



Chapter 20

Cumulative and Interactive Impacts

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20. Cumulative and Interactive Impacts

20.1 Introduction

This chapter presents an assessment of the cumulative and interactive effects between the various environmental factors as a result of the Proposed Development.

Cumulative effects are changes to the environment that are caused by an action in combination with other actions. They can arise from:

- The interaction between the various effects within the Proposed Development; and
- The interaction between the other existing and / or permitted projects with this Proposed Development.

Interactive effects will consider the interaction between the various environmental aspects, for example the interaction between noise and biodiversity.

20.2 Assessment Methodology

20.2.1 Guidance

This chapter has been prepared in accordance with the following guidance:

- Department of Housing, Planning and Local Government (2018). Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment, August 2018;
- EPA (2022). Guidelines on the Information to be contained in Environmental Impact Assessment Reports, May 2022;
- European Commission (EC) (2017). Environmental Impact Assessment of Projects – Guidance on the preparation of the Environmental Impact Assessment Report. (Office for Official Publications of the European Communities 2017); and
- European Commission (EC) (1999). Guidelines for the Assessment of Indirect and Cumulative Effects as well as Impact Interactions, (Office for Official Publications of the European Communities 1999).

20.2.2 Definitions

The following definitions are generally used in the description of cumulative effects or interaction of effects.

It is noted that the terms “*effects*” and “*impacts*” are used interchangeably in this chapter.

In the EC guidance (EC, 2017), cumulative effects are defined as:

“Changes to the environment that are caused by activities/projects in combination with other activities/projects”.

EC guidance (EC, 2017) also states that:

“It is important to consider effects not in isolation, but together, that is cumulatively. [...] Cumulative effects are changes to the environment that are caused by an action in combination with other actions. They can arise from:

- *The interaction between all of the different projects in the same area;*
- *The interaction between various impacts within a single Project (while not expressly required by the EIA Directive this has been clarified by the CJEU [Court of Justice of the European Union] [...]).”*

Under the EPA guidance (EPA, 2022), cumulative effects are defined as:

“The addition of many minor or significant effects, including effects of other projects, to create larger, more significant effects”.

The EC guidelines (EC, 1999) use slightly different definitions as follows:

“Cumulative Impacts: Impacts that result from incremental changes caused by other past, present or reasonably foreseeable actions together with the project”.

The EC guidelines (EC, 1999) use definitions as follows:

“Impact Interactions: The reactions between impacts whether between the impacts of just one project or between the impacts of other projects in the area”.

The term ‘*impact interactions*’ is equivalent to the term ‘*inter-relationship of effects*’. The EC guidelines (EC, 1999) accept that their definitions overlap to a certain extent. The EC guidelines also refer to ‘*Cross-Media Impacts*’, in which the impact in one environmental medium may also have an indirect impact on another medium.

20.2.3 Cumulative effects assessment methodology

Annex IV (5)(e) of the EIA Directive as amended by Directive 2014/52/EU provides that the EIAR contain:

“A description of the likely significant effects of the project on the environment resulting from, inter alia:

*(e) the **cumulation of effects** with other **existing and/or approved projects**, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources; Furthermore, Annex IV (5) states that the EIAR shall contain:*

*“The description of the likely significant effects on the factors specified in Article 3(1) should cover the direct effects and any indirect, secondary, **cumulative**, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the project. This description should take into account the environmental protection objectives established at Union or Member State level which are relevant to the project”.*

At the initial stage of preparing the EIAR for the Proposed Development, the potential for significant cumulative impacts were examined and any potential effects were identified. These potential effects were included in the scope and addressed in the baseline and impact assessment studies for each of the relevant environmental factors.

Potential significant cumulative effects of the Proposed Development in-combination with other existing and / or approved projects for each of the environmental factors were initially identified, considered and assessed in respective chapters of the EIAR.

Section 20.3 of this chapter presents a summary of the potential cumulative effects between the Proposed Development and relevant plans and projects. Mitigation measures relative to those effects are addressed in the individual assessment chapters.

Table 20.1 and

Table 20.2 detail the potential cumulative effects during both construction and operation.

20.2.4 Interactive effects assessment methodology

Article 3 (1) of the EIA Directive as amended by Directive 2014/52/EU provides:

*“The environmental impact assessment shall identify, describe and assess in an appropriate manner, in the light of each individual case, the direct and indirect significant effects of a project on the following factors: (a) population and human health; (b) biodiversity, with particular attention to species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EC; (c) land, soil, water, air and climate; (d) material assets, cultural heritage and the landscape; (e) **the interaction between the factors referred to in points (a) to (d)**”.*

The consideration of interactive effects was an integrated process which commenced at the very outset of the project. At the initial stage of preparing the EIAR for the Proposed Development, the potential for significant interactions between environmental factors were examined and any potential effects were identified. These potential effects were included in the scope and addressed in the baseline and impact assessment studies for each of the relevant environmental factors.

There were numerous discussions and communications between the environmental specialists and the design team throughout the design process which helped to identify and minimise the potential for significant interactions of effects arising in the first instance.

The interaction of effects within the Proposed Development in respect of each of the environmental factors, listed in Article 3(1) of the EIA Directive, have been identified and addressed in detail in the respective chapters in this EIAR. Thus, no additional mitigation is proposed in this chapter.

Section 20.4 of this chapter presents a summary of each assessment of the interaction (inter-relationship) of effects (from the Proposed Development) between the various environmental factors. Mitigation measures relative to those interactions are addressed in individual chapters.

Refer to **Table 20.3** for the matrix of potential interactions.

20.3 Cumulative Impacts

20.3.1 Overview

This section presents an assessment of the potential impacts of the Proposed Development on the environment resulting from the cumulation of impacts with other existing and / or approved projects. The first stage was to identify the ‘other existing and / or approved projects’ both within and surrounding the Proposed Development site, to be included in the assessment. In addition, planned projects which have not yet been granted planning have also been considered where necessary. This process is described in Section 20.3.2.

20.3.2 Identification of plans and projects

A review was initially carried out to identify other existing and / or approved projects, taking into account any existing environmental concerns relating to areas of particular importance likely to be affected or the use of natural resources. A review was carried out on the planning files for:

- Cork County Council (CCC);
- An Bord Pleanála (ABP); and
- Department of Housing, Local Government and Heritage (DHLGH) EIA Portal.

As mentioned above, planned projects which have not yet been granted planning have also been considered where necessary.

Arising from this review, two nearby projects were identified which could have the potential for cumulative impacts. The assessment in this chapter considers and assesses whether any of these projects will likely have significant cumulative impacts in combination with the Proposed Development.

- **Project 1: Extension to existing Radisson Blu Hotel & Spa**

The Proposed Development is located approximately 50m north of the Radisson Blu Hotel & Spa at its closest point. Planning permission has been granted by CCC for the construction of a 30 no. bedroom, three storey extension to the existing hotel. This planning permission was granted in June 2022. Construction works on this project are expected to commence in 2024 or 2025.

- **Project 2: Construction of light industrial building, Euro Business Park**

The Proposed Development is located approximately 400m west of the Euro Business Park at its closest point. Planning permission has been granted by CCC for the construction of a light industrial building

divided into four separate units in the Euro Business Park. This planning permission was granted in April 2023.

20.3.3 Overall cumulative effects assessments

Table 20.1: Potential cumulative effects during the Construction Phase

Construction Phase		
Plan / project	Potential cumulative effects on environmental factors	Any residual significant negative cumulative effects?
Project 1: Extension to existing Radisson Blu Hotel & Spa	<p>Traffic and Transportation: At the time of writing, limited information was available regarding crucial factors such as the estimated traffic volumes generated by the different stages of this project and its construction timelines. While these circumstances hindered the possibility of conducting an accurate quantitative assessment of the cumulative impact of this project on the operation of the road network and traffic volumes around the Proposed Development, a negative, short term cumulative impact is nonetheless expected during the Construction Phase should the Construction Phase of this project overlap with that of the Proposed Development.</p> <p>In order to minimise this impact, it is crucial that the mitigation measures proposed in this EIAR and, where required, in the planning documents for the other permitted / Proposed Developments in the vicinity, are implemented during the Construction Phase.</p>	None
	<p>Landscape and Visual: This project is likely to give rise to moderate, negative and short-term cumulative landscape and visual effects during the Construction Phase.</p>	
	<p>Biodiversity: In the event that the Construction Phase of the Proposed Development was to overlap with this project, potential localised cumulative impacts could arise.</p> <p>Should this situation arise, construction activities will be planned and phased, in consultation with the relevant construction management team. Construction mitigation measures have been outlined in the CEMP which is included as Appendix 5.1 in Volume 4 of this EIAR. These measures will ensure that no significant cumulative noise / disturbance effects or habitat loss for local fauna will occur during construction works.</p> <p>Following mitigation, no significant adverse impacts from changes in local water quality were identified during the Construction Phase of the Proposed Development. Therefore, no cumulative impacts for water have been identified.</p> <p>It is noted that tree removal has been minimised in this project, which will remove 7 semi-mature trees. No significant cumulative impacts from habitat loss have been identified.</p> <p>Following the implementation of mitigation measures, no significant cumulative effects have been identified.</p>	
	<p>Noise and Vibration: Due to the proximity of this project to the Proposed Development, there is potential for cumulative noise and vibration impacts should its Construction Phase overlap with the Construction Phase of the Proposed Development.</p> <p>In the event of any concurrent noisy construction activity being carried out on the site of the Proposed Development and the adjacent Radisson Blue Hotel & Spa site, the Project Supervisor Construction Stage (PSCS) will ensure that controls</p>	

Construction Phase		
Plan / project	Potential cumulative effects on environmental factors	Any residual significant negative cumulative effects?
	and mitigation measures are implemented to ensure that no significant cumulative impacts will arise at nearby sensitive receptors.	
	Air Quality: Taking this project in combination with the Proposed Development, it is considered that there is a potential for short-term cumulative effects to air quality due to construction dust, should the Construction Phases overlap. However, given the implementation of the mitigation measures and low volumes of construction traffic associated with the Proposed Development, no significant cumulative air quality effects are predicted during the Construction Phase.	
	Climate: No potential cumulative effects identified.	
	Archaeology, Architectural and Cultural Heritage: No potential cumulative effects identified.	
	Population and Human Health: Refer to Landscape and Visual, Noise and Vibration, Air Quality and Major Accidents and / or Disasters.	
	Resources and Waste: Taking this project in combination with the Proposed Development, it is considered that they could give rise to short term, slight, negative resource and waste management impacts on the capacity of waste management facilities and waste industry trends in Ireland during the Construction Phase due to an increased demand on waste recovery and / or disposal sites. Appropriate mitigation measures have been proposed in this EIAR – and, where required, in the planning documents for this project – such that significant negative cumulative impacts are not predicted to occur.	
	Water: No potential cumulative effects identified.	
	Land, Soils, Geology and Hydrogeology: The nature and scale of this project are such that the development of the project in combination with the Proposed Development would not give rise to significant impacts on Land, Soils, Geology and Hydrogeology.	
	Material Assets: No potential cumulative effects identified.	
	Major Accidents and / or Disasters: There is potential for overlap between the Construction Phases of this project and the Proposed Development, which could result in a cumulative effect on water quality and / or traffic and transportation (in the form of a vehicle collision). However, with the implementation of the mitigation measures outlined in the CEMP (refer to Appendix 5.1 in Volume 4 of this EIAR) and the implementation of a CTMP for the Proposed Development, no significant negative cumulative effects are predicted.	

Construction Phase		
Plan / project	Potential cumulative effects on environmental factors	Any residual significant negative cumulative effects?
Project 2: Construction of light industrial building, Euro Business Park	<p>Traffic and Transportation: At the time of writing, limited information was available regarding crucial factors such as the estimated traffic volumes generated by the different stages of this project and its construction timelines. While these circumstances hindered the possibility of conducting an accurate quantitative assessment of the cumulative impact of this project on the operation of the road network and traffic volumes around the Proposed Development, a negative, short term cumulative impact is nonetheless expected during the Construction Phase should the Construction Phase of this project overlap with that of the Proposed Development.</p> <p>In order to minimise this impact, it is crucial that the mitigation measures proposed in this EIAR and, where required, in the planning documents for the other permitted / Proposed Developments in the vicinity, are implemented during the Construction Phase.</p>	None
	<p>Landscape and Visual: No potential cumulative effects identified.</p>	
	<p>Biodiversity: In the event that the Construction Phase of the Proposed Development was to overlap with this project, potential localised cumulative impacts could arise.</p> <p>Should this situation arise, construction activities will be planned and phased, in consultation with the relevant construction management team. Construction mitigation measures have been outlined in the CEMP which is included as Appendix 5.1 in Volume 4 of this EIAR. These measures will ensure that no significant cumulative noise / disturbance effects or habitat loss for local fauna will occur during construction works.</p> <p>Following mitigation, no significant adverse impacts from changes in local water quality were identified during the Construction Phase of the Proposed Development. Therefore, no cumulative impacts for water have been identified.</p> <p>While no detail on tree removal / habitat loss was included with this application, the site is located within an existing industrial setting and no significant impacts from cumulative habitat loss have been identified.</p> <p>Following the implementation of mitigation measures, no significant cumulative effects have been identified.</p>	
	<p>Noise and Vibration: No potential cumulative effects identified.</p>	
	<p>Air Quality: Taking this project in combination with the Proposed Development, it is considered that there is a potential for short-term cumulative effects to air quality due to construction dust, should the Construction Phases overlap. However, given the implementation of the mitigation measures and low volumes of construction traffic associated with the Proposed Development, no significant cumulative air quality effects are predicted during the Construction Phase.</p>	
	<p>Climate: No potential cumulative effects identified.</p>	
	<p>Archaeology, Architectural and Cultural Heritage: No potential cumulative effects identified.</p>	

Construction Phase		
Plan / project	Potential cumulative effects on environmental factors	Any residual significant negative cumulative effects?
	<p>Population and Human Health: Refer to Landscape and Visual, Noise and Vibration, Air Quality and Major Accidents and / or Disasters.</p> <p>Resources and Waste: Taking this project in combination with the Proposed Development, it is considered that they could give rise to short term, slight, negative resource and waste management impacts on the capacity of waste management facilities and waste industry trends in Ireland during the Construction Phase due to an increased demand on waste recovery and / or disposal sites.</p> <p>Appropriate mitigation measures have been proposed in this EIAR – and, where required, in the planning documents for this project – such that significant negative cumulative impacts are not predicted to occur.</p> <p>Water: No potential cumulative effects identified.</p> <p>Land, Soils, Geology and Hydrogeology: The nature and scale of this project are such that the development of the project in combination with the Proposed Development would not give rise to significant impacts on Land, Soils, Geology and Hydrogeology.</p> <p>Material Assets: No potential cumulative effects identified.</p> <p>Major Accidents and / or Disasters: There is potential for overlap between the Construction Phases of this project and the Proposed Development, which could result in a cumulative effect on water quality and / or traffic and transportation (in the form of a vehicle collision). However, with the implementation of the mitigation measures outlined in the CEMP (refer to Appendix 5.1 in Volume 4 of this EIAR) and the implementation of a CTMP for the Proposed Development, no significant negative cumulative effects are predicted.</p>	

Table 20.2: Potential cumulative effects during the Operational Phase

Operational Phase		
Plan / project	Potential cumulative effects on environmental factors	Any residual significant negative cumulative effects?
Project 1: Extension to existing Radisson Blu Hotel & Spa	Traffic and Transportation: No potential cumulative effects identified.	None
	Landscape and Visual: The location of the proposed extension to the hotel is separated from the Proposed Development by the existing hotel building and would be screened from view by the built form and established woodland to the north and east. Intervisibility between the Proposed Development and this project is likely to be very low and would be	

Operational Phase		
Plan / project	Potential cumulative effects on environmental factors	Any residual significant negative cumulative effects?
	<p>perceived as consistent with the peri-urban context of Little Island leading to slight, negative and permanent cumulative effects.</p> <p>Biodiversity: No potential cumulative operational impacts from noise and disturbance have been identified.</p> <p>Following mitigation, no significant adverse impacts from changes in local water quality were identified during the Operational Phase of the Proposed Development. Therefore, no cumulative impacts for water have been identified.</p> <p>It is noted that tree removal has been minimised in this project, which will remove 7 semi-mature trees. No significant cumulative impacts from habitat loss have been identified.</p> <p>Following the implementation of mitigation measures, no significant cumulative effects have been identified.</p> <p>Noise and Vibration: No potential cumulative effects identified.</p> <p>Air Quality: No potential cumulative effects identified.</p> <p>Climate: No potential cumulative effects identified.</p> <p>Archaeology, Architectural and Cultural Heritage: No potential cumulative effects identified.</p> <p>Population and Human Health: Refer to Landscape and Visual, Noise and Vibration, Air Quality and Major Accidents and / or Disasters.</p> <p>Resources and Waste: No potential cumulative effects identified.</p> <p>Water: No potential cumulative effects identified.</p> <p>Land, Soils, Geology and Hydrogeology: No potential cumulative effects identified.</p> <p>Material Assets: No potential cumulative effects identified.</p> <p>Major Accidents and / or Disasters: No potential cumulative effects identified.</p>	
Project 2: Construction of light industrial building, Euro Business Park	Traffic and Transportation: No potential cumulative effects identified.	None
	Landscape and Visual: No potential cumulative effects identified.	
	Biodiversity: No potential cumulative operational impacts from noise and disturbance have been identified.	

Operational Phase		
Plan / project	Potential cumulative effects on environmental factors	Any residual significant negative cumulative effects?
	<p>Following mitigation, no significant adverse impacts from changes in local water quality were identified during the Operational Phase of the Proposed Development. Therefore, no cumulative impacts for water have been identified.</p> <p>While no detail on tree removal / habitat loss was included with this application, the site is located within an existing industrial setting and no significant impacts from cumulative habitat loss have been identified.</p> <p>Following the implementation of mitigation measures, no significant cumulative effects have been identified.</p>	
	Noise and Vibration: No potential cumulative effects identified.	
	Air Quality: No potential cumulative effects identified.	
	Climate: No potential cumulative effects identified.	
	Archaeology, Architectural and Cultural Heritage: No potential cumulative effects identified.	
	Population and Human Health: Refer to Landscape and Visual, Noise and Vibration, Air Quality and Major Accidents and / or Disasters.	
	Resources and Waste: No potential cumulative effects identified.	
	Water: No potential cumulative effects identified.	
	Land, Soils, Geology and Hydrogeology: No potential cumulative effects identified.	
	Material Assets: No potential cumulative effects identified.	
	Major Accidents and / or Disasters: No potential cumulative effects identified.	

20.4 Interactive Impacts

20.4.1 Overview

All environmental factors are inter-related to some extent and the relationships can range from tenuous to inextricable. The potential interactions of environmental impacts were identified throughout the design process and measures addressing these impacts have already been included within the individual chapters of this EIAR. This assessment is based on information contained within this EIAR and the outcome of discussions and interactions between the environmental specialists and the design team.

The assessment of interactive effects has considered likely significant effects that may arise during construction and operation of the proposed development based on best scientific knowledge. A summary of these effects is presented in the matrix in **Table 20.3**. This is in line with the approach set out in the EPA EIAR Guidelines (EPA, 2022). Mitigation measures relevant to those interactions are addressed within the individual chapters of this EIAR.

Table 20.3: Interactive effects summary matrix

Typical inter relationship matrix – environmental elements	Traffic and Transportation		Landscape and Visual		Biodiversity		Noise and Vibration		Air Quality		Climate		Archaeology, Architectural and Cultural Heritage		Population and Human Health		Resources and Waste		Water		Land, Soils, Geology and Hydrogeology		Material Assets		Major Accidents and / or Disasters		
	Con.	Op.	Con.	Op.	Con.	Op.	Con.	Op.	Con.	Op.	Con.	Op.	Con.	Op.	Con.	Op.	Con.	Op.	Con.	Op.	Con.	Op.	Con.	Op.	Con.	Op.	
Traffic and Transportation															✓		✓					✓				✓	
Landscape and Visual					✓	✓																✓				✓	
Biodiversity			✓				✓	✓	✓										✓	✓		✓				✓	
Noise and Vibration	✓																					✓					
Air Quality	✓																					✓				✓	
Climate	✓																										
Archaeology, Architectural and Cultural Heritage																						✓					
Population and Human Health	✓	✓	✓	✓		✓	✓		✓																	✓	
Resources and Waste																						✓					
Water	✓	✓																				✓				✓	
Land, Soils, Geology and Hydrogeology																								✓			
Material Assets																											
Major Accidents and / or Disasters																											

Notes: This matrix should be read down, starting with each topic identified across the top header row. ✓ = imperceptible interaction. ✓ = not significant interaction. ✓ = slight interaction. ✓ = moderate interaction. Note: Blank cells indicate no interactive impact. Significant, very significant and profound interactive impacts were not identified. Con. = Construction Phase. Op. = Operational Phase.

20.4.2 Potential interactions

20.4.2.1 Traffic and Transportation

Noise and Vibration

There is a potential interaction between Noise and Vibration and Traffic and Transportation during the Construction Phase. This is likely to result from construction vehicles entering and moving around the site. Potential interactive impacts are predicted to be not significant during the Construction Phase.

Refer to **Chapter 10**, *Noise and Vibration* for further details.

Air Quality

There is a potential interaction between Traffic and Transportation and Air Quality during the Construction Phase due to emissions from the use of heavy goods vehicles and construction workers commuting to the site. However, this interactive impact will not be significant.

Refer to **Chapter 11**, *Air Quality* for further details.

Climate

Similar to Air Quality, there is a potential interaction between Traffic and Transportation and Climate during the Construction Phase due to emissions from the use of heavy goods vehicles and construction workers commuting to the site. Potential interactive impacts are predicted to be not significant during the Construction Phase.

Refer to **Chapter 12**, *Climate* for further details.

Population and Human Health

There is a potential interaction between Traffic and Transportation and Population and Human Health through an increase in air and noise emissions during the Construction and Operational Phases. However, as the increase in construction traffic is not expected to be significant when compared to existing road traffic volumes, no significant negative impacts on air quality and noise and vibration are predicted.

Potential interactive impacts are predicted to be not significant during both the Construction and Operational Phase.

Refer to **Chapter 14**, *Population and Human Health* for further details.

Water

There is a potential interaction between Traffic and Transportation and Water through leaks from vehicles during the Construction and Operational Phases. Potential interactive impacts are predicted to be not significant during both the Construction and Operational Phase.

Refer to **Chapter 16**, *Water* for further details.

Conclusion

Given the moderate scale of the construction activities, the minor impact of construction traffic and the implementation of the mitigation measures as described in the CEMP (refer to **Appendix 5.1** in **Volume 4** of this EIAR), no significant adverse residual negative interactive impacts are predicted.

20.4.2.2 Landscape and Visual

Biodiversity

The proposed landscaping works, including the planting of trees, to be completed as part of the Proposed Development will result in a slight, long term, positive impact on local biodiversity during the operation of the Proposed Development.

Refer to **Chapter 9**, *Biodiversity* for further details.

Population and Human Health

During construction, there will be a slight, temporary, negative interactive impact on the general amenity of the local population as a result of the change in landscape due to the presence of temporary hoarding / fencing, parking, deliveries, lighting, cranes etc.

Once operational, there is the potential for a permanent visual impact on the local community as a result of the Proposed Development. However, the design of the Proposed Development is sympathetic to the surrounding environment to ensure it will be successfully absorbed into the local area. Potential interactive impacts are predicted to be not significant during the Operational Phase.

Refer to **Chapter 14**, *Population and Human Health* for further details.

20.4.2.3 Biodiversity

Landscape and Visual

During the Construction Phase of the Proposed Development, the removal of existing trees and vegetation will result in moderate, negative and short-term landscape and visual impacts.

Once operational, the planting and local enhancement of public green space proposed as part of the Proposed Development, will have a moderate, positive and permanent impact on the site and its context.

Refer to **Chapter 8**, *Landscape and Visual* for further details.

Population and Human Health

Once operational, the planting and local enhancement of public green space proposed as part of the Proposed Development, will have a moderate, positive and permanent impact on Population and Human Health.

Refer to **Chapter 14**, *Population and Human Health* for further details.

20.4.2.4 Noise and Vibration

Biodiversity

Increased noise emissions have the potential directly affect biodiversity.

During the Construction Phase, noise emissions will occur as a result of construction works and construction traffic. Potential interactive impacts are predicted to be slight, negative and short term at a local geographic level during the Construction Phase.

During the Operational Phase, there will be increased noise along the new bridge and walkways. However, as the site is located in a highly disturbed setting adjacent to the N25, potential interactive impacts are predicted to be not significant during the Operational Phase.

Refer to **Chapter 9**, *Biodiversity* for further details.

Population and Human Health

Construction of the Proposed Development has the potential to create noise and vibration which could have an impact on Population and Human Health. Potential interactive impacts are predicted to neutral to slight and short term during the Construction Phase.

Refer to **Chapter 14**, *Population and Human Health* and **Chapter 10**, *Noise and Vibration* for further details.

20.4.2.5 Air Quality

Biodiversity

Increased air emissions due to dust arising during the Construction Phase have the potential to have an interactive impact on Biodiversity. However, potential interactive impacts are predicted to be not significant during the Construction Phase.

Refer to **Chapter 9**, *Biodiversity* for further details.

Population and Human Health

Dust and air emissions generated during the Construction Phase have the potential to have an interactive impact on Population and Human Health. However, potential interactive impacts are predicted to be not significant during the Construction Phase.

Refer to **Chapter 14**, *Population and Human Health* for further details.

20.4.2.6 Climate

No interactive impact is expected to occur as a result of Climate during either the Construction Phase or the Operational Phase.

20.4.2.7 Archaeology, Architectural and Cultural Heritage

No interactive impact is expected to occur as a result of Archaeology, Architectural and Cultural Heritage during either the Construction Phase or the Operational Phase.

20.4.2.8 Population and Human Health

Traffic and Transportation

The increase in construction personnel on site during the Construction Phase has the potential to increase traffic in the vicinity of the site. However, as the increase in construction traffic is not expected to be significant when compared to existing road traffic volumes, potential interactive impacts are predicted to be not significant during the Construction Phase.

Refer to **Chapter 7**, *Traffic and Transportation* for further details.

20.4.2.9 Resources and Waste

Traffic and Transportation

Excavated material that is to be removed off-site along with any material required to be imported for the construction of the Proposed Development will increase traffic in the vicinity of the site. However, as the increase in construction traffic is not expected to be significant when compared to existing road traffic volumes, potential interactive impacts are predicted to be not significant during the Construction Phase.

Refer to **Chapter 7**, *Traffic and Transportation* for further details.

20.4.2.10 Water

Biodiversity

The potential for adjacent watercourses to become impacted through spillages such as hydrocarbon leaks (fuels / oils / lubricants) from construction machinery or by siltation as a result of run-off during construction, which could have a slight, negative and temporary term interactive impact on aquatic species / fisheries in downstream watercourses at a local level during the Construction Phase. However, this effect will be managed by appropriate mitigation measures outlined in **Chapter 9**, *Biodiversity*, **Chapter 16**, *Water* and the CEMP (refer to **Appendix 5.1** in **Volume 4** of this EIAR).

Given the operational design measures which will be implemented for the Operational Phase, potential interactive impacts on aquatic species / fisheries in downstream watercourses at a level during the Operational Phase are predicted to be imperceptible and long term.

Refer to **Chapter 9**, *Biodiversity* for further details.

20.4.2.11 Land, Soils, Geology and Hydrogeology

Traffic and Transportation

Excavated material will be required to be removed off-site during the Construction Phase, resulting in an increase in construction traffic. However, as the increase in construction traffic is not expected to be

significant when compared to existing road traffic volumes, potential interactive impacts are predicted to be not significant during the Construction Phase.

Refer to **Chapter 7, *Traffic and Transportation*** for further details.

Landscape and Visual

There is a potential interaction between Land, Soils, Geology and Hydrogeology on Landscape and Visual during the Construction Phase as a result of stockpiles of excavated materials being stored on site. However, with the implementation of hoarding / fencing and other mitigation measures, as outlined in the CEMP (refer to **Appendix 5.1** in **Volume 4** of this EIAR), this interactive impact is predicted to be not significant.

Refer to **Chapter 8, *Landscape and Visual*** for further details.

Biodiversity

The construction of the Proposed Development will include the removal of some habitats to facilitate the construction works. However, this interactive impact is predicted to be not significant following the implementation of the mitigation measures, as outlined in **Chapter 9, *Biodiversity***.

Refer to **Chapter 9, *Biodiversity*** for further details.

Noise and Vibration

In addition to Air Quality, Noise and Vibration has the potential to be affected as a result of excavation works during Construction Phase. This interactive impact is predicted to be neutral to slight and short term during the Construction Phase, given the implementation of mitigation measures outlined in **Chapter 10, *Noise and Vibration***.

Refer to **Chapter 10, *Noise and Vibration*** for further details.

Air Quality

Considering that the excavation of land and soils will generate dust emissions, there is potential for an interactive impact from soiling, PM₁₀ and vegetation effects arising from construction activities. However, this interactive impact is predicted to be not significant following the implementation of the mitigation measures, as outlined in **Chapter 11, *Air Quality***.

Refer to **Chapter 11, *Air Quality*** for further details.

Archaeology, Architectural and Cultural Heritage

It is possible that ground disturbances associated with the Proposed Development may result in direct negative impacts on any potential archaeological sites which may survive below the ground surface.

However, licenced archaeological monitoring of all ground works will be undertaken during construction. If features of archaeological significance are identified, further mitigation will be required following consultation with the County Archaeologist and National Monument Service. Such features will be fully resolved to professional standards of archaeological practice either by preservation in situ or preservation by record. Potential interactive impacts are therefore predicted to be not significant during the Construction Phase.

Refer to **Chapter 13, *Archaeology, Architectural and Cultural Heritage*** for further details.

Resources and Waste

There is a potential interaction between Land, Soils, Geology and Hydrogeology and Resources and Waste during construction due to waste arising from the proposed excavation works. The estimated quantity of excavated materials that will be generated is approximately 3,000 tonnes. However, re use / recycling / recovery activities will be employed where possible to reduce any potential impacts from the generation of this material. This interactive impact is predicted to be slight, negative and short term during the Construction Phase.

Refer to **Chapter 15, *Resources and Waste*** for further details.

Water

Excavation works during construction have the potential to cause a direct impact on water quality through siltation as a result of runoff and erosion from site earthworks and stockpiles. However, with the implementation of suitable mitigation measures as detailed in **Chapter 17, Land, Soils, Geology and Hydrogeology**, **Chapter 16, Water** and the CEMP (refer to **Appendix 5.1** in **Volume 4** of this EIAR), this interactive impact is predicted to be not significant.

Refer to **Chapter 16, Water**, **Chapter 17, Land, Soils, Geology and Hydrogeology** and the CEMP for further details.

20.4.2.12 *Material Assets*

Land, Soils, Geology and Hydrogeology

Minor excavations will be required for both the re-routing of the existing MV overhead line traversing through the northern park area and the proposed protection measures and easements to be implemented for the existing water main pipelines that traverse the site. Excavation works during these works have the potential to cause a direct impact on water quality through siltation as a result of runoff.

However, due to the minor nature of these works and the implementation of suitable mitigation measures as detailed in **Chapter 16, Water**, **Chapter 17, Land, Soils, Geology and Hydrogeology** and the CEMP (refer to **Appendix 5.1** in **Volume 4** of this EIAR), this interactive impact is predicted to be imperceptible during the Construction Phase.

20.4.2.13 *Major Accidents and / or Disasters*

Traffic and Transportation

There is potential for an interaction between Major Accidents and / or Disasters and Traffic and Transportation in the event of a vehicle collision involving construction traffic during the Construction Phase. This interactive impact is predicted to be imperceptible.

Landscape and Visual

During both the Construction Phase and the Operational Phase, there is potential for an interaction between Major Accidents and / or Disasters and Landscape and Visual in the event of the collapse / damage to structures / the bridge. This has been accounted for in the Proposed Development through the use of design guidance and standards. This interactive impact is predicted to be imperceptible.

Biodiversity

The occurrence of a Major Accident and / or Disaster during either the Construction Phase or the Operational Phase has the potential to affect the surrounding Biodiversity. This interactive impact is predicted to be imperceptible.

Air Quality

There is potential for an interaction between Major Accidents and / or Disasters and Air Quality in the event of a fire / explosion occurring during the Construction Phase. This interactive impact is predicted to be imperceptible.

Population and Human Health

The occurrence of a Major Accident and / or Disaster during either the Construction Phase or the Operational Phase has the potential to affect Population and Human Health. This interactive impact is predicted to be imperceptible.

Water

Major Accidents and / or Disasters have the potential to contaminate watercourses adjacent to the site during the Construction Phase and the Operational Phase. The risk of striking the water mains supply pipeline traversing the site is also present during the excavation works during the Construction Phase. These interactive impacts are predicted to be imperceptible.

20.5 References

Cork County Council (2023). Search for a Planning Application. Available at: <http://planning.corkcoco.ie/ePlan/SearchTypes> [Accessed: February 2023]

Department of Housing, Planning and Local Government (2018). Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment, August 2018.

Department of Housing, Local Government and Heritage (2020). EIA Portal.

Environmental Protection Agency (EPA) (2022). Guidelines on the Information to be contained in Environmental Impact Assessment Reports, May 2022.

European Commission (2017). Environmental Impact Assessment of Projects – Guidance on the preparation of the Environmental Impact Assessment Report. (Office for Official Publications of the European Communities 2017).

European Commission (1999). Guidelines for the Assessment of Indirect and Cumulative Effects as well as Impact Interactions, (Office for Official Publications of the European Communities 1999).