14. INTERACTION OF EFFECTS

14.1 Introduction

The preceding Chapters 5 to 13 of this EIAR identify the potential significant environmental effects that may occur in terms of Population and Human Health, Biodiversity, Land, Soils and Geology, Hydrology and Hydrogeology, Air and Climate, Noise and Vibration, Landscape and Visual, Cultural Heritage (Archaeological, Architectural and Cultural Heritage) and Material Assets (Roads and Traffic, Built Services and Waste Management), as a result of the Proposed Development as described in Chapter 4 of this EIAR. However, for any development with the potential for significant environmental effects there is also the potential for interaction between these potential significant effects. The result of interactive effects may exacerbate the magnitude of the effects or improve them, or have a neutral effect.

A matrix is presented in Table 14-1 below to identify potential interactions of impacts between the various aspects of the environment already assessed in this EIAR. The matrix highlights the potential for the occurrence of positive, neutral or negative effects during both the construction (C) and operational (O) phases. It is considered that the potential effects during the decommissioning phase will be similar to the construction phase effects but of a lesser magnitude. The matrix is symmetric, with each environmental component addressed in the chapters of this EIAR being placed on both axes of a matrix, and therefore, each potential interaction is identified twice.

Table 14-1 Interaction Matrix: Potential for Interacting Impacts

	Phase	Population and Human Health	Biodiversity	Land, Soils and Geology	Hydrology & Hydrogeology	Air and Climate	Noise and Vibration	Landscape and Visual	Cultural Heritage	Material Assets
Population and Human Health	C									
	O									
Biodiversity	C									
	O									
Land, Soils and Geology	C									
	O									
Hydrology & Hydrogeology	C									
	O									
Air and Climate	C									
	O									
Noise and Vibration	C									
	O									
Landscape and Visual	C									
	O									
Cultural Heritage	C									
	O									
Material Assets	C									
	O									

Legend: No Interacting Effect: Positive Effect:
Neutral Effect: Negative Effect:

The potential for interaction of impacts has been assessed, throughout this EIAR, as part of the Impact Assessment process. While the work on all parts of the Environmental Impact Assessment Report (EIAR) was not carried out by MKO, the entire project and all the work of all sub-consultants was managed and coordinated by the company. This EIAR was edited and collated by MKO as an integrated report of findings from the impact assessment process, by all relevant experts, and impacts that potentially interact have been assessed in detail in the individual chapters of the EIAR above and summarised in Section 14.2 below.

Where any potential negative impacts have been identified during the assessment process, these impacts have been avoided or reduced by by design and the proposed mitigation measures, as presented throughout the EIAR and highlighted in Section 14.2 below.

14.1.1 Statement of Authority

This section of the EIAR has been prepared by Eoin O'Sullivan and reviewed by Michael Watson, both of MKO. Eoin O'Sullivan is employed as a Senior Environmental Consultant with MKO. Eoin has over twelve years' experience in the assessment of a wide range of energy and infrastructure related projects and working in the fields of environmental and human health risk assessment, waste management, waste policy and permitting. Eoin has wide experience in the project management of large scale infrastructural projects and brownfield developments. Eoin holds an MSc in Environmental Engineering and is a Chartered Member of the Chartered Institute of Water and Environmental Management (CWEM) and Chartered Environmentalist (CEnv) with the Society of Environment. Michael has over 19 years' experience in the environmental sector and had worked for the Geological Survey of Ireland and then a prominent private environmental & hydrogeological consultancy prior to joining MKO in 2014. Michael completed an MA in Environmental Management at NUI, Maynooth in 1999. Michael is a professional geologist (PGeo) and full member of IEMA (MIEMA) as well as a Chartered Environmentalist (CEnv).

14.2 Impact Interactions

14.2.1 Population and Human Health

Population and Human Health, Air and Climate, Noise

As identified in Chapter 5 of this EIAR, the construction phase has the potential to create a short-term, negative effect on human health due to the nuisance caused by construction plant and vehicle noise emissions, should the mitigation measures outlined in Chapter 10 not be implemented.

During the operational phase the proposed development has the potential to generate noise but as identified in Chapter 1, the potential effects on population and human health are not siginificant.

Population and Human Health, Land, Soils and Geology, Air and Climate

The excavation and movement of peat and spoil during the construction phase of the Proposed Development has the potential to create dust emissions which, consequently, have the potential to have a short term, slight, negative effect on local air quality and human health. Mitigation measures to reduce dust emissions generated during the construction phase of the proposed development are presented in Chapter 9.

Population and Human Health and Water

As described in Chapter 8 of this EIAR, the construction phase of the Proposed Development has the potential to give rise to some water pollution as a result of site activities, and any water pollution could

have a potential significant negative effect on the health of other users of that water within the same catchment. Mitigation measures are presented in Chapter 8 to minimise the potential of any such issues occurring.

Population and Human Health, and Material Assets

Chapter 13 of this EIAR discusses how the construction phase of the project will give rise to increased traffic volumes on the local road network and, therefore, is likely to create some short-term inconvenience for other road users.. A Traffic Management Plan will be in place to minimise all disruption insofar as possible, as outlined in the Section 13.1 of this EIAR.

Population and Human Health, and Landscape and Visual

The construction phase of the Proposed Development will see the short term introduction of construction machinery into a natural, but already modified working landscape. The Proposed Development will therefore integrate with the existing landscape character. The construction of a new proposed 110kV substation will compensate the proposed omission of the substation for the Permitted Development. The proposed 110kV substation is strategically sited in a remote and isolated upland plateau, where the existing topography and forestry restrict visibility and mitigate the potential for significant landscape and visual effects. In summary, the lack of highly sensitive landscape and visual receptors, the likely limited visibility of the Proposed Development within the landscape and the strategic siting of infrastructure will mitigate any potential for significant landscape and visual effects.

14.2.2 Biodiversity

Biodiversity and Land, Soils and Geology

The removal of forestry, peat and spoil, during construction of the Proposed Development, is likely to result in some disturbance of flora and fauna in the areas surrounding the proposed works area thereby, potentially causing a short term, slight, negative effect on flora and fauna. Excavated peat and spoil will be used for the restoration of the proposed borrow pit.

Biodiversity and Water

Site activities during the construction phase have the potential to give rise to some water pollution, and consequential indirect effects (such as disturbance and deterioration of habitat quality) on flora and fauna that use that water within the same catchment. The site activities during the construction phase, and continuing on for the operational phase, will give rise to additional localised drainage, which has the potential to have a significant, long term, negative effect on flora and their associated habitats should the appropriate measures not be implemented. These potential impacts have been assessed in Chapter 6 and Chapter 8 of this EIAR, and the relevant measures outlined in these chapters will be in place to avoid any water pollution and subsequent effect on flora and fauna.

Biodiversity and Air and Climate

During the construction phase of the Proposed Development, increased vehicular and dust emissions within and around the site have the potential to be a nuisance to flora and fauna, thereby having a temporary, slight, negative effect. The mitigation measures outlined in Chapter 9 of the EIAR will ensure that the potential for negative effects is reduced or eliminated.

Biodiversity and Noise and Vibration

Site activity during the construction phase could give rise to noise that could be a nuisance for fauna, thereby having a short term, slight, negative effect. Best practice mitigation measures are included in Chapter 6 and Chapter 10 to minimise the potential negative effect of noise generated during the construction phase on biodiversity.

Biodiversity and Landscape

The removal of some vegetation within the development footprint and surrounding areas is likely to result in a change to the visual landscape during the construction phase, which will become part of the normal landscape of the wider area for the duration of the operational phase. The visual effect of this change is considered to be long-term, localised and slight.

14.2.3 Land, Soils and Geology

Land, Soils and Geology and Water

As identified in Chapter 8 of this EIAR, the movement and removal of peat and spoil during the construction phase has the potential to have a significant, negative effect on water quality through potentially silt-laden runoff from the proposed works areas. Mitigation measures to ensure there are no significant, negative effects on water quality are presented in Chapter 8.

Land, Soils and Geology and Cultural Heritage

The removal of peat and spoil during the construction phase has the potential to have a permanent, significant, negative effect on previously unrecorded sub-surface archaeological site and artefacts. Mitigation measures outlined in Chapter 11 will reduce the potential for negative effects on unrecorded sites and artefacts during excavations.

Land, Soils and Geology and Landscape and Visual

The removal of peat and spoil and the subsequent replacement with crushed stone for the construction of site roads and substation within the Proposed Development site has the potential to alter the local landscape. The visual effect of this change is expected to be long term, localised in nature and slight.

14.2.4 Air and Climate

Air and Climate and Material Assets

The movement of construction vehicles both within and to and from the site has the potential to give rise to dust nuisance effects during the construction phase. This is assessed further in Chapter 9 of this EIAR, and mitigation measures are presented to minimise any potential effects.

14.2.5 Landscape and Visual

Landscape and Visual and Cultural Heritage

As described in Chapter 11 of this EIAR, the Proposed Development has the potential to change the landscape setting of recorded sites and monuments in the wider area. However, it is concluded in Chapter 11 that any potential, indirect, visual effect of the Proposed Development on national and recorded monuments would not be significant.

14.3 Mitigation and Residual Impacts

Where any potential interactive negative impacts have been identified in the above, a full suite of appropriate mitigation measures has already been included in the relevant sections (Chapters 5-14) of the EIAR. The implementation of these mitigation measures will reduce or remove the potential for these effects. Information on potential residual impacts and the significance of effects, is also presented in each relevant chapter.