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Environmental Impact Assessment Report (EIAR)

Briskalagh Renewable
Energy Development, Co.
Kilkenny

Chapter 17 - Interaction of Effects



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17. INTERACTION OF EFFECTS

17.1 Introduction

The preceding Chapters 5 to 16 of this EIAR identify the potential significant environmental effects that may occur in terms of Population and Human Health, Biodiversity (Flora and Fauna), Ornithology (Birds), Land, Soils and Geology, Water (Hydrology and Hydrogeology), Air Quality, Climate, Noise and Vibration, Landscape and Visual, Cultural Heritage (Archaeological, Architectural and Cultural Heritage), Material Assets (Roads and Traffic, Telecommunications, Aviation, Utilities and Waste Management), and Vulnerability to/from Major Accidents and Natural Disasters as a result of the Proposed Project, as described in Chapter 4 of this EIAR. All of the potential significant effects of the Proposed Project and the measures proposed to mitigate them have been outlined in the preceding chapters of this EIAR. Mitigation measures and best practice measures for the construction, operation and decommissioning of the Proposed Project are detailed in the accompanying Construction and Environmental Management Plan (CEMP). 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 ameliorate them or have a neutral effect.

A matrix is presented in Table 17-1 below to identify potential interactions between the various aspects of the environment already assessed in this EIAR. The matrix highlights the occurrence of potential positive 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 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. In Section 17.2 below, the potential interactions between each environmental component have been discussed in order of the relevant chapters of the EIAR. Once a potential interaction between two environmental components has been discussed, for example, Population & Human Health and Water, the interaction will not be discussed again in the following relevant section, therefore there is no Water and Population & Human Health section.

Table 17-1 Interaction Matrix: Potential for Interacting Impacts

	Phase	Population and Human Health	Biodiversity	Ornithology	Land, Soils and Geology	Hydrology & Hydrogeology	Air Quality	Climate	Noise and Vibration	Cultural Heritage	Landscape and Visual	Material Assets	Vulnerability to Natural Disasters
Population and Human Health	C	Black	Light Blue	Light Blue	Pink	Pink	Pink	Pink	Pink	Light Blue	Pink	Pink	Pink
	O	Black	Light Blue	Light Blue	Light Blue	Light Blue	Light Green	Light Green	Pink	Light Blue	Pink	Light Green	Pink
Biodiversity	C	Light Blue	Black	Light Blue	Pink	Pink	Pink	Pink	Pink	Light Blue	Light Blue	Light Blue	Pink
	O	Light Blue	Black	Light Blue	Yellow	Light Green	Light Green	Light Green	Light Blue	Light Blue	Light Blue	Light Blue	Pink
Ornithology, Birds	C	Light Blue	Light Blue	Black	Pink	Pink	Pink	Pink	Pink	Light Blue	Light Blue	Light Blue	Pink
	O	Light Blue	Light Blue	Black	Light Blue	Light Blue	Light Green	Light Green	Light Blue	Light Blue	Light Blue	Light Blue	Pink
Land, Soils and Geology	C	Pink	Pink	Pink	Black	Pink	Pink	Pink	Light Blue	Pink	Pink	Light Blue	Pink
	O	Light Blue	Yellow	Light Blue	Black	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Pink	Light Blue	Pink
Hydrology & Hydrogeology	C	Pink	Pink	Pink	Pink	Black	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Pink
	O	Light Blue	Light Green	Light Blue	Light Blue	Black	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Pink
Air Quality	C	Pink	Pink	Pink	Pink	Light Blue	Black	Light Blue	Light Blue	Light Blue	Light Blue	Pink	Pink
	O	Light Green	Light Green	Light Green	Light Blue	Light Blue	Black	Light Blue	Light Blue	Light Blue	Light Blue	Pink	Pink
Climate	C	Pink	Pink	Pink	Pink	Light Blue	Light Blue	Black	Light Blue	Light Blue	Light Blue	Pink	Pink
	O	Light Green	Light Green	Light Green	Light Blue	Light Blue	Light Blue	Black	Light Blue	Light Blue	Light Blue	Light Green	Pink
Noise and Vibration	C	Pink	Pink	Pink	Light Blue	Light Blue	Light Blue	Light Blue	Black	Light Blue	Light Blue	Light Blue	Pink
	O	Pink	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Black	Light Blue	Light Blue	Light Blue	Pink
Cultural Heritage	C	Light Blue	Light Blue	Light Blue	Pink	Light Blue	Light Blue	Light Blue	Light Blue	Black	Light Blue	Light Blue	Pink
	O	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Black	Pink	Light Blue	Pink
Landscape and Visual	C	Pink	Light Blue	Light Blue	Pink	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Black	Light Blue	Pink
	O	Pink	Light Blue	Light Blue	Pink	Light Blue	Light Blue	Light Blue	Light Blue	Pink	Black	Light Blue	Pink
Material Assets	C	Pink	Light Blue	Light Blue	Light Blue	Light Blue	Pink	Pink	Light Blue	Light Blue	Light Blue	Black	Pink
	O	Light Green	Light Blue	Light Blue	Light Blue	Light Blue	Pink	Light Green	Light Blue	Light Blue	Light Blue	Black	Pink

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Vulnerability to Natural Disasters	C													
	O													

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

The potential for interaction of effects 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) were not carried out by MKO, the entire project and all the work of the sub-consultants was managed and coordinated by the company. The EIAR was edited and collated by MKO as an integrated report of findings from the impact assessment process, by all relevant experts, and effects that potentially interact have been assessed in detail in the individual chapters of the EIAR and summarised in Section 17.2 below.

Where any potential negative effects have been identified during the assessment process, these impacts have been avoided or reduced by design and the proposed mitigations measures, as presented throughout the EIAR.

17.1.1 Statement of Authority

This section of the EIAR, has been prepared by Jack Smith, reviewed by Eoin McCarthy and Michael Watson, of MKO. Jack is a Project Environmental Scientist with MKO with over 2 years’ experience in the consultancy sector. Jack holds a MSc. in Environmental Leadership from NUIG and is a Practitioner member of the Institute for Environmental Management and Assessment. Jack’s key strengths and areas of expertise are in project management, environmental impact assessment, GIS mapping and modelling, and feasibility assessment. Since joining MKO, Jack has experience in report writing including feasibility studies and EIA screening reports and EIAR chapters including Interactions chapters for large-scale renewable energy developments. Eoin McCarthy holds a BSc. (Env.) in Environmental Science and is a Senior Environmental Scientist with over 12 years’ experience in the consultancy sector. Eoin has completed numerous Interactions sections of EIARs for wind farm developments. Michael Watson is a Director in MKO and has over 21 years’ experience in the environmental sector.

17.2 Impact Interactions

17.2.1 Population and Human Health

Population and Human Health, Land, Soils and Geology

The use of plant machinery on site during excavation works and the movement of spoil may result in the potential for soil and ground contamination. A wind farm and associated grid connection is not a recognised source of pollution and so the potential for effects during the operational phase are imperceptible. With the implementation of mitigation and monitoring measures detailed in Chapter 8 and the CEMP (Appendix 4-2), the potential for residual effects associated with soil or ground contamination during the construction and operational phases and subsequent health effects are imperceptible.

Population and Human Health, and Water

Potential health effects arise mainly through the potential for surface and groundwater contamination which may have negative effects on public and private water supplies. There are no underground water or sewerage networks at the Proposed Wind Farm infrastructure locations. The Proposed Wind Farm is mapped within the Outer Source Protection Area of the Callan Public Water Supply (PWS). Furthermore, the source protection area associated with the Ballycallan Shale Group Water Scheme (GWS) and the Ballycallan Sand and Gravels GWS are mapped in the very south of the Proposed Wind Farm. Approximately 150m of new proposed road is mapped in this area of the Site. The source protection area associated with the Ballycallan Limestone is mapped c.900m southeast of the Proposed Wind Farm. There are a number of private wells located in the vicinity of the Proposed Wind Farm, and GSI mapping indicates several private boreholes in the area also. The Proposed Project design and mitigation measures detailed in Chapter 9 and the CEMP (Appendix 4-2) ensures that the potential for effects on the water environment are not significant. A comprehensive suite of surface water mitigation measures and controls are outlined in Chapter 9 to ensure protection of all downstream receiving waters. Mitigation measures will ensure that surface runoff from the developed areas of the Site will be of a high quality and will therefore not impact on the quality of downstream surface water bodies, no impact on group water schemes, wells and therefore, no subsequent health effects.

Population and Human Health, and Air Quality

The excavation and movement of spoil during the construction phase of the Proposed Project is likely to create dust and CO₂ emissions which will result in a permanent, slight, negative effect on local air quality (once greenhouse gases are emitted into the atmosphere even temporarily, this is considered permanent). Mitigation measures to reduce dust and CO₂ emissions generated during the construction phase of the Proposed Project are presented in Chapter 10. During the operational phase, the Proposed Project will generate additional traffic to the area in the form of light goods vehicles (LGVs) visiting the Site 1-2 times per day for inspections and maintenance, giving rise to a long-term imperceptible negative impact on air quality. However, wind turbines are not a recognised source of pollution, and will instead be providing clean energy into the National Grid. This will have a long-term positive effect on human health.

Population and Human Health, and Climate

The construction of the Proposed Project will have a permanent, imperceptible, negative effect on climate and will be restricted to the duration of the construction phase. The Proposed Project when in operation, will reduce the input of carbon intensive energy into the national grid and reduce the amount of greenhouse gas (GHG) emissions being released to the atmosphere that are associated with electricity generation and use. Harnessing more energy by means of renewable sources will reduce dependency on fossil fuels, thereby resulting in a reduction in harmful emissions that can be damaging to human health and the environment. The rated output of 7MW per turbine for the Proposed Wind Farm would result in an estimated installed capacity of 49MW, displacing approximately 31,578 tonnes of carbon dioxide per annum or 1,105,230 tonnes over its operational life from traditional carbon-based electricity generation. This will have a long-term moderate positive effect on climate and therefore a long-term positive effect on health.

Population and Human Health, and Noise and Vibration

As identified in Chapter 5 of this EIAR, the construction phase will generate an increase in noise levels in the vicinity of the Site which has the potential to cause a nuisance to sensitive receptors in the area. The contractor undertaking the construction of the works will be obliged to take specific noise abatement measures and comply with the recommendations of British Standard BS 5228-1:2009+A1:2014 *Code of practice for noise and vibration control on construction and open sites – Noise* and all mitigation measures, as detail in Chapter 12 Noise and Vibration and the CEMP, will be implemented. The construction phase will likely create a short-term, slight negative effect on human

health due to the nuisance caused by construction plant and vehicle noise emissions. As detailed in Chapter 12, the predicted noise emissions during the operational phase, once the appropriate mitigation measures are implemented, will not be significant. Furthermore, as noise emissions from turbines are controllable via inbuilt technologies, the Proposed Wind Farm will be able to comply with the Guidelines and future iterations should they come into effect before a decision is made on this application. Likewise, the proposed turbines will be capable of achieving compliance with noise conditions imposed should the Proposed Wind Farm receive a grant of planning permission.

Population and Human Health, and Landscape and Visual

The construction phase of the Proposed Project will see the temporary introduction of construction machinery and the erection of wind turbines into a natural, but already modified landscape. The erection of the turbines in particular will change the existing landscape. Whether the long-term change in landscape created by the erection of the turbines is deemed to be positive or negative is a subjective matter. What appears to be a positive visual effect to one viewer could be deemed to be a negative effect by another viewer. Chapter 13 of this EIAR comprises the landscape and visual impact assessment of the Proposed Project. As detailed in Chapter 13, there are no significant landscape or visual effects on sensitive receptors predicted as a result of the Proposed Project. The Proposed Wind Farm adheres to the recommended minimum 500m set back distance in the Guidelines (for involved landowners) and also the 4 times tip height set-back distance for third party sensitive receptors set out the draft Guidelines specifically for visual amenity purposes.

Population and Human Health, and Material Assets

The Proposed Project will give rise to traffic movements of abnormal loads and increased traffic volumes on the local road network and, therefore, is likely to create some short-term inconvenience for other road users as well as dust and exhaust emissions. A Traffic Management Plan will be in place to minimise all disruption, as described in Chapter 15 Material Assets and the CEMP (see Appendix 4-2). During the operational phase, impacts on the surrounding local highway network will be imperceptible. With the implementation of measures detailed in Chapter 5 and the CEMP (Appendix 4-2) dust and exhaust emission will be contained and the potential for impact on health will be imperceptible.

As detailed in Chapter 15, the Proposed Wind Farm will have a short-term effect on utilities ranging from slight to imperceptible effect during the construction phase. During the operational phase, there will be an imperceptible effect on utilities, telecoms, and aviation. However, the Proposed Wind Farm has the potential to supply 49MW of electricity to the national grid during the operational phase, offsetting the use of fossil fuels within the electricity generating sector. This has a long-term slight positive effect on national electricity supply and the offsetting of fossil fuel consumption, thereby resulting in a reduction in harmful emissions that can be damaging to human health.

17.2.2 Biodiversity

Biodiversity and Land, Soils and Geology

The removal of forestry, hedgerow and soil during the construction phase of the Proposed Project is likely to result in some disturbance of flora and fauna in at and adjacent to the Proposed Project footprint thereby, potentially causing a long term, slight, negative effect on flora and fauna. These potential impacts have been assessed in Chapter 6 of this EIAR and excavated spoil will be contained on site in the spoil management areas or used for landscaping.

It is also proposed to plant 270m and enhance approximately 3640m of hedgerow within the Site, as well as plant approximately 1.7ha of riparian planting on both banks of the Tullaroan stream. These measures will have a slight long term positive effect on mammals, birds, bats, and invertebrates as these measures will both create and increase suitable habitat for foraging, commuting, and nesting for a wide

range of fauna including those listed above. Please see Chapter 6 Biodiversity and Appendix 6-4 Biodiversity Management Enhancement Plan for details.

Biodiversity and Water

Site activities during the construction phase of the Proposed Project may have the potential to give rise to 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. These potential impacts have been assessed in Chapter 6 and Chapter 9 and the relevant mitigation measures outlined in these chapters and the CEMP Appendix 4-2 will be in place to avoid any water pollution and subsequent effect on flora and fauna.

As part of the Proposed Wind Farm, it is also proposed to plant approximately 1.7ha of riparian planting on both banks of the Tullaroan stream. This will have a slight long term positive effect on water quality and aquatic fauna and aquatic habitats as well as having a positive effect on flora and fauna that use that water within the same catchment.

Biodiversity and Air Quality

During the construction phase of the Proposed Project, 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 10 of the EIAR will ensure that the potential for negative effects is reduced or eliminated. During the operational phase, the potential for effects on biodiversity from vehicular and dust emissions are imperceptible, however the overall displacement of fossil fuel emissions will have a long-term moderate positive effect on air quality for biodiversity.

Biodiversity and Climate

The construction of the Proposed Project will result in greenhouse gas emissions associated with hedgerow felling, production of construction materials, and operation of vehicles and plant. The impact on biodiversity will be negative and slight only given the quantity of greenhouse gases that will be emitted to the atmosphere and will be restricted to the duration of the construction phase. As discussed above in section 17.2.1, once emitted to the atmosphere, the greenhouse gas emissions that will arise from construction phase activities will have a permanent imperceptible, negative effect on Climate and therefore biodiversity. This is assessed further in Chapter 11 of this EIAR, and mitigation measures are presented to minimise any potential effects.

The construction of the Proposed Project will involve the removal of carbon fixing vegetation and habitat, however, as detailed in Appendix 6-4 Biodiversity Management Enhancement Plan, it is also proposed to plant 270m and enhance 3640m of hedgerow within the Site, as well as plant approximately 1.7ha of riparian planting on both banks of the Tullaroan stream.

During operational phase, the Proposed Project will help offset carbon emissions from fossil fuel-based electricity generation plants, which will help contribute to a slower increase in the rate of global warming and a reduction in air pollution, consequently, could in combination with other renewable energy projects, have a long term, moderate positive effect on flora and fauna.

Biodiversity and Noise & Vibration

Site activity during the construction phase could give rise to noise that could be a nuisance for fauna, which use the Site. Best practice mitigation measures are included in Chapter 6 and Chapter 12 and the CEMP Appendix 4-2 to minimise the potential negative effect of noise generated during the

construction phase on biodiversity. The limited onsite noise activity generated by the Proposed Project during the operational phase will have an imperceptible effect on biodiversity.

17.2.3 Ornithology

Ornithology & Water

Site activities during the construction phase of the Proposed Project may have the potential to give rise to some water pollution, and consequential short term indirect effects on birds and their prey species (such as disturbance and deterioration of habitat quality) that use that water within the same catchment. With the implementation of mitigation and monitoring measures outlined in Chapter 7, Chapter 9 and the CEMP Appendix 4-2, the effects during the operational phase from site activities will be not significant.

Ornithology and Land, Soils & Geology

The removal of hedgerows and soil, during construction phase of the Proposed Project is likely to result in some disturbance of flora and fauna, including birds, in the areas surrounding the Proposed Project works area. The relevant mitigation measures outlined in Chapter 7, Chapter 8 and the CEMP Appendix 4-2 will be in place to avoid any subsequent effect on ornithology.

Ornithology and Air Quality

During the construction phase of the Proposed Project, increased vehicular and dust emissions within and around the site have the potential to be a nuisance for birds. The mitigation measures outlined in Chapter 10 and the CEMP Appendix 4-2 will ensure that the potential for negative effects is reduced or eliminated. During the operational phase, the potential for effects on ornithology, from vehicular and dust emissions are imperceptible. However, the overall displacement of fossil fuel emissions will have a long-term moderate positive effect on air quality for birds.

Ornithology and Climate

The construction of the Proposed Project will result in greenhouse gas emissions associated with tree felling, production of construction materials, and operation of vehicles and plant. This impact on ornithology will be temporary and slight only, given the quantity of greenhouse gases that will be emitted to the atmosphere, and will be restricted to the duration of the construction phase. As discussed above in section 17.2.1, once emitted to the atmosphere, the greenhouse gas emissions that will arise from construction phase activities will have a permanent imperceptible negative effect on Climate.

During the operational phase, the Proposed Project will help offset carbon emissions from fossil fuel-based electricity generation plants, which will help contribute to a slower increase in the rate of global warming and, consequently, could in combination with other renewable energy projects, contribute to preventing the loss of bird species from Ireland as a result of climate change.

Ornithology and Noise & Vibration

Site activity during the construction phase could give rise to noise that could be a nuisance for birds that use the Proposed Project. Best practice mitigation measures are included in Chapter 7 and Chapter 12 to minimise the potential negative effect of noise generated during the construction phase on ornithology.

Site activity during the construction phase could give rise to noise that could be a nuisance for birds, which use the Site. Best practice mitigation measures are included in Chapter 7 and Chapter 12 and the

CEMP Appendix 4-2 to minimise the potential negative effect of noise generated during the construction phase. The limited onsite noise activity generated by the Proposed Project during the operational phase will have an imperceptible effect on birds.

17.2.4 Land, Soils and Geology

Land, Soils & Geology, and Water

As identified in Chapter 8 of this EIAR, the movement and removal of 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 Project works areas. Mitigation measures to ensure there are not significant, negative effects on water quality are presented in Chapter 8, Chapter 9, and the CEMP Appendix 4-2.

Land, Soils & Geology and Cultural Heritage

The removal of spoil during the construction phase is likely to have a permanent, significant, negative effect on any previously unrecorded sub-surface archaeological site and/or artefacts. A 30m buffer has been imposed on an enclosure and a moated site within the Proposed Wind Farm site. Neither site is located within the footprint of any proposed infrastructure, therefore no direct impacts are identified. The Proposed Grid Connection underground cabling route extends through the Zone of Notification for 9 no. recorded monuments. Any archaeological sites/features, if detected, during archaeological monitoring will be preserved by record (archaeologically excavated) or preserved in-situ (avoidance) and therefore a full record made of same. In this regard, the potential effect after the implementation of the mitigation measures is likely to be not significant. Mitigation measures outlined in Chapter 14 will reduce the potential for negative effects on unrecorded sites and artefacts during excavations.

Land, Soils & Geology and Landscape & Visual

The removal of spoil and the subsequent replacement with crushed stone for the construction of the site roads and hardstanding areas within the 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.

Land, Soils & Geology and Air Quality

The excavation works and transportation of vehicles to/from and around the Site will give rise to dust, which is considered a short-term, slight, negative impact on air quality. Mitigation measures outlined in Chapter 10 will reduce the potential for negative effects on land, soils, and geology, including includes dust suppression measures which is further outlined in the CEMP (please see accompanying CEMP Appendix 4-2). No ground works are required for the operational phase.

17.2.5 Air Quality

Air Quality and Material Assets

The transportation of vehicles to/from and around the Site will give rise to dust emissions which is considered a short-term, slight, negative impact on air quality. Following implementation of mitigation measures as outlined in Chapter 10 and the CEMP (Appendix 4-2) there will be a short-term imperceptible negative effect on air quality due to transportation movements. Dust and exhaust emissions generated through the transportation of vehicles to/from and around the Site during the operational phase (1-2 LGVs per day) are imperceptible.

17.2.6 Climate

Climate and Material Assets

The construction of the Proposed Project will result in greenhouse gas emissions, e.g., carbon dioxide (CO₂), carbon monoxide and nitrogen oxides, associated with tree felling, production of construction materials, and operation of vehicles and plant. This negative impact will be permanent and imperceptible, given the quantity of greenhouse gases that will be emitted to the atmosphere, and will be restricted to the duration of the construction phase. This is assessed further in Chapter 11 of this EIAR, and mitigation measures are presented to minimise any potential effects. The Proposed Project will displace carbon dioxide from fossil fuel-based electricity generation, over the proposed 35-year lifespan of the Proposed Project. Therefore, while there will be greenhouse gas emissions associated with the operation of the Proposed Project, this will be offset by the operation of the Proposed Project which will offset 31,578 tonnes of carbon dioxide per annum or 1,105,230 tonnes over its operational life from traditional carbon-based electricity generation. Subsequently, this will cause a long-term moderate positive effect on Climate as a result of reduced greenhouse gas emissions.

17.2.7 Landscape and Visual

Landscape & Visual and Cultural Heritage

As described in Chapter 13 of this EIAR, the Proposed Project has the potential to change the landscape setting of recorded sites and monuments in the wider area. However, it is concluded in Chapter 14 that any potential, indirect, visual effect of the Proposed Project on sites and monuments range from imperceptible to moderate. In reality the effect will be less severe due to natural screening, boundaries, buildings and vegetation, which will alleviate if not remove the impact on setting altogether. Furthermore, some monuments may not be readily visible in the landscape which further ameliorates potential effects on setting. Additionally, many of these monuments are located on private land which are not formally accessible to the public.

17.2.8 Vulnerability to Natural Disasters

As described in Chapter 16 of the EIAR, major accidents or natural disasters are hazards which have the potential to affect the Proposed Project and lead to environmental effects both directly and indirectly. These include accidents during construction, operation and decommissioning of the Proposed Project caused by operational failure and/or natural hazards. The assessment of the potential for significant accidents or disasters is conducted in connection with the information that must be included in the EIAR. This includes aspects such as population and human health, biodiversity, land and soil, hydrology and hydrogeology, air quality, climate, material assets, cultural heritage, and the landscape. The risk of a major accident and/or disaster during the construction of the Proposed Project is considered 'low' in accordance with the 'Guide to Risk Assessment in Major Emergency Management' (DoEHLG, 2010).

When the above mitigation is implemented, and all mitigation detailed in the EIAR is implemented, the residual effect(s) associated with the construction, operation and decommissioning of the Proposed Project are not significant.

17.3 Mitigation and Residual Impacts

Where any potential interactive negative effects have been identified in the above, a full suite of appropriate mitigation measures has already been included in the relevant sections (Chapters 5 – 16) of the EIAR and are detailed in the CEMP Appendix 4-2. The implementation of these mitigation



measures will reduce or remove the potential for there to be effects. Information on potential residual impacts and the significant of effects, is also presented in each relevant chapter.

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