

BERWICK BANK WIND FARM ONSHORE ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Appendix 15.2: Summary of Inter-Related Effects

Document Status

Version	Purpose of Document	Authored by	Reviewed by	Approved by	Review Date
1.0	First Draft	Y Dennis	S Tullie	G Spowage	4/11/22

Approval for Issue

Laurie Winter



5 December 2022

Prepared by: **ITPEnergised**
 Prepared for: **SSE Renewables**

Checked by: **ITPEnergised**
 Accepted by: **SSE Renewables**
 Approved by: **SSE Renewables**

CONTENTS

1. Inter-Related Effects.....	3
1.1. . Introduction	3
1.2. . Assessment of Inter-related Effects.....	3
1.2.2. Stage 1: Topic-Specific Assessments	3
1.2.3. Stage 2: Identification of Receptor Groups	3
1.2.4. Stage 3: Identification of Poential Inter-related effetcs on receptor groups	4
1.2.5. Stage 4: Assessment of Inter-Related Effects	9
1.3. . Summary.....	12

TABLES

Table 1.1: Potential for Interaction Between Topic Areas to Result In Inter-Related Effects on Receptor Groups	5
Table 1.2: Summary of Receptor-Led Inter-Related Effects	10

1. INTER-RELATED EFFECTS

1.1. INTRODUCTION

1. This appendix presents the findings of the assessment of potential inter-related effects of the Proposed Development on environmental receptors.
2. Volume 1, Chapters 6 to 14 of this EIA Report assess the effects of the Proposed Development on topic-specific receptors. The assessments are impact-led (i.e. the impacts on receptors are identified by impact type for the construction, operation and maintenance, and decommissioning phases). This inter-related effects assessment adopts a different approach, by focusing on the receptor and then identifying the impacts which may arise from more than one environmental topic (i.e. impacts which are not explicitly addressed elsewhere in the EIA Report).
3. This assessment
 - presents the receptors groups considered within the EIA process; and
 - presents the potential for multiple effects on any of the identified receptor groups to interact and create 'inter-related' effects.
4. This appendix only assesses inter-related effects of multiple topics on onshore receptors. Cumulative effects (i.e. the effects of the Proposed Development combined with those of other developments) are addressed in individual topic chapters (Volume 1, Chapters 6-14).

1.2. ASSESSMENT OF INTER-RELATED EFFECTS

5. The study area for the assessment of inter-related effects has been informed by the study areas used in the topic-specific assessments. The potential inter-related effects considered in this appendix are therefore limited to the study areas defined the each of the topic chapters.
6. Details of the baseline environmental conditions for the receptor groups considered in this inter-related effects assessment are specific to each receptor group and set out in the relevant topic-specific chapters. This assessment draws on the baseline information contained within those chapters.
7. The approach to assessing inter-related effects within this assessment has followed a four-stage process.

1.2.2. STAGE 1: TOPIC-SPECIFIC ASSESSMENTS

8. The first stage of the assessment of inter-related effects is presented in each of the individual topic chapters and comprises the individual assessments of effects on receptors across the construction, operation and maintenance, and decommissioning phases of the Proposed Development.
9. The findings of these assessments are presented in Volume 1, Chapters 6 - 14.

1.2.3. STAGE 2: IDENTIFICATION OF RECEPTOR GROUPS

10. A review of the assessments in the topic-specific chapters was undertaken to identify 'receptor groups' requiring assessment within the inter-related effects assessment. The term 'receptor group' is used to highlight that the approach taken for the inter-related effects

assessment does not assess every individual receptor assessed at the EIA stage, but rather potentially sensitive groups of receptors.

1.2.4. STAGE 3: IDENTIFICATION OF POTENTIAL INTER-RELATED EFFECTS ON RECEPTOR GROUPS

11. Consideration was given to the potential for inter-related effects to arise for each of the identified receptor groups as a result of the interaction of multiple effects on a receptor group (i.e., receptor-led effects).
12. This involves the assessment of the scope for all effects to interact, spatially and temporally, to create inter-related effects on a receptor or receptor group. All effects on a given receptor group may interact to produce a greater effect on this receptor group than when the effects are considered in isolation.
13. Table 1.1 identifies potential for inter-relationships to occur for each receptor group and considers whether any potential effects are already considered within the EIA Report.

Table 1.1: Potential for Interaction Between Topic Areas to Result In Inter-Related Effects on Receptor Groups

Receptor Group	Landscape and Visual	Ecology and Ornithology	Noise	Cultural Heritage	Geology and Hydrology	Transport	Socio-economics	Land use, Tourism and Recreation	Potential inter-related effect considered in the EIA Report?
Landscape Character and Designations	N/A								<p>Effects on landscape character are considered in Volume 1, Chapter 6.</p> <p>There is no potential for inter-related effects with other topic areas on this receptor group.</p>
Ecologically Designated Sites		N/A							<p>Effects on ecologically designated sites are considered in Volume 1, Chapters 7 and 8.</p> <p>There is no potential for inter-related effects with other topic areas on this receptor group.</p>
Habitats and Species	Yes (mitigation planting)	N/A	Yes		Yes (water quality)				<p>Effects on ecological and ornithological receptors are considered in Volume 1, Chapters 7 and 8.</p> <p>The impacts of mitigation planting on ecological receptors have been considered within Volume 1, Chapters 7 and 8.</p> <p>The effects of noise (disturbance) on ecological receptors have been considered in Volume 1, Chapters 7 and 8.</p> <p>Effects on ecological receptors in relation to changes in surface water quality are considered in Volume 1, Chapter 7.</p> <p>There is potential for inter-related effects with other topic areas on this receptor group, however, these are all considered within Volume 1, Chapters 7 and 8 and therefore not taken forward in this assessment.</p>

Receptor Group	Landscape and Visual	Ecology and Ornithology	Noise	Cultural Heritage	Geology and Hydrology	Transport	Socio-economics	Land use, Tourism and Recreation	Potential inter-related effect considered in the EIA Report?
Humans (residents)	Yes		Yes			Yes (noise)			<p>The effects of noise (disturbance) and vibrations on residents are considered in Volume 1, Chapter 9.</p> <p>Visual impacts on residents are considered in Volume 1, Chapter 6.</p> <p>There is potential for inter-related effects on this receptor group in relation to residential noise and visual amenity.</p>
Humans (pedestrians/recreational users of paths)	Yes					Yes		Yes	<p>Users of core paths and transport routes are assessed in Volume 1, Chapter 12.</p> <p>Volume 1, Chapter 6 considers visual impacts on human receptors.</p> <p>Volume 1, Chapter 14 considers the potential effects on the amenity of recreational users.</p> <p>There is potential for inter-related effects on this receptor group in relation to traffic and visual/recreational amenity.</p>
Humans (economy)							N/A		<p>Volume 1, Chapter 13 assesses potential socio-economic impacts, which are considered to be beneficial.</p> <p>There is no potential for inter-related effects with other topic areas on this receptor group.</p>
Tourism Assets								N/A	<p>Volume 1, Chapter 14 considers the potential effects on visitor and local attractions.</p> <p>There is no potential for inter-related effects with other topic areas on this receptor group.</p>

Receptor Group	Landscape and Visual	Ecology and Ornithology	Noise	Cultural Heritage	Geology and Hydrology	Transport	Socio-economics	Land use, Tourism and Recreation	Potential inter-related effect considered in the EIA Report?
Heritage Assets	Yes (visual)			N/A					<p>Visual Effects on heritage assets and their settings are considered in Volume 1, Chapter 10.</p> <p>There is potential for inter-related effects with other topic areas on this receptor group, however these are fully considered in Volume 1, Chapter 10 and are therefore not taken forward in this assessment.</p>
Surface Water Bodies					N/A				<p>Effects on surface water bodies are considered in Volume 1, Chapter 11.</p> <p>There is no potential for inter-related effects with other topic areas on this receptor group</p>
Groundwater (including aquifers)					N/A				<p>Effects on groundwater are considered in Volume 1, Chapter 11.</p> <p>There is no potential for inter-related effects with other topic areas on this receptor group.</p>
Geologically Designated Sites					N/A				<p>Effects on geologically designated sites are considered in Volume 1, Chapter 11.</p> <p>There is no potential for inter-related effects with other topic areas on this receptor group</p>
Land/Soil (contamination)					N/A				<p>Effects on soil are considered in Volume 1, Chapter 11.</p> <p>There is no potential for inter-related effects with other topic areas on this receptor group</p>

Receptor Group	Landscape and Visual	Ecology and Ornithology	Noise	Cultural Heritage	Geology and Hydrology	Transport	Socio-economics	Land use, Tourism and Recreation	Potential inter-related effect considered in the EIA Report?
Agricultural land use								N/A	Effects on agricultural land use are considered in Volume 1, Chapter 14. There is no potential for inter-related effects with other topic areas on this receptor group.

14. Based on the above, two receptor groups may experience effects across a number of environmental topic areas.
 - Humans (residents); and
 - Humans (pedestrians/recreational users of paths).
15. The key considerations in the assessment of inter-related effects on humans (residents) are:
 - Noise;
 - Visual amenity; and
 - Traffic and Transport.
16. The key considerations in the assessment of inter-related effects on humans (pedestrians/recreational users of paths) are:
 - Visual amenity;
 - Traffic and Transport; and
 - Tourism and Recreation.

1.2.5. STAGE 4: ASSESSMENT OF INTER-RELATED EFFECTS

17. Individual effects on each receptor group have been considered. This assessment of inter-related effects considers only effects produced by the Proposed Development and not from other projects. Cumulative effects have been considered within topic-specific chapters as relevant.
18. The significance of the individual effects, as defined in the topic-specific chapters, is presented in Table 1.2 for each receptor group (all conclusions for significance of effect assume successful implementation of mitigation measures where appropriate, i.e., the residual effect has been used). A descriptive assessment of the scope for these individual effects to interact to create a different or greater effect has then been undertaken.

Table 1.2: Summary of Receptor-Led Inter-Related Effects

Receptor Group	Impact	Topic	Receptor	Residual Effects Assessment	Inter-related Effects
Humans (residents)	Construction vibration at sensitive receptors	Noise and Vibration	Noise Sensitive Receptors	Negligible	<p>There is potential for residents of closest properties to the onshore cable route to experience noise and visual effects during construction and operation. Noise and vibration effects during construction would be of negligible to minor significance, and temporary. These would reduce to negligible during operation with the implementation of mitigation. Therefore, there would be no inter-related effect during operation.</p> <p>Visual effects on residents may be up to major adverse during construction and operation.</p> <p>Castledene, Links Cottage, Railway Cottage, and dwellings in Innerwick may experience visual and noise effects at the same time during construction.</p> <p>The inter-related effect on humans (residents) is considered to be major adverse (significant in EIA terms) as a worst-case. These effects would be temporary as they are associated with the construction phase only.</p>
	Construction noise at sensitive receptors	Noise and Vibration	Noise Sensitive Receptors	Minor	
	Operational noise at sensitive receptors	Noise and Vibration	Noise Sensitive Receptors	Negligible	
	Increase in road traffic noise during construction	Noise and Vibration	Noise Sensitive Receptors	Negligible	
	Impact of views of construction activity and operation on residential properties	Landscape and Visual	Innerwick Links Cottage Railway Cottage Castledene Thurston Manor Caravan Park	From moderate to major	
Humans (pedestrians/recreational users of paths)	Pedestrian amenity during construction	Transport	Skateraw Users	Minor	<p>There is potential for users of core paths to experience visual effects as well as traffic and transport effects such as increased delay, fear and intimidation, and accidents.</p> <p>Effects associated with traffic and transport (delay, fear and intimidation, and accidents and safety) would be minor adverse significance (not significant). Visual effects on</p>
			Users of U209		
			Core Path Users		
	Pedestrian delay during construction	Transport	Skateraw Users Users of U209	Minor	

Receptor Group	Impact	Topic	Receptor	Residual Effects Assessment	Inter-related Effects
	Fear and intimidation during construction	Transport	Skateraw Road Users Users of U209 Core Path Users	Minor	recreational users may be up to minor adverse (not significant). Pedestrians and recreational users on core paths may experience effects on visual amenity and traffic effects at the same time.
	Accidents and safety during construction	Transport	Skateraw Users Users of U209 Core Path Users	Minor	The inter-related effect on pedestrians/recreational users of core paths is considered to be minor adverse (not significant in EIA terms) as a worst-case following the implementation of mitigation. The effect would be temporary as it is associated with construction only.
	Impact on recreational users during construction	Tourism and Recreation	Core Path Users	Negligible-Minor to Minor	

1.3. SUMMARY

19. The assessment presented within this appendix considers the potential for inter-related effects arising from the Proposed Development on a range of onshore receptor groups. The identification of potential inter-related effects has been based on a largely qualitative assessment using expert judgement and noting that inter-related effects have already been accounted for, in many instances within the assessment in topic chapters.
20. The potential for inter-related effects on receptors are anticipated for two of the 13 receptor groups identified in this assessment.
21. Scope exists for inter-related effects on humans (residents). During construction, there may be noise effects on residents as a result of construction works and increased road traffic. The effects could combine with visual effects at some receptors. Effects in relation to noise are predicted to be negligible to minor (non-significant) and effects in relation to visual amenity are predicted to be moderate to major (significant). The overall inter-related effect on residents would therefore be major adverse as a worst case and significant in EIA terms.
22. Scope exists for inter-related effects on users of core paths (pedestrians and recreational users). During construction, there may be effects associated with increased traffic e.g., pedestrian delay, pedestrian amenity, fear and intimidation, and accidents and safety. The effects could combine with visual effects on some receptors. The effects in relation to traffic are predicted to be minor (non-significant) and the effects in relation to visual amenity are predicted to be negligible-minor to minor (non-significant). Overall, whilst inter-related effects on core path users may arise at some locations on a temporary basis, they are unlikely to exceed significance levels reported for individual effects and would therefore be non-significant in EIA terms.

