Comhairle Contae Chorcaí
Cork County Council

ARUP

N25 Little Island Pedestrian and Cyclist Bridge

Environmental Impact Assessment Report

Volume 1
Non-Technical Summary

September 2023

Preface

Preface - Volume 1

The structure of this Environmental Impact Assessment Report (EIAR) for the N25 Little Island Pedestrian and Cyclist Bridge (hereafter referred to as the Proposed Development) is summarised as follows:

Volume 1: Non-Technical Summary

Volume 1 provides a non-technical summary of the information contained in Volume 2 of the EIAR.

Volume 2: Main Environmental Impact Assessment Report

Volume 2 provides a general introduction, outlines the environmental impact assessment process, describes the scope of the Proposed Development, presents the consideration of reasonable alternatives and describes the environmental impacts specific to the Proposed Development.

Volume 3: Figures

Volume 3 provides drawings and large format images (labelled as 'Figures') that illustrate the information detailed in Volume 2 of the EIAR.

Volume 4: Appendices

Volume 4 provides documentation and data that is supplemental to the information provided in Volume 2 of the EIAR.

N25 Little Island Pedestrian and Cyclist Bridge
Environmental Impact Assessment Report

Non-Technical Summary

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1. Introduction

This document is the Non-Technical Summary (NTS) of the Environmental Impact Assessment Report (EIAR) prepared on behalf of Cork County Council (CCC) for the proposed pedestrian and cyclist bridge (referred to as the Proposed Development throughout this NTS) located in Little Island, County Cork.

CCC have identified the benefits associated with the provision of a new pedestrian and cyclist bridge to enhance sustainable transport and active transport within the Eastgate Business Park and the surrounding area. The proposed bridge will cross the N25 and the Cork City to Midleton Cobh railway line and connect the Little Island train station, the L3004 Glounthaune Road and the Dunkettle to Carrigtwohill pedestrian and cycle route to the Eastgate Business Park in Little Island, Cork.

This NTS summarises the findings of the EIAR in a clear, accessible format that uses non-technical language and supporting graphics.

1.1 Environmental Impact Assessment Process

Environmental Impact Assessment is a process that examines the potential environmental impacts of a Proposed Development and establishes appropriate design and mitigation measures to avoid, reduce or offset impacts.

The EIAR reports the findings of an assessment of the environmental impacts of the Proposed Development.

The purpose of the EIAR is to:

- Describe the baseline conditions before any work has commenced;
- Describe the Proposed Development;
- Describe the assessment methodologies used to assess the potential environmental impacts of the Proposed Development;
- Describe environmental issues and any likely significant effects which may rise during the construction, operational and Decommissioning Phases of the Proposed Development;
- Propose mitigation measures to reduce or avoid these impacts;
- Identify the significant residual impacts (if any) which occur after the proposed mitigation measures have been implemented; and
- Identify any cumulative and interactive impacts between the various environmental factors as a result of interaction within the Proposed Development or with other projects.

All assessments have been carried out in accordance with best practice and applicable guidelines. Some chapters of the EIAR use specific guidelines related purely to that particular discipline. No difficulties were encountered during the preparation of the EIAR.

1.2 Consultation

Extensive consultation has been undertaken with the relevant stakeholders during the development of the EIAR to:

- Provide information on the Proposed Development;
- Ascertain and understand the views of stakeholders; and
- Seek input from stakeholders on the design, construction and assessment aspects of the Proposed Development.

Several statutory and non-statutory bodies were consulted to ensure that issues relating to the Proposed Development were addressed.

CCC also engaged with landowners and / or anyone with an interest in potentially impacted properties or lands within the footprint of the Proposed Development as the design development progressed.

Over the course of the engagements, affected property owners have had the opportunity to discuss, among other things, the following aspects with CCC:

- Development proposals and potential impacts;
- Timelines for the design development and associated EIAR assessment;
- Procedural matters such as the planning and Compulsory Purchase Order process; and
- Specific details on the impact of the Proposed Development on landowner property including approximate extent of encroachment.

2. Background and Need for the Scheme

CCC undertook the Little Island Transportation Study in 2017 to identify the existing transport issues in Little Island and to explore potential solutions which would ensure an integrated and balanced approach to transport for the Little Island area in the future. Support for the Little Island Transport Study Strategy Design Report was received from the elected members of Cork County Council Cobh Municipal District in February 2019.

On foot of this support, Arup was commissioned to design the short-term interventions identified in the Little Island Transport Study. This project, called the Little Island Sustainable Transport Interventions (LISTI), comprises a series of measures which can be implemented to achieve an immediate improvement in the transport issues in Little Island. The N25 pedestrian and cyclist bridge (i.e., the Proposed Development) is one of these measures.

The objective of the proposed bridge is to provide efficient pedestrian and cycle connectivity between the Little Island train station and the Eastgate Business Park, connect to the Dunkettle to Carrigtwohill pedestrian and cycle route and promote sustainable transport modes while minimising impacts on the surrounding area and environment.

The shift from private vehicles and public transport to other modes of transport is key to creating a more people friendly environment and improved metropolitan areas. The Proposed Development supports the need for a shift towards sustainable transport and will provide additional cycling and walking facilities in the Cork Metropolitan Area which will foster sustainable and healthy behaviours. It will provide efficient pedestrian and cycle connectivity between the Little Island train station and the Eastgate Business Park, thereby addressing the goals and objectives of the Little Island Transport Strategy, as well as national and regional policies.

3. Alternatives Considered

A number of alternative scenarios for the Proposed Development were considered, including an alternative do-nothing scenario, alternative sites for the Proposed Development, alternative bridge alignment options and alternative structural options for the bridge and approach ramps.

3.1 Do-Nothing Alternative

The option of not proceeding with the Proposed Development (the ‘do-nothing’ alternative) was considered. The assessment for the ‘do-nothing’ alternative concluded that:

- Key objectives of the Little Island Transport Strategy which identify improvements for the pedestrian and cycle network in Little Island, Cork would not be achieved;

- The existing infrastructure is not sufficient to cater for the predicted growth in pedestrian and cycle movements; and
- An opportunity to support the reduction of greenhouse gas emissions through promotion of sustainable transportation modes would be missed.

For these reasons, the 'do-nothing' alternative was not considered further.

3.2 Alternative Site Locations

As part of the background studies which informed the bridge options selection process, and the environmental impact assessment of the preferred option several potential bridge landing points were considered in the LISTI feasibility report – refer to **Image 3.1**.

These potential landing points were considered in the Little Island / Eastgate areas. Initial examination based on the locations of the options and their walking catchments resulted in two of these options being removed at an early stage; namely locations 1 and 4. For either of these locations to be viable, it was determined that it would require a relocation of the Little Island train station. CCC held initial discussions with Irish Rail, during which the feasibility of relocating the station was discussed. Irish Rail indicated that it could be feasible to relocate the station, hence options 1 and 4 were considered. However, when comparing the advantages and disadvantages of relocating the train station against retaining its current location, it was considered that a relocation of the station would not provide sufficient benefits to justify the capital expenditure. Therefore, options 1 and 4 were not considered further at that stage for the feasibility report.

Landing locations 2 and 3 (refer to **Image 3.1**) were considered further through the through a bridge feasibility report and options selection report / structures options report, with the preferred bridge alignment and landing location subsequently selected based on a multi criteria assessment.

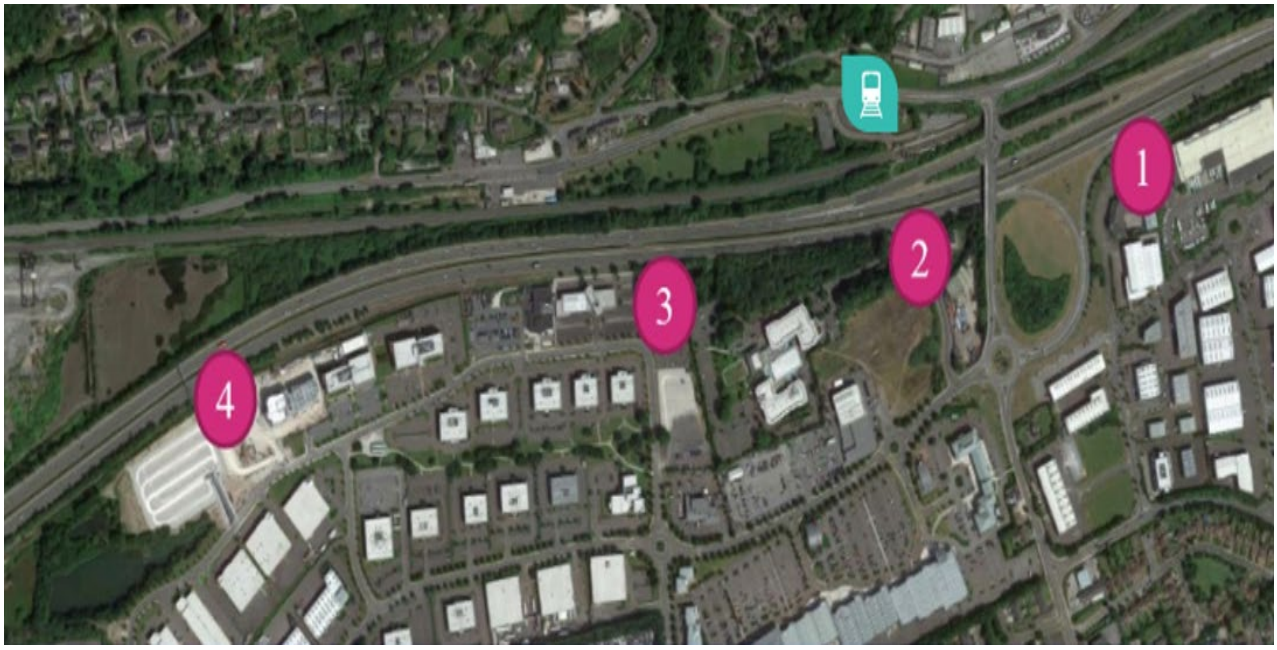

Image 3.1: Landing options considered in the LISTI feasibility report

3.3 Alternative Bridge Alignments

Three bridge alignment options were identified and assessed to determine the preferred option for the proposed crossing. Based on the assessments carried out on these three options, a preferred bridge alignment option (refer to **Image 3.2**) was taken forward for consideration of bridge structural options.

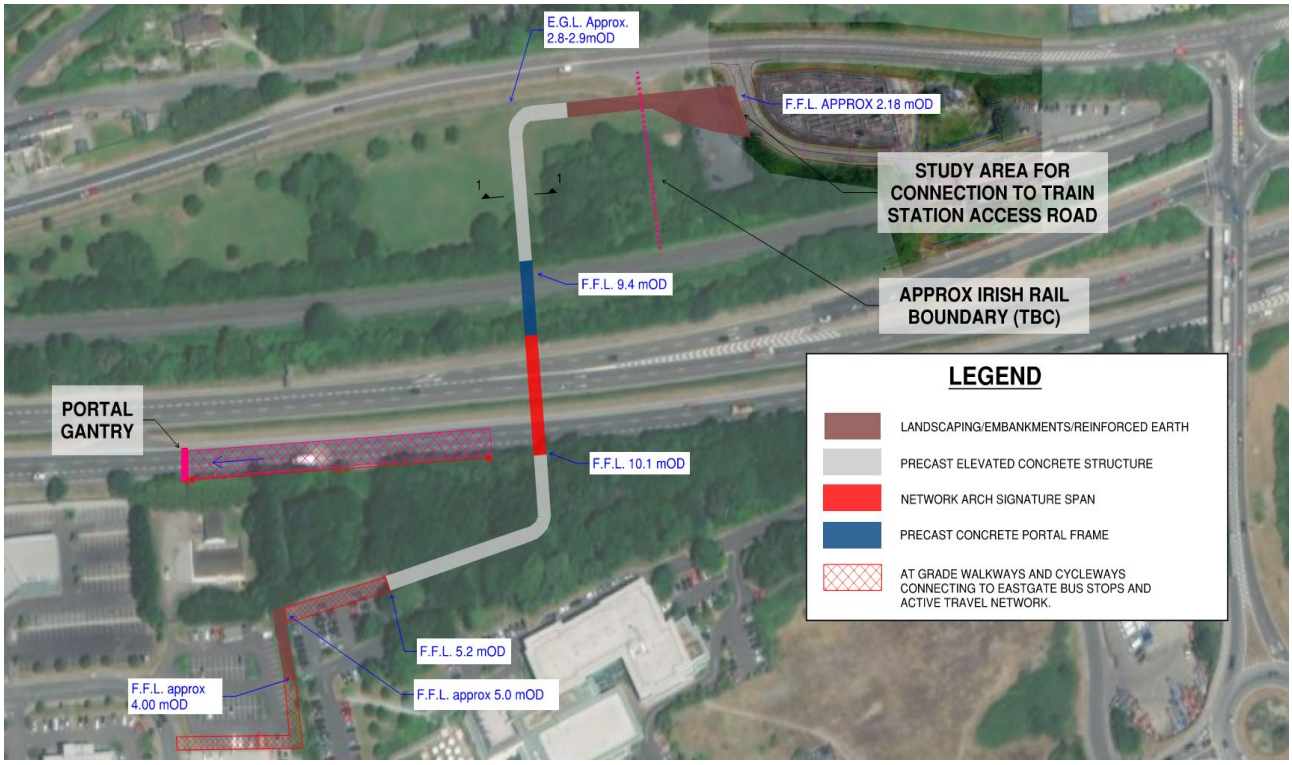

Image 3.2: Preferred bridge alignment option

The primary distinguishing factors which lead to the selection of the preferred alignment option were as follows:

- This option presented the most direct route of options considered from Little Island train station to Eastgate Business Park;
- The southern tie in of this option services the largest working population. This option also services the Radisson Blu Hotel directly through the intermediate landing near the existing car park area;
- This option has the shortest length of ramping and therefore the least overall environmental impact on the area;
- This option minimises disruption to existing developments. It also allows for tie in on the north and south which do not cross other roads, minimising the overall ramp length;
- This option can tie in with proposed LISTI works in the Eastgate Business Park without disrupting the current proposals; and
- This option provides sufficient distance to the east of the existing Transport Infrastructure Ireland (TII) Variable Message Signs (VMS) gantries on the N25 to ensure adequate recognition time of the existing portal gantry signage on the westbound approach.

3.4 Alternative Structural Options

The following three potential bridge structure options were identified and evaluated:

- Bridge option 1 – Single span steel through truss;
- Bridge option 2 – Two span steel through truss; and
- Bridge option 3 – Steel network arch N25 span with reinforced concrete portal frame over rail.

Based on the assessments carried out, bridge option 3 (refer to **Image 3.3**) was selected as the preferred bridge option. This option consists of a steel network arch structure with a concrete deck over the N25 and segmental precast concrete portal frame structures over the Irish rail trail. Foundations will be of piled construction.

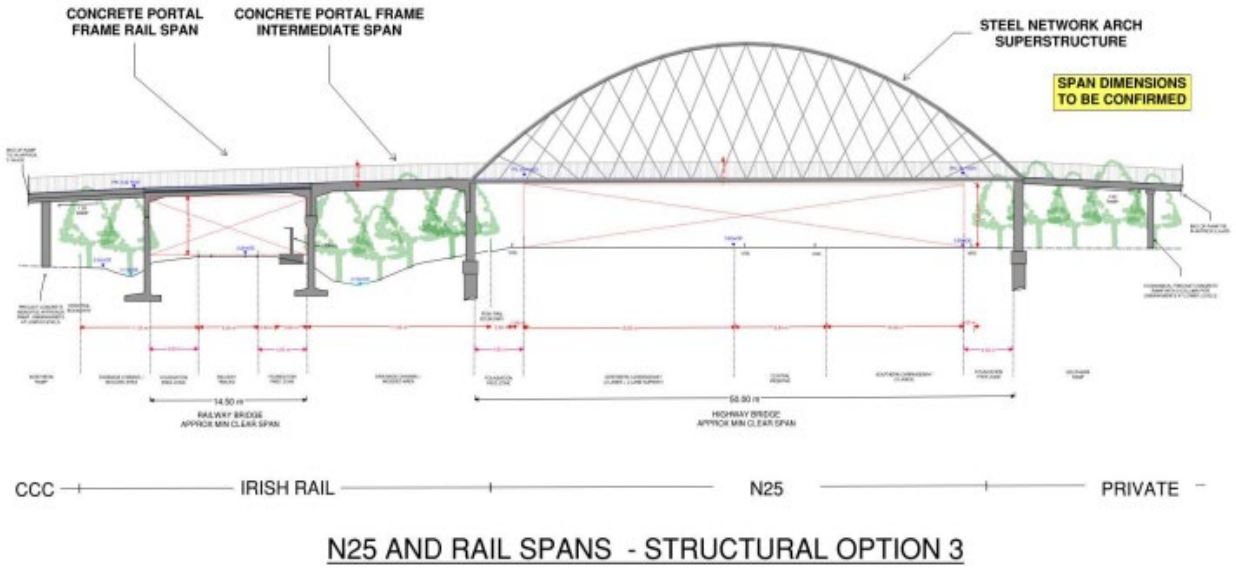

Image 3.3: Structural option 3

3.5 Alternative Approach Ramp Options

Due to the requirements for adequate clearance over the N25 and the Irish rail track, and the required gradient for approach ramps, ramp structures for this crossing will be significant.

Ramp structures are likely to consist of a combination of elevated structure, embankments, landscaping and at grade sections. It was proposed that the ramped structures were considered independently to the main crossings of the N25 and Irish Rail track as the considerations and constraints differ.

The following two potential approach ramp options were identified and evaluated:

- Elevated ramp structure option 1: steel elevated ramp; and
- Elevated ramp structure option 2: precast prestressed concrete.

Taking into account the technical, economic, aesthetic, durability and maintenance, hydraulic, environmental, and safety assessment criteria, the preferred approach ramp option was determined to be elevated ramp structure option 2: precast prestressed concrete (refer to **Image 3.4**). This was proposed primarily as it provides economical, low maintenance and durable structures, given the location of the approach ramps close to the ocean and within a moist and vegetated wooded environment.

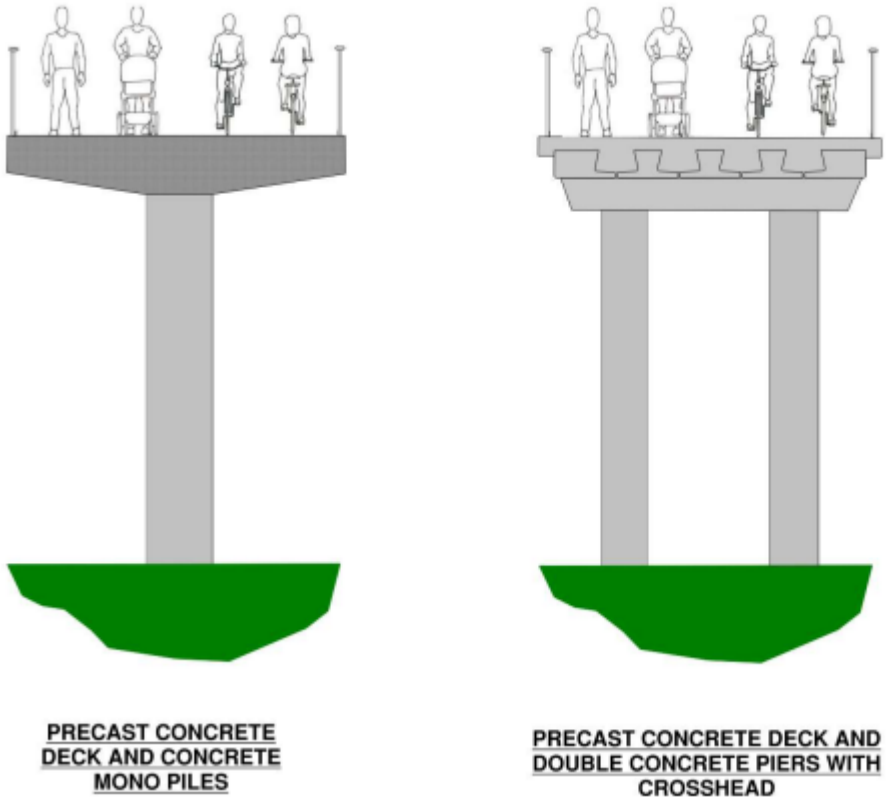

Image 3.4: Elevated ramp structure option 2: precast prestressed concrete

4. The Proposed Development

The site of the Proposed Development is located in Little Island, Co. Cork, approximately 10km to the east of Cork City. The Proposed Development is a pedestrian and cyclist bridge that will function as an active travel link for pedestrian and cyclists to travel from the Little Island train station and the Dunkettle to Carrigtwohill pedestrian and cycle route and surrounds to the Eastgate Business Park and further surrounds of Little Island. Refer to **Image 4.1** for a site location map.

The site of the Proposed Development is bounded by the L3004 Glounthaune Road to the north and the Radisson Blu Hotel and Eastgate Business Park to the south. The Proposed Development will cross the following areas from north to south:

- Northern amenity park area;
- Cork City to Midleton / Cobh Irish Rail line;
- N25 national road dual carriageway;
- Wooded area, south of the N25; and
- Radisson Blu Hotel and Eastgate Business Park car parks.

The Proposed Development will connect with the following elements of active and public transport infrastructure:

- Little Island train station;
- Dunkettle to Carrigtwohill pedestrian and cycle route;
- New bus stops on the L3004 Glounthaune Road;

- Improved pedestrian footpath and cycle path infrastructure within Little Island. These are being developed as part of the LISTI project being delivered by CCC;
- Bus stops within the Eastgate Business Park; and
- Pedestrian and cycle access to the Radisson Blu Hotel.

Image 4.1: Approximate site location. Not to scale. Source: OpenStreetMap.

The Proposed Development will consist of a new pedestrian and cyclist bridge that encompasses a segregated footway and cycleway that will be 5m wide (3m two-way cycleway and 2m footway), connecting the Little Island train station and the Dunkettle to Carrigtwohill pedestrian and cycle route with the Radisson Blu Hotel, Eastgate Business Park and the wider surrounds of Little Island. The proposed crossing will be approximately 460m long and will consist of a combination of different structural forms as follows:

- Northern approach ramp: Combination of earthen embankment and elevated ramp structure;
- Irish Rail span: Concrete portal frame structures;
- N25 span: Steel network arch structure; and
- South approach ramp: Combination of elevated ramp structure, at grade sections and earthen embankment.

An extract of the site layout for the Proposed Development is presented in **Image 4.2**.

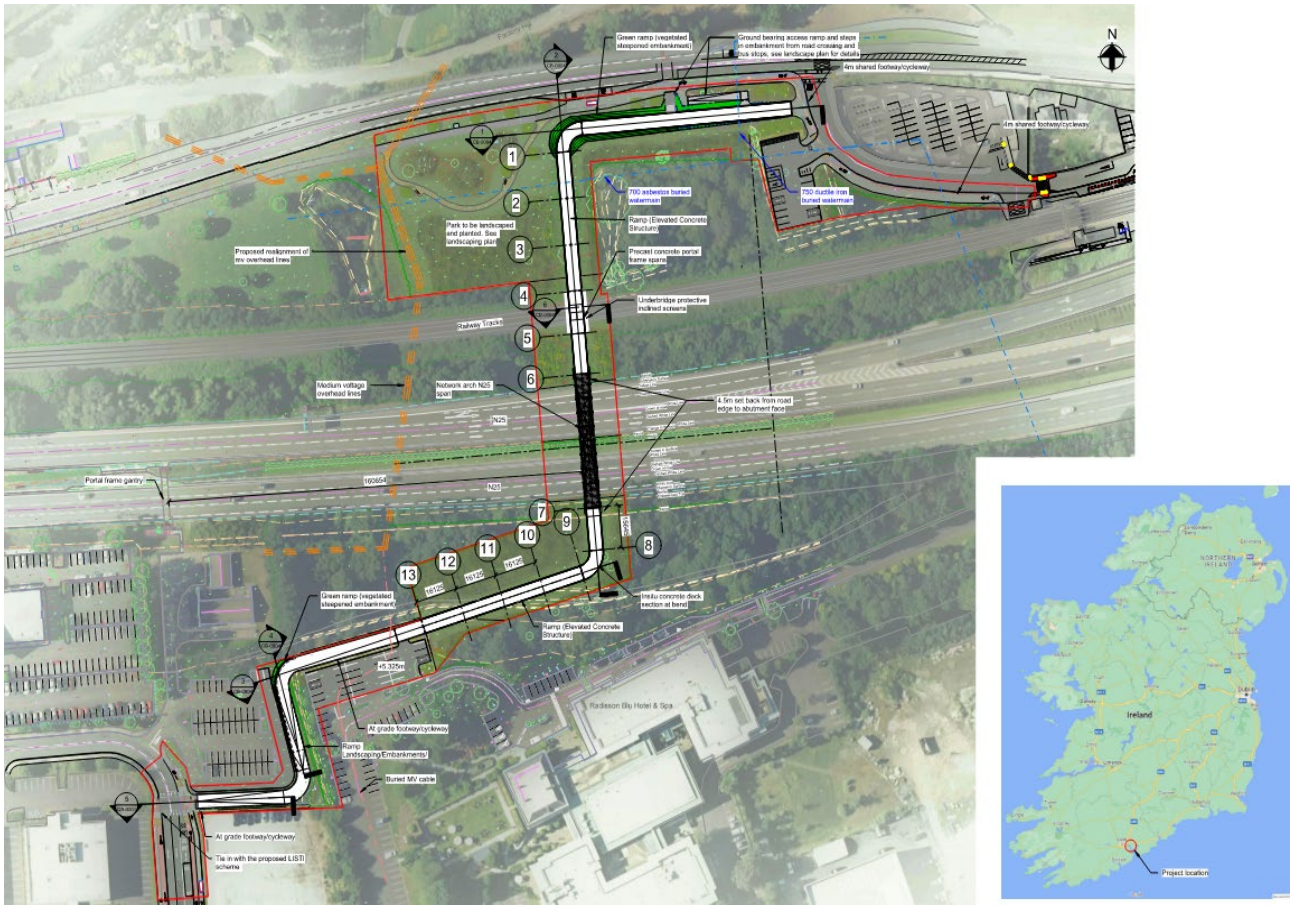

Image 4.2: Site layout map. Not to scale. Extract from site layout plan drawing – refer to Drawing No. LIPB-ARUP-ZZ-XX-DR-CB-0003 in Volume 3 of this EIAR.

5. Construction Strategy

5.1 Duration and Phasing

Subject to obtaining statutory consent and the relevant permits and licences, on-site construction of the Proposed Development will commence in 2025, with the development becoming operational in 2026. It is anticipated that the completion of all stages of the construction works will take up to 18 months.

The construction of the Proposed Development will be completed using a combination of construction methods and in a number of stages. The likely stages of construction are as follows:

- Stage 1 – Site clearance, access and construction compound;
- Stage 2 – Utility diversions;
- Stage 3 – Bridge fabrication;
- Stage 4 – Foundation construction;
- Stage 5 – Bridge transportation;
- Stage 6 – Bridge assembly;
- Stage 7 – Bridge erection; and
- Stage 8 – Completion of works.

It is anticipated that the Proposed Development will provide onsite employment to approximately 50 people during the Construction Phase. However, not all of these will be on site at any one time.

5.2 Construction Strategy Overview

The construction of the Proposed Development will require temporary land take to accommodate two construction compounds, one bridge assembly area and additional on-site activities. Permanent land take will be required for the construction of bridge abutments / piers and embankments in the Little Island train station area, northern amenity park area, Irish Rail tracks and adjacent land, land adjacent to the N25 (north and south), the southern woodland area, the Radisson Blu Hotel car park and the Eastgate Business Park car park.

The site clearance, access establishment and construction compound development works will include development of the construction compound and bridge assembly area, installation of site offices and welfare facilities within the construction compounds, erecting perimeter hoarding or fencing around the construction compound and bridge assembly areas, forming site access and egress points, enacting the traffic and rail track management procedures, and providing site security.

Clearance of the site will include the removal of any required vegetation, soil and stone or other materials.

There is an existing medium voltage overhead line that travels through the northern amenity park in a north / south direction which will be slightly re-routed by moving a single electricity pole and moving the connecting overhead lines. The existing 750mm diameter ductile iron water main and 700mm diameter water main that traverse the site will be protected in situ.

The precast concrete bridge elements will be fabricated in Ireland and delivered to site in sections to be lifted into place. Similarly, the main N25 bridge span will be fabricated and assembled to its final profile in an off-site workshop. The structure will then be broken up into components suitable for road transportation and delivered to site where it will be assembled in the bridge assembly area on site. The bridge assembly area is proposed to be in the northern amenity park area, immediately to the west of the proposed elevated northern ramp.

A Construction Traffic Management Plan (CTMP) will be implemented by the contractor to ensure the safe delivery of the prefabricated bridge elements to the bridge assembly area. The CTMP will designate traffic routes, timings and parking arrangements. Prior to the delivery of bridge components, the CTMP will be agreed with CCC. Transportation of the large, prefabricated elements will be limited to night-time hours to limit impact on traffic in the surrounding area. Routes and times will be agreed and coordinated with CCC and An Garda Siochana in advance.

Foundations will be constructed for the Proposed Development and will consist of earth embankment ramps, with green vegetated finishes, piled foundations, piers / abutments and pile caps.

Following delivery of the prefabricated bridge elements to site, sections of the main bridge span and all ancillary features such as parapet infill panels, handrails, deck surfacing and floor grille will be assembled and installed in the bridge assembly area before final erection. It is predicted that the bridge assembly works will take between 12 and 16 weeks.

The bridge will be erected into position in a sequential manner, starting with the elevated ramp sections, followed by the precast concrete portal frame components crossing the Irish rail track, and finishing with the main N25 bridge span. Mobile cranes and crane pads will be used for the erection of the various bridge elements.

The final stage of construction will be the completion of works, with this including paint repair, adjustments to handrailing, installation of parapets on the northern ramp, commissioning of lights, surfacing to ramps and at the tie in points, and works to reinstate the existing footways / cycleways. Additional linking footpaths will be constructed linking the bridge structure with surrounding active travel and public transport infrastructure.

All construction related material will be removed following completion of the works. The two construction compounds and the bridge assembly area will also be restored to their original condition and use. Landscaping and planting will take place in the northern amenity park area and southern wooded area, with this compensating for the trees removed during the initial site clearance works.

5.3 Construction Access and Traffic Management

Construction access to the L3004 Glounthaune Road construction compound (north) and Radisson Blu Hotel construction compound (south) will be from the local road network. Access to the local access roads leading to the construction compounds will be via the N25 dual carriageway using Little Island junction 2. This will avoid excessive traffic on the surrounding local road network.

Whilst there will be some closures of parking areas required, no permanent road closures will be required for the duration of the works due to use of the construction compounds.

The footpath to the north of the northern amenity park area will be closed during the construction works in the vicinity of the northern construction compound and bridge assembly area. East / west pedestrian and cycle traffic will instead use the Dunkettle to Carrigtwohill pedestrian and cycle route on the north side of L3004 Glounthaune Road.

A CTMP will be prepared by the contractor and presented to CCC for approval prior to commencement of the construction works. The CTMP will be fully implemented to facilitate pedestrian and traffic diversions for the duration of the construction works. A number of temporary road / lane closures will be required during the construction works.

Construction operations on site are proposed to be between the core construction working hours of 7am and 7pm, Monday to Friday, and 8am to 2pm on Saturdays. Similarly, deliveries of materials to site will generally be between the hours of 7am and 7pm, Monday to Friday, and 8am to 2pm on Saturdays.

The construction shift times will be scheduled to ensure that construction traffic will be generally confined to daytime hours which are outside of peak traffic hours (i.e., 10am to 4pm).

It may be necessary to undertake certain activities outside of the core construction working hours. Any construction works outside of the core construction working hours will be agreed in advance with CCC and scheduling of such works will have regard to nearby sensitive receptors.

5.4 Site Management

The appointed Project Supervisor Construction Phase (PSCS) will be required to address the following issues for the duration of the construction contract:

- Employment;
- Working hours;
- Site access;
- Utilities and services;
- Hoarding;
- Site lighting;
- Deliveries to site;
- Cranage;
- Community liaison during construction.

5.5 Mitigation

Construction mitigation measures relevant to specific environmental aspects are outlined in the various assessment chapters and in the Construction Environmental Management Plan.

It is anticipated that with proper management, there will be no significant environmental effects as a result of the construction of the Proposed Development.

6. Planning and Policy

All relevant national, regional and local policy guidance and objectives are supportive of the integration of new sustainable transport modes in County Cork. A summary of the most relevant policies and objectives relating to the Proposed Development is outlined below.

6.1 National Planning Policy

Several national policies and plans are relevant when considering the Proposed Development. These include Project Ireland 2040 – National Planning Framework, National Development Plan 2021 – 2030, Climate Action Plan 2023, Smarter Travel: A Sustainable Transport Future 2009 – 2020, Achieving Effective Workplace Travel Plans: Guidance for Local Authorities, and Spatial Planning and National Roads: Guidelines for Local Authorities. The Proposed Development consistently fulfils national development policies for sustainability and sustainable transport.

6.2 Regional Planning Policy

The Proposed Development is located within the southern region of Ireland which makes the following guidelines relevant: Southern Regional Assembly: Regional Spatial and Economic Strategy (RSES), and the Southwest Regional Planning Guidelines. The Proposed Development is in line with all policies and objectives stated within the above regional planning policy documents, particularly through improving spatial planning and the quality of life of local citizens and combatting climate change.

6.3 Local Planning and Transport Policy

Several local planning and transport policies are relevant when considering the Proposed Development. These include the Cork Metropolitan Area Transport Strategy (CMATS) 2040, the Cork Cycle Network Plan, the Cork County Development Plan 2022-2028, Cork 2050: Cork's submission to the NPF and the Little Island Transportation Study. The Proposed Development aligns well with the above local planning and transport policy documents, particularly with reference to the prioritisation of sustainable transport modes, improving cycling infrastructure throughout Cork and investing in transport infrastructure in the Cork Metropolitan Area.

The Proposed Development directly addresses some of the recommendations made in the Final Strategy Development Report and Strategy Design Report for the Little Island Transportation Study.

7. Traffic and Transportation

The potential impacts that the Proposed Development may have on traffic and transportation during the Construction and Operational Phases were assessed.

During the Construction Phase, construction compounds will be accessed via the local road network. Local roads to the construction compounds are accessible via the N25 dual carriageway using the Little Island Junction 2 (R623) to avoid excessive traffic on the surrounding local public road network. Site access to construction compound 1 (northern compound) will be via the existing car park entrance to the Little Island train station. Site access for the bridge assembly area will be via a temporary access directly off the L3004 Glounthaune Road. Site access to construction compound 2 (southern compound) will be via the Radisson Blu Hotel car park which is accessible from Eastgate Way.

Construction Phase traffic will vary depending on the different stages of the project. Months 2 and 3 are expected to generate the largest amount of construction traffic. Considering the worst-case scenario, a total of 113 additional daily journeys is estimated to generated during this period. However, construction traffic assessments indicate that the increased number of journeys will not have a significant impact on the surrounding road network at any time of day.

Car parking spaces within the Radisson Blu Hotel car park and the Eastgate Business Park car park will be lost during the Construction Phase to accommodate the southern construction compound and the construction works.

A number of mitigation measures will be implemented at the Proposed Development site and surrounds to limit the expected impacts of the Proposed Development on traffic and transport. These include the following:

- Overnight traffic management on N25 junction 2 eastbound off ramp slip lane to allow site clearance;
- Blocking a small area of only one lane on the eastbound off ramp for access for 6-10 weeks;
- Overnight lane closures and traffic management on N25 junction 2 eastbound off ramp slip lanes and adjacent traffic lanes to facilitate bridge erection over the Irish Rail land. It is expected that a single eastbound lane can remain open;
- Overnight / weekend closure of the N25 to allow for steelwork erection of the N25 span;
- Weekend closure of the Irish Rail track in agreement with Irish Rail to allow for construction of the precast concrete portal frame structures;
- Providing a temporary bus service covering the same route and stops, in order to reduce the impact of the closure of Irish Rail Track on a weekend;
- A temporary road widening, and right turn pocket will be provided along the L3004 Glounthaune Road for right turning construction traffic to / from construction compound 1;
- Overnight partial closure of the N25 for maintenance repainting of the bridge in a sequential fashion for 6-10 nights;
- Provision of adequate car parking spaces for construction staff during the Construction Phase; and
- Parking restrictions and management measures at the Radisson Blu Hotel and Eastgate Business Park car parks will be reviewed and implemented as necessary in agreement with the local businesses and CCC to ensure that the functioning of the car parks is maintained and to avoid any site parking overspill issues.

In addition, the CTMP will be continually monitored to ensure the effects on traffic flows and road users on the surrounding road network are minimised and additional mitigation measures are introduced, as required, to assist where necessary.

The Operational Phase of the Proposed Development is likely to have no significant impact on traffic volumes in the vicinity of the Proposed Development. Car parking spaces within the Radisson Blu Hotel car park (12) and the Eastgate Business Park car park (32) will be permanently lost as a result of the Proposed Development. No mitigation or monitoring measures have been proposed for the Operational Phase of the Proposed Development. The permanent loss of car parking spaces will require CCC to liaise with the landowners affected.

The Decommissioning Phase of the Proposed Development is likely to be similar to the Construction Phase, but of reduced scale and corresponding impact on the receiving traffic and transportation networks within the study area. The mitigation and monitoring measures described for the Construction Phase will be updated to reflect best practice at the time and will be implemented for the Decommissioning Phase.

No significant residual negative impacts on traffic and transportation are predicted.

8. Landscape and Visual

A landscape and visual impact assessment was carried out to ascertain the impact of the Proposed Development on external, publicly available views and the resultant impact on landscape character.

Three key references viewpoints were identified, photographed, and surveyed for the purpose of preparing photomontages to help illustrate the visual effects of the Proposed Development.

The main characteristics of the Construction Phase of the Proposed Development that have potential for landscape and visual impacts include tree and vegetation removal, protection / diversion of utilities, construction of the construction compounds and bridge assembly area, construction of temporary hoarding / fencing, temporary closure of a community waste recycling yard, footpaths / roads and car parking spaces, excavation and earthworks, deliveries to site, construction of ramps, embankments and bridge spans, construction of new footpaths, and upgrade works to existing footpaths.

The main characteristics of the Operational Phase of the Proposed Development that have potential for landscape and visual impacts include the presence of a new bridge structure across the rail and road corridor, the permanent removal of car parking spaces, the movement of pedestrians and cyclists across the bridge, and the presence of lighting on the new bridge.

A number of mitigation measures which positively influenced the landscape and visual impact assessment were incorporated at the design stage which included the optimum number and arrangement of foundations, support columns and bridge abutments, high quality architectural design of the bridge, retention of trees where possible, new tree planting, amenity paths and linkages to active travel and public transport, and grassland diversification to enhance the local landscape for nature and amenity for people.

During the Construction Phase, additional mitigation measures will be implemented including the erection of temporary site hoarding / fencing, the protection of trees which are being retained, and limiting the storage of materials and temporary stockpiles to the construction compounds and bridge assembly area.

The removal of trees along the route of the proposed bridge and access ramps, primarily within the woodland situated between the N25 and the Radisson Blu Hotel, will result in in significant, negative and short to medium-term landscape and visual effects at construction, which will recede to moderate, neutral and long-term effects, as the new landscape planting establishes and matures.

Once complete and operational, the Proposed Development will have an overall moderate, positive and permanent 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.

9. Biodiversity

The biodiversity assessment describes the likely significant impacts of the Proposed Development on biodiversity, including flora (plants), fauna (animals) and habitats in both the terrestrial and aquatic environment.

9.1 Designated Sites

Following an examination, analysis and evaluation of the relevant information, including in particular the nature of the predicted impacts from the Proposed Development and with the implementation of the mitigation measures proposed, it has been concluded that the Proposed Development, 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.

9.2 Habitats

There is the potential for direct impacts on habitats as a result of construction works (i.e., excavation works). However, no significant negative impacts were identified. While some area of mature and semi-mature trees will be removed at the Proposed Development site, some areas of the site will be replanted with native species and as these trees mature, they will provide high value habitat. Low value habitats that are removed such as low value hedgerow, amenity grassland and small areas of dry meadows and grassy verge will be largely replaced by landscape planting.

No rare or protected floral species were recorded within the Proposed Development site and no impacts on rare or protected flora have been identified.

Temporary impacts will occur within the Kilcoolishal Stream and drainage ditches. However, these areas will be reinstated following construction works.

Maintenance works may be required on occasion along boundary habitats. However, no significant operational impacts on terrestrial habitats are predicted.

Following the implementation of appropriate mitigation measures, no significant negative residual impacts on habitats are predicted.

9.3 Invasive Species

The third schedule high impact invasive Japanese Knotweed was recorded at the Proposed Development site. Japanese Knotweed causes a range of problems due to prolific and dense growth habit.

It is noted that the medium impact invasive species Buddleia, Wild Clematis and Winter Heliotrope were also recorded at the Proposed Development site.

In the absence of mitigation, construction works i.e., machinery and personnel, could potentially disturb stands of Japanese Knotweed as well as other invasive species and spread these species to other habitats within and outside the Proposed Development site. However, mitigation measures will be implemented during the Construction Phase to manage potential biosecurity risks.

No operational impacts related to invasive species have been identified.

Following the implementation of appropriate mitigation measures, no significant negative residual impacts related to invasive species are predicted.

9.4 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 the implementation of water quality mitigation measures, no significant negative impacts on Otter are predicted during the Construction Phase.

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.

Following the implementation of appropriate mitigation measures, no significant negative residual impacts on Otters are predicted.

9.5 Bats

Overall, the loss of semi-natural habitat during construction will reduce the foraging / commuting habitats available for bats. Core construction works will be largely carried out during daylight hours and therefore, no significant disturbance impacts from lighting during construction works have been identified.

Habitat fragmentation due to the loss of the foraging and commuting habitats has the potential to continue to impact local bat populations during the Operational Phase of the Proposed Development.

The lighting scheme for the Proposed Development has considered best practice, in respect of mitigation strategies, to minimise the impact of outdoor lighting upon bat populations. However, lighting requirements

will mean that light spillage within the woodland habitat on the south of the N25 will reduce their habitat value for foraging bats. Light trespass onto the retained woodland habitats could potentially prevent bats from foraging in this area during operation.

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.

Following the implementation of appropriate mitigation measures, no significant negative residual impacts on bats are predicted.

9.6 Other Mammals

No other protected mammal species were recorded within the Proposed Development site. While there were no confirmed field signs of Hedgehog, Irish Stoat or Pygmy Shrew, these species are largely nocturnal, and field signs are less frequently observed than for other mammals. Given the habitats onsite, they could potentially occur.

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. However, construction works, resulting in the loss of habitat, habitat fragmentation and increased noise and disturbance, could potentially impact on mammal commuting routes around the site.

Increased activity and human presence, noise and additional lighting has the potential to disturb or displace other mammal species such as Hedgehog, Pygmy Shrew and Irish Stoat from foraging habitats during the Operational Phase. The removal of woodland and treeline habitat will reduce areas of cover for mammal species. However, 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.

Following the implementation of appropriate mitigation measures, no significant negative residual impacts on other mammals are predicted.

9.7 Birds

During the Construction Phase, breeding birds will experience direct impacts from habitat loss, fragmentation, and modification, impacting breeding, foraging, and roosting activities. While some species will use alternative grassland and hedgerow habitats in the vicinity of the construction works, potential impacts may persist in the absence of mitigation. These impacts include disturbance and injury to eggs, young and nests, and long-term loss of potential nesting sites and foraging habitats.

Furthermore, increased noise and disturbance is likely to disturb and / or displace breeding birds from the site during the Construction Phase. Given the existing levels of noise and disturbance at the site, the mobile nature of birds, the common nature of habitats within the site and the availability of alternative breeding, foraging and roosting habitats in the immediate vicinity, the impact on breeding birds during the Construction Phase will not be significant.

Given the distance from known foraging / roosting areas, the existing noise environment at the Proposed Development site, and the absence of valuable habitats within or in the vicinity of the Proposed Development site, there is no potential for the Proposed Development to create significant disturbance or displacement impacts to wintering birds around Cork Harbour during the construction works.

Habitat fragmentation due to the loss of the foraging and commuting habitat has the potential to continue to impact local populations of breeding bird species during the Operational Phase of the Proposed Development. However, as newly planted and enhanced habitats within the Proposed Development site mature, this impact will be reduced.

Operational impacts on wintering birds are predicted to be neutral, imperceptible and long-term at a local level.

As newly planted and enhanced habitats within the Proposed Development site mature, impacts on birds will reduce. Landscaping and bird boxes which will be incorporated into the design of the Proposed Development will provide additional breeding and foraging habitat for various bird species.

Following the implementation of appropriate mitigation measures, no significant negative residual impacts on birds are predicted.

9.8 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.

No operational impacts on reptiles and amphibians have been identified.

Following the implementation of appropriate mitigation measures, no significant negative residual impacts on reptiles and amphibians are predicted.

9.9 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 there will be no significant negative residual impacts on fish and aquatic invertebrate species in downstream receptors.

The loss of semi-nature habitats at the site will reduce habitats for terrestrial invertebrates in the short-term. However, the proposed planting of native trees and pollinator species will provide new and enhanced habitats for invertebrate species.

Following the implementation of appropriate mitigation measures, no significant negative residual impacts on terrestrial invertebrates are predicted.

9.10 Summary

Following the implementation of appropriate mitigation measures, no significant negative residual impacts on biodiversity are predicted.

10. Noise and Vibration

An assessment of the noise and vibration effects arising from the Proposed Development on the existing environment was carried out.

During the Construction Phase, noise and vibration impacts are considered at the nearest sensitive receptors due to construction activities and construction traffic to and from the site. Recommendations regarding the relevant limits have been outlined and mitigation measures proposed as required. The highest noise levels will be generated during the site clearance and preparation, and construction stages. No significant vibration impacts are predicted during the construction phase as the relevant limits will be complied with.

The construction contractor will be required to comply with appropriate noise limits which will ensure that no significant noise impacts will be experienced at any noise sensitive receptors. The noise and vibration aspects of the Proposed Development will be managed in accordance with best practice.

During the Operational Phase, the Proposed Development has the potential to result in a modal shift away from private car, leading to reductions in traffic noise and vibration. No negative noise or vibration impacts are predicted to arise from the operation of the Proposed Development.

Noise and vibration impacts will arise during the Decommissioning Phase. The decommissioning activities will be similar to the proposed construction activities, albeit they will occur over a shorter duration. The impacts will be no greater than those expected for the Construction Phase.

Mitigation measures relating to noise and vibration will be implemented during the Construction and Decommissioning Phases of the Proposed Development. It is recommended that an acoustic barrier be installed as mitigation for all working areas during the Construction Phase, which will reduce noise levels overall by 10dB.

No mitigation measures are required during the Operational Phase.

In summary, following the implementation of appropriate mitigation measures, no significant negative residual noise and vibration impacts are predicted.

11. Air Quality

The likely significant effects of the Proposed Development on ambient air quality were assessed.

Dust emissions are likely to arise from the following activities during the Construction Phase – site clearance, utility diversions, bridge foundation construction, site excavation, piling, stockpiling of materials, handling of construction materials, construction traffic movements and landscaping. Earthworks, construction and trackout were assessed to reflect their individual potential impacts. Overall, the site has been classified as low risk for earthworks, a negligible risk for construction and a low risk for trackout. Demolition was excluded from this assessment as no demolition work is associated with the Proposed Development.

There will be no change in traffic volumes as a result of the Operational Phase and no operational air sources. Therefore, no significant air quality effects are predicted. There is the potential for a positive impact on air quality during the Operational Phase due to the modal shift away from private car due to the provision of the Proposed Development.

The design life of the proposed new pedestrian and cycle bridge is 120 years. During the potential future decommissioning works, the main bridge span and approach spans will be decommissioned by cutting the concrete decking and steel spans into a number of large sections. This will be done either in situ or at ground level, with the decking and spans being lifted out by a mobile crane and moveable gantry. The decommissioning activities have the potential to generate dust, but the intensity and duration of the activities will be less than that associated with the Construction Phase. i.e., negligible temporary effects are predicted.

In summary, following the implementation of appropriate mitigation measures, no significant negative residual air quality impacts are predicted.

12. Climate

An assessment of the likely significant effects of the Proposed Development on climate including a quantitative assessment of construction carbon emissions was carried out. The assessment of the Operational Phase will also examine the vulnerability of the Proposed Development to climate change.

The carbon footprint of the Proposed Development during the Construction Phase has been conservatively estimated to be approximately 1,390 tonnes of carbon dioxide (CO2) equivalent. The embodied carbon was calculated on the basis that all emissions occur over one year as a worst-case scenario.

The carbon emissions from the construction of the Proposed Development are estimated to be 0.007% of Ireland's total carbon budget for the 2026-2030 budget period. As such, the Proposed Development is expected to have a minor, adverse, long-term impact in terms of climate change during the Construction Phase.

As improvements in sustainability and recycling measures are progressed throughout the construction industry, it is expected that the embodied carbon calculated as part of this assessment can be taken as a worst case, as with time this figure will improve.

It is anticipated that the provision of the Proposed Development; a dedicated pedestrian and cycle bridge will attract a significant number of the pedestrians and cyclists. As the proposed bridge will encourage a modal shift towards sustainable transport, it is predicted that over the 120-year lifespan of the Proposed Development, the expected usage by pedestrians and cyclists will offset the minor, adverse, long-term impact predicted during the Construction Phase, such that no significant residual effects are predicted. The Proposed Development will provide connectivity and integration with other public transport services leading to more people availing of public transport, helping to further reduce CO_2 equivalent emissions.

Therefore, the Proposed Development will have a beneficial and long-term impact on carbon during the Operational Phase of the Proposed Development.

There will be no adverse significant carbon impacts as a result of the Decommissioning Phase of the Proposed Development.

In summary, following the implementation of appropriate mitigation measures, no significant negative residual impacts on climate and climate change vulnerability are predicted.

13. Archaeological, Architectural and Cultural Heritage

An assessment of the impacts that the Proposed Development may have on the archaeological, architectural and cultural heritage environment was carried out.

There are no registered archaeological sites listed in the Record of Monuments and Places (RMP) on the site of the Proposed Development. There are also no Protected Structures listed within the Proposed Development site. There will be no significant direct effects on any known recorded archaeological site or on any registered architectural site.

The Proposed Development will involve large scale ground reduction. This would have a direct effect on any potential archaeological sites which may survive below the ground surface. Where extensive earthmoving is involved, there is always the possibility that archaeological material will be uncovered. If previously unknown archaeological features are identified during ground reduction, they will either be preserved by record or preserved *in situ*. If such features are preserved by record, they will be permanently removed from the cultural landscape following full archaeological excavation. This effect would be significant and permanent.

No archaeological, architectural or cultural heritage effects are predicted during the Operational Phase of the Proposed Development.

Licenced archaeological monitoring of all ground works will be undertaken during the construction of the Proposed Development. If features of archaeological significance are identified, further mitigation will be required following consultation with the County Archaeologist and National Monuments Services. Such features will be fully resolved to professional standards of archaeological practice either by preservation *in situ* or preservation by record.

In summary, following the implementation of appropriate mitigation measures, no significant negative residual archaeological, architectural or cultural heritage impacts are predicted.

14. Population and Human Health

The likely impacts of the Proposed Development on population and human health during the Construction, Operation and Decommissioning Phases were assessed.

There is the potential for temporary disruption to nearby residents and road users during the Construction Phase of the Proposed Development, and some associated noise, vibration and dust emissions due to construction activities. These potential impacts have been assessed with regard to traffic, noise and air quality, and with the implementation of mitigation, no significant impacts on population and human health are predicted during the Construction Phase. Car parking spaces within the Radisson Blu Hotel car park and the Eastgate Business Park car park will be temporarily lost during the Construction Phase.

A slight, positive, temporary effect on the population of County Cork, particularly those in the Caherlag electoral division, will arise through employment generation during the Construction Phase. Approximately 50 temporary construction jobs are expected to be required during the 18-month Construction Phase of the Proposed Development.

The Proposed Development is not expected to give rise to any increased risk of major accidents or disasters during the Construction, Operational or Decommissioning Phases. A number of measures will be employed at the site which aim to reduce the risk of a major accident or disaster occurring. These measures will include operational safety and environmental management, fire prevention and emergency response and prevention of accidental emissions or spills.

There will be no significant noise, vibration or dust emissions associated with the operation of the Proposed Development. Car parking spaces within the Radisson Blu Hotel car park and the Eastgate Business Park car park will be permanently lost during the Operational Phase.

A moderate, positive, long-term effect 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.

In summary, following the implementation of appropriate mitigation measures, no significant negative residual impacts on population and human health are predicted.

15. Resources and Waste

The management of resources and the potential for waste to be generated during the Construction, Operational and Decommissioning Phases of the Proposed Development was assessed.

Aspects considered in the assessment of resource use and waste management for the Construction Phase included the following:

- Site clearance: removal of vegetation;
- Excavation: excavation of below ground material such as soil and stones;
- Imported material: import of materials for the construction of the Proposed Development;
- Construction: waste materials generated from and in relation to the construction of the Proposed Development; and
- Municipal waste.

Minor quantities of organic waste will be generated during the site clearance works. There will be approximately 5,950 tonnes of excavated material generated during the excavation works. This is a small proportion of such waste generated in Ireland every year, and there is enough capacity to manage this waste. The construction materials needed to be imported for the project are readily available and will have a minimal impact on the environment. The main type of construction waste expected during the construction

works will be surplus concrete and steel, but quantities are estimated to be minor, and measures will be taken to segregated and recycle it correctly.

A suite of mitigation measures will be implemented by the contractor, and a Construction Resource and Waste Management Plan (CRWMP) has been prepared and will be updated and implemented by the contractor.

The Construction Phase of the Proposed Development is not predicted to give rise to significant impacts.

Minor maintenance works to the Proposed Development are likely to occur during the Operational Phase. The maintenance works will be routine and will comprise maintenance of elements such as the bridge steelwork, bridge cables, concrete structures, embankments, bridge bearings, lighting and deck surfacing. The maintenance works will be infrequent and will generate only minor quantities of project related construction waste. The predicted impact of project related construction waste during the Operational Phase, in the absence of mitigation, is negative, not significant and long-term.

The design life of the proposed new pedestrian and cyclist bridge is 120 years. During the potential future decommissioning works, the main bridge span and approach spans will be decommissioned by cutting the concrete decking and steel spans into a number of large sections. This will be done either *in situ* or at ground level, with the decking and spans being lifted out by a mobile crane and moveable gantry. The primary waste materials likely to be generated from the decommissioning works will be steel from the main bridge span and approach spans, and concrete from the concrete decking. Segregation facilities will be provided to ensure that recovery and recycling of such wastes are maximised. The predicted impact of waste during the Decommissioning Phase, in the absence of mitigation, is negative, not significant and short-term.

In summary, following the implementation of appropriate mitigation measures, no significant negative residual resource and waste impacts are predicted.

16. Water

The potential impacts of the Proposed Development on surface water, water quality and flood risk during the Construction, Operational and Decommissioning Phases of the Proposed Development were assessed.

Construction activities that are anticipated to have potential hydrological effects include site clearance works, the construction of access and haul roads, the construction and use of the construction compounds and bridge assembly area, utility diversions, foundation constructions and the transportation of concrete, fuel and other chemicals with a potential to impact on water quality.

There are numerous substances used on construction sites that are potential pollutants to water bodies and which could affect surface water quality. Runoff from the working areas during construction may contain increased sediment loads, suspended solids and contaminants.

During the Construction Phase, any wastewater produced from welfare facilities will be contained in temporary facilities and removed from site by a licensed contractor. This will have a temporary, imperceptible impact.

The contractor will require a water supply connection for onsite personnel during construction. In addition to supplying potable water for the welfare facilities, the existing water main will supply water for the wheel washes and for dust control in dry windy weather. Where connection to the existing water main is not possible, mobile bowsers will be provided.

Construction activities have the potential to result in short-term, not significant impacts on water quality at Kilcoolishal Stream, Lough Mahon, and the Cork Harbour SPA if no mitigation measures are implemented at the Proposed Development site.

Mitigation measures to be implemented during the Construction Phase will include the control of earthworks operations and runoff, careful consideration of the storage of materials, fuels and hazardous materials, ensuring that works nearby the Kilcoolishal Stream are carried out in the dry, ensuring that no plant or tools will be washed in the stream, regularly inspecting all vehicles and plant for leaks, and maintaining spill kits

on site. Following the implementation of appropriate mitigation measures during the Construction Phase, there will be no significant residual impacts on the hydrological regime, surface water quality, wastewater and water supply.

Potential impacts during the Operational Phase are limited to the impact of the permanent bridge structure on surface water runoff and water quality due to pollution incidents during maintenance activities. The operation of the Proposed Development will not significantly increase surface water runoff as the access ramps will be vegetated and the main bridge deck will be constructed with associated drainage collection. There will be no significant residual impacts on the hydrological regime or surface water quality during the Operational Phase.

The design life of the proposed new pedestrian and cycle bridge is 120 years. Should the Proposed Development be decommissioned, the bridge will be removed in a sequence that does not require interaction with nearby waterbodies. There will be no significant residual impacts on the hydrological regime or surface water quality during the Decommissioning Phase.

The main source of flood risk at the Proposed Development site is coastal. A flood risk assessment carried out for the Proposed Development satisfied the relevant criteria and concluded that the Proposed Development will not interfere with a floodplain area. It is predicted that the risks relating to flooding can be managed to an acceptable level.

In summary, following the implementation of appropriate mitigation measures, no significant negative residual impacts on surface water, water quality and flood risk are predicted.

17. Land, Soils, Geology and Hydrogeology

It is estimated that the construction of the Proposed Development will require the excavation of approximately 5,950 tonnes of material. This material will comprise made ground, topsoil and subsoil. Where practicable, this material will be reused on site. Where this is not practicable, it will be transported off site for reuse or disposal.

The potential impacts on land, soils, geology and hydrogeology during the Construction Phase include the following:

- Loss of topsoil;
- Loss of solid geology;
- Earthworks haulage;
- Impact on the surrounding ground;
- Excavation of potentially contaminated land;
- Contamination by Radon gas;
- Mobilisation of contamination into aquifers;
- Mobilisation of contamination into Environmentally Sensitive Sites; and
- Dewatering.

The proposed construction mitigation strategy involves complying with statutory requirements, adopting good construction practices and monitoring potential soil and water contamination. It also includes measures to minimise the excavation of contaminated ground, regularly assess excavated soils for its suitability for reuse, regularly assess soil for contamination and dispose of contaminated soils in accordance with the current Irish waste management legislation. Finally, the strategy includes measures to prevent the pollution of soil and water by properly handling, storing and disposing of potential pollutants and hazardous materials. Once implemented, no significant negative residual impacts are predicted.

The potential impacts on land, soils, geology and hydrogeology during the Operational Phase include the following:

- Contamination; and
- Reduction in recharge into the underlying aquifer.

No significant negative residual impacts are predicted during the Operational Phase. Therefore, no additional mitigation is proposed.

If decommissioning activities occur, the proposed works will be undertaken in a safe and manner by minimising interaction with the soils and underlying aquifers. As such, mitigation measures will be limited to ensuring that no temporary works occur that would damage the topsoil or aquifer permanently during the Decommissioning Phase. No significant negative residual impacts are predicted during the Decommissioning Phase.

In summary, following the implementation of appropriate mitigation measures, no significant negative residual impacts on land, soils, geology and hydrogeology are predicted.

18. Material Assets

The potential impacts of the Proposed Development on material assets during the Construction, Operational and Decommissioning Phases of the Proposed Development were assessed.

The aspects considered included:

- Electricity;
- Gas;
- Telecommunications;
- Foul and surface water drainage;
- Water supply infrastructure; and
- Land use.

18.1 Electricity

There is an existing medium voltage overhead line that travels through the northern amenity park in a north / south direction which will be slightly re-routed during the Construction Phase by moving a single electricity pole and moving the connecting overhead lines. There is sufficient capacity available to accommodate the increase in demand on power supply during the Construction Phase. It is predicted that there will be an imperceptible, temporary, negative impact on electricity supply associated with the construction of the Proposed Development.

During the Operational Phase, lighting of the proposed structure will be integrated into the parapets. There will be sufficient electricity capacity for the operation of the Proposed Development and no negative impacts on electricity supply or infrastructure are predicted.

18.2 Gas

No gas connections or diversions are required for either the construction or operation of the Proposed Development. Therefore, no impacts on gas supply or infrastructure are predicted as a result of the Proposed Development.

18.3 Telecommunications

There will be no impact on telecommunication infrastructure and no telecommunication connections are required for either the construction or operation of the Proposed Development. Therefore, no impacts on telecommunications infrastructure are predicted as a result of the Proposed Development.

18.4 Foul and Surface Water Drainage

Foul water will be contained, managed and appropriately disposed of by the construction contractor using temporary tanks. Temporary site drainage will be provided to collect surface water runoff, which will be directed into the existing drainage network. Strict controls will be maintained to prevent Construction Phase impacts on the existing surface water and ground water. No significant negative impacts on surface water or foul water are predicted during the Construction Phase of the Proposed Development.

Surface water runoff from the Proposed Development during the Operational Phase will be directed into the existing drainage network. No foul water will be generated as a result of the operation of the Proposed Development. No significant negative impacts on surface water or foul water are predicted as a result of the operation of the Proposed Development.

18.5 Water Supply Infrastructure

Suitable protection measures and easements will be implemented during the Construction Phase for water main pipelines that cross the site. As a result, no significant impacts on water supply are predicted as a result of the construction of the Proposed Development.

No water supply or water pipeline connections are required for the operation of the Proposed Development. Therefore, no significant impacts on water supply are predicted as a result of the operation of the Proposed Development.

18.6 Land Use

Construction of the Proposed Development will require both temporary and permanent land take. Temporary land take will be required to accommodate two construction compounds, one bridge assembly area and additional on-site activities. Such lands will be returned to their original condition and use after the works are complete.

Permanent land take will be required during the Construction Phase for the for the construction of foundations, bridge abutments / piers and embankments. Land will be permanently acquired from the Little Island station area, northern amenity park area, Irish Rail tracks and adjacent land, land adjacent to the N25, the southern woodland area, the Radisson Blu Hotel car park and the Eastgate Business Park.

A temporary, slight, negative impact on land use is predicted during the Construction Phase as a result of the changes in land use.

The Proposed Development will result in the loss of some trees and areas of vegetation. However, a robust landscape plan, including areas of new tree planting, will be implemented which incorporates natural features and re-planting measures into the design of the Proposed Development. A long-term, slight, positive impact on land use is predicted.

Temporary land take will be required to accommodate the removal of the proposed bridge during the Decommissioning Phase. As a result, a temporary, slight, negative impact on land use is predicted during the Decommissioning Phase.

18.7 Summary

Following the implementation of appropriate mitigation measures, no significant negative residual impacts on material assets are predicted.

19. Major Accidents and / or Disasters

Major accidents and / or disasters have the potential to affect and be affected by the Proposed Development. An assessment was carried out of the likely effects on the environment, arising from the vulnerability of the Proposed Development to the risk of a major accident or disaster.

25 potential risks were identified with regard to the Proposed Development; 12 associated with the Construction Phase, six with the Operational Phase and seven with the Decommissioning Phase.

The potential risks specific to the Construction and Decommissioning Phases were identified and included the following: structural collapse / damage, fall from height, contamination of waterbodies, flooding, fire / explosion, release of harmful substances into the atmosphere, vehicle collision of construction and decommissioning traffic, electrical shock, gas explosion, striking foul sewer mains and watermains, and damage to the railway line.

The potential risks specific to the Operational Phase of the Proposed Development were identified and included the following: structural collapse, fall from height, flooding, contamination of waterbodies, fire / explosion causing the release of harmful substances into the atmosphere and damage to a train / the railway line.

All of the potential risks identified during the Construction, Operational and Decommissioning Phases were classified as low risk.

No plausible major accidents and / or disasters were identified to which the Proposed Development will be particularly vulnerable. Additionally, no plausible potential risks were identified which would result in the Proposed Development causing a major accident and / or disaster on or outside of the Proposed Development site.

Aside from the mitigation and monitoring measures to be carried out by the contractor as outlined in the Construction Environmental Management Plan (e.g., site inspections and audits) and the measures outlined throughout the remainder of the EIAR, no additional mitigation or monitoring is considered necessary during the Construction Phase of the Proposed Development.

No additional mitigation or monitoring measures are considered necessary during the Operational Phase of the Proposed Development.

Should some or all of the Proposed Development be decommissioned, planning consent and environmental assessments would be required to ensure that adverse effects on the environment would be minimised.

20. Cumulative and Interactive Impacts

An assessment was carried out to identify whether any of the impacts outlined under the various assessment headings has the potential to give rise to cumulative and / or interactive impacts based on best scientific knowledge. Based on a review of recently permitted and proposed applications, the following projects were identified which have the potential to result in cumulative impacts with the Proposed Development:

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

  The Proposed Development is located approximately 40m 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.

Potential cumulative impacts are addressed in the appropriate chapters of this EIAR. No significant cumulative impacts were identified.

While several interactions between various environmental factors have been identified, no significant residual interactive impacts are predicted.

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