** and not significant in EIA terms. Construction effects are adverse, reversible and temporary.

LINKS COTTAGE, SKATERAW HARBOUR

Baseline

379. Links Cottage is a bungalow located on Skateraw Harbour, southeast of the proposed landfall and east of the proposed cable route. The property occupies a sheltered position within the harbour, enclosed by localised topography of the raised beach platform which rises up to the west. The principal view from this property is out to sea with its primary orientation to the east, towards Torness Power Station. Views to west from the rear of the property and garden areas are across an immediate context of some rough and some semi-improved grassland, shortened by the raised beach that encloses the property.

Sensitivity of the receptor

380. Links Cottage is located in SLA 29: Dunbar to Barns Ness Coast and views from the property also have a local value for residential receptors. Value is considered to be Medium-High.

381. Residential receptors have an appreciation of the surrounding landscape and seascape, particularly the immediate harbour and coastal context of the property's setting. The focus of views from this property are coastal with no apparent view inland (including of the Proposed Development site) due to the enclosing raised beach ridges that surround the area. Susceptibility is moderated by the existing large scale industrial context of Torness Power Station which dominates the visual context of the coastal scene from this property. Taking this into account susceptibility to change is considered to be medium.
382. In combining the medium-high value with the medium susceptibility, sensitivity is considered to be medium-high.

Magnitude of change (Landfall and Cable Corridor - construction)

383. Intervening raised beach topography in close proximity to the rear elevation of the property (to the west and north) limits visibility of the ground-based construction activity at the landfall location and contractor's compound which are located at distances of approximately 85 m and 55 m respectively. It is considered therefore that visibility of these construction activities from this property would be restricted to only the upper parts of taller components of construction machinery. Visibility of the construction of the onshore cable corridor would be equally limited and the excavation of localised raised beach topography would occur as a more short-term process within the context of other construction activities. Views of the construction processes would be attained from the approach to the house.

The magnitude of change is therefore considered to be low during construction.

Significance of the effect (Landfall and Cable Corridor - construction)

384. The effect is considered to be **moderate-minor** and not significant in EIA terms. Construction effects are adverse, temporary and reversible.

INDIVIDUAL PROPERTY AT CASTLEDENE

Baseline

385. Castledene is a bungalow located south of the minor road between North Lodge and Thornton Law and north of the proposed trenchless technology (e.g. HDD) compound at the Castledene Scheduled Monument. The property occupies an elevated position above the road allowing views north over the mature woodland at Fouracres. Views from the rear elevation of the property are over arable fields to the Braidwood Burn and overhead power lines at Branxton (see site context photograph 12 in Volume 3 Figure 6.7c).

Sensitivity of the receptor

386. Castledene is located on the western boundary of SLA 4: Monynut to Blackcastle and views also have an informal value for residential receptors. Value is considered to be Medium-High.
387. Residential receptors have an appreciation of the surrounding landscape, particularly across the immediate fields and woods at Fouracres and towards the coastline to the north. The Proposed Development site is located very close to this property increasing its susceptibility to change. Susceptibility is considered to be high
388. In combining the medium-high value with the high susceptibility, sensitivity is considered to be high.

Magnitude of change (Cable Corridor - construction)

389. The proposed location of excess material storage and a contractor compound, north of the minor road, would be visible within angled views from the primary elevation of the property to the north-west. The proposed cable corridor, material storage and trenchless technology (e.g. HDD) compounds would be located on elevated topography in close proximity to the rear elevation and curtilage of Castledene, within 15 m at their closest point. The magnitude of change is therefore considered to be high during construction.

Significance of the effect (Cable Corridor - construction)

390. The effect is considered to be **major** and significant in EIA terms. Construction effects are adverse, temporary and reversible.

CORE PATH 18, NORTH OF INNERWICK

Baseline

391. Core Path 18 leaves the northern edge of Innerwick, east of Innerwick Primary School, where it is enclosed by mature woodland. The route then follows the hedgerow and stone wall boundaries of fields north, to join the minor road south of the onshore substation site.

Sensitivity of the receptor

392. The core path is not located within any national, regional or local scenic designations or recognised scenic views but holds informal value for recreational users of the path. Value is considered to be medium.
393. Visual receptors are recreational walkers on this route that have an appreciation for the landscape they are moving through, most notably the immediate landscape context of the route's setting. Susceptibility is considered to be medium-high.
394. In combining the medium value and medium-high susceptibility, sensitivity is considered to be medium-high.

Magnitude of change (Onshore Substation - construction and operation)

395. Viewed at close proximity, the introduction of industrial development would present a marked contrast to the more consistent agricultural view with limited screening influences in situ. Although the onshore substation would predominantly appear as a large collection of agricultural buildings, the perceived scale would be at odds with other agricultural buildings when experienced from this proximity and orientation. This change would be experienced for a short section (approximately 140m), at the northern extent of the core path. On other parts of this core path and closer to where it connects with Innerwick, theoretical visibility of the onshore substation is screened by intervening features (see Volume 3 Figure 6.11).
396. From this northern part of the core path, construction of the onshore substation would introduce similarly evident features to the baseline visual resource. Taller elements involved in the construction process would break the skyline profile while ground based activities associated with the excavation and regrading of the onshore substation platform would be viewed in close proximity.
397. The magnitude of change is considered to be medium-high during construction, year 1 and in the years immediately following. At year 15, proposed woodland planting located to the south of the onshore substation would substantially obscure the onshore substation from view, reducing the visual influence of built development seen from this location. The

magnitude of change at year 15 once mitigation planting has matured is considered to be medium-low.

Significance of the effect (Onshore Substation - construction and operation)

398. The effect is considered to be **moderate-major** and significant in EIA terms during construction, year 1 and in the years immediately following. The effect would reduce to **moderate** and not significant in EIA terms in year 15. The moderate effect is not considered significant as the scale of change to this medium-high sensitivity receptor is not regarded high enough to trigger a significant effect, this is largely due to the screening effect of proposed planting which from the northern section of the core path would substantially screen the Proposed Development from view. These effects would be localised to the northern 140m of the core path with no effect to other sections of this route.
399. Construction effects are adverse, temporary and reversible. Operational effects are adverse and permanent.

INDIVIDUAL PROPERTY AT RAILWAY COTTAGE, SKATERAW GATE

Baseline

400. Railway cottage is a bungalow located 600 metres north of Crowhill, south of the A1 carriageway. The property immediately adjoins the ECML and as such is enclosed by timber fencing and predominantly mature vegetation. Despite this, the aspect towards the proposed onshore substation exhibits is more open, representing the main point of access to the property from the farm access track running north of Crowhill. Views attained towards the proposed development are over arable fields towards the village of Innerwick and Blackcastle Hill.

Sensitivity of the receptor

401. This property is not located within any national, regional or local scenic designations but has an informal value for residential receptors. Value is considered to be medium.
402. Residential receptors have an appreciation of the surrounding landscape. However, susceptibility is moderated at this property as a result of the close proximity of the ECML, a major element of transport infrastructure in the area which obscures coastal views and brings noisy and busy infrastructure immediately adjacent to the property. Susceptibility is considered to be medium-high
403. In combining the medium value with the medium-high susceptibility, sensitivity is considered to be medium-high.

Magnitude of change (Onshore Substation - construction and operation)

404. The proposed onshore substation would be visible within angled views from the rear elevation and property curtilage in close proximity, 250 metres to the west. The onshore substation would be located at a higher elevation than the property, with the closest portion of the levelled substation platform raising the existing topography introducing an embankment, access tracks and SuDS pond.
405. The magnitude of change is considered to be high during construction, year 1 and in the years immediately following. Whilst the mitigation planting would obscure lower parts of the built development, the embankment of the substation platform and the access tracks, the proximity of the receptor means that the mitigation planting has much less influence on the view of the onshore substation overall and the magnitude of change remains high at year 15 as a result.

Significance of the effect (Onshore Substation - construction and operation)

406. The effect is considered to be **major** and significant during construction, in year 1 and by year 15. Construction effects are adverse, temporary and reversible. Operational effects are adverse and permanent.

6.11.8. PROPOSED MONITORING

407. No monitoring to test the predictions made within the visual effects section of the LVIA chapter is considered necessary.

6.12. CUMULATIVE EFFECTS ASSESSMENT

6.12.1. TIER 1 CUMULATIVE ASSESSMENT

408. The tier 1 cumulative assessment considers the cumulative effects of the Proposed Development with the offshore elements of the Berwick Bank Wind Farm, forming a 'whole project effect assessment'. The tier 1 cumulative assessment has been undertaken in Chapter 15: Seascape, Landscape and Visual of the Offshore EIA Report. The assessment of impacts arising from construction, operation and decommissioning of the Project indicates that impacts on receptors addressed in different aspects of the Project may potentially further contribute to the impacts assessed on seascape, landscape and visual receptors and vice versa.
409. These inter-relationships are considered in the Tier 1 CEA as the impacts and associated effects of different aspects of the Project on the same receptor. In the SLVIA and LVIA, these cumulative effects are considered to be receptor led effects, where specific receptors may be affected by both the construction and operation of the Proposed Development and the construction and operation of the Berwick Bank offshore infrastructure. There is potential for effects to interact, spatially and temporally, to create cumulative effects on a receptor. A summary description of the significance of cumulative effects upon seascape, landscape and visual receptors as reported in Chapter 15 of the Offshore EIA report is provided below. For detailed findings of the Tier 1 assessment please refer to Chapter 15 of the Offshore EIA Report.
410. The Tier 1 assessment in Chapter 15: Seascape, Landscape and Visual of the Offshore EIA Report, found that the majority of receptors will not experience tier 1 cumulative effects since they have either no visibility, or very limited/distant visibility, of either the Proposed Development or the Berwick Bank Wind Farm offshore infrastructure. The main tier 1 cumulative effect during construction is likely to occur in views experienced by walkers along a short section of the John Muir Way between Torness and Chapel Point, and visitors to Skateraw Harbour, where the construction of the landfall will be visible at close range in combination with the construction of the Berwick Bank Wind Farm offshore infrastructure and the construction of the onshore substation in inland views, which are assessed to be significant (major/moderate), although temporary during construction. Tier 1 cumulative effects during operation and maintenance will only occur on receptors near the onshore substation, where both the operational onshore substation and the Berwick Bank Wind Farm offshore infrastructure may be visible and influence views and perceived character. These tier 1 cumulative effects have been found to be significant when considering the whole project effect (i.e. the total effect of the Proposed Development and the Berwick Bank Wind Farm offshore infrastructure) on localised parts of the landscape around the onshore substation where there are also sea views to the Berwick Bank offshore infrastructure, including geographically contained areas of the Coastal Margins LCT (277) (Lothians) and a number of representative viewpoints in these areas at Skateraw, John Muir Link and Innerwick. When considered as an additional contribution of the Berwick Bank Wind Farm offshore infrastructure, the cumulative effect is however assessed as not significant, fundamentally because the offshore elements will have a limited influence on the perceived

character and views at such long range offshore and results in a low level of additional cumulative change (as assessed in Chapter 15: Seascape, Landscape and Visual of the Offshore EIA Report) over and above the effect of Proposed Development alone. These changes also occur in the context of major transport corridors and industrial development (Torness Power Station, Dunbar Cement Works and Dunbar Energy Recovery Facility (ERF) and are likely to reduce over time as the landscape mitigation scheme takes effect.

6.12.2. TIER 2 CUMULATIVE ASSESSMENT

411. As described previously in the cumulative methodology, within section 6.9.2, a comprehensive list of projects that have the potential to contribute to the cumulative effects of the Proposed Development has been compiled, with the long list presented in Volume 4, Appendix 2.4 and shown on Figure 2.4.1. In addition to this, the LVIA has undertaken a further preliminary assessment of the shortlisted tier 2 cumulative projects based on professional judgement, assessment rationale and guidance relevant to landscape and visual impacts. The preliminary cumulative assessment in Table 6.13 below has determined that the application stage SPEN Eastern Link Project and SPEN Branxton Grid Substation developments have the potential to give rise to significant cumulative effects as a result of the addition of the Proposed Development and consequently require detailed assessment.
412. The cumulative effects presented and assessed in this section have been selected from the details provided in Volume 1, Chapter 2 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.

Table 6.13: Shortlist of Cumulative Projects resulting from the screening process within Volume 4, Appendix 2.4.

Project Name	Application Ref	Description	Status	Location	Construction Timescale	Preliminary Assessment
Tier 1						
Berwick Bank Offshore Infrastructure	N/A	Offshore infrastructure and associated works of the Berwick Bank Project	Application	Offshore	2025-2033	Assessed in detail. The assessment is presented in Chapter 15: Seascape, Landscape and Visual of the Offshore EIA Report with a summary provided in the tier 1 section of the CEA presented in this chapter.
Tier 2						
SPEN Eastern Link Project – Converter Station & Cable Route	22/00852/PPM	Planning permission in principle for a converter station and associated development including a landfall at Thorntonloch and connecting buried cabling, all in association with the Scottish Power Eastern Link 1 project, for a new subsea High Voltage Direct Current (HVDC) link	Application	Land Adjacent To Dunbar Landfill Site Oxwell Mains Dunbar East Lothian EH42 1SW	2024-2027	Assessed in detail. Included in cumulative LVIA due to proximity of development to the onshore substation and cable corridor, resulting in potential for cumulative effects.
SPEN Eastern Link Project - Branxton Grid Substation	21/01569/PM & 22/00002/SGC	Construction of a 400 kilovolt (kV) gas insulated switchgear (GIS) substation and associated works. Also includes S37 application to install and keep a new 265m section of 400 kV overhead line east of the proposed Branxton Grid substation	Application (Application Withdrawn but expected to be submitted again in near future)	Fields To the South Of Thornton Bridge Sealing End Compound Branxton	2023-2026	Assessed in detail. Included in cumulative LVIA due to proximity of development to the onshore cable corridor, resulting in potential for cumulative effects.
Crystal Rig IV Wind Farm	18/00004/SGC	Construction and operation of crystal rig wind farm (phase iv) – 11 turbines	Consented	4.5 km north of Cranshaw village	Unknown. Assumed to be overlapping.	This onshore windfarm is located outside the LVIA study area and is located within a larger array of existing wind turbine development. In itself, the influence of this development on receptors in the study area is limited by distance and topography and cumulative interaction with the onshore elements of the Proposed Development is minimal. No potential for significant cumulative effects and not considered in the CEA.

Cumulative Development Description

Branxton Grid Substation

413. The proposal for the Branxton Grid Substation incorporates a 400kV gas insulated switchgear (GIS) building in close proximity to the existing cable sealing end compounds at Branxton and Thornton Bridge. The Proposed Development onshore cable corridor would join this substation, as would the Eastern Link project. The Branxton Grid Substation proposal whilst close to the existing cable sealing end compounds at Branxton and Thornton Bridge would increase the influence of electricity infrastructure to neighbouring fields at higher elevation and would involve large scale earthworks in its creation.
414. Should it be consented, the Branxton Grid Substation is anticipated that construction would take place over 2 years (2023 to 2025) and begin operation by the end of 2026.

Eastern Link

415. The proposal for the Eastern Link project includes 176 km of marine cabling to link East Lothian with County Durham to aid the distribution of green energy between Scotland and England. The Eastern Link marine cable would make landfall south of Torness Power Station, on the coast east of Linkshead. The onshore cable corridor would then travel east to Old Branxton, joining the Branxton Grid Substation south of Thornton Law. From this point the Eastern Link cable corridor would follow broadly the same route as the onshore cable corridor of the Proposed Development before branching north-east to the proposed converter station, close to the Dunbar ERF on the northern side of the A1 trunk road. The proposed converter station would constitute two, large-scale buildings enclosing the necessary 'stepping down' electrical infrastructure. The site has been selected due to its existing industrial environment.
416. Should it be consented, the Eastern Link project is anticipated to start construction during 2024 and begin operation during 2027. The Proposed Development is expected to begin construction during 2025 and begin operation 40 months later, meaning there is the potential for both cable corridors to be under construction within the LVIA study area at the same time.

Receptors Considered in Detail within the Tier 2 Cumulative Assessment

417. An assessment description of the likely significance of the cumulative effects of the Proposed Development upon landscape and visual receptors is given below. However, in order to establish which landscape and visual receptors have the potential for significant cumulative effects, each of the receptors considered to have potential for significant effects against the existing baseline are reconsidered in the preliminary assessment in Table 6.14 below to establish which require to be assessed in a detailed cumulative assessment.

Table 6.14: LVIA Receptors in Relation to Tier 2 Cumulative Assessment

Receptor	Influence of Cumulative Developments	Potential for significant cumulative effects
Physical landscape elements	The Branxton Grid Substation is located in agricultural land (localised influence) and the Eastern Link cabling is also located in agricultural land (temporary influence). Trees and hedgerows are found throughout the study area and within the current site boundaries of both of these cumulative developments. The Branxton Grid Substation is not located within the Coastal Landscape. The Eastern Link cabling is partly located in the coastal landscape (temporary influence). The Eastern Link convertor Station would be situated on land between the Dunbar Energy Recovery Facility and Dunbar Landfill site. There is also potential for the construction of these developments to occur within a similar time period as the Proposed Development construction.	Whilst some disruption would occur as a result of these cumulative developments it is considered that the magnitude of change disruption to agricultural land resulting from these developments would be of a similarly low level. The disruption would be localised and losses easily replaced within the largely agricultural context. No potential for significant cumulative effects and this receptor not included in the CEA.
LCT 277: Coastal Margins – Lothians	The Branxton Grid Substation is not located within this LCT and would exert a limited influence on the key characteristics of the coastal margins.	No potential for significant cumulative effects and this receptor not included in the CEA for this development for this receptor.
	The Eastern Link cable corridor would be under construction within this LCT at the same time as the Proposed Development, with a similar cable route between Branxton and the onshore substation. The Convertor Station would bring further built development of an industrial nature to the coastal margins.	It is considered that the Eastern Link cabling within the study area would have a similarly limited effect on the characteristics of this LCT as the cabling works for the Proposed Development. However, there is potential for significant effects due to the introduction of the Convertor Station. Receptor included in the CEA for this development.
LCT 269: Upland Fringes – Lothians	The Branxton Grid Substation is located within this LCT and would exert an increased industrial influence on its key characteristics.	Potential for significant cumulative effects and this receptor included in the CEA for this development.
	The Eastern Link cable corridor would be under construction within this LCT at the same time as the Proposed Development, with a similar cable route between Branxton and the onshore substation. The Convertor Station is not located within this LCT and would exert a very limited influence on its characteristics.	It is considered that the Eastern Link cabling within the study area would have a similarly limited effect on the characteristics of this LCT as the cabling works for the Proposed Development. Given the limited influence of the Convertor Station, it is considered that there is no potential for significant cumulative effects for this receptor and not included in the CEA for this development.
Viewpoint 1: A1, Skateraw Junction	Neither the Branxton Grid substation or the Eastern Link Convertor Station would be visible from this location. Parts of the Eastern Link cable corridor would be theoretically visible behind immediately behind the Proposed Development substation, however, the cumulative influence is temporary and minimal.	No potential for significant cumulative effects and this receptor not included in the CEA.

Receptor	Influence of Cumulative Developments	Potential for significant cumulative effects
Viewpoint 2: Innerwick	Neither the Branxton Grid substation or the Eastern Link Converter Station would be visible from this location. Parts of the Eastern Link cabling construction activity would be visible within the fields to the south of the Proposed Development substation site, however, this cumulative influence is temporary and minimal.	No potential for significant cumulative effects and this receptor not included in the CEA.
Viewpoint 3: John Muir Link near Skateraw Harbour	The Branxton Grid substation would not be visible due to screening from intervening landform and mature vegetation.	No potential for significant cumulative effects and this receptor not included in the CEA for this development.
	The Eastern Link Converter Station would be visible to the west with the Proposed Development substation visible in views to the southwest. The Eastern Link cabling construction activities would be predominantly screened from view apart from the section that lies to the east of Innerwick which would be visible in the distance in the same part of the view as the Proposed Development substation.	Potential for significant cumulative effects and this receptor included in the CEA for this development.
Viewpoint 4: Minor road near Thornton	The Branxton Grid substation would not be visible due to screening from intervening landform and mature vegetation.	No potential for significant cumulative effects and this receptor not included in the CEA for this development.
	The Eastern Link Converter Station would not be visible due to intervening topography. Construction of the Eastern Link cable corridor would be screened from view by intervening landform, properties and mature vegetation.	No potential for significant cumulative effects and this receptor not included in the CEA for this development.
Viewpoint 5: Minor road near Thurston	Neither the Branxton Grid Substation, the Eastern Link Converter Station or Eastern Link Cable corridor would be visible due to intervening topography.	No potential for significant cumulative effects and this receptor not included in the CEA.
Viewpoint 6: Blackcastle Hill	The Branxton Grid substation would not be visible due to intervening topography.	No potential for significant cumulative effects and this receptor not included in the CEA for this development.
	The Eastern Link Converter Station would be visible to the north with the Proposed Development substation visible in views to the north-northeast. The Eastern Link cabling construction activities would be visible between the Eastern Link Converter Station and the Proposed Development substation.	Potential for significant cumulative effects and this receptor included in the CEA for this development.
Individual property at Links Cottage, Skateraw Harbour	Neither the Branxton Grid Substation, the Eastern Link Converter Station or Eastern Link Cable corridor would be visible due to intervening topography.	No potential for significant cumulative effects and this receptor not included in the CEA.

Receptor	Influence of Cumulative Developments	Potential for significant cumulative effects
Individual property at Castledene	<p>The Branxton Grid substation would be visible to the southeast of this property. The Eastern Link Convertor Station would not be visible from this property. The Eastern Link Cable corridor would be visible to the rear of the property.</p> <p>Due to the limited visibility of the Proposed Development substation from this location, cumulative influence is limited to effects that may arise in relation to the short term, temporary and reversible construction of the Proposed Development cable corridor to the rear of the property.</p>	<p>Given the limited and short-term, temporary and reversible nature of the potential cumulative interaction, it is considered that there is no potential for significant cumulative effects and this receptor is not included in the CEA.</p>
Core Path 18, north of Innerwick	<p>The Branxton Grid Substation would not be visible due to intervening topography.</p>	<p>No potential for significant cumulative effects and this receptor not included in the CEA for this development.</p>
	<p>The Eastern Link Convertor Station would not be visible due to intervening topography. Only a short section of Eastern Link Cable corridor would be visible (immediately west of the onshore substation site). Cumulative influence is limited to the short term, temporary and reversible construction activities associated with the Eastern Link.</p>	<p>Given the limited and short-term, temporary and reversible nature of the potential cumulative interaction, it is considered that there is no potential for significant cumulative effects and this receptor is not included in the CEA for this development.</p>
Individual property at Railway Cottage, Skateraw Gate	<p>The Branxton Grid substation would not be visible due to screening from intervening landform and mature vegetation.</p>	<p>No potential for significant cumulative effects and this receptor not included in the CEA for this development.</p>
	<p>The Eastern Link cabling construction activities would be predominantly screened from view apart from the section between Branxton and the onshore substation. The Eastern Link Convertor Station would not be visible due to intervening topography.</p>	<p>It is considered that the Eastern Link cabling within the study area would have a similarly limited effect on the characteristics of this LCT as the cabling works for the Proposed Development. No potential for significant cumulative effects and this receptor not included in the CEA for this development.</p>

Tier 2 Detailed Cumulative Assessment

418. Detailed baseline descriptions and sensitivity assessments have been provided in section 6.11.4 (Landscape Character Assessment) and 6.11.6 Visual Effects Assessment. To avoid duplication of reporting, these assessments are referenced for each receptor included below. Potential construction and operational cumulative effects as a result of the onshore substation are assessed and reported together to avoid a similar repetition of reporting.

LCT 277: COASTAL MARGINS – LOTHIAN

Baseline and sensitivity

419. Please refer to section 6.11.5 (Detailed Landscape Character Assessment). The LCT is deemed to be of medium value and medium susceptibility and the sensitivity of the receptor considered to be medium.

Eastern Link

Magnitude of change

420. The Eastern Link cable corridor could be under construction within this LCT within the same time period as the Proposed Development, with a shared stretch of cabling construction activity between Branxton and the onshore substation.
421. While the processes involved in excavating land, storing material and installing cabling are not considered to be wholly out of context with the agricultural practices that are a key character of the LCT, the construction of both developments simultaneously would increase the presence of this development type for a short period of time. The introduction of the Eastern Link converter station to the cumulative context would in itself increase the presence of industrial built form within this LCT, however, it is located in an area of the LCT that is already characterised by industrial developments including the operation quarry at Dunbar Cement Plant, Dunbar Energy Recovery Facility and Dunbar Landfill. The Eastern Link development would therefore slightly increase the industrial backdrop of development already experienced within this LCT. The addition of the Proposed Development to a scenario that includes the Eastern Link development would further increase the influence of industrial development on this LCT, however, there would be minimal cumulative interaction between these developments due to the physical and visual separation afforded by the A1 trunk road corridor.
422. The cumulative magnitude of change is therefore considered to be low during construction, year 1 and in year 15.

Significance of the cumulative effect

423. The cumulative effect would, therefore, be **minor** and not significant during construction, year 1 and year 15. Construction effects are direct, adverse, reversible and temporary. Operational effects are direct, adverse and permanent.

LCT 269: UPLAND FRINGES – LOTHIAN

Sensitivity of the receptor

424. Please refer to section 6.11.5 (Detailed Landscape Character Assessment). The LCT is deemed to be of medium-high value and medium-low susceptibility and the sensitivity of the receptor is considered to be medium.

Branxton Grid Substation

Magnitude of change

425. The Branxton Grid substation would increase the presence of electricity infrastructure within a localised part of the LCT that is already characterised by this kind of development. In itself, the effect of the Branxton Grid substation upon the key characteristics of this LCT are considered to be limited by its location and the containing influence of surrounding topography. Cumulative interaction between the Branxton Grid substation and the Proposed Development substation would also be limited by the same topographical and locational characteristics. The Proposed Development onshore cabling works would have limited influence on the characteristics of this LCT as described in section 6.11.3, and the cumulative interaction is also considered to be minimal and short term.
426. From the western edges of this LCT within the eastern Lammermuirs, the Branxton Grid substation would be viewed from an elevated position, however, a degree of separation exists in these views between this development and the Proposed Development onshore substation such that cumulative interaction is minimal when considering the key characteristics overall. The Proposed Development would also be experienced in distant views within the context of other industrial and electrical development already present within the Coastal Margins LCT 277.
427. The addition of the Proposed Development to a scenario that includes the Branxton Grid substation development would therefore have minimal cumulative interaction and the cumulative magnitude of change is therefore considered to be low during construction, year 1 and in year 15.

Significance of the cumulative effect

428. The cumulative effect is considered to be **minor** and not significant in EIA terms during construction, year 1 and in year 15. Construction effects are direct, adverse, reversible and temporary. Operational effects are direct, adverse and permanent.

VIEWPOINT 3: JOHN MUIR LINK, SKATERAW HARBOUR

Sensitivity of the receptor

429. Please refer to section 6.11.7 (Detailed Visual Effects Assessment). The viewpoint is deemed to be of high value and medium susceptibility and the sensitivity of the receptor is considered to be medium-high.

Eastern Link

Magnitude of change

430. The Eastern Link converter station would be partially visible from this location. The screening influence of intervening restored landform, at Dunbar Landfill, mature woodland and Skateraw Farm restricts potential views, however, the upper parts of the development would be visible above the intervening trees. The Eastern Link cable corridor would be screened from view by the Proposed Development with limited opportunities for it and the onshore cable corridor to be viewed in combination. The Eastern Link Converter Station would occupy a different part of panorama than the Proposed Development onshore substation and their locations would be further separated by the mature trees within the intervening landscape that appear to form a break in the view.
431. The addition of the Proposed Development to a scenario that includes the Eastern Link development would therefore have minimal cumulative interaction given the visual separation and limited visibility of the Eastern Link development. The cumulative magnitude of change is therefore considered to be low during construction, year 1 and in year 15.

Significance of the cumulative effect

432. The cumulative effect is considered to be **moderate-minor** and not significant in EIA terms during construction, year 1 and in year 15. Construction effects are direct, adverse, reversible and temporary. Operational effects are direct, adverse and permanent.

VIEWPOINT 6: BLACKCASTLE HILL

Sensitivity of the receptor

433. Please refer to section 6.11.7 (Detailed Visual Effects Assessment). The viewpoint is deemed to be of medium-high value and medium susceptibility. The sensitivity of the receptor is therefore, considered to be medium-high.

Eastern Link

Magnitude of change

434. The introduction of the Eastern Link converter station to the cumulative context would increase the presence of industrial built form within an area that is already characterised by industrial developments including the operation quarry at Dunbar Cement Plant, Dunbar ERF and Dunbar Landfill. The converter station would slightly increase the presence of industrial development within successive views to the north-west. The cumulative interaction between the converter station and the Proposed Development would however be marginal due to the context of existing industrial development in proximity to the converter station site, distance from the view and the visual separation of these sites is also evident from this viewpoint.
435. Construction of the cable corridor for the Eastern Link would be visible across the central portion of the lower lying landscape in the view, including the connection point to the Converter Station on the Coastal Margins. The construction activities associated with the Eastern Link cabling works would be viewed in close context to the Proposed Development cable corridor for a short distance south of the onshore substation.
436. The construction activities for both the Eastern Link and the Proposed Development could also be viewed together and at a similar time period. While the processes involved in excavating and storing land and installing the onshore cable corridor are not considered to be wholly out of context with the agricultural land use, the construction of both developments simultaneously would increase the presence of this development type for a short period of time.
437. When considering the addition of the Proposed Development onshore substation to a scenario that includes the Eastern Link Converter Station, minimal cumulative interaction is predicted given the visual separation and existing industrial backdrop. When considering the addition of the Proposed Development to a scenario that includes the Eastern Link cabling works there is potential for the effect of construction activities to be visible in more areas than that of either development on its own and also potentially more intensive within the same time period. These construction activities are however still considered to be short term and temporary and for the most part similar in scale to other agricultural practices seen from this viewpoint throughout the year.
438. Taking all of this into account, the overall cumulative interaction is considered to be minimal resulting in a low magnitude of change during construction, year 1 and in year 15.

Significance of the cumulative effect

439. The cumulative effect would, therefore, be **moderate-minor** and not significant in EIA terms during construction, year 1 and year 15. Construction effects are direct, adverse, reversible and temporary. Operational effects are direct, adverse and permanent.

6.12.3. PROPOSED MONITORING

440. No monitoring to test the predictions made within the CEA section of the LVIA chapter is considered necessary.

6.13. INTER-RELATED EFFECTS

441. A description of the likely inter-related effects arising from the Proposed Development on the landscape and visual resource is provided in Volume 4, Appendix 15.2 of the Onshore EIA Report. Table 6.15 below provides a summary of inter-relationships with other chapters.

Table 6.15: Inter-relationships Between the LVIA and Other Chapters

Topic / Chapter	Rationale
Chapter 7: Onshore Ecology	Both chapters consider the potential effects of hedgerow and tree removal resulting from the introduction of the Proposed Development, the LVIA considering the impact on hedgerows and trees as landscape elements, and the Onshore Ecology assessment considering the impact on hedgerows and trees as ecological assets. Both chapters consider the mitigation of hedgerow and tree loss in respect of proposed planting.
Chapter 10: Cultural Heritage	Both chapters consider the potential effects of the Proposed Development on designated GDLs and their setting within the landscape.
Chapter 14: Land Use, Tourism and Recreation	Both chapters consider the potential effects of the Proposed Development on the visual amenity of recreational users in the local area.

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

6.14.1. LANDSCAPE

442. The landscape would be directly affected by the Proposed Development. The onshore substation site is not located within a designated landscape and lies within a landscape that exhibits a coastal and underlying rural character across sloping landform that transitions from upland fringes to the coastal lowlands of East Lothian. Open and unobstructed coastal views are a characteristic feature of the coastline and the inland Lammermuir Hill fringe, which are locally designated as SLAs. The landscape of the LVIA Study area is principally in agricultural land use, however, a portion of the coastline north of the Proposed Development contains a range of industrial developments that are prevalent features of this part of the East Lothian coast.
443. The siting and design of the Proposed Development has sought to minimise the removal of landscape elements and physical landscape effects would be reduced as far as reasonably practicable so that the character of the area is retained for future benefit. The LVIA found no likely significant effects on physical landscape elements.
444. Change resulting from the construction of the cable corridor and landfall are limited to the physical extent of the cable route and are on the whole, reversible. Disturbed agricultural land and sections of removed hedgerow would be reinstated on completion of the construction phase, resulting in temporary and short-term effects. During construction of the landfall, changes to the key characteristics of the beach and seascape would be restricted to very localised and temporary disruption, within a single field boundary, for a short duration. No physical disturbance to the beach, foreshore or rock platform is required including the intertidal area.

445. Landscape character effects would be experienced as a result of the onshore substation. The open coastal plain offers a degree of containment to the scale and mass of the proposed onshore substation resulting in likely significant landscape character effects upon LCT 277: Coastal Margins – Lothians, to a localised range of 1km, during construction and year 1, reducing to not significant by year 15 as a result of the establishment of planting as mitigation.
446. The LVIA has also identified likely significant effects upon the key characteristics of LCT 269: Upland Fringes – Lothians in a northern localised area of the LCT in close proximity to the proposed onshore substation (within 1km) during construction and at year 1, reducing to not significant by year 15 as a result of the establishment of planting as mitigation.

6.14.2. INTERTIDAL AREA

447. As trenchless technology (e.g. HDD) will be employed to bring the offshore export cable ashore, no physical disturbance of the beach or intertidal area is predicted and as a result, there would be no physical landscape effect on the intertidal area. The intertidal area lies within Seascape Character Area SA17: Eyebroughty to Torness Point. The LVIA identified that due to intervening built form, topography and woodlands, that other built elements of the Proposed Development (including the onshore substation) would have no potential for significant effects.

6.14.3. VISUAL

448. The Proposed Development may intrude into existing views experienced by users of the LVIA Study area, changing their views. The open and unobstructed views attained across the coastal plain, combined with the scale of the proposed onshore substation, gives rise to likely significant visual effects. These effects would be experienced within the existing industrial context of the immediate setting of the proposed onshore substation, most notably the large stack and plume of Dunbar Cement Works (2.5km to the north-west) and the distinctive Torness Power Station (located 1.2km north-east of the onshore substation and 900m east of the landfall location).
449. Likely significant visual effects as a result of the construction activities associated with the onshore export cable and landfall are found for those receptors within close proximity to the cable corridor (see Table 6.16 and 6.17 below). These significant effects have been identified at:
- A localised section of the John Muir Link, 500m either side of the cable corridor (see visual assessment at viewpoint 3); and
 - The individual property at Castledene due to close proximity to the cable route and associated trenchless technology (e.g. HDD).
450. Likely significant visual effects as a result of the onshore substation are found during construction and year 1 operation for:
- Viewpoint 1: A1, Skateraw Junction – road users and recreational;
 - Viewpoint 2: Innerwick – residential, road users and recreational;
 - Viewpoint 3: John Muir Link near Skateraw Harbour – recreational; and
 - Viewpoint 6: Blackcastle Hill – recreational;
 - Core Path 18, North of Innerwick: recreational, for a section of 140m in close proximity of the onshore of the onshore substation; and
 - Railway Cottage, Skateraw Gate: due to the close proximity of the onshore substation.
451. By year 15, once mitigation planting has matured, significant residual visual effects would remain for:
- Viewpoint 1: A1, Skateraw Junction – road users and recreational;
 - Viewpoint 2: Innerwick – residential, road users and recreational;

- Viewpoint 6: Blackcastle Hill – recreational; and
- Railway Cottage, Skateraw Gate: due to the close proximity of the onshore substation.

6.14.4. CUMULATIVE

452. The Berwick Bank Wind Farm offshore infrastructure has been considered in the cumulative assessment as a whole project Tier 1 cumulative assessment. In order to focus the cumulative assessment on the potential for significant cumulative effects, the LVIA has undertaken a process of scoping out projects and activities from this list where it is assessed there would be no potential for a significant cumulative effect as a result of the addition of the Proposed Development. A comprehensive list of developments that have the potential to contribute to the cumulative effects of the Proposed Development has been compiled in Appendix 2.4. Those shortlisted cumulative developments to be taken into the CEA identified in Appendix 2.4 and that lie within the LVIA study area have been considered in the LVIA cumulative assessment. Of these cumulative developments, Branxton Grid Substation and Eastern Link have been considered in detail in a Tier 2 cumulative assessment (application scenario). Cumulative effects have been found to be significant when considering the whole project effect (i.e. the total effect of the Berwick Bank onshore elements and the Berwick Bank Wind Farm offshore elements) on localised parts of the landscape around the onshore substation where there are also sea views to the Berwick Bank offshore elements. This assessment is described in full in Chapter 15: Seascape, Landscape and Visual of the Offshore EIA Report and summarised in the LVIA. None of the key landscape and visual receptors are assessed as having significant cumulative effects as a result of other developments in the study area. Where cumulative developments are visible from key landscape and visual receptors, they would have limited cumulative interaction with the Proposed Development or the cumulative effect would be minimal, short term and temporary, substantially limiting their cumulative influence when considering the additional effect of the Proposed Development.

6.14.5. PROPOSED MONITORING

453. No monitoring to test the predictions made within the LVIA chapter is considered necessary.

6.14.6. CONCLUSION

454. The LVIA has considered the potential effects that the Proposed Development could have on the existing landscape resource of the onshore LVIA Study area and the visual amenity of potential visual receptors.

455. Construction of the landfall and onshore cable corridor would not give rise to significant physical landscape or landscape character effects and that likely significant construction effects would be localised, temporary and limited to visual effects upon high sensitivity receptors in close proximity to the construction activity. No significant seascape character effects have been identified for the intertidal area and due to trenchless technology (e.g. HDD) being proposed at the landfall, no physical disturbance of the beach or intertidal area or physical effect would occur.

456. For the onshore substation, significant effects upon the landscape character of the LVIA Study area have been identified during construction and year 1 to a localised range of 1 km within both the host Coastal Margins landscape character type and a small area of the neighbouring Upland Fringes landscape character type within 1km of the onshore substation. The LVIA found that the onshore substation would give rise to significant visual effects during construction and year 1 within around 1 km and from elevated inland hill fringes within 2.5km. Significant residual visual effects at year 15 following establishment of mitigation planting have been identified within around 750m and from elevated inland hill fringes within 2.5km.

457. The industrial character of the coastal landscape is a notable influence on the landscape and visual resource within the immediate context of the Proposed Development at Torness Power Station, Dunbar Cement Works, Dunbar Landfill Site and Dunbar Energy Recovery Facility. Whilst the scale of the Proposed Development, in conjunction with the broad and open character of the coastal plain, give rise to significant residual effects, these effects will be experienced within the context of nearby industrial development and within a very localised part of the study area, in the immediate landscape and visual context of the Proposed Development.

Table 6.16: Summary of Potential Likely Significant Environmental Effects and Mitigation

Receptor	Sensitivity of Receptor	Magnitude of Change (Construction)	Significance of Effect (Construction)	Magnitude of Change (Year 1)	Significance of Effect (Year 1)	Magnitude of Change (year 15 once mitigation planting established)	Significance of Effect (Year 15 Residual Effect)
Physical Landscape Effects							
Agricultural Land	Medium-Low	Medium-Low	Minor (Not Significant)	N/A	N/A	N/A	N/A
Hedgerows and Trees	Medium-High	Low	Moderate-Minor (Not Significant)	N/A	N/A	N/A	N/A
Coastal Landscape	Medium-High	Low	Moderate-Minor (Not Significant)	N/A	N/A	N/A	N/A
Landscape Character Effects							
LCT 277: Coastal Margins – Lothians (within 1km)	Medium	Medium-High	Moderate (Significant)	Medium-High	Moderate (Significant)	Medium	Moderate (Not Significant)
LCT 277: Coastal Margins – Lothians (wider area)		Medium-Low	Moderate-Minor (Not Significant)	Medium-Low	Moderate-Minor (Not Significant)	Low	Minor (Not Significant)
LCT 269: Upland Fringes – Lothians (within 1km)	Medium	Medium-High	Moderate (Significant)	Medium-High	Moderate (Significant)	Medium	Moderate (Not Significant)
LCT 269: Upland Fringes – Lothians (wider area)		Medium-Low	Moderate-Minor (Not Significant)	Medium-Low	Moderate-Minor (Not Significant)	Medium-Low	Moderate-Minor (Not Significant)

Receptor	Sensitivity of Receptor	Magnitude of Change (Construction)	Significance of Effect (Construction)	Magnitude of Change (Year 1)	Significance of Effect (Year 1)	Magnitude of Change (year 15 once mitigation planting established)	Significance of Effect (Year 15 Residual Effect)
Visual Effects – Onshore Substation							
Viewpoint 1: A1, Skateraw Junction	Medium	High	Moderate-Major (Significant)	High	Moderate-Major (Significant)	Medium	Moderate (Significant)
Viewpoint 2: Innerwick	High	Medium-High	Major (Significant)	Medium-High	Major (Significant)	Medium	Moderate-Major (Significant)
Viewpoint 3: John Muir Link near Skateraw	Medium-High	Medium-High	Moderate-Major (Significant)	Medium-High	Moderate-Major (Significant)	Medium-Low	Moderate (Not Significant)
Viewpoint 4: Minor road near Thornton	Medium	Medium	Moderate (Not Significant)	Medium	Moderate (Not Significant)	Medium-Low	Moderate-Minor (Not Significant)
Viewpoint 5: Minor road near Thurston	Medium	Medium	Moderate (Not Significant)	Medium	Moderate (Not Significant)	Medium-Low	Moderate-Minor (Not Significant)
Viewpoint 6: Blackcastle Hill	Medium-High	Medium	Moderate (Significant)	Medium	Moderate (Significant)	Medium	Moderate (Significant)
Core Path 18, north of Innerwick	Medium-High	Medium-High	Moderate-Major (Significant)	Medium-High	Moderate-Major (Significant)	Medium-Low	Moderate (Not Significant)
Individual property at Railway Cottage, Skateraw Gate	Medium-High	High	Major (Significant)	High	Major (Significant)	High	Major (Significant)
Visual Effects - Cable Corridor and Landfall							
Viewpoint 1: A1, Skateraw Junction	Medium	Low	Minor (Not Significant)	N/A	N/A	N/A	N/A

Receptor	Sensitivity of Receptor	Magnitude of Change (Construction)	Significance of Effect (Construction)	Magnitude of Change (Year 1)	Significance of Effect (Year 1)	Magnitude of Change (year 15 once mitigation planting established)	Significance of Effect (Year 15 Residual Effect)
Viewpoint 2: Innerwick	High	Low	Moderate-Minor (Not Significant)	N/A	N/A	N/A	N/A
Viewpoint 3: John Muir Link (John Muir Link 500m either side of cable route)	Medium-High	Medium	Moderate (Significant)	N/A	N/A	N/A	N/A
Viewpoint 3: John Muir Link (John Muir Link other sections between Barns Ness and Torness)		Low	Moderate-Minor (Not Significant)	N/A	N/A	N/A	N/A
Viewpoint 4: Minor road near Thornton	Medium	No Change	No Effect	N/A	N/A	N/A	N/A
Viewpoint 5: Minor road near Thurston	Medium	Low	Minor (Not Significant)	N/A	N/A	N/A	N/A
Viewpoint 6: Blackcastle Hill	Medium-High	Low	Moderate-Minor (Not Significant)	N/A	N/A	N/A	N/A
Individual property at Links Cottage, Skateraw Harbour	Medium-High	Low	Moderate-Minor (Not Significant)	N/A	N/A	N/A	N/A
Individual property at Castledene	High	High	Major (Significant)	N/A	N/A	N/A	N/A

Table 6.17: Summary of Potential Likely Significant Cumulative Environment Effects and Mitigation (Tier 2 assessment)

Receptor	Sensitivity of Receptor	Magnitude of Change (Construction)	Significance of Effect (Construction)	Magnitude of Change (Year 1)	Significance of Effect (Year 1)	Magnitude of Change (year 15 once mitigation planting established)	Significance of Effect (Year 15 Residual Effect)
Landscape Character Effects							
LCT 277: Coastal Margins – Lothians	Medium	Low	Minor (Not Significant)	Low	Minor (Not Significant)	Low	Minor (Not Significant)
LCT 269: Upland Fringes – Lothians	Medium	Low	Minor (Not Significant)	Low	Minor (Not Significant)	Low	Minor (Not Significant)
Visual Effects							
Viewpoint 3: John Muir Link near Skateraw	Medium-High	Low	Moderate-Minor (Not Significant)	Low	Moderate-Minor (Not Significant)	Low	Moderate-Minor (Not Significant)
Viewpoint 6: Blackcastle Hill	Medium-High	Low	Moderate-Minor (Not Significant)	Low	Moderate-Minor (Not Significant)	Low	Moderate-Minor (Not Significant)

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