N25 Little Island Pedestrian and Cyclist Bridge Environmental Impact Assessment Report



Chapter 22 Summary of F

Summary of Residual Impacts

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22. Summary of Residual Impacts

22.1 Introduction

This chapter summarises the potential residual impacts which may result from the Construction, Operational and Decommissioning Phases of the N25 Little Island Pedestrian and Cyclist Bridge (hereafter referred to as the Proposed Development). Please refer to **Chapter 7** to **Chapter 20** of this EIAR for the full impact assessments.

Residual impacts are the final or intended impacts which occur after the proposed mitigation measures have been implemented. They refer to the degree of change that will occur after the proposed mitigation measures have taken effect.

The terminology used in this chapter to describe the residual impact significance reflects the assessment terminology and guidelines used within **Chapter 7** to **Chapter 20** of the EIAR. The terminology used is as per the Environmental Protection Agency's (EPA) Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EPA, 2022).

22.2 Residual Impacts

22.2.1 Traffic and Transportation

22.2.1.1 Construction Phase

Following the adoption of the mitigation measures for the Construction Phase, the additional traffic associated with the construction of the Proposed Development is anticipated to have a short-term, negative and not significant impact on the public road network and its users for the duration of the construction works.

22.2.1.2 Operational Phase

No significant negative residual impacts on traffic and transportation are envisaged during the Operational Phase. The overall impact of the Proposed Development during the Operational Phase is assessed as permanent, positive and significant.

22.2.1.3 Decommissioning

Following the adoption of the mitigation measures for the Decommissioning Phase, the additional traffic associated with the decommissioning of the Proposed Development is anticipated to have a temporary, negative and not significant impact on the public road network and its users for the duration of the decommissioning works.

22.2.2 Landscape and Visual

The Proposed Development requires the removal of 103 no. individual trees, 5 no. part-groups (i.e., sections of a tree group) and 13 no. tree groups along the route of the proposed bridge and access ramps, primarily within the woodland situated between the N25 and the Radisson Blu Hotel. The estimated total number of trees to be removed on site is 277. This will result in significant, negative and short to medium-term residual landscape and visual effects at construction, which will recede to moderate, neutral and long-term residual effects as the new landscape planting establishes and matures.

Once complete and operational, the Proposed Development will have an overall moderate, positive and permanent residual effect on the site and its context. Direct benefits will arise from the improved accessibility and connectivity for people to take active forms of travel and public transport, along with the local enhancement of public green space.

There will also be wider indirect benefits to people arising from the Proposed Development through its support of modal shift to sustainable forms of travel, thereby reducing vehicle movements to / from Little Island and the improvement in the local environment for people that flows from this.

22.2.3 Biodiversity

22.2.3.1 Designated sites

Potential impacts on designated Natura 2000 sites (SAC / cSAC / SPA) are specifically addressed in the Report for Screening for Appropriate Assessment (AA) This report concluded the following:

"The Proposed N25 Pedestrian and Cycle Bridge, Little Island, Cork, either alone or in-combination with other plans and / or projects, does not have the potential to significantly affect any European Site, in light of their conservation objectives.

Therefore, a Stage 2 Appropriate Assessment is deemed not to be required."

Similarly, no significant effects on NHAs / pNHAs will occur.

22.2.3.2 Habitats

The removal of areas of mature and semi-mature trees within the mixed-broadleaved woodland and treeline habitats at the Proposed Development site will have a negative, moderate and short to medium-term impact at a local level. Some areas of the site will be replanted with native species and as these trees mature, they will provide high value habitat. Wet willow woodland habitat on the north of the site will be largely avoided by construction works and retained. Temporary impacts will occur within the Kilcoolishal Stream and drainage ditches. However, these areas will be reinstated following construction works.

The removal of low value habitats such as low value hedgerow, amenity grassland and small areas of dry meadows and grassy verge will have a negative, not significant and short-term impact. However, these lower value habitats will be largely replaced by landscape planting as outlined in the landscape masterplan, included as Drawing No. LIPB-BSM-ZZ-XX-DR-L-0001 in **Volume 3** of this EIAR.

The residual effects from habitat loss are predicted to be negative, moderate and short to medium-term at a local level.

22.2.3.3 Invasive species

No residual impacts have been identified.

22.2.3.4 Otter

The Proposed Development site is of low value for Otter. Given the limited Otter use of this area and the lack of direct impacts on aquatic habitats, following water quality mitigation the impacts during construction are predicted to be negative, imperceptible and short-term.

Otters are generally nocturnal in habit and in many circumstances can tolerate high levels of human presence and disturbance. Otters which use this area are also habituated to comparable levels of disturbance and no significant disturbance impacts are predicted to occur during operation of the Proposed Development.

No significant residual impacts on Otters have been identified.

22.2.3.5 Bats

Overall, the loss of semi-natural woodland habitats, particularly on the southern boundary of the N25, will reduce the foraging / commuting habitats available for bats. While replanting in this area with native woodland will partially replace the habitat which has been removed, light spillage will continue to impact on this woodland area in the long-term. This is likely to reduce the value of this woodland habitat for foraging bats. Light trespass onto the retained woodland habitats could potentially prevent Brown Long-eared Bat from foraging in this area during operation. Common bat species, which are more tolerant of light spillage i.e., Common and Soprano Pipistrelle and Leisler's Bat are likely to continue to forage with retained and newly planted habitats.

Newly planted areas along the northern side of the N25 will provide new foraging areas for bats within the Proposed Development site as these habitats mature. However, given the levels of disturbance, lighting and the smaller numbers of bats foraging to the north of the N25, this is likely to provide low value foraging

habitat for bats. The provision of bat boxes will provide potential roosting sites for bats within the Proposed Development site.

The residual impacts on bats will be negative, slight to moderate and long term.

22.2.3.6 Other mammals

The habitats to be affected are common and there is no evidence to indicate that the Proposed Development areas are of particular value for these species in the context of the surrounding countryside. During the Construction Phase, disturbance and site clearance works are predicted to have a negative, slight and short-term impact on other mammal species.

Mammals are generally nocturnal in habit and in many circumstances can tolerate high levels of human presence and disturbance. Mammals which use this area are also habituated to comparable levels of disturbance and no significant disturbance impacts are predicted to occur during operation of the Proposed Development.

Newly landscaped areas within the Proposed Development site will provide alternative foraging and areas of cover for small mammals as the planting matures. Log piles will provide refuges for small mammals in newly landscape areas.

The residual impact on small mammals is predicted to be negative, not significant and long-term.

22.2.3.7 Breeding birds

In the short to medium term, the loss of common habitats associated with site clearance works and disturbance will have a slight, negative impact on breeding birds. However, as newly planted and enhanced habitats within the Proposed Development site mature, this impact will be reduced. Bird boxes will also provide nesting habitat for a range of common bird species.

The residual impact on birds is predicted to be negative, not significant and long-term at a local level.

22.2.3.8 Wintering birds

No significant residual impacts on wintering birds have been identified.

22.2.3.9 Reptiles and amphibians

Although unlikely, given the overgrown nature of the site and low biodiversity value of watercourse / drainage ditches, short-term disturbance of the drainage ditches and Kilcoolishal Stream at the site could potentially have a temporary, negative impact on amphibian species. As a precaution, mitigation measures have been specified to prevent direct impacts on amphibians.

Residual effects on amphibians are predicted to be neutral, imperceptible and long-term.

No residual effects on reptiles have been identified.

22.2.3.10 Other species

The Kilcoolishal Stream provides limited potential for fish, due to significant culverting and sluggish flows. Mitigation measures will ensure that the stream and drainage ditches at the site are reprofiled following construction. There will be no significant residual effects on this watercourse as a result of the Proposed Development.

Construction mitigation measures and operational design measures will ensure that the residual effects on fish and aquatic invertebrate species in downstream receptors is neutral, imperceptible and long-term at a local level.

The loss of semi-nature habitats at the site will reduce habitats for terrestrial invertebrates in the short-term. However, the landscape plan, included as Drawing No. LIPB-BSM-ZZ-XX-DR-L-0001 in **Volume 3** of this EIAR, which includes use of native trees and pollinator species, will provide new and enhanced habitats for invertebrate species.

The residual effect on terrestrial invertebrates is predicted to be neutral, imperceptible and long-term.

22.2.4 Noise and Vibration

22.2.4.1 Construction Phase

A summary of the residual impacts of construction noise for the worst-case construction stage (i.e., site clearance and preparation) considered is presented in **Table 22.1**.

It is assumed that an acoustic barrier will be installed as mitigation for all working areas which will reduce noise levels by approximately 10dB.

Noise sensitive receptor	Existing noise level (dB)	Predicted noise level (pre- mitigation), L _{Aeq} [dB]	Potential impact (pre-mitigation)	Predicted noise level (post mitigation), L _{Aeq} [dB]	Predicted impact (post mitigation)
Radisson Blu Hotel (at 50m)	65	72	Moderate to major, negative impact. Short- term.	62	Neutral to slight impact. Short- term.
Residential properties to the north of the Proposed Development (at 80m)	62	68	Moderate to major, negative impact. Short- term.	58	Neutral to slight impact. Short- term.
Residential properties to the north and northwest of the Proposed Development (at 300m)	55	56	Neutral to slight, negative impact. Short-term.	46	Neutral to slight impact. Short- term.

Table 22.1: Summary of residual noise impacts from construction noise

A neutral to slight, short-term residual impact is predicted at the Radisson Blu Hotel, the residential properties to the north of the Proposed Development and the residential properties to the northwest of the Proposed Development, once mitigation measures have been implemented.

Predicted noise levels in this report are worst case, with all construction plant operating simultaneously during the worst-case stage -i.e., site clearance and preparation. It is unlikely that the predicted noise level will occur over the full construction period.

Table 22.2 outlines the residual impacts for the worst-case scenario if night time piling is required and if rotary bored piling is used as the chosen piling method.

Table 22.2: Summary of r	esidual noise i	mpacts from night ti	me piling works	

Assessment topic / receptor	Existing noise level (dB)	Predicted noise level (pre- mitigation), L _{Aeq} [dB]	Potential impact (pre-mitigation)	Predicted noise level (post mitigation), L _{Aeq} [dB]	Predicted impact (post mitigation)
50m	55	70	Significant negative impact. Temporary.	60	Slight to moderate impact. Temporary.
100m	50	64	Significant negative impact. Temporary.	54	Slight to moderate impact. Temporary.
200m	50	58	Moderate to major negative impact. Temporary.	48	Neutral to slight impact. Temporary.
300m	45	54	Moderate to major negative impact. Temporary.	44	Neutral to slight impact. Temporary.

A negative, slight to moderate, short-term residual impact is predicted at noise sensitive receptors located less than 100m from the Proposed Development, while a neutral to slight negative, short-term residual impact is predicted at noise sensitive receptors located 200m or greater from the Proposed Development, once mitigation measures have been implemented.

22.2.4.2 Operational Phase

The Operational Phase of the Proposed Development has the potential to generate a positive residual impact on noise and vibration due to a modal shift from private car to more sustainable modes, resulting in a possible decrease in traffic noise and vibration. No negative residual Operational Phase impacts are likely to occur.

22.2.4.3 Decommissioning Phase

No significant negative residual noise and vibration impacts are expected as a result of the decommissioning of the Proposed Development.

22.2.5 Air Quality

22.2.5.1 Construction Phase

With the implementation of mitigation measures, no significant negative residual effects on air quality are envisaged during the Construction Phase.

22.2.5.2 Operational Phase

There are no significant negative residual air quality effects expected as a result of the operation of the Proposed Development.

22.2.5.3 Decommissioning Phase

There are no significant negative residual air quality effects expected as a result of the decommissioning of the Proposed Development.

22.2.6 Climate

Any potential negative impacts generated during the Construction Phase of the development will be offset by the potential carbon reductions during the Operational Phase. Over the lifespan of the Proposed Development, a beneficial and long-term impact on climate is expected as the Proposed Development will result in a modal shift to walking, cycling and public transport.

There are no significant negative residual effects associated with climate change vulnerability predicted for the Proposed Development.

22.2.7 Archaeology, Architectural and Cultural Heritage

Following the implementation of mitigation measures, no significant negative residual archaeological, architectural or cultural heritage effects are predicted.

22.2.8 Population and Human Health

22.2.8.1 Construction Phase

There are no significant negative residual impacts on population and human health expected as a result of the construction of the Proposed Development.

A slight, positive, temporary impact on the population of County Cork, particularly those in the Caherlag electoral division, will arise through employment generation during the Construction Phase.

22.2.8.2 Operational Phase

There are no significant negative residual impacts on population and human health expected as a result of the operation of the Proposed Development.

A moderate, positive, long-term impact on the population of County Cork, particularly those in Caherlag electoral division, will arise as a result of the Proposed Development promoting a modal shift to walking, cycling and public transport.

22.2.8.3 Decommissioning Phase

There are no significant negative residual impacts on population and human health expected as a result of the decommissioning of the Proposed Development.

22.2.9 Resources and Waste

22.2.9.1 Construction Phase

The Construction Phase of the Proposed Development is not predicted to give rise to any significant residual impacts with the adoption of the waste management principles and with the implementation of the identified mitigation measures. A summary of the predicted residual impacts during the Construction Phase, following the implementation of the appropriate mitigation measures, is set out in **Table 22.3**.

Table 22.3: Summary of residual resources and waste impacts during the Construction Phase

Assessment topic	Residual impact
Site clearance waste	Negative, not significant and short-term
Excavation waste	Negative, not significant and short-term
Imported material	Negative, slight and long-term
Construction waste	Negative, not significant and short-term
Municipal waste	Negative, imperceptible and short-term

22.2.9.2 *Operational Phase*

The Operational Phase of the Proposed Development is not predicted to give rise to any significant residual impacts with the adoption of the waste management principles and with the implementation of the identified mitigation measures. The predicted residual impact during the Operational Phase will be negative, not significant and long-term.

22.2.9.3 Decommissioning Phase

The Decommissioning Phase of the Proposed Development is not predicted to give rise to any significant residual impacts with the adoption of the waste management principles and with the implementation of the identified mitigation measures. The predicted residual impact during the Decommissioning Phase will be negative, not significant and short-term.

22.2.10 Water

22.2.10.1 Construction Phase

Following the implementation of mitigation measures, there will be no significant residual impacts on water quality, the hydrological regime and onsite drainage infrastructure, including both surface water and foul drainage, during construction.

22.2.10.2 Operational Phase

The Proposed Development is predicted to have an overall imperceptible, long-term residual impact on water quality, the hydrological regime and onsite drainage infrastructure, including both surface water and foul drainage, within the study area during operation.

A small section of the approach ramp on the northern side of the bridge will be at risk of flooding during the Operational Phase. However, the flood extent is small and the volume of flood displaced will also be small.

Furthermore, a development management Justification Test has been completed which concluded that the Proposed Development would be appropriate at the proposed location and would not interfere with the floodplain area. Therefore, there will be no significant residual impact on flood risk caused by the operation of the Proposed Development.

22.2.10.3 Decommissioning Phase

It is not anticipated that there will be any significant residual impacts arising from the Decommissioning Phase of the Proposed Development.

22.2.11 Land, Soils, Geology and Hydrogeology

22.2.11.1 Construction Phase

With the effective implementation of mitigation measures, there will be no significant residual impacts on land, soils, geology or hydrogeology as a result of the construction of the Proposed Development. Refer to **Table 22.4**.

22.2.11.2 Operational Phase

It is expected that there will be no significant residual impacts on land, soils, geology and hydrogeology as a result of the operation of the Proposed Development. Refer to **Table 22.5**.

22.2.11.3 Decommissioning Phase

It is not anticipated there will be any significant residual impacts on land, soils, geology and hydrogeology arising from the Decommissioning Phase of the Proposed Development.

Table 22.4: Summa	ry of residual land, so	oils, geology and hydrogeology impacts	during the Co	nstruction Phase					
Feature	Description	Location	Importance	Impact	Quality	Duration	Scale	Magnitude	Post mitigation residual significance
Loss or damage of	topsoil								
Topsoil	AlluvMIN	Northwest boundary of the Proposed Development site	Medium	Loss or damage of topsoil	Negative	Permanent	Local	Negligible	Imperceptible
	AminDW	Northern boundary and southern section of the Proposed Development site	High	Loss or damage of topsoil	Negative	Permanent	Local	Negligible	Imperceptible
	BminSW	Central section of the Proposed Development site	Medium	Loss or damage of topsoil	Negative	Permanent	Local	Negligible	Imperceptible
Loss of solid geolog	ŝ								
Bedrock	Cuskinny Member (KNcu)	North and west of the Proposed Development	Low	Loss of solid geology	Negative	Permanent	Local	Negligible	Imperceptible
	Gyleen (GY)	South of the Proposed Development.	Low	Loss of solid geology	Negative	Permanent	Local	Negligible	Imperceptible
Earthworks haulag	şe								
Topsoil	Made Ground	Site construction areas	Low	Loss or damage of topsoil	Negative	Temporary	Local	Negligible	Imperceptible
	AminDW	Site construction areas	High	Loss or damage of topsoil	Negative	Temporary	Local	Negligible	Imperceptible
	AlluvMIN	Site construction areas	Medium	Loss or damage of topsoil	Negative	Temporary	Local	Negligible	Imperceptible
Impact on the surr	ounding ground								
Topsoil	Made Ground	Site construction areas	Low	Soil movement or settlement	Negative	Temporary	Local	Negligible	Imperceptible

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Feature	Description	Location	Importance	Impact	Quality	Duration	Scale	Magnitude	Post mitigation residual significance
	AminDW	Site construction areas	High	Soil movement or settlement	Negative	Temporary	Local	Negligible	Imperceptible
	AlluvMIN	Site construction areas	Medium	Soil movement or settlement	Negative	Temporary	Local	Negligible	Imperceptible
Subsoil	A	Site construction areas	Low	Soil movement or settlement	Negative	Temporary	Local	Negligible	Imperceptible
	GDSs	Site construction areas	Low	Soil movement or settlement	Negative	Temporary	Local	Negligible	Imperceptible
	TDSs	Site construction areas	Low	Soil movement or settlement	Negative	Temporary	Local	Negligible	Imperceptible
Excavation of pote	ntially contaminated la	and							
Contaminated Ground	Made Ground	Throughout the Proposed Development	Medium	Soil contamination	Negative	Permanent	Local	Small adverse	Slight
Mobilisation of cor	ntamination into aquife	ers							
Aquifer	Locally Important Gravel Aquifer	Throughout	Medium	Contamination of the aquifer	Negative	Permanent	Local	Small ad verse	Slight
	Bedrock – Locally Important Aquifer	Throughout	Medium	Contamination of the aquifer	Negative	Permanent	Local	Small ad verse	Slight
Mobilisation of cor	ntamination into envir	onmentally sensitive sites							
Environmentally sensitive sites	Cork Harbour SPA	Less than 1km to the east of the Proposed Development	Extremely High	Contamination of the site	Negative	Permanent	Local	Negligible	Imperceptible
	Great Island Channel SAC and pNHA	Less than 1km to the east of the Proposed Development (SAC) and less than 500m to the east of the Proposed Development (pNHA)	Extremely High	Contamination of the site	Negative	Permanent	Local	Negligible	Imperceptible

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Feature	Description	Location	Importance	Impact	Quality	Duration	Scale	Magnitude	Post mitigation residual significance
	Dunkettle Shore pNHA	Between 1-2km west of the Proposed Development.	Very High	Contamination of the site	Negative	Permanent	Local	Negligible	Imperceptible
Dewatering									
Aquifer	Locally Important Gravel Aquifer	Throughout	Medium	Contamination of the aquifer	Negative	Temporary	Local	Negligible	Imperceptible
	Bedrock – Locally Important Aquifer	Throughout	Medium	Contamination of the aquifer	Negative	Temporary	Local	Negligible	Imperceptible

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			•						
Feature	Description	Location	Importance	Impact	Quality	Duration	Scale	Magnitude	Post mitigation residual significance
Mobilisation of co	ntamination into aquifi	ers							
Aquifer	Locally Important Gravel Aquifer	Throughout	Medium	Contamination of the aquifer	Negative	Permanent	Local	Negligible	Imperceptible
	Bedrock – Locally Important Aquifer	Throughout	Medium	Contamination of the aquifer	Negative	Permanent	Local	Negligible	Imperceptible
Mobilisation of co	ntamination into envirc	onmentally sensitive sites							
Environmentally sensitive sites	Cork Harbour SPA	Less than 1km to the east of the Proposed Development	Extremely High	Contamination of the site	Negative	Permanent	Local	Negligible	Imperceptible
	Great Island Channel SAC and pNHA	Less than 1km to the east of the Proposed Development (SAC) and less than 500m to the east of the Proposed Development (pNHA)	Extremely High	Contamination of the site	Negative	Permanent	Local	Negligible	Imperceptible
	Dunkettle Shore pNHA	Between 1-2km west of the Proposed Development.	Extremely High	Contamination of the site	Negative	Permanent	Local	Negligible	Imperceptible
Loss of recharge to	o aquifer								
Aquifer	Locally Important Gravel Aquifer	Throughout	Medium	Contamination of the aquifer	Negative	Temporary	Local	Negligible	Imperceptible
	Bedrock – Locally Important Aquifer	Throughout	Medium	Contamination of the aquifer	Negative	Temporary	Local	Negligible	Imperceptible

Table 22.5: Summary of residual land, soils, geology and hydrogeology impacts during the Operational Phase

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22.2.12 Material Assets

No significant negative residual impacts on material assets are predicted as a result of the Proposed Development.

22.2.13 Risk of Major Accidents and / or Disasters

No plausible major accidents and / or disasters were identified, to which the Proposed Development will be particularly vulnerable during the Construction, Operational or Decommissioning Phase.

No plausible potential risks were identified which would result in the Proposed Development causing a major accident and / or disaster on or outside the site during the Construction, Operational or Decommissioning Phase.

22.2.14 Cumulative and Interactive Impacts

No significant negative residual cumulative or interactive impacts are predicted as a result of the Proposed Development.

22.3 References

Chartered Institute of Ecology and Environmental Management (CIEEM) (2016). Guidelines on Ecological Impact Assessment in the UK and Ireland, 2nd edition.

CIEEM (2019). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, Version 1.1.

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