Chapter 16 – Interactions – Interrelationship between the Aspects

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16. INTERACTIONS – INTERRELATIONSHIP BETWEEN THE ASPECTS

16.1 Introduction

This chapter of the EIA Report in accordance with the guidance, assesses the potential interactions and inter-relationships between the environmental factors discussed in the preceding chapters. This covers both the construction/demolition and operational phase of the Proposed Development.

Directive 2011/92/EU, as amended by Directive 2014/52/EU, and section 171A of the Planning and Development Act 2000, as amended, both provide that EIA shall identify, describe and assess in an appropriate manner, in the light of each individual case, the interaction between the following factors:

- human beings, fauna and flora population and human health;
- biodiversity, with particular attention to species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EC;
- land, soil, water, air and climate and landscape;
- material assets, cultural heritage and the landscape.

This chapter has been produced following the requirements of the EIA Directive and Planning and Development Act 2000, as amended. The contents of the chapter have been prepared following European Commission 'Guidance on Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report' (2017) and the 'Guidelines on the Information to be Contained in Environmental Impact Assessment Reports' (EPA, 2022).

The quality, magnitude and duration of potential impacts are defined in accordance with the criteria provided in the EPA 2022 Guidance as outlined in Chapter 1 (Introduction). This section of the assessment presents a summary and assessment of the identified interactions.

16.2 Human Health and Populations and its Interaction with:

16.2.1 Land, Soils, and Geology

16.2.1.1 Construction Phase

Excavation on site may encounter localised areas of contamination which will need to be excavated and disposed of appropriately to a licenced facility. Material that is exported from site, if not correctly managed or handled, could impact negatively on human beings (onsite and offsite). A reduction in soil quality via historical or unmitigated pollutants entering the soil has the potential to lead to negative impacts on human health during construction. Hydrocarbons and petroleum products for example have a risk for humans by inhaling the fumes / dust from contaminated soil.

Given the historic use of the site as predominantly greenfield, characterised by an agricultural function, the risk of potentially contaminated soils along the entirety of the proposed route is considered low except for localised exceedances identified during site investigation.

There is also potential for generation of dust during the excavation works.

In the absence of mitigation measures the potential impacts to human health during the construction phase on land, soils and geology are ***negative***, ***not significant*** and ***short term***.

16.2.1.2 Operational Phase

There is no source pathway linkage with respect to an interaction impact between land, soils and geology, and population and human health during the operational phase, therefore no mitigation is required. The predicted interaction is considered to be ***neutral, imperceptible*** and ***long-term.***

16.2.2 Hydrology and Hydrogeology

16.2.2.1 Construction Phase

The construction phase of the Proposed Development has the potential (without mitigation) to impact on the water quality via unmitigated pollutants entering the 2 no. rivers (the Kilwarden River, the Yellow River l) and the 30 no. watercourses (including the Grand Canal). It is proposed to cross these rivers and watercourses via a trenchless or open cut method. The anticipated crossing technique for each crossing is outlined in Chapter 6 (Hydrology and Hydrogeology) of this EIAR.

Potential pollutants include increased suspended solids from top soil stripping and excavation to facilitate the pipeline, above ground pigging compound (AGPC) and above ground compound (AGI), hydrocarbons and other ecotoxic chemicals through accidental spillage and wastewater through accidental discharge. These have the potential to interact negatively on human health, if water is used for water supply or recreational use which it is not in this case.

Taking into account the design and standard mitigation measures set out in the CEMP and Chapter 6 of this EIAR, there is no potential for negative interaction between Human Health and Populations, and Hydrology and Hydrogeology during the construction phase. The interaction is considered to be ***neutral, imperceptible*** and ***long term***.

16.2.2.2 Operational Phase

The Proposed Development when operational will primarily consist a buried pipeline, AGPC and Ballykilleen AGI and will not impact on any domestic wells or any groundwater protection areas.

Taking into account the design for the drainage systems at the AGPC and the Ballykilleen AGI, there is no potential for negative interaction between Human Health and Populations, and Hydrology during the operational phase. The interaction is considered to be ***neutral, imperceptible*** and ***long term***.

16.2.3 Biodiversity

16.2.3.1 Construction Phase

Construction sites can give rise to opportunities for birds and vermin to accumulate as they scavenge for food and water. The CEMP and the RWMP outline standard measures designed to mitigate the potential for nuisance impacts to human population arising from uncontrolled fauna and avi-fauna scavenging within the subject site.

There are no potentially significant interactions identified between Population and Human Health, and Biodiversity during the construction phase. The interaction is considered to be ***negative***, ***imperceptible*** and ***short term***.

16.2.3.2 Operational Phase

There are no potential interactions between Population and Human Health, and Biodiversity during the operational phase.

16.2.4 Air Quality

16.2.4.1 Construction Phase

During the constriction phase of the Proposed Development, there is potential for generation of dust during the excavation works.

An adverse impact due to air quality in either the construction has the potential to cause health and dust soiling issues. The mitigation measures that will be put in place at the Proposed Development will ensure that the impact of the Proposed Development complies with all ambient air quality legislative limits. See Section 8.2.1 of Chapter 8 (Air Quality). Therefore, the predicted impact is ***short-term, direct, localised, negative*** and ***not significant*** with respect to population and human health during construction and ***long-term, direct, localised, negative*** and ***not significant*** during operation phase. No significant impacts to human health are predicted in relation to air quality.

16.2.4.2 Operational Phase

Air quality does not have a significant number of interactions with other topics. The most significant interactions are between population and human health and air quality. During the operational phase of the Proposed Development there is no potential interaction between the buried gas pipeline and other components (i.e. the Offtake Installation and the Ballykilleen AGI). As there will be no movement of soil associated with the operational phase of the development.

Emissions of air pollutants during the operational phase are predicted to be significantly below the ambient air quality standards, which are based on the protection of human health. Therefore, residual impacts to human health related to air quality will be ***long-term, direct, localised, negative*** and ***not significant***.

No significant impacts to human health are predicted in relation to air quality.

16.2.5 Climate

16.2.5.1 Construction Phase

Climate and Population and Human Health interact because changes in climate can influence environmental conditions that affect human wellbeing. However, in the context of this project, the scale of greenhouse gas emissions generated during construction is negligible.

Emission sources (e.g., machinery, vehicles, generators) contribute to both greenhouse gases and air pollutants, the overall contribution is ***negative***, and ***imperceptible*** and does not give rise to any significant health related impacts. Accordingly, no significant interaction between climate and population and human health is anticipated.

16.2.5.2 Operational Phase

Once constructed, the transmission gas pipeline will be fully buried underground and will not give rise to emissions during normal operation. The AGPC and the Ballykilleen AGI during operation will not result in any emissions. As a result, there is no potential for impacts to climate or to population and human health. No significant interactions between climate and population and human health are identified during the operational phase.

16.2.6 Noise and Vibration

16.2.6.1 Construction Phase

During the construction phase of the Proposed Development there will be some impact on nearby noise sensitive properties due to noise emissions from construction activities. The application of noise limits and hours of operation will ensure that the residual noise and vibration effect is kept to a minimum.

During periods where the works along the Proposed Development route are close to noise-sensitive locations, solid barriers between the noise-generating equipment and the noise-sensitive locations will be required for the proposed GNI143 Ballykilleen Pipeline route works, AGPC and Ballykilleen AGI.

Taking into account the design and standard mitigation measures set out in the CEMP and Chapter 10 (Noise and Vibration) of this EIA Report, there is potential for negative interaction between Population and Human Health, and Noise and Vibration during the construction phase. The interaction is considered to be ***negative, slight- moderate,*** and ***short-term***.

16.2.6.2 Operational Phase

Due to the fact that the proposed gas pipeline route will be located underground there will be no operational noise impacts associated with this portion of the Proposed Development.

The proposed AGPC is a dead site - no onsite electrical equipment and will there will be no operational noise impacts associated with this portion of the Proposed Development.

The permitted Ballykilleen AGI is located within Bord na Mona's Renewable Energy Complex and is 490m distance from the closest NSL. At the closest NSL, within 490m of the closest works boundary, the predicted CNL is 26 dB below the daytime CNT value of 65 dB $L_{Aeq,1hr}$. A significant effect is therefore not predicted in relation to the nearest NSLs at these distances in terms of this aspect of potential construction noise.

The resultant interaction between noise and human health is ***neutral***, ***imperceptible*** and ***long term***.

16.2.7 Landscape and Visual

16.2.7.1 Construction Phase

The number and distribution of potential visual receptors in the receiving environment, and their degree of exposure to the site, is relatively limited. The change from the current site (agricultural land) to a construction site, with plant equipment and cranes will have some impact on Human Health and Populations in respect of amenity and visuals in the area. There is limited mitigation to reduce this therefore the interaction is considered to be ***negative, slight*** *and* ***short-term***.

16.2.7.2 Operational Phase

Once the construction phase is complete, any disturbed road surface / agricultural grassland will be reinstated along the pipeline corridor. Thus, there will be little evidence of the proposed pipeline, aside from the permanent AGPC and Ballykilleen AGI, which will both be fenced off with 2.4m high-security fences. Nonetheless, it is proposed to plant native hedgerow in the surrounds of this fence at the Kilwarden Offtake Installation (refer to drawing 14301-GNI-01-PL-LA-0001-01) to further screen the Proposed Development, which further limits its potential to have any notable impact on the surrounding landscape character. Aside from areas located immediately above the pipeline corridor, all areas of hedgerow vegetation removed will be fully reinstated with an appropriate native planting mix of local provenance.

With regard to the proposed pipeline corridor, the operational phase visual effects will be limited to the post-and-wire fence that will enclose its corridor. Indeed, this fencing is a characteristic feature of the

rural environment and will have no notable effect on the visual amenity afforded from the surrounding landscape. Thus, the magnitude of visual effect with respect to the proposed pipeline is deemed Negligible and Neutral. Combined with the medium-low and medium receptor sensitivity within the immediate surrounding landscape context, the residual significance of effect is deemed Imperceptible.

In terms of the AGPC and Ballykilleen AGI, both of these built features are well contained and will have a limited degree of visual exposure, even on the immediate surrounding landscape.

The interaction effect between landscape and visual and human health and population is ***neutral, imperceptible*** and ***long-term***.

16.2.8 Archaeological, Architectural and Cultural Heritage:

16.2.8.1 Construction Phase

There are no potentially significant interactions identified between Population and Human Health, and Archaeological, Architectural and Cultural Heritage during the construction phase.

16.2.8.2 Operational Phase

There are no potentially significant interactions identified between Population and Human Health, and Archaeological, Architectural and Cultural Heritage during the operational phase

16.2.9 Material Assets, including Utilities Waste Management, and Transport:

16.2.9.1 Construction Phase

The potential impacts on human beings are in relation to incorrect management of waste during construction, which could result in littering and presence of vermin – with associated potential for negative impacts on human health. A carefully planned approach to waste management and adherence to the project specific RWMP and mitigation measures in Chapter 4 (Human Health and Population) and Chapter 14, will ensure appropriate management of waste and avoid any negative impacts on the local population. The effects should be ***long-term, imperceptible*** and ***neutral***.

Taking into account the design and standard mitigation measures set out in Chapters 13 and 15 (Traffic and Transportation, and Utilities, respectively) of this EIAR, there is a potential for negative interaction between Population and Human Health, and Material Assets during the construction phase. The interaction is considered to be ***negative***, ***not significant*** and ***long-term***.

16.2.9.2 Operational Phase

There are no potentially significant interactions identified between Population and Human Health, and Material Assets during the operational phase.

16.3 Land, Soil, and Geology and its Interaction With:

16.3.1 Hydrology and Hydrogeology

16.3.1.1 Construction Phase

The construction phase of the Proposed Development has the potential to result in increased sediment runoff which has the potential to interact negatively on surface water quality from the excavations works to surface water drainage and surrounding watercourses.

Taking into account the design and mitigation measures set out in Chapter 5 and 6 of this EIA Report, there is a residual negative interaction between Land, Soil, and Geology, and Hydrology and Hydrogeology

during the construction phase. The interaction is considered to be ***negative***, ***imperceptible*** and ***temporary***.

16.3.1.2 Operational Phase

There are no potentially significant interactions identified between Land, Soils and Geology and Hydrology and Hydrogeology during the operational phase.

16.3.2 Biodiversity

16.3.2.1 Construction Phase

During the construction phase, excavated topsoil, subsoil, stones, tarmac and hardcore will be generated from the excavations and infilling required to facilitate the installation of the gas transmission pipeline and associated infrastructure. It is estimated that 95% of the soil to be excavated will be reused on site as backfill. Materials that typically cannot be reused on site, such as tarmac and hardcore, will be removed offsite. Where material has to be taken off-site, it will be taken for reuse or recovery, where practical, with disposal as a last resort. There is a potential for suspended solids in runoff to impact on watercourses and in turn downstream biodiversity during excavation works without appropriate mitigation in place. As such, there is the potential for impacts on local biodiversity via the proposed excavation and backfilling works. There will be a loss of a significant amount of hedgerow, but this is not expected to impact significantly on surrounding areas given the abundance of this habitat in the surrounding area. Further any hedgerow removed to facilitate the development will be reinstated following completion of the works. Following the implementation of mitigation measures outlined in Chapter 5 and Chapter 7, the predicted effects on biodiversity are ***short*** to ***long term, imperceptible*** and ***neutral***. The biodiversity of the subject site is likely to improve following the completion of landscaping works

16.3.2.2 Operational Phase

There are no potentially significant interactions identified between Land, Soils, and Geology, and Biodiversity during the operational phase.

16.3.3 Air Quality

16.3.3.1 Construction Phase

Construction phase activities such as land clearing, excavations, stockpiling of materials etc. have the potential for interactions between air quality and land and soils in the form of dust emissions. With the appropriate mitigation measures to prevent fugitive dust emissions, it is predicted that there will be no significant interactions between air quality and land and soils.

The impact of the interactions between land, soils and geology, and air quality are considered to be ***short-term, neutral*** and ***imperceptible***.

16.3.3.2 Operational Phase

There are no potentially significant interactions identified between Land, Soils and Geology and Air Quality and Climate during the operational phase.

16.3.4 Climate

16.3.4.1 Construction Phase

There are no potentially significant interactions identified between climate, and land, soils and geology during the construction phase.

16.3.4.2 Operational Phase

There are no potentially significant interactions identified between climate, and land, soils and geology during the operational phase.

16.3.5 Noise and Vibration

16.3.5.1 Construction Phase

There are no potentially significant interactions identified between Land, Soils and Geology, and Noise and Vibration during the construction phase.

16.3.5.2 Operational Phase

There are no potentially significant interactions identified between Land, Soils and Geology, and Noise and Vibration during the operational phase.

16.3.6 Landscape and Visual Impact

16.3.6.1 Construction Phase

There are no potentially significant interactions identified between Land, Soils and Geology, and Landscape and Visual Impacts during the construction phase.

16.3.6.2 Operational Phase

There are no potentially significant interactions identified between Land, Soils and Geology, and Landscape and Visual Impacts during the operational phase.

16.3.7 Archaeological and Cultural Heritage

16.3.7.1 Construction Phase

There are no potentially significant interactions identified between Land, Soils and Geology, and Archaeological and Cultural Heritage during the construction phase.

16.3.7.2 Operational Phase

There are no potentially significant interactions identified between Land, Soils and Geology, and Archaeological and Cultural Heritage during the operational phase.

16.3.8 Material Assets, including Utilities, Waste, and Transport

16.3.8.1 Construction Phase

During the construction phase, excavated topsoil and subsoil (c. 265,333.6 m^3) will be generated from the excavations required to facilitate construction of the pipeline and installations of site services. It is anticipated that the majority (95%) of the clean, excavated soil will be reinstated as backfill. Any remaining excavated soil will be removed from site and disposed of in accordance with regulations by the contractor. In the event that any excavated soil is found to be contaminated it will need to be removed off-site.

If material has to be taken off-site, it will be taken for reuse or recovery, where practical, with disposal as a last resort. Adherence to the mitigation measures in Chapter 14, Chapter 5 (Land, Soils, Geology) and the requirements of the RWMP (Appendix 14.1), will ensure the effect is ***long-term, imperceptible*** and ***neutral***.

16.3.8.2 Operational Phase

There are no potentially significant interactions identified between Land, Soils, and Geology, and Material Assets during the operational phase.

16.4 Hydrology and Hydrogeology and its Interaction With:

16.4.1 Biodiversity

16.4.1.1 Construction Phase

Potential interactions between hydrology/hydrogeology and biodiversity arise mainly during construction, when earthworks, trenching, and temporary watercourse crossings could, in the absence of mitigation, cause short-term increases in suspended solids, turbidity, accidental pollutant releases, or temporary changes in surface water flow, with potential localised effects on aquatic and riparian habitats. Although hydrological pathways exist to downstream designated sites, substantial separation distances, dilution capacity, full reinstatement, and the implementation of mitigation measures outlined in Chapter 6 and Chapter 7, the predicted effects on biodiversity are ***negative, not significant, short term*** and ***localised*** during construction.

16.4.1.2 Operational Phase

During operation, no direct discharges, or foul wastewater generation are proposed, and surface water from limited new hardstanding will be managed via soakaways, interceptors, and attenuation, resulting in no change to water quality, hydrological regimes, or flood risk.

Although hydrological pathways exist to downstream designated sites, substantial separation distances, dilution capacity, full reinstatement, and the implementation of mitigation measures outlined in Chapter 6 and Chapter 7, the predicted effects on biodiversity are ***neutral, imperceptible***, and ***long-term*** during operation.

16.4.2 Air Quality

16.4.2.1 Construction Phase

Construction phase activities such as land clearing, excavations, stockpiling of materials etc. have the potential for interactions between air quality and hydrology and hydrogeology in the form of dust emissions that may deposit in surface waters. With the appropriate mitigation measures to prevent fugitive dust emissions, it is predicted that there will be no significant interactions between air quality and hydrology and hydrogeology during the construction phase. The interaction is considered to be ***negative***, ***imperceptible*** and ***temporary.***

16.4.2.2 Operational Phase

There are no potentially significant interactions identified between Hydrology and hydrogeology and Air Quality during the operational phase.

16.4.3 Climate

16.4.3.1 Construction Phase

There are no potentially significant interactions identified between climate, and hydrology and hydrogeology during the construction phase.

16.4.3.2 Operational Phase

The impact of flood risk has been assessed and due to the pipeline portion of the Proposed Development being subsurface once operational. Climate change scenarios included in the CFRAM study indicate that there are some increases in flood extent due to climate change. As the pipeline is located underground, it specifically will not be impacted during a flood event once construction is complete. The effect of the interactions between climate and land, soils, geology and hydrology and hydrogeology are ***direct, long-term, negative*** and ***imperceptible*** during the operational phase, which is overall ***not significant*** in EIA terms.

16.4.4 Noise and Vibration

16.4.4.1 Construction Phase

There are no potentially significant interactions identified between Hydrology and Hydrogeology and Noise and Vibration during the construction phase.

16.4.4.2 Operational Phase

There are no potentially significant interactions identified between Hydrology and Hydrogeology and Noise and Vibration during the operational phase.

16.4.5 Landscape and Visual Impact

16.4.5.1 Construction Phase

There are no potentially significant interactions identified between Hydrology and Hydrogeology and Landscape and Visual Impact during the construction phase.

16.4.5.2 Operational Phase

There are no potentially significant interactions identified between Hydrology and Hydrogeology and Landscape and Visual Impact during the operational phase.

16.4.6 Archaeological and Cultural Heritage

16.4.6.1 Construction Phase

There are no potentially significant interactions identified between Hydrology and Hydrogeology and Archaeological and Cultural Heritage during the construction phase.

16.4.6.2 Operational Phase

There are no potentially significant interactions identified between Hydrology and Hydrogeology and Archaeological and Cultural Heritage during the operational phase.

16.4.7 Material Assets, including Utilities, Waste, and Transport

16.4.7.1 Construction Phase

There are no potentially significant interactions identified between Hydrology and Hydrogeology and Material Assets during the construction phase.

16.4.7.2 Operational Phase

There are no potentially significant interactions identified between Hydrology and hydrogeology, and Material Assets during the operational phase.

16.5 Biodiversity and its Interaction With:

16.5.1 Air Quality

16.5.1.1 Construction Phase

The main interaction between air quality and biodiversity occurs during construction, when dust generated by earthworks, construction activities, and vehicle movements could affect sensitive ecological receptors, including the Grand Canal pNHA and Mount Hevey Bog SAC/pNHA.

Dust generation can occur during extended dry weather periods as a result of construction. Dust suppression measures (e.g. dampening down) and all other mitigation measures outlined in Chapter 8 will be implemented as necessary during dry periods and vehicle wheel washes will be installed, for example. The works involve stripping of topsoil and excavations, which will remove some vegetation such as trees and scrub. It will also generate dust and potentially impact on the air quality in the locality. However, the generation of dust will be temporary during construction phase and is not anticipated to have a significant impact on biodiversity.

The impact of the interactions between biodiversity and air quality are considered to be ***short-term, neutral*** and ***imperceptible***.

16.5.1.2 Operational Phase

During the operational phase, the development will generate negligible emissions. Accordingly, no interaction effects between air quality and biodiversity are predicted during operation. Overall, interactions between air quality and biodiversity are assessed as ***neutral, imperceptible***, and ***long-term*** during operation, with no likely significant effects on ecological receptors.

16.5.2 Climate

16.5.2.1 Construction Phase

There are no potentially significant interactions identified between climate and biodiversity during the construction phase.

16.5.2.2 Operational Phase

There are no potentially significant interactions identified between climate and biodiversity during the operational phase.

16.5.3 Noise and Vibration

16.5.3.1 Construction Phase

Construction activities will generate temporary noise and vibration from plant, machinery, excavation, and traffic. At the nearest NSLs, predicted noise levels are between 45 and 67 dB LAeq,T, peaking during impact and river/stream crossing activities. Vibration levels at locations surrounding badger setts are expected to remain below thresholds likely to cause disturbance, with exclusion zones and monitoring in place to ensure sett protection during construction activities.

Nearby wildlife, including birds and badgers, may be temporarily disturbed by noise and vibration, potentially affecting breeding, foraging, or movement. Exclusion zones will be established around all identified badger setts to prevent disturbance, and sensitive works will be scheduled outside key breeding periods where practicable. These measures, together with standard noise and vibration mitigation, will minimise impacts on biodiversity.

Following the implementation of mitigation measures outlined in Chapter 7 and Chapter 10, the predicted effects on biodiversity are ***short*** to ***long term, imperceptible*** and ***neutral***.

16.5.3.2 Operational Phase

There are no potentially significant interactions identified between Biodiversity, and Noise and Vibration during the operational phase.

16.5.4 Landscape and Visual Impact

16.5.4.1 Construction Phase

The construction methodology required the removal of a stretch of 30m of hedgerow at each boundary crossing. This will result in the short term loss of hedgerow, leading to a ***negative, moderate*** and ***short term*** interaction between biodiversity and the landscape.
All areas of hedgerow vegetation removed will be fully reinstated with an appropriate native planting mix of local provenance, as such the residual interaction between biodiversity and the landscape following the employment of this mitigation is ***neutral, imperceptible*** and ***long term.***

16.5.4.2 Operational Phase

There are no potentially significant interactions identified between Biodiversity, and Landscape and Visual Impacts during the operational phase.

16.5.5 Archaeological and Cultural Heritage

16.5.5.1 Construction Phase

There are no potentially significant interactions identified between Biodiversity, and Archaeological and Cultural Heritage during the construction phase.

16.5.5.2 Operational Phase

There are no potentially significant interactions identified between Biodiversity, and Archaeological and Cultural Heritage during the operational phase.

16.5.6 Material Assets, including Waste, Utilities and Transport

16.5.6.1 Construction Phase

There are no potentially significant interactions identified between Biodiversity, and Material Assets during the construction phase.

16.5.6.2 Operational Phase

There are no potentially significant interactions identified between Biodiversity, and Material Assets during the operational phase.

16.6 Air Quality and its Interaction with:

16.6.1 Climate

16.6.1.1 Construction Phase

Air quality and climate have interactions due to the emissions from the burning of fossil fuels associated with vehicles and machinery during the construction phase generating both air quality and climate impacts.

The impact of the interactions between climate and air quality are considered to be ***short-term, neutral*** and ***imperceptible***.

16.6.1.2 Operational Phase

During operation, the pipeline portion of the Propose Development does not generate meaningful air emissions and therefore has no measurable interaction with climate. The AGPC and Ballykilleen AGI do not result in any emissions to air that would impact on climate. Any minor maintenance related emissions (e.g., occasional vehicle use or controlled gas releases within the AGI) are negligible and do not meaningfully influence air quality or climate. As a result, there is no significant air quality–climate interaction during the operational phase.

16.6.2 Noise and Vibration

16.6.2.1 Construction Phase

There are no potentially significant interactions identified between Air Quality, and Noise and Vibration during the construction phase.

16.6.2.2 Operational Phase

There are no potentially significant interactions identified between Air Quality, and Noise and Vibration during the operational phase.

16.6.3 Landscape and Visual Impact

16.6.3.1 Construction Phase

There are no potentially significant interactions identified between Air Quality, and Landscape and Visual during the construction phase.

16.6.3.2 Operational Phase

There are no potentially significant interactions identified between Air Quality, and Landscape and Visual during the operational phase.

16.6.4 Archaeological and Cultural Heritage

16.6.4.1 Construction Phase

There are no potentially significant interactions identified between Air Quality, and Archaeological and Cultural Heritage during the construction phase.

16.6.4.2 Operational Phase

There are no potentially significant interactions identified between Air Quality, and Archaeological and Cultural Heritage during the operational phase.

16.6.5 Material Assets, including Waste, Utilities and Transport

16.6.5.1 Construction Phase

Interactions between air quality and traffic can be significant. With increased traffic movements and reduced engine efficiency, i.e. due to congestion, the emissions of vehicles increase. The impacts of the Proposed Development on air quality are assessed by reviewing the change in annual average daily traffic on roads close to the site. In this assessment, the impact of the interactions between Traffic and Air Quality

are linked but there is no potential for significant impacts from traffic on air quality. The effects are considered to be ***temporary***, ***negative*** and ***not significant*** during the construction phase.

16.6.5.2 Operational Phase

As there are very few traffic movements associated with the operational development, the impact of the interactions between traffic and air quality are considered to be ***long-term, negative***, and ***imperceptible*** during the operational phase.

16.7 Climate and its Interaction with:

16.7.1 Noise and Vibration

16.7.1.1 Construction Phase

There are no potentially significant interactions identified between Climate, and Noise and Vibration during the construction phase.

16.7.1.2 Operational Phase

There are no potentially significant interactions identified between Climate, and Noise and Vibration during the operational phase.

16.7.2 Landscape and Visual Impact

16.7.2.1 Construction Phase

There are no potentially significant interactions identified between Climate, and Landscape and Visual during the construction phase.

16.7.2.2 Operational Phase

There are no potentially significant interactions identified between Climate, and Landscape and Visual during the operational phase.

16.7.3 Archaeological and Cultural Heritage

16.7.3.1 Construction Phase

There are no potentially significant interactions identified between Climate, and Archaeological and Cultural Heritage during the construction phase.

16.7.3.2 Operational Phase

There are no potentially significant interactions identified between Climate, and Archaeological and Cultural Heritage during the operational phase.

16.7.4 Material Assets, including Waste, Utilities and Transport

16.7.4.1 Construction Phase

During the construction and operational phase, there is the potential for interactions between climate and traffic. Vehicles accessing the site will result in emissions of CO_2, a greenhouse gas. The effects of the Proposed Development on climate are assessed by reviewing the change in annual average daily traffic on roads close to the site. In this assessment, the effects of the interactions between traffic and climate are considered to be ***direct, short-term, negative*** and ***not significant*** during the construction phase, which is overall ***not significant*** in EIA terms.

Waste management measures will be put in place to minimise the amount of waste entering landfill, which has higher associated embodied carbon emissions than other waste management such as recycling. The effect of the interactions between waste and climate are considered to be ***direct, short-term, negative*** and ***not significant*** during the construction phase, which is overall ***not significant*** in EIA terms.

The impact of the interactions between climate and material assets are considered to be ***long-term, imperceptible*** and ***negative*** during the construction phase.

16.7.4.2 Operational Phase

During the construction and operational phase, there is the potential for interactions between climate and traffic. Vehicles accessing the site will result in emissions of CO2, a greenhouse gas. The effects of the Proposed Development on climate are assessed by reviewing the change in annual average daily traffic on roads close to the site. In this assessment, the effects of the interactions between traffic and climate are considered to be ***direct, long-term, negative*** and ***not significant*** during the operational phase, which is overall ***not significant*** in EIA terms.

There is no potential impact from the interactions between climate and other material assets during the operational phase.

16.8 Noise and Vibration and its Interaction With:

16.8.1 Landscape and Visual Impact

16.8.1.1 Construction Phase

There are no potentially significant interactions identified between Noise and Vibration, and Landscape and Visual during the construction phase.

16.8.1.2 Operational Phase

There are no potentially significant interactions identified between Noise and Vibration, and Landscape and Visual during the operational phase.

16.8.2 Archaeological and Cultural Heritage

16.8.2.1 Construction Phase

There are no potentially significant interactions identified between Noise and Vibration, and Archaeological and Cultural Heritage during the construction phase.

16.8.2.2 Operational Phase

There are no potentially significant interactions identified between Noise and Vibration, and Archaeological and Cultural Heritage during the operational phase.

16.8.3 Material Assets, including Waste, Utilities and Transport

16.8.3.1 Construction Phase

Interactions between noise, vibration, and traffic can occur during the construction phase, as increased vehicle movements may cause temporary increases in noise levels. The assessment of construction-related noise considers changes in annual average daily traffic on nearby roads. While traffic and noise are linked through shared sources, the predicted increase in construction traffic is small and will not result in any significant change in noise levels on the surrounding road network.

The effects are considered to be ***neutral, not significant*** and ***temporary*** during the construction phase.

16.8.3.2 Operational Phase

During the operational phase, the pipeline will not generate measurable additional traffic on the existing road network. As a result, no significant interaction with noise and vibration and traffic are expected.

16.9 Landscape and Visual Impacts and its interaction with:

16.9.1 Archaeological, Architectural and Cultural Heritage:

16.9.1.1 Construction Phase

There are no potentially significant interactions identified between Landscape and Visual, and Archaeological, Architectural and Cultural Heritage during the construction phase.

16.9.1.2 Operational Phase

There are no potentially significant interactions identified between Landscape and Visual Impacts, and Archaeological, Architectural and Cultural Heritage during the operational phase.

16.9.2 Material Assets, including Utilities Waste Management, and Transport:

16.9.2.1 Construction Phase

There are no potentially significant interactions identified between Landscape and Visual, and Material Assets during the construction phase.

16.9.2.2 Operational Phase

There are no potentially significant interactions identified between Landscape and Visual, and Material Assets during the operational phase.

16.10 Archaeological and Cultural Heritage and its Interaction With:

16.10.1 Material Assets, including Utilities Waste Management, and Transport:

16.10.1.1 Construction Phase

There are no potentially significant interactions identified between Material Assets, and Archaeological, Architectural and Cultural Heritage during the construction phase.

16.10.1.2 Operational Phase

There are no potentially significant interactions identified between Material Assets, and Archaeological, Architectural and Cultural Heritage during the operational phase.

16.11 Summary

This chapter has examined the interactions and interrelationships between the environmental factors assessed throughout the EIAR. The analysis demonstrates that, with the proposed design measures and established mitigation in place, the majority of interactions during both the construction and operational phases are neutral/negative, temporary, and not significant. Where negative interactions do arise—most commonly during construction due to temporary emissions, traffic, noise, or ground disturbance—these

effects are short-term, localised, and effectively managed through the mitigation measures presented in the specialist chapters.

During the operational phase, the development consists of a buried, passive transmission pipeline, an above ground pigging compound and the Ballykilleen above ground compound. The gas pipeline portion of the Proposed Development will not generate emissions, traffic, noise, or visual change. The AGPC and the AGI will also not generate emissions and will only generate imperceptible impacts on noise and traffic and slight-imperceptible visual. As a result, no significant interactions between environmental aspects are predicted.

Overall, the assessment confirms that the Proposed Development will not give rise to any significant cumulative or cross-disciplinary environmental effects, and that all identified interactions are, appropriately mitigated.

Table 16-1 presents the summary of interactions between the environmental factors.

Table 16-1 Summary of Interactions Between the Environmental Factors

	Human Health and Populations		Land, Soils, and Geology		Hydrology and Hydrogeology		Biodiversity		Air Quality		Climate		Noise and Vibration		Landscape & Visual		Archaeological, Architectural and Cultural Heritage		Material Assets, including Transport and Waste	
	Con.	Op.	Con.	Op.	Con.	Op.	Con.	Op.	Con.	Op.	Con.	Op.	Con.	Op.	Con.	Op.	Con.	Op.	Con.	Op.
Human Health and Populations			-	X	O	O	X	-	-	-	-	O	X	-	X	-	O	O	X	-
Land, Soils, and Geology					-	X	-	X	-	X	X	X	X	X	X	X	X	X	O	X
Hydrology and Hydrogeology							-	O	-	X	-	-	X	X	X	X	X	X	X	X
Biodiversity									-	X	X	X	O	X	O	X	X	X	X	X
Air Quality											-	X	X	X	X	X	X	X	-	-
Climate													X	X	X	X	X	X	-	-
Noise and Vibration															X	X	X	X	O	X
Landscape and Visual																	X	X	X	X
Archaeological, Architectural and Cultural Heritage																			X	X
Material Assets, including Transport and Waste																				

Con.	Construction Phase
Op.	Operational Phase
X	No Interaction

+	Positive Interaction
O	Neutral Interaction
–	Negative Interaction