VOLUME 2: CHAPTER 15 – SUMMARY OF EFFECTS

Figures and Visualisations (Volume 3a and 3b of this EIA Report)

There are no figures or visualisations associated with this chapter.

Appendices (Volume 4 of this EIA Report)

There are no appendices associated with this chapter.

15. SUMMARY OF EFFECTS

The findings of the environmental impact assessment of the Proposed Development are presented within the technical chapters (**Chapters 8** to **14**) of this EIA Report (EIAR). The significance of these effects has been assessed using criteria defined in the topic chapters. Unless stated otherwise in the technical assessments, the significance of effects is categorised as **major**, **moderate**, **minor** or **negligible**, with effects assessed as being '**major**' or '**moderate**' considered to be **significant** effects in the context of the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 ('the EIA Regulations').

Mitigation measures have been identified to prevent, reduce or remedy any **significant** effects identified where practicable, beyond that already taken into account as normal good practice (i.e. embedded mitigation). Such measures will be implemented during further design, construction and / or operation of the Proposed Development. Each technical chapter of this EIA Report details the mitigation measures recommended and a summary is provided in **Chapter 16: Schedule of Mitigation Measures**.

Any remaining effects following implementation of the mitigation measures are known as 'residual effects'. The residual predicted effects are discussed for each potential effect that is assessed as significant, i.e. major or moderate.

An overall summary of the significance of effects is presented in **Table 15.1**. Those impacts identified in **bold** text are considered significant impacts.

Table 15.1: Summary of Effects

Proposed Development Phase / Effect / Receptor			Effect Significance (includes good practice measures and embedded mitigation)	Mitigation Measures (additional mitigation measures identified during impact assessment process for Significant (Moderate / Major) effects)	Residual Effect Significance *(Post-Additional Mitigation Measures)*
Landscape Character and Visual Amenity					
Construction	Plant activity and equipment from construction	Local landscape character	**Moderate**	No mitigation proposed	**Moderate**
	Visual effects of construction activities	VP1: Core path C06.05 east edge of Halkirk	Minor	-	-
		VP2: Halkirk	Minor	-	-
		VP3: Minor road near Yellow Moss	Minor	-	-
		VP4: Achanarras Hill (Quarry) Core path CA06.07	**Moderate**	Retention of existing trees according to BS 5837 where possible.	**Moderate**
		VP5: A9 alongside Project Achalone	Residential Receptors: **Major** Road Users: **Moderate**	Retention of existing trees according to BS 5837 where possible.	Residential Receptors: **Major** Road Users: **Moderate**
		VP6: Minor road accessing Banniskirk Mains (north)	**Moderate**	Retention of existing trees according to BS 5837 where possible.	**Moderate**
		VP7: A882 between crossing of railway and Clayock	Negligible	-	-
	Cumulative landscape effects	In combination landscape effects with other Projects detailed in **Chapter 5 Table 5.2** during construction	Minor	-	-
	Cumulative visual effects	In combination visual effects with other Projects detailed in **Chapter 5 Table 5.2** during construction	VP1 - Minor VP2 - Minor VP3 - **Moderate** VP4 - **Moderate** VP5 - **Major** VP6 - **Moderate** VP7 - Minor	-	VPs 1, 2 & 7 – **Minor** (Not significant) VPs 3, 4 & 6 – **Moderate** (Significant) VP 5 – **Major** (Significant)
Operation	Introduction of project infrastructure during operation	Local landscape character	**Moderate**	Maturity of screening (planting) at the Site.	**Moderate**

Proposed Development Phase / Effect / Receptor			Effect Significance (includes good practice measures and embedded mitigation)	Mitigation Measures (additional mitigation measures identified during impact assessment process for Significant (Moderate / Major) effects)	Residual Effect Significance *(Post-Additional Mitigation Measures)*
				Implementation of lighting plan to limit light pollution.	
	Change in character of view	VP1: Core path C06.05 east edge of Halkirk	**Moderate (Year 1 & 12)**	Maturity of screening (planting) at the Site. Implementation of lighting plan to limit light pollution.	**Moderate (Year 1)** Minor (Year 12)
		VP2: Halkirk	**Moderate (Year 1 & 12)**	Maturity of screening (planting) at the Site. Implementation of lighting plan to limit light pollution.	**Moderate (Year 1)** Minor (Year 12)
		VP3: Minor road near Yellow Moss	**Moderate (Year 1 & 12)**	Maturity of screening (planting) at the Site. Implementation of lighting plan to limit light pollution.	**Moderate (Year 1)** Minor (Year 12)
		VP4: Achanarras Hill (Quarry) Core path CA06.07	**Moderate (Year 1 & 12)**	Maturity of screening (planting) at the Site. Implementation of lighting plan to limit light pollution.	**Moderate (Year 1)** **Moderate (Year 12)**
		VP5: A9 alongside Project Achalone	Residential Receptors: **Major (Year 1 & 12)** Road Users: **Moderate**	Maturity of screening (planting) at the Site. Implementation of lighting plan to limit light pollution.	Residential Receptors: **Major (Year 1 & 12)** Road Users: **Moderate**
		VP6: Minor road accessing Banniskirk Mains (north)	**Major (Year 1 & 12)**	Maturity of screening (planting) at the Site. Implementation of lighting plan to limit light pollution.	**Major (Year 1 & 12)**
		VP7: A882 between crossing of railway and Clayock	Negligible (Year 1 & 12)	-	-
	Cumulative landscape effects	In combination landscape effects with other Projects detailed in **Chapter 5 Table 5.2** during operation	MInor	-	-
	Cumulative visual effects	In combination visual effects with other Projects detailed in **Chapter 5 Table 5.2** during operation	VP1 - **Moderate** VP2 - **Moderate** VP3 - **Moderate**	-	VP 7 – **Minor** (None significant)

Proposed Development Phase / Effect / Receptor			Effect Significance (includes good practice measures and embedded mitigation)	Mitigation Measures (additional mitigation measures identified during impact assessment process for Significant (Moderate / Major) effects)	Residual Effect Significance *(Post-Additional Mitigation Measures)*
			VP4 - **Moderate** VP5 - **Major** VP6 - **Major** VP7 - Minor		VPs 1, 2 , 3 & 4 – **Moderate** (Significant) VP 5 & 6 – **Major** (Significant)
Ecology, Ornithology and Nature Conservation					
Construction	Designations	Caithness Lochs SPA and Caithness and Sutherland Peatlands SPA 3.2 km north west and 6.6 km north west of the Site, respectively. The Proposed Development is within published connectivity distance for the core range or foraging distance for red-throated diver and black-throated diver from the Caithness and Sutherland Peatlands SPA/Ramsar Site and within connectivity distance for whooper swan, greylag goose and Greenland white-fronted goose from Caithness Lochs SPA/Ramsar Site. No ancient woodland within 600 m of the Site.	No foraging habitat for divers therefore no impacts. Shadow Appropriate Assessment finding showed no adverse effects on geese and therefore Not Significant No impacts on designated woodland identified.	-	-
	Permanent and temporary habitat impacts	Grassland including other lowland acid grassland, neutral grassland, neutral grassland, other neutral grassland, holcus-juncus neutral grassland.	Minor	-	-
		Woodland and forest	Minor	-	-
		Heathland and shrub	Minor	-	-
		Wetland	Minor	-	-

Proposed Development Phase / Effect / Receptor			Effect Significance (includes good practice measures and embedded mitigation)	Mitigation Measures (additional mitigation measures identified during impact assessment process for Significant (Moderate / Major) effects)	Residual Effect Significance *(Post-Additional Mitigation Measures)*
		Urban, built linear features	No impacts identified	-	-
	Protected Species	Badger	Negligible	-	-
		Pine Martin	Negligible	-	-
		Otter	Negligible	-	-
		Water Vole	Negligible	-	-
		Red Squirrel	Negligible	-	-
		Wildcat	Negligible	-	-
	Bats	Effect on foraging/commuting bats and roosts	Negligible (on both foraging/commuting bats and roosting bats)	Prior to felling, all trees should be assessed (individually) for their potential to support roosting bats by an appropriately qualified and experienced person. Where a tree possesses negligible bat roost potential it shall be clearly marked and approved for felling. Should a tree be identified as low, moderate or high bat roosting potential then appropriate survey effort should be undertaken in line with Bat Conservation Trust (BCT) guidelines prior to felling. Where necessary a licence may be required to remove and replace the roost. An ECoW shall be in attendance for any tree felling or delimbing and will supervise soft-felling as required whilst also ensuring the implementation of SSEN Transmission's bat SPP.	-
	Amphibian and Reptiles		Negligible	Timing works to avoid vegetation clearance and soil stripping during the period when reptiles may be hibernating (October – March) will avoid direct mortality.	-

Proposed Development Phase / Effect / Receptor			Effect Significance (includes good practice measures and embedded mitigation)	Mitigation Measures (additional mitigation measures identified during impact assessment process for Significant (Moderate / Major) effects)	Residual Effect Significance *(Post-Additional Mitigation Measures)*
				Pre-clearance checks of areas of vegetation, to be removed, by an appropriately qualified and experienced ECoW will reduce the likelihood of direct mortality. Where avoidance is not possible, mitigation measures can be deployed such as fencing to prevent reptiles (and amphibians) from moving into areas where they could be killed or injured. Staged strimming of areas earmarked for development / disturbance can minimise risks to reptiles (and amphibians) by making existing habitat less favourable. By stacking the arisings away from work areas it is possible to create refuges for reptiles (and amphibians) to draw them away from work areas. Reptiles (and amphibians) can also be caught and translocated to suitable habitat so as not to be affected by the Proposed Development.	
	Birds	Effect on qualifying interest features of the Caithness Lochs SPA / Ramsar site and protected species	Negligible	Works should be undertaken outwith the breeding bird season as much as possible. Where work must be undertaken during the breeding bird season, nesting bird checks prior to vegetation removal will be undertaken by an ECoW no more than 48hrs prior to vegetation removal. If birds are found to be nesting, any works which may affect them should be delayed until the young have fledged and the nest abandoned naturally.	-
Operation	Designations	Sites designated for their international, national or local nature conservation importance.	Negligible	-	-

Proposed Development Phase / Effect / Receptor			Effect Significance (includes good practice measures and embedded mitigation)	Mitigation Measures (additional mitigation measures identified during impact assessment process for Significant (Moderate / Major) effects)	Residual Effect Significance *(Post-Additional Mitigation Measures)*
	Habitats	Habitats within the Site	Negligible	-	-
	Protected Species	Badger Pine Martin Otter Water Vole Red Squirrel Wildcat	Negligible	-	-
	Bats		Negligible	Inspections of substation building(s) should be undertaken in advance of any maintenance works which may lead to the disturbance or damage of a bat roost or the killing of bats.	-
	Amphibian and Reptiles		Negligible		-
	Birds		Negligible		-
Construction and operation	Cumulative effects with other Projects detailed in **Chapter 5 Table 5.2** during operation	Ecology and ornithology receptors	No cumulative impacts identified	-	-
Archaeology and Cultural Heritage					
Construction	Direct effects on resources of cultural heritage interest	Non-designated assets: • Achalone (SPI_007), one un-roofed long building. • Achalone (SPI_010), one roofed building with enclosure. • Achalone (SPI_011), one partially-roofed building. • Achalone (SPI_012), longhouse farm, rectangular structure divided into four units with a circular kiln. • Knockanruah (SPI_014), medieval sheep fold. • Achalone (SPI_015), one un-roofed building.	**Moderate**	Targeted programmes of recording, and excavation, implementing exclusion zones, monitoring plant movements and a watching brief. Three areas of pre-commencement excavation required: • Buildings and cairn, to the south of the site to investigate SPI_007, SPI_015 and SPI_017; • Buildings with enclosure and sheepfold, to the east of the site to investigate SPI_011, SPI_014, and SPI_016; and	**Moderate**

Proposed Development Phase / Effect / Receptor			Effect Significance (includes good practice measures and embedded mitigation)	Mitigation Measures (additional mitigation measures identified during impact assessment process for Significant (Moderate / Major) effects)	Residual Effect Significance *(Post-Additional Mitigation Measures)*
		• Achalone (SPI_016), one unroofed building and an enclosure. • Cairn (SPI_017), cairn under grass and moss.		• Buildings with associated features, to the west of the site to investigate SPI_ 010 and SPI_012.	
		Non-designated asset: • Achalone - unroofed building (SPI_008)	**Moderate**	Avoidance of asset should be implemented via identification and barricading to reduce the risk of direct impact. This should be implemented by a suitably qualified archaeologist as part of the watching brief for areas which have not been previously disturbed.	No Impact
		Non-designated asset: • Achalone – roofed building (SPI_009)	Minor	Avoidance of asset should be implemented via identification and barricading to reduce the risk of direct impact. This should be implemented by a suitably qualified archaeologist as part of the watching brief for areas which have not been previously disturbed.	No Impact
		Non-designated asset: • Banniskirk House (SPI_013)	Minor	Although Minor, recommended the extent of the asset should be investigated during the watching brief and a barricade of at least 5 m should be used to create exclusion zones to prevent machinery, people, or debris from harming the asset.	-
		Non-designated asset: Linear Feature (SPI_018)	Negligible	-	-
	Cumulative	In combination effects with other Projects detailed in **Chapter 5 Table 5.2** during construction.	**Moderate**	-	-
Operation	Indirect effect to setting	• Achies, broch (SPI_001) • Achanarras, cairn (SPI_002)	Minor	-	-

Proposed Development Phase / Effect / Receptor			Effect Significance (includes good practice measures and embedded mitigation)	Mitigation Measures (additional mitigation measures identified during impact assessment process for Significant (Moderate / Major) effects)	Residual Effect Significance *(Post-Additional Mitigation Measures)*
		• Achanarras, cairn (SPI_003) • Achanarras, hut circle (SPI_004) • St Magnus' church burial ground and hospital (SPI_006)			
		Achies broch (SPI_005)	Negligible	-	-
	Cumulative	In combination effects with other Projects detailed in **Chapter 5 Table 5.2** during operation.	**Moderate**	-	-
Traffic and Transport					
Construction	Severance	Settlements along the route based on traffic count locations 1, 2, 3, 4 and 5.	Minor - Negligible	-.	-
		Settlements along the route based on traffic count locations 6 and 7.	**Moderate**	• As far as reasonably possible, deliveries should be scheduled outside of school opening and closing times. Drivers of all delivery vehicles to be made aware during induction of the presence of schools and other amenities within the settlement along the routes within the Study Area; • Drivers to be reminded of the presence of 20 mph temporary speed restrictions on the main road outside of schools and that a strict adherence to these speed limits is expected; • Delivery times will be scheduled to ensure that deliveries do not arrive in a convoy;	Minor

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				• Timing of the deliveries will be outlined within the CTMP to ensure construction vehicles avoid potentially congested networks at peak hours; • Where it is reasonably practicable, HGV deliveries to the Proposed Development will be suspended during local community events where increased traffic or parking requirements may be reasonably anticipated; • Consideration of installation of a temporary pedestrian crossing on the A9 at Spital to minimise any non-motorised amenity and severance effects; • Temporary construction phase signage would be erected on the approved route to Site to warn people of construction activities and associated construction vehicles. Road user safety (including non-motorised users) will be enhanced via the installation of signage and the maintenance of sight lines; and • Appropriate parking facilities will be provided for construction workers. Under no circumstances will HGVs be allowed to lay-up in surrounding roads. • Completion of a road condition survey prior to the start of the construction phase to record the existing road conditions. The survey area	

Proposed Development Phase / Effect / Receptor			Effect Significance (includes good practice measures and embedded mitigation)	Mitigation Measures (additional mitigation measures identified during impact assessment process for Significant (Moderate / Major) effects)	Residual Effect Significance *(Post-Additional Mitigation Measures)*
				and methodology will be agreed with THC. • Any deterioration in road condition, which is agreed as attributable to construction traffic associated with the Proposed Development, will be restored to at least the same standard upon completion of construction.	
	Non-motorised User Amenity	Pedestrian amenity at locations 1, 2, 3, 4, 5 and 7.	Minor - Negligible	-	-
		Pedestrian amenity at location 6.	**Moderate**	As above	Minor
	Non-motorised User Delay (Pedestrian Delay)	Pedestrian delay locations 1, 2, 3, 4 and 5.	Minor	-	-
		Pedestrian delay locations 6 and 7.	**Moderate**	As above	Minor
	Fear and intimidation	Pedestrian delay locations 1, 2, 3, 4, 5 and 7.	Minor - Negligible	-	-
		Pedestrian delay location 6.	**Moderate**	As above	Minor
	Road vehicle driver and passenger delay	Increased traffic (including ALVs) effect on road vehicle, passenger and driver delay.	Minor - Negligible	-	-
	Road user and pedestrian safety		Minor - Negligible	-	-
	Hazard and large loads	Abnormal loads and fuel.	Minor - Negligible	-	-
	Cumulative	Cumulative transport and traffic effects with other Projects.	MInor	-	-
Hydrology, Hydrogeology, Geology and Soils					
Construction	Impediments to and modification of surface water drainage patterns	Surface hydrology (watercourses) and designated hydrological receptors	Negligible	-	-
	Pollution		Negligible	-	-
	Erosion and sedimentation		Negligible	-	-

Proposed Development Phase / Effect / Receptor			Effect Significance (includes good practice measures and embedded mitigation)	Mitigation Measures (additional mitigation measures identified during impact assessment process for Significant (Moderate / Major) effects)	Residual Effect Significance *(Post-Additional Mitigation Measures)*
	Modifications to hydrogeology and groundwater		Negligible	-	-
	Alterations to GWDTE.		Negligible	-	-
	Reduction in the quality and quantity of private water supplies		Negligible	-	-
	Loss and compaction of peat and soils	Peat resource	Negligible	-	-
	Disturbance of peat	Peat resource	Minor	-	-
	Peat stability	Peat resource	Minor	-	-
	Cumulative	Cumulative effects with other Projects.	No impact	-	
Operation	Increase in Surface Water Runoff and Flood Risk	Surface hydrology (watercourses) and designated hydrological receptors	Negligible	-	-
	Contamination from foul discharge		Negligible	-	-
	Contamination from oil storage		Negligible	-	-
	Cumulative	Cumulative effects with other Projects.	No impact	-	-
Noise and Vibration					
Construction	Noise effect on sensitive receptors through construction activities	Noise sensitive receptors (NSR) • NSR 1 – Mossgiel • NSR 2 – Achalone • NSR 3 - Reveltone • NSR 4 – Achalone • NSR 5 - Banniskirk House • NSR 6 - Banniskirk Mains	**Major**	Implementation of a robust construction noise management plan (CNMP), prioritising particularly noisy work (such as platform works) during daytime defined hours with a higher 65 dB limit, and careful consideration of the location of crushing activities.	Minor
Operation	External noise from Proposed Development including cooling equipment during daytime	• NSR 1 – Mossgiel • NSR 2 – Achalone • NSR 3 - Reveltone • NSR 4 – Achalone • NSR 5 - Banniskirk House	**Major** impact on NSR 5 Medium impact on NSR 1, 2, 3, 4 and 6.	Noise impact assessment should be conducted during detailed design, following further refinement of the assessment data and the implementation of mitigation.	Minor

Proposed Development Phase / Effect / Receptor			Effect Significance (includes good practice measures and embedded mitigation)	Mitigation Measures (additional mitigation measures identified during impact assessment process for Significant (Moderate / Major) effects)	Residual Effect Significance *(Post-Additional Mitigation Measures)*
		• NSR 6 - Banniskirk Mains			
	External noise from Proposed Development including cooling equipment during nighttime	• NSR 1 – Mossgiel • NSR 2 – Achalone • NSR 3 - Reveltone • NSR 4 – Achalone • NSR 5 - Banniskirk House • NSR 6 - Banniskirk Mains	**Major** impact on NSR 5 and 6. Medium impact on NSR 1, 2, 3, and 4.	Noise impact assessment should be conducted during detailed design, following further refinement of the assessment data and the implementation of mitigation.	Minor
	Internal noise	• NSR 1 – Mossgiel • NSR 2 – Achalone • NSR 3 - Reveltone • NSR 4 – Achalone • NSR 5 - Banniskirk House • NSR 6 - Banniskirk Mains	Minor		
Cumulative		• West of Orkney Windfarm Grid Connection • Ayre Windfarm Grid Connection • Ouglassy Windfarm	**Major**	Communication with the respective developers and a combined construction noise management plan (CNMP) during potential high noise activities	Minor
Land Use, Amenity and Socio-Economics					
Construction	Direct effects on property and amenity for residents	Private residential land	No impact	-	-
	Direct effect from removal of agricultural land use	Agricultural holdings	Minor	-	-
	Direct effect from construction	Community facilities	No impact	-	-
	Direct effects on tourism and recreation assets and in-combination effect on amenity	Users of tourism and recreation facilities in study area	No impact	-	-
	Employment and Gross Value Added	Human receptors	Negligible	-	-
	Effect on local demographics		Minor	-	-
	Increase pressure on local services and social infrastructure	Local social infrastructure	Negligible	-	-

Proposed Development Phase / Effect / Receptor			Effect Significance (includes good practice measures and embedded mitigation)	Mitigation Measures (additional mitigation measures identified during impact assessment process for Significant (Moderate / Major) effects)	Residual Effect Significance *(Post-Additional Mitigation Measures)*
	Cumulative effect of Increase in demand for construction workers and presence of construction workers	Local labour market and pressures on accommodation and services	**Potentially Moderate/High**	The Applicant will continue to engage with THC and with other developers to understand the potential for significant cumulative effects and to identify the need for measures to mitigate any significant effect on the local labour market and on the supply of housing and tourism accommodation.	Negligible-Minor
Operation	Direct effects on property and amenity for residents	Private residential land	No impact	-	-
	Direct effect from removal of agricultural land use	Agricultural holdings	No impact	-	-
	Direct effect from construction	Community facilities	No impact	-	-
	Direct effects on tourism and recreation assets and in-combination effect on amenity	Users of tourism and recreation facilities in study area	No impact	-	-
	Employment and Gross Value Added	Human receptors	Negligible	-	-