

## 19 Summary of Residual Effects

### Contents

19.1	Introduction	19-1
------	--------------	------

This page is intentionally blank.

## 19 Summary of Residual Effects

### 19.1 Introduction

- 19.1.1 Table 19.1 and 19.2 provide a reference to any significant residual environmental effects identified in the technical sections of this Environmental Impact Assessment (EIA) Report, as well as a cross reference to the relevant mitigation measures identified.
- 19.1.2 The residual effects are highlighted in bold 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 operational developments within the local area.
- 19.1.4 Table 19.4 provides a summary of the significant residual effects and cumulative effects identified in the Landscape and Visual Assessment (LVIA) in Chapter 6 of the EIA Report.

**Table 19.1 – Construction and Decommissioning Effects**

Description of Effect	Significance of Potential Effect		Mitigation Measure	Significance of Residual Effect	
	Significance	Beneficial/ Adverse		Significance	Beneficial/ Adverse
Ornithology					
No ornithological features are scoped into the assessment.					
Ecology					
Annex 1 habitat (direct loss and disturbance from runoff/pollution)	Minor (not significant)	Adverse	Avoidance of main areas of Annex 1 habitats via design, and protect Annex 1 habitats through good practice measures, such as pollution control measures and habitat restoration.  HMP to include peat/bog restoration and grassland management which will enhance bog and grassland habitats on-site.	Minor (not significant)	Adverse
Bats (displacement/disturbance)	Negligible (not significant)	Adverse	Mitigation by design included (buffers from bat features).	Negligible (not significant)	Adverse
Geology, Hydrology, Peat and Hydrogeology					
<i>Erosion and Sedimentation</i>					
<b>Construction</b>					

Description of Effect	Significance of Potential Effect		Mitigation Measure	Significance of Residual Effect	
	Significance	Beneficial/ Adverse		Significance	Beneficial/ Adverse
Water Quality	Minor to Moderate	Adverse	Additional sediment control measures at the vulnerable locations.  Additional mitigation required for the Glenalla Farm PWS catchment through monitoring and sediment control.	Minor (not significant)  Minor/ Moderate (not significant)	Adverse
Drainage Alteration	Minor	Adverse	None required	Minor (not significant)	Adverse
Peat Slide	Negligible to Minor	Adverse	None required	Negligible to Minor (not significant)	Adverse
<b>Decommissioning</b>					
Water Quality	Minor	Adverse	None required	Minor (not significant)	Adverse
Drainage Alteration	Minor	Adverse	None required	Minor (not significant)	Adverse
Peat Slide	Negligible to Minor	Adverse	None required	Negligible to Minor (not significant)	Adverse
<i>Pollution</i>					
<b>Construction</b>					

Description of Effect	Significance of Potential Effect		Mitigation Measure	Significance of Residual Effect	
	Significance	Beneficial/ Adverse		Significance	Beneficial/ Adverse
Water Quality	Minor to Minor/ Moderate	Adverse	Additional mitigation required for the Glenala Farm PWS catchment through monitoring and sediment control	Minor (not significant)	Adverse
			Additional mitigation required for the Glenalla Farm PWS catchment through monitoring and sediment control	Minor/ Moderate (not significant)	
<b>Decommissioning</b>					
Water Quality	Minor	Adverse	None	Minor (not significant)	Adverse
<i>Natural Drainage Alteration</i>					
<b>Construction</b>					
Water Quality	Minor	Adverse	None required	Minor (not significant)	Adverse
Peat slide	Negligible to Minor	Adverse	None required	Negligible to Minor (not significant)	Adverse
<b>Decommissioning</b>					
Water Quality	Minor	Adverse	None required	Minor (not significant)	Adverse

Description of Effect	Significance of Potential Effect		Mitigation Measure	Significance of Residual Effect	
	Significance	Beneficial/ Adverse		Significance	Beneficial/ Adverse
Peat slide	Negligible to Minor	Adverse	None required	Negligible to Minor (not significant)	Adverse
<i>Watercourse Crossings</i>					
Impeding Flows and sediment entering the watercourses	Minor	Adverse	None required	Minor (not significant)	Adverse
<i>Increase in the Magnitude of Flood Frequency Events</i>					
Increase in the magnitude of flood frequency events	Minor	Adverse	None required	Minor (not significant)	Adverse
<i>Geological Alteration</i>					
<b>Construction</b>					
Disturbance of peat	Minor	Adverse	Peat reuse as per the peat management plan	Minor (not significant)	Adverse
Peat Slide	Minor	Adverse	None required	Minor (not significant)	Adverse
<b>Decommissioning</b>					

Description of Effect	Significance of Potential Effect		Mitigation Measure	Significance of Residual Effect	
	Significance	Beneficial/ Adverse		Significance	Beneficial/ Adverse
Disturbance of peat	Minor	Beneficial	Any peat disturbance would be for restoration purposes only	Minor (not significant)	Beneficial
Peat Slide	Minor	Adverse	None required	Minor (not significant)	Adverse
Noise					
Noise from construction and decommissioning	Not significant	Adverse	Production and implementation of a CEMP and traffic management plan	Not significant	Adverse
Cultural Heritage					
Direct effect on remains of small field and associated field banks (1l-m) <sup>1</sup>	Moderate	Adverse	Investigation by archaeological excavation. Preservation by record.	Minor	Adverse
Direct effect on remains of a drystone wall (21a)	Minor	Adverse	None required	Minor	Adverse
Direct effect on remains of a field system (28a)	Moderate	Adverse	Watching brief	Minor	Adverse
Direct effect on a small circular platform (29)	Moderate	Adverse	Investigation by archaeological excavation. Preservation by record.	Minor	Adverse

8.1.1

<sup>1</sup> Refer to Appendix 11.1 for heritage asset descriptions/



Description of Effect	Significance of Potential Effect		Mitigation Measure	Significance of Residual Effect	
	Significance	Beneficial/ Adverse		Significance	Beneficial/ Adverse
Potential direct impacts on any buried remains surviving within the Proposed Development footprint.	Moderate	Adverse	Implementation of mitigation proposals where required through planning condition.	Minor	Adverse
<b>Traffic and Transport</b>					
Traffic effects on Hill Road (Western Access)	Moderate / Minor	Adverse	Implementation of Construction Traffic Management Plan, development of ARA reviewed access junction and detailed access management plan, provision of construction traffic road signage, convoy escorts for AIL movements, provision of localised road improvement works.	Minor	Adverse, temporary and reversible
Traffic effects on Unclassified Road (Northern Access)	Moderate / Minor	Adverse	Implementation of Construction Traffic Management Plan, development of ARA reviewed access junction and detailed access management plan, provision of construction traffic road signage, convoy escorts for AIL movements, provision of localised road improvement works.	Minor	Adverse, temporary and reversible

Description of Effect	Significance of Potential Effect		Mitigation Measure	Significance of Residual Effect	
	Significance	Beneficial/ Adverse		Significance	Beneficial/ Adverse
Traffic effects on B741	Moderate / Minor	Adverse	Implementation of Construction Traffic Management Plan, provision of construction traffic road signage, convoy escorts for AIL movements, provision of localised road improvement works.	Minor	Adverse, temporary and reversible
Crosshill Residents	Moderate / Minor	Adverse	Implementation of Construction Traffic Management Plan and Site Access Traffic Management Plan, provision of construction traffic road signage, convoy escorts for AIL movements, provision of localised road improvement works.	Minor	Adverse, temporary and reversible
Core path users	Moderate / Minor	Adverse	Implementation of Construction Traffic Management Plan and Core Path Users Plan, provision of construction traffic road signage, convoy escorts for AIL movements, provision of localised road improvement works.	Minor	Adverse, temporary and reversible
Socio-economics and Tourism					
£4.4 million GVA and 62 years of employment in South Ayrshire during	Negligible	Beneficial	N/A	Negligible	Beneficial

Description of Effect	Significance of Potential Effect		Mitigation Measure	Significance of Residual Effect	
	Significance	Beneficial/ Adverse		Significance	Beneficial/ Adverse
the construction and development phase.					
£16.4 million GVA and 225 years of employment across Scotland during the construction and development phase.	Negligible	Beneficial	N/A	Negligible	Beneficial
GVA and employment supported in South Ayrshire during decommissioning	Negligible	Beneficial	N/A	Negligible	Beneficial
GVA and employment supported in Scotland. During decommissioning	Negligible	Beneficial	N/A	Negligible	Beneficial
<b>Aviation</b>					
Effects on GPA aviation radar	Major	Adverse	Mitigation measures will be agreed between the Applicant and GPA.	Negligible	Neutral
Effects on aviation interests and low flying.	Negligible	Neutral	Infra-Red aviation lighting will be installed.	Negligible	Neutral

Description of Effect	Significance of Potential Effect		Mitigation Measure	Significance of Residual Effect	
	Significance	Beneficial/ Adverse		Significance	Beneficial/ Adverse
Effects on NERL radar at Lowther Hill.	Major	Adverse	Mitigation measures will be agreed between the Applicant and NERL.	Negligible	Neutral
Effects on MOD radar	None	N/A	None	None	N/A
Telecommunications					
The Proposed Development will not impact any telecommunication links.					
Shadow Flicker					
No shadow flicker effects during construction or decommissioning.					

**Table 19.2 – Operational Phase Effects**

Description of Effect	Significance of Potential Effect		Mitigation Measure	Significance of Residual Effect	
	Significance	Beneficial/ Adverse		Significance	Beneficial/ Adverse
Ornithology					
No ornithological features are scoped into the assessment.					
Ecology					
Bats (collision mortality)	Minor (not significant)	Adverse	Not required, mitigation by design included (buffers from bat features).	Minor (not significant)	Adverse
Geology, Peat, Hydrology and Hydrogeology					
<i>Erosion and Sedimentation</i>					
Water Quality	Minor	Adverse	None required	Minor (not significant)	Adverse
Pollution	Minor	Adverse	None required	Minor (not significant)	Adverse
<i>Natural Drainage Alteration</i>					
Alteration of natural drainage patterns	Minor	Adverse	None required	Minor (not significant)	Adverse
Flood Risk	Minor	Adverse	None required	Minor (not significant)	Adverse

Description of Effect	Significance of Potential Effect		Mitigation Measure	Significance of Residual Effect	
	Significance	Beneficial/ Adverse		Significance	Beneficial/ Adverse
<i>Geological Alteration</i>					
Peat Slide	Minor	Adverse	None required	Minor (not significant)	Adverse
Noise					
Noise from operation of the substation and energy storage facility	Not significant	Adverse	Specification of facilities such that noise limits are met at NSRs	Not significant	Adverse
Cultural Heritage					
Effects on the settings of ten Scheduled Monuments.	Minor or negligible	Adverse	No mitigation necessary.	Minor or negligible	Adverse
Effect on the setting of one NSR Site: possible burial cairn (HER Ref: 11669).	Moderate	Adverse	None	Moderate	Adverse
Effects on the setting of ten other NSR Sites.	Minor or negligible	Adverse	No mitigation necessary.	Minor or negligible	Adverse
Effects on the settings of 53 Listed Buildings	Minor or negligible	Adverse	No mitigation necessary. No mitigation necessary.	Minor or negligible	Adverse

Description of Effect	Significance of Potential Effect		Mitigation Measure	Significance of Residual Effect	
	Significance	Beneficial/ Adverse		Significance	Beneficial/ Adverse
Effects on the settings of three Conservation Areas	Minor or negligible	Adverse	No mitigation necessary. No mitigation necessary.	Minor or negligible	Adverse
Effects on the settings of three Inventory Gardens and Designed Landscapes.	Minor or negligible	Adverse	No mitigation necessary.	Minor or negligible	Adverse
Effects on the settings of two Non- Inventory Designed Landscapes.	Minor or negligible	Adverse	No mitigation necessary.	Minor or negligible	Adverse
<b>Traffic and Transport</b>					
Operation has been scoped out because no operational effects were anticipated					
<b>Socio-economics and Tourism</b>					
£0.4 million GVA and five jobs in South Ayrshire during the operations and maintenance phase.	Negligible	Beneficial	N/A	Negligible	Beneficial
£0.6 million GVA and eight jobs in Scotland	Negligible	Beneficial	N/A	Negligible	Beneficial

Description of Effect	Significance of Potential Effect		Mitigation Measure	Significance of Residual Effect	
	Significance	Beneficial/ Adverse		Significance	Beneficial/ Adverse
during the operations and maintenance phase.					
Economic benefits from community benefit funding.	Negligible	Beneficial	N/A	Negligible	Beneficial
Annual payment of an estimated £0.4 million in non-domestic rates.	Negligible	Beneficial	N/A	Negligible	Beneficial
Effect on tourism assets.	Negligible	Beneficial	N/A	Negligible	Beneficial
Effect on Balbeg Country Holidays.	Minor	Adverse	N/A	Minor	Adverse
Effect on other accommodation providers.	Negligible	N/A	N/A	Negligible	N/A
Effect on recreational trail Monument and Bennan Hill, Straiton.	Minor	N/A	N/A	Minor	N/A
Effect on core path and other recreational trails.	Negligible	N/A	N/A	Negligible	N/A



Description of Effect	Significance of Potential Effect		Mitigation Measure	Significance of Residual Effect	
	Significance	Beneficial/ Adverse		Significance	Beneficial/ Adverse
Aviation					
Effects on GPA aviation radar	Major	Adverse	Mitigation measures will be agreed between the Applicant and GPA.	Negligible	Neutral
Effects on aviation interests and low flying.	Negligible	Neutral	Infra-Red aviation lighting will be installed.	Negligible	Neutral
Effects on NERL radar at Lowther Hill.	Major	Adverse	Mitigation measures will be agreed between the Applicant and NERL.	Negligible	Neutral
Effects on MOD radar	None	N/A	None	None	N/A
Telecommunications					
The Proposed Development will not impact any telecommunication links					
Shadow Flicker					
Shadow flicker nuisance on residential receptors A and B	Not Significant	N/A	None	Not significant	N/A

**Table 19.3 – Cumulative Effects**

Description of Effect	Effect		Mitigation Measure	Significance of Cumulative Effect	
				Significance	Beneficial/ Adverse
Ornithology					
No ornithological features are scoped into the assessment					
Ecology					
Bats	Collision mortality during operation.		Carrick Wind Farm Craiginmoddie Wind Farm	Minor (not significant)	Adverse
Geology, Peat, Hydrology and Hydrogeology					
There are not considered to be any cumulative effects on hydrological, hydrogeological or geological receptors.					
Noise					
Cumulative noise from operation of all wind turbines	Not significant	Adverse	None proposed	Not significant	Adverse
Cultural Heritage					
Knockinculloch, enclosures on E slope of, 600 m NW of Glenalla (SM 3357).	Cumulative effect on setting		Carrick Wind Farm and Craiginmoddie Wind Farm	Moderate	Adverse

Description of Effect	Effect	Mitigation Measure	Significance of Cumulative Effect	
			Significance	Beneficial/ Adverse
NSR Site: possible burial cairn (HER Ref: 11669).	Cumulative effect on setting	Carrick Wind Farm and Craiginmoddie Wind Farm	Moderate	Adverse
Kilkerran House (LB 1114) GDL (GDL 238)	Cumulative effect on setting.	Carrick Wind Farm and Craiginmoddie Wind Farm	Moderate	Adverse
<b>Traffic and Transport</b>				
None	N/A	N/A	N/A	N/A
<b>Socio-economics and Tourism</b>				
N/A	N/A	N/A	N/A	N/A
<b>Aviation</b>				
There are no cumulative effects given the turbines' induced effects on radars will be mitigated prior to construction.				
<b>Telecoms</b>				
The Proposed Development will not have any cumulative effect any telecommunication links.				
<b>Shadow Flicker</b>				
Shadow flicker effects	Negligible	N/A	None	Not significant



**Table 19.4 – Summary of Effects Identified in the LVIA**

Receptor	Receptor Sensitivity	Operational / Under Construction Scenario		Consented Scenario		Application Scenario		Scoping Scenario	
		Magnitude of Change	Significance of Effect	Cumulative Magnitude of Change	Significance of Cumulative Effect	Cumulative Magnitude of Change	Significance of Cumulative Effect	Cumulative Magnitude of Change	Significance of Cumulative Effect
Physical Landscape Effects									
Moorland	Medium - Low	Low	Minor / Not Significant	N/A	N/A	N/A	N/A	N/A	N/A
Landscape Character Effects									
Foothills with Forest & Wind Farm – LCT 17c	Medium	High: site area	Moderate-Major / Significant	High: site area	Moderate-Major / Significant	High: site area	Moderate-Major / Significant	Medium: other areas	Moderate / Not Significant
		Medium-Low: other areas	Moderate-Minor / Not Significant	Medium-Low: other areas	Moderate-Minor / Not Significant	Medium: other areas	Moderate / Not Significant	Low: other areas	Minor / Not Significant
Intimate Pastoral Valley – LCT 13 (Girvan Valley)	Medium-High	Medium-High	Moderate-Major / Significant	N/A	N/A	Medium-High	Moderate-Major / Significant	Medium	Moderate / Not Significant

Intimate Pastoral Valley LCT 13 (Stinchar Valley)	Medium	Low	Minor / Not Significant	Low	Minor / Not Significant	Negligible	Minor / Not Significant	Negligible	Minor / Not Significant
Middle Dale – LCT 12	Medium	Low	Minor / Not Significant	Low	Minor / Not Significant	Low	Minor / Not Significant	Negligible	Minor / Not Significant
Foothills with Forest west of Doon Valley – LCT 17b	Medium	Medium-Low	Moderate-Minor / Not Significant	Medium-Low	Moderate-Minor / Not Significant	Medium	Moderate / Not Significant	Medium-Low	Moderate-Minor / Not Significant
Rugged Uplands with Loch & Forest – LCT 21	Medium-High	Low	Moderate-Minor / Not Significant	Low	Moderate-Minor / Not Significant	Low	Moderate-Minor / Not Significant	Negligible	Minor / Not Significant
Landscape Designations									
Water of Girvan Valley cLLA	Medium-High	Upper Valley: Medium-High	Moderate-Major / Significant	Upper Valley: Medium-High	Moderate-Major / Significant	Upper Valley: Medium-High	Moderate-Major / Significant	Medium	Moderate / Not Significant
		Lower Valley: Low	Moderate-Minor / Not Significant	Lower Valley: Low	Moderate-Minor / Not Significant	Lower Valley: Low	Moderate-Minor / Not Significant	Negligible	Minor / Not Significant
High Carrick Hills cLLA	Medium	Low	Moderate-Minor / Not Significant	Low	Moderate-Minor / Not Significant	Low	Moderate-Minor / Not Significant	Negligible	Minor / Not Significant

Stinchar Valley cLLA	Medium	Low	Minor / Not Significant	Low	Minor / Not Significant	Negligible	Minor / Not Significant	Negligible	Minor / Not Significant
Blairquhan GDL	Medium-High	Low	Moderate-Minor / Not Significant	Low	Moderate-Minor / Not Significant	Medium-Low	Moderate / Not Significant	Negligible	Minor / Not Significant
Visual Effects									
Viewpoint 1: Minor Road near Tairlaw	Medium-Low	Low	Minor / Not Significant	N/A	N/A	N/A	N/A	N/A	N/A
Viewpoint 2 Minor Road near Craig	Medium-High	High	Major / Significant	N/A	N/A	N/A	N/A	Medium	Moderate / Significant
Viewpoint 3 Minor Road near Stinchar Bridge	Medium	Medium	Moderate / Significant	N/A	N/A	Medium	Moderate / Significant	Medium-Low	Moderate-Minor / Not Significant
Viewpoint 4 Craigengower Monument	Medium-High	Medium	Moderate / Significant	Medium	Moderate / Significant	Medium-High	Moderate-Major / Significant	Medium-Low	Moderate / Not Significant
Viewpoint 5 NCN7, near Palmullan Bridge	Medium	Medium	Moderate / Significant	Medium	Moderate / Significant	Medium-Low	Moderate / Not Significant	Medium-Low	Moderate-Minor / Not Significant
Viewpoint 6 Straiton, minor road	Medium	Low	Minor / Not Significant	N/A	N/A	N/A	N/A	Low	Minor / Not Significant

south of settlement									
Viewpoint 8 Shalloch on Minnoch	Medium-High	Medium	Moderate / Significant	Medium	Moderate / Significant	Medium-Low	Moderate / Not Significant	Low	Moderate-Minor / Not Significant
Viewpoint 9 Craigengillan GDL, Shear Hill	Medium-High	Low	Minor / Not Significant	Low	Minor / Not Significant	Low	Minor / Not Significant	Negligible	Minor / Not Significant
Viewpoint 11 Auchensoul Hill	Medium	Low	Minor / Not Significant	Low	Minor / Not Significant	Low	Minor / Not Significant	Negligible	Minor / Not Significant
Viewpoint 12 Maybole	Medium	Low	Minor / Not Significant	N/A	N/A	Low	Minor / Not Significant	Medium-Low	Moderate-Minor / Not Significant
Viewpoint 13 A713 Eriff	Medium	Low	Minor / Not Significant	Low	Minor / Not Significant	Low	Minor / Not Significant	Negligible	Minor / Not Significant
Viewpoint 14 B741 near Clawfin	Medium-Low	Low	Minor / Not Significant	Low	Minor / Not Significant	Low	Minor / Not Significant	Negligible	Minor / Not Significant
Viewpoint 16 A713 and B742 Road Junction	Low	Low	Minor / Not Significant	Low	Minor / Not Significant	Medium-Low	Moderate-Minor / Not Significant	Negligible	Minor / Not Significant
Viewpoint 20 Cornish Hill	Medium-High	Medium	Moderate / Significant	Medium	Moderate / Significant	Medium	Moderate / Significant	Low	Moderate-Minor / Not Significant



Viewpoint 21 B741 nr Largs Farm	Medium	Medium	Moderate / Significant	N/A	N/A	N/A	N/A	Medium- Low	Moderate- Minor / Not Significant
Viewpoint 23 Loch Girvan Eye	Medium- High	Medium	Moderate / Significant	N/A	N/A	Medium	Moderate / Significant	Medium	Moderate / Significant
Core path SA47 (Straiton to Dalwhyne and Bennan Walk SAC local path network)	Medium- High	Medium- High	Moderate- Major / Significant	N/A	N/A	Medium- High	Moderate- Major / Significant	Medium	Moderate / Significant

