

# 19 Summary of Residual Effects

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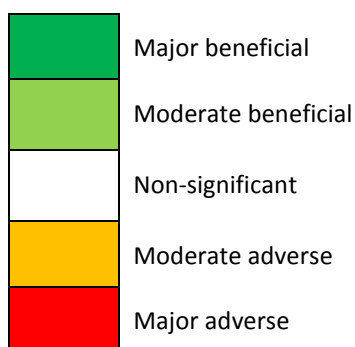
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# 19 Summary of Residual Effects

## 19.1 Introduction

19.1.1 Tables 19.1 and 19.2 provide a quick reference to the significant residual environmental effects identified in the technical sections of this Environmental Impact Assessment Report (EIAR), as well as a cross reference to the relevant mitigation measures identified.

19.1.2 The residual effects are highlighted in a “traffic light” formula for easy identification of beneficial and adverse effects as shown below. Text in **bold** shows where an effect is considered to be significant.



19.1.3 Table 19.3 provides a summary of the cumulative effects of the Proposed Development in combination with other proposed, consented and operation developments within the local area.

**Table 19.1 - Summary of Residual Effects – Construction and Decommissioning/Restoration Phases**

Description of Effect	Significance of Potential Effect		Mitigation Measure	Significance of Residual Effect	
	Significance	Beneficial/ Adverse		Significance	Beneficial/ Adverse
<b>Landscape and Visual</b>					
Landscape Features	Moderate/ minor	Adverse	No additional mitigation – consideration of landscape and visual matters was inherent in the design process	Moderate/ minor	Adverse
Landscape Character Types and Sub-Types	Moderate to Minor	Adverse		Moderate to Minor	Adverse
Visual receptors	Worst-case Minor	Adverse		Worst-case Minor	Adverse
Routes within and in close proximity to the site boundary.	Moderate	Adverse		<b>Moderate</b>	<b>Adverse</b>
<b>Ecology and Nature Conservation</b>					
Loss of habitat: blanket bog and wet modified bog	Negligible	Adverse	CEMP, ECoW monitoring	Negligible	Adverse
Habitat loss/change and disturbance to bats	Negligible	Adverse	SPP, ECoW monitoring	Negligible	Adverse
<b>Ornithology</b>					
Whooper swan	Minor (Not significant)	Adverse	None required	Not significant	Adverse
Pink-footed goose	Minor (Not significant)	Adverse	None required	Not significant	Adverse
Greylag goose	Minor (Not significant)	Adverse	None required	Not significant	Adverse
Goshawk	Negligible (Not significant)	Adverse	BBPP and pre-construction surveys.	Not significant	Adverse

Description of Effect	Significance of Potential Effect		Mitigation Measure	Significance of Residual Effect	
	Significance	Beneficial/ Adverse		Significance	Beneficial/ Adverse
Black grouse	Minor (Not significant)	Adverse	Spatial and temporal restrictions of construction activity if required.	Not significant	Adverse
Lapwing	Minor (Not significant)	Adverse		Not significant	Adverse
Curlew	Minor (Not significant)	Adverse		Not significant	Adverse
Golden plover	Minor (Not significant)	Adverse		Not significant	Adverse
<b>Noise and Vibration</b>					
Construction /Decommissioning site noise	Not significant	Adverse	Control of working hours and best working practises. To be detailed within the CEMP	Not significant	Adverse
<b>Cultural Heritage</b>					
Potential direct effects on any buried remains surviving within the development footprint; e.g. Erkny Hill farmstead (DWE01).	Negligible	Adverse	Implementation of mitigation proposals.	Negligible	Adverse
<b>Hydrology, Hydrogeology and Geology</b>					
Pollution from sediment run-off	Moderate	Adverse	50 m buffer around watercourses wherever possible (minimum 25 to 30 m from small drains/watercourses in three localised instances, one being existing track). Water quality monitoring. CEMP and construction site management.	Minor	Adverse
Pollution from forestry felling	Major	Adverse	Key-hole felling and re-planting. Felling works in accordance with good practice e.g. UK Forestry Standard. Buffering of watercourses, management of riparian zone vegetation, drainage plan, brash control in watercourses and buffer areas, removing any accidental blockages, minimising soil damage, leaving stumps.	Minor	Adverse

Description of Effect	Significance of Potential Effect		Mitigation Measure	Significance of Residual Effect	
	Significance	Beneficial/ Adverse		Significance	Beneficial/ Adverse
Changes to groundwater flow regime	Minor	Adverse	Pre-construction site investigation. CEMP and construction site management.	Negligible	Adverse
Removal of and impact on peat	Negligible	Adverse	Pre-construction site investigation. Avoidance of peat for borrow pit excavations. Micro-siting infrastructure where required and appropriate, if unexpected deeper peat is identified.	Negligible	Adverse
Impact on downstream fluvial flood risk	Major	Adverse	Detailed Drainage Strategy to be developed and agreed with SEPA and SLC. To detail drainage design to slow surface water flows and ensure that run-off from hard surfaces will be controlled. Appropriate design of water crossings to maintain continuous flows.	Negligible	Adverse
Pollution from chemical contaminated run-off	Moderate	Adverse	50 m buffer around watercourses wherever possible (minimum 25 to 30 m from small drains/watercourses in three localised instances, one being existing track). Water quality monitoring. CEMP and construction site management.	Minor	Adverse
Mobilisation of historical contamination	Minor	Adverse	Detailed ground investigations including testing of bing material for suitability prior to its use in construction.	Negligible	Adverse
Loss of bank integrity	Major	Adverse	CEMP and construction site management.	Negligible	N/A
Pollution from foul drainage	Moderate	Adverse	50 m buffer around watercourses wherever possible (minimum 25 to 30 m from small drains/watercourses in three localised instances, one being existing track). Water quality monitoring. CEMP and construction site management.	Minor	Adverse

Description of Effect	Significance of Potential Effect		Mitigation Measure	Significance of Residual Effect	
	Significance	Beneficial/ Adverse		Significance	Beneficial/ Adverse
<b>Transport and Traffic</b>					
Traffic impact during construction and decommissioning	Negligible	Adverse	None Proposed (but good practice measures would be employed)	Negligible	Adverse
<b>Socio-economics, Recreation and Tourism</b>					
Economic Impact of £15.9 million and 141 job years in South Lanarkshire	Minor	Beneficial	n/a	Minor	Beneficial
Economic impact of £42.8 million and 393 job years in Scotland	Negligible	Beneficial	n/a	Negligible	Beneficial
Expenditure of construction workers in local economy	Moderate	Beneficial	n/a	Moderate	Beneficial
<b>Aviation, Radar and Telecommunication</b>					
Effects on aviation, radar and telecommunication interests during construction and decommissioning	Negligible	Neutral	Aviation lighting will be installed as soon as practicable on erected turbines.	Negligible	Neutral
<b>Shadow Flicker</b>					
No effects anticipated during construction or decommissioning.					
<b>Forestry</b>					
Social Benefits of the Wind Farm Forest Plan	Negligible	Adverse	Implementation of Wind Farm Forest Plan – public access, archaeological and landscape considerations are materially changed from the baseline	Negligible	Neutral
Economic Benefits of the Wind Farm Forest Plan	Minor	Beneficial	Implementation of Wind Farm Forest Plan and Compensatory Planting to address reduced production – the loss of 33.08ha of commercial woodland does not affect the economic viability of the forest or the wider industry and is being mitigated through compensatory planting.	Minor	Beneficial

Description of Effect	Significance of Potential Effect		Mitigation Measure	Significance of Residual Effect	
	Significance	Beneficial/ Adverse		Significance	Beneficial/ Adverse
Environmental Benefits of the Wind Farm Forest Plan	Minor	Beneficial	Implementation of Wind Farm Forest Plan and Compensatory Planting to address woodland loss – minimal loss of woodland cover (33.08ha) which is mitigated through compensatory planting and the generation of 78 MW of renewable energy.	Minor	Beneficial



**Table 19.2 - Summary of Residual Effects – Operation**

Description of Effect	Significance of Potential Effect		Mitigation Measure	Significance of Residual Effect	
	Significance	Beneficial/ Adverse		Significance	Beneficial/ Adverse
<b>Landscape and Visual (Bold text indicates a Significant Effect)</b>					
<i>Designated Landscapes</i>					
Douglas Valley Special Landscape Area (overall)	Moderate	Adverse	No additional mitigation – consideration of landscape and visual matters was inherent in the design process	Moderate	Adverse
<i>Landscape Character - Types in which the Turbines are located</i>					
7A. Rolling Moorland Forestry (within 2 km and beyond 2 km)	Major/ moderate	Adverse	No additional mitigation – consideration of landscape and visual matters was inherent in the design process	Major/ moderate	Adverse
	Minor	Adverse		Minor	Adverse
<i>Landscape Character - Types within 10km</i>					
7. Rolling Moorland / 8. Upland River Valley	Major/ moderate to minor	Adverse	No additional mitigation – consideration of landscape and visual matters was inherent in the design process	Major/ moderate to minor	Adverse
5. Plateau Farmland / 6. Plateau Moorland	Moderate to Minor	Adverse		Moderate to Minor	Adverse
8A. Upland River Valley Incised / 10. Upland River Valley (East Ayrshire)	Moderate to Moderate/ Minor	Adverse		Moderate to Moderate/ Minor	Adverse
7B. Rolling Moorland Windfarm / 5B. Plateau Farmland Opencast Mining/ 18a. Plateau Moorlands (East Ayrshire)	Moderate/ Minor	Adverse		Moderate/ Minor	Adverse

Description of Effect	Significance of Potential Effect		Mitigation Measure	Significance of Residual Effect	
	Significance	Beneficial/ Adverse		Significance	Beneficial/ Adverse
9. Broad Valley Uplands / 10. Foothills	Minor	Adverse		Minor	Adverse
<b>Landscape Character - Types between 10km and 15km</b>					
11. Prominent Isolated Hills	Moderate	Adverse	No additional mitigation – consideration of landscape and visual matters was inherent in the design process	Moderate	Adverse
4. Rolling Farmland / LCT 13. Southern Uplands / 13C. Southern Uplands Leadhills	Minor	Adverse		Minor	Adverse
19. Southern Uplands (Dumfries and Galloway)	Negligible	Neutral		Negligible	Neutral
<b>Visual Receptors</b>					
Assessment Viewpoint 1	Major	Adverse	No additional mitigation – consideration of landscape and visual matters was inherent in the design process	Major	Adverse
Assessment Viewpoints - 2 / 3 / 4 / 5 / 9 / 16 and 17.	Moderate	Adverse		Moderate	Adverse
Assessment Viewpoints 6 / 7 / 10 / 12 / 13 and 15.	Moderate	Adverse		Moderate	Adverse
Assessment Viewpoint 11.	Moderate to Moderate /Minor	Adverse		Moderate to Moderate /Minor	Adverse
Assessment Viewpoint 8.	Moderate/ Minor	Adverse		Moderate/ Minor	Adverse
Assessment Viewpoint 14.	Minor to No effect	Adverse		Minor to No effect	Adverse

Description of Effect	Significance of Potential Effect		Mitigation Measure	Significance of Residual Effect	
	Significance	Beneficial/ Adverse		Significance	Beneficial/ Adverse
Residential properties (1, 2, 6 -9 and 12)	Major to Moderate	Adverse	No additional mitigation – consideration of landscape and visual matters was inherent in the design process	<b>Major to Moderate</b>	<b>Adverse</b>
Residential properties (3-5, 10-11)	Moderate to Moderate/ Minor	Adverse		Moderate to Moderate/ Minor	Adverse
Settlements between 2km and 5km (Douglas / Coalburn)	Moderate to Major	Adverse		<b>Moderate to Major</b>	<b>Adverse</b>
Settlements between 5 and 10km.	Moderate to Minor	Adverse		<b>Moderate to Minor</b>	<b>Adverse</b>
Settlements beyond 10km	Moderate/ Minor	Adverse		Moderate/ Minor	Adverse
Roads and Railways	Significant effects limited to the section of the A70 within up to 3 km to 4 km.	Adverse	No additional mitigation – consideration of landscape and visual matters was inherent in the design process	<b>Significant effects limited to the section of the A70 within up to 3km to 4km.</b>	Adverse
Footpaths and Cycleways	Significant effects limited to Core Paths, Aspirational Core Paths and Wider Network paths within 2.5 km.	Adverse	No additional mitigation – consideration of landscape and visual matters was inherent in the design process	<b>Significant effects limited to Core Paths, Aspirational Core Paths and Wider Network paths within 2km.</b>	Adverse
Local Centres of Recreational Activity (Douglas Policy Grounds & Former Dalquhandy Opencast)	Moderate to Major	Adverse	No additional mitigation – consideration of landscape and visual matters was inherent in the design process	<b>Moderate to Major</b>	Adverse

Description of Effect	Significance of Potential Effect		Mitigation Measure	Significance of Residual Effect	
	Significance	Beneficial/ Adverse		Significance	Beneficial/ Adverse
<b>Ecology and Nature Conservation</b>					
Nyctalus bats: collision risk	Moderate	Adverse	Post-construction monitoring	Minor	Adverse
Pipistrelle bats: collision risk	Minor	Adverse	Minimum turbine set-back distance of >50 m from blade tip to plantation edge.	Minor	Adverse
<b>Ornithology</b>					
<b><i>Displacement</i></b>					
Whooper swan	Minor	Adverse	None required	Minor	Adverse
Pink-footed goose	Minor	Adverse		Minor	Adverse
Greylag goose	Minor	Adverse		Minor	Adverse
Goshawk	Minor	Adverse		Minor	Adverse
Black grouse	Minor	Adverse		Minor	Adverse
Lapwing	Minor	Adverse		Minor	Adverse
Curlew	Minor	Adverse		Minor	Adverse
Golden plover	Minor	Adverse		Minor	Adverse
<b><i>Collision Risk</i></b>					
Whooper swan	Negligible	Adverse	None required	Negligible	Adverse
Pink-footed goose	Negligible	Adverse		Negligible	Adverse
Greylag goose	Negligible	Adverse		Negligible	Adverse
Goshawk	Negligible	Adverse		Negligible	Adverse
Black grouse	Negligible	Adverse		Negligible	Adverse
Lapwing	Minor	Adverse		Minor	Adverse

Description of Effect	Significance of Potential Effect		Mitigation Measure	Significance of Residual Effect	
	Significance	Beneficial/ Adverse		Significance	Beneficial/ Adverse
Curlew	Minor	Adverse		Minor	Adverse
Golden plover	Minor	Adverse		Minor	Adverse
<b>Lighting Effects</b>					
All IOFs	Minor (Not significant)	Adverse	None required	Not significant	Adverse
<b>Noise and Vibration</b>					
Operational noise	Minor	Adverse	Operational monitoring to ensure compliance, with the option of selective constraint of turbine operation if found to be a requirement.	Minor	Adverse
<b>Cultural Heritage</b>					
Effect on the setting of St Bride's Chapel (LB1490) and St Bride's Church (SM90265) during operation.	Moderate	Adverse	No practical mitigation. (Noted that this effect reduces to a non-significant level in cumulative scenario 1.)	<b>Moderate</b>	<b>Adverse</b>
Effect on the setting of Douglas castle (LB1449) during operation.	Minor	Adverse	No mitigation necessary.	Minor	Adverse
Effects on settings of other designated heritage assets in the wider landscape during operation.	Minor / Negligible	Adverse	No mitigation necessary.	Minor / Negligible	Adverse
<b>Hydrology, Hydrogeology and Geology</b>					
Surface water drainage including downstream flood risk	Major	Adverse	50 m buffer around watercourses wherever possible (minimum 25 to 30 m from small drains/watercourses in three localised instances, one being existing track).	Negligible	Adverse

Description of Effect	Significance of Potential Effect		Mitigation Measure	Significance of Residual Effect	
	Significance	Beneficial/ Adverse		Significance	Beneficial/ Adverse
			Detailed Drainage Strategy to be developed and agreed with SEPA and SLC. To detail drainage design to slow surface water flows and ensure that run-off from hard surfaces will be controlled. Appropriate design of water crossings to maintain continuous flows.		
Alteration to fluvial geomorphology	Moderate	Adverse	Appropriately designed drainage and watercourse crossings.	Negligible	Adverse
<b>Transport and Traffic</b>					
Traffic impact during operation	Negligible	Adverse	Construction Traffic Management Plan (CTMP) proposed.	Negligible	Adverse
<b>Socio-economics, Recreation and Tourism</b>					
Annual economic impact of £0.7 million and 5 jobs in South Lanarkshire	Negligible	Beneficial	n/a	Negligible	Beneficial
Annual economic impact of £1.0 million and 8 jobs in Scotland	Negligible	Beneficial	n/a	Negligible	Beneficial
Revenue from shared ownership opportunity	Moderate	Beneficial	n/a	<b>Moderate</b>	<b>Beneficial</b>
Payment of an estimated £0.8 million in Non-Domestic Rates	Negligible	Beneficial	n/a	Negligible	Beneficial
Effect on tourism assets	Negligible	Adverse	n/a	Negligible	Adverse
Effect on accommodation providers	Negligible	Adverse	n/a	Negligible	Adverse
Effect on tourism routes	Negligible	Adverse	n/a	Negligible	Adverse

Description of Effect	Significance of Potential Effect		Mitigation Measure	Significance of Residual Effect	
	Significance	Beneficial/ Adverse		Significance	Beneficial/ Adverse
Effect of proposed investment in tourism infrastructure	Moderate	Beneficial	n/a	<b>Moderate</b>	<b>Beneficial</b>
Effect on proposed investment in path network	Moderate	Beneficial	n/a	<b>Moderate</b>	<b>Beneficial</b>
<b>Aviation, Radar and Telecommunications</b>					
Effects on telecommunications and TV reception during the operational period	Negligible	Neutral	None required	Negligible	Neutral
Effects on MoD low flying interests during the operational period	Negligible	Neutral	Aviation lighting will be installed.	Negligible	Neutral
Effects on NATS infrastructure during the operational period	Major	Adverse	Mitigation measure agreed between the Applicant and NATS	Negligible	Neutral
Effects on Glasgow Airport infrastructure during the operational period	Major	Adverse	Mitigation measure agreed between the Applicant and Glasgow Airport	Negligible	Neutral
<b>Shadow Flicker</b>					
Shadow Flicker effects on 3 nearby residential receptors	Negligible	Adverse	Installation of a Shadow Flicker Protocol to be agreed with South Lanarkshire Council.	Negligible	Adverse
<b>Forestry</b>					
No effects anticipated during operation.					

**Table 19.3 – Cumulative Effects**

Construction, Operation or Decommissioning of the Proposed Development	Description of Effect	Proposed, Consented and Operational Developments	Significance	Beneficial/ Adverse
<b>Landscape and Visual</b>				
<i>Scenario 1</i>				
Landscape Character	In this first cumulative scenario the character of the landscape context within which the Proposed Development is located would be markedly different. With reference to the typologies referred to in the SLLCSWE, these schemes collectively create a ‘wind turbine landscape’ which would extend over the character type within which the Proposed Development is located and others in the locality of the site. In this context, the introduction of the Proposed Development would not alter the defining characteristics of the character types in the local area but would instead reinforce the existing characteristics of the baseline landscape			
Visual Receptors	Measured against this baseline in cumulative scenario 1, whilst the overall combined impact might be greater, the additional effects arising as a result of introducing the Proposed Development would typically be less significant than reported earlier in the main assessment. Indeed, the significant effects identified in the main assessment for the areas around Coalburn and Braehead; the eastern part of Douglas; the farmsteads and dwellings scattered along the eastern side of Bellfield Road; and properties in and around Lesmahagow, Brocketsbrae, Hawksland, Douglas Water and Rigside; would reduce to a non-significant level			
<i>Scenario 2</i>				
	Given the relatively high number of operational and consented schemes considered in cumulative scenario 1, the change to the baseline brought about by the other schemes in planning in scenario 2 would be minimal. The presence of the Repowered Hagshaw Hill Wind Farm will have already introduced 200 m turbines to the local landscape, and the Proposed Development would reinforce these existing characteristics.  Therefore, it is not considered that the cumulative effects would be discernibly greater in cumulative scenario 2 than in scenario 1 and no additional significant cumulative effects are predicted.			
<b>Ecology and Nature Conservation</b>				
Construction/ Operation & Decommissioning	Habitat loss	All wind farms	Negligible	Adverse
Construction/ Operation & Decommissioning	Collision risk/ barotrauma to bats	All wind farms	Minor	Adverse



Construction, Operation or Decommissioning of the Proposed Development	Description of Effect	Proposed, Consented and Operational Developments	Significance	Beneficial/ Adverse
<b>Ornithology</b>				
Construction/ Operation & Decommissioning	Disturbance, displacement or collision risk	All wind farms	Minor	Adverse
<b>Noise and Vibration</b>				
Operation	Wind turbine noise	All wind farms	Minor	Adverse
<b>Cultural Heritage</b>				
Operation	Cumulative effect on the setting of St Bride's Chapel (LB1490) and St Bride's Church (SM90265)	All wind farms	Minor	Adverse
Operation	Cumulative effect on the setting of Douglas Castle (LB1449)	All wind farms	Minor	Adverse
Operation	Cumulative effect on the setting of other designated heritage assets in the wider landscape	All wind farms	Minor / Negligible	Adverse
<b>Hydrology, Hydrogeology and Geology</b>				
Cumulative effects on geology, hydrology and hydrogeology are considered as negligible.				
<b>Traffic and Transport</b>				
Construction	Concurrent construction timescales for the Proposed Development and nearby developments	All wind farms	Negligible	Adverse
<b>Socio-economics, Recreation and Tourism</b>				
Operation	Visual impact on important tourism receptors	All wind farms	Minor	Adverse
Operation	Help develop local renewable supply chain	All wind farms	Minor	Beneficial
Operation	Enable the local community to secure funding and investment into the area	All wind farms	Minor	Beneficial

Construction, Operation or Decommissioning of the Proposed Development	Description of Effect	Proposed, Consented and Operational Developments	Significance	Beneficial/ Adverse
<b>Aviation, Radar and Telecommunications</b>				
Cumulative effects on aviation, radar or telecommunications are considered as negligible.				
<b>Shadow Flicker</b>				
Operation	Overlap of shadow flicker effect on 3 nearby residential receptors	Dalquhandy Wind Farm (consented and application) and Douglas West Wind Farm (consented)	Negligible	Adverse
<b>Forestry</b>				
Construction	Potential cumulative reduction of 5.4% of Cumberhead Forest area. <i>Mitigation:</i> Delivery of Compensatory Planting and Implementation of Wind Farm Forest Plan	Nutberry Wind Farm and Cumberhead Wind Farm	Negligible	Neutral

