Greater Dublin **Drainage Project Addendum**

Environmental Impact Assessment Report Addendum

Volume 4A Part A
Main Report for the Proposed Regional Biosolids Storage Facility

Preface

The structure of the Environmental Impact Assessment Report (EIAR) Addendum for the proposed Greater Dublin Drainage Project (the Proposed Project) is outlined in the preface at the start of each Volume of the EIAR for clarity. The Proposed Project comprises; a proposed orbital sewer route from Blanchardstown to the proposed Wastewater Treatment Plant (WwTP) at Clonshagh, the proposed outfall pipeline route (land based section) from the proposed WwTP to the R106 Coast Road, the proposed outfall pipeline route (marine section) from the R106 Coast Road to approximately 1km north-east of Ireland's Eye in the Irish Sea, and a site proposed for the Regional Biosolids Storage Facility (RBSF) at Newtown, Dublin 11.

Volume 1A and Volume 2A provide general information on the overall Proposed Project. Volume 3A addresses all proposed elements of the Proposed Project, with the exception of the RBSF element which is addressed in Volume 4A. Volume 5A provides drawings and large format images for the Proposed Project. The volumes and sub-section titles are summarised as follows:

Volume 1A: Non-Technical Summary

Volume 1A provides a non-technical summary of the information contained in Volumes 2A, 3A and 4A.

Volume 2A: Introduction

Part A: Report

Volume 2A Part A provides a general introduction, outlines the EIA process, describes the scope of the Proposed Project and presents the consideration of alternatives.

Part B: Appendices

Volume 2A Part B supplies data that is supplemental to the information in Volume 2A Part A.

Volume 3A: Proposed GDD Project

Part A: Report

Volume 3A Part A describes the environmental impacts specific to the Proposed Project.

Part B: Appendices

Volume 3A Part B supplies data that is supplemental to the information in Volume 3A Part A.

Volume 4A: Regional Biosolids Storage Facility

Part A: Report

Volume 4A Part A describes the environmental impacts specific to the RBSF component of the Proposed Project.

Part B: Appendices

Volume 4A Part B supplies data that is supplemental to the information in Volume 4A Part A and is specific to the RBSF.

Volume 5A: Drawings

Volume 5A illustrates the information detailed in Volume 2A and Volume 3A.

Volume 6A: Proposed Project Photomontages

Volume 6A contains the addendum photomontages for the Proposed Project.

Uisce Éireann

Greater Dublin Drainage Project
Addendum

Environmental Impact Assessment Report

Volume 4A Part A

Table of Contents

List of Figures

List of Tables

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SECTION 1A: Existing Environment

1.1 Introduction

As detailed in Chapter 1A (Introduction) in Volume 2A Part A of this Environmental Impact Assessment Report (EIAR) Addendum, we have reviewed Section 1 (Existing Environment) in Volume 4 Part A of the EIAR submitted with the original 2018 planning application, in the light of:

- Changes to the baseline environment;
- The requirement for updated surveys;
- Updated development plans;
- The updated cumulative assessment;
- EPA updated guidelines; and
- Changes to the law, policy, and industry standards and guidance in the intervening period.

The description of the Regional Biosolids Storage Facility (RBSF) remains as presented in Chapter 4 (Proposed Project Description) in Volume 2 Part A of the EIAR submitted with the original 2018 planning application, as supplemented by Chapter 4A (Proposed Project Description) in Volume 2A Part A of this EIAR Addendum.

1.2 Site Location

The description of the site location provided in this section of the EIAR in the 2018 planning application has not changed.

In this Section of the EIAR, it was also explained that Fingal County Council had been granted approval for a waste recovery facility at the proposed RBSF site and that certain enabling works have been carried out at the site on the basis of that approval. Since the 2018 planning application, Uisce Éireann sought a 10-year permission (under Section 37E of the Planning & Development Act 2000, as amended) for development comprising revisions and alterations to the existing and permitted development at the Ringsend Wastewater Treatment Plant and for a new Regional Biosolids Storage Facility, being two components of an integrated wastewater treatment facility. An Bord Pleanála (ABP) granted permission on 24 April 2019.

There are no further changes to the information presented in this Section of the EIAR since the 2018 planning application.

1.3 Surrounding Environment

The Fingal Development Plan 2017-2023 has been superseded by the Fingal Development Plan 2023-2029 since the 2018 planning application. There are no changes to land zoning in the site environs as shown in the Fingal Development Plan 2023-2029. The site remains zoned as 'HI' - Heavy Industry, the objective of which is to "Provide for heavy industry."

In this Section of the EIAR in the 2018 planning application there is reference to a planning permission for development of residential units on behalf of Peter McVerry Trust (charitable organisation for homeless people) that was permitted on the site of nearby demolished properties. This development of six one-bedroom, single storey houses and single storey community building has been completed since the 2018 planning application and is named Ravenswood Estate. These properties are listed in the addendum to Appendix 3A (Receptors List) in Volume 4A Part B of this EIAR Addendum. This development does not change the nature of the site environs as a predominantly industrial area. The newer properties are no closer to the boundary of the Proposed RBSF Component than the property identified at this location in the 2018 planning application.

There are no other changes to the information presented in this Section of the EIAR since the 2018 planning application.

1.4 Environmental Designations

1.4.1 Ecological Designation

There are no changes to the information presented in this Section of the EIAR since the 2018 planning application. The site for the Proposed RBSF Component remains not situated within nor adjacent to any designated conservation areas.

1.4.2 Landscape Designation

Since no new Views and Prospects are identified within the locality of the RBSF within the Fingal County Development Plan 2023-2029 and the site is still not contained within or adjacent to any area of high natural beauty, high quality landscape character, views or prospects, listed buildings, scenic routes or amenity use designated areas, there are no changes to the information presented in this Section of the EIAR in the 2018 planning application.

1.4.3 Geological / Hydrogeological Designations

There are no changes to the information presented in this Section of the EIAR in the 2018 planning application. No additional visits to the Huntstown Quarry have been undertaken since the 2018 submission.

1.5 Difficulties Encountered

No difficulties were encountered in the preparation of Section 1 of the EIAR Addendum.

1.6 References

Fingal County Council (2023). *Fingal Development Plan 2023-2029*. [Online]. Available at: https://www.fingal.ie/development-plan-2023-2029

Environmental Protection Agency (EPA) (2022). *Guidelines on Information to Be Contained in Environmental Impact Assessment Reports*. [Pdf] Available at: https://www.epa.ie/publications/monitoring--assessment/assessment/EIAR_Guidelines_2022_Web.pdf

SECTION 2A Planning and Policy Context

2.1 Introduction

As detailed in Chapter 1A (Introduction) in Volume 2A Part A of this Environmental Impact Assessment Report (EIAR) Addendum, Section 2 (Planning and Policy Context) in Volume 4 Part A of the EIAR submitted with the original 2018 planning application has been reviewed in the light of changes to planning and policy, at a European, National, Regional and Local level, relating to the proposed RBSF. Furthermore, the planning history for both the proposed RBSF site and its surrounding context has been updated accordingly given the passage of time.

The description of the Regional Biosolids Storage Facility (RBSF) remains as presented in Chapter 4 (Proposed Project Description) in Volume 2 Part A of the EIAR submitted with the original 2018 planning application, as supplemented by Chapter 4A (Proposed Project Description) in Volume 2A Part A of this EIAR Addendum.

2.2 Planning and Development Policy Framework

The following sections provide an overview of any changes to planning and development policy, where relevant.

2.2.1 European Policy Framework

This Section of Section 2 (Planning and Policy Context) in Volume 4 Part A of the EIAR submitted with the original 2018 planning application was reviewed to identify if there have been any updates to European policy. We note that the European Commission has published its proposal for a revised Urban Wastewater Treatment Directive (the Recast Directive). The Recast Directive proposes to bring in changes to increase the standard of wastewater treatment required across the EU, and support the transition forwards a circular economy and energy neutrality by 2040. The Recast Directive proposes amongst other matters, to add the objective of nutrient recovery, and tighten phosphorus removal requirements for sewage works. The Recast Directive is still in draft form and likely to be subject to further debate and revision before it is adopted and comes into force on a phased basis. Precisely what will be required and by when is therefore unknown at this point in time. Once those requirements are known and in force, any effect on the Proposed RBSF Component can be considered. An effect is considered unlikely as the Proposed RBSF Component is storage facility only and there is no treatment at the site.

Therefore, the information presented in this Section of the EIAR in the 2018 planning application remains up-to-date.

2.2.2 National Policy Framework

This Section of Section 2 (Planning and Policy Context) in Volume 4 Part A of the EIAR submitted with the original 2018 planning application was reviewed to identify if there have been any updates to national policy, and the findings of this review are presented in the following sections.

2.2.2.1 National Planning Framework – Ireland 2040

The National Planning Framework – Ireland 2040 has not been amended since the submission of the 2018 planning application. Therefore, the information presented in this Section of the EIAR in the 2018 planning application remains up-to-date.

2.2.2.2 National Development Plan, 2021 – 2030

A revised National Development Plan was published on 4 October 2021, covering the period from 2021 to 2030, since the submission of the 2018 planning application

The National Development Plan, 2021 – 2030 identifies the *"Strategic Investment Priorities – Water Quality"* under *National Strategic Objective 9*. Here a stated priority is:

> *"Delivering Significant Infrastructure Development projects to meet future economic, housing and population demands such as the Water Supply Project – Eastern and Midlands Region and the* ***Greater Dublin Drainage Project****."*

The development of the Proposed RBSF as a component of the Proposed GDD Project, remains consistent with National Strategic Objective 9 of the National Development Plan.

2.2.3 Supplementary National Framework

This Section of Section 2 (Planning and Policy Context) in Volume 4 Part A of the EIAR submitted with the original 2018 planning application was reviewed to identify any updates to supplementary National Framework policy, and the findings of this review are presented in the following sections.

2.2.3.1 National Wastewater Sludge Management Plan

The National Wastewater Sludge Management Plan has not been amended since the submission of the 2018 planning application. Therefore, the information presented in this Section of the EIAR in the 2018 planning application remains up-to-date.

2.2.3.2 Uisce Éireann Capital Investment Plan 2020 – 2024

The Capital Investment Plan 2020 – 2024 is Uisce Éireann's (UÉ's) five-year investment plan for water and wastewater assets and infrastructure to 2024. Appendix 3 list the projects that are expected to be either commenced, progressed or completed during the 2020 – 2024 period. The Proposed RBSF and Proposed GDD Project are identified in Appendix 3.

The development of the Proposed RBSF as a component of the Proposed GDD Project aligns with the provision and objectives of the UÉ's Capital Investment Plan 2020 – 2024.

2.2.3.3 Water Services Policy Statement 2018 – 2025

The Water Services Policy Statement 2018 – 2025 states under Section 3.5 – Theme 3 – Future Proofing that UÉ needs to: -

> *"Deliver the strategic capital investment programme set out under the NDP over the period 2018-2027 to improve resilience in areas most vulnerable to shortfall in water supply, such as the Greater Dublin Area, and wastewater services, and identify further long term investments that will improve the security of supply and reduce the cost of service provision."*

The National Development Plan (now 2021 – 2030) identifies the Proposed GDD Project as a significant infrastructure project to be delivered.

The development of the Proposed RBSF Component will facilitate the development of the Proposed GDD Project, which is in accordance with the Water Services Policy Statement 2018 – 2025.

2.2.3.4 Climate Action Plan 2023

The Climate Action Plan 2023 was published by the Government of Ireland on 21 December 2022. The Climate Action Plan 2023 is the second annual update to Ireland's Climate Action Plan 2019. The plan implements the carbon budgets and sectoral emissions ceilings and sets out a roadmap for taking action to halve Ireland's emission by 2030 and reach net zero emissions no later than 2050.

The Climate Action Plan supports the National Policy Objective 56 as contained within the National Planning Framework as outlined below:

"Sustainably manage waste generation, investing in different types of waste treatment and support circular economy principles, prioritising principles, prioritising prevention, reuse, recycling and recovery, to support a healthy environment, economy and society."

Action AD/23/14 of the Climate Action Plan aims to improve Ireland's water and drainage systems:

"Improve the resilience of Ireland's water infrastructure to the impacts of climate change."

The development of the Proposed RBSF Component will facilitate the development of the Proposed GDD Project, which is in accordance with the Climate Action Plan 2023.

2.2.4 Regional Policy Framework

This Section of Section 2 (Planning and Policy Context) in Volume 4 Part A of the EIAR submitted with the original 2018 planning application was reviewed to identify any updates to Regional policy, and the findings of this review are presented in the following sections.

2.2.4.1 Eastern & Midland Regional Assembly – Regional, Spatial and Economic Strategy 2019 – 2031

The Regional Planning Guidelines for the Greater Dublin Area 2010 – 2022, which were originally discussed in this Section of the EIAR in the 2018 planning application, have been replaced by the Eastern & Midland Regional Assembly – Regional, Spatial and Economic Strategy (EMRA RSES) 2019 – 2031.

The EMRA RSES provides a spatial, economic and climate action strategy along with a metropolitan plan and investment framework for the Eastern and Midland regions up until 2031. The EMRA RSES supports the development of the Ringsend Wastewater Treatment Plan Project in order to provide long term sustainable wastewater drainage and treatment.

It is a priority of the EMRA RSES to provide Urban Waste Water Treatment which includes the elimination of untreated discharges from settlements in the short term, while planning strategically for long-term growth and taking account of the requirements of the Urban Waste Water Directive should underpin the approach to waste water treatment in the Region.

The following regional policy objectives support the development of the Proposed RBSF Component:

RPO 10.3:

"The Regional Assembly and local authorities shall liaise and cooperate with Irish Water to ensure the delivery of Irish Water's Investments and other relevant investment works programme of Irish Water that will provide infrastructure to increase capacity to service settlements in accordance with the settlement strategy of the RSES and local authority core strategies, and provide for long term solutions for waste water treatment for the Region."

RPO 10.10:

"Support Irish Water and the relevant local authorities in the Region to eliminate untreated discharges from settlements in the short term, while planning strategically for long term growth in tandem with Project Ireland 2040 and in increasing compliance with the requirements of the Urban Waste Water Treatment Directive from 39% today to 90% by the end of 2021, to 99% by 2027 and to 100% by 2040."

RPO 10.11

"EMRA supports the delivery of the wastewater infrastructure set out in Table 10.2, subject to appropriate environmental assessment and the planning process."

Table 10.2: Waste Water Infrastructure
The Greater Dublin Drainage Project
The Ringsend Wastewater Treatment Plant Project
The Athlone Main Drainage Project
The Upper Liffey Valley Sewerage Scheme

RPO 10.12

"Development plans shall support strategic wastewater treatment infrastructure investment and provide for the separation of foul and surface water networks to accommodate the future growth of the Region."

RPO10.13

"EMRA shall support appropriate options for the extraction of energy and other resources from sewerage sludge in the Region."

EMRA RSES supports the sustainable management of wastewater. As outlined in Section 10.2 of the EMRA RSES, a key priority for the region is to ensure that the water supply and wastewater needs are met by new national projects to enhance the water supply and increase waste water treatment capacity for the Region.

The development of the Proposed RBSF Component will facilitate the development of the Proposed GDD Project, which is in accordance with the Eastern & Midland Regional Assembly – Regional, Spatial and Economic Strategy 2019 – 2031.

2.2.4.2 Eastern & Midland Region Waste Management Plan 2015 – 2021

The Eastern & Midland Region Waste Management Plan 2015 – 2021 has not been updated since the submission of the 2018 planning application. Therefore, the information presented in this Section of the EIAR in the 2018 planning application remains up-to-date.

2.2.5 Statutory Local Framework

This Section of Section 2 (Planning and Policy Context) in Volume 4 Part A of the EIAR submitted with the original 2018 planning application was reviewed to identify any updates to Local policy, and the findings of this review are presented in the following Section.

2.2.5.1 Fingal Development Plan 2023 – 2029

The Fingal Development Plan 2017 – 2023 has been replaced by the Fingal Development Plan 2023 – 2029 (FDP).

The FDP provides the primary local statutory planning policy framework for development for the subject site. it has regard to the higher level national and regional strategic guidelines outlined in the above-mentioned points of this Section. Under the plan's current format, there is no local area plan provision for the subject site nor is there a proposed plan in place. The policies, objectives and development standards of the FDP that are of relevance to the Proposed RBSP Component are set out below.

Core Strategy

The Core Strategy is intended to set out the key strategies for the administrative area of Fingal County in line with the growth targets set out in the Regional Planning Guidelines for the Greater Dublin Area (GDA).

As set out in Section 2.2:

"The key objective of the Core Strategy is to ensure that the quantum and location of development is consistent with National and Regional policy."

The Proposed RSBF Component is consistent with National and Regional policy and will promote the aims and objectives of these policies. Upgraded wastewater infrastructure will support development in areas identified in the Core Strategy for future growth which aligns with National and Regional policy.

Policy Support for the Project

Fingal County Council is committed to working closely with and to support Irish Water in the provision and maintenance of adequate public water and wastewater infrastructure throughout the country.

The FDP notes the importance of the delivery of key wastewater infrastructure:

"The phased upgrade of the Ringsend WWTP Project and Greater Dublin Drainage Project are key wastewater infrastructure investment priorities in the short-to-medium term, whilst the Water Supply Project for the Eastern and Midlands Region (EMR) is identified as a critical longer-term project to ensure resilience and security of supply. The Greater Dublin Drainage Project aims to provide drainage infrastructure to support the continued development of the Greater Dublin Area. The project aims to provide long term sustainable wastewater drainage and treatment."

The various objectives, which support the proposed development are as contained in Section 11 'Infrastructure and Utilities':

Policy IUP1:

"Support Uisce Eireann's strategic water service projects and infrastructure improvements and engage with them to facilitate projects that deliver the water services infrastructure necessary to support Fingal's settlement hierarchy, sustainable growth and mitigation and adaptation to climate change in line with national and regional policy."

Policy IUP2:

"Continue to support UE in their role in water quality, water conservation and addressing leakage and support opportunities for water conservation as part of new and retrofitted developments and encourage the consideration of alternative water sources."

Policy IUP3:

"Facilitate the provision of appropriately sized and located wastewater treatment plants and networks including a new Regional Wastewater Treatment Plant and the implementation of other recommendations of the Greater Dublin Strategic Drainage Study, in conjunction with relevant stakeholders and services providers, to facilitate development in the County and Region and to protect the water quality of Fingal's coastal and inland waters through the provision of adequate treatment of wastewater."

Policy IUP4:

"Support Uisce Éireann in delivering key water service projects in the County, as per Table 11.1."

Policy IUP6

"Establish a buffer zone around all wastewater treatment plants suitable to the size and operation of each plant. The buffer zone should not be less than 100m from the odour producing units."

Policy IUP9

"Have regard to the policies and objectives contained in Uisce Éireann's National Wastewater Sludge Management Plan 2016 and subsequent plans, and to support appropriate options for the extraction of energy and other resources from sewerage sludge and continue to work with Uisce Éireann and other relevant stakeholders to ensure the provision of facilities for the safe and sustainable management of sludges (sewage, waterworks, agricultural, industrial and septic tank) that are generated within the County."

The above Objectives, as set out in the FDP, supports the development of appropriate infrastructure including wastewater infrastructure and associated Proposed RBSF Component which will support the proper and sustainable growth of Fingal County.

Land Use Zoning of the Subject Site

The Proposed RBSF component is on lands zoned 'HI' – Heavy Industry, the objective of which is: *"Provide for heavy industry."* Please refer to Figure 2-1 below. This is the same as the land use zoning policy identified in Section 2 (Planning and Policy Context) in Volume 4 Part A of the EIAR submitted with the original 2018 planning application.

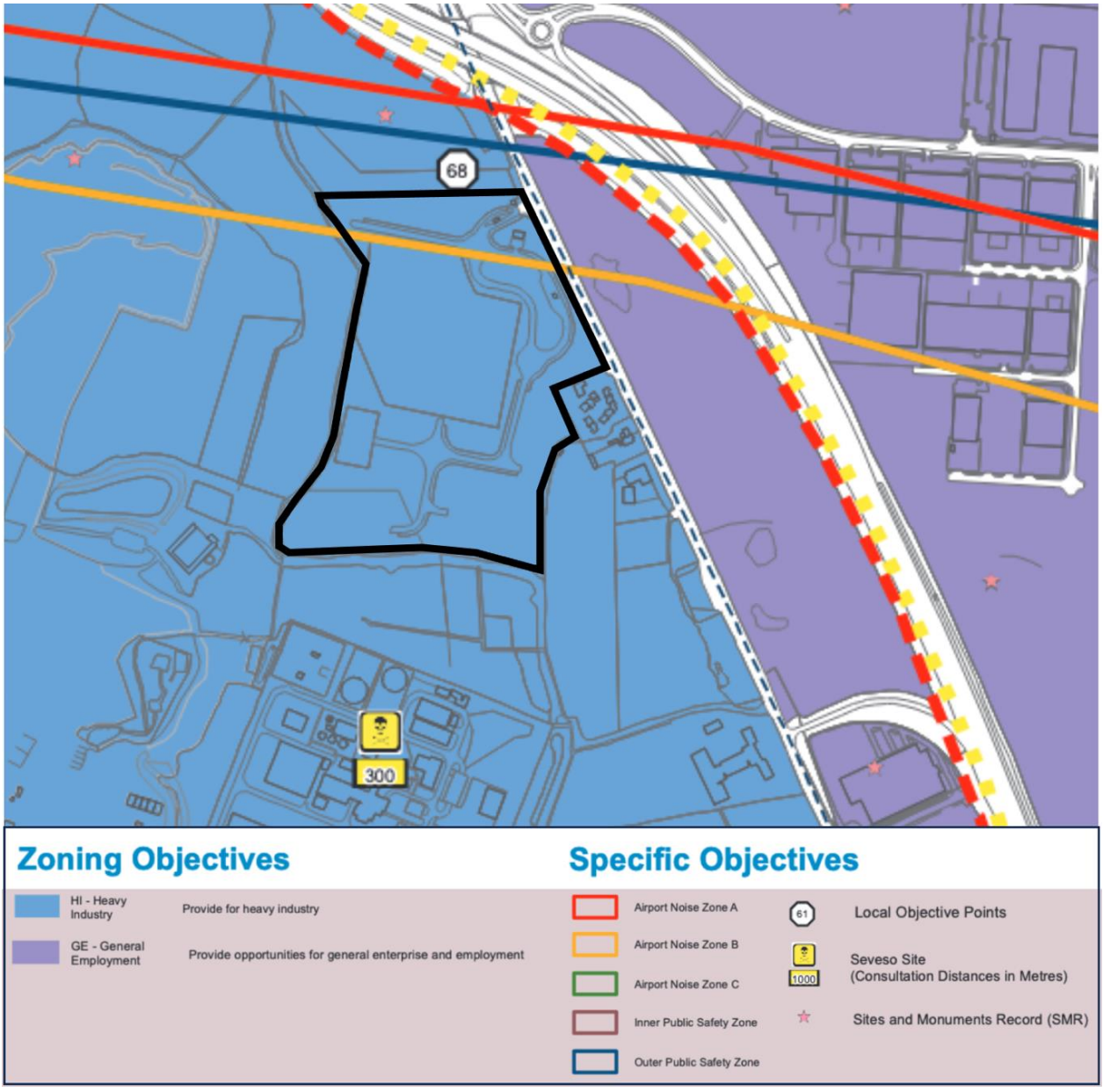

Figure 2-1: Land-Use Zoning Map SLA overlay in Black, subject site demarcated by black boundary. Source: Fingal Development Plan 2023-2029.

'A Waste Disposal and Recovery Facility (High Impact)' is a permissible use within this zoning designation as illustrated in Table 2-1. From a land-use perspective, the development of the Proposed RBSF Component, considering the likely activities arising would be compatible with this zoning.

Land Use Zoning Matrix for the Subject Site

The Land Use Zoning Matrix provided in this section of the EIAR has been updated in the FDP 2023-2029. The structure and purpose of the table remain the same. The new uses added at the most recent version of the matrix have been highlighted in bold light blue in the Table 2.1.

Table 2-1: HI Zoning Matrix under the new Fingal Development Plan 2023-2029

	Zoning Objective HI
Permitted in Principle	Abattoir, Concrete/Asphalt, Extractive Industry/Quarrying, Fuel Depot/Fuel Storage, Heavy Vehicle Park, Industry - High Impact, Office Ancillary to Permitted Use, Open Space, Plant Storage, Restaurant/Café, Retail - Local < 150 sqm nfa, Sustainable Energy Installation, Telecommunications Structures, Utility Installations, **Waste Disposal and Recovery Facility (High Impact).**
Not Permitted	**Aparthotel,** Aerodrome/Airfield, Agricultural Buildings, Agricultural Farm Supplies, Agricultural Machinery Sales and/or Maintenance, Agri-tourism, Air Transport Infrastructure, Amusement Arcade, Bed and Breakfast, Betting Office, Boarding Kennels, Builders Provider/Yard, Burial Grounds, Car Hire Holding Area, Caravan Park- Holiday, Caravan Park- Residential, Cargo Yards, Carpark- Non Ancillary, Casual Trading, Childcare Facilities, Civic Waste Facility, Community Facility, Conference Centre, Cultural Facility, Dancehall/Nightclub, Education, Enterprise Centre, Exhibition Centre, Farm Shop, Fast Food Outlet/Take-Away, Food, Drink and Flower Preparation/Processing, Funeral Home/Mortuary, Garden Centre, General Aviation, Golf Course, Guest House, Health Centre, Health Practitioner, High Technology Manufacturing, Holiday Home/Apartments, Home-Based Economic Activity, Hospital, **Hostel,** Hotel, Industry – _General, Industry – Light, Logistics, Office ≤ 100 sqm, Office > 100 sqm and < 1000 sqm, Office ≥1,000 sqm, Park and Ride Facilities, Petrol Station, Place of Worship, Public House, Public Transport Station, Recreational/ Sports Facility, **Remote Work Hub,** Residential, Residential Care Home/Retirement Home, Residential Institution, Retail – Convenience ≤ 500 sqm nfa, Retail – Comparison ≤ 500 sqm nfa, Retail – Comparison > 500 sqm nfa, Retail – Supermarket ≤ 2,500 sqm nfa, Retail - Superstore > 2,500 sqm nfa, Retail - Hypermarket > 5,000 sqm nfa, Retail - Factory Outlet Centre, Retail Warehouse, Retail - Warehouse Club, Retirement Village, Sheltered Accommodation, Taxi Office, Traveller Community Accommodation, Vehicle Sales Outlet - Small Vehicles, Vehicle Sales Outlet - Large Vehicles, Veterinary Clinic, Warehousing, Wholesale.

Irish Water undertook a site selection process in order to identify a suitable site for the Proposed RBSF Component including public consultation. The summary provided of the site selection process in the Section of Section 2 (Planning and Policy Context) in Volume 4 Part A of the EIAR submitted with the original 2018 planning application does not need to be repeated.

The site selection process to identify a site for the Proposed RBSF Component was completed in 2017 and there has been no change to the intention to use the site for the development of the Proposed RBSF Component since the 2018 planning application.

A 'Biosolids Storage Facility' as a land use classification is not expressly defined within the new FDP. As in the 2018 EIAR, the land use definition which most closely aligns with the Proposed RBSF Component is a 'Waste Disposal and Recovery Facility (High Impact)'.

Under Appendix 7, Technical Guidance notes for Use Classes of the FDP, Waste Disposal/Recovery Facilities (High Impact) has the same description as set out in the Fingal Development Plan 2017 – 2023 previously.

The Proposed RBSF Component can continue to be considered as 'Permitted In Principle' under the land use zoning objectives of the FDP given the nature of the development. Furthermore, the site sits within an area that is industrial in nature which includes an existing quarry (to the west) and electricity power station (to the south).

The development of the Proposed RBSF Component on this site continues to be consistent with land use zoning objective for these lands contained within the Fingal Development Plan 2023 – 2029.

Local Objective

The numbering of Local Objectives has changed since the 2018 planning application. The wording of Local Objective No. 68 is the same as Local Objective No. 78 set out in the previous Development Plan (Fingal Development Plan 2017 – 2023).

The development of the Proposed RBSF Component on this site continues to be consistent with the provisions of Local Objective 68 which provides for a range of uses on these lands, including the management of waste; in this case a waste by-product called biosolids.

Surrounding Land Use Zoning

The surrounding land use zoning remains the same as that contained within the original 2018 planning application. Therefore, the development of the Proposed RBSF Component continues not to prejudice adjoining Land Use Zoning.

Aviation Policies and Objectives

The site lies just to the south of the Airport Safety Zone associated with the runway activities at Dublin Airport. Dublin Airport lies to the east of the Proposed RBSF Component lands. Three Airport Noise Zones are shown in the FDP zoning maps; Outer Zone, Airport Noise Zone A and Airport Noise Zone B. Fingal County Council will continue to restrict inappropriate development in the Outer Zone. New provisions for residential development and other noise sensitive uses in Airport Noise Zone A and Airport Noise Zone B will be actively resisted.

The objectives of the council are:

> **DAO21:**
>
> *Continue to take account of the advice of the Irish Aviation Authority with regard to the effects of any development proposals on the safety of aircraft or the safe and efficient navigation thereof. To refer planning applications for any proposals that may be developed in the environs of the airport to the Irish Aviation Authority and daa in accordance with the Obstacle Limitation Requirements of Regulation (EU) No 139 / 2014 (EASA Certification Specifications), previously required under ICAO Annex 14, and which are depicted on the aerodrome operator's map.*

The Proposed RBSF Component site falls within the Outer Airport Noise Zone (blue line – Figure 2-1) and the Airport Noise Zone A (red line – Figure 2-1) and abuts Airport Noise Zone B (orange line – Figure 2-1). There has been no change to the safety/noise zones since the 2018 planning application.

The development of the Proposed RBSF Component continues to be considered in accordance with the aviation policies and objectives of the Fingal Development Plan 2023 – 2029.

Seveso Directive Sites

The nearest Seveso site has not changed since the 2018 planning application. It remains Huntstown Power Station and the consultation distance remains 300m (Table 14.27 of the FDP).

The Proposed RBSF Component recognises the existing Seveso site and has been designed to ensure its buildings lie outside the consultation zone.

Development Management Standards

The previous Fingal Development Plan 2017 – 2023 did not include development management standards relating to Waste Recovery and Waste Disposal Facilities. New Development Management Standards have been included in the FDP in relation to Waste Recovery and Waste Disposal Facilities under Section 14.20.13 which states that:

"In assessing development proposals for, or including, waste recovery and waste disposal facilities, the Planning Authority will have regard to the policies, actions, targets and provisions of the Eastern-Midlands Region Waste Management Plan 2015–2021 or any superseding document, planning legislation, the Development Plan and other relevant planning documents."

As part of the 2018 planning application the Proposed RBSF Component was considered consistent with the policies set out in the Eastern & Midland Region Waste Management Plan 2015 – 2021. The Proposed RBSF Component continues to align with the policies set out in the Eastern & Midland Region Waste Management Plan 2015 – 2021.

2.3 Planning Application History

This Section of Section 2 (Planning and Policy Context) in Volume 4 Part A of the EIAR submitted with the original 2018 planning application was reviewed to identify any updates to relevant planning history associated with the proposed RBSF Component site, and the findings of this review are presented in the following sections.

2.3.1 Subject Site

The application most relevant to this Proposed RBSF Component is identified below, as it is a current permission on these lands.

2.3.1.1 ABP Ref. ABP-301798-18

The Regional Biosolids Storage Facility (RBSF) was granted planning permission by ABP (Case Reference Number PA29S.301798), as part of the Ringsend Wastewater Treatment Plant Upgrade Project in April 2019.

2.3.1.2 FCC Reg. Ref. F08A/0624

Permission was sought by Electricity Supply Board (ESB) to divert a section of the existing Finglas-Ashbourne 38 kV line. Permission for this development was granted by Fingal County Council in 2008. Fingal County Council confirmed on the 7th of September 2023 that there is no record of a Commencement Notice for this project.

2.3.2 Developments in the Surrounding Area

The following headings provide a summary of the updates to planning permissions in the surrounding area, as previously set out in this Section of Section 2 (Planning and Policy Context) in Volume 4 Part A of the EIAR submitted with the original 2018 planning application.

2.3.2.1 FCC Reg. Ref. FW13A/0089/E1

Permission was sought by Viridian Renewables ROI Limited for the construction of a Renewable Bioenergy Plant to generate up to 3.8 MW of electricity from 90,000 tonnes of non-hazardous biodegradable waste per annum utilising Anaerobic Digestion (AD) technology.

This development has now been completed. A Commencement Notice for this development was submitted to the Building Control Management System (BCMS) on 5 April 2018 and works commenced on 11 April 2018.

2.3.2.2 FCC Reg. Ref. F18A/0146

Permission was sought by Rohan Holdings Ltd. for a storage and distribution centre for new imported vehicles with a total capacity for 5,951 no. vehicles and comprises vehicle storage, internal circulation roadways, vehicle loading and unloading area and transporter parking spaces.

A Commencement Notice for this development has not been submitted to the BCMS. This permission will expire on 8 April 2024.

2.3.2.3 FCC Reg. Ref. F16A/0128

Permission was sought by Rohan Holdings Ltd. for development comprising four single storey units for industrial and/or warehouse use with ancillary two storey office with a gross floor area of 15,692 sq. m.

This development has now been completed.

2.3.2.4 FCC Reg. Ref. FW17A/0012

Permission was sought by Roadstone Ltd. for development comprising an increase in the permitted intake rate of construction and demolition (C&D) waste at the facility from a maximum of 24,950 tonnes per annum at present to 95,000 tonnes per annum in future years.

A Commencement Notice for this development has not been submitted to the BCMS. This permission expired on 7 May 2022. There is no record of an application for an Extension of Duration on the Fingal County Council on-line planning portal.

2.3.2.5 FCC Reg. Ref. FW14A/0162

Permission was sought by the Peter McVerry Trust for development comprising the demolition of existing 2 no. 2 storey semi-detached dwellings with single storey extensions to rear (109 sq. m) and construction of 6 no. 1 bedroom, single storey houses and single storey community building containing sitting room, meeting room and offices in two blocks and all associated site works.

This development has now been completed.

2.3.3 Developments in the Surrounding Area (Post 2018 Planning Application Submission)

A number of planning permissions of note have been submitted to Fingal County Council since the submission of the EIAR in the 2018 planning application. These are set out below and locations are shown in Figure 2-2.

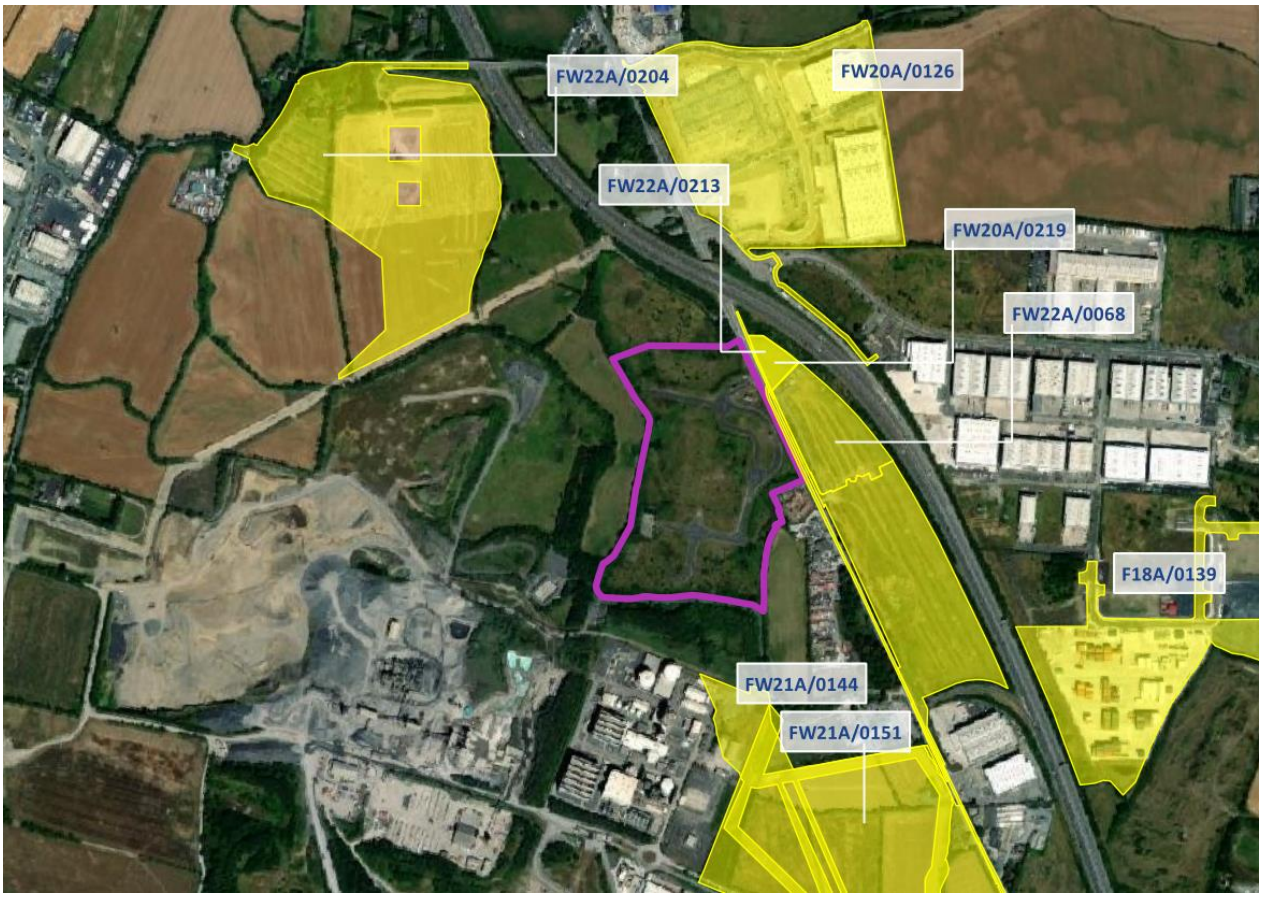

Figure 2-2 New Planning Permissions adjoining site of proposed RBSF Component since 2018

Generally, it is considered that the proposed developments outlined below would be consistent with land use patterns of the surrounding area which consists of industrial / light industrial forms of development. Furthermore, the proposed developments outlined below would generally be considered consistent with the land use zoning set out in the FDP.

2.3.3.1 ABP Ref. ABP-311528-21

An Bord Pleanála were advised that under section 182A(4)(c) of the Planning and Development Act of 2000, as amended and having regard to the provision of articles 210(5) and 213(1) of the Planning and Development Regulations 2001, as amended, that they (An Bord Pleanála) are a prescribed body to be notified by the applicant (Huntstown Power Company Ltd.) in the making of an SID application.

The proposed development comprises the construction of a 2 storey 220 kV Gas Insulated Switchgear (GIS) substation known as 'Mooretown' comprising switchgear floor, cable pit/entry room, generator room, relay room, battery room, workshop, toilet, store room, mess room, hoist space, stair cores and circulation areas (c.2,068 sqm total gross floor area) with an overall height of c.17m located within an overall EirGrid and Customer compound (c.11,231 sqm in area). Lightning electrodes are attached to the roof of the substation building resulting in an overall height of c.20m. The compound includes 4 no. 220/20 kV transformers, 4 no. 20 kV switchgear buildings and 1 no. 20 kV control room buildings (c.5 m high and c. 35.5 sqm in area each), 220 kV series coil (equipment), fire walls (ranging from c.10 m-12.5 m high), lightning finials and monopoles (c.20 m high). The overall compound is surrounded by a c.2.6 m high palisade fence.

The underground cable (Cable No. 1) will follow a route originating at the proposed Mooretown Substation extending south and then west along the private road connecting the North Road with Huntstown Power Station and Huntstown Quarry. The route terminates at a proposed joint bay on the existing Corduff cable route. The underground cable (Cable No. 2) will follow a route originating at the proposed Mooretown Substation Compound / series coil extending south across the internal road connecting the North Road with

Huntstown Power Station and Huntstown Quarry. The route terminates at a proposed joint bay on the existing Finglas cable route. Removal of the redundant sections of the 220 kV Corduff cables and 220 kV Finglas cables serving the existing AIS bay to Huntstown Power Station. The underground cable (Cable No. 3) will follow a route originating at the Mooretown GIS Substation extending south and then west to the adjacent existing ESB Huntstown A AIS station. The route terminates in the ESB Huntstown A AIS Station. The underground cable (Cable No. 4) will follow a route originating at the Mooretown GIS Substation extending south and then west to the adjacent existing Huntstown B AIS station. The route terminates in the ESB Huntstown B AIS Station.

The development includes all associated and ancillary site development and construction works, services provision, drainage works, connections to the substations, all internal road/footpath access routes, landscaping and boundary treatment works, vehicular access onto the private road to the south of the site and provision of 9 no. car parking spaces in the overall compound.

An Bord Pleanála were expected to make a decision by 8 April 2022 – a decision has not yet been made. The timeline for a decision is now unclear.

2.3.3.2 FCC Reg. Ref. F18A/0139 (ABP Ref. ABP-302361-18)

Permission was sought by Dublin Port Company for development comprising the construction of an extension to internal access road from Maple Avenue with associated works including public lighting and the development of 2 no. plots generally for industrial, warehouse, storage and logistic use. Plot 2 (c.5.42 ha) will consist of a maintenance / repair / service workshop building of c.1,050 sq. m. and an ancillary two storey office and reception building of c.297 sq. m; 3 no. container storage gantries of 250 sq. m. each; high strength ground surface treatment including underground drainage, ducting attenuation, utility infrastructure to facilitate stacked shipping container storage; wheel wash area; bunded fuel storage; lighting towers (c.35m); 3m high fence along the external site boundary; 2.05m high fence along internal site boundary; gate access; and all ancillary staff car and cycle parking. Plot 9 (c.0.67ha) will consist of a maintenance / repair / service workshop building of 994 sq. m and ancillary offices over two floors of c. 461 sq. m; high strength ground surface treatment including underground drainage, ducting, attenuation, utility infrastructure to facilitate stacked shipping container storage; lighting towers (c.35m); 3m high fence along the external site boundary; 2.05m high fence along internal site boundary; gate access; and ancillary staff car and bicycle parking. the application also includes for attenuation ponds; ESB substation; security cameras, signage, associated landscaping, boundary treatment and site works on an overall site of c. 8.45ha.

Fingal County Council granted permission on 24 July 2018. A First Party Appeal was submitted on 20 August 2018 seeking removal of Condition 6(a) – Special Development Contribution. By Order dated 16 January 2019 An Bord Pleanála removed the condition.

A Commencement Notice for this development was submitted to the BCMS on 19 October 2020 and works commenced on 2 November 2020. A Certificate of Compliance on Completion (Compliance Certificate No. CC00000035777FL) is available on BCMS.

2.3.3.3 FCC Reg. Ref. FW20A/0126 (ABP Ref. ABP-309855-20)

Permission was sought by IPUT for development comprising the provision of 4 No. warehouses with marshalling offices, ancillary office space, staff facilities and associated development. The buildings will have a maximum principal height of 17.070 No. metres to the top of the parapet above ground floor level and will comprise the following areas: Unit 1 will have a gross floor area of 21,578 sq. m. including a warehouse (20,252 sq. m.), marshalling office (66 sq. m.), ancillary office space (1,216 sq. m.) and plant (44 sq. m.); Unit 2 will have a gross floor area of 9,206 sq. m. including a warehouse (8,347 sq. m.), marshalling office (66 sq. m.), ancillary office space (757 sq. m.) and pant (36 sq. m.); Unit 3 will have a gross floor area of 16,525 sq. m. including a warehouse (15,478 sq. m.), ancillary office space (944 sq. m.) and plant (37 sq. m.); and Unit 4 will have a gross floor area of 7,342 sq. m. including a warehouse (6,648 sq. m.), marshalling office (66 sq. m.), ancillary office space (589 sq. m.) and plant (39 sq. m.). A gate house with a gross floor area of 14 sq. m. will be positioned to the south-west corner of the site. The development will also include the repositioning of the access from the L3125 Road to the north of the site to provide a

new entrance and a second vehicular access will be provided from the R135/Elm Road to the south-west. Road upgrade works are proposed along the L3125 to the north of the site which include the partial upgrade of Kilshane Cross signalised junction to incorporate a left turning lane and upgraded signals on the L3125 Local Road eastern approach arm and the provision of cycle paths and pedestrian footpaths. There will also be internal roadways; pedestrian access; 502 No. ancillary car parking spaces; bicycle parking; HGV parking and yards; level access goods doors; hard and soft landscaping; boundary treatments; ESB substations; signage; PV panels; lighting and associated site development works above and below ground. The total gross floor area of the development is 5,763 sq. m. (including warehouse structures, gate house and ESB substations).

Fingal County Council granted permission on 24 July 2018. A First Party Appeal was submitted on 20 August 2018 seeking removal of Condition 24 – Section 48 Development Contribution. By Order dated 11 October 2021 An Bord Pleanála uphold the attachment of the condition.

Multiple Commencement Notices for this development were submitted to the BCMS with first being on 21 October 2021 and works commenced on 1 November 2021. Multiple Certificates of Compliance on Completion are available on BCMS.

2.3.3.4 FCC Reg. Ref. FW20A/0211

Permission was sought by Coldwinters Devco Ltd. for development comprising 3 no. buildings for industrial/warehouse/logistics use (Units 3, 4 and 5) with gross floor area of 24,356 sq. m. Each building will measure 18.1m high (at parapet level) and have 2 storey ancillary offices. Elevational signage will be provided. The units will form Phase 2 of the Vantage Business Park, with Phase 1 to the south (units 1 and 2) under construction. The proposed development includes 39 HGV parking spaces, 224 car parking spaces, 134 cycle parking spaces, 29 dock levellers and 7 grade loading bays. All associated site works including diversion of existing foul rising main, boundary treatments, landscaping, service yards, internal road and footpaths, swales, lighting, 3 no. free standing signs, signage at entrance, refuse storage, substation, foul pumping station, extension of foul infrastructure from Phase 1, modified vehicular entrance off the R135 (including new entrance gate and pillars) and dedicated new footpath and cycleway along the east side of the R135.

Fingal County Council granted permission on 19 May 2021. The proposed development in this case is located on the opposite side of the R135 to the east of the Proposed RBSF Component site. A Commencement Notice for this development was submitted to the BCMS on 25 April 2023 and works commenced on 9 May 2023.

2.3.3.5 FCC Reg. Ref. FW20A/0219

Permission was sought by Energy Stability Services Ltd. for an amendment to the original planning permission, at this site, for a gas peaking facility with 10 no. containerised gas fired generating units, with an export capacity of 20 megawatts (MV) under planning reference FW19A/0090. Amendments are proposed to the gas peaking will consist of the installation of 6 no. battery storage units with an export electricity capacity of 10-15 MV and 4 no. containerised gas fired generating units with an export electricity capacity of 10 MV, in replacement for the 10 no. containerised gas fired generating units, granted under planning reference FW19A/0090. 3 no. inverter transformers will also be added to the site, being the battery storage units. Other elements of the development will remain the same as FW19A/0090 and include an underground cabling route c 1.45km along the R135 road. 1 no. single storey electrical substation building, 1 no. customer switch entrance, security gates gear, electrical inverter/transformer station modules, concrete support structures, heating, ventilation and air conditioning units (HC/AV units), underground gas pipework and connection points, access tracks and new site entrance, security gates, perimeter security fencing, CCTV security monitoring system, landscaping works, and all associated ancillary infrastructure.

Fingal County Council granted permission on 7 April 2021.The proposed development in this case is located directly opposite the permitted access point of the Proposed RBSF Component site. A Commencement Notice for this development has not been submitted to the BCMS.

2.3.3.6 FCC Reg. Ref. FW21A/0144

Permission was sought by TLI Group Ltd. for development comprising the installation of electrical infrastructure between Finglas substation and Huntstown Power Station to facilitate the retirement of existing Electricity Supply Board overhead powerlines and facilitate site clearance for the future development of a data centre and substation (subject to separate planning applications). This will include (i) the installation of approximately three underground cable circuits of 1.2km length (110kV) and one circuit 1.2km length (38kV) and associated underground ducting, joint bays and infrastructure between the existing ESB Finglas substation and an agreed location within Huntstown Power Station (ii) installation of one c.28m double circuit 110 kV cable end tower and one c.17 single circuit 110kV angle mast (iii) removal of 10Nr. existing 110kV timber polesets, 9 Nr. existing 38kV timber polesets, 3 Nr. 38kV lattice steel tower & associated overhead line electrical infrastructure; all associated and ancillary site development, landscaping and construction works, all within the townlands of Johnstown, Huntstown, Coldwinters & Balseskin at Blanchardstown & Finglas, County Dublin.

Fingal County Council granted permission on 11 August 2021.

A Commencement Notice for this development has not been submitted to the BCMS.

2.3.3.7 FCC Reg. Ref. FW21A/0151 (ABP Ref. ABP-313583-22)

Permission was sought by Huntstown Power Company Limited for development comprising the Demolition of 2 no. existing residential dwellings and ancillary structures to the east of the site (c.344qm total floor area); Construction of 2 no. data hall buildings (Buildings A and B) comprising data hall rooms, mechanical and electrical galleries, ancillary offices including meeting rooms, workshop spaces, staff areas including break rooms, toilets, shower/changing facilities, storage areas, lobbies, outdoor staff areas, loading bays and docks, associated plant throughout, photovoltaic panels and screened plant areas at roof levels, circulation areas and stair and lift cores throughout; External plant and 58 no. emergency generators located within a generator yard to the east and west of Buildings A and B at ground level. The area is enclosed by a c.6.5m high louvred screen wall. The proposed data halls (Buildings A and B) are arranged over 3 storeys with a gross floor area of C.37,647sqm each. The overall height of the data hall buildings is c28m to roof parapet level and c32m including roof plant, roof vents and flues. The total height of Buildings A and B does not exceed 112m OD (above sea level); The proposed development includes the provision of a temporary substation (c.32sqm), water treatment building (c. 369sqm and c.7.7m high), 7 no. water storage tanks (2,800m3 in total and c.6.4m high each), 2 no. sprinkler tanks (c.670m3 each and c.7.9m high each) with 2 no. pump houses each (c.40sqm and c. 6m high each); The total gross floor area of the data halls and ancillary structures is c.75,775sqm; All associated site development works, services provision, drainage upgrade works, 2 no. attenuation basins, landscaping and berming (c.6m high), boundary treatment works and security fencing up to c.2.4m high, new vehicular entrance from the North Road, secondary access to the south west of the site from the existing private road, all internal access roads, security gates, pedestrian/cyclist routes, lighting, 2 no. bin stores, 2 no. bicycle stores serving 48 no. bicycle spaces, 208 no. parking spaces including 10 no. accessible spaces, 20 no. electric vehicle charging spaces and 8 no. motorcycle spaces; Existing electricity overhead lines traversing the site will be undergrounded under concurrent application Ref. FW21A/0144; A proposed 220kv substation located to the south west of this site will be subject of a separate Strategic Infrastructure Development application to An Bord Pleanála under section 182A of the Planning and Development Act 2000 (as amended).

Fingal County Council granted permission on 20 April 2022. Two Third Party Appeals were made (ABP Ref. ABP-313583-22) and a decision was originally expected by 16 May 2022 and subsequently extended to 9 December 2022. On 7 December 2022 An Bord Pleanála wrote to Fingal County Council confirming that it was not in a position to determine the appeal before 9 December 2022 – the timeline for a decision is now unclear.

2.3.3.8 FCC Reg. Ref. FW22A/0068

Permission was sought by Abbey Issuer DAC for development comprising 1 no. building for warehouse/logistics use, to be known as Unit 6, with a gross floor area of 9,821 sq.m. The building will

measure 18.1m high (at parapet level) and have 2 storey ancillary offices. Elevational signage will be provided. The unit will form part of Phase 2 of Vantage Business Park along with Units 3, 4 and 5 (permitted under reference FW20A/0211), Phase 1 to the south consists of Unit 1 under construction and Unit 2 complete in 2019. The proposed development includes 6 no. HGV parking spaces, 82 no. car parking spaces, 58 no. cycle parking spaces, 8 no. dock levellers and 2 no. grade loading bays. All associated siteworks including diversion of existing foul rising main, boundary treatments, landscaping, service yards, internal road and footpaths, dry detention basins/swales, lighting, 1 no. free standing sign, security and access control room, signage at entrance, refuse storage, heat pumps and all associated siteworks including drainage infrastructure.

Fingal County Council granted permission on 13 July 2021. The proposed development in this case is located on the opposite side of the R135 to the east of the Proposed RBSF Component site. A Commencement Notice for this development has not been submitted to the BCMS.

2.3.3.9 FCC Reg. Ref. FW22A/0204 (ABP Ref. ABP-317480-23)

Permission was sought by Kilshane Energy Ltd for development comprising 1) The construction of a new Gas Turbine Power Generation Station with an output of up to 293 Megawatts. The proposed station will consist of 1 no. Gas Turbine and 1 no. 28 m high Exhaust Stack partially enclosed by a 12 m high acoustic wall. 1 no. single storey Admin Building and Warehouse (c. 926 m^2), 1 no. single storey Packaged Electronic/Electrical Control Compartment (PEECC) (c. 72 m^2), 1 no. single storey Continuous Emission Monitoring System (CEMS) Shelter (c. 14.8 m^2), 1 no. 16.2m high x 024.4m Fuel Oil Tank, 1 no. 15.3m high x 09.2m Raw/Fire Water Tank, 1 no. 16.2m high x 018.3m Demin Water Tank, and miscellaneous plant equipment. 2) The demolition of a detached residential dwelling (c. 142 m^2 GFA) and associated farm buildings (c. 427 m^2 GFA) located in the northwest corner of the subject site to facilitate the proposed development. 3) Road improvement works to 493.34 m Kilshane Road (L3120), including the realignment of a portion of the road (293.86 m) within the subject site boundary and the provision of new footpaths, off-road cycle ways, together with the construction of a new roundabout linking the proposed realignment of Kilshane Road back to the existing road network to the northeast of the subject site and to the proposed internal road network to serve the proposed development. 4) The construction of entrance gates, low wall and railings fronting the realigned Kilshane Road and a private internal road network providing for vehicular, cyclist and pedestrian access to serve the development. Construction of 3 m high security fencing within development. 5) Total provision of 26 no. car parking spaces including 1 no. disabled persons parking space and 2 no. EV electrical charging points. 6) Provision of security lighting columns to serve the development and the installation of Closed-Circuit Television System (CCTV) for surveillance and security purposes. 7) Provision of 20 no. sheltered bicycle parking spaces. 8) Provision of hard and soft landscaping works, tree planting and boundary treatments including 3 m high security fence along Kilshane Road and the perimeter of the subject site boundary. 9) Provision of new on-site foul sewer pumping station to serve the development. 10) Provision of underground surface water attenuation areas to serve the development. All associated site development and excavation works, above and below ground, necessary to facilitate the development.

Fingal County Council granted permission on 23 June 2023. A Third Party Appeal has been made (ABP Ref. ABP-317480-23) with a decision expected by 2 November 2023.

2.3.3.10 FCC Reg. Ref. FW22A/0213

Permission was sought by Energy Stability Services Ltd. for a development comprising 1no. DSO (Distribution System Operator) electrical substation building. 1 no. customer switchgear, electrical inverter / transformer station modules. 40 no. containerised battery storage units on concrete support structures, heating, ventilation and air conditioning units (HVAC units), access tracks and upgraded site entrance, underground cabling route c. 1.45 km to existing ESB 220kV Finglas Electricity Substation, associated electrical cabling and ducting, security gates, palisade perimeter security fencing, CCTV security monitoring system and landscaping works and all associated ancillary site infrastructure.

Fingal County Council granted permission on 28 February 2023.

2.3.3.11 FCC Reg. Ref. FW23A/0111

Permission was sought by Rathdrinagh Land Unlimited Company for development comprising he construction of a Materials Recovery Facility along with a Food Container Cleaning Plant. The development is phase one of the Huntstown Circular Economy Hub and will include for the following works: 1) The development will consist of the erection 2no. separate buildings and associated site area for use as a Circular Economy Hub. 2) The processes to be carried out within the Materials Recovery Facility building include for the sorting of range of wastes into recoverable and recyclable streams. Recoverable wastes to processed will include for potential recyclables. This building will include for an external odour control plant with associated flue. 3) The processes to be carried out in the Food Container Cleaning Plant building will provide a centralised washing/sterilisation facility for large food retailers in the area to facilitate re-use of containers. 4) The 2 no. buildings to be constructed will incorporate ancillary office and staff facilities along with solar PV panels and signage. 5) The development of associated access roads, turning/loading areas, footways, parking areas, electric vehicle charge points, landscaping, lighting, fencing, bicycle and bin storage facilities and associated site works. 6) The provision of an ESB substation. 7) The provision of ancillary external storage areas. 8) The reprofiling of existing ground levels within the site and associated works to include for infilling and reprofiling of lands within the overall site area. 9) The provision of a new site entrance with associated works to facilitate vehicular and pedestrian access along with associated upgrade works to the adjacent public road to include for provision of footpaths and cycle paths. 10) The provision of a weighbridge and associated staff building at the entrance. 11) The provision of perimeter fencing and security gates. 12) The provision of all associated hard and soft landscaping works. 13) Provision of attenuation tanks and associated infrastructure as part of the surface water system along with installation of a bypass petrol interceptor. 14) All ancillary site development, landscaping and construction works to facilitate foul; water and service networks.

As previously set out in Section 2 (Planning and Policy Context) in Volume 4 Part A of the EIAR submitted with the original 2018 planning application the Proposed RBSF Component itself will not have any adverse impact on any of the permitted schemes noted above, when compared to the already permitted development on these lands.

Fingal County Council requested Further Information on 12 June 2023. At the time of writing, a response to the request for Further Information has not been made to Fingal County Council.

2.4 Conclusion

This Section of the EIAR Addendum has considered all updates to planning and policy context and planning history since the 2018 planning application submission. Following consideration, there are no changes to the Planning and Policy Context as a result of any of the updates discussed in this Section of the EIAR Addendum.

2.5 References

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SECTION 3A Population and Human Health

3.1 Introduction

As detailed in Chapter 1A (Introduction) in Volume 2A Part A of this Environmental Impact Assessment Report (EIAR) Addendum, Section 3 (Population and Human Health) in Volume 4 Part A of the EIAR submitted with the original 2018 planning application has been reviewed in the light of:

- Changes to the baseline environment;
- The requirement for updated surveys;
- Updated development plans;
- The updated cumulative assessment;
- EPA updated guidelines; and
- Changes to the law, policy, and industry standards and guidance in the intervening period.

The description of the Regional Biosolids Storage Facility (RBSF) remains as presented in Chapter 4 (Proposed Project Description) in Volume 2 Part A of the EIAR submitted with the original 2018 planning application, as supplemented by Chapter 4A (Proposed Project Description) in Volume 2A Part A of this EIAR Addendum.

3.1.1 Population

The Regional Planning Guidelines for the Greater Dublin Area 2010 – 2022 have now been replaced by the Eastern & Midland Regional Assembly – Regional, Spatial and Economic Strategy (EMRA RSES) 2019 – 2031. The policies and objectives of the strategy are consistent with the contents of the previous guidelines which identifies requirements to meet the forecasted population increase over each respective plan period. There is no new information in the strategy that is relevant to the Proposed RBSF Component. The increase in population outlined under these reports is reflected in the current trend of population growth as noted under Table 3-1 below.

In the EIAR submitted with the 2018 application, assessments of other environmental factors were referenced in this section to address potential anticipated Population and Human Health impacts. This was in accordance with the Environmental Protection Agency (EPA) Draft Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (August 2017) (hereafter referred to as the Draft EPA Guidelines) (EPA 2017). In 2022, the EPA published an updated set of Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (hereafter referred to as the updated EPA Guidelines) (EPA 2022). The potential anticipated Population and Human Health impacts are now assessed in accordance with the updated EPA Guidelines.

The potential impacts of the Proposed RBSF Component on the study area population have been reassessed against the updates to the EIAR stated in the relevant sections' Addendum Reports, namely:

- Volume 4, Section 4A: Water;
- Volume 4, Section 7A: Land and Soils;
- Volume 4, Section 8A: Air and Climate;
- Volume 4, Section 9A: Noise and Vibration;
- Volume 4, Section 10A: Odour;
- Volume 4, Section 12A: Material Assets;
- Volume 4, Section 13A: Traffic; and
- Volume 4, Section 14A: Landscape.

There are no other changes to this Section of Chapter 3 (Population and Human Health) in Volume 4 Part A of the EIAR submitted with the original 2018 planning application.

3.1.2 Human Health

The purpose of the Human Health assessment remains consistent with the approach outlined in this Section of the EIAR in the 2018 planning application. Therefore, there are no changes to the information presented in this Section of the EIAR since the 2018 planning application.

3.2 Methodology

As discussed, the EPA published the updated EPA Guidelines in 2022 and these have been considered in terms of the methodology applied in this Section of the EIAR in the 2018 planning application, which incorporated the previous Draft EPA Guidelines (EPA 2017). It has been determined that the methodology used for the original assessment is consistent with the updated EPA Guidelines.

The other guidelines included in this Section of the EIAR in the 2018 planning application remain unchanged.

3.2.1 Population

There are no changes to the methodology for population assessment for the EIAR submitted with the 2018 planning application.

The study area remains the same since the 2018 planning application. However, consideration was previously given to the Greater Dublin Area (GDA) as defined in the Regional Planning Guidelines for the Greater Dublin Area 2010 – 2022. The Dublin Metropolitan Area (DMA) is the geographic area identified in the EMRA RSES 2019 – 2031. It should be noted that assessment at this geographic level does not impact on the assessment previously carried out as part of this section of the EIAR since the 2018 planning application as population projections for the GDA can be extrapolated from Census 2022 data.

Central Statistics Office (CSO) data from Census 2022 is used and assessed where available. 'Census of Population 2022 - Summary Results' was released on 30 May 2023. The full suite of Census 2022 data will not be available until the end of 2023.

3.2.2 Human Health

Since the submission of the EIAR in the 2018 planning application, a series of new guidelines and methodologies have been introduced in the Human Health field. This revised assessment has been prepared having regard to the following guidelines:

- International Association for Impact Assessment (IAIA) Addressing Human Health in Environmental Impact Assessment - As per EU Directive 2011/92/EU amended by 2014/52/EU. Consultation Draft. (hereafter referred to as Addressing Human Health in EIA) (IAIA 2019);
- Updated EPA Guidelines (EPA 2022);
- Institute of Environmental Management and Assessment (IEMA) Guide to: Effective Scoping of Human Health in Environmental Impact Assessment (IEMA 2022a);
- IEMA Guide to: Determining Significance For Human Health In Environmental Impact Assessment (IEMA 2022b);
- Former Department of Housing, Planning and Local Government (DHPLG) Guidelines for Planning Authorities and an Bord Pleanála on carrying out Environmental Impact Assessment, (DHPLG 2018);
- European Public Health Association (EUPHA) Addressing Human Health in Environmental Impact Assessment (EUPHA 2019);
- Impact Assessment Outlook Journal (Volume 8: October 2020) - Health Impact Assessment in Planning (IEMA 2020);
- Institute of Public Health (IPH) Health Impact Assessment Guidance (IPH 2021);
- Human Health Ensuring a High Level of Protection (IAIA 2020);
- Health in Environmental Impact Assessment - A Primer for a Proportionate Approach (IEMA, 2017);
- World Health Organisation (WHO) Environmental Noise Guidelines for the European Region (WHO 2018); and
- Air Quality Guidelines (WHO 2021).

The Department of Health's *Health in Ireland – Key Trends 2022* have been assessed and used where available and relevant to give context and background information about baseline health trends in Ireland.

The EPA Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EPA, 2022) note that the health assessment approach followed on it is consistent with the approach set out previously in the Draft EPA Guidelines (EPA 2017), where health was considered through assessment of the environmental pathways through which it could be affected, such as air, water or soil. The current Guidelines state:

'The evaluation of effects on these pathways is carried out by reference to accepted standards (usually international) of safety in dose, exposure or risk. These standards are in turn based upon medical and scientific investigation of the direct effects on health of the individual substance, effect or risk. This practice of reliance upon limits, doses and thresholds for environmental pathways, such as air, water or soil, provides robust and reliable health protectors [protection criteria] for analysis relating to the environment'.

In terms of human health protection, emissions during the Construction or Operational Phase of the Proposed Project will need to be identified and compared against reliable Health Based Standards. Reliable sources of the standards may be regulatory such as the EU, such as Air Quality Standards, or based on expert opinion such as is provided by the WHO as is the case with noise guidelines.

The updated EPA Guidelines also note that in an EIAR:

'the assessment of impacts on population & human health should refer to the assessments of those factors under which human health effects might occur, as addressed elsewhere in the EIAR e.g. under the environmental factors of air, water, soil etc.', and that,

'assessment of other health & safety issues are carried out under other EU Directives, as relevant. These may include reports prepared under the Integrated Pollution Prevention and Control, Industrial Emissions, Waste Framework, Landfill, Strategic Environmental Assessment [SEA], Seveso III, Floods or Nuclear Safety Directives. In keeping with the requirement of the amended Directive, an EIAR should take account of the results of such assessments without duplicating them'.

In 2022, IEMA published a Guide to: Effective Scoping of Human Health in Environmental Impact Assessment (IEMA 2022a) and a Guide to: Determining Significance For Human Health In Environmental Impact Assessment (IEMA 2022b) (collectively referred to as the 2022 IEMA Guides). The 2022 IEMA Guides place a further emphasis on the outcomes of Health in Environmental Impact Assessment – A Primer for a Proportionate Approach (hereafter referred to as the 2017 Primer) (IEMA 2017). The 2017 Primer was a primer for what a proportionate assessment of the impacts on health should be in Environmental Impact Assessment (EIA) and is a useful document when considering what can and should be assessed. The 2017 Primer outlined that there should be a greater emphasis on health outcomes, as opposed simply to the health determinants or the agents or emissions (e.g. dust) which could have the potential to have health effects, which had previously been the focus of EIA.

The 2017 Primer recommendations, as further supported by the 2022 IEMA Guides, remain entirely consistent with the updated EPA Guidelines and the information that should be contained in an EIAR when considering human health.

The 2017 Primer and 2022 IEMA Guides note that public health has three domains of practice that should be considered in the assessment of health in EIA:

- Health protection (including chemical and radiation exposure, health hazards, emergency response and infectious diseases);
- Health improvement (including lifestyle, inequalities, housing, community and employment); and
- Improving services (including service planning, equity and efficiencies).

It should be noted that the WHO defined health in its broader sense in the Constitution of the World Health Organization, which came into force in April 1948 (WHO 1948), as:

'a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity.'

Therefore, whilst the updated EPA Guidelines are useful in terms of health protection, for a more holistic assessment as per the 2017 Primer and 2022 IEMA Guides, it remains worthwhile to look at broader health effects in terms of opportunities for improvement of health and for improvement of access to services. While it is important to do this, it is also important not to attribute every conceivable event as being a health effect. To further rely on the WHO definition, a health effect would be something that would have a material impact on somebody's physical mental and social well-being, be that positive or negative. As outlined in *Addressing Human Health in EIA* (IAIA 2019), which was published following the submission of the 2018 planning application, the public health perspective is underpinned by five principles:

- A comprehensive approach to health: Physical, psychological and social wellbeing is determined by a wide range of factors across society and consideration of these wider determinants and their interrelationships will inform the assessment of human health. Inter-sectoral collaboration, between public health and other sectors, should be a feature of coherent coverage of health in EIA;
- Equity: The distribution of health impacts across the population must be considered, paying specific attention to vulnerable groups. Where impacts that are unfair and avoidable are identified, appropriate measures must be included to avoid or reduce adverse health outcomes, or to improve health outcomes for affected groups;
- Transparency: A transparent EIA process facilitates cooperation and communication, external to the organisation conducting the EIA. It enhances the process and improves effectiveness. The reporting of the EIA must demonstrate a clear and consistent method and reasoned conclusions;
- Proportionality: The scoping of human health issues into EIA will focus on whether the potential impacts are likely to be significant. Effort is then focused on identifying and gaining commitment to avoiding or reducing adverse effects and to enhancing beneficial effects. The assessment findings should be presented clearly and aim to be concise and precise and to give appropriate weight to health as a material consideration; and
- Consistency: The assessment should be based on evidence and on sound judgment. The assessment process should follow an acceptable, explicit logic path and retain common sense in applying relevant guidance. Divergence from accepted practice should be explained. The assessment, its process and conclusions, should be in accordance with up-to-date policy, guidance and scientific consensus. This acknowledges the potential for conflict between policy and emerging evidence.
- Regard has been given to the general approach advocated in the 2017 Primer and the recently published 2022 IEMA Guides, in addition to the updated EPA Guidelines, when compiling this Section of the EIAR Addendum. However, it should be noted that, following review, the updated guidelines have no material impact on the previous assessment completed as part of the 2018 planning application. Therefore, health protection, health improvement and improving services all continue to be considered in this Section of the EIAR Addendum, in line with the approach in the EIAR in the 2018 planning application.

Literature review of medically published journals and papers relevant to the Proposed RBSF Component and associated impacts was part of the methodology for the EIAR in the 2018 Planning Application. An updated literature review was carried out in August 2023, by means of a PubMed search using the key words 'Wastewater Treatment' and 'Biosolids Storage'. Results were filtered for the last five years in order to identify any relevant publications since the last review completed for the 2018 planning. While there were a significant number of articles returned in the general search, it was determined upon review that none were of relevance to the Proposed RBSF Component and this assessment.

In this section of the EIAR in the 2018 planning application, it was explained that given the regional significance of the Proposed RBSF Component, there are two natural populations to consider; the Regional level and the Local level. This has not changed since.

3.2.2.1 Regional Level

Since the catchment of the GDD Wastewater Treatment Plant has not changed since the submission of the 2018 planning application, there are no changes to the information presented in this Section of the EIAR.

3.2.2.2 Local Level

The location of the RBSF Component and the nature of the 'local level' have not changed since the submission of the 2018 planning application, there are no changes to the information presented in this Section of the EIAR.

3.3 Existing Environment

3.3.1 Population

The three principal elements of the assessment of the receiving environment in terms of population remain as presented in this Section of the EIAR in the 2018 planning application.

3.3.1.1 The Resident Population

Regional Level

The Greater Dublin Area (GDA) defined in the Regional Planning Guideline was adopted as the regional area in the EIAR submitted with the 2018 planning application. This was because the Ringsend WwTP and GDD catchment encompasses a significant part of the metropolitan area of the GDA (see Figure 3.1 of this Section of the EIAR in the 2018 planning application). Table 3.1 in this Section of the EIAR in the 2018 planning application showed Regional Population Targets for 2010, 2016 and 2022. An updated Table 3.1 is provided below which shows the population projections up to 2036.

Table 3.1 Regional Population Targets 2008-2036

	2008	2010	2016	2022	2029	2036
Dublin	1,217,800	1,256,900	1,361,200	1,464,200	1,678,866	1,860,684
Mid-East	514,500	540,000	594,600	649,700	864,776	965,275
*GDA	1,732,300	1,7966,900	1,955,800	2,113,900	2,493,191	2,736,886
State	4,422,000	4,584,900	4,997,000	5,375,200	5,469,286	5,812,497

Note: For purposes of comparison with the population assessment for the 2018 EIAR, the GDA continues to be used as a regional boundary for the assessment of population statistics for the RBSF

The 2022 Census figures provide the latest indication of how the growth in the GDA compares with the population targets from CSO Regional Population Projections 2017 – 2036.

The Regional Planning Guidelines for the GDA envisage a population of 2,113,900 by 2016, whereas the 2022 Census shows that the population is actually 2,082,605. This shows that the actual projections, while below the set target by -1.5%, remain close to the expected projections as similarly presented in this Section of the EIAR in the 2018 planning application. The current government emphasis is to continue to build additional homes and to create additional jobs in urban areas as reflected in the National Planning Framework – Project Ireland 2040and the EMRA RSES 2019 – 2031.

Table 3.2 Population Change at State, Region, City and Local Level 2002-2022

	2002	2006	% Change from 02-06	2011	% Change from 06-11	2016	% Change from 11-16	2022	% Change from 16-22
State	3,917,203	4,239,848	8.2%	4,588,252	8.2%	4,761,868	3.8%	5,149,139	8.1%
GDA	1,535,446	1,662,536	8.3%	1,804,156	8.5%	1,907,332	5.7%	2,082,605	9.2%
Fingal County	196,413	239,992	22.2%	273,991	14.2%	296,000	8.0%	330,506	11.6%
Local Area	2,146	8,928	316.0%	14,600	63.5%	16,974	16.3%	22,220	23.6%

Note: Data based on Census of Population 2022 - Summary Results (30 May 2023)

The above table shows that the population at State, GDA, Fingal and local level has continued to increase across the various 4-year increments as similarly presented within the EIAR in the 2018 planning application. The population change between 2016-2022 shows the Local Area doubling (23.6%) compared to Fingal County (11.6%). This is not unexpected given the location of the Local Area on the edge of the Dublin City boundary. As discussed below, the population across the Local Area is dispersed across a series of distinct locations within it, but none in close proximity to the application site.

Local Level

Table 3.3 in this Section of the EIAR in the 2018 planning application showed changes in population at a local level. At the local level, Summary Results for Census 2022 population data is available for the Ward and Dubber Electoral Division (ED). An updated Table 3.3 is provided below.

Table 3.3 Population of the Local Level

Electoral Division	2002	2006	% Change from 02-06	2011	% Change from 06-11	2016	% Change from 11-16	2022	% Change from 16-22
Ward	1,308	5,181	+3,873 (296.1%)	8,241	+3,060 (59.1%)	9,602	+1,361 (16.5%)	13,242	+3,640 (37.9%)
Dubber	838	3,747	+2,909 (347.1%)	6,359	+2,612 (69.7%)	7,372	+1,013 (15.9%)	8,812	+1,440 (19.5%)
Local Area	2,146	8,928	+6,782 (316.0%)	14,600	+5,672 (63.5%)	16,974	2,374 (16.3%)	22,220	5,246 (23.6%)

It is clear that the population at a local level continues to grow steadily, showing an increase of 23.6% from 2016 – 2022 (based on Summary Results for Census 2022). It is considered unlikely that these figures will change substantially on release of the full suite of Census 2022 data.

The main residential areas, as presented in Table 3-4 in this Section of the EIAR in the 2018 planning application remain unchanged. Notwithstanding that, Small Area Statistics are not yet available. It is unlikely that concentration of population as presented in Figure 3-3 in this Section of the EIAR in the 2018 planning application will change significantly. Furthermore, as presented in the Section 2A, Planning and Policy Context Addendum Report in Volume 4 Part A the land use zoning in the general area remain the same meaning the predominant land use in proximity to the site continues to be industrial in nature.

3.3.1.2 The Working Population

Since the submission of the EIAR in the 2018 planning application, updated CSO Labour Force Surveys have been published. According to the CSO Labour Force Survey Quarter 4 2022, the seasonally adjusted Standardised Unemployment Rate (SUR) shows that the numbers unemployed stood at 119,100 (4.5%).

The rate of unemployment has fallen steadily since the submission of the 2018 planning application (identified then as 6.5%). This is consistent with a generally positive economic outlook for the State.

Regional Level

Since the submission of the EIAR in the 2018 planning application, updated CSO Labour Force Surveys have been published. According to the CSO Labour Force Survey Quarter 4 2022[1], regionally, the largest decrease occurred in the Dublin region (- 4,800 no. persons – 4.7% unemployment) followed by the Mid-East region (-4,200 no. persons – 4% unemployment). A full dataset for the Regional Level is not yet available from the Census 2022 data to compare the actual percentage changes in unemployment from 2016 to 2022.

Based on national trends, as identified above, it likely that unemployment is falling at a similar rate at Regional Level.

Local Level

As a full dataset for the Local Level is not yet available from the Census 2022 data, there are no changes to the information on working population at a local level presented in this Section of the EIAR in the 2018 planning application.

It should be noted that a number of planning permissions opposite the application site on the R135 have commenced, as presented in Section 2A (Planning and Policy Context) in Volume 4A Part A of this EIAR Addendum. This will result in an increase in the working population of the Local Level both within the short and long term.

3.3.1.3 The Visiting Community

Regional Level

As no new recreational activities and attractions have been set in close proximity to the Proposed RBSF Component site since the submission of the 2018 planning application, there are no changes to the information presented in this Section of the EIAR.

Local Level

Hollystown Golf Course, listed in the EIAR in the 2018 planning application as a recreational area in the local level, has closed since 2018. Planning permission for a GAA sports facility on part of the golf club site was granted in 2022, which has the potential to be in construction or operational during the RBSF construction. The assessment undertaken in this Section of the EIAR in the 2018 planning application does not change as a consequence of this potential new facility.

3.3.2 Human Health

As of September 2023, a full dataset for the Health data is not available from the Census 2022 data. In addition, the Department of Health Key Trends in Ireland 2022 was reviewed but none of the figures provided in it are comparable to the statistics used in the 2018 EIAR assessment. Furthermore, no new facilities relevant to Human Health, such as hospitals, nursing homes and medical centres, have been built within

the study area since the 2018 planning application. Therefore, there are no changes to the information presented in this Section of the EIAR since the 2018 planning application.

3.4 Characteristics of the RBSF Component of the Proposed GDD Project

As the characteristics of the RBSF Component have not changed since the submission of the EIAR in the 2018 planning application, there are no changes to the information presented in this Section of the EIAR.

3.5 Potential Impacts

3.5.1 Do-Nothing Impacts

In this Section of the EIAR submitted with 2018 planning application, it was stated that, given the continued upwards trend in population figures and the continued need to upgrade wastewater systems to higher environmental standards, the do-nothing scenario is not an option. Since the 2018 planning application, CSO data show a continued upwards trend in 2022 population figures. The statements in this Section of the EIAR in the 2018 planning application therefore remain unchanged.

3.5.2 Construction Phase

3.5.2.1 Resident Population

Regional Level

There are no changes to the information presented in this Section of the EIAR since the 2018 planning application. While the population at Regional Level has predictably increased (as evidenced in Section 3.3.1.1 above), it is still not considered likely that there will be any adverse indirect impact to the population of the GDA arising from the construction phase due to the localised nature of the works in the context of the wider geographic area of the GDA.

Local Level

There are no changes to the information presented in this Section of the EIAR since the 2018 planning application. It is noted that the population at Local Level continues to increase, however, the main residential areas remain significantly removed from the site of the RBSF Component.

Any changes to the details of the impacts related to construction related dust and noise and the proposed mitigation measures since the 2018 planning application are discussed in detail in the Addendum Reports for Volume 4 Section 8A: Air and Climate and Section 9A: Noise and Vibration.

3.5.2.2 Visiting Community

Regional Level

As there are no new recreational activities and attractions identified since the 2018 planning application, there are no changes to the information presented in this Section of the EIAR since the 2018 planning application. It is still considered that there is no potential for significant direct impacts on the visiting population arising from the construction phase.

Local Level

Since the 2018 planning application the Hollystown Golf Course closed and planning permission has been granted on those lands for a GAA sports facility, therefore, there is no significant change in the visiting community at Local Level. As such, there are no changes to the information presented in this Section of the EIAR since the 2018 planning application.

Any changes to the details of the impacts related to construction related dust, noise and vehicular movements and the proposed mitigation measures since the 2018 planning application are discussed in detail in the Addendum Reports for Volume 4 Section 8A: Air and Climate, Section 9A: Noise and Vibration and Section 13A: Traffic.

3.5.2.3 Human Health

Air and Climate

As outlined in Addendum Section 8A, there has been no changes in the assessment of air and climate, as presented in this Section of the EIAR in the 2018 planning application. No air quality standards would be breached either during the construction phase, so no adverse human health impacts are predicted as a result of air quality impacts.

Noise and Vibration

As outlined in Addendum Section 9A, there has been no changes in the assessment of noise and vibration, as presented in this Section of the EIAR in the 2018 planning application. No adverse noise impacts are predicted either during the construction phase, so no adverse human health impacts are predicted as a result of construction noise.

Traffic

As outlined in Addendum Section 13A, there has been no changes in the assessment of traffic, as presented in this Section of the EIAR in the 2018 planning application. No adverse traffic impacts are predicted either during the construction phase, so no adverse human health impacts are predicted as a result of construction traffic.

Rodent and Pest Control

Since the assessment of the impact of rodents on human health remains as presented in the 2018 EIAR, there has been no changes in the assessment in this section of the EIAR since the 2018 planning application.

3.5.3 Operational Phase

3.5.3.1 Resident Population

Regional Level

As there are no significant changes to the design of the Proposed RBSF Component and the characteristics of the environs of the site, the assessment undertaken in this section of the EIAR remains the same. The upgrading of the wastewater infrastructure will continue to positively facilitate the growth of the Greater Dublin Area, which in turn supports development of residential, commercial and industrial projects. As such, there are no changes to the information presented in this Section of the EIAR since the 2018 planning application.

Local Level

Impacts remain likely to include the potential for dust arising from the transfer of biosolids, potential odour generated from the transfer of biosolids and noise generated by plant and the movement of vehicles on site and the additional movements generated by HGVs. The continued likely effects are not significant and are not long-term.

Any changes to the details of the impacts related to construction related dust, noise and vehicular movements and the proposed mitigation measures since the 2018 planning application are discussed in detail in the Addendum Reports for Volume 4 Section 8A: Air and Climate, Section 9A: Noise and Vibration, Section 10A: Odour and Section 13A: Traffic.

Therefore, there are no changes to the information presented in this Section of the EIAR since the 2018 planning application.

3.5.3.2 Working Population

Regional Level

The Proposed RBSF Component will serve the Ringsend WwTP and GDD which in turn will facilitate development within the Greater Dublin Area. The operational phase of the proposed development can be expected to generate further employment opportunities within the wider regional economy. Therefore, there are no changes to the information presented in this Section of the EIAR since the 2018 planning application.

Local Level

As there are no changes to the design of the Proposed RBSF Component, there are no changes to the number of full-time operators or associated impacts, as presented in this Section of the EIAR since the 2018 planning application.

3.5.3.3 Visiting Community

Regional Level

HGV movements during the operational phase would continue to have the potential for adverse impacts. The details of the impacts of HGV movements and the proposed mitigation measures are discussed in detail under Section 13A: Traffic.

As such, there are no changes to the information presented in this Section of the EIAR since the 2018 planning application.

Local Level

Impacts remain likely to include the potential for dust arising from the transfer of biosolids, potential odour generated from the transfer of biosolids and noise generated by plant and the movement of vehicles on site and the additional movements generated by HGVs. The continued likely effects are not significant and long-term.

Any changes to the details of the impacts related to construction related dust, noise and vehicular movements and the proposed mitigation measures since the 2018 planning application are discussed in detail in the Addendum Reports for Volume 4 Section 8A: Air and Climate, Section 9A: Noise and Vibration, Section 10A: Odour and Section 13A: Traffic.

As such, there are no changes to the information presented in this Section of the EIAR since the 2018 planning application.

3.5.3.4 Human Health

The information presented in this Section of the EIAR in the 2018 planning application remains valid. An efficient and functioning wastewater system, of which this project is an integral part is a necessity for both residential and economic development in a modern economy.

As there are no significant changes to the design of the Proposed RBSF Component and the characteristics of the environs of the site, the assessment undertaken in this section of the EIAR remains the same. The upgrading of the wastewater infrastructure will continue to positively facilitate the growth of the Greater Dublin Area, which in turn supports development of residential, commercial and industrial projects. As such, there are no changes to the information presented in this Section of the EIAR since the 2018 planning application.

Air Quality

As outlined in Addendum Section 8A, there has been no changes in the assessment of air and climate, as presented in this Section of the EIAR in the 2018 planning application. No air quality standards would be breached during the operational phase, so no adverse human health impacts are predicted as a result of air quality impacts.

Noise

As outlined in Addendum Section 9A, there has been no changes in the assessment of noise and vibration, as presented in this Section of the EIAR in the 2018 planning application. No adverse noise impacts are predicted during the operational phase, so no adverse human health impacts are predicted as a result of operational noise.

Traffic

As outlined in Addendum Section 13A, there has been no changes in the assessment of traffic, as presented in this Section of the EIAR in the 2018 planning application. No adverse traffic impacts are predicted during the operational phase, so no adverse human health impacts are predicted as a result of operational traffic.

Potential for Pathogens

The treatment and storage process for biosolids outlined in this Section of the EIAR in the 2018 planning application remain valid and robust and it can still be concluded that the storage of biosolids at the proposed facility will not give rise to significant effects on human health.

Odour

In the 2018 EIAR, Odour was addressed in the Potential for Pathogens, however, due to its significance, it is considered that the potential odour impacts should be assessed separately. As per the Addendum Report 9A, no odour standards would be breached during the operational phase, so no adverse human health impacts are predicted.

Rodent and Pest Control

The assessment of the impact of rodents on human health during the construction stage, as presented in the section 3.5.2.3 of the 2018 EIAR, remains valid for potential impacts at the operational stage.

3.5.3.5 Do-Nothing Impact

In this Section of the EIAR submitted with 2018 planning application, it was stated that, given the continued upwards trend in population figures and the continued need to upgrade wastewater systems to higher environmental standards, the do-nothing scenario is not an option. Since the 2018 planning application, CSO data show a continued upwards trend in 2022 population figures. The statements in this Section of the EIAR in the 2018 planning application therefore remain unchanged.

3.6 Mitigation Measures

The updates to the baseline data and EPA guidance were assessed and deemed not to result in any additional impacts, above those identified in the original Section 3 (Population and Human Health) included in Volume 4 Part A of the EIAR in the 2018 planning application. There is therefore no requirement for additional mitigation measures, above the measures outlined in the original Section 3 (Population and Human Health) included in Volume 4 Part A of the EIAR in the 2018 planning application. As a result, there are no changes to the information presented in this Section of the EIAR in the 2018 planning application.

3.6.1 Construction Phase

3.6.1.1 Resident Population

There remain no requirements for mitigation measures relating to the resident population other than those discussed in detail in the Addendum Reports for Volume 4 Section 8A: Air and Climate, Section 9A: Noise and Vibration, Section 10A: Odour and Section 13A: Traffic. Hence, there are no changes to the information presented in this Section of the EIAR since the 2018 planning application.

3.6.1.2 Working Population

There are no changes to the information presented in this Section of the EIAR since the 2018 planning application on the basis that the Proposed RBSF Component will still be designed and constructed to the best industry standards, with priority given to the health and safety of employees, local residents and the community at large.

3.6.1.3 Visiting Community

There remain no requirements for mitigation measures relating to the visiting population other than those discussed in detail in the Addendum Reports for Volume 4 Section 8A: Air and Climate, Section 9A: Noise

and Vibration, Section 10A: Odour and Section 13A: Traffic. Hence, there are no changes to the information presented in this Section of the EIAR since the 2018 planning application.

3.6.1.4 Human Health

In addition to the Chartered Institute of Environmental Health's *"Pest minimisation best practice for the construction industry"*, the proposed rodent and pest control plan will also be informed by the Campaign for Responsible Rodenticide Use's *"Best Practice Requirements for Rodent Control and Safe Use of Rodenticides"*.

Following review of the updated baseline environment and any changes to relevant policy and guidance, and given that the design of the Proposed RBSF Component has not changed, there were no additional human health impacts identified as part of this Addendum assessment. Therefore, there is no requirement for additional mitigation measures, above those outlined in this Section of the EIAR in the 2018 planning application. As a result, there are no changes to this Section of the EIAR in the 2018 planning application.

3.6.2 Operational Phase

3.6.2.1 Resident Population

There remain no requirements for mitigation measures relating to the resident population other than those discussed in detail in the Addendum Reports for Volume 4 Section 8A: Air and Climate, Section 9A: Noise and Vibration, Section 10A: Odour and Section 13A: Traffic. Hence, there are no changes to the information presented in this Section of the EIAR since the 2018 planning application.

3.6.2.2 Working Population

There remain no requirements for mitigation measures relating to the working population other than those discussed in detail in the Addendum Reports for Volume 4 Section 8A: Air and Climate, Section 9A: Noise and Vibration, Section 10A: Odour and Section 13A: Traffic. Hence, there are no changes to the information presented in this Section of the EIAR since the 2018 planning application.

3.6.2.3 Visiting Community

There remain no requirements for mitigation measures relating to the visiting population other than those discussed in detail in the Addendum Reports for Volume 4 Section 8A: Air and Climate, Section 9A: Noise and Vibration, Section 10A: Odour and Section 13A: Traffic. Hence, there are no changes to the information presented in this Section of the EIAR since the 2018 planning application.

3.6.2.4 Human Health

In the section 3.6.1.4 of the EIAR submitted with the 2018 planning application, it is recommended as a mitigation for construction phase that a rodent and pest control plan is put in place so as to manage and limit any potential disturbance to populations that may utilise the site. This was not included in this section as a mitigation measure for the operational phase. Upon review, the mitigation for rodent and pest control plan is also recommended for the operational phase.

Following review of the updated baseline environment and any changes to relevant policy and guidance, and considering that the design of the Proposed RBSF Component has not changed, there were no additional human health impacts identified as part of this Addendum assessment. Therefore, there is no requirement for additional mitigation measures, above those outlined in this Section of the EIAR in the 2018 planning application. As a result, there are no further changes to this Section of the EIAR in the 2018 planning application.

3.7 Residual Impacts

The updates to the baseline data and EPA guidance were assessed and deemed not to result in any additional impacts, above those identified in the original Section 3 included in Volume 4 Part A of the EIAR

in the 2018 planning application. The residual impacts therefore remain, as presented in the original Section 3 of the EIAR in the 2018 planning application. As a result, there are no changes to the information presented in this Section of the EIAR in the 2018 planning application.

3.7.1 Construction Phase

3.7.1.1 Resident Population

There continues to be a likelihood of direct effects on the population directly adjacent to the site arising from the Proposed RBSF Component during its construction phase. Therefore, there are no changes to the information presented in this Section of the EIAR since the 2018 planning application.

3.7.1.2 Working Population

There are no changes to the information presented in this Section of the EIAR since the 2018 planning application as the Proposed RBSF Component will provide further jobs for the working population during the construction stage.

3.7.1.3 Visiting Community

There are no changes to the information presented in this Section of the EIAR since the 2018 planning application which outlines the likelihood of no direct significant impacts on the visiting population at the Local Level as a result from the Proposed RBSF Component.

3.7.1.4 Human Health

There are no changes to the information presented in this section of the EIAR since 2018 planning which outlines the likelihood of no direct significant impact on human health.

3.7.2 Operational Phase

3.7.2.1 Resident Population

There are no changes to the information presented in this Section of the EIAR since the 2018 planning application as the design of the Proposed RBSF Component remains the same.

3.7.2.2 Working Population

There are no changes to the information presented in this Section of the EIAR since the 2018 planning application as the design of the Proposed RBSF Component remains the same.

3.7.2.3 Visiting Community

There are no changes to the information presented in this Section of the EIAR since the 2018 planning application as the design of the Proposed RBSF Component remains the same.

3.7.2.4 Human Health

There are no changes to the information presented in this section of the EIAR since 2018 planning which outlines the likelihood of no direct significant impact on human health.

3.7.3 Interactions

There are no changes to the information presented in this Section of the EIAR since the 2018 planning application as the design of the Proposed RBSF Component remains the same.

Any changes to the details of the impacts related to construction related dust, noise and vehicular movements and the proposed mitigation measures since the 2018 planning application are discussed in detail in the Addendum Reports for Volume 4 Section 4A: Water, Section 8A: Air and Climate, Section 9A: Noise and Vibration, Section 10A: Odour, Section 13A: Traffic and Section 14A: Landscape.

3.7.4 Cumulative Impacts

3.7.4.1 Construction Phase

Resident Population

The planning permission for industrial/warehouse/logistics use comprising 3 no. buildings with gross floor area of 24,356 sq. m (FCC Reg. Ref. FW20A/0211) opposite the application site on the R135 has commenced. Developments for an amendment to a gas peaking facility with 10no. containerised gas fired generating units (FCC. Reg. Ref. FW20A/0211) and permission for 1no. building for warehouse/logistics use with a gross floor area of 9,821 sq. m (FCC. Reg. Ref. FW22A/0068) have not yet submitted commencements notices to the Building Control Management System. If the construction of these developments overlap with the development of the Proposed RBSF Component this is likely to give rise to cumulative effects. Likely cumulative impacts may arise from construction process including dust, noise and traffic. The details of these specific impacts and the proposed mitigation measures are discussed in detail under Volume 4, Section 8: Air and Climate, Volume 4, Section 9: Noise and Vibration, and Volume 4, Section 13: Traffic.

Working Population

There are no changes to the information presented in this Section of the EIAR since the 2018 planning application as the design of the Proposed RBSF Component remains the same.

Visiting Community

There are no changes to the information presented in this Section of the EIAR since the 2018 planning as the design of the Proposed RBSF Component remains the same.

3.7.4.2 Operational Phase

Resident Population

There are no changes to the information presented in this Section of the EIAR since the 2018 planning application as the design of the Proposed RBSF Component remains the same.

Working Population

There are no changes to the information presented in this Section of the EIAR since the 2018 planning application as the design of the Proposed RBSF Component remains the same.

Visiting Community

There are no changes to the information presented in this Section of the EIAR since the 2018 planning application as the design of the Proposed RBSF Component remains the same.

3.7.4.3 Human Heath

There are no changes to the information presented in this section of the EIAR since 2018 planning which outlines the likelihood of no direct significant impact on human health and therefore no potential to result in significant cumulative impacts with other developments.

3.8 Monitoring

The updates to the baseline data and EPA guidance were assessed and deemed not to result in any additional impacts, above those identified in the original Section 3 (Population and Human Health) included in Volume 4 Part A of the EIAR in the 2018 planning application. Therefore, there is no requirement for additional monitoring measures, above the measures outlined in the original Section 3 (Population and Human Health) included in Volume 4 Part A of the EIAR in the 2018 planning application. As a result, there are no changes to the information presented in this Section of the EIAR in the 2018 planning application.

3.9 Difficulties Encountered

At the time of writing this addendum, Summary Results for Census 2022 from CSO did not include statistics for local and regional population. It is the reason why the analysis of population statistics largely remains the same from the previous EIAR in the 2018 planning application.

3.10 Conclusion

This Section of the Addendum has considered all relevant population and human health updates to the baseline environment, and to guidance and reference material since the 2018 planning application submission. Following consideration, there are no changes to the assessment of Population & Human Health as a result of any of the updates discussed in this Section of the Addendum.

3.11 References

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Central Statistics Office (2022). *Census of Population 2022 - Summary Results* (30 May 2023)[online]. Available at: https://www.cso.ie/en/ [Accessed on the 20.06.2023]

Department of Health (2022) *Health in Ireland Key Trends 2022* online. Available at: https://www.gov.ie/en/publication/fdc2a-health-in-ireland-key-trends-2022/ [Accessed on the 03.10.2023]

Addressing Human Health in Environmental Impact Assessment As per EU Directive 2011/92/EU amended by 2014/52/EU CONSULTATION DRAFT November 2019(IAIA, 2019);

Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EPA, May 2022)

Air Quality Standards Regulations 2011 (SI No. 180 of 2011);

British Standard (BS) 5228-1:2009+A1:2014 – Code of Practice for Noise and Vibration Control on Construction and Open Sites Part 1: Noise;

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

European Public Health Association (EUPHA) (2019) *Addressing Human Health in Environmental Impact Assessment* (EUPHA, 2019);

Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities (NG4) (EPA, 2017c);

Guidelines for treatment of tourism in an Environmental Impact Statement (Fáilte Ireland, 2011);

Environmental Impact Assessment of Projects Guidance on the preparation of the Environmental Impact Assessment Report (EU Commission 2017);

Directive 2008/50/EC Of The European Parliament And Of The Council of 21 May 2008

Health Impact Assessment (Institute of Public Health Ireland, 2009);

Health Impact Assessment Resource and Tool Compilation (US EPA, 2016);

Health in Environmental Impact Assessment - A Primer for a Proportionate Approach (IEMA, 2017);

Impact Assessment Outlook Journal (Volume 8: October 2020)- Health Impact Assessment in Planning (IEMA, 2020);

Institute of Public Health (IPH) (2021) *Health Impact Assessment Guidance* (IPH, 2021);

International Association for Impact Assessment (IAIA) 2020 *Human Health Ensuring a High Level of Protection*;

World Health Organisation (WHO) *Night-time Noise Guidelines for Europe* (WHO, 2009);

World Health Organisation *Environmental Noise Guidelines for the European Region 2018*; (WHO, 2018);

World Health Organisation (WHO) 2006. *Air Quality Guidelines* (WHO;

World Health Organisation (WHO) *Air Quality Guidelines* (WHO 2021); and

World Health Organisation *Guidelines for Community Noise* (WHO,1999).

Campaign for Responsible Rodenticide Use (CRRH) (2016). *Best Practice Requirements for Rodent Control and Safe Use of Rodenticides.* [Online] Available at: https://iasis.ie/Documents/CRRU%20IRELAND%20Best%20Practice%20Requirements%20Graphics%20Final.pdf

SECTION 4A Water

4.1 Introduction

As detailed in Chapter 1A (Introduction) in Volume 2A Part A of this Environmental Impact Assessment Report (EIAR) Addendum, Section 4 (Water) in Volume 4 Part A of the EIAR submitted with the original 2018 planning application has been reviewed in the light of:

- Changes to the baseline environment;
- The requirement for updated surveys;
- Updated development plans;
- The updated cumulative assessment;
- EPA updated guidelines; and
- Changes to the law, policy, and industry standards and guidance in the intervening period.

The description of the Regional Biosolids Storage Facility (RBSF) remains as presented in Chapter 4 (Proposed Project Description) in Volume 2 Part A of the EIAR submitted with the original 2018 planning application, as supplemented by Chapter 4A (Proposed Project Description) in Volume 2A Part A of this EIAR Addendum.

It should be noted that any updates to the groundwater / hydrogeology assessment are included in Section 7A of the EIAR Addendum.

4.2 Methodology

In 2022, the Environmental Protection Agency (EPA) published an updated set of Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (hereafter referred to as the updated EPA Guidelines) (EPA 2022). The updated EPA Guidelines have been considered in terms of the methodology applied in this Section of the EIAR in the 2018 planning application, which incorporated the previous Draft Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (hereafter referred to as the previous EPA Guidelines) (EPA 2017). It has been determined that the methodology used for the original assessment is consistent with the updated EPA Guidelines.

The other guidelines included in this Section of the EIAR in the 2018 planning application, namely the TII/NRA “Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes” (NRA 2009), remain unchanged.

There are no other changes to the information presented in this Section of the EIAR in the 2018 planning application.

4.2.1 Desk Study

The online sources used to obtain information on hydrology and surface water quality in the 2018 planning application were accessed to review any relevant updated information.

There were updates to catchment data on catchments.ie and gis.epa.ie (which has superseded http://maps.epa.ie/internetmapviewer/mapviewer.aspx quoted in the EIAR in the 2018 planning application) which were taken into account in Section 4.3 along with the updated catchment report (EPA 2021).

There are no other changes to the information presented in this Section of the EIAR in the 2018 planning application.

4.2.2 Legislation and Policy

This Section of EIAR in the 2018 planning application was reviewed in order to determine if there have been any updates to the legislation governing the assessment criteria of water in the intervening period.

The following updates to relevant legislation have occurred since the submission of the EIAR in the 2018 planning application:

- S.I. No. 722 of 2003 (European Communities (Water Policy) Regulations) has been amended by S.I. No.166 of 2022;
- S.I. No. 272 of 2009 (European Communities Environmental Objectives (Surface Waters) Regulations) has been amended by S.I No. 288 of 2022.

Both amended regulations have been considered and there are no material differences within these updated regulations in relation to the assessment completed as part of the 2018 planning application. Therefore, these regulations have no impact on the outcomes of the previous assessment carried out as part of the 2018 planning application. For this reason, these regulations are not considered further as part of this Addendum.

4.2.3 Site Visit and Surface Water Sampling

An additional collection of water samples from the stream adjoining the western boundary of the site took place on 13 June 2023. An additional small stream risk assessment survey was completed on 18 April 2023. The results are discussed in Section 4.3.5.

4.3 Existing Environment

4.3.1 Site Description

There have been no changes to the Proposed RBSF Component site since the EIAR in the 2018 planning application. Consequently, there are no changes to the information presented in this Section of the EIAR in the 2018 planning application.

4.3.2 Pipeline Wayleave

The proposed surface water pipe diversion has not taken place. Consequently, there are no changes to the information presented in this Section of the EIAR since the 2018 planning application.

4.3.3 Surface Water Catchments

There have been no changes to the information presented in this section of the EIAR since the 2018 planning application.

The Huntstown Stream in the vicinity of the proposed RBSF was inspected on 18 April 2023. The characteristics of the stream were observed to be similar to the description given in the EIAR submitted in the 2018 planning application. SSRS's were carried out to establish the biological health of the watercourse (refer to Section 4.3.5).

4.3.4 Flooding

In this section of the EIAR in the 2018 application, it was explained that a flood risk assessment (FRA) was carried out in accordance with the Department of Environment, Heritage and Local Government's "Planning System and Flood Risk Management: Guidelines for Planning Authorities" (DEHLG, 2009). This guidance remains unchanged since the 2018 planning application.

To ensure that any changes to the baseline environment or flood information has been considered, an updated site-specific flood risk assessment report (SSFRA) was compiled in July 2023. The SSFRA determined the site is located in Flood Zone C, in agreement with the information presented in this section of the 2018 EIAR, and determined that the pluvial flood risk is mitigated by the drainage design. The SSFRA did not identify any new flood risks, recent nearby flood events, or required mitigation measures compared to the FRA referenced in the 2018 planning application.

There have been no changes to the information presented in this section of the EIAR since the 2018 planning application.

4.3.5 Surface Water Quality

4.3.5.1 Water Framework Directive

The Huntstown Stream (Ward_030) was classified as having Good ecological status in the 2018 planning application based on the 2nd Cycle WFD Catchment Summary Report. However in the 3rd Cycle Draft Catchment Report, which has since been published, the Ward_030 has been downgraded to Moderate status. Agricultural, urban runoff, urban wastewater and 'other' significant pressures have been identified in relation to the watercourse.

These classifications relate to the lower reaches of the Ward_030. They are based on samples collected at Owens Bridge, 5.5km downstream of the Proposed RBSF Component site. Therefore, the importance of the watercourse at the Proposed RBSF Component site itself continues to be Low based on the SSRS values.

The Q-Value for the River Ward in the 2018 planning application (Q4 – Good) was based on a 2014 value reported by the EPA. A value of Q4 was also recorded in 2017. However the latest value, recorded in 2020, is Q3-4 – Moderate, representing a slight deterioration in quality.

4.3.5.2 Neighbouring Discharge Authorisations

Huntstown Power Company Limited
IPPC Licence P0483-03 referenced in the 2018 planning application has been replaced by P0483-04. There are no material differences in the updated licence in relation to the assessment completed as part of the 2018 planning application.

Huntstown BioEnergy Limited
Industrial Emissions Licence Reg. No. P0993-01 reference in the 2018 planning application has been replaced by P0993-02. There are no material differences in the updated licence in relation to the assessment completed as part of the 2018 planning application.

There have been no further changes to the information presented in this section of the EIAR since the 2018 planning application.

4.3.5.3 Receiving Water Sampling

The stream on the western boundary of the site was sampled on 13 June 2023 at the same locations as the 2017 sampling event. A comparison of the sampling analyses are shown in Table 4-1.

Table 4-1: Comparison of 2017 and 2023 Sampling Data

Parameter	Unit	SW1 Upstream			SW2 Downstream			Physicochemical Parameters – Rivers
		2017	2023	Difference*	2017	2023	Difference*	(SI No. 272 of 2009: Surface Water Regulations 2009)
Alkalinity	mg/l	206.2	160.0	-46.2	220.4	162.0	-58.4	
Ammonia as N	mg/l	0.077	0.260	+0.183	0.06	0.1	+0.005	High status ≤0.040 (mean) or ≤0.090 (95%ile) Good status ≤0.065 (mean) or ≤0.140 (95%ile)
CBOD5	mg/l O2	< 2	1.0	0.0	< 2	<1	-0.5	High status ≤1.3 (mean) or ≤ 2.2 mg/l (95%ile) Good status ≤1.5 (mean) or ≤2.6 (95%ile)
Calcium	mg/l	214.6	105.5	-109.1	242.7	106.3	-136.4	
Cadmium	µg/l	0.90	<0.5	-0.7	0.60	<0.5	-0.4	
Chloride	mg/l	99.96	95.7	-4.3	49.49	86.8	+37.3	
Chromium	µg/l	2.40	<1.5	-1.7	2.60	<1.5	-1.9	
Conductivity @ 20°C	µS/cm @20°C	984	811	-173	947	742.0	-205	
Copper	µg/l	24.00	<7	-20.5	16.30	<7	-12.8	<30mg/l (Annual Average) (Hardness > 100 mg/l CaCo3)
Dissolved Oxygen	mg/l O2	9.49	7.0	-2.5	9.76	8.0	-1.8	
Magnesium	mg/l	23.39	11.2	-12.2	23.08	11.2	-11.9	
Iron	µg/l	< 7.2	38.0	+34.4	< 7.2	42.0	+38.4	
Lead	µg/l	< 1.7	<5	+1.7	< 1.7	<5	+1.7	
Manganese	µg/l	1.30	107.0	+105.7	2.60	149.0	+146.4	
Mercury	µg/l	< 0.01	<1	+0.5	< 0.01	<1	+0.5	
Nitrite as NO2	mg/l	0.11	0.04	-0.07	0.08	<0.02	-0.07	
Nitrate as NO3	mg/l	< 8.9	1.7	-2.8	< 8.9	1.0	-3.5	
Nickel	µg/l	3.70	3.0	-0.7	6.00	2.0	-4.0	

Parameter	Unit	SW1 Upstream			SW2 Downstream			Physicochemical Parameters – Rivers
		2017	2023	Difference*	2017	2023	Difference*	(SI No. 272 of 2009: Surface Water Regulations 2009)
Orthophosphate as PO4	mg/l	< 0.025	<0.06	+0.02	< 0.025	0.090	+0.078	High status ≤0.025 (mean) or ≤0.045 (95%ile) Good status ≤ 0.035 (mean) or ≤ 0.075 (95%ile)
pH	pH Unit	7.82	7.39	-0.43	8.11	7.6	-0.55	6.0< pH < 9.0 (Hardness > 100 mg/l CaCo3)
Potassium	mg/l	7.14	3.90	-3.24	7.39	3.3	-4.09	
Sodium	mg/l	32.65	29.10	-3.55	25.61	22.8	-2.81	
Sulphate	mg/l	281.0	79.8	-201.2	304.0	81.9	-222.1	
Temperature	°C	15.60	No Sample	-	15.60	11.70**	-3.90	
Total Organic Carbon	mg/l	2.53	4.00	1.47	1.90	3.0	1.10	
Total Suspended Solids	mg/l	< 2	10.0	+9.0	4.00	14.0	+10.0	
Zinc	µg/l	8.30	27.0	+18.7	9.30	8.0	-1.3	
Coliforms	MPN/ 100ml	27550	>2420	-	12590	>2420	-	
Faecal Coliforms	cfu/ 100ml	2500	>100	-	1100	>100	-	

* values below detection limit have been calculated at half their limit for comparative purposes
** value taken during SSRS survey, 18/042023

The most notable differences are Manganese and Iron concentrations which have increased across both sampling sites. Iron and Manganese occur in water naturally due to leaching and weathering processes. Their presence can also be due to human activity (e.g. industrial discharges or application of fertilisers). The values reported in 2023, though elevated, are within the typical ranges for freshwater systems. Concentrations of other heavy metals have generally decreased, though an increase in Zinc was recorded at SW1.

Calcium concentrations remain elevated though they have roughly halved, while sulphate concentrations have decreased significantly. The concentrations of these parameters were associated with activity at the upstream Huntstown Quarry in the 2018 planning application. Coliforms also remain elevated. Elevated coliform levels were attributed to livestock in the 2018 planning application and this is considered to still be the case.

The values for Ammonia have increased and are above the threshold for Good status under the WFD (0.065 mg/l mean) at both sampling points. Orthophosphate has also increased, particularly at SW2 where it exceeds the threshold for Good status (0.035 mg/l mean). This could be attributable to the application of fertilisers in surrounding agricultural lands.

Temperature was not recorded during the 2023 sampling event. A temperature reading obtained during the SSRS survey was therefore used for comparison at one of the sites.

The 2017 sampling took place in September, while the 2023 sampling took place in April, and therefore some of the recorded differences may be attributable to natural seasonal variations and changes to antecedent and ambient conditions. General trends cannot be inferred from the available data, which should only be interpreted as snapshots in time.

The data is generally consistent with the results presented in the 2018 planning application and indicates the natural water quality continues to be influenced by anthropogenic activity upstream.

SSRS Survey

A Small Stream Risk Score (SSRS) survey was carried out on 18 April 2023. Sampling occurred at the same locations as the 2017 survey. The SSRS provide an indication of the biological health of the stream (see Table 4-2).

Table 4-2 Small Stream Risk Score (SSRS) threshold values

>7.25	>6.5-7.25	<6.5
Probably not at risk	Indeterminate, Stream may be at risk	Stream at risk

A deep layer of silt was recorded at the upstream sampling site which prevented the surveyor from standing within the stream. As such, macroinvertebrates were collected from the riverbank by pulling a standard hand net (250mm width, mesh size 1mm) upstream along the riverbed to cover as much surface area as possible, whilst simultaneously agitating the stream bed. The margins of the stream bank were also swept as part of this assessment. Due to dense vegetation growth on the stream banks, only a small area (c. 10m) of the stream was accessible.

At the downstream sampling site, macroinvertebrates were collected using the standard 2-minute ‘kick’ sampling method. Stonewashing was undertaken to ensure that species that cling to stone surfaces – e.g., leeches and gastropods, were adequately collected.

Macroinvertebrates were identified at the stream bank and returned to the stream on completion of analysis. A comparison of the SSRS results in 2017 and 2023 are shown in Table 4-3.

Table 4-3: Comparison of SSRS Survey Results

Site	SSRS Score 2017	Macroinvertebrates Observed 2017	SSRS Score 2023	Macroinvertebrates Observed 2023
Site 1	2.4	Potamopyrgus, Chironomidae, Asellus, Gammarus, Gyrinidae, Dytiscidae, Limnephilidae, Chironomus	0.8	Dytiscidae, Hirudinea, *Asellus aquaticus*, *Chironomus*, Chironomidae, *Potamopygrus antipodorum*, *Planorbis*, Tubificidae, Sphaeriidae, Limnephilidae (2 species).
Site 2	1.6	Asellus, Chironomidae, Limnephilidae x 2 species, Gammarus, Tubificidae	0.8	Dytiscidae, Hirudinea, *Asellus aquaticus*, *Chironomus*, Chironomidae, *Gammarus* sp.

The stream continues to exhibit low SSRS values as per those reported in this Section of the EIAR in the 2018 planning application, suggesting that the stream is at risk and would be unlikely to achieve Good status under the WFD at present. The overall scores have declined since 2017. A hydrocarbon sheen was reported at Site 2 in 2023 which was not reported in 2017.

These results are consistent with the EPA risk classification of the Ward_ 030 stream, which is classified as “at risk”. The importance of the receiving water as an attribute is still considered to be Low.

4.4 Characteristics of the RBSF Component of the Proposed GDD Project

4.4.1 General

There are no changes to the design of the Proposed RBSF Component, and therefore, there are no changes to the information presented in this Section of the EIAR in the 2018 planning application.

4.4.2 Water Supply

There are no changes to the proposed water supply for the Proposed RBSF Component, as presented in this Section of the EIAR in the 2018 planning application.

4.4.3 Wastewater Disposal

There are no changes to the information on proposed wastewater disposal presented in this Section of the EIAR in the 2018 planning application.

4.4.4 Drainage

There are no changes to the information on the proposed drainage design presented in this Section of the EIAR in the 2018 planning application.

The policies set out in the Fingal County Development Plan 2017-2023 have been updated in the Fingal Development Plan 2023-2029.

Objective SW04 of the Fingal County Development Plan 2017-2023, regarding the use of sustainable drainage systems

(SuDS) in new developments, was cited in the 2018 planning application. SW04 stated: *"Require the use of sustainable drainage systems (SuDS) to minimise and limit the extent of hard surfacing and paving and require the use of sustainable drainage techniques where appropriate, for new development or for extensions to existing developments, in order to reduce the potential impact of existing and predicted flooding risks."*

Fingal County Council has now published the Fingal Development Plan 2023-2029 (FCC 2023). Under the new Plan, objectives related to SuDS have been expanded and a new guidance document in relation to SuDS is included in the Plan. Key objectives related to SuDS in the updated Plan include:

- CAP30 - *Encourage the use natural flood risk mitigation or nature-based solutions including integrated wetlands, green infrastructure, and Sustainable Drainage Systems (SuDS) as part of wider adaptation and mitigation responses to achieve flood resilience.*
- GINHO15 - *Limit surface water run-off from new developments through the use of appropriate Sustainable Urban Drainage Systems (SuDS) using nature-based solutions and ensure that SuDS is integrated into all new development in the County.*
- IUO9 - *Maintain and enhance existing surface water drainage systems in the County and to require SuDS in new developments where appropriate, as set out in the Greater Dublin Strategic Drainage Study (Vol 2: New Development) / Greater Dublin Regional Code of Practice for Drainage Works).*
- IUO13 - *Require that all surface water run-off from new / extended domestic driveways, repaired/ replacement driveways and vehicular entrances (where such development is not exempted from the requirement to obtain planning permission) is managed using SuDS, ensuring no increase in surface water discharges to the public drainage network.*

Therefore, the core criteria pertaining to SW04 remain valid and the proposed design of the RBSF drainage systems, which complies with best-practice SuDS design, aligns with the objectives in the latest Plan and will not need to be altered.

4.5 Potential Impacts

The significance of the impact is a consideration of the importance of the receptor (attribute) being impacted and the magnitude of impact. A review of the criteria for rating site attributes in terms of both flood risk and water quality concluded there are no updates to the relevant guidance. There has been no change to the relevant guidelines for Water (NRA 2009; DEHLG 2009) and no corresponding change in methodology proposed for rating impacts compared to the 2018 planning application.

Based on the SSRS, the importance of the Huntstown stream (and the drainage channels) in the vicinity of the Proposed RBSF Component site continues to be "Low". The lower reaches of the Huntstown Stream close to where it joins the Ward at Owens Bridge is "Medium" due the assigned WFD status of "Moderate".

4.5.1 Do-Nothing Impacts

There are no changes to the design of the Proposed RBSF Component, and therefore, there are no changes to the Do-Nothing impacts presented in this Section of the EIAR in the 2018 planning application.

4.5.2 Construction Phase Impacts

No changes to the design have been made since the 2018 planning application. As the site attribute ratings have also not changed in the context of the 2023 baseline data, the magnitude and significance of predicted construction phase impacts on flood risk, water quality and hydromorphology remain unchanged compared to the 2018 planning application.

4.5.3 Operational Phase

No changes to the design have been made in since the 2018 planning application. As the site attribute ratings have also not changed in the context of the 2023 baseline data, the magnitude and significance of predicted operational phase impacts on flood risk, water quality and hydromorphology remain unchanged compared to the 2018 planning application.

4.6 Mitigation Measures

Updated information on the baseline environment, as well as policy and legislative updates were assessed in the context of the Proposed RBSF Component, and no additional impacts above those identified in Section 4 (Water) in Volume 4 Part A of the EIAR in the 2018 planning application, were identified. There is therefore no requirement for additional construction or operational mitigation measures, above the measures outlined in the original Section 4 (Water) in Volume 4 Part A of the EIAR in the 2018 planning application. As a result, there are no changes to the information presented in this Section of the EIAR in the 2018 planning application.

4.7 Residual Impacts

4.7.1 Construction Phase

As there are no material changes to the previously assessed construction phase impacts of the Proposed RBSF Component in Section 4 (Water) in Volume 4 Part A of the EIAR of the 2018 planning application, and therefore the mitigation measures originally proposed will also remain unchanged, the residual impacts of the Proposed RBSF Component are considered to be the same as presented in this Section of the EIAR in the 2018 planning application.

4.7.2 Operational Phase

As there are no material changes to the previously assessed operational phase impacts of the Proposed RBSF Component in Section 4 (Water) in Volume 4 Part A of the EIAR of the 2018 planning application, and therefore the mitigation measures originally proposed will also remain unchanged, the residual impacts of the Proposed RBSF Component are considered to be the same as presented in this Section of the EIAR in the 2018 planning application.

4.7.3 Interactions

The principal interactions requiring information exchange remain between the water and biodiversity specialists. An additional SSRS survey was undertaken in 2023 and the results were communicated between the water specialist and biodiversity specialists. The potential impacts on aquatic biodiversity are addressed in Section 6: Biodiversity - Terrestrial.

4.7.4 Cumulative Impacts

As described in Section 19 of this Addendum, a screening exercise was undertaken to identify projects for which planning permission has been sought since the 2018 planning application and which may lead to cumulative impacts.

Three of the screened planning applications (Vantage Business Park, Gas Peaking Facility, and Battery Storage Facility) are located on the Coldwinters sites to the east of the Proposed RBSF Component site, between the North Road and the N2 road. Drainage from these sites will outfall to the Ballystrahan Stream in a controlled manner in compliance with the GDSDS.

One of the screened planning applications (Huntstown Materials Recovery Facility) is to the south of the Proposed RBSF Component site, in a different hydrological catchment.

EIARs have been submitted in support of four of the screened planning applications bordering the Ballystrahan and Huntstown watercourses (Gas Turbine Generation Station, Mooretown Gas Insulated

Switchgear (GIS) Substation, Electric Infrastructure for Substation, and Huntstown Data Centre Facility). Each of these reports assessed the impact on the hydrological environment during both construction and operation phases to be negligible.

In light of the above, the likelihood of cumulative impacts on Water arising from the Proposed Project is assessed to be negligible.

4.8 Monitoring

As there are no material changes to the previously assessed construction phase impacts of the Proposed RBSF Component in Section 4 (Water) in Volume 4 Part A of the EIAR of the 2018 planning application, there remains no requirement for monitoring.

4.9 Difficulties Encountered

No difficulties were encountered in compiling the information required to carry out this assessment of potential impacts on the water environment as a result of the Proposed RBSF Component.

4.10 Conclusion

This Addendum Section has considered all relevant updates to the baseline water environment, and to guidance and reference material since the 2018 planning application submission. Following consideration, there are no changes to the assessment of water as a result of any of the updates discussed in this Addendum Section.

4.11 References

DEHLG, 2009. *The Planning System and Flood Risk Management: Guidelines for Planning Authorities.*

EPA, 2017. *Guidelines on the Information to be contained in Environmental Impact Assessment Reports (Draft).*

EPA, 2021. *3rd Cycle Draft Nanny Delvin Catchment Report (HA 08).*

EPA, 2022. *Guidelines on the Information to be contained in Environmental Impact Assessment Reports.*

FCC, 2023. *Fingal County Development Plan 2023-2029.*

NRA, 2009. *Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes.*

SECTION 5A Biodiversity – Marine

5.1.1 Not Used

SECTION 6A Biodiversity – Terrestrial

6.1 Introduction

As detailed in Chapter A1 (Introduction) in Volume 2A Part A of this Environmental Impact Assessment Report (EIAR) Addendum, we have reviewed Section 6 (Biodiversity - Terrestrial) in Volume 4 Part A of the EIAR submitted with the original 2018 planning application, in the light of:

- Changes to the baseline environment;
- The requirement for updated surveys;
- Updated development plans;
- The updated cumulative assessment;
- EPA updated guidelines; and
- Changes to the law, policy, and industry standards and guidance in the intervening period.

The description of the Regional Biosolids Storage Facility (RBSF) remains as presented in Chapter 4 (Description of the Proposed Project) in Volume 2 Part A of the EIAR in the 2018 planning application, as supplemented by Chapter 4A (Description of the Proposed Project) in Volume 2A Part A of this EIAR Addendum.

This Section of the EIAR Addendum should be read in conjunction with the following:

- Appendix 6A Criteria for Ecological Evaluation in Volume 4 Part B of the EIAR in the 2018 planning application;
- Appendix 6B RBSF Terrestrial Baseline Report in Volume 4A Part B of the EIAR Addendum, which contains the results of updated terrestrial surveys;
- Revised Natura Impact Statement Addendum.

In 2022, the Environmental Protection Agency (EPA) published an updated set of Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (hereafter referred to as the updated EPA Guidelines) (EPA 2022). This Section and the Addendum assessment have had regard to the updated EPA Guidelines.

6.2 Methodology

6.2.1 Relevant Guidance

The following guidelines have been updated since the submission of this Section of the EIAR in the original 2018 planning application:

- The Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines for Ecological Impact Assessment in the UK and Ireland - Terrestrial, Freshwater, Coastal and Marine (hereafter referred to as the Guidelines for Ecological Impact Assessment) [version 1.2] (CIEEM 2018); and
- The updated EPA Guidelines (EPA 2022).

The CIEEM guidelines in force at the time of the original EIAR (Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, 2nd edition, (CIEEM 2016)) which informed the assessment carried out in Section 6 (Biodiversity - Terrestrial) in Volume 4 Part A of the EIAR submitted with the original 2018 planning application, have now been updated. The revised Guidelines for Ecological Impact Assessment were published by CIEEM in 2018, and subsequently modified in 2019 and 2022. The current version is the 2018 version (noted within the Guidelines for Ecological Impact Assessment to be republished in April 2022 as Version 1.2). The principal purpose of and material change in the 2018 Guidelines for Ecological Impact Assessment is that they combine the 2016 Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, 2nd edition and the Guidelines for Ecological Impact Assessment in Britain and Ireland: Marine and Coastal (CIEEM 2010) to have only one set of EcIA guidelines throughout the UK and Ireland.

The EcIA presented in Section 6 (Biodiversity - Terrestrial) in Volume 4 Part A of the EIAR submitted with the original 2018 planning application remains valid and robust today, subject to any changes or modifications set out subsequently in this section of the EIAR Addendum.

Since the 2018 planning application, the updated EPA Guidelines were published by the EPA in 2022. The Draft Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (hereafter referred to as the Draft EPA Guidelines) (EPA 2017) informed the assessment carried out in Section 6 (Biodiversity - Terrestrial) in Volume 4 Part A of the EIAR in the 2018 planning application. The Draft EPA Guidelines were made available in 2017 following the transposition deadline set down in Directive 2014/52/EU of the European Parliament and of the Council of 16 April 2014 amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment (hereafter referred to as the EIA Directive). The Draft EPA Guidelines were used in assessing terrestrial biodiversity in the 2018 planning application. They have since been updated following extensive consultation and the introduction of transposing legislation and were formally adopted and published by the EPA in 2022, having been drafted with the primary objective of improving the quality of EIARs with a view to facilitating compliance with the EIA Directive.

Insofar as the updated EPA Guidelines relate to the EcIA presented in Section 6 (Biodiversity - Terrestrial) in Volume 4 Part A of the EIAR submitted with the original 2018 planning application, in terms of describing the nature of effects on biodiversity features (extent, magnitude, duration, frequency and reversibility) and the significance of those effects, those same terms are used in both the Draft EPA Guidelines of 2017 and the adopted updated EPA Guidelines of 2022 (e.g. Table 3.3 of the Draft EPA Guidelines on the description of effects has been brought through to the adopted updated EPA Guidelines as Table 3.4).

The updated EPA Guidelines of 2022 note that ‘when more specific definitions exist within a specialised factor or topic, e.g. biodiversity, these should be used in preference to these generalised definitions’, which is the case for Section 6 (Biodiversity - Terrestrial) in Volume 4 Part A of the EIAR submitted with the original 2018 planning application. The 2016 Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, 2nd edition was the principal guidance document used in preparing the EcIA. As outlined previously, the EcIA prepared in accordance with the 2016 Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, 2nd edition and presented in the 2018 EIAR remains valid and robust today, subject to any changes or modifications set out subsequently in this section of the EIAR Addendum.

The following updates to legislation have also occurred since the submission of the 2018 planning application:

- In March 2019, S.I. No. 91/2019 - European Union Habitats (Malahide Estuary Special Area Of Conservation 000205) Regulations 2019 were published.

All other relevant European Union Habitats Regulations had been published prior to the decision to grant planning permission by An Bord Pleanála dated 11 November 2019 under reference number ABP-301908-18 for the Proposed Project. This site is already considered in both the EIAR in the 2018 planning application Natura Impact Statement submitted as part of the 2018 planning application. The function of the European Union Habitats Regulations is to formally designate European sites in accordance with the obligations arising under Article 4(4) of the Habitats Directive to formally designate Sites of Community Importance as Special Areas of Conservation.

Insofar as an ecological impact assessment or an appraisal for appropriate assessment by a professional ecological consultant is concerned, there is no material difference between an assessment completed prior to the publication of the above European Union Habitats Regulations and an assessment completed following the publication of these European Union Habitats Regulations, as national legislation under the Planning Code in Ireland affords the save level of protection to European sites both before and after the publication of European Union Habitats Regulations in relation to any such site, and the requirements of Article 6(3) of the Habitats Directive applies with full force to European sites in Ireland even in the absence of site specific European Union Habitats Regulations being published.

As such, the publication of the above Regulations has no impact on the outcomes of the previous assessment carried out as part of the 2018 planning application. For this reason, these regulations are not considered further as part of this Addendum.

6.2.2 Desktop Survey

There are no changes to the information presented in this Section of the EIAR in the 2018 planning application in relation to desktop data sources. As noted therein, other than establishing the occurrence or otherwise of biodiversity features within the ZoI of the Proposed RBSF Component, the results of desktop data gathered were used to inform and direct the scope of detailed field surveys associated with the Ecological Impact Assessment (EcIA) presented in the EIAR in the 2018 planning application.

6.2.3 Field Surveys

Given the time which has elapsed since the EIAR in the 2018 planning application was prepared, update surveys for certain ecological features were considered necessary since some are dynamic features within a dynamic environment and therefore the baseline conditions could have changed in the intervening period. Also, in some cases, there have been updates to best practice guidance regarding collating baseline data for certain species. In updating the baseline ecology information for the Proposed RBSF Component, this was completed with awareness of CIEEM's advice note on the lifespan of ecological reports and surveys (CIEEM, 2019).

An RBSF Terrestrial Biodiversity Baseline Survey Report has been prepared. It is a factual account of the update surveys which have been completed in 2023; documenting the methodology and findings of these surveys respectively and is located at Appendix 6B in Volume 4A Part B of this EIAR Addendum.

6.2.4 Habitat Survey

- The Terrestrial Habitat Survey was updated on 18 April 2023 by completing a walkover survey of the whole Proposed RBSF Component Boundary during daylight hours. The aim of the survey was to identify any material changes to the distribution or description of the habitats within and immediately adjacent to the Proposed RBSF Component Boundary since the original survey was completed in 2017. The mapping and description of the habitats was completed with reference to Fossitt (2000); consistent with the surveys completed in August 2017; and
- An Invasive Alien Plant Species (IAPS) survey was conducted within the Proposed RBSF Component Boundary on the 24 May 2023 to determine the presence / likely absence of IAPS, particularly those listed on the Third Schedule of the Birds and Natural Habitats Regulations 2011 (as amended). The survey comprised a walkover survey. Any incidental records of IAPS were recorded.

6.2.5 Freshwater Biological Survey

The Freshwater Aquatic Habitat Surveys were updated on 18 April 2023 to identify any material changes since the last survey completed in 2017, using the Small Streams Risk Score (SSRS) method.

6.2.6 Bird and Large Mammal Survey

- The Badger and Large Mammal Survey was updated on 18 April 2023 to identify any material changes since the original surveys completed in 2017 and 2018; The survey was undertaken within Proposed RBSF Component Boundary and, where possible/access allowed, all land within 50m of the Proposed Project Boundary. The surveys were conducted with reference to published guidelines.
- The Breeding Bird Surveys were undertaken on 24 April, 22 May and 19 June 2023 to identify any material changes since the last surveys completed in 2017 and 2018. The survey method employed was an adapted version of the British Trust for Ornithology (BTO) Common Bird Census (CBC) methodology of Bibby et al. (2000) and Gilbert et al. (1998), which aims to capture breeding bird activity within a survey area.

6.2.7 Bat Surveys

- A preliminary ground-level bat roost assessment of structures, trees and hedgerows was undertaken in April 2023 to identify any material changes since the original survey completed in 2017 and with reference to the most recent national guidance (NPWS, 2022).
- A Bat Activity Transect Survey was undertaken in May and June 2023 to identify any material changes since the original survey completed in 2017 and with reference to Collins (2016) and updates in guidance (NPWS, 2022). ; and
- A static bat detector was deployed in the centre of the Proposed RBSF Component site in each of the months of April, May and June 2023 to record for a minimum of five nights, to identify any material changes since the original survey completed in 2017.

6.2.8 Site Evaluation and Assessment Criteria

- As noted in Section 6.2.1 above, CIEEM and EPA guidelines have been updated since the submission of Section 6 (Biodiversity - Terrestrial) in Volume 4 Part A of the EIAR submitted with the original 2018 planning application. The current guidelines have been used in this ecological impact assessment:
- The Guidelines for Ecological Impact Assessment) [version 1.2] (CIEEM 2018); and
- The updated EPA Guidelines (EPA 2022).

6.2.9 Limitations to the Survey

There are no limitations to the most recent survey campaign conduced in 2023.

6.3 Existing Environment

6.3.1 Designations

In addition to a number of European Union Habitats Regulations noted in Section 6.2.1 above that have been published since Section 6 (Biodiversity - Terrestrial) in Volume 4 Part A of the EIAR submitted with the original 2018 planning application, the North-West Irish Sea candidate SPA (cSPA) (site code IE004236) was notified to the public by the Department of Housing, Local Government and Heritage in July 2023 following selection by the Minister under Regulation 15 of the European Communities (Birds and Natural Habitats) Regulations 2011, as amended, as a site to be considered for consideration for classification as a SPA. This site is beyond the 10km search radius for designated sites applied in Section 6 (Biodiversity - Terrestrial) in Volume 4 Part A of the EIAR submitted with the original 2018 planning application, but its marine waters are functionally linked by hydrological connectivity to Broadmeadow Estuary (Malahide Estuary) and it is the only new European site to be notified since the original 2018 planning application. For completeness, its notification and qualifying features are noted here.

The Regulation 15 notification is the first stage in the designation of the North-West Irish Sea candidate SPA under the European Communities (Birds and Natural Habitats) Regulation and allows for a three-month period during which observations may be submitted in relation to the proposed designation. A second public notification, known as a Regulation 16 notification, will be issued once the statutory three-month period for the Regulation 15 notification has elapsed, and a further three-month period will then begin, during which observations and objections to the proposed designation, on scientific, ornithological grounds, may be submitted by interested parties. The earliest possible date for the publication of the Regulation 16 notification is October 2023. In the interim, a site synopsis has been published by NPWS, noting inter alia that:

- The North-west Irish Sea cSPA constitutes an important resource for marine birds;
- The estuaries and bays that open into it along with connecting coastal stretches of intertidal and shallow subtidal habitats, provide safe feeding and roosting habitats for waterbirds throughout the winter and migration periods;
- These areas, along with more pelagic marine waters further offshore, provide additional supporting habitats (for foraging and other maintenance behaviours) for those seabirds that breed at colonies on the north-west Irish Sea's islands and coastal headlands;

- These marine areas are also important for seabirds outside the breeding period;
- This SPA extends offshore along the coasts of counties Louth, Meath and Dublin, and is approximately 2,333 km2 in area;
- This SPA is ecologically connected to and adjoins twelve existing SPAs already designated for the protection of birds along the coast.
- The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species:

  - Common Scoter
  - Red-throated Diver
  - Black Headed Gull
  - Common Gull
  - Lesser Black-backed Gull
  - Guillemot
  - Great Northern Diver
  - Fulmar
  - Manx Shearwater
  - Herring Gull
  - Great Black-backed Gull
  - Little Tern
  - Roseate Tern
  - Shag, Cormorant
  - Little Gull
  - Kittiwake
  - Common Tern
  - Arctic Tern
  - Puffin
  - Razorbill

- The breeding seabird species listed for those SPAs, which abut the North-West Irish Sea SPA are:
  - Fulmar (Lambay Island SPA);
  - Cormorant (Skerries Island SPA; Ireland's Eye SPA; Lambay Island SPA);
  - Shag (Skerries Island SPA; Lambay Island SPA);
  - Lesser Black-backed Gull (Lambay Island SPA);
  - Herring Gull (Skerries Island SPA; Ireland's Eye SPA; Lambay Island SPA);
  - Kittiwake (Lambay Island SPA; Ireland's Eye SPA; Howth Head SPA);
  - Roseate Tern (Rockabill SPA);
  - Common Tern (Rockabill SPA;);
  - Arctic Tern (Rockabill SPA);
  - Little Tern (Boyne Estuary SPA);
  - Guillemot (Lambay Island SPA, Ireland's Eye SPA);
  - Razorbill (Lambay Island SPA, Ireland's Eye SPA); and
  - Puffin (Lambay Island SPA).

- The Common Tern population that is listed for the nearby South Dublin Bay and River Tolka Estuary SPA is also likely to use this SPA as a foraging resource.

NPWS advise that the Department has been informed by two surveys of the western Irish Sea region in 2016, showing that an estimated 120,232 and 34,626 individual marine birds occurred in this SPA during autumn and winter respectively. Those marine bird species whose estimated abundances equalled or exceeded 1% of the total estimated size of the winter assemblage are:

- Red-throated Diver (538),
- Fulmar (506),
- Little Gull (391),
- Kittiwake (944),
- Black-headed Gull (508),
- Common Gull (2,866),
- Herring Gull (6,893),
- Great Black-backed Gull (2,096),
- Razorbill (4,638) and
- Guillemot (13,914).

The estimated 2016 summer abundance of Manx Shearwater in the North West Irish Sea SPA is 13,010 and is of international importance. The estimated 2016 autumn and winter abundances of Great Northern Diver in the North West Irish Sea SPA is 248 and 230 respectively and are of international importance. The

estimated abundances of Common Scoter over parts of this SPA can reach significant numbers (e.g. 14,567 in December 2018) which is also of international importance.

NPWS published detailed Site Specific Conservation Objectives for the North-West Irish Sea cSPA in September 2023. Details of the site, including a Natura 2000 Standard Data Form, will be transmitted to the European Commission when the above statutory processes have been completed. At the time of writing, this has not yet occurred. In compliance with its legal obligations, Uisce Éireann has treated the candidate SPA as a fully designated SPA in this assessment.

There have been no other sites designated or proposed as a Special Area of Conservation, Ramsar site, Natural Heritage Area or local site of nature conservation value in the Fingal Development Plan 2023-2029 contributing to the Ecological Network across Fingal in the period since Section 6 (Biodiversity - Terrestrial) in Volume 4 Part A of the EIAR was submitted with the original 2018 planning application.

6.3.2 Habitats

Habitats detailed during the field study within the Proposed RBSF Component Boundary are illustrated in Figure 6-1. This includes the relevant habitat codes from Fossitt (2000). The habitats that were recorded across the site reflect the brownfield nature of the Proposed RBSF Component.. A description of the principal habitats that would be potentially impacted by the Proposed RBSF Component is set out below.

The vast majority of the site consisted of dry meadows and grassy verges (GS2). The grassland had areas of scattered scrub and occasionally there were small areas of wetter grassland with rushes (See Figure 6- 2). The area has been disturbed in the past, typical of such brownfield sites, and there were areas that had short swards over poor soils and others with thick tall swards over deeper soils. This habitat is occasionally grazed by horses and rabbits had maintained short swards in other locations. The vegetation was relatively species rich especially in the shorter sward areas. The sward mainly consisted of false oatgrass (*Arrhenatherum elatius*), Yorkshire fog (*Holcus lanatus*), red fescue (*Festuca rubra*), crested dog's tail (*Cynosarus cristatus*), creeping bent (Agrostis stolonifera), meadow grasses (Poa sp.), glaucous sedge (*Carex flacca*) and hairy sedge (*Carex hirta*). Herb species present include birdsfoot trefoil (*Lotus corniculatus),* cowslip (*Primula veris*), common vetch (Vicia sativa), selfheal (Prunella vulgaris), red clover (*Trifolium pratense*), white clover (*Trifolium repens*), meadow buttercup (*Ranunculus acris*), Goat's-beard (Tragopogon pratensis), meadow vetchling (Lathyrus pratensis), common mouse-ear (*Cerastium fontanum*), meadowsweet (Filipendula ulmaria), silverweed (*Potentilla anserina*), yellow wort (*Blackstonia perfoliate*), common century (*Centaurium erythraea*), ragwort (*Senecio jacobaea*), dandelion (*Taraxacum agg*.) and creeping buttercup (*Ranunculus repens*).

Orchid species were recorded within the sward (see Figure 6-3) and include pyramidal orchid (*Anacamptis pyramidalis*), common spotted orchid (*Dactylorhiza fuchsii*) and bee orchid (*Ophrys apifera*).

Areas of scattered scrub were present and colonising the dry grassland and consisted of hawthorn (*Crataegus monogyna*), dogrose (Rosa canina), butterfly bush (*Buddliea davidii*), and young willow (*Salix sp*.) and birch (*Betula sp*.) saplings.

In certain areas and especially around the boundaries of the site dense scrub habitat (WS1) has formed. This was typically characterised by low botanical diversity and the presence or dominance of a single species and occasionally non-native or garden escapees. The areas of scrub were usually dominated by bramble (*Rubus fruticosus agg*.) or gorse (*Ulex europeaus*) but contained many of those species listed as colonising the dry grassland.

Figure 6-1: Habitats Within the Proposed RBSF Component Site

Figure 6-2: View of Scattered Scrub within grassland habitat

Figure 6-3: Area of pyramidal orchid recorded within grassland habitat

This anthropogenic habitat represents all hard, made surfaces and buildings within the Site. These consisted of the 4 administrative building within the site and the asphalt roadways that are present. Flora is rarely a feature of well-maintained hard surfaces, although small pioneer herbs and /or bryophytes/lichens can become established on suitable situations or where patches of soil accumulate in sheltered crevices, as is the case here, but holds no significant ecological value.

There are a couple of locations where areas of ground had very limited ground cover. These include an area of disturbed ground (ED2) to the east of the Site and an area that was formally part of an attenuation pond, but the lining was damaged and had drained to leave bare earth and gravels. The area of disturbed ground was colonising with pineapple weed (*Matricaria discoidea*), broadleaf plantain (*Plantago major*), coltsfoot (*Tussilago farfara*) and black medic (*Medicago lupulina*).

A former attenuation pond (FL8 Other Artificial lakes and ponds) that has mainly dried out holds a small amount of shallow water, but this is very shallow and has little aquatic vegetation within it. The depth was a maximum of 15cm during the period that surveys were undertaken within the Site and the base of the area of water was mainly silt with some gravel.

There is a drainage ditch (FW4) that borders the western boundary of the Site. The stream corridor is approximately 2m wide and has a very slow flow with water depths of approximately 0.3m, but a significant silt layer below that. The ditch was canalised with steep banks and significantly overgrown causing shading in most places. The banks comprised dense bramble, meadowsweet and rose. In an area where a more open canopy was present *Sparganium* sp. and water mint (*Mentha aquatica*) were noted.

Surrounding the boundaries to the south and to the west of the drainage ditch are treelines (WL2). These were potentially hedgerows that are now out grown and have developed into areas of scrub encroaching the Site. The treelines comprised sycamore (*Acer pseudoplatanus*), ash (*Fraxinus excelsior*) and hawthorn. Understorey vegetation comprised ivy (Hedera helix), hart's tongue fern (Asplenium scolopendrium), nettle (Urtica dioica) and elder (Sambucus nigra).

The 2018 EIAR reported that no invasive species were present on Site. The 2023 survey identified a number of IAPS within the Site but confirmed that there were no Third Schedule Invasive Alien Plant Species. The identified IAPS in 2023 comprised medium impact species such as Sycamore (*Acer pseudoplatanus*) and Butterfly bush (*Buddliea davidii*), which were recorded as present within the 2018 habitat descriptions, but not classified as invasive. As these species are not included on the third schedule they are not discussed further.

The habitats recorded during the 2023 survey correspond to those recorded during the 2017 baseline surveys. The grassland appears to be more species diverse than reported in the EIAR in the 2018 planning application, but would still be regarded as no more than of local importance (Higher Value) in accordance with Appendix 6A 'Criteria for Ecological Evaluation' of Volume 4 Part B of the EIAR submitted with the original 2018 planning application as it is an example of a site containing semi-natural habitat types with high biodiversity in a local context and a high degree of naturalness. The other habitats would be regarded as having no more that local importance (Lower Value) in accordance with Appendix 6A.

6.3.3 Aquatic Environment

The drainage ditch on the site boundary was very slow flowing at both sites with a heavy deposit of a fine silt. This ditch was surveyed on 18 April 2023 at the site of proposed development (Site 1) and downstream of the proposed development planning application boundary (Site 2). Both sites remain canalised with steep banks. A hydrocarbon sheen was noted at Site 2. Bankside vegetation at Site 1 (at the proposed site) comprised dense bramble (*Rubus fructicosus*), meadowsweet (*Filipendula ulmaria*) and rose (*Rosa sp*.). Bankside vegetation at Site 2 (downstream) comprised treelines with sycamore (*Acer pseudoplatanus*), ash (*Fraxinus excelsior*) and hawthorn (*Crataegus monogyna*). Understorey vegetation comprised ivy (*Hedera helix*), hart's tongue fern (*Asplenium scolopendrium*), nettle (*Urtica dioica*) and elder (*Sambucus nigra*). *Sparganium* sp. and water mint (*Mentha aquatica*) were noted within the stream at Site 1 (at the proposed development site), whereas no in-stream macrophytes were noted at Site 2 (see Figure 6 4).

Small Streams Risk Score (SSRS) values of 0.8 (see Table 6-1) were recorded at both sites. These low SSRS values at both sites put the stream 'at risk' of not meeting 'good' status under the WFD.

Table 6-1 Summary of SSRS results and macroinvertebrate species observed

Site	SSRS Score	No. of Taxa	Macroinvertebrates Observed
Site 1 (at the proposed development site)	0.8	11	Dytiscidae, Hirudinea, Asellus aquaticus, Chironomus, Chironomidae, Potamopygrus antipodorum, Planorbis, Tubificidae, Sphaeriidae, Limnephilidae (2 species).
Site 2 (downstream of the proposed development site)	0.8	6	Dytiscidae, Hirudinea, Asellus aquaticus, Chironomus, Chironomidae, Gammarus sp.

Note that not all macroinvertebrates observed were used in the SSRS calculation (e.g., Gammarus and coleoptera species).

The SSRS values of 0.8 are low (and lower than the values of 2.4 and 1.6 presented in the 2018 EIAR), and suggest that the stream remains at risk and would be unlikely to achieve good status at present. Similarly, the number of different macroinvertebrate types observed, 11 and 6 respectively, is low compared to an unimpacted stream, where twice or three times that many would realistically be expected.

These results are consistent with the EPA risk classification of the Ward_ 030 stream, which is classified as "at risk". The aquatic habitats would be regarded as having no more that local importance (Lower Value) in accordance with Appendix 6A 'Criteria for Ecological Evaluation' of Volume 4 Part B of the EIAR submitted with the 2018 planning and would not be regarded as an Important Ecological Feature (IEF).

A full record of the SSRS assessment sheets for both sites are provided at Appendix A to the 2023 RBSF Terrestrial Biodiversity Baseline Survey Report at Appendix 6B in Volume 4A Part B of this EIAR Addendum.

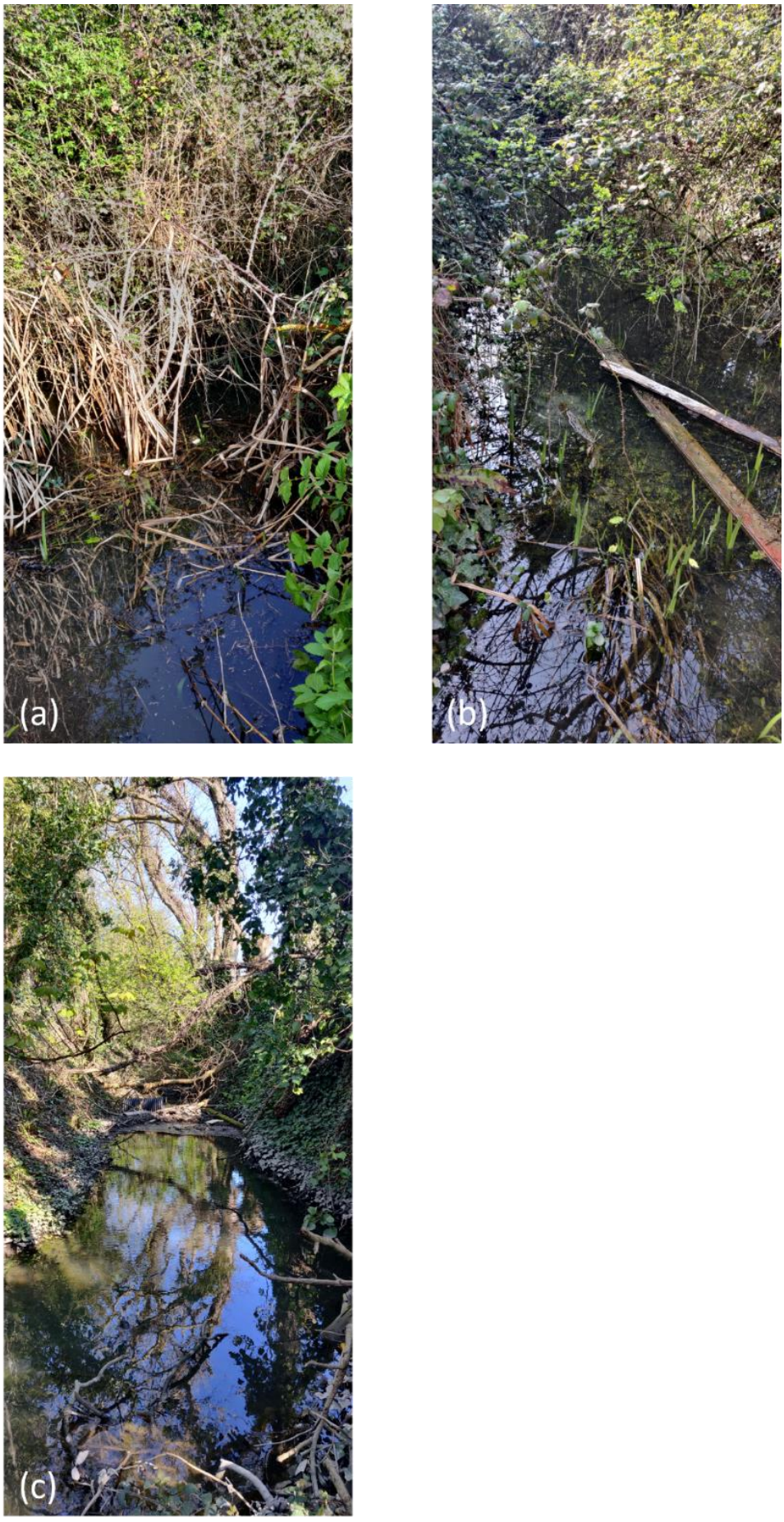

Figure 6-4: Photographs of site 1 (a and b) and site 2 (c)

6.3.4 Birds

The results of the bird survey are shown in Table 6-2. All survey visits were undertaken in suitable clear conditions, with no visits made during inclement weather that would limit the activity or visibility of birds during the surveys.

Table 6-2: Bird species recorded during the three breeding bird surveys and their status within the site

Species	24th April 2023	22nd May 2023	19th June 2023	Status within Site	Birds of Conservation Concern
Blackbird	Singing	Carrying food	Singing	Breeding	Not listed
Blackcap	Singing	Singing	Singing	Breeding	Not listed
Blue tit	Present	Singing	Singing	Breeding	Not listed
Chaffinch	Singing	Singing	Present	Breeding	Not listed
Chiffchaff	Singing	Singing	Singing	Breeding	Not listed
Dunnock	Singing	Singing	Singing	Breeding	Not listed
Goldfinch	Present	Singing	Present	Breeding	Not listed
Great tit	Present		Singing	Probably Breeding	Not listed
Herring gull	Flyover	Present	Flyover	Non-breeding	Amber listed
Hooded crow	Present	Present		Non-breeding	Not listed
Jackdaw		Present	Present	Non-breeding	Not listed
Linnet	Singing	Singing	Present	Breeding	Amber listed
Magpie	Present	With young	Present	Probably Breeding	Not listed
Meadow pipit	Singing	Singing		Probably Breeding	Red list
Reed bunting	Singing	Singing	Present	Probably Breeding	Not listed
Robin	Singing	Singing	Singing	Breeding	Not listed
Song thrush	Singing	Singing		Probably Breeding	Not listed
Starling	Nesting	Nesting	Nesting	Breeding	Amber listed
Whitethroat		Singing	Singing	Probably Breeding	Not listed
Willow warbler	Singing	Singing	Singing	Breeding	Amber listed
Woodpigeon	Present	Singing	Present	Probably Breeding	Not listed
Wren	Singing	Singing	Singing	Breeding	Not listed

Of the 22 species recorded during the surveys, 19 were regarded as confirmed breeding or probably breeding within the site. Of those 19 species one is red listed (high conservation concern) and three are amber listed (medium conservation concern) within Bird of Conservation Concern in Ireland Gilbert et al (2021).

The species and numbers recorded within the proposed site are typical of habitats found within urban edge/agricultural land. Although, the red listed meadow pipit and amber listed linnet, starling and willow warbler were recorded as probably or confirmed breeders within the site, these species whilst having suffered population declines (hence their inclusion as birds of conservation concern) are still relatively common bird species within Ireland. The wild bird fauna of the site would be regarded as no more than of local importance (Higher Value) in accordance with Appendix 6A 'Criteria for Ecological Evaluation' of Volume 4 Part B of the EIAR submitted with the 2018 planning as it is an example of a site containing species listed on the relevant Red Data list (i.e. red and amber listings in Bird of Conservation Concern in

Ireland, in a site containing semi-natural habitat types with high biodiversity in a local context and a high degree of naturalness. The wild bird assemblage occurs mainly in the boundary vegetation of the site.

6.3.5 Large Mammals

During the 2017 survey, no badger setts or latrines were identified within the site, but evidence of badger foraging activity was recorded.

A number of mammal trails were recorded within the site during the survey which could be utilised by badgers, but evidence of both fox (Vulpes vulpes) (sightings and scat) and rabbit (Oryctolagus cuniculus) (sightings, burrows and droppings) were also present within the site and could have created the trails.

The habitats on site are suitable for the use of badgers in terms of sett building, foraging and commuting. The 2023 surveys have found no evidence that badgers are currently utilising the Site.

6.3.6 Bats

6.3.6.1 Tree, building and landscape suitability assessment

A preliminary roost assessment of trees and structures was undertaken within the Proposed RBSF Component site boundary. The same buildings are present now as were present during surveys undertaken for the 2018 EIAR. Surveys recorded no trees that had the potential to support roosting bats. The four structures within the site were of modern construction with single storey concrete rendered walls and a pitched tiled roof; but were all in good condition with no lifted tiles or gaps that would allow access for bat roosting. No roost confirmation surveys were required given that no roosting potential was identified during the preliminary assessments.

6.3.6.2 Manual Dusk Activity Surveys

The walked transect surveys in May and June 2023 recorded a relatively low level of bat activity.

The survey on the 24 May 2023 commenced at sunset at 21:32hrs. The first registration was for a Leisler's bat at 22:08, 36 minutes after sunset. A total of six passes by Leisler's bat were recorded through the survey with a single pass of common pipistrelle and soprano pipistrelle each recorded. The majority of activity was recorded within the southern part of the site and along the western boundary.

The survey on 13 June 2023 commenced at sunset at 21:54. The first registration was of Leisler's bat at 22:26, 32 minutes after sunset. A total of eight passes by Leisler's bat were recorded during the transect, and five passes by common pipistrelle and a single pass by soprano pipistrelle also recorded. Again, the majority of the activity was concentrated within the southern portion of the site.

Given that Leisler's bats are early roosts emergers, and typically emerge at sunset, the timing of the first registrations suggests that a roost is not situated in close proximity to the site. The majority of the activity is concentrated to the south of the Site and outside of the proposed development footprint.

6.3.6.3 Dusk Emergence Surveys

No roost emergence surveys were required given that no roosting potential was identified during the tree and building assessments in 2023.

6.3.6.4 Static Detector Survey Results

Data was collected from a single location across three months from April 2023 to June 2023 with 5 nights of data collected each month. A total of three species of bat were recorded during the surveys with Leisler's bat, common pipistrelle and soprano pipistrelle all recorded as present.

In the month of April only a total of 24 bat passes over the five nights were recorded, with soprano pipistrelle being the most numerous with 11 passes over the 5 nights.

In the month of May a total of 525 bat passes were recorded over the five nights, with Leisler's bat being the most numerous, with 334 bat passe recorded over the five nights.

In the month of June a total of 876 bat passes were recorded over the five nights, with Leisler's bat being the most numerous, with 686 bat passes recorded over the five nights.

The results correspond to the previous survey results. The same species have been recorded with only the absence of a Myotid species of bat during the 2023 surveys, which was only recorded a single time previously.

Although the number of bat passes recorded exceeds those recorded during the previous surveys it should be noted that as the previous survey was undertaken in September, at the end of the active season and therefore activity would be lower and that the detectors used for the 2023 surveys are more sensitive and may record higher numbers.

6.3.6.5 Evaluation of Survey results

There are no changes to the information presented in this Section of the EIAR in the 2018 planning application in relation to the results of the various bat surveys undertaken. The buildings within the lands are still assessed to be of negligible value for roosting bats, and none of the trees within the Proposed RBSF Component lands are considered to be suitable for roosting bats. Activity within the subject lands remains largely associated with Leisler's bat, with some activity of Common pipistrelle, and very low numbers of recordings for a few species (Soprano pipistrelle, unidentified Myotis species and unidentified Pipistrellus species).

The population of bats within the subject lands remains as previously evaluated (of local importance [higher value]).

6.3.7 Overall Site Evaluation

- There is no change in the evaluation of the Proposed RBSF Component site with respect to designated sites from Section 6 (Biodiversity - Terrestrial) in Volume 4 Part A of the EIAR submitted with the original 2018 planning application.
- There is no change in the evaluation of the Proposed RBSF Component site with respect to terrestrial habitats from Section 6 (Biodiversity - Terrestrial) in Volume 4 Part A of the EIAR submitted with the original 2018 planning application.
- There is no change in the evaluation of the Proposed RBSF Component site with respect to aquatic habitats from Section 6 (Biodiversity - Terrestrial) in Volume 4 Part A of the EIAR submitted with the original 2018 planning application.
- There is a small increase in the value of the Proposed RBSF Component site with respect to wild birds from Section 6 (Biodiversity - Terrestrial) in Volume 4 Part A of the EIAR submitted with the original 2018 planning application. At that time, one amber listed species was recorded on site. Now, one red listed and three amber listed species were recorded on site. The site is evaluated as being of local importance (Higher Value) for wild birds.
- There is no change in the evaluation of the Proposed RBSF Component site with respect to large mammals from Section 6 (Biodiversity - Terrestrial) in Volume 4 Part A of the EIAR submitted with the original 2018 planning application.
- There is no change in the evaluation of the Proposed RBSF Component site with respect to bats from Section 6 (Biodiversity - Terrestrial) in Volume 4 Part A of the EIAR submitted with the original 2018 planning application.
- Overall, the terrestrial and aquatic biodiversity features of the Proposed RBSF Component site are evaluated to be of local importance (higher value). This is the same level of value attributed to the site in the 2018 application.

6.4 Characteristics of the RBSF Component of the Proposed GDD Project

The description of the Proposed RBSF Component remains as presented in Chapter 4 (Description of the Proposed Project) in Volume 2 Part A of the EIAR in the 2018 planning application.

6.5 Potential Impacts

The significance of impacts on specific receptors have been evaluated on the basis of the magnitude of impact and rating of significance of effects as presented in Tables 6-5 and 6-6 of Section 6 (Biodiversity - Terrestrial) in Volume 4 Part A of the EIAR submitted with the 2018 planning application.

6.5.1 Do-Nothing Impacts

There are no changes to the information presented in this Section of the EIAR in the 2018 planning application. The site would still remain as is in the event of a Do Nothing scenario, as assessed in the EIAR in the 2018 planning application.

6.5.2 Construction Phase

There are no changes to the information presented in this Section of the EIAR since the 2018 planning application given that the value of the majority of ecological features being assessed remain of the same level of value as attributed in the 2018 EIAR, and the magnitude of effect remains the same as that predicted in the 2018 EIAR. Where the value of a feature has increased (wild birds), the predicted effect remains the same.

6.5.3 Operational Phase

There are no changes to the information presented in this Section of the EIAR since the 2018 planning application given that the value of the ecological features being assessed remain of the same level of value as attributed in the 2018 EIAR, and the magnitude of effect remains the same as that predicted in the 2018 EIAR.

6.6 Mitigation Measures

The wild bird assemblage recorded in 2023 which results in a small increase in site value, occurs mainly in the boundary vegetation of the Proposed RBSF Component site, and this is to be supplemented with significant berm planting of mixed woodland comprising native trees and shrubs as a commitment of the 2018 EIAR and CEMP (see Drawing Y17702-PL-011 Landscape Layout in Volume 5 Part B of the EIAR submitted with the original 2018 planning application). This measure, in addition to the commitment to remove vegetation outside of the breeding bird season which was also committed to in the 2018 EIAR, adequately mitigates the potential negative effects of the project on wild birds.

A Biodiversity Assessment (Appendix 2 of the Addendum Planning Report (included as a standalone document in the Addendum pack)) has been completed. The Biodiversity Assessment includes both a quantitative and qualitative assessment of the Proposed Project with respect to the green infrastructure and biodiversity that the Proposed Project will deliver and has identified, as necessary, the mechanisms to secure this through the planning process for the Proposed Project. The following measures will be implemented in full by the appointed contractor and Uisce Éireann, as applicable, to secure the outcome of the quantitative assessment.

- All habitats that are within the redline boundary and are to be retained during the Construction Phase (including hedgerows, drainage ditches and other water features at the edge of the redline boundary) will be protected in advance of, and during construction, to avoid any incursion into them by personnel, construction plant or materials and to avoid and minimise any changes to the quality of those habitats (e.g., through changes in water quality such as with respect to silts, hydrocarbons or other pollutants).

- A Biodiversity Implementation and Monitoring Plan will be prepared by the appointed contractor and the EcCOW, in consultation with Uisce Éireann, prior to the commencement of construction and implemented thereafter. The Biodiversity Implementation and Monitoring Plan will be required to include the following:
  - Measures to secure the delivery of the area and linear measurements of habitats identified to be delivered post-development;
  - Measures to ensure the post-development habitat values attributed to each habitat are at least achieved within five to 10 years post habitat creation / restoration following completion of the Construction Phase. This will include the use of nutrient poor soil (subsoils) in the creation of dry meadow grasslands. Reference should be made to Uisce Éireann's Biodiversity Guidance for Irish Water Developments (IW-AMT-GL-021) (Uisce Éireann 2021b);
  - Operational Phase habitat management measures following completion of the Construction Phase. This will include a schedule of requirements for the management of woodland, hedgerow and grasslands consistent with Uisce Éireann's BAP (Uisce Éireann 2021a); and
  - Operational Phase habitat monitoring to ensure that the Operational Phase management is delivering, as a minimum, the post-development five to 10 year habitat values assigned in this assessment. This will involve habitat surveys of all created, reinstated and enhanced habitats within Uisce Éireann's control in Year 1, 3, 5, 8 and 10 of the Operational Phase.

All measures will include specifications for the creation and restoration of all habitats identified, cross-referencing, as appropriate, to the relevant Landscape Management Plan which will be prepared and implemented by the appointed contractor and will align with the Landscape Layout presented in Figure Y17702-PL-011 of the 2018 EIAR, which include mitigations as follows:

- Immature woodland, dry meadows and scrub within the site; and
- Protection / creation of hedgerows along the sites boundaries.

The Biodiversity Assessment (Appendix 2 of the Addendum Planning Report) also outlines enhancement measures that will be implemented which include:

- A minimum of eight bat boxes will be erected at the proposed RBSF component site The bat boxes will be Schwegler-type (woodcrete) boxes (or similar) and a range of different type boxes (e.g. 2F, 1FF, 3FF, 1FW, 1FE and 1FTH) will be provided. The use of a range of boxes will provide additional roosting opportunities for a range of bat species.
- A minimum of eight bird boxes will be erected at the proposed RBSF component site. The bird boxes will be Schwegler-type (woodcrete) boxes (or similar) and a range of different type boxes (e.g. 1B, 2H, 17C) will be provided. The use of a range of boxes will provide additional nesting opportunities for a range of bird species.

There are no other changes to the information presented in this Section of the EIAR in the 2018 planning application.

6.7 Residual Impacts

6.7.1 Construction Phase

As there are no changes to the predicted impacts of constructing the Proposed RBSF Component and no additional mitigation requirements, there are no changes to the information presented in this Section of the EIAR in the 2018 planning application.

6.7.2 Operational Phase

There have been no new adverse effect pathways identified in the EIAR addendum or effects of a greater magnitude or greater adverse significance identified in the EIAR addendum in relation to terrestrial biodiversity, when compared to the EIAR in the 2018 planning application.

The mitigation measures originally proposed remain valid and appropriate, and when considering the additional mitigation measures indicated in Section 6.6 the residual impact on terrestrial biodiversity will remain neutral imperceptible as per that presented in this Section of the EIAR in the 2018 planning application.

6.7.3 Interactions

There are no changes to the information presented in this Section of the EIAR in the 2018 planning application.

6.7.4 Cumulative Impacts

The projects listed in Chapter 19A of the EIAR Addendum have been considered. The Biodiversity - Terrestrial assessment (Section 6) considers potential direct and indirect impacts resulting from the Proposed RBSF Component. Following mitigation, the Proposed RBSF Component will have no significant adverse impacts on biodiversity. The site itself is of Low Importance (Higher Value) and the extent of potentially significant impacts will not extend beyond the site itself. Accordingly, there are no cumulative impacts with other projects predicted.

6.8 Monitoring

There are no changes to the information presented in this Section of the EIAR in the 2018 planning application.

6.9 Difficulties Encountered

No difficulties were encountered during the preparation of this Addendum assessment.

6.10 Conclusion

This Section of the EIAR Addendum has considered all relevant changes to the biodiversity (terrestrial) baseline environment, and to changes or updates to the law, policy, and industry standards and guidance in the intervening period since the 2018 planning application submission. The habitat enhancement measures as prescribed in the Biodiversity Assessment (included as Appendix 2 of the Addendum Planning Report), are considered and are as per that outlined in the 2018 EIAR. Following consideration, there are no changes to the assessment of Biodiversity (Terrestrial) as a result of any of the updates discussed in this Section of the EIAR Addendum.

6.11 References

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SECTION 7A Land and Soils

7.1 Introduction

As detailed in Chapter 1A (Introduction) in Volume 2A Part A of this Environmental Impact Assessment Report (EIAR) Addendum, Section 7 (Land and Soils) in Volume 4 Part A of the EIAR submitted with the original 2018 planning application has been reviewed in the light of:

- Changes to the baseline environment;
- The requirement for updated surveys;
- Updated development plans;
- The updated cumulative assessment;
- EPA updated guidelines; and
- Changes to the law, policy, and industry standards and guidance in the intervening period.

The description of the Regional Biosolids Storage Facility (RBSF) remains as presented in Chapter 4 (Description of the Proposed Project) in Volume 2 Part A of the EIAR in the 2018 planning application.

7.2 Methodology

In 2022, the EPA published the updated EPA Guidelines (EPA 2022). The updated EPA Guidelines have been considered in terms of the methodology applied in this Section of the EIAR in the 2018 planning application, which incorporated the previous Draft Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (hereafter referred to as the previous EPA Guidelines) (EPA 2017). It has been determined that the methodology used for the original assessment is consistent with the updated EPA Guidelines, and therefore, do not have a material consequence for the assessment contained in this Addendum.

In the 2018 planning application it was explained that the generation of waste during construction of the Proposed RBSF Component would be relatively small and that during operation, while there would be no production at the site, the storge of biosolids (treated wastewater sludge) will be accordance with the Certificate of Registration as required under the Waste Management (Registration of Sewage Sludge Facility) Regulations, 2010. Since the 2018 planning application, additional subheadings have been included in relevant sections of Section 7A (Land and Soils) to illustrate even more clearly the impact assessment of waste.

7.2.1 Desk Study

There are no changes to data sources presented in this Section of the EIAR since the 2018 planning application.

7.2.2 Site Investigations

A site investigation was carried out in 2020 on the Proposed RBSF Component site in advance of a planned temporary use of the site as a heavy goods vehicle (HGV) parking area. The site remains unchanged from the original site investigation. The planned parking area was part of the Government's Brexit preparations, but the works did not proceed. The investigation comprised 13 trial pits (TP) and 13 dynamic cone penetration tests (DCP). Results of the investigation took the form of resident engineer notes taken during observation of the works. No report or lab testing were required in this instance as the works relating to the parking area did not proceed. The reported results have been reviewed and any changes to the assessment are described in the subsequent sections.

Table 7-1: Summary of site investigation works

Description of Investigation	Details of Investigation	Date of Works
Planned temporary use as a HGV parking area	TP depths range between 0.6m to 1m below ground level (mBGL). Groundwater was not encountered in all the TP locations. Groundwater depths range between 0.2m to 1mBGL	25th of November to 1st of December 2020

There are no other changes to the information presented in this Section of the EIAR since the 2018 planning application.

7.2.3 Waste

This heading has been added since the 2018 planning application. The methodology for the environmental impact of waste involves identification the potential waste sources for construction and operational phases of the Proposed RBSF Component and considers how it will be managed or mitigated. Mitigation is considered in accordance with the principles of the waste hierarchy as outlined in the current version of the European Communities (Waste Directive) Regulations, which are prevention, preparing for reuse, recycling, other recoveries and disposal. The relevant policy, legislation and guidelines considered relevant to the assessment of waste impact for the Proposed RBSF Component are as follows:

- S.I. No. 323/2020 - European Union (Waste Directive) Regulations 2020
- Eastern-Midlands Region Waste Management Plan (EMWRO, 2015)
- Draft National Waste Management Plan for a Circular Economy (Local Government Ireland, 2023)
- Fingal Development Plan 2023 – 2029
- Circular Economy Action Plan for a Cleaner and More Competitive Europe (European Commission 2020)
- A Waste Action Plan for a Circular Economy (DCCAE, 2020)
- Whole of Government Circular Economy Strategy 2022 – 2023 (Government of Ireland, 2021)
- The Circular Economy and Miscellaneous Provisions Act 2022
- The Circular Economy Programme 2021 – 2027 (EPA, 2021)
- Article 27 By Product Notifications available on the EPA's By-product Register
- Best Practice Guidelines for Construction and Demolition Waste (EPA, 2021)

Some of the above-listed policy, legislation and guidelines have been published since the 2018 planning application as updates to existing documents or as new publications. The information contained in the more recent references does not materially change the impact assessment for waste since the 2018 planning application.

7.3 Existing Environment

7.3.1 Site Description

The RBSF was granted planning permission by An Bord Pleanála (ABP) (Case Reference Number PA29S.301798), as part of the Ringsend Wastewater Treatment Plant Upgrade Project in April 2019. There has been no development on the site since permission was granted.

There are no further changes to the information presented in this Section of the EIAR since the 2018 planning application.

7.3.2 Bedrock Geology

There are no changes to the baseline bedrock geology environment, as presented in this Section of the EIAR in the 2018 planning application.

7.3.3 Quaternary Deposits

There are no changes to the Quaternary Geology Map of Ireland and the baseline quaternary deposit information, as presented in this Section of the EIAR in the 2018 planning application.

7.3.4 Summary of Ground Conditions

The results from the 2020 site investigation have been reviewed and have been found to be consistent with the original site investigation carried out by Priority Geotechnical Limited (PGL). The fieldwork was undertaken between the 13th of October and the 9th of November 2017.

There are therefore no changes to the information presented in this Section of the EIAR since the 2018 planning application.

7.3.5 Karst Features

There are no changes to the baseline karst environment, as presented in this Section of the EIAR since the 2018 planning application.

7.3.6 Economic Geology

There are no changes to the baseline information presented in this Section of the EIAR in the 2018 planning application. Huntstown limestone quarry remains in operation directly to the south west of the site

7.3.7 Geological Heritage

There are no changes to the baseline environment in relation to geological heritage sites, as presented in this Section of the EIAR in the 2018 planning application.

7.3.8 Hydrogeology

The latest information for aquifer classification and groundwater vulnerability classifications from the Geological Survey of Ireland (GSI) Groundwater mapping program were considered for the following sections.

7.3.8.1 Aquifer Classification

There are no changes to the baseline aquifer and groundwater environment, as presented in this Section of the EIAR in the 2018 planning application.

7.3.8.2 Groundwater Dependent Terrestrial Ecosystems

There are no groundwater-dependent terrestrial ecosystems within 15 km of the Proposed RBSF Component site.

7.3.8.3 Groundwater Vulnerability

There are no changes to the baseline environment in relation to groundwater vulnerability, as presented in this Section of the EIAR in the 2018 planning application.

7.3.8.4 Groundwater Users

There are no changes to the baseline environment in relation to groundwater users, as presented in this Section of the EIAR in the 2018 planning application.

7.3.8.5 Groundwater Levels and Flow

There are no changes to the baseline environment in relation to groundwater levels and flow, as presented in this Section of the EIAR in the 2018 planning application.

7.4 Characteristics of the RBSF Component of the Proposed GDD Project

7.4.1 Earthworks

The results from the 2020 site investigation have been reviewed and have been found to be consistent with the information that was reviewed for the EIAR submitted with the 2018 planning application. There are therefore no changes to this Section of the EIAR since the 2018 planning application.

7.4.2 Water Supply

There are no changes to the information presented in relation to water supply in this Section of the EIAR since the 2018 planning application.

7.4.3 Wastewater Disposal

There are no changes to the information presented in relation to wastewater disposal in this Section of the EIAR since the 2018 planning application.

7.4.4 Drainage

There are no changes to the information presented on drainage in this Section of the EIAR since the 2018 planning application.

7.4.5 Waste

As presented in section 7.4.1 of the EIAR in the 2018 planning application, the earthworks undertaken during the construction stage is the activity that will potentially generate the most waste for the Proposed RBSF Component. The site has been partly developed, thereby minimising potential excavation for general site development and services. Excavation of the foundations for the storage buildings will be main source of potential waste. Realignment of the existing internal road and paths and demolition of an existing office building and ancillary buildings will also potentially generate waste materials.

7.5 Potential Impacts

This Section of the EIAR submitted with the 2018 planning application, was carried out in accordance with the Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes (2009) published by TII/NRA, “Draft Guidelines on the Information to be Contained in Environmental Impact Assessment Reports” (EPA, 2017) and “Guidelines for the Preparation of Soils, Geology and Hydrogeology Chapters of Environmental Impact Statements” (IGI, 2013)

The “Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes (2009)” published by TII/NRA, on which the description of the significance of impacts was based, required that the significance of an impact be determined by an estimation of the importance of the attribute. , Examples were given to assist in quantification, against the magnitude of the impact.

The assessment of effects on specific receptors has changed since the assessment in the EIAR with the 2018 planning application. The updated EPA Guidelines established the assessment of the effects based on the likelihood and significance by adding more terminology to classify effects. However, there are no changes to the information presented in this Section of the EIAR since the 2018 planning application.

7.5.1 Do-Nothing Impacts

As there are no changes to the RBSF design, the ‘Do-Nothing’ impact is considered to be the same as was assessed in this Section of the EIAR in the 2018 planning application.

7.5.2 Construction Phase

7.5.2.1 Excavation, Earthworks, Surplus and Unsuitable Soils

The impact of excavation and removal of subsoils was identified in the EIAR submitted with the original 2018 planning application as negligible in magnitude and imperceptible in significance.

As there are no changes to the design of the RBSF and the proposed construction activities, there are no changes to the information presented in this Section of the EIAR since the 2018 planning application.

7.5.2.2 Karst Features

As there are no changes to the design of the RBSF or to the baseline karst environment. There therefore remains no impact on karst features, as presented in this Section of the EIAR in the 2018 planning application.

7.5.2.3 Temporary Construction Dewatering and Groundwater Users

As there are no changes to the design of the RBSF and there remains no requirement for dewatering to construct foundations, there remains no impact on the available groundwater resource, as presented in this Section of the EIAR in the 2018 planning application.

7.5.2.4 Accidental Spillages - Contamination of Soils and Groundwater

As there are no changes to the design of the RBSF and the proposed construction activities, there are no changes to the information presented in this Section of the EIAR since the 2018 planning application.

7.5.2.5 Waste

Excavation and removal of subsoils will be required to accommodate the foundations of the storage buildings and levelling of the site. Any soft and/or organic material that is not considered suitable as a bearing stratum for foundations/roads and will require excavation. Unsuitable and surplus excavated material will be reused on the site for bunding and landscaping. Rock excavation on the site is not expected. The implementation of the mitigation measures as presented in section 7.6 will ensure that there will be a high rate of reuse, recovery and recycling achieved during the Construction Phase.

The assessment provided in section 7.5.2.1 of the EIAR in the 2018 planning application, that the impact resulting from excavation will be negligible in magnitude and imperceptible in significance has not changed.

7.5.3 Operational Phase

As there are no changes to the design of the RBSF and there remains no requirement for direct discharges to or abstractions from the soils and hydrogeological environment during the operational phase, there are no changes to the information presented in this Section of the EIAR in the 2018 planning application.

7.5.3.1 Economic Geology

As there are no changes to the design of the RBSF and the baseline environment, there are no changes to the information presented in this Section of the EIAR in the 2018 planning application.

7.5.3.2 Geological Heritage

As there are no changes to the design of the RBSF or to the baseline geological heritage environment, there are no changes to the information presented in this Section of the EIAR in the 2018 planning application.

7.5.3.3 Reduction in Recharge area

As there are no changes to the design of the RBSF or to the baseline environment, there are no changes to the information presented in this Section of the EIAR in the 2018 planning application.

7.5.3.4 Accidental Spillages – Contamination of Soils and Groundwater

As there are no changes to the design of the RBSF or to the baseline environment, there are no changes to the information presented in this Section of the EIAR in the 2018 planning application.

7.5.3.5 Waste

During the Operational Phase, waste sources will be predominantly staff/office activities and cleaning activities, including the wheel wash. Measures will be implemented to ensure a high rate of reuse, recovery and recycling achieved. The impact resulting from general operational activities will be negligible in magnitude and imperceptible in significance.

7.6 Mitigation Measures

7.6.1 Construction Phase

All mitigation measures presented in this Section of the EIAR in the 2018 planning application remain valid

7.6.1.1 Excavation and Earthworks, Surplus and Unsuitable Soils

Based on the comparative assessment of impacts as a result of excavation and earthworks identified in Section 7 Land and Soils in Volume 4 Part A of the EIAR in the 2018 planning application and the present day, it is not considered that additional mitigation measures are now required, or that the previously proposed mitigation measures should be altered or removed. There are no changes required to the information presented in this Section of the EIAR in the 2018 planning application. However, as explained in the introduction, an additional heading to address waste and mitigation measures to manage its impact is provided in 7.6.1.3 below.

7.6.1.2 Accidental Spillages - Contamination of Soils and Groundwater

Based on the comparative assessment of impacts as a result of accidental spillages identified in Section 7 Land and Soils in Volume 4 Part A of the EIAR in the 2018 planning application and the present day, it is not considered that additional mitigation measures are now required, or that the previously proposed mitigation measures should be altered or removed. Therefore, there are no changes required to the information presented in this Section of the EIAR in the 2018 planning application.

7.6.1.3 Waste

The requirement for the appointed contractor to prepare and adhere to a Construction Environmental Management Plan (CEMP) has not changed. The CEMP will incorporate a Waste Management Plan (WMP), the framework for which is the provided in the Outline WMP in Appendix 7A in Volume 4 Part B of the 2018 planning application. The Outline WMP has not changed since the 2018 planning application.

The WMP will ensure that waste generated will be managed in accordance with the principles of the waste hierarchy as outlined in the current version of the European Communities (Waste Directive) Regulations 2011 (S.I. No. 126 of 2011), In the case of excavated and earthworks, surplus materials will be retained on the Proposed RBSF Component site as far as a practical for use in landscaping and bunding for visual screening. Where waste generation cannot be avoided, implementation of the WMP will maximise the quantity and quality of waste delivered for recycling and reuse and allow it to move up in the waste hierarchy away from the option of landfill disposal, reducing its environmental impact. Since the 2018 planning application, the new Waste Action Plan (DCCAE, 2020) and the Draft National Wate Management Plan (RWMPO, 2023) has brought emphasis to Article 27 (Waste Regulations 2020). Article 27, under certain circumstances, allows a material to be classified as a by-product and not a waste. This means that the material is not discarded as a waste but rather, used on development projects as a by-product. The appointed contractor will be required to adopt this approach where appropriate.

7.6.2 Operational Phase

Based on the assessment of impacts during Operation Phase identified in Section 7 Land and Soils in Volume 4 Part A of the EIAR in the 2018 planning application and the present day, it is not considered that additional mitigation measures are now required, or that the previously proposed mitigation measures should be altered or removed. Therefore, there are no changes required to the information presented in this Section of the EIAR in the 2018 planning application.

7.7 Residual Impacts

As there are no material changes to the previously assessed impacts of the Proposed RBSF Component in Section 7 in Volume 4 Part A of the EIAR of the 2018 planning application, and therefore the mitigation measures originally proposed will also remain unchanged, the residual impacts of the Proposed RBSF Component are considered to be the same as presented in this Section of the EIAR in the 2018 planning application.

7.7.1 Construction Phase

There are no changes to the impacts outlined in this Section of the EIAR in the 2018 planning application, categorised as having a neutral effect, of imperceptible significance.

7.7.2 Operational Phase

There are no changes to the impacts outlined in this Section of the EIAR in the 2018 planning application, categorised as having a neutral effect, of imperceptible significance.

7.7.3 Interactions

The following interactions were reviewed as part of this Addendum update: Biodiversity, Land and Visual, Air and Climate, Noise, Cultural Heritage and Material Assets. As there are no changes to the design of the RBSF or to the baseline environment, there are no changes to the information presented in this Section of the EIAR in the 2018 planning application.

7.7.4 Cumulative

As the design has not changed since the 2018 application, there are no significant changes to cumulative impacts, and they remain as per the 2018 planning application.

7.8 Monitoring

As there are no changes to the impacts identified in Section 7 Land and Soils in Volume 4 Part A of the EIAR in the 2018 planning application, there remains no requirement for monitoring.

7.9 Difficulties Encountered

There were no difficulties encountered in compiling this Section of the EIAR Addendum.

7.10 Conclusion

This Section of the EIAR Addendum has considered all relevant land and soils updates to the baseline environment, including more recent site investigation information, and to guidance and reference material since the 2018 planning application submission.

Following consideration, there are no changes to the assessment of Section 7 Land and Soils, as a result of any of the updates discussed in this Section of the EIAR Addendum.

7.11 References

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SECTION 8A Air and Climate

8.1 Introduction

As detailed in Chapter 1A (Introduction) in Volume 2A Part A of this Environmental Impact Assessment Report (EIAR) Addendum, Section 8 (Air and Climate) in Volume 4 Part A of the EIAR submitted with the original 2018 planning application has been reviewed, in the light of:

- Changes to the baseline environment;
- The requirement for updated surveys;
- Updated development plans;
- The updated cumulative assessment;
- EPA updated guidelines; and
- Changes to the law, policy, and industry standards and guidance in the intervening period.

The description of the Regional Biosolids Storage Facility (RBSF) remains as presented in Chapter 4 (Proposed Project Description) in Volume 2 Part A of the EIAR submitted with the original 2018 planning application, as supplemented by Chapter 4A (Proposed Project Description) in Volume 2A Part A of this EIAR Addendum.

In 2022, the Environmental Protection Agency (EPA) published an updated set of Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (hereafter referred to as the updated EPA Guidelines) (EPA 2022). The updated EPA Guidelines have been considered in terms of the methodology applied in this Section of the EIAR in the 2018 planning application, which incorporated the previous Draft Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (hereafter referred to as the previous EPA Guidelines) (EPA, 2017). I

It has been determined that the methodology used for the original assessment is consistent with the updated EPA Guidelines when Appendix 8C Greenhouse Gas Assessment that has been prepared to incorporate the full extent of current requirements under the EPA Guidelines is taken into consideration.

8.1.1 Background Information

8.1.1.1 Ambient Air Quality Standards

This Section of the EIAR submitted with the original 2018 planning application was reviewed in order to determine if there have been any updates to the legislation governing the assessment criteria of air quality in the intervening period.

Since the submission of the EIAR in the 2018 planning application, Air Quality Standards Regulations 2022 (S.I. No. 739 of 2022) has been published. It supersedes the Air Quality Standards Regulations 2011 which were previously referenced in this Section of the EIAR in the 2018 planning application. The new regulations did not change the legally binding air quality limit values in Ireland and therefore do not change the legal limit values that were used in the 2018 planning application.

In addition to the publication of these new regulations, the Government of Ireland published the Clean Air Strategy for Ireland in April 2023 (Government of Ireland 2023), which provides a high-level strategic policy framework needed to reduce air pollution. The strategy commits Ireland to achieving the 2021 WHO Air Quality Guidelines Interim Target 3 (IT3) by 2026, the IT4 targets by 2030 and the final targets by 2040 (shown in Table 8-1). The strategy notes that a significant number of EPA monitoring stations observed air pollution levels in 2021 above the WHO targets; 80% of these stations would fail to meet the final $PM_{2.5}$ target of 5 µg/m^3 (micrograms (one-millionth of a gram) per cubic metre of air). The strategy also acknowledges that "*meeting the WHO targets will be challenging and will require legislative and societal change, especially with regard to both $PM_{2.5}$ and NO_2*". Ireland will revise its air quality legislation in line with the proposed European Union (EU) revisions to the CAFE Directive, which will set interim 2030 air quality standards and align the EU more closely with the WHO targets, however these updates to legally binding

targets have not yet occurred. It is most likely that the Proposed RBSF Component will be constructed before changes are implemented but it is expected that the Proposed RBSF Component will be able to comply with whatever revised standards are introduced.

Table 8-1: WHO Air Quality Guidelines 2021 (Amendment to Table 8-1 in Section 8 of the EIAR in the 2018 Planning Application)

Pollutant	Regulation	Limit Type	IT3 (2026)	IT4 (2030)	Final Target (2040)
NO_2	WHO Air Quality Guidelines	24-hour limit for protection of human health	50µg/m^3 NO_2	50µg/m^3 NO_2	25µg/m^3 NO_2
		Annual limit for protection of human health	30µg/ m^3 NO_2	20µg/ m^3 NO_2	10µg/m^3 NO_2
PM (as PM_{10})		24-hour limit for protection of human health	75µg/ m^3 PM_{10}	50µg/m^3 PM_{10}	45µg/m^3 PM_{10}
		Annual limit for protection of human health	30µg/ m^3 PM_{10}	20µg/m^3 PM_{10}	15µg/m^3 PM_{10}
PM (as $PM_{2.5}$)		24-hour limit for protection of human health	37.5µg/m^3 $PM_{2.5}$	25µg/m^3 $PM_{2.5}$	15µg/m^3 $PM_{2.5}$
		Annual limit for protection of human health	15µg/m^3 $PM_{2.5}$	10µg/m^3 $PM_{2.5}$	5µg/m^3 $PM_{2.5}$

8.1.1.2 Dust Deposition Guidelines

There are no changes to the dust deposition guidance since the submission of the EIAR in the 2018 planning application. Therefore, the information in this Section of the EIAR in the 2018 planning application remains unchanged.

8.1.1.3 Climate Agreements

Since the submission of the EIAR in the 2018 planning application, the first Climate Action Plan (CAP) was published by the Irish Government in June 2019 (Government of Ireland 2019). Ireland declared a climate and biodiversity emergency in May 2019, and the European Parliament approved a resolution declaring a climate and environment emergency in Europe in November 2019. The Government approved the publication of the General Scheme in December 2019, followed by the publication of the Climate Action and Low Carbon Development (Amendment) Act 2021 (hereafter referred to as the 2021 Climate Act) in March 2021. The Climate Act was signed into Law on 23 July 2021, giving statutory effect to the core objectives stated within the CAP.

Further details of changes to climate agreements and the introduction of climate budgets, including Climate Action Plan 2023, since the submission of the EIAR in the 2018 planning application, for which the Proposed RBSF Component is now obliged to quantify emissions with respect to, can be found in Appendix 8C Greenhouse Gas Assessment in Volume 4A Part B of this EIAR Addendum.

8.1.1.4 Gothenburg Protocol

There are no changes to the Gothenburg Protocol since the submission of the EIAR in the 2018 planning application. Therefore, the information in this Section of the EIAR in the 2018 planning application remains unchanged.

8.2 Methodology

8.2.1 Local Air Quality Assessment

This Section of the EIAR in the 2018 planning application has been reviewed to determine if there have been any updates to legislation and guidance in relation to air and climate. The following guidelines have changed since the submission of the EIAR in the 2018 planning application.

In December 2022, Transport Infrastructure Ireland (TII) published a series of updated guidelines and models for air quality which are summarised here:

- PE-ENV-01106: Air Quality Assessment of Specified Infrastructure Projects (TII 2022a);
- PE-ENV-01107: Air Quality Assessment Standard for Proposed National Roads (TII 2022b); and
- Transport Infrastructure Ireland (TII) GE-ENV-01107: TII Roads Emissions Model (REM) and Model Development Report (TII 2022c).

Guidance documents used in the 2018 EIAR that have remained unchanged include the following, which is referenced in the following subsection (Construction Phase):

- Guidance on the Assessment of Dust from Demolition and Construction Version 1.1 (Institute of Air Quality Management (IAQM), 2014) (hereafter referred to as the IAQM Guidelines).

8.2.1.1 Construction Phase

There are no changes to the dust assessment information presented in this Section of the EIAR since the 2018 planning application.

As referenced in Section 8.2.1, there are changes to the methodology presented in this Section of the EIAR in the 2018 planning application.

These changes relate to the potential for construction phase traffic to impact air quality. The TII guidance, *Air Quality Assessment of Specified Infrastructure Projects – PE-ENV-01106* (TII 2022a), states that road links meeting one or more of the following criteria can be defined as being 'affected' by the Proposed RBSF Component and should be included in the local air quality assessment for risk to sensitive human and ecological receptors. While the guidance is specific to infrastructure projects, the approach can be applied to any development that causes a change in traffic:

- Annual average daily traffic (AADT) changes by 1,000 or more;
- Heavy duty vehicle (HDV) AADT changes by 200 or more;
- Daily average speed change by 10 kph or more;
- Peak hour speed change by 20 kph or more; and
- A change in road alignment by 5m or greater.

The traffic and transport impact data provided for the Section 13 (Traffic) in Volume 4A of this EIAR Addendum for the Proposed RBSF Component has been reviewed for this assessment. It has been determined that the construction phase traffic will not increase by 1,000 AADT, or 200 HDV AADT, or that the development will not result in speed changes or changes in road alignment. Therefore, the traffic does not meet the scoping criteria above. A detailed air quality assessment of construction phase traffic emissions has been scoped out from any further assessment as there is no potential for significant impacts to air quality.

There are no other changes to the construction phase air quality assessment presented in this Section of the EIAR in the 2018 planning application.

8.2.1.2 Operational Phase

As referenced in see Section 8.2.1, there are changes to the methodology presented in this Section of the EIAR in the 2018 planning application.

Operational phase traffic has the potential to impact local air quality due to increased vehicle movements associated with the Proposed RBSF Component. The TII scoping criteria detailed in the above Section related to Construction Phase were used to determine if any road links have the potential to be affected by the Proposed RBSF Component and would require inclusion in a detailed air dispersion modelling assessment. The traffic and transport impact data provided in Section 13 (Traffic) in Volume 4A of this EIAR Addendum for the Proposed RBSF Component has been reviewed for this assessment. It has been determined that the operational stage traffic will not increase by 1,000 AADT, or 200 HDV AADT, or that the development will not result in speed changes or changes in road alignment. Therefore, the traffic does not meet the above scoping criteria. A detailed air quality assessment of operational stage traffic emissions has been scoped out from any further assessment as there is no potential for significant impacts to air quality.

As referenced in Section 8.2.1, there are changes to the air quality significance criteria presented in this Section of the EIAR in the 2018 planning application.

The TII document Air Quality Assessment of Specified Infrastructure Projects – PE-ENV-01106 (TII 2022a) details a methodology for determining air quality impact significance criteria for road schemes which can be applied to any project that causes a change in traffic. The degree of impact is determined based on the percentage change in pollutant concentrations relative to the Do-Nothing scenario. The TII significance criteria are outlined in Table 4.9 of Air Quality Assessment of Specified Infrastructure Projects – PE-ENV-01106 (TII 2022a) and reproduced in Table 8-2 below. These criteria have been adopted for the Proposed RBSF Component to predict the impact of Nitrogen dioxide (NO_2), particulate matter with diameters are 10 micrometers or less (PM_{10}) and particulate matter with diameters are 2.5 micrometers or less ($PM_{2.5}$) emissions as a result of the Proposed RBSF Component. The results of this are explained in Section 8.2 of this addendum report.

Table 8-2: Air Quality Significance Criteria

Long term average concentration at receptor in assessment year	% Change in concentration relative to Air Quality Standard Value (AQLV)			
	1%	2-5%	6-10%	>10%
75% or less of AQLV	Neutral	Neutral	Slight	Moderate
76 – 94% of AQLV	Neutral	Slight	Moderate	Moderate
95 – 102% of AQLV	Slight	Moderate	Moderate	Substantial
103 – 109% of AQLV	Moderate	Moderate	Substantial	Substantial
110% or more of AQLV	Moderate	Substantial	Substantial	Substantial

Source: TII (2022a) Air Quality Assessment of Specified Infrastructure Projects – PE-ENV-01106

8.2.1.3 Ecological Sites

Details of an updated methodology for determining air quality impacts for sensitive ecology is provided in Air Quality Assessment of Specified Infrastructure Projects – PE-ENV-01106 (TII 2022a). However, the zone of impact remains as per the previous guidance outlined in this Section of the EIAR in the 2018 planning application, and there remains no designated sites within the vicinity of the Proposed RBSF Component. Therefore, there are no changes to the impacts presented in this Section of the EIAR in the 2018 planning application.

8.2.2 Climate Assessment

Section 8 (Air and Climate) in Volume 4 Part A of the EIAR in the 2018 planning application was reviewed to determine if there have been any updates to the legislation governing the assessment criteria of Climate in the intervening period. Changes to policy, legislation and guidance relating to the assessment of climate impacts have been extensive since the 2018 planning application. For this reason Climate has been addressed as a new separate Section, which is included as Appendix 8C Greenhouse Gas Assessment in Volume 4A Part B of this EIAR Addendum.

8.3 Existing Environment

This Section has been updated to incorporate additional data that has become available since the submission of the EIAR in the 2018 planning application.

8.3.1 Meteorological Data

Meteorological data presented in this Section of the EIAR in the 2018 planning application was collated during five representative years (2012 - 2016) for the nearest representative weather station at Dublin Airport, which is located approximately 4.5km (kilometres) east of the Proposed RBSF Component site. The predominant wind direction was westerly to south-westerly. Data from 2017 to 2022 is now available and shows the predominant wind direction remaining westerly to south-westerly, as per the 2012-2016 data (See Figure 8-1).

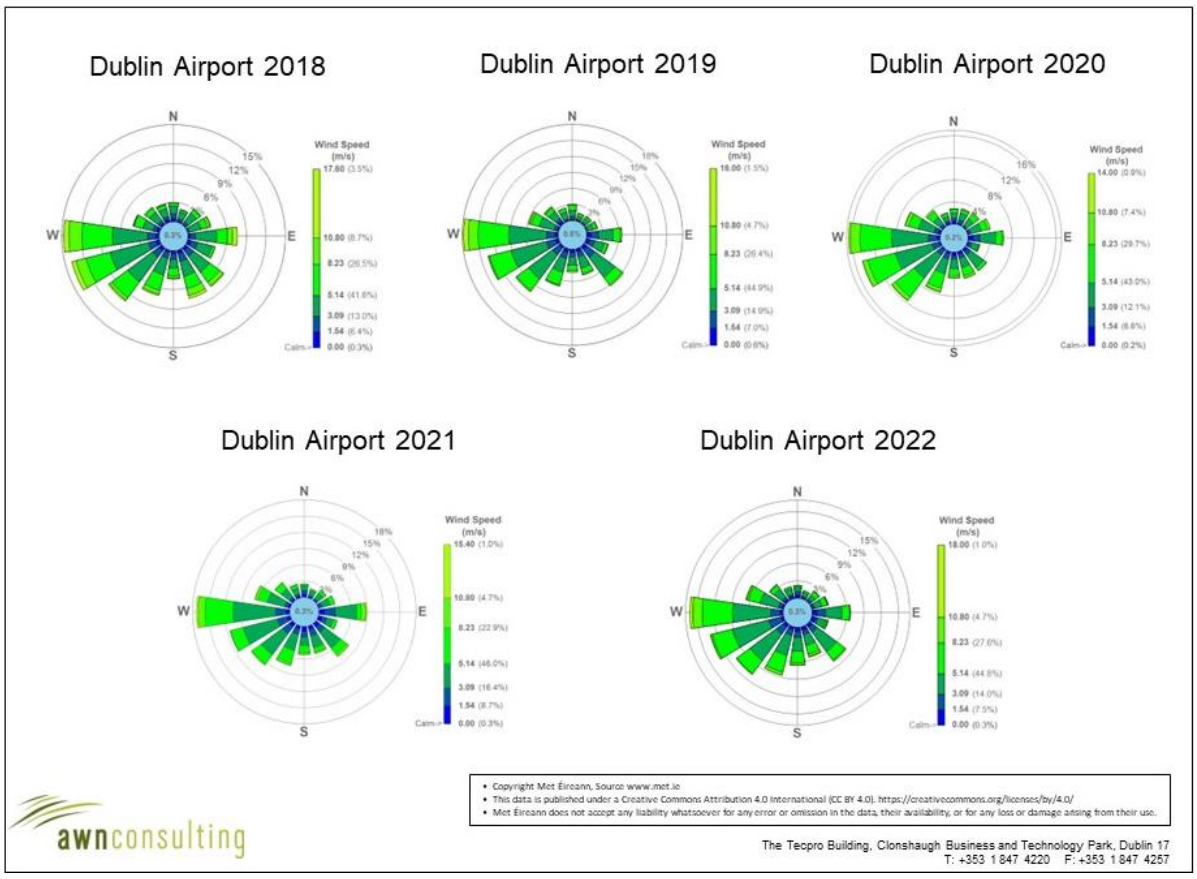

Figure 8-1: Dublin Airport Windrose 2018 – 2022 (Met Éireann 2023)

8.3.2 Trends in Air Quality

Data presented in this Section of the EIAR in the 2018 planning application has been updated. The most recent EPA published annual report on air quality "*Air Quality In Ireland 2021*" (EPA 2022b) details the range and scope of monitoring undertaken throughout Ireland. Air Quality in Ireland is an annual report, the 2021 version supersedes the "*Air Quality in Ireland 2016"* report which was referenced in the EIAR in the 2018

planning application. The 2021 report includes data for a further five representative years (2017 to 2021). This new data has been reviewed for this Addendum Report and shows that air quality is below the legal limit values for pollutants reviewed.

8.3.2.1 Baseline Air Quality – Review of Available Background Data

As part of the implementation of the Framework Directive on Air Quality (1996/62/EC), four air quality zones have been defined in Ireland for air quality management and assessment purposes as outlined within the EPA document titled 'Air Quality In Ireland 2021' (EPA 2022b). Dublin is defined as Zone A and Cork as Zone B. Zone C is composed of 23 towns with a population of greater than 15,000. The remainder of the country primarily represents rural Ireland, and includes all towns with a population of less than 15,000, is defined as Zone D.

In terms of air monitoring, the area of the Proposed RBSF Component is categorised as Zone A, which is consistent with this Section of the EIAR in the 2018 planning application.

Long-term NO_2 monitoring was carried out at the Zone A suburban locations of Rathmines, Ballyfermot, Dun Laoghaire, Blanchardstown and Swords for the period 2017 - 2021 (EPA 2022b). Long term average concentrations are significantly below the annual average limit of 40 µg/m^3 for the suburban locations. Average results range from 11 – 22 µg/m^3 (Table 8-3). The urban traffic site of Blanchardstown had a average of 28.2 µg/m^3 from 2017-2021 (with 2020 not included due to covid lockdowns). The five-year average at this site in the 2018 EIAR was 29 µg/m^3. Blanchardstown has been chosen as a relevant site due to its proximity to the M50, which is comparable to the Proposed RBSF Component. The NO_2 concentrations at suburban backgrounds sites such as Rathmines remain lower than this urban traffic location. Monitoring at Rathmines for this five-year period suggests an overall average of 17 µg/m^3 as a background concentration.

Based on the above, the background NO_2 concentrations included in the 2018 EIAR of 29 µg/m^3 remains suitable and conservative.

Table 8-3: Background NO_2 Concentrations In Zone A Locations (µg/m^3)

Station	Station Classification	Averaging Period Note 1	Year				
			2017	2018	2019	2020	2021
Rathmines	Suburban Background	Annual Mean NO_2 (µg/m^3)	17	20	22	13	14
		99.8th%ile 1-hr NO_2 (µg/m^3)	86	87	102	81	69
Ballyfermot	Suburban Background	Annual Mean NO_2 (µg/m^3)	17	17	20	12	13
		99.8th%ile 1-hr NO_2 (µg/m^3)	112	101	101	83	73
Dun Laoghaire	Suburban Background	Annual Mean NO_2 (µg/m^3)	17	19	15	14	16
		99.8th%ile 1-hr NO_2 (µg/m^3)	101	91	91	78	73
Swords	Suburban Background	Annual Mean NO_2 (µg/m^3)	14	16	15	11	11
		99.8th%ile 1-hr NO_2 (µg/m^3)	79	85	80	65	63
Blanchardstown	Urban Traffic	Annual Mean NO_2 (µg/m^3)	26	25	31	11	31
		99.8th%ile 1-hr NO_2 (µg/m^3)	147	131	143	100	109

Note 1 Annual average limit value of 40 µg/m^3 and hourly limit value of 200 µg/m^3 (EU Council Directive 2008/50/EC & S.I. No. 739 of 2022).

Continuous PM_{10} monitoring was carried out at the Zone A locations of Ballyfermot, Blanchardstown, Davitt Road, Dún Laoghaire, Rathmines and Tallaght from 2017 - 2021. This showed an upper 5-year average limit of no more than 16.7 µg/m^3 (Table 8-4). Annual average levels range from 9 – 19 µg/m^3 over the five-year period, with at most 11 exceedances of the 24-hour limit value of 50 µg/m^3 in Rathmines in 2019 (35 exceedances are permitted per year) (EPA 2022b). As with the 2018 EIAR the Blanchardstown station recorded higher concentrations and more exceedances that other locations. This location is directly beside the N3 and M50 and therefore would experience higher concentrations than the RBSF location (100m back from the N2).

Based on the above the background included in the 2018 EIAR of 18 µg/m^3 remains suitable and conservative.

Table 8-4: Background PM_{10} Concentrations In Zone A Locations (µg/m^3) (Update to Table 8-4 in 2018 EIAR)

Station	Station Classification	Averaging Period	Year				
			2017	2018	2019	2020	2021
Ballyfermot	Suburban Background	Annual Mean PM_{10} (µg/m^3)	12	16	14	12	12
		24-hr Mean > 50 µg/m^3 (days)	1	0	7	2	0
Blanchardstown	Urban Traffic	Annual Mean PM_{10} (µg/m^3)	15	17	19	15	14
		24-hr Mean > 50 µg/m^3 (days)	3	2	11	2	2
Davitt Road	Urban Traffic	Annual Mean PM_{10} (µg/m^3)	-	14	19	15	14
		24-hr Mean > 50 µg/m^3 (days)	-	1	15	4	2
Dún Laoghaire	Suburban Background	Annual Mean PM_{10} (µg/m^3)	12	13	12	12	11
		24-hr Mean > 50 µg/m^3 (days)	2	0	2	0	0
Rathmines	Suburban Background	Annual Mean PM_{10} (µg/m^3)	13	15	15	11	12
		24-hr Mean > 50 µg/m^3 (days)	5	2	9	2	0
Tallaght	Suburban Background	Annual Mean PM_{10} (µg/m^3)	9	11	11	10	10
		24-hr Mean > 50 µg/m^3 (days)	1	0	2	0	0

Note 1: Annual average limit value of 40 µg/m3 and 24-hour limit value of 50 µg/m3 (EU Council Directive 2008/50/EC & S.I. No. 739 of 2022).

Monitoring of both PM_{10} and $PM_{2.5}$ takes place at the station in Rathmines which allows for the $PM_{2.5}/PM_{10}$ ratio to be calculated. Average $PM_{2.5}$ levels in Rathmines over the period 2017 – 2021 ranged from 9 – 10 µg/m^3, with a $PM_{2.5}/PM_{10}$ ratio ranging from 0.60 – 0.75 (EPA 2022b).

Based on the above, the background PM_{10} concentrations included in the 2018 EIAR of 11.9 µg/m^3 remains suitable and conservative.

8.4 Characteristics of the RBSF Component of the Proposed GDD Project

There are no changes to the design of the Proposed RBSF Component, and therefore, there are no changes to the information presented in this Section of the EIAR in the 2018 planning application.

8.5 Potential Impacts

This Section of the EIAR in the 2018 planning application has been reviewed and considered against all updates to the existing environment, and any updates to guidance and reference material since the 2018 planning application submission.

8.5.1 Do-Nothing Impacts

As there are no changes to the Proposed RBSF Component, there are no changes to the Do Nothing impacts presented in this Section of the EIAR in the 2018 planning application.

8.5.2 Construction Phase

8.5.2.1 Air Quality

There are no proposed updates to the Proposed RBSF Component elements and there are no expected additional impacts due to guidance changes, above those identified in this Section of the EIAR in the 2018 planning application.

8.5.2.2 Summary of Potential Dust Impacts – Construction Phase

There are no changes to the information presented in this Section of the EIAR in the 2018 planning application as there is no guidance change and no proposed updated to the Proposed RBSF Component elements.

8.5.2.3 Climate

This Section of the EIAR in the 2018 planning application has been reviewed, and the following updates to recommended assessments in relation to Greenhouse Gas Assessment (GHGA) have occurred since the submission of the EIAR in the 2018 planning application.

Appendix 8C Greenhouse Gas Assessment in Volume 4A Part B of this EIAR Addendum has been prepared to detail the full assessment of the impact of greenhouse gas (GHG) emissions. The GHG assessment recognises and responds to developments in climate-related legislation, policy, and guidance that have emerged since the submission of the original planning application in 2018. It describes and assesses the likely direct and indirect significant effects of the Proposed RBSF Component on climate, in accordance with the requirements of Directive 2014/52/EU of the European Parliament and of the Council of 16 April 2014 amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment (hereafter referred to as the Environment Impact Assessment (EIA) Directive).

The increasing impacts of climate change, the introduction by the Irish Government of 'net zero' targets by 2050 for the public sector and the introduction of legally binding GHG reduction targets has brought greater attention to the assessment of carbon emission in the environmental impact assessment (EIA) process. The climate assessment that was originally reported in this Section of the EIAR in 2018 planning application, has now been updated in this Addendum and accompanying Appendix 8C in greater detail.

The Proposed RBSF Component is estimated to result in total construction phase GHG emissions of 1.95kt CO_2e over an 18 month construction period, equivalent to an annualised total of 0.0058% of Ireland's non-ETS 2030 emissions target and 0.040% of Ireland's carbon sectoral ('Industry') budget for 2030.

This Section of the EIAR submitted with the original 2018 planning application has been reviewed. The following updates to recommended assessments have occurred since the submission of the 2018 planning application.

8.5.3 Operational Phase

8.5.3.1 Air Quality

While there have been guidance updates with respect to traffic impacts since the submission of the EIAR in the 2018 planning application, these updates have been considered and impacts remain considered and ultimately the impacts scoped out because as per Section 1.2.1 As a result, there are no changes to the impacts outlined in this Section of the EIAR in the 2018 planning application.

With respect to dust impacts, as there are no changes to the Proposed RBSF Component or guidance, there is no additional impacts, above those identified in this Section of the EIAR in the 2018 planning application. As a result, there are no changes to the information presented in this Section of the EIAR in the 2018 planning application in relation to dust.

8.5.3.2 Climate

Section 8.5.2.3 details the updates to assessments that have occurred since the submission of the 2018 planning application with respect to GHGA.

Appendix 8C Greenhouse Gas Assessment in Volume 4A Part B of this EIAR Addendum has been prepared to detail the full assessment of the impact of greenhouse gas (GHG) emissions from the RBSF element of the Greater Dublin Drainage Project on climate during both the Construction and the operational phases. The Proposed RBSF Component is estimated to result in total operational phase GHG emissions of 47.34kt CO_2e over a 50-year operational period, equivalent to an annualised total of 0.0028% of Ireland's non-ETS 2030 emissions target and 0.157% of Ireland's carbon sectoral ('Waste') budget for 2030. The Proposed RBSF Component will provide biosolids storage capacity associated with the treatment of municipal wastewater for an estimated 10% of the national connected load. Mitigated operational emissions will be 0.0028% of Ireland's non-ETS 2030 target and 0.157% of the 2030 sectoral carbon budget for 'Waste'.

8.6 Mitigation Measures

The updates to the existing environment and guidance were assessed and have resulted in some changes to the information presented in this Section of the EIAR in the 2018 planning application, which are outlined here.

8.6.1 Construction Phase

8.6.1.1 Air Quality

Based on the comparative assessment of impacts identified in Section 8 in Volume 4 Part A of the EIAR of the 2018 planning application and the present day, it is not considered that additional mitigation measures are now required, or that the previously proposed mitigation measures should be altered or removed. Therefore, there are no changes required to the information presented in this Section of the EIAR in the 2018 planning application.

8.6.1.2 Climate

Mitigation measures have been put in place with respect to the Construction Phase to reduce the impact of GHG emissions. Details of changes to recommended mitigation since the submission of the EIAR in the 2018 planning application are provided in Appendix 8C Greenhouse Gas Assessment in Volume 4A Part B of this EIAR Addendum. These include:

- A whole-life Carbon Management Plan will be implemented and will be aligned to the revised PAS 2080:2023 Carbon Management in Buildings and Infrastructure (BSI 2023). Through carbon management planning, emissions reduction actions can be identified early to inform design solutions with low embodied carbon and that are aligned with targets set in CAP 2023 (Government of Ireland 2022b) Chapter 13 Industry Table 3.5 Key Metrics to Deliver Abatement in Industry;
- Contractors will be required to ensure that construction vehicles conform with relevant EU emissions standards and all applicable law, so as to ensure emissions on construction access are minimised;
- On-road vehicles including passenger vehicles and shuttle buses for staff transportation must comply with set emissions standards (2023);
- Lifecycle assessments for major asset components will be undertaken and recommendations will be implemented to influence the procurement of low carbon / sustainable / locally sourced materials and equipment, where possible; and
- Materials procured for major asset components will have verified Environmental Product Declarations (EPDs).

8.6.2 Operational Phase

8.6.2.1 Air Quality

There are no changes to the design or impact compared to the 2018 planning application. Therefore, no requirement for additional mitigation measures above the measures outlined in this Section of the EIAR in the 2018 planning application. As a result, there are no changes to the information presented in this Section of the EIAR in the 2018 planning application.

8.6.2.2 Climate

Mitigation measures have been put in place with respect to the operational phase to reduce the impact of GHG emissions. Details of changes to recommended mitigation measures since the original 2018 planning application are provided in Appendix 8C Greenhouse Gas Assessment. These include:

- A whole-life Carbon Management Plan will be implemented and will be aligned to the Revised PAS 2080:2023 Carbon Management in Buildings and Infrastructure (BSI 2023) to inform the operation of the Proposed RBSF Component using a purpose built carbon assessment tool and aligned to an industry adopted and verified assessment tool such as TII's online Carbon Assessment Tool (2023);
- Net zero for operational emissions in relation to both process and energy related emissions will be supported through energy demand reduction, increased energy efficiency and implementation of process control optimisation;
- A comprehensive Operational Commissioning Plan will be developed and implemented to demonstrate that the RBSF is run using robust and modern methods to minimise emissions during the storage stage;
- Investigation if ammonia treatment or covering of biosolids during storage a viable option to reduce fugitive emissions (i.e. GHG emissions naturally released from uncovered biosolids).
- Fugitive emissions will be minimised by ensuring effective containment through detailed design stage; and
- Scheduled capital replacement and regular planned maintenance will minimise carbon emissions.

8.7 Residual Impacts

As there are no changes to the previously assessed impacts of the Proposed RBSF Component in this Section of the 2018 planning application, the mitigation measures originally proposed will remain unchanged, the residual impacts of the Proposed RBSF Component are considered to be the same as presented in this Section of the EIAR in the 2018 planning application.

It has been determined that the methodology used for the original assessment (EPA, 2017) is consistent with the updated EPA Guidelines (EPA, 2022a) therefore no changes in the impact assessment have occurred and the residual impact descriptors remain as per the 2018 planning application.

1.1.1 Construction Phase

8.7.1.1 Air Quality

There are no changes to residual impacts and they remain as per the 2018 planning application.

8.7.1.2 Climate

As detailed in Appendix 8C Greenhouse Gas Assessment in Volume 4A Part B of this EIAR Addendum, the Proposed RBSF Component is estimated to result in total construction phase GHG emissions of 1.95kt CO_2e over an 18-month construction period, equivalent to an annualised total of 0.0058% of Ireland's non-ETS 2030 emissions target and 0.040% of Ireland's carbon sectoral ('Industry') budget for 2030. The embodied carbon emissions associated with the construction phase of the Proposed RBSF Component will be short-term and temporary in nature. The Proposed RBSF Component will result in some impacts to climate through the release of GHGs. TII state that the crux of assessing significance is *"not whether a project emits GHG emissions, nor even the magnitude of GHG emissions alone, but whether it contributes to reducing GHG emissions relative to a comparable baseline consistent with a trajectory towards net zero*

by 2050". The Proposed RBSF Component is committing to reducing climate impacts, where feasible, and the development will comply with the Do-Minimum standards set through regulation. As per the assessment criteria, the impact of the Proposed RBSF Component in relation to GHG emissions is considered short-term, Not Significant and Slight Adverse in EIA terms, provided the final design and construction phase take account of GHG mitigation measures set out in local and national Climate Action Plans.

8.7.2 Operational Phase

8.7.2.1 Air Quality

There are no changes to residual impacts and they remain as per the 2018 planning application.

8.7.2.2 Climate

The Proposed RBSF Component will result in some impacts to climate through the release of GHGs, however the project's Energy Analysis and design aims to minimise operational phase energy requirements. TII state that the crux of assessing significance is "*not whether a project emits GHG emissions, nor even the magnitude of GHG emissions alone, but whether it contributes to reducing GHG emissions relative to a comparable baseline consistent with a trajectory towards net zero by 2050"*. As per the assessment criteria, the impact of the Proposed RBSF Component in relation to GHG emissions is considered long term, not significant and slight adverse in EIA terms, provided the final design and operational phase emissions take account of GHG mitigation measures set out in national Climate Action Plans.

8.7.3 Interactions

As the design has not changed since the 2018 application, there are no changes to interactions with respect to air quality and they remain as per the 2018 planning application.

Climate has the potential to interact with a number of other environmental attributes. The impact of flood risk has been assessed and the surface water drainage network will be designed to cater for run-off from the building and the surrounding hardscaped areas in accordance with, at minimum, 1 in 100-year event plus 20% climate change allowance. Interactions across many areas can be used to minimise the GHG emissions from both the construction and operational and operational phases. For instances, waste management measures will be put in place to minimise the amount of waste entering landfill, which has higher associated embodied carbon emissions than other waste management such as recycling or incineration. Detailed design can ensure that the impact due to embodied carbon is minimised and also take into account energy efficiency measures to reduce operational carbon emissions.

8.7.4 Cumulative Impacts

8.7.4.1 Air Quality

As the design has not changed since the 2018 application, there are no significant changes to cumulative impacts, and they remain as per the 2018 planning application.

8.7.4.2 Climate

With respect to the requirement for a cumulative assessment PE-ENV-01104 (TII 2022d) states that "for GHG Assessment is the global climate and impacts on the receptor from a project are not geographically constrained, the normal approach for cumulative assessment in EIA is not considered applicable."

However, by presenting the GHG impact of a project in the context of its alignment to Ireland's trajectory of net zero and any sectoral carbon budgets, this assessment will demonstrate the potential for the project to affect Ireland's ability to meet its national carbon reduction target. Therefore, the assessment approach is considered to be inherently cumulative.

8.8 Monitoring

8.8.1 Air Quality

As there are no changes to the previously assessed impacts of the Proposed RBSF Component in this Section of the 2018 planning application, the monitoring measures originally proposed will remain unchanged.

8.8.2 Climate

Since the publication of the 2018 planning application, Ireland declared a climate emergency and set carbon budgets. Therefore, carbon emissions must be carefully monitored to ensure they are minimized. During the detailed design phase GHG emissions shall be further mitigated and monitored to ensure any design changes do not impact the GHGA. Opportunities will be taken in order to further reduce the impact of the Proposed RBSF.

The successful contractor shall be obliged to monitor and report GHG emissions during construction. The obligations will be included as part of the CEMP. The elements to be monitored include:

- Embodied carbon from products;
- Transportation of staff, projects, waste etc;
- Water use;
- Raw material extraction;
- Fuel usage, and
- Waste

8.9 Difficulties Encountered

There were no difficulties encountered in preparing this Addendum. There are no changes from the information presented in the EIAR for the 2018 planning application.

8.10 Conclusion

This Section of the EIAR Addendum has considered the relevant air quality and climate updates to the baseline environment and to guidance and reference material since the submission of the 2018 planning application. Following consideration, there are no changes to the assessment of air quality as a result of any of the updates discussed in this Section of the EIAR Addendum.

It should be noted that this Section of the EIAR Addendum has set out changes to the climate assessment which were considered to be required due to the publication of updated guidelines and Ireland's declaration of a climate emergency in 2019.

The outcome of the updated climate sections of this Section of the EIAR Addendum is that GHG impacts are considered Long term, slight adverse and not significant.

8.11 References

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Transport Infrastructure Ireland (TII) (2022c). *PE-ENV-01104: Climate Guidance for National Roads, Light Rail and Rural Cycleways (Offline & Greenways) – Overarching Technical Document*

Transport Infrastructure Ireland (TII) (2022e). *PE-ENV-01105: Climate Assessment Standard for Proposed National Roads (PE-ENV-01105)*

Transport Infrastructure Ireland (TII) (2022f). *GE-ENV-01106: TII Carbon Assessment Tool for Road and Light Rail Projects and User Guidance Document*

SECTION 9A Noise and Vibration

9.1 Introduction

As detailed in Chapter 1A (Introduction) in Volume 2A Part A of this Environmental Impact Assessment Report (EIAR) Addendum, Section 9 (Noise and Vibration) in Volume 4 Part A of the EIAR submitted with the original 2018 planning application has been reviewed, in the light of:

- Changes to the baseline environment;
- The requirement for updated surveys;
- Updated development plans;
- The updated cumulative assessment;
- EPA updated guidelines; and
- Changes to the law, policy, and industry standards and guidance in the intervening period.

The description of the Regional Biosolids Storage Facility (RBSF) remains as presented in Chapter 4 (Proposed Project Description) in Volume 2 Part A of the EIAR submitted with the original 2018 planning application, as supplemented by Chapter 4A (Proposed Project Description) in Volume 2A Part A of this EIAR Addendum.

The glossary of acoustic terminology remains the same as the one prepared and included in Appendix 9A in Volume 4 Part B of the EIAR in the 2018 planning application.

9.2 Methodology

In 2022, the Environmental Protection Agency (EPA) published an updated set of Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (hereafter referred to as the updated EPA Guidelines) (EPA 2022). The updated EPA Guidelines have been considered in terms of the methodology applied in this Section of the EIAR in the 2018 planning application, which incorporated the previous Draft Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (hereafter referred to as the previous EPA Guidelines) (EPA 2017). It has been determined that the methodology used for the original assessment is consistent with the updated EPA Guidelines.

This Section of the EIAR submitted with the original 2018 planning application was reviewed in order to determine if there have been any updates to the legislation, standards and guidance documents governing the assessment criteria of noise and vibration in the intervening period.

There have been no updates to legislation noted as part of this review. There have been updates to standards and guidance documents which are presented below.

9.2.1 Assessment Criteria – Construction Phase

9.2.1.1 Noise

Updates to standards and guidelines included in this Section of the EIAR in the 2018 planning application have been identified and are summarised below:

- Highways England Company Limited, Transport Scotland, The Welsh Government and The Department for Regional Development (Northern Ireland), *Design Manual for Roads and Bridges, HA 213/08* (DMRB, 2008) has been amended by UK Highways Agency (UKHA) *Design Manual for Roads and Bridges (DMRB) LA 111* Sustainability *and Environmental Appraisal LA 111 Noise and Vibration Revision 2* (DMRB 2020) (hereinafter referred to as DMRB Noise and Vibration), which is widely used for other large infrastructure projects in addition to road and bridge construction projects.

The 2020 edition of the DMRB Noise and Vibration (UKHA) assists with the interpretation of the likely magnitude of impact associated with construction activities, based on the predicted Construction Noise Levels (CNLs) and the Construction Noise Thresholds (CNTs). This guidance is derived from Table 3.16 of

DMRB: Noise and Vibration and adapted to include the relevant significance of effects from the updated EPA Guidelines (EPA 2022), as presented in Table 8-1. The table informs the assessment informs the construction noise assessment in Section 9.5.2.

In accordance with the DMRB Noise and Vibration, construction noise and construction traffic noise impacts will constitute a significant effect where it is determined that a major or moderate magnitude of impact will occur for a duration exceeding:

- *Ten or more days or nights in any 15 consecutive days or nights; and*
- *A total number of days exceeding 40 in any six consecutive months.*

Table 9-1: Construction Noise Significance Ratings (New Table Added in Addendum)

Construction Noise Level	Magnitude of Impact (DMRB)	EPA Significance of Effect
Below or equal Baseline Noise Level	Negligible	Not Significant
Above Baseline and below or equal to CNT	Minor	Slight – Moderate
Above threshold and below or equal to CNT + 5dB	Moderate	Moderate – Significant
Above CNT + 5dB to +15 dB	Major	Significant – Very Significant
Above CNT + 15 dB		Very Significant to Profound

To assist with the interpretation of the adapted DMRB Noise and Vibration guidance outlined above, an updated baseline noise assessment has also been carried out. The updated baseline monitoring (Section 9.3.2) indicated that there is a reduction in daytime noise levels, due to a reduction in aircraft flyovers and lower wind speeds, and hence a reduction by 5 dB in the associated CNT noise category during the Daytime (07:00 – 19:00hrs) and Saturdays (07:00 – 13:00hrs) periods. The change in rounded baseline and CNTs are presented in Table 9-2 below. A summary of the measured 2023 baseline noise levels are presented in Table 9-10, from which the rounded baseline noise level has been calculated e.g. a reduction from measured daytime period noise levels at 65 dB L_{Aeq} in 2017 to 62 dB L_{Aeq} in 2023 now places the daytime CNT into the A category.

Table 9-2: Rounded Baseline Noise Levels and Associated Categories (2018 and 2023) (Updated from Table 9-1 in the 2018 EIAR)

Period	2018 Assessment			2023 Baseline Assessment		
	Rounded Baseline Noise Level L_{Aeq} (dB)	Category	Suggested CNT	Rounded Baseline Noise Level L_{Aeq} (dB)	Category	Suggested CNT
Daytime (07:00 – 19:00) and Saturdays (07:00 – 13:00)	65	B	70	60	A	65
Evening (19:00 to 23:00hrs)	60	C	65	60	C	65
Night time (23:00 to 07:00hrs)	55	C	55	60	C	55

If the construction noise exceeds the appropriate category value, then a significant effect is deemed to occur. Further assessment of the construction noise impacts is discussed in Section 9.5.1.

The scope of the construction phase traffic assessment has expanded since the submission of the EIAR in the 2018 planning application and the following documents are also now considered relevant:

- UK Highways Agency (UKHA) Design Manual for Roads and Bridges (DMRB) LA 111 Sustainability and Environmental Appraisal LA 111 Noise and Vibration Revision 2 (DMRB, 2020).
- Updated EPA Guidelines (EPA 2022).

The addition of this section has occurred as a result of the introduction of the updated EPA Guidelines (EPA, 2022) and is used to assess the magnitude of impact of construction traffic noise as against what was originally presented in the 2018 planning application.

Vehicular movement to and from the construction site will make use of the existing road network. For construction traffic, due to the short-term period over which this impact occurs, the magnitude of impacts is assessed against the 'short term' period in accordance with the DMRB Noise and Vibration (UKHA 2020) document. Table 9-3 relates changes in traffic noise levels to impact on human perception based on the guidance contained in these documents.

Table 9-3: Classification of Magnitude of Construction Traffic Noise Impacts in the Short Term (New Table Added in Addendum)

Change in Sound Level (dB)	DMRB Magnitude of Impact (Short-term)	EPA Significance of Effect
< 1	Negligible	Imperceptible
1 – 2.9	Minor	Not Significant
3 – 4.9	Moderate	Slight, Moderate
≥ 5	Major	Significant

9.2.1.2 Vibration

This Section of the EIAR in the 2018 planning application has been reviewed and there are no changes to Human Comfort, Cosmetic Damage or Underground Services as the applicable British Standards have not been amended since the 2018 planning application, namely British Standard BS 7385-2: 1993 - Evaluation and Measurement for Vibration in Buildings – Guide to Damage Levels from Ground Borne Vibration and British Standard BS 5228-2: 2009+A1:2014 - Code of Practice for Noise and Vibration Control on Construction and Open Sites – Vibration.

9.2.2 Assessment Criteria – Operational Phase

9.2.2.1 Noise

This Section of the EIAR submitted with the original 2018 planning application was reviewed in order to determine if there have been any updates to standards, guidelines and development plans have occurred. The updates identified are summarised in the sections below.

Fingal County Council Development Plan

Since the submission of the EIAR in the 2018 planning application, a new Fingal County Council (FCC) Fingal Development Plan 2023-2029 has been adopted (FCC 2023). The current Fingal Development Plan 2023-2029 has similar objectives to the previous Fingal Development Plan 2017-2023 (FCC 2017) which were outlined in this Section of the EIAR in the 2018 planning application. As per Fingal Development Plan 2017-2023 (FCC 2017):

"…all developments are required to be designed and operated in a manner that will minimise and contain noise levels."

and as per the Fingal Development Plan 2023-2029 further detail is provided on how noise pollution will be prevented (FCC 2023);

"Through the Development Management process, the Council can minimise the adverse impacts of noise pollution by controlling developments which are noise intensive and not permitting their location adjacent to more sensitive residential areas. Furthermore, where it is considered that a proposed development is likely to create disturbance due to noise, the Planning Authority can impose a planning condition limiting the hours of operation and level of noise generation."

There are no material differences within these updated noise objectives in relation to the assessment completed as part of the 2018 planning application, and therefore, these objectives have no impact on the outcomes of the previous assessment carried out as part of the 2018 planning application. For this reason, these objectives are not considered further as part of this EIAR Addendum.

Further explanation of the updates to the Fingal Development Plan 2023-2029 is included in Section 2A Planning and Policy Context, as it relates to the criteria for assessing inward noise impacts for the office spaces. The inward noise is the noise that is predicted to be incident on the facades of the office spaces within the development, from external noise sources outside of the development e.g. road and air traffic.

Inward Noise Impact Assessment

The addition of this section has occurred as a result of the introduction of the Fingal Development Plan 2023-2029 policy on Aircraft Noise, which requires the assessment of the inward impact of airport noise zones on certain developments since the publication of this Section of the EIAR in the 2018 planning application.

The members of FCC resolved to adopt Variation No. 1 of the Fingal Development Plan 2017-2023 at a Council meeting on 9 December 2019. Variation No. 1, which has subsequently been adopted into the Fingal Development Plan 2023-2029 outlines revised Noise Zones and policy objectives in relation to aircraft noise from Dublin Airport.

Four noise zones (Zone A to D) are now indicated representing potential site exposure to aircraft exposure. FCC will actively resist residential development within Zone A, and resist in Zone B and C pending independent acoustic advice and mitigation measures. Certain specific residential developments located in Zone D may be required to demonstrate that aircraft noise intrusion has been considered in the design.

The Proposed RBSF Component site will be located within aircraft Noise Zone C. Table 9-4 presents the objectives to be adhered to by applicants for developments in this zone.

Table 9-4: Dublin Aircraft Noise Zone C Objective (New Table Added in Addendum)

Zone	PNE[2]	Objective
C	≥ 54 dB and < 63 dB $L_{Aeq, 16hr}$ and ≥ 48 dB and < 55 dB L_{night}	To manage noise sensitive development in areas where aircraft noise may give rise to annoyance and sleep disturbance, and to ensure, where appropriate, noise insulation is incorporated within the development. Noise sensitive development in this zone is less suitable from a noise perspective than in Zone D. A noise assessment must be undertaken in order to demonstrate good acoustic design has been followed. The noise assessment must demonstrate that relevant internal noise guidelines will be met. This may require noise insulation measures. An external amenity area noise assessment must be undertaken where external amenity space is intrinsic to the development's design. This assessment should make specific consideration of the acoustic environment within those spaces as required so that they can be enjoyed as intended. Ideally, noise levels in external amenity spaces should be designed to achieve the lowest practicable noise levels. Applicants are strongly advised to seek expert advice.

The Proposed RBSF Component site is not a noise sensitive development. However, it includes an office space, meeting room and welfare facilities for employees located in one building on-site. Therefore, a noise assessment is required to demonstrate that internal noise levels in relation to these spaces have been met, with insulation measures outlined where applicable.

Design Goals for Intrusive Noise

The Fingal Development Plan 2023-2029 and relevant guidance referenced therein call for developments to have a good level of sound insulation in accordance with best Irish practice. There is no Irish standard guidance that is directly applicable to this scenario, hence it is proposed to make reference to the British Standard BS 8233:2014: *Guidance on sound insulation and noise reduction for buildings* for the purposes of arriving at appropriate design goals.

BS 8233:2014 sets out recommended internal noise levels for several different non-domestic building types (including offices) from external noise sources such as road and air traffic. The guidance is primarily for use by designers, hence BS8233:2014 may be used as the basis for the development of an appropriate schedule of noise control measures. The recommended indoor ambient noise levels in non-domestic buildings are shown in Table 9-5.

Table 9-5: Indoor Ambient Noise Levels in Spaces When Unoccupied, and Privacy is Important (New Table Added in Addendum)

Objective	Typical Situations	Design range dB $L_{Aeq,T}$
Typical noise levels for acoustic privacy in shared spaces	Open plan office	45 – 50
Study and work requiring concentration	Executive office	35 – 40

[2] Indication of potential noise exposure during airport operations.

Based on a review of the BS 8233:2014 standard and giving consideration to the proposed usage of the proposed development, the following internal criteria has been adopted for office spaces within the Proposed RBSF Component:

- Open plan office ≤ 50 dB $L_{Aeq,T}$, and
- Executive office ≤ 40 dB $L_{Aeq,T}$.

As part of this EIAR Addendum, further comments on the airport noise zones are presented in Section 9.5.3.

Building Services Noise

Since the submission of the EIAR in the 2018 planning application, British Standard BS 4142:2014 *Methods for Rating and Assessing Industrial and Commercial Sound* (BS 4142:2014) has been amended by British Standard BS 4142:2014+A1:2019 *Methods for Rating and Assessing Industrial and Commercial Sound* (BS 4142:2014+A1:2019).

The 2014 edition of the standard was replaced with an amended version in 2019, which sought to improve clarity, to correct errors and improve the consistency of the assessment of the impacts. The amended BS 4142:2014+A1:2019 has been considered and there are no material differences within these updated Standards in relation to the assessment completed as part of the 2018 planning application, and therefore, these Standards have no impact on the outcomes of the previous assessment carried out as part of the 2018 planning application. For this reason, these Standards are not considered further as part of this Addendum.

Since 2018, the introduction of the updated EPA Guidelines (EPA 2022) requires a discussion of the magnitude of impact. In order to address this requirement, reference is now made to the Institute of Environmental Management and Assessment (IEMA) *'Guidelines for Environmental Noise Impact Assessment'* produced by the (IEMA, 2014) to categorise the likely effect of changes in the ambient noise levels during the operational phases of the Proposed RBSF Component.

The guidelines state that for any assessment, the likely significance should be determined by the assessor, based upon the specific evidence and likely subjective response to noise. Due to varying factors which effect human response to environmental noise (prevailing environment, noise characteristics, time periods, duration and level etc.) assigning a subjective response must take account of these factors.

The scale adopted in this assessment (prepared for this Section of the EIAR Addendum) is shown in Table 9-6 below is based on an example scale within the IEMA guidelines. The corresponding significance of effect from the updated EPA Guidelines (EPA 2022) is also presented.

Table 9-6: Noise Effect Scale Operational Phase (New Table Added in Addendum)

Change in Sound Level (dB)	Subjective Reaction	Impact Guidelines for Noise Impact Assessment Significance (IEMA)	EPA Significance of Effect
0	No change	None	Imperceptible
0.1 – 2.9	Barely perceptible	Minor	Not Significant
3.0 – 4.9	Noticeable	Moderate	Slight, Moderate
5.0 – 9.9	Up to a doubling or halving of loudness	Substantial	Significant
10.0 or more	More than a doubling or halving of loudness	Major	Profound

The criteria above reflect the key benchmarks that relate to human perception of sound. A change of 3 dB(A) is generally considered to be the smallest change in environmental noise that is perceptible to the human ear. A 10 dB(A) change in noise represents a doubling or halving of the noise level. The difference between the minimum perceptible change and the doubling or halving of the noise level is split to provide greater definition to the assessment of changes in noise level.

Additional Road Traffic

Since the submission of the EIAR in the 2018 planning application, Highways Agency Design Manual for Roads and Bridges HA 213/08 has been amended by UK Highways Agency (UKHA) Design Manual for Roads and Bridges (DMRB) LA 111 Sustainability and Environmental Appraisal LA 111 Noise and Vibration Revision 2 (UKHA 2020). The potential impact of additional traffic for the operational phase is assessed against the long-term DMRB Noise and Vibration assessment periods.

Table 9-7 relates changes in noise level to impact on human perception based on the guidance contained in these documents.

Table 9-7: Classification of Magnitude of Traffic Noise Impacts in the Long Term (2023) (Updated from Table 9-4 in the 2018 EIAR)

Change in Sound Level (dB)	Subjective Reaction	DMRB Magnitude of Impact (Long-term)	EPA Significance of Effect
0	Inaudible	No Impact	Imperceptible
0.1 – 2.9	Barely Perceptible	Negligible	Not Significant
3 – 4.9	Perceptible	Minor	Slight, Moderate
5 – 9.9	Up to a doubling of loudness	Moderate	Significant
10+	Doubling of loudness and above	Major	Very Significant

9.2.2.2 Vibration

This Section of the EIAR in the 2018 planning application has been reviewed and there are no changes as there are no significant sources of vibration expected to arise during the operational phase.

9.3 Existing Environment

This Section has been reviewed to identify any changes to the baseline since the publication of the adapted DMRB Noise and Vibration guidance since the EIAR in the 2018 planning application.

9.3.1 Baseline Noise Survey

An updated environmental noise survey was conducted in order to quantify the existing 2023 noise environment. As per the 2018 survey, it was conducted in accordance with ISO 1996-2:2017 *Acoustics - Description, Measurement and Assessment of Environmental Noise - Determination of Sound Pressure Levels*.

9.3.1.1 Measurement Locations

Three measurement locations (S01, S02 and USL01) were selected in the noise survey completed in 2017 to inform the EIAR in the 2018 planning application. These three locations were repeated in 2023.

A fourth location (S03) was selected in 2023 where new receptors were identified closer to the site haul route than the previous survey in 2017.This was a proxy location where a daytime survey was carried out.

- Location S01 is located south of the Site on the R135 in the vicinity of the Dogs Trust;

- Location S02 is located north of the Site on the R135 in the vicinity of the nearest noise sensitive receptor to the north (R03);
- Location S03 (new) is located south east of the Site on the R135 in the vicinity of the nearest noise sensitive receptor (R02) to the south; and
- Location USL01 is located on the south-eastern boundary of the Site adjacent the rear and side facades of the nearest noise sensitive receptor (R02) to the south.

Figure 9-1: 2023 Baseline Noise Survey Locations

9.3.1.2 Survey Periods

Noise measurements were conducted at Locations S01, S02, S03 and USL01 over the following periods:

- S01, S02 and S03: 10:56 to 14:43 hrs on 24 May 2023; and
- USL01: 10:30 hrs on 24 May 2023 to 10:00 on 29 May 2023.

As per this Section of the EIAR in the 2018 planning application, the measurement periods were selected in order to provide a typical snapshot of the existing day-time noise climate (between 07:00-19:00), with the primary purpose being to ensure that the proposed noise criteria associated with the Proposed RBSF Component are commensurate with the prevailing environment.

9.3.1.3 Personnel and Instrumentation

AWN staff installed and collected the noise and vibration monitoring equipment. The following instrumentation were used in conducting the noise and vibration surveys.

Table 9-8: Instrumentation Details (New Table Added in Addendum)

Equipment	Type	Serial Number	Calibration Date
Sound Level Meter (Unattended)	RION NL-52	00586940	March 2022
Sound Level Meter (Attended)	Brüel & Kjær 2250 Light	3008402	November 2021
Sound Calibrator	Brüel & Kjær Type 4231	2263026	January 2023

9.3.1.4 Procedure

The procedure followed for the updated surveys was the same as outlined in this Section of the EIAR in the 2018 planning application. All sound level meters used were Class 1, which were also used in the 2018 planning application.

9.3.1.5 Weather

The weather during the attended survey period was dry and calm with temperatures ranging from 14°C to 17°C and winds of 1 to 5 m/s.

The weather during the unattended survey period varied with temperatures ranging from 6 to 20 °C and winds falling between 1 and 5 m/s.

9.3.1.6 Measurement Parameters

The measurement parameters used for the updated surveys remain as outlined in this Section of the EIAR in the 2018 planning application.

9.3.2 Results and Discussion

9.3.2.1 Attended Survey Locations S01, S02 and S03

The attended survey results of the 2023 baseline survey are summarised in Table 9-9 with the ambient noise level from 2017 also presented for comparison purposes.

Table 9-9: Attended Survey Results (2018 and 2023) (Updated from Table 9-5 and Table 9-6 in the 2018 EIAR)

Location	2017 L_{Aeq} Range (dB)	2023 Measured Noise Levels (dB re. 2x10-5 Pa)		
		L_{Aeq}	L_{A10}	L_{A90}
S01	65-68	67	71	55
		66	70	55
		65	69	54
S02	67-72	69	72	58
		69	72	59
		69	72	57
S03	(New survey location for the addendum. Location included to represent new NSLs constructed since 2018 closer to the proposed development)	74	79	58
		72	77	57
		73	77	56

In the 2023 attended baseline noise survey at S01, S02 and S03, it was noted that the dominant noise source influencing the ambient noise levels was the road traffic noise from the R135 and N2. Background noise levels were dominated by distant road traffic. These observations are similar to those noted in the 2017 baseline noise survey at locations S01 and S02.

The measured attended noise levels in 2023 are within a similar range to the 2017 measured attended noise levels at locations S01 and S02.

At the new monitoring position (S03), daytime ambient noise levels of the order of 72 to 74 dB $L_{Aeq,15min}$ whilst background noise levels ranged between 56 to 58 dB $L_{A90,15min}$.

There are no material differences to the 2018 impact assessment based on the attended noise levels measured.

9.3.2.2 Unattended Survey Location USL01

The unattended survey results of the 2023 baseline survey are summarised in Table 9-10 with the measured noise levels from 2017 also presented for comparison purposes.

Table 9-10: Unattended Survey Results (2018 and 2023) (Updated from Table 9-7 in the 2018 EIAR)

Time Period	2017 Measured Noise Levels (dB re. 2x10-5 Pa)			2023 Measured Noise Levels (dB re. 2x10-5 Pa)		
	L_{Aeq}	L_{A10}	L_{A90}	L_{Aeq}	L_{A10}	L_{A90}
Day (07:00 to 19:00hrs)	65	68	59	62	65	57
Evening (19:00 to 23:00hrs)	60	65	52	60	63	53
Night (23:00 to 07:00hrs)	57	60	47	58	62	50

In the 2023 unattended baseline noise survey, the daytime L_{Aeq} ambient noise levels are 3 dB lower than the 2017 daytime noise levels in the same period. The evening and night-time L_{Aeq} ambient noise levels are in the order of 0 to 1 dB higher in the 2023 baseline noise survey compared to the levels measured in the 2017 survey.

While the same noise sources were noted during the installation and removal of the equipment (i.e. road traffic on the R135 and the N2), aircraft flyovers were not noted during the daytime period. The wind speeds were also lower in the 2023 baseline, which may have contributed to the lower baseline noise levels in 2023.

Based on the 2023 baseline noise measurements, due to the rounding of ambient noise levels to the closest 5 dB in order to determine the CNT, the daytime CNT will be reduced from 70 dB $L_{Aeq,1hour}$ to 65 dB $L_{Aeq,1hour}$. Further assessment of the construction noise impacts is discussed in Section 9.5.2.

9.3.3 Nearest Noise Sensitive Receptors

Due to redevelopment of the nearest receiver (R02), located immediately south-east of the Proposed RBSF Component site, the proximity to the proposed haul routes along the R135 was reduced from 30m to 8m, as outlined in Figure 9-2.

Figure 9-2: Difference in Proximity of R02 Receiver to Haul Road 2018 and 2023

There are no further changes to the information presented in relation to the other receptors in this Section of the EIAR in the 2018 planning application.

9.4 Characteristics of the RBSF Component of the Proposed GDD Project

There are no changes to the design of the Proposed RBSF Component and therefore there are no changes to the information presented in this Section of the EIAR in the 2018 planning application.

9.5 Potential Impacts

There are no changes to the information presented in this Section of the EIAR in the 2018 planning application.

9.5.1 Do-Nothing Impacts

While the Proposed RBSF Component site was within the outer airport zone in 2018, there has been further information regarding the future airport noise levels made available through the Fingal Development Plan 2023-2029, which was not the case in the 2018 planning application.

Dublin Airport is located approximately 1km north-east of the Proposed RBSF Component site. Making reference to the Airport Noise Zones published in the Fingal Development Plan 2023-2029, the site is located in Dublin Airport Zone C. Based on published noise contour data for this zone, aircraft noise levels are to be assumed to be up to 63 dB $L_{Aeq,16hr}$ and 55 dB L_{night}.

Figure 9-3: Dublin Airport Noise Zone in relation to Proposed Project

Taking account of the existing noise environment (2023 baseline) and the future operation of the airport with the northern parallel runway, the following future noise levels are applied to the NSLs in close proximity to the site:

- Daytime: 65 dB LAeq, 16hr
- Night-time 60 dB Lnight

There are no other changes to the Do Nothing scenario presented in this Section of the EIAR in the 2018 planning application.

9.5.2 Construction Phase

As discussed in Section 9.3, there is an update to the construction noise impact at the nearest noise sensitive receptor (R02) due to the change in CNT during the daytime period and updates to the additional construction traffic on public roads. These changes are discussed in the following Section 9.5.2.1.

There are no further changes to the information presented in this Sub-Section of the EIAR in the 2018 planning application.

9.5.2.1 Construction Noise

Site Activity

There is no change to the construction noise assessment presented in this Section of the EIAR in the 2018 planning application, with the exception of the construction noise impact at the nearest noise sensitive receptor (R02) due to the change in CNT during the daytime period.

Table 9-11 presents the potential noise levels arising at the nearest noise sensitive receptor (R02) during the construction phase, as presented in the 2018 planning application.

Table 9-11: Revised Construction Noise Impact at Nearest Noise Sensitive Receptor (R02) (2023) (Updated from Table 9-9 in the 2018 EIAR)

Phase	Predicted Construction Noise Level $L_{Aeq(1hour)}$ (dB)	Construction Noise Threshold $L_{Aeq(1hour)}$ (dB)	
		Daytime (07:00 – 19:00) And Saturdays (07:00 – 13:00)	
		CNT	Complies?
Site Preparation	64	65	√
Foundations	62		√
Framework	55		√
Fitout	58		√

Regardless of the reduction in the daytime CNT from 70 dB $L_{Aeq,1\ hour}$ to 65 dB $L_{Aeq,1\ hour}$, the predicted construction noise levels are within the relevant noise criteria over the construction phase. There are no material differences in relation to the construction noise assessment completed as part of the 2018 planning application.

Additional Construction Traffic on Public Roads

There are no amendments to the mean Sound Exposure Levels presented in the sub-section of the EIAR in the 2018 planning application.

The updated noise impact on the nearest sensitive receptor (R02) associated with construction traffic is assessed in the following paragraphs.

Assuming the worst case scenario of 10 HGV's and 30 cars/LGVs per hour, the worst case predicted noise level at the nearest receptor to the southeast (R02, shown on Figure 9-2) would be expected to fall in the region of 52 dB $L_{Aeq,\ 1hour}$. In consideration of the fact that the prevailing ambient noise level during the daytime is dominated by traffic and falls in the region of at least 65 dB $L_{Aeq,16hour}$, the level of construction traffic noise will be more than 10 dB below the prevailing measured daytime noise levels and subjectively inaudible over existing noise levels. As no construction activity will occur during the evening or night time periods, the impacts of construction related traffic on public roads can therefore be regarded as subjectively inaudible.

This assessment confirms that there are no material differences in the noise assessment of construction traffic in the 2018 planning application.

9.5.2.2 Construction Vibration

Vibration Generated by HGVs on Public Road

There are no changes to the information presented in this Section of the EIAR since the 2018 planning application as there are no amendments to the vibration criteria outlined in the relevant British Standard .

9.5.3 Operational Phase

The primary sources of outward noise in the operational context remain as presented in this Section of the EIAR in the 2018 planning application.

9.5.3.1 Operational Noise

Building Services Plant

There are no changes to the information presented in this Section of the EIAR since the 2018 planning application as the impact assessment remains the same.

Material Handling

There are no changes to the information presented in this Section of the EIAR since the 2018 planning application as the impact assessment remains the same.

Vehicular Activity Within the Site

There are no changes to the information presented in this Section of the EIAR since the 2018 planning application as the impact assessment remains the same.

Additional Vehicular Traffic on Public Roads

There has been an update to the Annual Average Daily Traffic (AADT) figures since the 2018 planning application.

For the purposes of assessing potential noise impact, it is appropriate to consider the relative increase in noise level associated with updated traffic movements on existing roads and junctions with and without the Proposed RBSF Component using the provided AADT figures. Table 9-12 and Table 9-13 present the Do-Nothing (i.e. without the Proposed RBSF Component), and the Do-Something (i.e. with the Proposed RBSF Component) traffic figures and associated change in noise level for the surrounding road network. The EPA significance of effect (EPA 2022) is also presented in the tables, based on the criteria previously outlined.

Table 9-12: Summary of Change in Noise Level Due to Traffic on Nearby Roads, Opening Year (New Table Added in Addendum)

Location	Arm	2029 Opening Year Traffic Volume (Annual Average Daily Traffic)		Increase in Noise Level (dBA)	EPA Significance of Effect
		Do-Nothing	Do-Something		
Location 1 – Kilshane Cross (Signalised) Junction	Arm A – R135 North	7,253	7,264	0.0	Imperceptible
	Arm B – L3125	12,375	12,386	0.0	Imperceptible
	Arm D – L3120	10,454	10,465	0.0	Imperceptible
Location 2 – R135 Signalised Junction	Arm A – R135 North	10,104	10,139	0.0	Imperceptible
	Arm B – Elm Road	7,001	7,069	0.0	Imperceptible
	Arm C – R135 South	7,212	8,036	0.5	Not Significant
Location 3 – Elm Road (Roundabout) Junction	Arm B – Elm Road East	2,579	2,579	0.0	Imperceptible
	Arm C – Slip Road	6,242	6,892	0.4	Not Significant
Location 4 – N2 Northbound Slip Road (Priority) Junction	Arm A – R135 North	7,059	7,148	0.1	Not Significant
	Arm B – Slip Road	5,718	5,794	0.1	Not Significant
	Arm C – R135 South	2,674	3,002	0.5	Not Significant
Location 5 – N2 – Mainline	--	36,255	36,255	0.0	Imperceptible

Table 9-13: Summary of Change in Noise Level Due to Traffic on Nearby Roads, Design Year (2023) (New Table Added in Addendum)

Location	Arm	2044 Design Year Traffic Volume (Annual Average Daily Traffic)		Increase in Noise Level (dBA)	EPA Significance of Effect
		Do-Nothing	Do-Something		
Location 1 - Kilshane Cross (Signalised) Junction	Arm A - R135 North	8,068	8,090	0.0	Imperceptible
	Arm B - L3125	13,731	13,747	0.0	Imperceptible
	Arm D - L3120	11,672	11,694	0.0	Imperceptible
Location 2 - R135 Signalised Junction	Arm A - R135 North	11,381	11,444	0.0	Imperceptible
	Arm B - Elm Road	7,892	8,011	0.1	Not Significant
	Arm C - R135 South	8,191	8,373	0.1	Not Significant
Location 3 - Elm Road (Roundabout) Junction	Arm B - Elm Road East	2,932	2,932	0.0	Imperceptible
	Arm C - Slip Road	7,030	7,143	0.1	Not Significant
Location 4 - N2 Northbound Slip Road (Priority) Junction	Arm A - R135 North	8,024	8,177	0.1	Not Significant
	Arm B - Slip Road	6,468	6,608	0.1	Not Significant
	Arm C - R135 South	3,110	3,123	0.0	Imperceptible
Location 5 - N2 - Mainline	--	39,959	39,959	0.0	Imperceptible

In summary, the predicted increase in noise levels along all of the junctions assessed, due to additional vehicular traffic associated with the Proposed RBSF Component, is less than 1 dB. There are no material

differences in relation to the operational road traffic noise assessment completed as part of the 2018 planning application.

Airport Noise Zone Comment

The following Section is a newly introduced Section and considers the introduction of future airport noise zones since the 2018 planning application and the update of the Fingal Development Plan 2023-2029.

Expected Noise Levels on Proposed RBSF Component Site

With reference to Section 9.5.1, the daytime noise levels applicable to the assessment of inward noise impact for this site are 65 dB $L_{Aeq,16hr}$, daytime, the frequency spectrum of which has been determined by AWN from numerous noise surveys in the vicinity of Dublin Airport.

Building Construction

The roof will be consisting of a galvanised steel cladding finished in metallic silver. The building will be constructed of blockwork with a combination of finishes consisting of profiled cladding on the upper section and a fair faced plaster on the lower section.

It can be confirmed that as part of the detailed design of the building, due consideration will be given to the design of the building structure in terms of walls, roofs and glazing specifications etc. such that appropriate internal noise levels, as outlined in Table 9-5 are achieved, considering existing and future noise environments to minimise noise impacts. Namely:

- Open plan office ≤ 50 dB $L_{Aeq,T}$, and
- Executive office ≤ 40 dB $L_{Aeq,T}$.

9.5.3.2 Operational Vibration

As there are no design changes to the Proposed RBSF Component, there remains no potential for any significant sources of vibration during the operational phase. This Section of the EIAR in the 2018 planning application therefore remains unchanged.

9.6 Mitigation Measures

9.6.1 Construction Phase

The updates to the construction noise and vibration impact assessment were assessed in 2023 and deemed not to result in any additional impacts, above those identified in this Section of the EIAR in the 2018 planning application.

There is an update to the daytime CNT, whereby the construction activities will be required to comply with the following CNTs (see Table 9.14), measured at the nearest noise sensitive receptor:

Table 9.14: Updated 2023 CNT (2023) (Updated from Table 9-12 in the 2018 EIAR)

Period	2023 Baseline Assessment		
	Rounded Baseline Noise Level L_{Aeq} (dB)	Category	Suggested CNT
Daytime (07:00 – 19:00) and Saturdays (07:00 – 13:00)	60	A	65
Evening (19:00 to 23:00hrs)	60	C	65
Night time (23:00 to 07:00hrs)	60	C	55

All other criteria and guidance outlined in this Section of the EIAR in the 2018 planning application remain valid.

The outline of construction noise and vibration mitigation measures remains the same as the one prepared and included in Appendix 9B in Volume 4 Part B of the EIAR in the 2018 planning application.

9.6.2 Operational Phase

There are no changes to the information presented in this Section of the EIAR since the 2018 planning application as the impact assessment remains the same.

9.6.2.1 Building Services Plant

There are no changes to the information presented in this Section of the EIAR since the 2018 planning application as the impact assessment remains the same.

All criteria and guidance outlined in this Section of the EIAR in the 2018 planning application remain valid.

9.6.2.2 Material handling

There are no changes to the information presented in this Section of the EIAR since the 2018 planning application as the impact assessment remains the same.

All guidance outlined in this Section of the EIAR in the 2018 planning application remains valid.

9.6.2.3 Vehicular Activity within the Site

There are no changes to the information presented in this Section of the EIAR since the 2018 planning application as the impact assessment remains the same.

All guidance outlined in this Section of the EIAR in the 2018 planning application remains valid.

9.6.2.4 Additional Vehicular Traffic on Public Roads

There are no changes to the information presented in this Section of the EIAR since the 2018 planning application as the impact assessment remains the same.

9.6.2.5 Airport Noise Zone Comment

In the 2023 assessment, there is the addition of the requirement at detailed design stage to demonstrate that the design of the building structure achieves the appropriate internal noise levels, as outlined in Section 9.2.2.

In respect of inward noise impact on the noise-sensitive spaces within the development itself, the following internal criteria will be adopted during the detailed design stage. Intrusive noise levels within the spaces shall not exceed:

- Open plan office ≤ 50 dB LAeq,T, and;
- Individual offices ≤ 40 dB LAeq,T.

Prior to the commencement of the development, a detailed noise compliance statement confirming the building envelope sound insulation performances and expected noise levels will be submitted to the planning authority for their approval.

9.7 Residual Impacts

9.7.1 Construction Phase

There are no changes to the information presented in this Section of the EIAR in the 2018 planning application unless otherwise noted below.

In so far as the mitigation measures are applied in full, the level of residual noise generated from the Proposed RBSF Component site during the construction phase would be expected to fall within the appropriate CNTs.

In accordance with the scale in the updated EPA Guidelines (EPA 2022) and applying the DMRB guidance (UKHA, 2020), a description of the likely effects is summarised in Table 9-15 for the nearest noise sensitive locations as the predicted construction noise levels are below the CNT and baseline noise environment :

Table 9-15: Description of Expected Construction Phase Effects From Site Activities (2023) (Updated from Table 9-14 in the 2018 EIAR)

Quality	Significance	Duration
Negative	Not Significant to Slight	Short-Term

In the 2018 planning application the assessment of significance was based on whether the predicted construction noise levels exceeded the CNT. If the CNT was exceeded, it was identified as a significant effect (as per BS 5228-1:2009+A1:2014 Code of Practice for Noise and Vibration Control On Construction and Open Sites - Noise for the control of construction noise impacts). If the CNT was not exceeded it was left to professional judgement to describe the significance of effects. In the 2018 planning application the significance of effects was classified as slight to moderate.

Since 2020, the application of the DMRB guidance (reference Table 8-1) assists in categorising the significance of effects in a tiered approach and with this further guidance the effect is categorised as slight during the initial site preparation works i.e. the predicted CNL are below the CNT but above the baseline noise levels, and categorised as not significant during all other construction works i.e. the predicted CNL is at or below the baseline noise level. While this is a change presented in the 2023 Addendum, there is no material difference in the noise assessment presented in the 2018 planning application as there were no mitigation measures specifically associated with the slight to moderate significance of effects.

In accordance with the scale in the updated EPA Guidelines (EPA 2022) and applying the DMRB guidance (UKHA, 2020), a description of the likely effects is summarised in Table 9-16 for the nearest noise sensitive locations during the additional construction traffic on public roads:

Table 9-16: Description of Expected Construction Phase Effects from Additional Construction Traffic on Public Roads (New Table Added in Addendum)

Quality	Significance	Duration
Neutral	Imperceptible	Short-Term

As outlined above, in the 2018 planning application the assessment of significance was based on whether the predicted construction noise levels exceeded the CNT, and there was no distinction between construction noise from site activities and construction noise from construction traffic on public roads. In the 2018 planning application the significance of effects was classed as slight to moderate, which encompassed all construction noise sources.

Since 2020, the application of the DMRB guidance assists in distinctly categorising construction traffic significance of effects in a tiered approach and with this further guidance the effect is categorised as imperceptible. While this is a change presented in the 2023 Addendum, there is no material difference in the noise assessment presented in the 2018 planning application as there were no mitigation measures specifically associated with the slight to moderate significance of effects.

9.7.2 Operational Phase

There are no changes to the information presented in this Section of the EIAR in the 2018 planning application unless otherwise noted below.

The 2018 planning application presented the significance of effects for all noise sources during the operational phase of the proposed project. In accordance with the scale of the updated EPA Guidelines (EPA 2022) and applying the DMRB guidance (UKHA, 2020), a description of the likely effects from noise sources are now divided into operational plant and operational traffic on public roads.

The IEMA guidance document has been adopted since 2018 to categorise the impact of effects for operational noise sources with the exception of operational traffic on public roads. A description of the likely effects is summarised in Table 9-18 for the nearest noise sensitive locations:

Table 9-17: Description of Expected Operational Phase Effects Excluding Additional Vehicular Traffic on Public Roads (2023) (Updated from Table 9-15 in the 2018 EIAR)

Quality	Significance	Duration
Neutral	Not Significant	Long-Term

As outlined previously in Section 9.2.2.1 of this Addendum, since the 2018 planning application, the application of the IEMA guidance document has been used to distinctly categorise operational phase significance of effects in a tiered approach and with this further guidance the effect is categorised as not significant. While this is a change presented in the 2023 Addendum, there is no material difference in the noise assessment presented in the 2018 planning application as there were no mitigation measures specifically associated with the slight significance of effects.

In accordance with the scale in the updated EPA Guidelines (EPA 2022) and applying the DMRB guidance (UKHA, 2020), a description of the likely effects is summarised in Table 9-18 for the nearest noise sensitive locations during the operational additional vehicular traffic on public roads:

Table 9-18: Description of Expected Operational Phase Effects Additional Vehicular Traffic on Public Roads (2023) (Updated from Table 9-15 in the 2018 EIAR)

Quality	Significance	Duration
Neutral	Not Significant	Long-Term

Since 2020, the application of the DMRB guidance assists in distinctly categorising operational traffic significance of effects in a tiered approach and with this further guidance the effect is categorised as not significant. While this is a change presented in the 2023 Addendum, there is no material difference in the noise assessment presented in the 2018 planning application as there were no mitigation measures specifically associated with the slight significance of effects.

9.7.3 Interactions

In preparing the EIAR Addendum, AWN interacted with the Traffic (Section 13A), Biodiversity – Terrestrial (Section 6A) and Population and Human Health (Section 3) teams, as was the approach in the EIAR in the 2018 planning application.

9.7.4 Cumulative Impacts

For the purpose of the 2023 cumulative assessment a review of granted planning applications since 2018 in the local area has been carried out. The projects screened as having potential for cumulative impacts with the Proposed RBSF Component are presented in Section 19A Cumulative Impacts. There are several

proposed and permitted developments within the local area development scheme. Giving due consideration to the propagation of sound over distance, a cumulative screening study area of no more than 1 km was selected. Consequently, the following projects were considered for potential noise and vibration cumulative impacts:

- Vantage Business Park Phase 2
- Vantage Business Park Phase 3
- Gas Peaking Facility
- Gas Turbine Generation Station
- Battery Storage Facility
- Huntstown Materials Recovery Facility
- Mooretown Gas Insulated Switchgear (GIS) Substation
- Electric Infrastructure for Substation

In the event that construction activities are taking place at the above-mentioned sites concurrently with the construction of the Proposed RBSF Component, there is potential for cumulative noise impacts to occur. However due to the propagation of sound and vibration over distance and the proximity and nature of construction works associated with the Proposed RBSF Component, , noise levels from the Proposed RBSF Component will dominate the noise environment when occurring in proximity to the closest noise receptor (R02) along its immediate boundary. The contribution from other sites will therefore be a not significant impact (i.e. will be at least 10 dB below those associated with the Proposed RBSF Component and will have no additive impact on the predicted CNL from the Proposed Development site) such that the construction noise levels discussed in Section 9.5.2 will remain a representation of a worst case analysis.

Nonetheless it is recommended that liaison between construction sites is on-going throughout the duration of the construction phase. Contractors should schedule work in a co-operative effort to limit the duration and magnitude of potential cumulative impacts on nearby sensitive receptors. Cumulative construction noise impacts are expected to be negative, not significant and short-term.

During the operational phase any cumulative impacts will be due to plant noise operating from the granted sites in the night time period. Due to the propagation of sound over distance and the large distances between the closest receiver (R02) and the majority of the granted sites in the area (circa 170m to 900m) there will be no audible contribution from the sites at the following planning applications: FW20A/0219, FW22A/0204, FW22A/0213, FW23A/0111 and ABP31152821.

At the closest granted sites (FW22A/0068 and FW20A/0211) where the boundaries are within 20m to the closest noise sensitive receptor (R02) the main noise sources will be plant noise and an increase in road traffic noise. The following planning conditions have been outlined in relation to noise for the developments:

- FW22A/0068 – *"The cumulative noise emissions from commercial activities within the development shall not exceed the background noise level by more than 5dB(A)."* In this instance the background noise level at night-time has been measured as 50 dB, therefore the background noise level at night cannot exceed 55 dB.
- FW20A/0211 – *"The cumulative noise emissions due to the operation of the development shall not cause a noise nuisance to nearby noise sensitive location i.e. shall not exceed the background level by 10 dB(A) or more or exceed the limits below whichever is lesser. Daytime (07:00 to 19:00 hrs) – 55 dB $L_{Ar,\ 30mins}$ Evening (19:00 to 23:00 hrs) – 50dB $L_{Ar,\ 30mins}$ Night-time (23:00 to 07:00 hrs) – 45dB $L_{Aeq,\ 30mins}$ As measured from the boundary of the nearest noise sensitive location/s."*

Table 9-19 below summarises the predicted cumulative noise levels at the closest receiver (S02). The predicted cumulative noise level is 41 dB at the closest façade during the night-time period.

Table 9-19: Predicted Cumulative Noise Levels at Closest Receiver (R02) (New Table Added in Addendum)

Site	Approximate Distance to R02 Closest Receiver Facade	Predicted Noise Level at Closest Receiver (dB)
FW22A/0068	~20m	30
FW20A/0211	~10m	25
Proposed Project	~5m	40
Cumulative Noise Level at Closest Receiver (R02)		**41**

As the predicted cumulative noise level is 9 dB below the background noise level for the area, the change in noise level is barely perceptible. Therefore the cumulative operational assessment is negative, not significant and long term.

Given the insignificant levels of noise increase as a result of the traffic associated with this Proposed RBSF Component, it is not expected that cumulative traffic noise will increase by any significant margin as a result of these granted developments.

9.8 Monitoring

There are no changes to the information presented in Section of the EIAR in the 2018 planning application as there has been no change in guidance documents or predicted construction or operational impacts.

It is recommended that the appointed contractor monitor levels of noise and vibration at nearby sensitive locations and/or Proposed RBSF Component site boundaries during the construction phase.

In operational context of the Site, noise levels should be monitored at commissioning stage following the assessment methodology outlined in the EPA Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities (NG4).

9.9 Difficulties Encountered

There were no difficulties encountered in compiling this Section of the EIAR Addendum or the supporting Addendum assessment.

9.10 Conclusion

This Addendum Section has considered all updates to the Proposed RBSF Component operational traffic information, and relevant noise and vibration updates to the baseline environment, and to guidance and reference material since the 2018 planning application submission.

Following consideration of the Fingal Development Plan 2023-2029 policy on Aircraft Noise, the Addendum has identified that prior to the commencement of the development, a detailed noise compliance statement confirming the building envelope sound insulation performances and expected noise levels will be required to be submitted to the planning authority for their approval.

Finally, there has been further guidance since 2018 on the description of the significance of effects, which has allowed for tiered approach when describing construction and operational effects. The adjustment of significance of effects between 2018 and 2023 has resulted in a Not Significant and Imperceptible categorisation for construction site activities and construction traffic respectively, and a Not Significant categorisation for the operational phase. While these changes are presented in the 2023 Addendum, there is no material difference in the assessment of Noise and Vibration presented in the 2018 planning application i.e. there are no additional mitigation measures required due to the change in the description of effects.

9.11 References

The British Standards Institution, (2019). British Standard - *Methods for Rating and Assessing Industrial and Commercial Sound*, BS 4142:2014+A1:2019.

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The British Standards Institution, (2014) British Standard - *Code of Practice for Noise and Vibration Control on Construction and Open Sites – Vibration,* BS 5228-2: 2009+A1:2014.

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Institute of Environmental Management and Assessment (2014). *Guidelines for Environmental Noise Impact Assessment*, Version 1.2.

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SECTION 10A Odour

10.1 Introduction

As detailed in Chapter 1A (Introduction) in Volume 2A Part A of the EIAR Addendum, Volume 4 Part A of the EIAR submitted with the 2018 planning application has been reviewed in the light of:

- Changes to the baseline environment;
- The requirement for updated surveys;
- Updated development plans;
- The updated cumulative assessment;
- EPA updated guidelines; and
- Changes to the law, policy, and industry standards and guidance in the intervening period.

The description of the proposed Regional Biosolids Storage Facility (RBSF) remains as presented in Chapter 4 (Description of the Proposed Project) in Volume 2 Part A of the EIAR submitted with the 2018 planning application, as supplemented by Chapter 4A (Description of the Proposed Project) in Volume 2A Part A of this EIAR Addendum.

This updated Section meets the requirements of the relevant regulations and has been prepared in accordance with the *Guidelines on the Information to be Contained in Environmental Impact Assessment Reports* (hereafter referred to as the updated EPA Guidelines) (EPA 2022) and *Advice Notes for Preparing Environmental Impact Statements* (Draft, September 2015). The 2018 EIAR considered the then applicable *Draft Guidelines on the Information to be Contained in Environmental Impact Assessment Reports* (EPA 2017). It has been determined that the methodology used for the original assessment is consistent with the updated EPA Guidelines and there have been no changes or updates to *Advice Notes for Preparing Environmental Impact Statements*.

10.2 Methodology

The methodology section of the odour impact assessment of the Proposed RBSF Component has been updated to consider the updated EPA Guidelines (EPA 2022), legislation, and modelling techniques. This Addendum considered changes in legislation, policy, standards and industry guidance and in particular considered whether any such changes warranted an updated or amended approach to the assessments. Updated published sources of information in relation to the existing environment in the study area were also identified and reviewed.

As noted above, the EPA published the updated EPA Guidelines in 2022, which have been considered in this Addendum Section. Following consideration, it was determined that there was no materially significant difference in either the methodology or approach adopted for the assessment compared with the methodology adopted for this Section of the EIAR in the 2018 planning application.

10.2.1 Legislation

This Section of the EIAR submitted with the original 2018 planning application was reviewed to determine if there have been any updates to the legislation governing the assessment of odour in the intervening period. The following updates to legislation have occurred since the submission of the 2018 planning application:

10.2.1.1 Environmental Protection Agency Act 1992 (as amended 2003)

The *Environmental Protection Agency Act 1992* (as amended 2003) has been updated several times since the 2018 planning application. None of the updates directly relate to odour. The only relevant amendment for the purpose of this assessment is the introduction of the EU (Environmental Impact Assessment) (Environmental Protection Agency Act 1992)(Amendment) Regulations 2020 (*S.I. No. 191/2020)*, which provides for the substitution of “environmental impact assessment report” for “environmental impact

statement" and "environmental impact assessment reports" for "environmental impact statements" in the 1992 Act . The information contained in the Act of 1992 remains relevant to this Addendum.

10.2.1.2 Statutory Instrument 32/2010

The Waste Management (Registration of Sewage Sludge Facility) Regulations 2010 *(Statutory Instrument 32/2010)* have not been updated since the submission of the EIAR in the 2018 planning application. The information contained in this statutory instrument remains relevant to this Addendum.

10.2.2 Guidance

10.2.2.1 EPA – Air Dispersion Modelling from Industrial Installations Guidance Note (AG4)

The EPA's 2010 *Air Dispersion Modelling from Industrial Installations Guidance Note (AG4)* (EPA 2010), which includes guidance on appropriate odour standards against which odour emissions may be evaluated, was updated in 2020 (hereafter referred to as the updated AG4 Guidance) (EPA 2020) and the updated AG4 Guidance was considered in this Addendum. Further details of the changes in the updated AG4 Guidance and how this affected the assessment methodology are presented in the relevant sections of this Section of the EIAR Addendum.

10.2.2.2 EPA – Odour Emissions Guidance Note (AG9)

The EPA published in 2019 a Guidance Note on Odour Emissions with a detailed discussion of odour abatement solutions for industrial and waste facilities. The Guidance sets out procedures for odour management plans and abatement strategies and was considered in this Addendum.

10.2.3 Selection of Odour Criteria

There is still no defined statutory odour standard in Ireland which is applied universally in either planning applications or within the Integrated Pollution Control regulations. This assessment follows the guidance of the updated AG4 Guidance (EPA 2020), as discussed in Section 10.2.2 above.

The updated AG4 Guidance, which includes guidance on appropriate odour standards against which odour emissions may be evaluated, is the most widely used guidance in Ireland for assessments of this type. The updated AG4 Guidance recognises that the exposure of the population to odour is assessed based on the odour concentration as well as the length of time that the population may perceive the odour. By definition, one odour unit per cubic metre (OU_E/m^3) is the detection threshold of 50% of a qualified panel of observers working in an odour-free laboratory using odour-free air as the zero reference, (i.e. the minimum concentration of the odour that is detected by half of the panel of observers), and standards are defined relative to this benchmark.

The EPA has issued guidance specific to intensive agriculture which sets target values for odour for pig-production units of 1.5 to $6.0OU_E/m^3$ as a 98^{th} percentile of one hour averaging periods. Guidance from the United Kingdom (UK) recommends that odour standards should vary from 1.5 to $6.0OU_E/m^3$ as a 98^{th} percentile of one hour averaging periods at the worst-case sensitive receptor based on the offensiveness of the odour and with adjustments for local factors such as population density. The benchmarks vary depending on the relative offensiveness of odours with a target benchmark of $1.5OU_E/m^3$ for the most offensive odours, $3OU_E/m^3$ for moderately offensive odours and $6OU_E/m^3$ for less offensive odours. The most offensive odour category includes raw sewage and septic sludge, while the moderately offensive odours include such sources as aeration tanks and clarifiers at a wastewater treatment plant. The material to be stored at the RBSF is a treated, dewatered, and stable fertiliser. A moderately offensive odour target of $3OU_E/m^3$ is considered appropriate for treated sludge. This is the same criterion as was adopted in this Section of the EIAR in the 2018 planning application. This criterion is applied at sensitive receptors in accordance with the updated AG4 Guidance which is the same approach that was adopted in the EIAR in the 2018 planning application . The EIAR in the 2018 planning application also presented odour concentration at the proposed RBSF Component site boundary and as isopleth maps. This approach is also adopted here and is prudent considering the close proximity of residential receptors to the boundary.

10.2.4 Odour Dispersion Modelling

10.2.4.1 Odour Dispersion Model

The updated AG4 Guidance (EPA 2020) is the principal guidance used for the dispersion modelling assessment and was updated in 2020 with the principal changes with potential to affect the current assessment identified as follows:

- Updated guidance from the EPA, US EPA and other regulatory authorities was included;
- Guidelines for ecosystem deposition impact assessment were included in an appendix;
- Guidelines on odour impact assessment were updated to reflect the contents of a new Guidance Note AG9 (Odour Emissions Guidance Note, Air Guidance Note AG9 (EPA 2019);

The current version of the United States EPA's model AERMOD Prime model (Version 22112) was used for the assessments.

The EIAR in the 2018 planning application used version 16216 of the AERMOD Model. There have been changes to the Model with recent updates, so the updated Model was run alongside the model in use in 2018 to consider whether the update has led to any significant change in findings. A series of model runs was executed to compare the results obtained using the previous version of the AERMOD Model and to determine whether the new version of the Model affects the modelling predictions.

10.2.4.2 Meteorological Data

The magnitude of potential impacts of the Proposed Project on air and climate will largely be influenced by the local meteorological conditions, in particular by wind speed and direction and by precipitation rates. For the purpose of obtaining reliable information about the climatological conditions at the Proposed RBSF Component site, a full set of five years' meteorological data for the period 2011 to 2015 recorded at Dublin Airport were analysed in the EIAR in the 2018 planning application. The data was then used as input data for the dispersion modelling assessment.

The updated AG4 Guidance (EPA 2020) recommends that five years of meteorological data from an appropriate meteorological station should be used for the assessment and that the most recent year of the data set used should have been compiled within the last ten years. While data from 2011 – 2015 would conform to the updated AG4 Guidance, more recent data from 2018 to 2022 was used for the updated assessment presented in this EIAR Addendum.

Wind speed and direction are important in determining how odours associated with the activity are dispersed. The prevailing wind direction determines which areas are most significantly affected by the emissions from the activity, and wind speed determines in part the effectiveness of the dispersion of the odours. The windroses for Dublin Airport for each of the years from 2011 to 2022 were analysed. Windroses are graphical representations of the speed and direction of winds measured at the location where the measurements were undertaken. The dominant wind direction for Dublin Airport is from the west and there were no significant changes observed in the annual wind roses for each of the years examined. There was no significant difference between the average wind speed for the 2011 – 2015 data used in the EIAR in the 2018 planning application and the more recent data for the period 2018 - 2022. The average long-term wind speed over the period 1985 to 2010 is 5.3m/s.

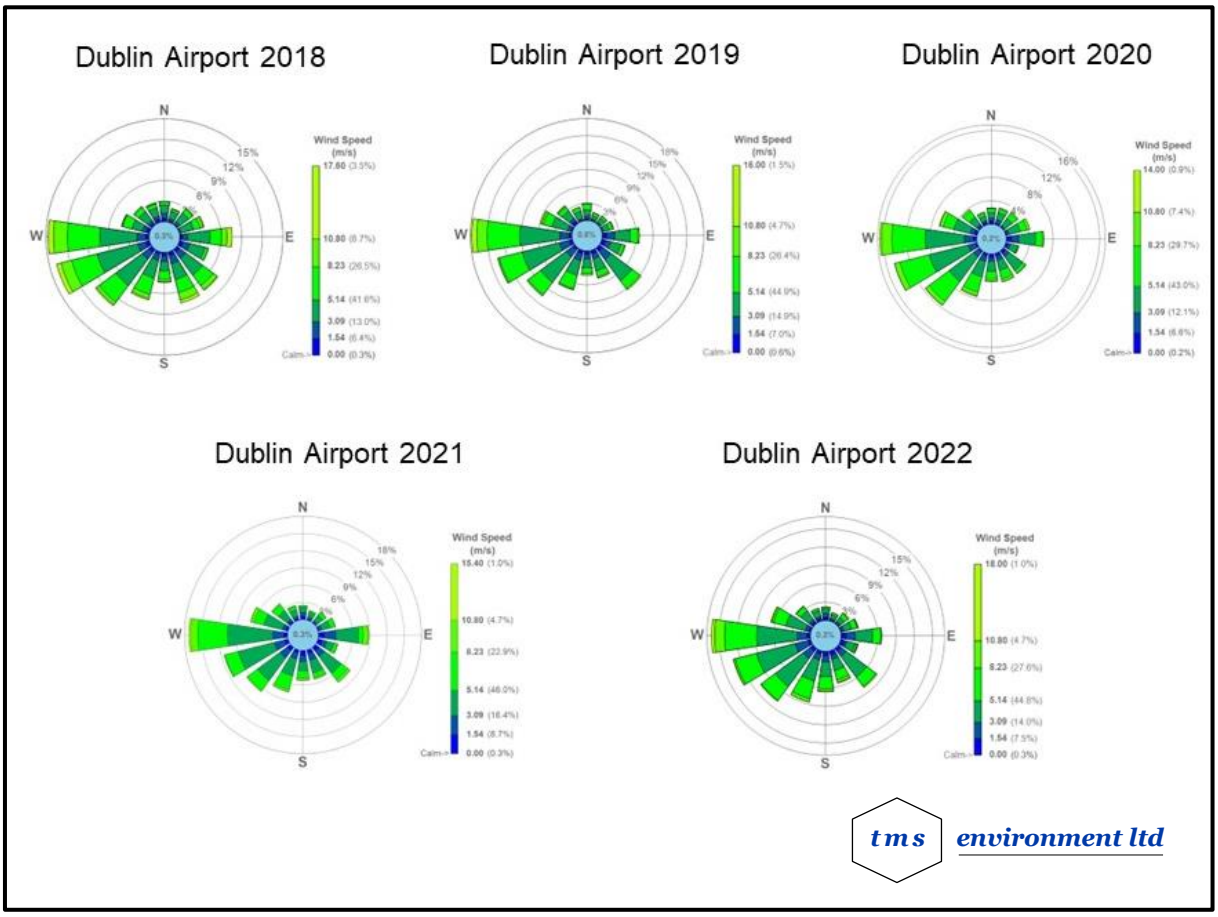


Figure 10-1: Windrose for Dublin Airport (2018-2022)

The highest predicted odour concentration from the five years of meteorological data used in the assessment was used to represent the predicted odour concentration at individual receptors. This is the same approach that was followed in the EIAR in the 2018 planning application.

10.2.4.3 Treatment of Buildings

When buildings are located within the Structure Influence Zone (SIZ) of a point emission source the building may exert a downwash influence on the source and could cause early grounding of the dispersion plumes from stacks. The AERMOD dispersion model uses the Building Profile Input Program (BPIP) building downwash program to assess these effects. The BPIP Program assesses downwash when a building is located 5L downwind or 2L upwind of a point emissions source where L is the lesser of the building height or projected building width.

The EIAR in the 2018 planning application correctly considered the potential downwash influence of the two proposed RBSF buildings on the emissions from the odour control systems stacks. However, in the 2018 planning application the odour specialist incorrectly modelled a 13.5m high building and 17.5m high stack whereas the correct building height was 15.135m and the correct stack height was 18m. This error only applied to this Section of the EIAR in the 2018 planning application. The relevant building and stack dimensions were correctly shown and referenced in all other sections. Using a lower building height could mean that the downwash influence of the building could have been underestimated while using a lower stack could mean that the dispersion of the plumes was less effective relative to the correct heights. In order to consider what the impact of this error was on the modelling results, the updated model reported in this EIAR Addendum has considered both the building and stack dimensions adopted in the 2018 EIAR and the corrected dimensions.

Details of the building heights and other relevant information as modelled in the 2018 EIAR are presented in Table 10-1 together with details of the correct building dimensions incorporated into the revised assessment presented in this EIAR Addendum.

Table10-1: Buildings Considered Within the Dispersion Model (2018 EIAR)

Building Name	Height (m)	X Length (m)	Y Length (m)	Coordinate (UTM)	
				X	Y
RBSF - Building 1	13.5	108	55	677743.5	5922048.8
RBSF - Building 2	13.5	108	55	677747.9	5921970.0
OCU Housing 1	3.5	5	20	677788.8	5922019.0
OCU Housing 2	3.5	5	20	677800.1	5922030.0
OCU Housing 3	3.5	5	20	677816.3	5922013.5
OCU Housing 4	3.5	5	20	677772.2	5922036.5

Since the 2018 EIAR, the design of the odour control system has been reviewed and air extraction rates have been optimised. The net effect for the purpose of this assessment is that the odour control system is the air volume to be treated is reduced, and therefore the dimensions are changed. The air volume extracted and treated is also lower relative to the 2018 EIAR at 26,115 m^3/hour versus 35,000m^3/hour and this is considered in the updated model reported in this EIAR Addendum. The revised building dimensions considered in this EIAR Addendum are presented in Table 10-2.

Table10-2: Buildings Considered Within the Dispersion Model (2023 EIAR Addendum)

Building Name	Height (m)	X Length (m)	Y Length (m)	Coordinate (UTM)	
				X	Y
RBSF - Building 1	15.135	108	51.5	677743.5	5922048.8
RBSF - Building 2	15.135	108	51.5	677747.9	5921970.0
OCU Housing 1	2.9	5	20	677788.8	5922019.0
OCU Housing 2	2.9	5	20	677800.1	5922030.0
OCU Housing 3	2.9	5	20	677816.3	5922013.5
OCU Housing 4	2.9	5	20	677772.2	5922036.5

10.2.4.4 Terrain Data and Surface Parameters

As the AERMOD model has been updated since the 2018 planning application, this section has been reviewed to consider any changes since the 2018 study. There have been no materially significant changes since the 2018 EIAR. In accordance with guidance (EPA, 2020) any new buildings located within 50m of the site boundary were considered in the model.

10.2.5 Scenarios Considered within the Assessment

There are no changes to the information presented in this section of the EIAR in the 2018 planning application. A single operational scenario was assessed whereby extracted air from the RBSF buildings is treated in an odour control system. For the purpose of this Addendum, a number of scenarios have been assessed as follows:

10.2.5.1 2018 Reassessment

Three scenarios were modelled based on the 2018 input data to demonstrate the effect that the incorrect building dimensions (explained in section 10.2.4.3) had on the results presented in this section of the EIAR in the 2018 planning application. Scenario 2018-1 is the model that was adopted in the 2018 EIAR. Scenario 2018-2 is the model that includes the corrected building and stack heights. Scenario 2018-3 is the model predictions using the latest regulatory dispersion model and includes the corrected building and stack heights and updated meteorological data. The scenarios are summarised in Table 10-3 below.

Table10-3: Odour modelling scenarios based on input data adopted 2018 EIAR

Scenario	Input Data	Building Height	Stack Height
2018-1	As per 2018 EIAR	13.5m	17.5m
2018-2	As per 2018 EIAR	15m	18m
2018-3	2018 – 2022 meteorological data and updated model version	15m	18m

10.2.5.2 2023 Assessment

The following scenario was modelled using the latest version of the regulatory dispersion model, and includes the corrected design dimensions and the updated air extraction rates from the design refinement which has taken place since the 2018 planning application.

Table10-4: Odour modelling scenario for input adopted for 2023 Addendum

Scenario	Input Data	Building Height	Stack Height
2023-1	2018 – 2022 met data, updated model version, updated air extraction rate	15m	18m

There are still no other identified similar odour sources within 2 km of the Site, and the background odour levels remain negligible.

10.2.6 Selection of Receptor Locations

As noted in section 10.2.2, a new Guidance Note (AG9) was published by the EPA in 2019. The Guidance includes a description of the factors affecting receptor sensitivity and offers guidance for identifying high, moderate and low sensitivity receptors in the vicinity of a facility. High sensitivity receptors are identified as set out in the EPA guidance and using professional judgement, while moderate sensitivity locations will typically be located within 100m of the facility and low sensitivity receptors will typically be located outside this distance. The Guidance advises that professional judgement should always be applied in determining where the most sensitive receptors are located.

There have been changes to the number and locations of discrete sensitive receptors in the vicinity of the site since 2018 and this EIAR Addendum has been updated to include the new receptor locations considered in the assessment. The methodology has not changed in that discrete receptors were identified and used in the modelling as well as considering site boundary receptors and a network of receptors across the study area. The 2018 EIAR evaluated the significance of impacts using an odour impact criterion that was applied at both specific receptors and at the site boundary. Two receptor networks were considered in the 2018 assessment – a site boundary network, and a 2km receptor grid with 25m receptor spacings. The same receptor networks were considered in this EIAR Addendum. The EPA Guidance (EPA, 2020) recommends application of the odour impact assessment standard at the closest sensitive receptor, which in this project is situated close to the site boundary, and the assessment has applied this guidance to the study. In addition, the standard has been applied to the boundary receptors in the use of contour maps or isopleths that present the data for predicted odour concentration at any location within the study area. As was noted in the 2018

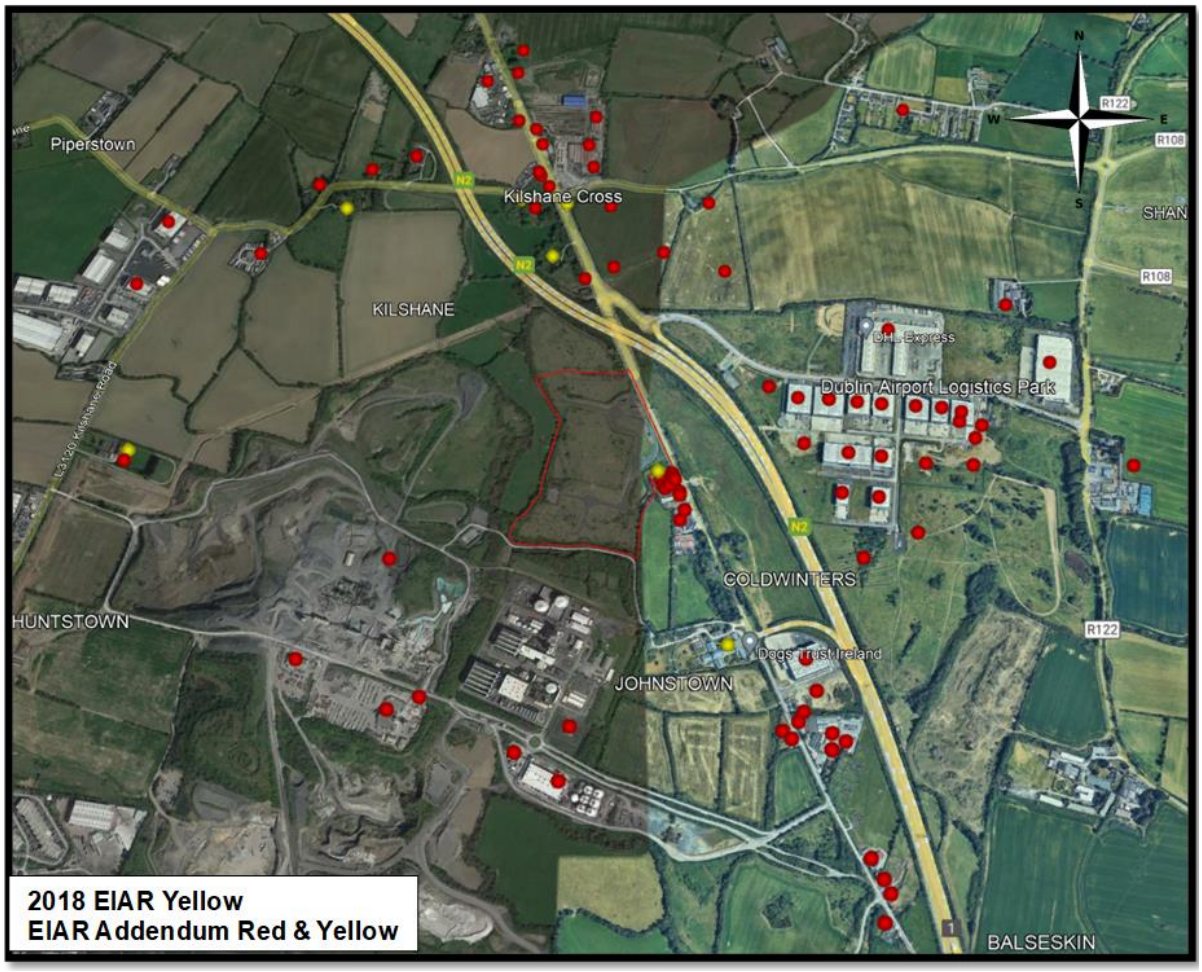
EIAR, odour impacts at other receptors within the study area are likely to be less than at the specified discrete receptor locations.

Seven discrete sensitive receptors specifically considered in the 2018 planning application have not changed and are shown in Figure 10-3. In addition to these receptors, some further sensitive receptors were included to represent other receptors in close proximity to the site. In 2019, eight one-bedroom homes were opened on the site boundary and are shown as P01.1 through P01.8 in Table 10-5 (referenced as R1 in the 2018 EIAR). New receptors since 2018 (P57, P65, P76, P79, P80, P81) have been added and have been specifically considered in the updated modelling assessment. Existing and additional receptors are shown in Table 10-5 and in Figure 10-3.

Table10-5: Selected Discrete Receptor Locations (2018 EIAR and 2023 EIAR Addendum)

Building Name	2018 EIAR Ref.	Receptor Type	Proximity to RBSF Boundary	Coordinate (UTM) X	Coordinate (UTM) Y
P01.1 – P01.8 - Property on R135	R1	Residential	<5 m to the southeast	677947.7	5921953
P08 - Property on R135	R2	Residential	315 m to the north	677668.8	5922499
P09 - Property on R135	R3	Residential	475 m to the north	677679.8	5922657
P12 - Property on R135	R4	Residential	450 m to the north	677604.1	5922639
P13 - Property on Kilshane Road	R5	Residential	700 m to the northwest	677109.7	5922624
P15 - Property on Kilshane Road	R6	Residential	1,000 m to the west	676646.6	5921923
P06 - Dogs Trust Ireland, R135	R7	Non-Residential	250 m to the southeast	678108.8	5921580
P57- Property on St Margarets Road	New	Residential	730 m to the east	678694.1	5922076
P65 - Property on R135	New	Residential	625 m to the southeast	678373.4	5921313
P76 - Property on R135	New	Residential	550 m to the south	678284.8	5921332
P79 - Property on R135	New	Residential	725 m to the north	677537.8	5922902
P80 - Property on R135	New	Residential	700 m to the north	677583.9	5922878
P81 - Property on Kilshane Road	New	Residential	450 m to the north	677602.7	5922644

Figure 10-2: Discrete Sensitive Receptors included in the Dispersion Model



10.2.7 Calculation of Emission rates

Odour emission rates were calculated in the 2018 EIAR based on the proposed RBSF design specification and expected odour mitigation performance of the odour abatement system provided by the prospective suppliers of the odour abatement equipment. The same approach has been applied in this EIAR Addendum with the calculation updated to take account of the refined and updated design approach for the RBSF.

The outline specification for the design of the RBSF and odour control system is presented in Table 10-6 noting where changes have occurred due to the refined design approach since the 2018 EIAR was completed.

Table10-6: Comparison of Design Features 2018 EIAR and EIAR Addendum

2018 EIAR	EIAR Addendum	Comparison
Four proposed Odour Control Units (OCU), two for each of the two RBSF storage buildings	Four proposed Odour Control Units (OCU), two for each of the two RBSF storage buildings	No change
Odour treatment technology (likely to be a biological system) achieving a manufacturer specified outlet odour concentration, at all times, of no greater than 500 ouE.m-3	Odour treatment technology (likely to be a biological system) achieving a manufacturer specified outlet odour concentration, at all times, of no greater than 500 ouE.m-3 and a minimum performance of 95% overall odour removal.	Additional performance specification of minimum 95% overall odour removal, equivalent to 4OUE/sec at stack.

2018 EIAR	EIAR Addendum	Comparison
Each odour control unit has a minimum volumetric flow rate of 35,000m3 per hour (9.722 m3.s-1)	Each odour control unit has a minimum volumetric flow rate of 26,115m3 per hour (7.25 m3.s-1)	Changed as ATEX and general ventilation arrangements now addressed separately
Fresh air is provided to central areas of the building at a rate of 31,500m3 per hour (8.750 m3.s-1)	Fresh air is provided to central areas of the building at a rate of 31,500m3 per hour (8.750 m3.s-1)	No change
Stack height of 17.5m (approximately 4 m above the modelled building ridge height)	Stack height of 18.2m (approximately 4 m above the modelled building ridge height)	Slight increase in stack height
Air velocity to be no less than 15 m.s-1 (achieved by a stack tip diameter not exceeding 0.9 m)	Air velocity 11.4m/s at stack (stack tip diameter 0.9m).	Reduced velocity associated with separate treatment of ventilation air and potentially odorous air.
Based on the above design, each odour control unit is predicted to emit at an odour emission rate no greater than 4,861 ouE.s-1 (i.e. 500 ouE.m-3 multiplied by 9.72 m3.s-1), a total site emission of 19,444 ouE.s-1 (for all four OCU).	Based on the above design, each odour control unit is predicted to emit at an odour emission rate no greater than 3,625 ouE.s-1 (based on the 95% performance guarantee), with a total site emission of 14,500 ouE.s-1 (for all four OCU).	The refined design and especially separation of clean ventilation air from odorous air as well as the improved performance specification for the odour control system results in lower odour emission rate projection.

The implementation of the proposed design strategy for the extraction and treatment of odorous air from the RBSF, combined with a stringent performance specification for the odour control system and adherence to a robust odour management plan will ensure that fugitive odour emissions are minimised. Accordingly, and adopting the same strategy as was implemented in the 2018 EIAR, the dispersion model did not consider any odour releases other than those associated with the odour control system. Thus, other than changes required to reflect the refined and optimised design of the RBSF and the odour control system, there is no change in the approach adopted in this EIAR Addendum compared with the approach that was followed in the 2018 EIAR.

10.3 Existing Environment

10.3.1 Historical and Current Odour Baseline Situation

There are no changes to the information presented in this Section of the EIAR since the 2018 planning application. There are no new odour sources around the site location. The current odour baseline remains odour free.

10.4 Characteristics of the RBSF Component of the Proposed GDD Project

There are no materially significant changes to the information presented in this Section of the EIAR in the 2018 planning application. The RBSF Component will involve development of two storage buildings and associated infrastructure located in the northern part of the Site.

10.5 Potential Impacts

In 2018, the potential odour impact of the RBSF was assessed by predicting the increase in odour concentrations at the Site Boundary, specifically identified areas of relevant public exposure, and all off site locations within 2km of the RBSF. The assessment considered the design of the RBSF and included all potential sources where odour emissions are likely to occur. The same assessment approach was adopted

in this EIAR Addendum, with additional specific receptors included to reflect new receptors introduced to the area since the previous study was undertaken.

10.5.1 Do-nothing Impacts

There are no changes to the information presented in this Section of the EIAR since the 2018 planning application. Baseline odour conditions would remain unchanged compared to existing levels without the implementation of the Proposed RBSF Component.

10.5.2 Construction Phase

There are no changes to the information presented in this Section of the EIAR since the 2018 planning application. There are no expected odour emissions during the construction phase of the development, as Biosolids material will not be stored at the Proposed RBSF Component until construction of the structures and odour control mitigation is completed.

10.5.3 Operational Phase

Three modelling scenarios were considered as noted in Section 10.2 of this Section of the EIAR:

- The model was rerun using the 2018 input building dimensions and stack height using 2011 – 2015 meteorological data;
- The model was rerun using the 2018 input building dimensions and stack height using 2018 – 2022 meteorological data (to check whether more recent meteorological data would have any impact on the outcome); and
- The model was run using the refined odour control system design parameters and the updated regulatory version of the dispersion model to reflect the current design.

Table 10-7 presents the updated predicted odour concentrations after the implementation of the RBSF. The maximum predicted concentration at the worst affected receptor and at the RBSF site boundary are presented for the five years of meteorological data considered in the assessment. Scenario 2018-1 is the output of the model as presented in the 2018 EIAR.

The predicted odour concentrations for Scenario 2018-2 and 2018-3 are lower than results presented in the 2018 EIAR at each location.

This is most likely attributable to the refined design of the air handling system and the building and stack dimensions as set out in section 10.2.3 and in section 10.2.7.

The modelling of these scenarios shows that the impact is even less significant than that reported in the 2018 EIAR. This means that, while there was an error in the building and stack dimensions adopted for the 2018 EIAR, the outcome of the assessment would not have changed if the correct dimensions had been adopted as it would have still conformed to the assessment criterion of 3 $ou_{E}.m^{-3}$ as the 98^{th} percentile of hourly averages.

Table10-7: Predicted Odour Concentrations - 'Post Development' for scenarios based on input data from 2018 EIAR

Scenario (as per section 10.2.5)	Receptor	2011	2012	2013	2014	2015	Assessment Criterion
2018-1	Maximum at modelled receptor location	0.97	0.92	0.92	0.94	0.94	3 $ou_E.m^{-3}$ as the 98th percentile of hourly averages
	Maximum at Site Boundary	2.51	2.64	2.57	2.67	2.34	N/A
2018-2	Maximum at modelled receptor location	0.48	0.54	0.58	0.38	0.52	3 $ou_E.m^{-3}$ as the 98th percentile of hourly averages
	Maximum at Site Boundary	1.20	1.14	1.22	1.21	1.12	N/A
		2018	**2019**	**2020**	**2021**	**2022**	
2018-3	Maximum at modelled receptor location	0.48	0.58	0.52	0.43	0.58	3 $ou_E.m^{-3}$ as the 98th percentile of hourly averages
	Maximum at Site Boundary	1.31	1.22	1.22	1.11	1.24	N/A

Table 10-3 in this section of the EIAR has been updated since the 2018 planning application for the 2023 scenario summarised in section 10.2.5 of this Addendum i.e. the output using the current version of the regulatory dispersion model and includes the corrected design dimensions, and the refined design parameters since 2018. Table 10-7 presents the predicted odour concentrations after the implementation of the RBSF. The results show that the worst affected receptor is predicted to be R1, to the southeast of the site, in each assessment year. Concentrations at all other specified receptor locations were predicted to be less than $0.4OU_E.m^{-3}$ as the 98th percentile of hourly averages.

Data are also presented in Table 10-7 for the 2018 input data but using the updated AERMOD model and the meteorological data for 2018 – 2022. There is no materially significant difference between the predictions using the different meteorological data sets.

The contour plot for the worst-case meteorological year, 2021 as shown in Table 10-7, is presented in Figure 10-5. The results demonstrate as shown in the contour plot that the adopted odour assessment criterion of 3 $ou_E.m^{-3}$ as the 98th percentile of hourly averages is not exceeded at any receptor location within the model domain. The plot also shows that the impacts are less significant than those predicted using the previous RBSF odour control system design reported in the 2018 EIAR.

Therefore, there is no change to the assessment presented in this section of the EIAR in the 2018 planning application.

As noted in section 10.2, the design of the RBSF has progressed and the model was run using the refined design parameters and the updated regulatory version of the dispersion model to reflect the current design. The model results, using the new design parameters and the updated regulatory model are presented in Table 10-8.

Table10-8: Predicted Odour Concentrations - 'Post Development' for 2023 input data

Scenario (as per section 10.2.5)	Receptor	2018	2019	2020	2021	2022	Assessment Criterion
2023	Maximum at modelled receptor location	0.39	0.40	0.29	0.41	0.39	3 ouE.m-3 as the 98th percentile of hourly averages
	Maximum at Site Boundary	0.89	0.96	0.96	0.91	0.74	N/A

The worst affected receptor was predicted to be R1, to the southeast of the site, in each assessment year. Concentrations at all other specified receptor locations were predicted to be less than $0.4OU_E.m^{-3}$ as the 98th percentile of hourly averages.

The contour plot for the worst case meteorological year, 2021 as shown in Table 10-8, is presented in Figure 10-5. The results demonstrate as shown in the contour plot that the adopted odour assessment criterion of 3 $ou_E.m^{-3}$ as the 98th percentile of hourly averages was not exceeded at any receptor location within the model domain. The plot also shows that the impacts are less significant than those predicted using the previous RBSF design reported in the 2018 EIAR.

10.5.4 Impact Significance

In 2018, the assessment concluded that the odour effects from the RBSF were not significant as the predicted odour concentrations at all identified receptors were below 3 $ou_E.m^{-3}$ as the 98th percentile of hourly averages. This conclusion remains valid and predicted concentrations are even lower when the stack height of 18m is used for the assessment. Using the refined design for the RBSF, and the current regulatory version of the AERMOD dispersion model, the assessment concluded that odour effects from the RBSF are not significant.

The assessment scenarios are based on a closed system with the operation of four odour control units and a mitigation system and odour management plan which would minimise fugitive releases. The assessment concluded that with the proposed odour management system that it is highly unlikely that a significant odour effect would occur.

SECTION 11A Cultural Heritage

11.1 Introduction

As detailed in Chapter 1A (Introduction) in Volume 2A Part A of this Environmental Impact Assessment Report (EIAR) Addendum, we have reviewed Section 11 (Cultural Heritage) in Volume 4 Part A of the EIAR submitted with the original 2018 planning application has been reviewed in the light of:

- Changes to the baseline environment;
- The requirement for updated surveys;
- Updated development plans;
- The updated cumulative assessment and;
- EPA updated guidelines; and
- Changes to the law, policy, and industry standards and guidance in the intervening period.

The description of the Regional Biosolids Storage Facility (RBSF) remains as presented in Chapter 4 (Proposed Project Description) in Volume 2 Part A of the EIAR submitted with the original 2018 planning application, as supplemented by Chapter 4A (Proposed Project Description) in Volume 2A Part A of this EIAR Addendum.

In 2022, the Environmental Protection Agency (EPA) published an updated set of Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (hereafter referred to as the updated EPA Guidelines) (EPA 2022a). The updated EPA Guidelines have been considered in respect of the methodology applied in this Chapter of the EIAR in the 2018 planning application, which incorporated the previous Draft Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (hereafter referred to as the previous EPA Guidelines) (EPA 2017). It has been determined that the methodology used for the original assessment is consistent with the updated EPA Guidelines.

11.2 Methodology

This section was reviewed to determine if there have been any updates to the legislation and guidelines governing the assessment criteria of Cultural Heritage in the intervening period since the 2018 planning application. There have been no updates to legislation or guidelines governing the assessment criteria of Cultural Heritage since the submission of the 2018 planning application.

This section was also reviewed in order to determine if there have been any updates to the information or data relied upon for the assessment of Cultural Heritage since the submission of the 2018 planning application.

Among the information referred to when carrying out the assessment in 2018, was the Fingal County Development Plan 2017-23. Since then, the Fingal County Development Plan 2023-2029 has come into effect. This has been reviewed and there are no additional cultural heritage assets in the application site or vicinity included in the plan. There is nothing additional in the plan that would impact the previous assessment. As a field survey was conducted in 2018, and no cultural material was visible at ground level, and there have been no material changes to the proposed application site in the interim, a new field survey is not required.

11.3 Existing Environment

11.3.1 The Landscape

There are no changes to the proposed site and therefore, no changes to the information presented in this section of the EIAR since the 2018 planning application.

11.3.2 Historical and Archaeological Background

As no additional historical sources have become available since 2018, there are no changes to the information presented in this section of the EIAR since the 2018 planning application.

11.3.3 Architectural / Building Heritage

11.3.3.1 Protected Structures

As no additional protected structures have been identified in the study area since 2018, there are no changes to the information presented in this section of the EIAR since the 2018 planning application.

11.3.3.2 . Non-Designated Structures

As no additional non-designated structures have been identified in the study area since 2018, there are no changes to the information presented in this section of the EIAR since the 2018 planning application.

11.3.3.3 Field Inspection

A field inspection was conducted in 2017 and there was no indication of any cultural or archaeological material. Since the 2018 planning application, no changes to the records of structures have been noted and there have been no material changes to the proposed application site in the interim. Therefore, no further field inspection is required.

11.3.4 Archaeology

11.3.4.1 Recorded Monuments

As no additional entries to the Record of Monuments and Places have been recorded in the area, and as there have been no material changes to the proposed application site in the interim, there are no changes to the information presented in this section of the EIAR since the 2018 planning application.

11.3.4.2 Undesignated Monuments

As upon review of the SMR no additional undesignated monuments have been identified in the study area since 2018, there are no changes to the information presented in this section of the EIAR since the 2018 planning application.

11.3.4.3 Cartographic Sources

As no additional cartographic sources have been identified in the study area since 2018, there are no changes to the information presented in this section of the EIAR since the 2018 planning application.

11.3.4.4 Aerial Photography

This section was reviewed in order to determine if there have been any updates to aerial photography for the assessment of Cultural Heritage since the submission of the 2018 planning application.

The following sources of new imagery were reviewed:

- Ordnance Survey MapGenie imagery from 2013 - 2018. This imagery was not available in 2018.
- Google Earth imagery from June 2018, July 2019, April 2020, May 2020, June 2020, February 2021, March 2021, April 2021, March 2022, and August 2022.
- Lidar captured in May 2010 - May 2011 provided through the Open Topographic data Viewer by Transport Infrastructure Ireland (TII_2429). The LiDAR imagery was not available in 2018.

The above imagery was reviewed and no additional archaeological heritage material was identified in the imagery. Since the site has already been excavated, there is high awareness of the potential archaeological material both on the surface and under the ground in the site of the RBSF Component. The review of the additional imagery above supplements all the other reviews undertaken.

11.3.4.5 Placename Evidence

As no changes to the Placenames Database of Ireland have been recorded in the site environs since 2018, there are no changes to the information presented in this section of the EIAR since the 2018 planning application.

11.3.4.6 National Museum of Ireland

As no new artifacts from the study area have been recorded in the finds register of the National Museum of Ireland since 2018, there are no changes to the information presented in this section of the EIAR since the 2018 planning application.

11.3.4.7 Archaeological Investigations

As no new archaeological investigations have been undertaken in the study area since 2018, there are no changes to the information presented in this section of the EIAR since the 2018 planning application.

11.3.4.8 NEWTOWN: Site of motte and Bailey: SMR 14:13: 01E1214

As archaeological monitoring has been completed and no further works have been undertaken since the EIAR, there are no changes to the information presented in this section of the EIAR since the 2018 planning application.

11.3.4.9 NEWTOWN: Site of motte and Bailey: SMR 14:13: 01E1214 ext

As an archaeological test excavation has been completed and no further works have been undertaken since the EIAR, there are no changes to the information presented in this section of the EIAR since the 2018 planning application.

11.3.4.10 Field Inspection

There was no indication of any cultural or archaeological material during a field inspection carried out on 13 September 2017. As a field survey was conducted in 2018, and no cultural material was visible at ground level, and there have been no material changes to the proposed application site in the interim, there would be no benefit from an additional field survey Characteristics of the RBSF Component of the Proposed GDD Project

There have been no changes to characteristics of the RBSF Component of the Proposed GDD Project since the submission of the 2018 planning application.

11.4 Potential Impacts

There have been no changes to the proposed development and no change to the baseline data. Therefore, there have been no changes to the potential impacts for the Do-Nothing Scenario, the Construction Phase and the Operational Phase as presented in this section of the EIAR in the 2018 planning application.

11.5 Mitigation Measures

Based on the comparative assessment of impacts identified in Section 11 in Volume 4 Part A of the EIAR of the 2018 planning application and the present day, it is not considered that additional mitigation measures are now required, or that the previously proposed mitigation measures should be altered or removed. Therefore, there are no changes required to the information presented in this Section of the EIAR in the 2018 planning application.

11.6 Residual Impacts

As there are no material changes to the previously assessed impacts of the Proposed RBSF Component in Section 11 in Volume 4 Part A of the EIAR of the 2018 planning application, and therefore the mitigation measures originally proposed will also remain unchanged, the residual impacts of the Proposed RBSF

Component are considered to be the same as presented in this Section of the EIAR in the 2018 planning application.

11.7 Monitoring

Based on the comparative assessment of impacts identified in Section 11 in Volume 4 Part A of the EIAR of the 2018 planning application and the present day, it is not considered that additional monitoring measures are now required, or that the previously proposed monitoring measures should be altered or removed. Therefore, there are no changes required to the information presented in this Section of the EIAR in the 2018 planning application.

11.8 Difficulties Encountered

No difficulties were encountered in preparation of Section 11 of EIAR Addendum.

11.9 Conclusion

This Section of the EIAR Addendum has considered all relevant cultural heritage updates to the baseline environment, and to guidance and reference material since the 2018 planning application submission. Following consideration, there are no changes to the assessment of cultural heritage as a result of any of the updates discussed in this Section of the EIAR Addendum.

11.10 References

Additional references considered in preparation of this Addendum since the 2018 planning application are as follows:

Environmental Protection Agency (EPA) (2022). *Guidelines on Information to Be Contained in Environmental Impact Statements*. [Online] Available at: https://www.epa.ie/publications/monitoring--assessment/assessment/EIAR_Guidelines_2022_Web.pdf
https://www.epa.ie/publications/monitoring--assessment/assessment/EIAR_Guidelines_2022_Web.pdf

Fingal County Council (2023). *Fingal Development Plan 2023-29.* [Online] Available at: https://www.fingal.ie/development-plan

SECTION 12A Material Assets

12.1 Introduction

As detailed in Chapter 1A (Introduction) in Volume 2A Part A of this Environmental Impact Assessment Report (EIAR) Addendum, Section 12 (Material Assets) in Volume 4 Part A of the EIAR submitted with the original 2018 planning application has been reviewed, in the light of:

- Changes to the baseline environment;
- The requirement for updated surveys;
- Updated development plans;
- The updated cumulative assessment;
- EPA updated guidelines; and
- Changes to the law, policy, and industry standards and guidance in the intervening period.

The description of the Regional Biosolids Storage Facility (RBSF) remains as presented in Chapter 4 (Proposed Project Description) in Volume 2 Part A of the EIAR submitted with the original 2018 planning application, as supplemented by Chapter 4A (Proposed Project Description) in Volume 2A Part A of this EIAR Addendum.

In 2022, the Environmental Protection Agency (EPA) published an updated set of Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (hereafter referred to as the updated EPA Guidelines) (EPA 2022).

- The definition of Material Assets in the updated EPA Guidelines has been expanded. It is stated in the Guidelines that “Material Assets can now be taken to mean built services and infrastructure. Traffic is included because in effect traffic consumes transport infrastructure. Sealing of agricultural land and effects on mining or quarrying potential come under the factors of land and soils.”

12.2 Methodology

This Section was reviewed to determine if there have been any updates to the legislation or guidance governing the assessment criteria for Material Assets in the study area and environs in the intervening period.

This Section was also reviewed to determine if there have been any updates to the information relied upon for the assessment of Material Assets in the intervening period.

In 2022, the Environmental Protection Agency (EPA) published an updated set of Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EPA 2022). The updated EPA Guidelines have been considered in terms of the methodology applied in this Chapter of the EIAR in the 2018 planning application, which incorporated the previous Draft Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (hereafter referred to as the previous EPA Guidelines) (EPA 2017).

There have been no other updates to legislation or guidelines governing the assessment criteria of Material Assets since the submission of the 2018 planning application.

The Local Level, as defined in the Section 3 Population and Human Health, remains unchanged. The list of Material Assets considered in the Section 12 in the Volume 4 Part 4 of the EIAR, as defined in the Guidelines, also remains unchanged.

12.3 Existing Environment

The site on which the RBSF is proposed has not changed since the 2018 planning application.

The main characteristics of the surrounding environs have not changed since the 2018 planning application. It remains a predominantly industrial area. There has been some further development in the environs of the site since the 2018 planning application. The main developments are listed below:

- Six one-bedroom, single storey houses and single storey community buildinghave been developed immediately east of the site on behalf of Peter McVerry Trust, in Ravenswood Estate. However, these do not change the nature of the site environs as a predominantly industrial area.
- Additional commercial units have been built in the Dublin Airport Logistics Park to the east of site.
- Vantage Business Park has been built to the south of the site.

An updated version of Figure 12-1 in the 2018 EIAR is provided below, which presents the locations of these additional developments.

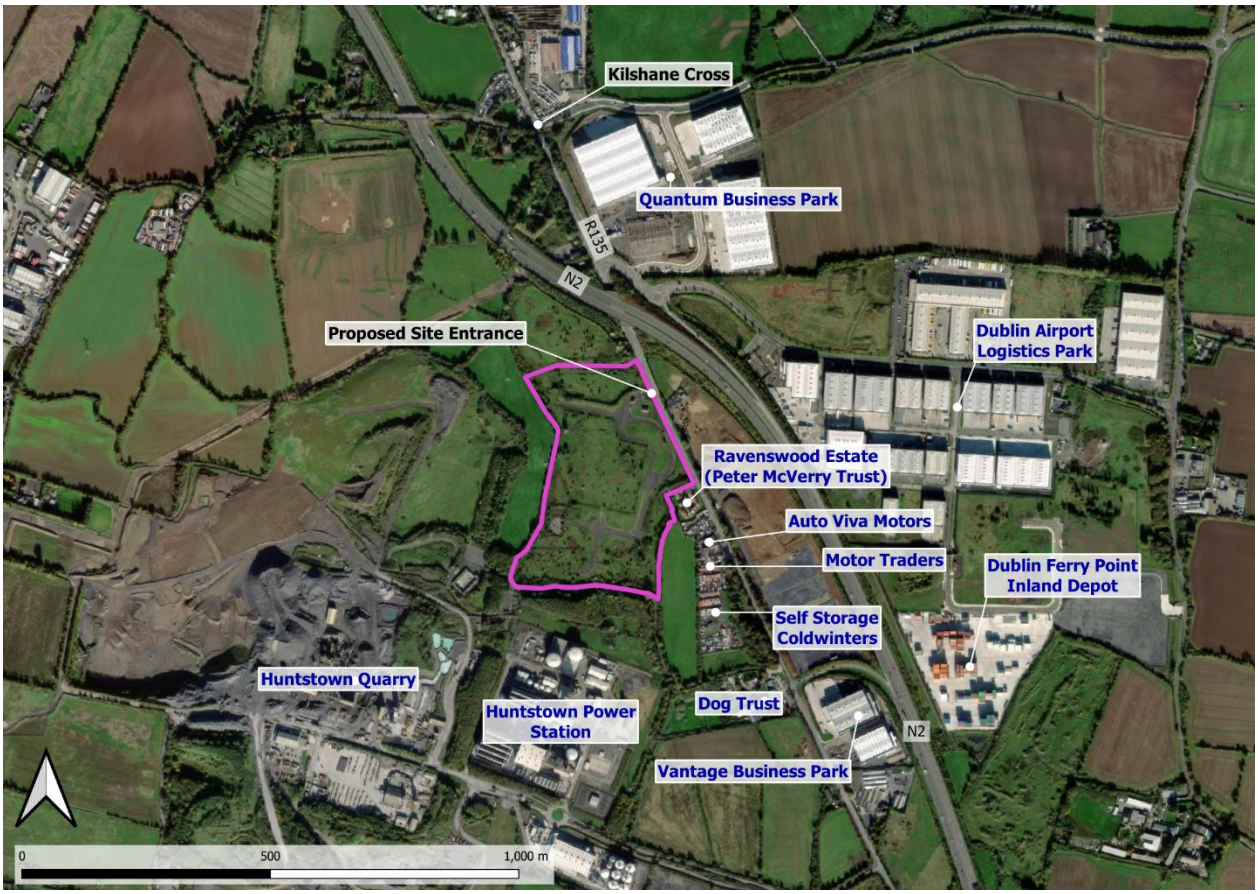


Figure 12-1: Site Layout

Cultural heritage and environmental designated sites referred to in this section of the EIAR in the 2018 planning application have been checked and remain unchanged.

A planning permission for a new Regional Biosolids Storage Facility at the site was granted by ABP on 24 April 2019. No development has taken place on this site since the 2018 EIAR planning application.

No additional waste licences for the site have been sought since the 2018 EIAR.

12.3.1 Road Networks

Access to the site remains as described in in this Section of the EIAR in the 2018 planning application.

12.3.2 Land Utilisation

The use of the site has not changed since the 2018 application. The development of residential units adjacent to the eastern boundary of the site referred to in this Section in the 2018 EIAR is now complete and the properties are occupied.

12.3.3 Utilities

There has been a new major trunk watermain laid to the north of the site, the Ballycoolen Trunkmain, running from the Ballycoolen Reservoir to Kingstown. The trunk main traverses from east to west, parallel to the existing 900mm trunk watermain, crossing the old N2 south of Kilshane Cross and North of the Motorway crossing of the old N2, then entering the now developed Business Park.

This 9km 1200mm diameter trunk watermain has been delivered to meet UÉ's identified water requirements for the Greater Dublin Area ("GDA") within a 25 year plan developed for the region. As part of that plan, UÉ has identified that a new trunk main in addition to the current pipeline is required to secure the supply to North County Dublin and meet future forecast demands of up to 112 MLD by 2025. The trunk watermain is expected to be commissioned in Q4 2023.

12.3.4 Major Infrastructure

Construction of the Huntstown BioEnergy renewable bioenergy plant has been substantially completed since the EIAR submitted with the 2018 planning application. It is not yet operating.

The Construction Package Two of the North Runway of Dublin Airport, which includes the demolition of redundant services and infrastructures, construction works of the runway, services systems and ancillaries. Work started in January 2019, after the EIAR, and the runway opened in August 2022.

There are no other changes to the information presented in this Section of the EIAR since the 2018 planning application.

12.3.5 Water Supply Infrastructure

There has been no development on the Proposed RBSF Component site since the 2018 planning application. Therefore, there are no changes to the information on water supply infrastructure presented in this Section of the EIAR in the 2018 planning application.

12.3.6 Drainage Infrastructure

There has been no development on the Proposed RBSF Component site since the 2018 planning application. Therefore, there are no changes to the information on drainage infrastructure presented in this Section of the EIAR since the 2018 planning application.

12.3.7 Watercourses

There are no changes to the information on existing watercourses within or adjacent to the site presented in this Section of the EIAR since the 2018 planning application.

12.3.8 Recreational Facilities and Amenities

Hollystown Golf Club was listed as a notable amenity feature within the wider area in this Section of the EIAR with the 2018 planning application. This facility has since closed. Planning permission for a GAA sports facility on part of the golf club site was granted in 2022. It is located more than 3 km from the Proposed RBSF Component site and this change of use has no impact on the assessment in the EIAR submitted with the planning application.

There are no other changes to the recreational facilities and amenities presented in this Section of the EIAR since the 2018 planning application.

12.3.9 Geological Heritage and Extractable Reserves

There are no changes to the information on geological heritage and extractable reserves presented in this Section of the EIAR since the 2018 planning application.

12.4 Characteristics of the RBSF Component of the Proposed GDD Project

There have been no updates to characteristics of the RBSF Component of the Proposed Project since the submission of the 2018 planning application.

12.5 Potential Impacts

This Section of the EIAR in the 2018 planning application has been reviewed and considered against all updates to the existing environment, and any updates to guidance and reference material since the 2018 planning application submission.

12.5.1 Do-Nothing Impacts

As there are no changes to the proposed RBSF Component, there are therefore no changes to the Do Nothing impacts presented in this Section of the EIAR since the 2018 planning application.

12.5.2 Construction Phase

Changes to the existing environment have been assessed in accordance with updated EPA Guidelines (EPA 2022) and deemed not to result in any additional impacts to those identified in this Section of the EIAR in the 2018 planning application.

12.5.3 Operational Phase

Changes to the existing environment have been assessed in accordance with updated EPA Guidelines (EPA 2022) and deemed not to result in any additional impacts to those identified in this Section of the EIAR in the 2018 planning application.

12.6 Mitigation Measures

The updates to the existing environment and guidance were assessed and deemed not to result in any additional impacts, above those identified in Section 12.5 in Volume 4 Part A of the EIAR in the 2018 planning application. There is therefore no requirement for additional mitigation measures, above the measures outlined in the original Section 12.6 in Volume 4 Part A of the EIAR in the 2018 planning application. As a result, there are no changes required to the information presented in this Section of the EIAR in the 2018 planning application.

12.7 Residual Impacts

12.7.1 Construction Phase

It was concluded in this section of the EIAR in the 2018 planning application that there will be no residual impacts during construction phase once the mitigation measures have been implemented. There is no change to this assessment since the EIAR in the 2018 planning application.

12.7.2 Operational Phase

It was concluded in this section of the EIAR in the 2018 planning application that there will be no residual impacts during operational phase once the mitigation measures have been implemented. There is no change to this assessment since the EIAR in the 2018 planning application.

12.7.3 Interactions

There are no changes to interactions presented in this Section of the EIAR since the 2018 planning application.

12.7.4 Cumulative Impacts

The assessment in this Section of the EIAR in the 2018 planning application was that the residual impact of the Proposed RBSF Component, following implementation of mitigation measures during both the construction and operational phases, is considered to be neutral and that there are no likely cumulative impacts predicted with other projects. There is no change to this assessment since the EIAR in the 2018 planning application.

12.8 Monitoring

The updates to the existing environment and guidance were assessed and deemed not to result in any additional impacts, above those identified in Section 12.5 in Volume 4 Part A of the EIAR in the 2018 planning application. Therefore, there remains no requirement for monitoring prior to, or following the implementation of mitigation measures.

12.9 Difficulties Encountered

No difficulties were encountered in compiling this Section of the EIAR Addendum.

12.10 Conclusion

This Section of the EIAR Addendum has considered all relevant material assets updates to the existing environment, and to guidance since the 2018 planning application submission. Following consideration, there are no changes to the assessment of material assets as a result of the updates discussed in this Section of the EIAR Addendum.

12.11 References

Environmental Protection Agency (EPA) (2022). *Guidelines on Information to Be Contained in Environmental Impact Assessment Reports*. [Pdf] Available at: https://www.epa.ie/publications/monitoring--assessment/assessment/EIAR_Guidelines_2022_Web.pdf.

SECTION 13A Traffic

13.1 Introduction

As detailed in Chapter 1A (Introduction) in Volume 2A Part A of this Environmental Impact Assessment Report (EIAR) Addendum, Section 13 (Traffic) in Volume 4 Part A of the EIAR submitted with the original 2018 planning application has been reviewed, in the light of:

- Changes to the baseline environment;
- The requirement for updated surveys;
- Updated development plans;
- The updated cumulative assessment;
- EPA updated guidelines; and
- Changes to the law, policy, and industry standards and guidance in the intervening period.

The description of the Regional Biosolids Storage Facility (RBSF) remains as presented in Chapter 4 (Proposed Project Description) in Volume 2 Part A of the EIAR submitted with the original 2018 planning application, as supplemented by Chapter 4A (Proposed Project Description) in Volume 2A Part A of this EIAR Addendum.

13.2 Methodology

13.2.1 Introduction

This Section of the EIAR in the 2018 application has been reviewed to determine if there have been any updates to legislation and guidance in relation to traffic and transport. The following guidelines have changed since the submission of the EIAR in the 2018 planning application.

Guidelines on the Information to be Contained in Environmental Impact Assessment Reports

In 2022, the Environmental Protection Agency (EPA) published an updated set of Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (hereafter referred to as the updated EPA Guidelines) (EPA 2022a). The updated EPA Guidelines have been considered in terms of the methodology applied in this Section of the EIAR in the 2018 planning application, which incorporated the previous Draft Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (hereafter referred to as the previous EPA Guidelines) (EPA 2017). It has been determined that the methodology used for the original assessment is consistent with the updated EPA Guidelines, and therefore, do not have a material consequence for the assessment contained in this Addendum.

TII Project Appraisal Guidelines Unit 5.3 – Travel Demand Project

In October 2021, Transport Infrastructure Ireland (TII) published an updated version of TII PE-PAG-02017 - Project Appraisal Guidelines Unit 5.3 - Travel Demand Project. These guidelines provide guidance on the preparation of future travel demand projections for use in modelling and appraisal of National Road schemes, and regional / local road schemes. The predictions of growth in transport demand are based on national and local projections of demographic and economic factors, current trends and travel behaviour.

The updated growth factors for future travel demand were used to develop a “Do-Nothing” and “With Project” scenarios, as shown in Section 13.5.

Fingal Development Plan

With effect on 5 April 2023, the Fingal Development Plan 2017-2023 was replaced by the Fingal Development Plan 2023-2029. The land-use zoning contained within the Fingal Development Plan 2017-2023 for the undeveloped lands surrounding the Proposed RBSF Component remains the same as the land-use zoning contained within the Fingal Development Plan 2023-2029. Thus, there is no change to the assessment results as a result of the updated Fingal Development Plan.

Methodology

The years of anticipated traffic associated with background traffic growth are updated to 2024, 2028, 2029 and 2044 (from 2020, 2024, 2025 and 2040 in 2018 EIAR). The criteria utilised for the assessment of priority junction and roundabout junction are Ratio of Flow to Capacity (RFC), Maximum Queue and Maximum Average Delay while the criteria utilised for the assessment of signalised junction are Degree of Saturation (DOS) and Maximum Queue. The RFC and DOS provide a basis for judging the acceptability of junction designs. Typically a RFC of less than 0.85 normal design threshold for priority junction and roundabout junction, and a DOS of less than 0.9 normal design threshold for signalised junction are considered to indicate satisfactory performance.

There are no other changes to the remaining information presented in this Section of EIAR in the 2018 planning application.

13.2.2 Objectives

The primary objectives of this Addendum assessment are to:

- Assess the existing environment, as defined in Section 13.3.3, in terms of traffic and transportation during the 2023 base year;
- Estimate the likely trip generation during the construction phase and operational phase of the Proposed RBSF Component based on the updated design years as mentioned in Section 13.2.5;
- Identify, quantify and analyse the likely traffic impacts on the surrounding road network which are likely to result from the construction and the operation of the Proposed RBSF Component based on the updated design years as mentioned in Section 13.2.5;
- Identify mitigation measures to alleviate traffic impacts and residual impacts, if any, occurring as result of the Proposed RBSF Component; and
- To present any residual impact resulting from the Proposed RBSF Component based on the updated design years as mentioned in Section 13.2.5.

13.2.3 Scope of Study

As the existing and proposed access arrangements for the Proposed RBSF Component onto the surrounding road network remain unchanged, therefore, the public roads listed under the study area as presented in this Section of the EIAR in the 2018 planning application also remain unchanged.

Since the submission of the EIAR in the 2018 planning application, the Annual Average Daily Traffic (AADT) for the N2 National Road has increased to 40,145 vehicles in 2022 (from 38,126 in the 2018 EIAR), according to TII traffic counter TMU M02 000.0N from the TII Traffic Data website which presents data collected from the TII traffic counters located on the road network.

There are no other changes to the information presented in this Section of the EIAR in the 2018 planning application.

13.2.4 Traffic Surveys

In order to determine the updated traffic and transport baseline, the traffic surveys previously undertaken in 2017 were redone on 26 April 2023. The locations of the surveys are unchanged from the 2018 planning application, and were as follow:

- Location 1 – Kilshane Cross (Signalised) Junction;
- Location 2 – North Road (R135)/Elm Road Junction (“R135 Signalised Junction”);
- Location 3 – Elm Road/N2 Southbound Link Junction (“Elm Road (Roundabout) Junction”);
- Location 4 – N2 Northbound Link/North Road (R135) Junction (“N2 Northbound Slip Road (Priority) Junction”); and
- Location 5 – N2 Mainline.

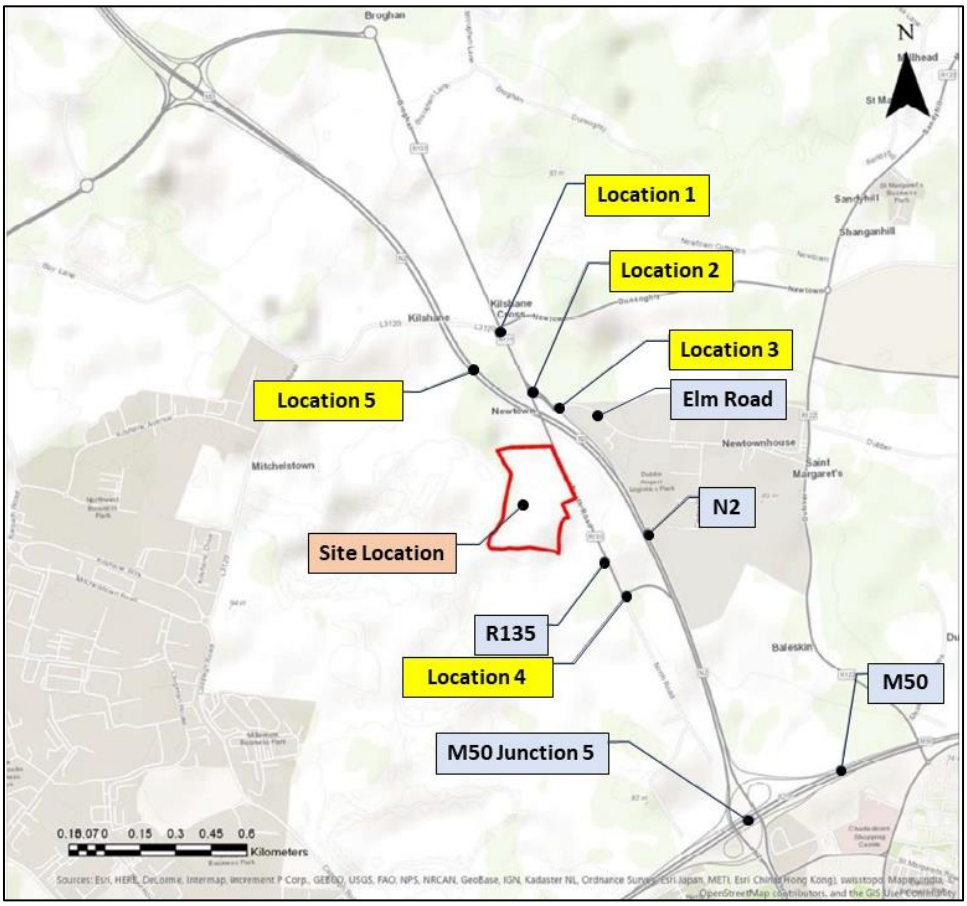


Figure 13-2: Addendum Traffic Count Location Map

A vehicle turning movement survey was undertaken on Wednesday, 26 April 2023 between 7:00 am and 7:00 pm. The traffic count data was used to determine the future year flows under “Do-Nothing” and “With Project” scenarios.

There are no other changes to the information presented in this Section of the EIAR in the 2018 planning application.

13.2.5 Modelling Methodology

In line with the approach for this Section of the EIAR in the 2018 planning application, classified traffic count surveys were carried out in the vicinity of the Proposed Component site at the same junctions most likely to be affected by the Proposed RBSF Component. These traffic count surveys were utilised to develop the 2023 AM and PM Peak baseline traffic models.

Design years for traffic assessment are based on the delivery of the project, which involves the construction of storage buildings in two phases. The design phases in the 2018 EIAR were 2020 (Phase 1 construction) and 2024 (Phase 2 construction), 2025 (Phase 2 opening), and 2040 design horizon. As the construction programme and year of opening were updated, therefore, the design years were updated to 2024, 2028, 2029 and 2044, respectively, in accordance with the Traffic and Transport Assessment Guidelines. Additionally, the traffic flow figures contained in the 2023 baseline model were factored up to the above-mentioned design years using central growth rates contained within the TII Publications Project Appraisal Guidelines for National Roads Unit 5.3 - Travel Demand Projections (2021).

A cumulative assessment of the local road network was undertaken which made allowance for future development of the surrounding undeveloped lands in line with the current land-use zoning contained within the Fingal Development Plan 2023-2029. The land-use zoning contained within the Fingal Development Plan 2017-2023 for the undeveloped lands surrounding the Proposed RBSF Component remains the same as the land-use zoning contained within the Fingal Development Plan 2023-2029. In view of the same

existing and proposed access arrangements for the Proposed RBSF Component onto the surrounding road network, the area of future development of surrounding undeveloped lands, as presented in this Section of the EIAR in the 2018 planning application, utilising the same junctions as the Proposed RBSF Component for access to the surrounding road network remain unchanged. Thus, the area selected for assessment of cumulative impact remain unchanged.

Whilst details of the nature and type of development in the surrounding undeveloped lands are unknown, the trip generation associated with the above-mentioned undeveloped lands was calculated using the same area of land for each zoning and Gross Floor Area (GFA) of potential developments on these areas of land as presented in this Section of EIAR in the 2018 planning application, together with the updated trip rates associated with the development of the surrounding undeveloped lands (i.e. Warehousing and Distribution, Heavy Industry, and General Employment) in the TRICS trip generation database. Moreover, for the purpose of cumulative assessment, it has been assumed that all of the surrounding lands will be developed by 2044, with an incremental increase in traffic volumes from 2023 to 2044.

There are no other changes to the information presented in this Section of the EIAR in the 2018 planning application.

13.2.6 Do-Nothing Scenario

Due to the passage of time, the design years were updated to 2024, 2028, 2029 and 2044 for this Addendum assessment (originally 2020, 2024, 2025 and 2040 in the assessment completed for the EIAR in the 2018 planning application). Additionally, the traffic flow figures contained in the 2023 baseline model were factored up to the above-mentioned design years using central growth rates for future travel demand contained within the updated TII Project Appraisal Guidelines for National Roads Unit 5.3 - Travel Demand Projections (2021).

13.2.7 With Project Scenario

13.2.7.1 Trip Distribution and Trip Assignment

As there are no changes to the design of the Proposed RBSF Component, the assumptions for trip distribution and trip assignment remain as outlined in this Section of the EIAR in the 2018 planning application.

13.2.7.2 Construction Phase

Assessment Years

It is still anticipated that the Proposed RBSF Component will be constructed in two phases. Construction of Phase 1 is now anticipated to commence in 2024 (amended from 2020 in the EIAR in the 2018 planning application). Since the EIAR, there has been ongoing review of the construction programme. The most recent estimate for the construction programme is 18 months (increased from 12 months in the EIAR in the 2018 planning application), meaning Phase 1 construction will end in 2025.

Additionally, it is now anticipated that Phase 2 construction will commence in 2028 (amended from 2024 in the EIAR in the 2018 planning application) and the completion of Phase 2 construction will end in 2029 (amended from 2025 in the EIAR in the 2018 planning application). The traffic impact during the construction phase will, therefore, focus on the following worst-case scenarios:

- Phase 1 Construction Year – 2024; and
- Phase 2 Construction Year – 2028.

As noted, the projected 2024 and 2028 baseline network flows have been calculated by factoring up the 2023 recorded network flows in accordance with Table 6.1 of the Project Appraisal Guidelines for National Roads Unit 5.3 - Travel Demand Projections (TII 2021). It should also be noted that the Proposed RBSF Component for Phase 1 will be operational in 2028, during the construction period for Phase 2.

Construction Traffic Trip Generation

All figures as presented in this Section of the EIAR in the 2018 planning application remain unchanged except the update of year column. The Phase 1 Construction Year was updated to 2024 (amended from 2020 in the EIAR in the 2018 planning application), while the Phase 2 Construction Year was updated to 2028 (amended from 2024 in the EIAR in the 2018 planning application).

There are no other changes to the information presented in this Section of the EIAR in the 2018 planning application.

13.2.7.3 Operational Phase

Assessment Years

The Year of Opening was updated to 2029 (amended from 2025 in the EIAR in the 2018 planning application), while the Design Year was updated to 2044 (amended from 2040 in the EIAR in the 2018 planning application).

As noted, the projected 2029 and 2044 baseline network flows have been calculated by factoring up the 2023 recorded network flows in accordance with Table 6.1 of the Project Appraisal Guidelines for National Roads Unit 5.3 - Travel Demand Projections (TII 2021).

Operational Trip Generation

All figures as presented in this Section of the EIAR in the 2018 planning application remain unchanged except the update of year column. This is because there has been no change to the estimated trips generated during operational phase of the Proposed RBSF Component. The Year of Opening was updated to 2029 (amended from 2025 in the EIAR in the 2018 planning application), while the Design Year was updated to 2044 (amended from 2040 in the EIAR in the 2018 planning application).

There are no other changes to the information presented in this Section of the EIAR in the 2018 planning application.

13.2.7.4 Total Trip Generation

All figures as presented in this Section of the EIAR in the 2018 planning application remain unchanged except the update of year column. The design years were updated to 2024, 2028, 2029 and 2044 (amended from 2020, 2024, 2025 and 2040 in the EIAR in the 2018 planning application).

There are no other changes to the information presented in this Section of the EIAR in the 2018 planning application.

13.3 Existing Environment

13.3.1 Site Location

There are no changes to the proposed site location and, therefore, there are no changes the information presented in this Section of the EIAR in the 2018 planning application.

13.3.2 Local Road Network

13.3.2.1 Location 1: Kilshane Cross (Signalised) Junction

The 2023 traffic count survey revealed that the morning (AM) peak hour (8:00 am - 9:00 am) remained unchanged, but the total vehicles passing through this junction increased to 1,673 (from 1,576 in the EIAR in the 2018 planning application). Based on the new traffic count surveys conducted in 2023, the identified evening (PM) peak hour changed to a period from 5:00 pm to 6:00 pm (originally 4:00 pm to 5:00 pm in the EIAR in the 2018 planning application) and the total vehicles passing through this junction for the newly identified PM peak was 1,674 (up from 1,448 in the EIAR in the 2018 planning application). The updated AM and PM peak hour traffic flows through the junction are illustrated in Figure 13-4 and Figure 13-5, respectively.

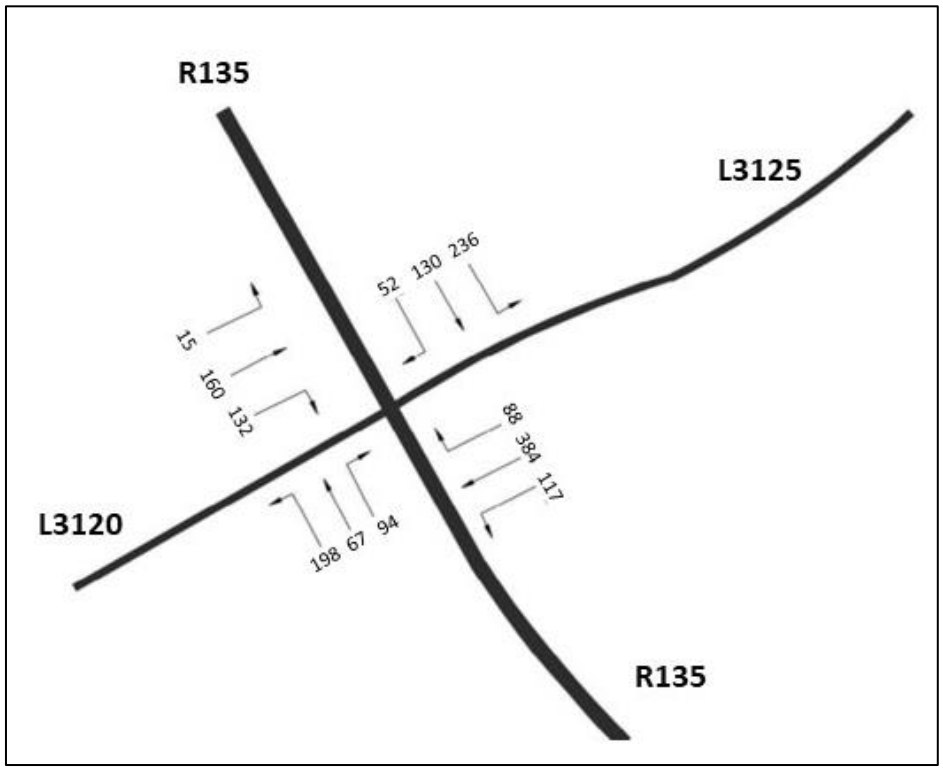


Figure 13-4: AM Peak Traffic Flows for Location 1

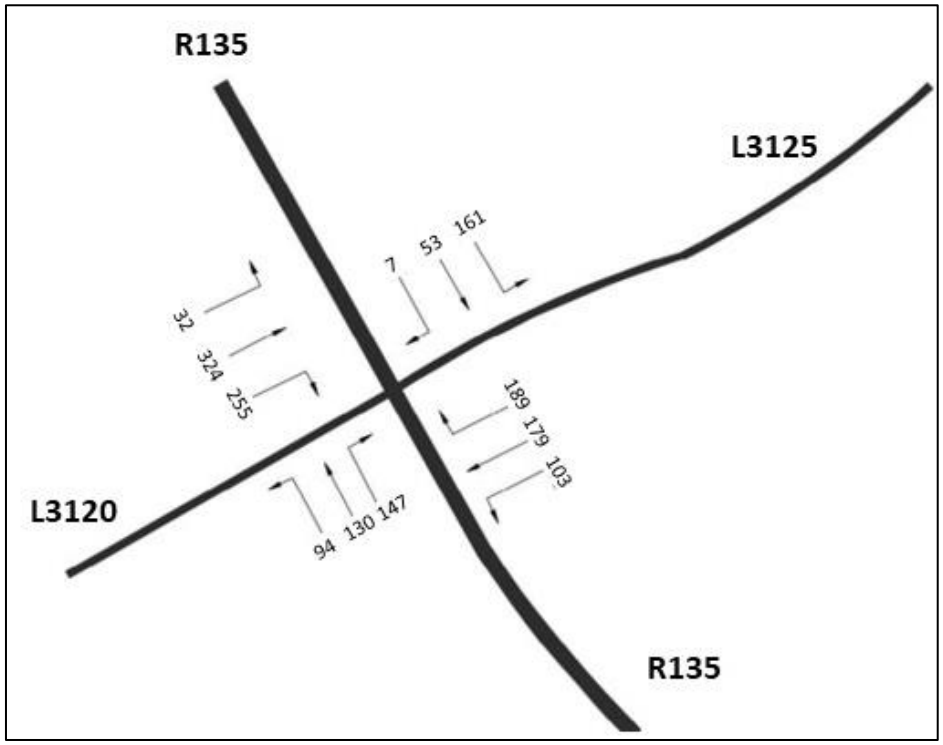


Figure 13-5: PM Peak Traffic Flows for Location 1

It should be also noted that the L3125 arm on Kilshane Cross (Signalised) Junction was upgraded from a two-lane single carriageway (refer to Figure 13a) to a three-lane single carriageway (refer to Figure 13b), including two lanes approaching the captioned junction and one lane exiting the captioned junction, as compared with the EIAR for the Proposed RBSF Component in the 2018 planning application. The above-mentioned upgrade works can improve the performance on Kilshane Cross (Signalised) Junction.

Figure 13a: Photo of L3125 arm on Kilshane Cross (Signalised) Junction (Adopted in EIAR for the Proposed RBSF Component in the 2018 Planning Application) (*Source: Google Maps*)

Figure 13b: Photo of Current L3125 arm on Kilshane Cross (Signalised) Junction (*Source: Google Maps*)

13.3.2.2 Location 2: Kilshane Cross (Signalised) Junction

Based on the new traffic count surveys conducted in 2023, the identified morning (AM) peak hour changed to a period from 7:00 am to 8:00 am (originally 8:00 am to 9:00 am in the EIAR in the 2018 planning application) and the total vehicles passing through this junction for this new AM peak was 903 (originally 763 in the EIAR in the 2018 planning application). The identified evening (PM) peak hour changed to a period from 4:00 pm to 5:00 pm (originally 1:00 pm to 2:00 pm in the EIAR in the 2018 planning application) and the total vehicles passing through this junction for this new PM peak was 929 (originally 724 in the EIAR in the 2018 planning application). The updated AM and PM peak hour traffic flows through the junction are illustrated in Figure 13-6 and Figure 13-7 respectively.

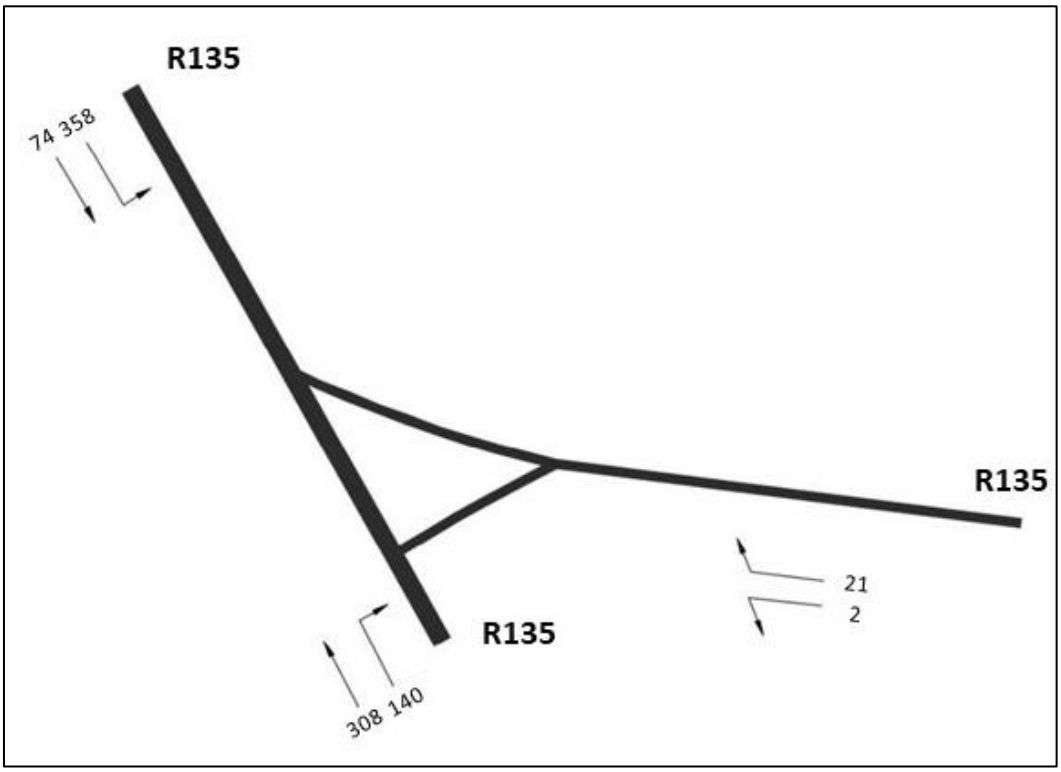


Figure 13-6: AM Peak Traffic Flows for Location 2

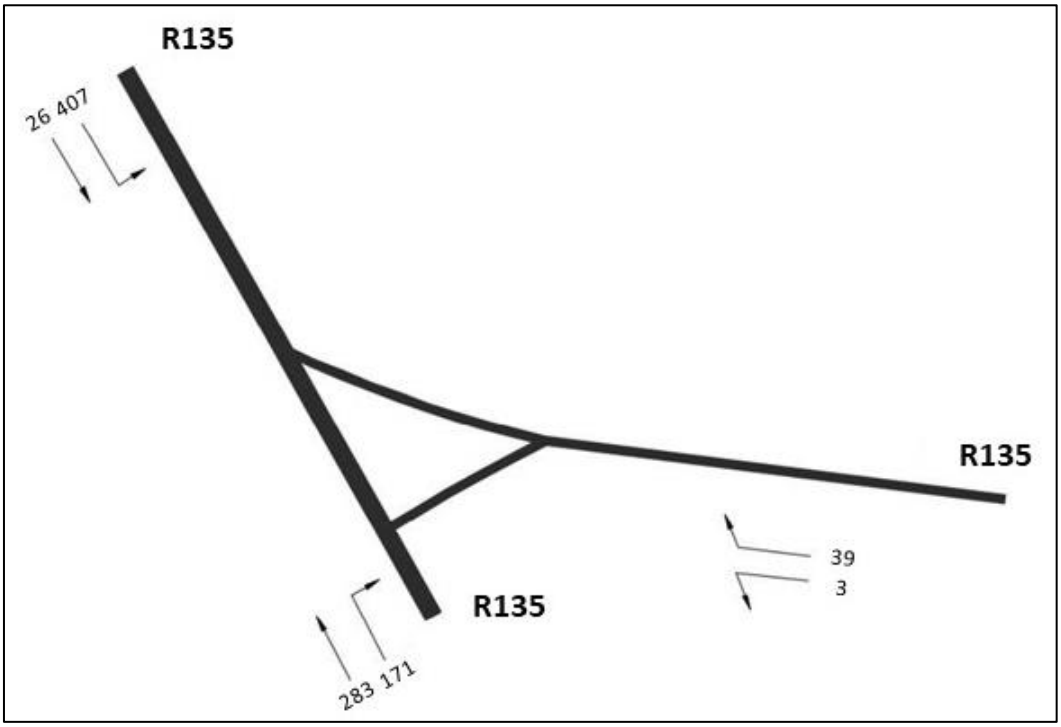


Figure 13-7: PM Peak Traffic Flows for Location 2

13.3.2.3 Location 3: Elm Road (Roundabout) Junction

The 2023 traffic count survey revealed that the morning (AM) peak hour (8:00 am - 9:00 am) remained unchanged, but the total vehicles passing through this junction increased to 610 (from 467 in the EIAR in the 2018 planning application). Based on the new traffic count surveys conducted in 2023, the identified evening (PM) peak hour changed to a period from 5:00 pm to 6:00 pm (originally 4:00 pm to 5:00 pm in 2018 EIAR) and the total vehicles passing through this junction for the new PM peak was 654 (originally

559 in the EIAR in the 2018 planning application). The updated AM and PM peak hour traffic flows through the junction are illustrated in Figure 13-8 and Figure 13-9 respectively.

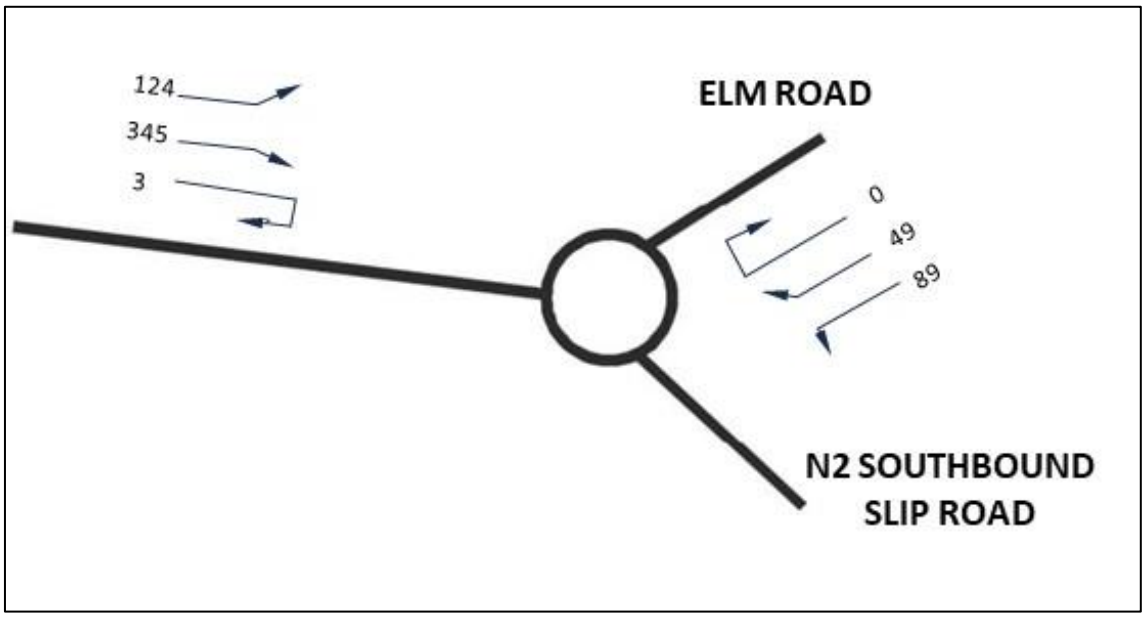


Figure 13-8: AM Peak Traffic Flows for Location 3

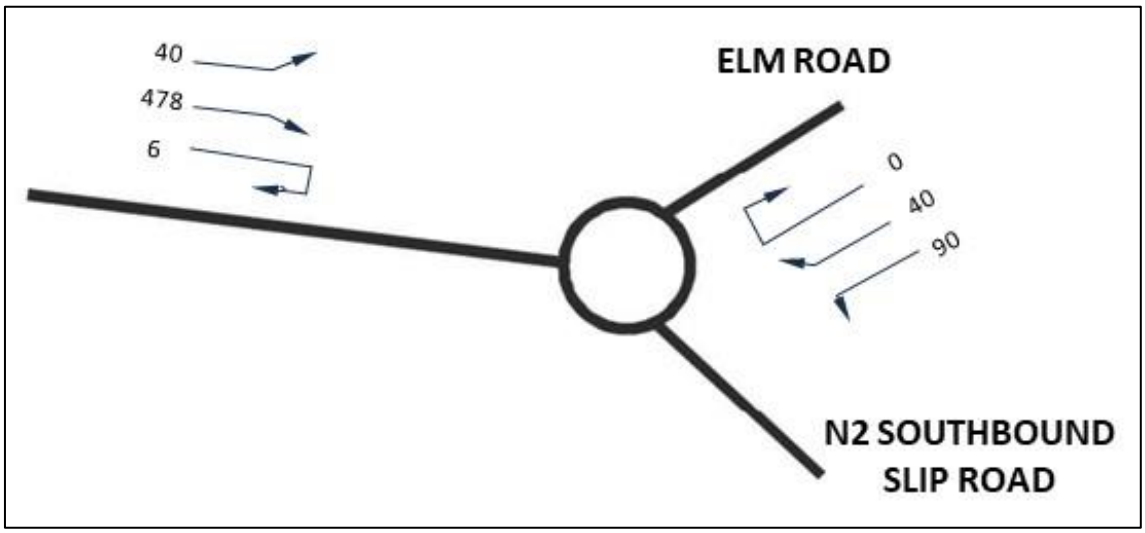


Figure 13-9: PM Peak Traffic Flows for Location 3

13.3.2.4 Location 4: N2 Northbound Slip Road (Priority) Junction

Based on the new traffic count surveys conducted in 2023, the identified morning (AM) peak hour changed to a period from 8:00 am to 9:00 am (originally 10:00 am to 11:00 am in the EIAR in the 2018 planning application) and the total vehicles passing through this junction at the new AM peak was 603 (originally 534 in the EIAR in the 2018 planning application). The evening (PM) peak hour (1:00 pm to 2:00 pm) remained unchanged, but the total vehicles passing through this junction increased to 528 (from 519 in the EIAR in the 2018 planning application). The updated AM and PM peak hour traffic flows through the junction are illustrated in Figure 13-10 and Figure 13-11 respectively.

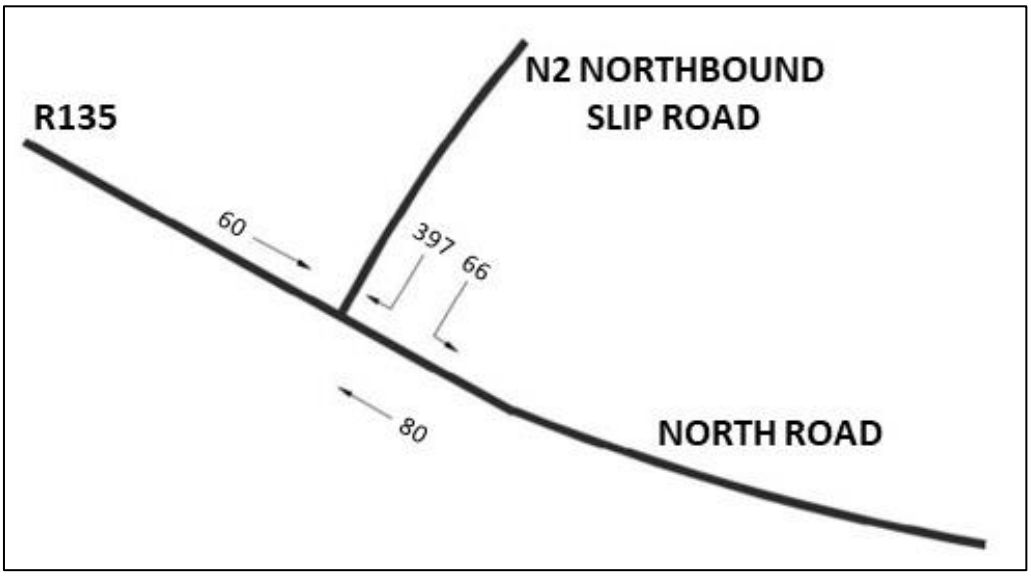


Figure 13-10: AM Peak Traffic Flows for Location 4

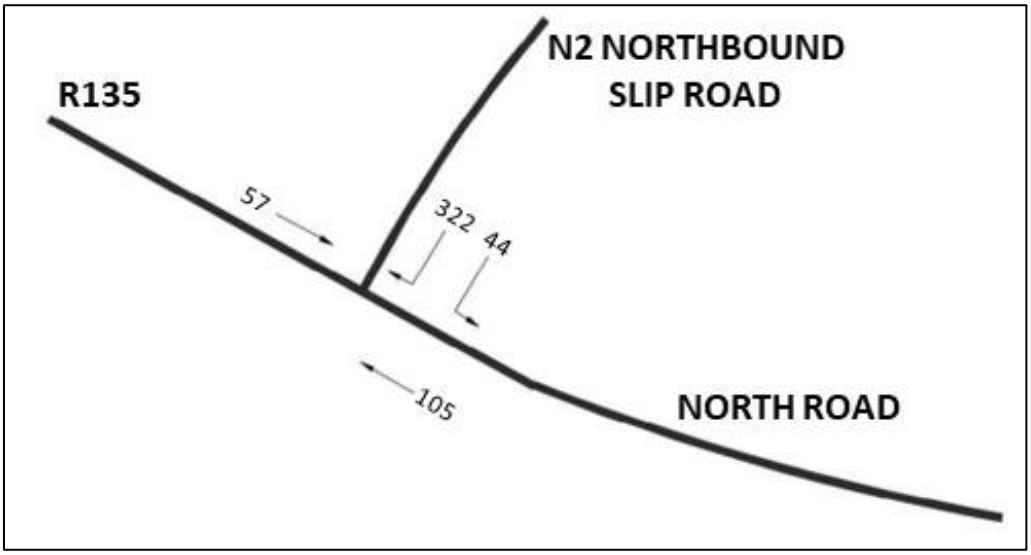


Figure 13-11: PM Peak Traffic Flows for Location 4

13.3.3 2023 Base Year Capacity Analysis

13.3.3.1 Base Year 2023 Annual Average Daily Traffic (AADT) Flows

The 2023 AADT for the N2, R135 and Elm Road were derived using the methodology set out in the Project Appraisal Guidelines for National Roads Unit 16.1 – Expansion Factors for Short Period Traffic Counts (TII 2016) as detailed in Table 13-5. The 2023 AADT for the N2, R135 and Elm Road increased from the baseline AADTs presented in this Section of the EIAR in the 2018 planning application.

Table 13-5: 2023 AADTs Derived from Traffic Count Data

Link	12 Hour Flow (Vehicles)	2023 AADT	2017 AADT in 2018 EIAR
N2	39,580	43,277	39,692
R135	5,863	6,411	5,580
Elm Road	2,096	2,292	1,654

Based on the 2023 traffic count survey, the updated AADTs are illustrated in Figure 13-12.

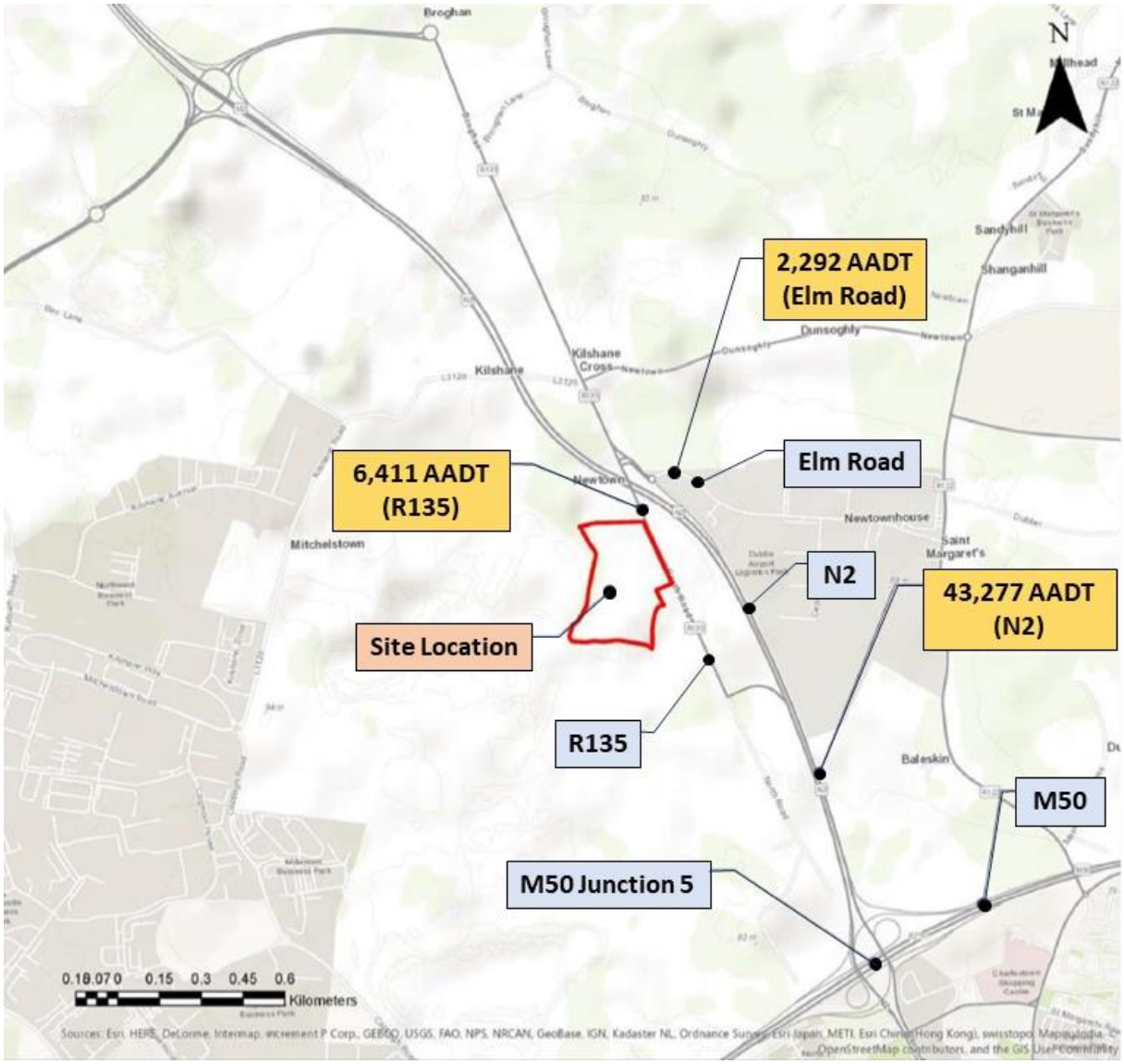


Figure 13-12: 2023 AADTs on Local Road Network

13.3.3.2 2023 Baseline Year Junction Capacity Assessment

The updated results of the analysis for the AM and PM peak hours are shown in Table 13-6 and Table 13-7.

In comparison with the EIAR in the 2018 planning application, the ratio of flow to capacity (RFCs) at the N2 Northbound Slip Road (Priority) Junction in the 2023 baseline year changed, and now exceeds the 0.85 design threshold during the AM and PM peak hours, with queues and delays for motorists evident. This change is mainly due to an increase of observed traffic flows in 2023 at the N2 Northbound Slip Road arm on this junction. The RFCs at Kilshane Cross also exceed the design threshold, but this has not changed since the submission of the EIAR in the 2018 planning application.

Table 13-6: 2023 Baseline AM Peak Junction Capacity Analysis

Junction	Highest RFC / DOS	Max. Average Delay (Seconds)	Max. Queue (PCU[3])
Kilshane Cross (Signalised) Junction	0.94	-	23
R135 Signalised Junction	0.51	-	4
Elm Road (Roundabout) Junction	0.32	3	1
N2 Northbound Slip Road (Priority) Junction	1.12	250	44

Table 13-7: 2023 Baseline PM Peak Junction Capacity Analysis

Junction	Highest RFC / DOS	Max. Average Delay (Seconds)	Max. Queue (PCU)
Kilshane Cross (Signalised) Junction	1.00	-	30
R135 Signalised Junction	0.51	-	4
Elm Road (Roundabout) Junction	0.30	3	0
N2 Northbound Slip Road (Priority) Junction	0.96	85	12

There are no other changes to the information presented in this Section of the EIAR in the 2018 planning application.

13.3.4 Existing Road Safety Assessment

The Road Safety Authority database was reviewed, and no changes to the information presented in this Section of the EIAR in the 2018 planning application were identified.

13.4 Characteristics of the RBSF Component of the Proposed GDD Project

There are no changes proposed to the characteristics of the Proposed RBSF Component since the submission of the EIAR in the 2018 planning application.

13.4.1 Access Arrangements

There are no changes to the access arrangement for the Proposed RBSF Component, and therefore, there are no changes to the information presented in this Section of the EIAR in the 2018 planning application.

13.4.2 Total Trip Generation

There are no changes to the information on total trip generation presented in this Section of the EIAR in the 2018 planning application.

[3] PCU means Passenger Car Unit. A passenger car equivalent is essentially the impact that a mode of transport has on traffic variables (such as headway, speed, density) compared to a single car. For example, 1 private car is equal to 1 pcu and 1 HGV is equal to 2.3 pcu

13.5 Potential Impacts

In view of updates to guidance documents, design years and the existing environment (based off findings of the updated traffic count survey data), as mentioned in previous sections, the traffic capacity assessments were undertaken in the design years 2024, 2028, 2029 and 2044 (amended from 2020, 2024, 2025 and 2040 in the EIAR in the 2018 planning application) under “Do-Nothing” and “With Project” scenarios. The assessment results are presented in the following sections.

13.5.1 Do-Nothing Impacts

13.5.1.1 2024 Junction Analysis

For the 2024 Phase 1 Construction Year, an updated summary of the “Do-Nothing” scenario during the AM and PM peak hours is shown in Table 13-8 and Table 13-9.

In comparison with the EIAR in the 2018 planning application, the RFCs at N2 Northbound Slip Road (Priority) Junction in the 2024 Phase 1 Construction Year will now exceed the 0.85 design threshold during the AM and PM peak hours.

Table 13-8: 2024 AM Peak Junction Capacity Analysis

Junction	Scenario	Highest RFC / DOS	Max. Average Delay (Seconds)	Max. Queue (PCU)
Kilshane Cross (Signalised) Junction	Do-Nothing	0.96	-	25
R135 Signalised Junction	Do-Nothing	0.52	-	4
Elm Road (Roundabout) Junction	Do-Nothing	0.33	3	1
N2 Northbound Slip Road (Priority) Junction	Do-Nothing	1.15	303	51

Table 13-9: 2024 PM Peak Junction Capacity Analysis

Junction	Scenario	Highest RFC / DOS	Max. Average Delay (Seconds)	Max. Queue (PCU)
Kilshane Cross (Signalised) Junction	Do-Nothing	1.02	-	33
R135 Signalised Junction	Do-Nothing	0.52	-	4
Elm Road (Roundabout) Junction	Do-Nothing	0.31	3	0
N2 Northbound Slip Road (Priority) Junction	Do-Nothing	0.99	102	15

There are no other changes to the information presented in this Section of the EIAR in the 2018 planning application.

13.5.1.2 2028 Junction Analysis

For the 2028 Phase 2 Construction Year, an updated summary of the “Do-Nothing” scenario during the AM and PM peak hours is shown in Table 13-10 and Table 13-11.

Table 13-10: 2028 AM Peak Junction Capacity Analysis

Junction	Scenario	Highest RFC / DOS	Max. Average Delay (Seconds)	Max. Queue (PCU)
Kilshane Cross (Signalised) Junction	Do-Nothing	1.03	-	37
R135 Signalised Junction	Do-Nothing	0.56	-	5
Elm Road (Roundabout) Junction	Do-Nothing	0.36	3	1
N2 Northbound Slip Road (Priority) Junction	Do-Nothing	1.26	560	87

Table 13-11: 2028 PM Peak Junction Capacity Analysis

Junction	Scenario	Highest RFC / DOS	Max. Average Delay (Seconds)	Max. Queue (PCU)
Kilshane Cross (Signalised) Junction	Do-Nothing	1.09	-	53
R135 Signalised Junction	Do-Nothing	0.56	-	4
Elm Road (Roundabout) Junction	Do-Nothing	0.33	3	1
N2 Northbound Slip Road (Priority) Junction	Do-Nothing	1.09	203	35

There are no other changes to the information presented in this Section of the EIAR in the 2018 planning application.

13.5.1.3 2029 Junction Analysis

For the 2029 Year of Opening, an updated summary of the “Do-Nothing” scenario during the AM and PM peak hours is shown in Table 13-12 and Table 13-13.

In comparison with the EIAR in the 2018 planning application, the RFCs at N2 Northbound Slip Road (Priority) Junction in the 2029 Year of Opening will now exceed the 1.0 theoretical capacity during the AM and PM peak hours.

Table 13-12: 2029 AM Peak Junction Capacity Analysis

Junction	Scenario	Highest RFC / DOS	Max. Average Delay (Seconds)	Max. Queue (PCU)
Kilshane Cross (Signalised) Junction	Do-Nothing	1.05	-	41
R135 Signalised Junction	Do-Nothing	0.58	-	5
Elm Road (Roundabout) Junction	Do-Nothing	0.37	3	1
N2 Northbound Slip Road (Priority) Junction	Do-Nothing	1.29	634	100

Table 13-13: 2029 PM Peak Junction Capacity Analysis

Junction	Scenario	Highest RFC / DOS	Max. Average Delay (Seconds)	Max. Queue (PCU)
Kilshane Cross (Signalised) Junction	Do-Nothing	1.11	-	60
R135 Signalised Junction	Do-Nothing	0.58	-	4
Elm Road (Roundabout) Junction	Do-Nothing	0.34	3	1
N2 Northbound Slip Road (Priority) Junction	Do-Nothing	1.12	242	42

There are no other changes to the information presented in this Section of the EIAR in the 2018 planning application.

13.5.1.4 2044 Junction Analysis

For the 2044 Design Year, an updated summary of the "Do-Nothing" scenario during the AM and PM peak hours is shown in Table 13-14 and Table 13-15.

In comparison with the EIAR in the 2018 planning application, the RFCs at N2 Northbound Slip Road (Priority) Junction in the 2044 Design Year will now exceed the 1.0 theoretical capacity during the PM peak hour.

Table 13-14: 2044 AM Peak Junction Capacity Analysis

Junction	Scenario	Highest RFC / DOS	Max. Average Delay (Seconds)	Max. Queue (PCU)
Kilshane Cross (Signalised) Junction	Do-Nothing	1.16	-	74
R135 Signalised Junction	Do-Nothing	0.65	-	6
Elm Road (Roundabout) Junction	Do-Nothing	0.42	3	1
N2 Northbound Slip Road (Priority) Junction	Do-Nothing	1.49	1,269	198

Table 13-15: 2044 PM Peak Junction Capacity Analysis

Junction	Scenario	Highest RFC / DOS	Max. Average Delay (Seconds)	Max. Queue (PCU)
Kilshane Cross (Signalised) Junction	Do-Nothing	1.21	-	100
R135 Signalised Junction	Do-Nothing	0.64	-	5
Elm Road (Roundabout) Junction	Do-Nothing	0.37	3	1
N2 Northbound Slip Road (Priority) Junction	Do-Nothing	1.32	705	109

There are no other changes to the information presented in this Section of the EIAR in the 2018 planning application.

13.5.2 Construction Phase

2024 Junction Analysis

For the 2024 Phase 1 Construction Year, an updated summary of the results of the analysis for "Do-Nothing" and "With Project" scenarios, during the AM and PM peak hours is shown in Table 13-16 and Table 13-17.

In comparison with the EIAR in the 2018 planning application, the RFCs at N2 Northbound Slip Road (Priority) Junction in the 2024 Phase 1 Construction Year will now exceed the 0.85 design threshold under "Do-Nothing" and "With Project" scenarios during the AM and PM peak hours. It should be noted that this junction will also exceed / approach to the 1.00 theoretical capacity under "Do-Nothing" and "With Project" scenarios during the AM and PM peak hours. Once a junction is nearing or at capacity, any slight increase, whether it is background traffic growth or a new development, will have a noticeable increase in queues/ delays. As a result, it is anticipated that the queue at the N2 Northbound Slip Road will extend on to the N2 under the "With Project" scenario during the AM peak hour. However, it should be noted that the "With Project" scenario will result in an increase in the highest RFC/DOS for all junctions of between 0 and 0.07, which is only a slight reduction in capacity, so the impact on these junctions will be mainly due to regular background traffic growth but not the Proposed RBSF Component.

Table 13-16: 2024 AM Peak Junction Capacity Analysis

Junction	Scenario	Highest RFC / DOS	Max. Average Delay (Seconds)	Max. Queue (PCU)
Kilshane Cross (Signalised) Junction	With Project	0.96	-	25
	Do-Nothing	0.96	-	25
R135 Signalised Junction	With Project	0.53	-	4
	Do-Nothing	0.52	-	4
Elm Road (Roundabout) Junction	With Project	0.34	3	1
	Do-Nothing	0.33	3	1
N2 Northbound Slip Road (Priority) Junction	With Project	1.22	469	73
	Do-Nothing	1.15	303	51

Table 13-17: 2024 PM Peak Junction Capacity Analysis

Junction	Scenario	Highest RFC / DOS	Max. Average Delay (Seconds)	Max. Queue (PCU)
Kilshane Cross (Signalised) Junction	With Project	1.02	-	33
	Do-Nothing	1.02	-	33
R135 Signalised Junction	With Project	0.57	-	4
	Do-Nothing	0.52	-	4
Elm Road (Roundabout) Junction	With Project	0.33	3	1
	Do-Nothing	0.31	3	0
N2 Northbound Slip Road (Priority) Junction	With Project	1.04	145	23
	Do-Nothing	0.99	102	15

There are no other changes to the information, including the conclusion of traffic impact due to the Proposed RBSF Component, presented in this Section of the EIAR in the 2018 planning application.

2028 Junction Analysis

For the 2028 Phase 2 Construction Year, an updated summary of the results of the analysis for “Do-Nothing” and “With Project” scenarios, during the AM and PM peak hours is shown in Table 13-18 and Table 13-19.

In comparison with the EIAR in the 2018 planning application, the RFCs at N2 Northbound Slip Road (Priority) Junction in the 2028 Phase 2 Construction Year will now exceed the 1.0 theoretical capacity under “Do-Nothing” and “With Project” scenarios during the AM and PM peak hours. Once a junction is nearing or at capacity, any slight increase, whether it is background traffic growth or a new development, will have a noticeable increase in queues/ delays. As a result, it is anticipated that the queue at the N2 Northbound Slip Road will extend on to the N2 under the “Do-Nothing” and “With Project” scenarios during the AM peak hour. However, it should be noted that the “With Project” scenario will result in an increase in the highest RFC/DOS for all junctions of between 0 and 0.1, which is only a slight reduction in capacity, so the impact on these junctions will be mainly due to regular background traffic growth but not the Proposed RBSF Component.

Table 13-18: 2028 AM Peak Junction Capacity Analysis

Junction	Scenario	Highest RFC / DOS	Max. Average Delay (Seconds)	Max. Queue (PCU)
Kilshane Cross (Signalised) Junction	With Project	1.03	-	37
	Do-Nothing	1.03	-	37
R135 Signalised Junction	With Project	0.60	-	5
	Do-Nothing	0.56	-	5
Elm Road (Roundabout) Junction	With Project	0.38	3	1
	Do-Nothing	0.36	3	1
N2 Northbound Slip Road (Priority) Junction	With Project	1.36	830	135
	Do-Nothing	1.26	560	87

Table 13-19: 2028 PM Peak Junction Capacity Analysis

Junction	Scenario	Highest RFC / DOS	Max. Average Delay (Seconds)	Max. Queue (PCU)
Kilshane Cross (Signalised) Junction	With Project	1.09	-	53
	Do-Nothing	1.09	-	53
R135 Signalised Junction	With Project	0.64	-	5
	Do-Nothing	0.56	-	4
Elm Road (Roundabout) Junction	With Project	0.36	3	1
	Do-Nothing	0.33	3	1
N2 Northbound Slip Road (Priority) Junction	With Project	1.16	332	54
	Do-Nothing	1.09	203	35

There are no other changes to the information, including the conclusion of traffic impact due to the Proposed RBSF Component, presented in this Section of the EIAR in the 2018 planning application.

13.5.2.1 Road Safety

The assessment in this Section of the EIAR in the 2018 planning application, that the Proposed RBSF Component, which is located off the public road network, will have an imperceptible impact on road safety during the construction phase, remains unchanged. This is because the proposed temporary access to the RBSF Component site and the road network in its environs has not changed.

13.5.3 Operational Phase

13.5.3.1 Year of Opening

For the 2029 Year of Opening, an updated summary of the results of the analysis for “Do-Nothing” and “With Project” scenarios, during the AM and PM peak hours is shown in Table 13-20 and Table 13-21.

In comparison with the EIAR in the 2018 planning application, the RFCs at N2 Northbound Slip Road (Priority) Junction in the 2029 Year of Opening will now exceed the 1.0 theoretical capacity under the “Do-Nothing” and “With Project” scenarios during the AM and PM peak hours. Once a junction is nearing or at capacity, any slight increase, whether it is background traffic growth or a new development, will have a noticeable increase in queues/ delays. As a result, it is anticipated that the queue at the N2 Northbound Slip Road will extend on to N2 under the “Do-Nothing” and “With Project” scenarios during the AM peak hour. However, it should be noted that the “With Project” scenario will result in an increase in the highest RFC/DOS

for all junctions of between 0 and 0.03, which is only a slight reduction in capacity, so the impact on these junctions will be mainly due to regular background traffic growth but not the Proposed RBSF Component.

Table 13-20: 2029 AM Peak Junction Capacity Analysis

Junction	Scenario	Highest RFC / DOS	Max. Average Delay (Seconds)	Max. Queue (PCU)
Kilshane Cross (Signalised) Junction	With Project	1.05	-	41
	Do-Nothing	1.05	-	41
R135 Signalised Junction	With Project	0.58	-	5
	Do-Nothing	0.58	-	5
Elm Road (Roundabout) Junction	With Project	0.37	3	1
	Do-Nothing	0.37	3	1
N2 Northbound Slip Road (Priority) Junction	With Project	1.32	712	114
	Do-Nothing	1.29	634	100

Table 13-21: 2029 PM Peak Junction Capacity Analysis

Junction	Scenario	Highest RFC / DOS	Max. Average Delay (Seconds)	Max. Queue (PCU)
Kilshane Cross (Signalised) Junction	With Project	1.11	-	60
	Do-Nothing	1.11	-	60
R135 Signalised Junction	With Project	0.58	-	5
	Do-Nothing	0.58	-	4
Elm Road (Roundabout) Junction	With Project	0.35	3	1
	Do-Nothing	0.34	3	1
N2 Northbound Slip Road (Priority) Junction	With Project	1.14	295	49
	Do-Nothing	1.12	242	42

There are no other changes to the information, including the conclusion of traffic impact due to the Proposed RBSF Component, presented in this Section of the EIAR in the 2018 planning application.

13.5.3.2 Design Year

For the 2044 Design Year, an updated summary of the results of the analysis for “Do-Nothing” and “With Project” scenarios, during the AM and PM peak hours is shown in Table 13-22 and Table 13-23.

In comparison with the EIAR in the 2018 planning application, the RFCs at N2 Northbound Slip Road (Priority) Junction in the 2044 Design Year will now exceed the 1.0 theoretical capacity under the “Do-Nothing” and “With Project” scenarios during the PM peak hour. Once a junction is nearing or at capacity, any slight increase, whether it is background traffic growth or a new development, will have a noticeable increase in queues/ delays. As a result, it is anticipated that the queue at the N2 Northbound Slip Road will extend on to the N2 under the “Do-Nothing” and “With Project” scenarios during the AM and PM peak hours. However, it should be noted that the “With Project” scenario will result in an increase in the highest RFC/DOS for all junctions of between 0 and 0.06, which is only a slight reduction in capacity, so the impact on these junctions will be mainly due to regular background traffic growth but not the Proposed RBSF Component.

Table 13-22: 2044 AM Peak Junction Capacity Analysis

Junction	Scenario	Highest RFC / DOS	Max. Average Delay (Seconds)	Max. Queue (PCU)
Kilshane Cross (Signalised) Junction	With Project	1.16	-	74
	Do-Nothing	1.16	-	74
R135 Signalised Junction	With Project	0.68	-	6
	Do-Nothing	0.65	-	6
Elm Road (Roundabout) Junction	With Project	0.43	3	1
	Do-Nothing	0.42	3	1
N2 Northbound Slip Road (Priority) Junction	With Project	1.55	1,468	229
	Do-Nothing	1.49	1,269	198

Table 13-23: 2044 PM Peak Junction Capacity Analysis

Junction	Scenario	Highest RFC / DOS	Max. Average Delay (Seconds)	Max. Queue (PCU)
Kilshane Cross (Signalised) Junction	With Project	1.21	-	100
	Do-Nothing	1.21	-	100
R135 Signalised Junction	With Project	0.67	-	6
	Do-Nothing	0.64	-	5
Elm Road (Roundabout) Junction	With Project	0.38	3	1
	Do-Nothing	0.37	3	1
N2 Northbound Slip Road (Priority) Junction	With Project	1.37	828	130
	Do-Nothing	1.32	705	109

There are no other changes to the information, including the conclusion of traffic impact due to the Proposed RBSF Component, presented in this Section of the EIAR in the 2018 planning application.

13.5.3.3 Road Safety

The assessment in this Section of the EIAR in the 2018 planning application, that the Proposed RBSF Component, which is located off the public road network, will have an imperceptible impact on road safety during the operational phase, remains unchanged. This is because the proposed permanent access to the RBSF Component site and the road network in its environs has not changed.

13.6 Mitigation Measures

The updates to the existing environment and guidance were assessed and deemed not to result in any additional impacts for the construction phase, above those identified in Section 13.5 in Volume 4 Part A of the EIAR in the 2018 planning application. The changes to the information presented in this Section of the EIAR in the 2018 planning application are described in the following paragraphs.

13.6.1 Construction Phase

In this Section of the EIAR in the 2018 planning application, a mitigation measure to prepare and adhere to a traffic management plan for the works in consultation and agreement with Fingal County Council, An Garda Síochána, the Fire Service and the Ambulance service was prescribed. Based on the updated traffic

count surveys since the 2018 application, the anticipated queue length at the N2 Northbound Slip Road from the N2 Northbound Slip Road (Priority) Junction has increased. The anticipated queue length extends as far as the N2 mainline, which is longer than predicted in the assessment in the EIAR in the 2018 planning application. The proposed mitigation has not changed since the 2018 application but the potential impact at this junction is worth emphasising in this Addendum of the EIAR. Monitoring of this junction, as described in Section 13.8 of the EIAR in the 2018 planning application remains valid. If the anticipated impact is observed during monitoring, then appropriate traffic management measures should be implemented in accordance with a Detailed Traffic Management Plan prepared by the appointed contractor. Measures to be provided will include temporary traffic signal or STOP/GO traffic management system and/or restricting construction-related traffic arriving to the site.

All other mitigation measures outlined in this Section of the EIAR in the 2018 planning application remain valid and will be implemented during the construction phase.

13.6.2 Operational Phase

The updates to the existing environment and guidance were assessed and deemed not to result in any additional impacts for the operational phase, above those identified in Section 13.5 in Volume 4 Part A of the EIAR in the 2018 planning application. The mitigation measures outlined in this Section of the EIAR in the 2018 planning application remain valid and will be implemented during the operational phase.

13.7 Residual Impacts

13.7.1 Construction Phase

For the 2024 Phase 1 Construction Year and the 2028 Phase 2 Construction Year, an updated summary of the results of the residual impact (construction phase) during the AM and PM peak hours under the "Do-Nothing" and "With Project" scenarios is shown in Table 13-24 to Table 13-27.

In comparison with the EIAR in the 2018 planning application, the RFCs at N2 Northbound Slip Road (Priority) Junction in the 2024 Phase 1 Construction Year and 2028 Phase 2 Construction Year will now exceed / approach the 1.0 theoretical capacity under the "Do-Nothing" and "With Project" scenarios during the AM and PM peak hours. It should be noted that the "With Project" scenario will not result in any increase in the highest DOS of the Kilshane Cross (Signalised) Junction. However, for the N2 Northbound Slip Road (Priority) Junction, the "With Project" scenario will result in an increase in the highest RFC of between 0.05 and 0.10, which is only a slight reduction in capacity.

Table 13-24: 2024 Phase 1 Construction AM Peak Change in RFC

Junction	Do-Nothing Highest RFC / DOS	With Project Highest RFC / DOS	Change in Highest DOS / RFC
Kilshane Cross (Signalised) Junction	0.96	0.96	0
R135 Signalised Junction	0.52	0.53	0.01
Elm Road (Roundabout) Junction	0.33	0.34	0.01
N2 Northbound Slip Road (Priority) Junction	1.15	1.22	0.07

Table 13-25: 2024 Phase 1 Construction PM Peak Change in RFC

Junction	Do-Nothing Highest RFC / DOS	With Project Highest RFC / DOS	Change in Highest DOS / RFC
Kilshane Cross (Signalised) Junction	1.02	1.02	0
R135 Signalised Junction	0.52	0.57	0.05
Elm Road (Roundabout) Junction	0.31	0.33	0.02
N2 Northbound Slip Road (Priority) Junction	0.99	1.04	0.05

Table 13-26: 2028 Phase 2 Construction AM Peak Change in RFC

Junction	Do-Nothing Highest RFC / DOS	With Project Highest RFC / DOS	Change in Highest DOS / RFC
Kilshane Cross (Signalised) Junction	1.03	1.03	0
R135 Signalised Junction	0.56	0.60	0.04
Elm Road (Roundabout) Junction	0.36	0.38	0.02
N2 Northbound Slip Road (Priority) Junction	1.26	1.36	0.10

Table 13-27: 2028 Phase 2 Construction PM Peak Change in RFC

Junction	Do-Nothing Highest RFC / DOS	With Project Highest RFC / DOS	Change in Highest DOS / RFC
Kilshane Cross (Signalised) Junction	1.09	1.09	0
R135 Signalised Junction	0.56	0.64	0.08
Elm Road (Roundabout) Junction	0.33	0.36	0.03
N2 Northbound Slip Road (Priority) Junction	1.09	1.16	0.07

There is no change to the conclusion in this Section of the EIAR in the 2018 planning application, that the Proposed RBSF Component will result in a Slight Negative Short-Term Impact during construction.

13.7.2 Operational Phase

For the 2029 Year of Opening and the 2044 Design Year, an updated summary of the results of the residual impact (operational phase) during the AM and PM peak hours under the “Do-Nothing” and “With Project” scenarios is shown in Table 13-28 to Table 13-31.

In comparison with the EIAR in the 2018 planning application, the RFCs at N2 Northbound Slip Road (Priority) Junction will now exceed the 1.0 theoretical capacity under the “Do-Nothing” and “With Project” scenarios during the AM and PM peak hours in the 2029 Year of Opening, and under the “Do-Nothing” and “With Project” scenarios during the PM peak hour in the 2044 Design Year. It should be noted that the “With Project” scenario will not result in any increase in the highest DOS of the Kilshane Cross (Signalised) Junction. However, for the N2 Northbound Slip Road (Priority) Junction, the “With Project” scenario will result in an increase in the highest RFC of between 0.02 and 0.06, which is only a slight reduction in capacity.

Table 13-28: 2029 Year of Opening AM Peak Change in RFC

Junction	Do-Nothing Highest RFC / DOS	With Project Highest RFC / DOS	Change in Highest DOS / RFC
Kilshane Cross (Signalised) Junction	1.05	1.05	0
R135 Signalised Junction	0.58	0.58	0
Elm Road (Roundabout) Junction	0.37	0.37	0
N2 Northbound Slip Road (Priority) Junction	1.29	1.32	0.03

Table 13-29: 2029 Year of Opening PM Peak Change in RFC

Junction	Do-Nothing Highest RFC / DOS	With Project Highest RFC / DOS	Change in Highest DOS / RFC
Kilshane Cross (Signalised) Junction	1.11	1.11	0
R135 Signalised Junction	0.58	0.58	0
Elm Road (Roundabout) Junction	0.34	0.35	0.01
N2 Northbound Slip Road (Priority) Junction	1.12	1.14	0.02

Table 13-30: 2044 Design Year AM Peak Change in RFC

Junction	Do-Nothing Highest RFC / DOS	With Project Highest RFC / DOS	Change in Highest DOS / RFC
Kilshane Cross (Signalised) Junction	1.16	1.16	0
R135 Signalised Junction	0.65	0.68	0.03
Elm Road (Roundabout) Junction	0.42	0.43	0.01
N2 Northbound Slip Road (Priority) Junction	1.49	1.55	0.06

Table 13-31: 2044 Design Year PM Peak Change in RFC

Junction	Do-Nothing Highest RFC / DOS	With Project Highest RFC / DOS	Change in Highest DOS / RFC
Kilshane Cross (Signalised) Junction	1.21	1.21	0
R135 Signalised Junction	0.64	0.67	0.03
Elm Road (Roundabout) Junction	0.37	0.38	0.01
N2 Northbound Slip Road (Priority) Junction	1.32	1.37	0.05

There is no change to the conclusion in this Section of the EIAR in the 2018 planning application, that the Proposed RBSF Component will result in an Imperceptible Negative Long-Term Impact during the operational phase.

13.7.3 Interactions

There are no changes to the information presented in this Section of the EIAR in the 2018 planning application. This is because the changes of AADT and HGVs flows per day between the “Do-Nothing” and “With Project” scenarios are minor and have no significant variation compared with the information presented in this Section of the 2018 planning application.

13.7.4 Cumulative Impacts

For the purposes of the cumulative impact assessment, it has been assumed that all of the surrounding lands will be developed by 2044, with an incremental increase in traffic volumes from 2023 to 2044. By adopting the same methodology in the EIAR (Volume a Part A for the Proposed RBSF Component) in the 2018 planning application, the updated results of cumulative impacts are presented below.

Construction Phase - 2024 Phase 1 Construction Year

For the 2024 Phase 1 Construction Year, an updated summary of the results of the cumulative impact (construction phase) during the AM and PM peak hours under the "Do-Nothing" and "With Project" scenarios is shown in Table 13-32 and Table 13-33.

As per the findings of the EIAR in the 2018 planning application, Kilshane Cross (Signalised) Junction and the N2 northbound Slip Road (Priority) Junction will both exceed the theoretical capacity of 1.0.

Table 13-32: 2024 Cumulative Impact AM Peak Junction Capacity Analysis

Junction	Do-Nothing Highest RFC / DOS	With Project Highest RFC / DOS	Change in Highest DOS / RFC
Kilshane Cross (Signalised) Junction	1.07	1.07	0
R135 Signalised Junction	0.57	0.58	0.01
Elm Road (Roundabout) Junction	0.37	0.38	0.01
N2 Northbound Slip Road (Priority) Junction	1.29	1.36	0.07

Table 13-33: 2024 Cumulative Impact PM Peak Junction Capacity Analysis

Junction	Do-Nothing Highest RFC / DOS	With Project Highest RFC / DOS	Change in Highest DOS / RFC
Kilshane Cross (Signalised) Junction	1.17	1.17	0
R135 Signalised Junction	0.57	0.60	0.03
Elm Road (Roundabout) Junction	0.34	0.35	0.01
N2 Northbound Slip Road (Priority) Junction	1.00	1.06	0.06

There are no other changes to the information, including the conclusion of traffic impact due to the Proposed RBSF Component, presented in this Section of the EIAR in the 2018 planning application.

Construction Phase - 2028 Phase 2 Construction Year

For the 2028 Phase 2 Construction Year, an updated summary of the results of the cumulative impact (construction phase) during the AM and PM peak hours under the "Do-Nothing" and "With Project" scenarios is shown in Table 13-34 and Table 13-35.

In comparison with the EIAR in the 2018 planning application, the DOSs at the R135 Signalised Junction will reduce to operate within the 0.90 normal design threshold under "Do-Nothing" and "With Project" scenarios during the AM and PM peak hours.

Table 13-34: 2028 Cumulative Impact AM Peak Junction Capacity Analysis

Junction	Do-Nothing Highest RFC / DOS	With Project Highest RFC / DOS	Change in Highest DOS / RFC
Kilshane Cross (Signalised) Junction	1.60	1.60	0
R135 Signalised Junction	0.85	0.86	0.01
Elm Road (Roundabout) Junction	0.55	0.57	0.02
N2 Northbound Slip Road (Priority) Junction	2.00	2.11	0.11

Table 13-35: 2028 Cumulative Impact PM Peak Junction Capacity Analysis

Junction	Do-Nothing Highest RFC / DOS	With Project Highest RFC / DOS	Change in Highest DOS / RFC
Kilshane Cross (Signalised) Junction	1.83	1.83	0
R135 Signalised Junction	0.78	0.78	0
Elm Road (Roundabout) Junction	0.47	0.49	0.02
N2 Northbound Slip Road (Priority) Junction	1.19	1.27	0.08

There are no other changes to the information, including the conclusion of traffic impact due to the Proposed RBSF Component, presented in this Section of the EIAR in the 2018 planning application.

Operational Phase - 2029 Year of Opening

For the 2029 Year of Opening, an updated summary of the results of the cumulative impact (operational phase) during the AM and PM peak hours under the "Do-Nothing" and "With Project" scenarios is shown in Table 13-36 and Table 13-37.

In comparison with the EIAR in the 2018 planning application, the DOSs at the R135 Signalised Junction will reduce to operate within the 0.90 normal design threshold under the "Do-Nothing" and "With Project" scenarios during the PM peak hour. However, this junction will slightly exceed the 0.90 normal design threshold under the "Do-Nothing" and "With Project" scenarios during the AM peak hour. However, this will still be less than its theoretical capacity of 1.0.

Table 13-36: 2029 Cumulative Impact AM Peak Junction Capacity Analysis

Junction	Do-Nothing Highest RFC / DOS	With Project Highest RFC / DOS	Change in Highest DOS / RFC
Kilshane Cross (Signalised) Junction	1.74	1.74	0
R135 Signalised Junction	0.92	0.92	0
Elm Road (Roundabout) Junction	0.60	0.61	0.01
N2 Northbound Slip Road (Priority) Junction	2.19	2.22	0.03

Table 13-37: 2029 Cumulative Impact PM Peak Junction Capacity Analysis

Junction	Do-Nothing Highest RFC / DOS	With Project Highest RFC / DOS	Change in Highest DOS / RFC
Kilshane Cross (Signalised) Junction	1.99	1.99	0
R135 Signalised Junction	0.89	0.89	0
Elm Road (Roundabout) Junction	0.50	0.51	0.01
N2 Northbound Slip Road (Priority) Junction	1.24	1.27	0.03

There are no other changes to the information, including the conclusion of traffic impact due to the Proposed RBSF Component, presented in this Section of the EIAR in the 2018 planning application.

Operational Phase - 2044 Design Year

For the 2044 Design Year, an updated summary of the results of the cumulative impact (operational phase) during the AM and PM peak hours under the "Do-Nothing" and "With Project" scenarios is shown in Table 13- 38 and Table 13-39.

In this section of the EIAR in the 2018 planning application, the capacity on one arm of the N2 Northbound Slip Road (Priority) Junction reduced to 'zero' as a result of high traffic volumes on the opposing arms preventing vehicles entering the junction. This is now assessed as 'non-zero' due to the reduction of traffic volumes on the opposing arms. As a result, the updated RFC on this junction will continue to exceed the 1.0 theoretical capacity under the "Do-Nothing" and "With Project" scenarios during the AM and PM peak hours.

Table 13-38: 2044 Cumulative Impact AM Peak Junction Capacity Analysis

Junction	Do-Nothing Highest RFC / DOS	With Project Highest RFC / DOS	Change in Highest DOS / RFC
Kilshane Cross (Signalised) Junction	3.57	3.57	0
R135 Signalised Junction	1.86	1.86	0
Elm Road (Roundabout) Junction	1.24	1.25	0.01
N2 Northbound Slip Road (Priority) Junction	5.52	5.59	0.07

Table 13-39: 2044 Cumulative Impact PM Peak Junction Capacity Analysis

Junction	Do-Nothing Highest RFC / DOS	With Project Highest RFC / DOS	Change in Highest DOS / RFC
Kilshane Cross (Signalised) Junction	4.30	4.30	0
R135 Signalised Junction	2.55	2.55	0
Elm Road (Roundabout) Junction	2.08	2.11	0.03
N2 Northbound Slip Road (Priority) Junction	1.90	1.96	0.06

There are no other changes to the information, including the conclusion of traffic impact due to the Proposed RBSF Component, presented in this Section of the EIAR in the 2018 planning application.

13.8 Monitoring

In this Section of the EIAR in the 2018 planning application, measures to monitor traffic flow and vehicle queue lengths at the N2 Northbound Slip Road Junction as part of the Detailed Traffic Management Plan process and the implementation of restrictions to construction-related traffic was prescribed. Based on the updated traffic count surveys since the 2018 application, the anticipated queue length at the N2 Northbound Slip Road from the N2 Northbound Slip Road (Priority) Junction has increased. The proposed monitoring measure has not changed since the 2018 application. The only change to this section of the EIAR since the 2018 planning application relates to the associated mitigation measure described in this section. If deemed necessary following monitoring, then mitigation should be as described in 13.6.1 in this Addendum of the EIAR, which is to provide temporary traffic signal or STOP/GO traffic management system and/or restricting construction-related traffic arriving to the site.

There are no other changes to the information presented in this Section of the EIAR in the 2018 planning application.

13.9 Difficulties Encountered

In this section of the 2018 EIAR, it was explained that exact details of potential developments in the surrounding area, which is zoned for Heavy Industry, General Employment and Warehousing and Distribution, were not available, and that an approximation of the operational traffic was made through interrogation of the Fingal Development Plan 2017 - 2023, and the TRICS database. A similar approximation was made for this Addendum through the interrogation of the Fingal Development Plan 2023 - 2029.

13.10 Conclusion

This Addendum Section has considered all updates to the Proposed RBSF Component (i.e. design year, trip generation, etc.), guidance documents and reference material, traffic count survey data and baseline to the existing environment since the 2018 planning application submission. Following consideration, there are no significant changes to the assessment of traffic and transport as a result of any of the updates discussed in this Addendum Section.

13.11 References

Fingal County Council (2023). *Fingal Development Plan 2023-2029*. [Online] https://www.fingal.ie/development-plan-2023-2029;

Institution of Highways & Transportation (IHT) (1994)**.** *Guidelines for Traffic Impact Assessment (TIA)*

Transport Infrastructure Ireland (TII) (2014). *Traffic and Transport Assessment Guidelines*.

Transport Infrastructure Ireland (TII) (2016). *TII PE-PAG-02015 – Project Appraisal Guidelines for National Roads Unit 5.1 – Construction of Transport Models*.

Transport Infrastructure Ireland (TII) (2021). *TII PE-PAG-02017 - Project Appraisal Guidelines for National Roads Unit 5.3 - Travel Demand Projections.*

Transport Infrastructure Ireland (TII) (2016). *TII PE-PAG-02039 – Project Appraisal Guidelines for National Roads Unit 16.1 – Expansion Factors for Short Period Traffic Counts*.

SECTION 14A Landscape

14.1 Introduction

As detailed in Chapter 1A (Introduction) in Volume 2A Part A of this Environmental Impact Assessment Report (EIAR) Addendum, Section 14 (Landscape) in Volume 4 Part A of the EIAR submitted with the original 2018 planning application has been reviewed in the light of:

- Changes to the baseline environment;
- The requirement for updated surveys;
- Updated development plans;
- The updated cumulative assessment;
- EPA updated guidelines; and
- Changes to the law, policy, and industry standards and guidance in the intervening period.

The description of the Regional Biosolids Storage Facility (RBSF) remains as presented in Chapter 4 (Proposed Project Description) in Volume 2 Part A of the EIAR submitted with the original 2018 planning application, as supplemented by Chapter 4A (Proposed Project Description) in Volume 2A Part A of this EIAR Addendum.

In 2022, the Environmental Protection Agency (EPA) published an updated set of Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (hereafter referred to as the updated EPA Guidelines) (EPA 2022). This Section of the EIAR Addendum has had regard to the updated EPA Guidelines.

14.2 Methodology

This Section was reviewed to determine if there have been any updates to the legislation and guidelines governing the assessment criteria of Landscape in the intervening period since the submission of the EIAR in the 2018 planning application.

The updated EPA Guidelines have been considered in terms of the methodology applied in this Section of the EIAR in the 2018 planning application, which incorporated the previous Draft Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EPA 2017). It has been determined that the methodology used for the original assessment is consistent with the updated EPA Guidelines.

There have been no other updates to legislation or guidelines governing the assessment criteria of Landscape since the submission of the 2018 planning application.

14.3 Existing Environment

14.3.1 Site Context and Description

The Site Context and Description has been reviewed and while the site for the Proposed RBSF Component remains unchanged. However, there have been some changes in the local context as a result of complete developments near the site for the Proposed RBSF Component since the 2018 planning application include:

- The Peter McVerry Trust residential units (Ravenswood Estate) to the immediate south of the proposed development site boundary, comprising the demolition of 2 No. former two storey semi-detached houses and the construction of 6 No. one bedroom, single storey houses and a single storey community building;
- The NPP industrial warehousing facility and offices (Vantage Business Park), approximately 400m south of the proposed development site and on the eastern site of the R135;
- Partial and ongoing development of industrial warehousing units at the Dublin Airport Logistics Park; and,

- The Energia Huntstown BioEnergy, Connective Energy and Anaerobic Digestion facility, referred to as Huntstown Bio Energy Plant in the 2018 EIAR.
- Further changes in a local context may result of planned developments near the site for the Proposed RBSF Component. Developments for which permission has been applied for or granted include: A permitted industrial warehousing development on lands to the immediate east of Kilshane Cross, approximately 200m to the north of the site;
- Planning application for development of an abattoir to the northeast of Kilshane Cross, approximately 550m to the north of the site; and
- Planning application for a Gas Turbine Power Generation Station to the northwest of Kilshane Cross and to the west of the N2, approximately 250m to the northwest of the site.

Development activity since the 2018 submission is all consistent with the land use zoning anticipated at the time of the 2018 planning application and represents an intensification of industrial type development in the locality. The redeveloped Peter McVerry Trust residential units replaces the former property and the permitted 2018 RBSF Component includes measures to mitigate potential impacts on the dwellings.

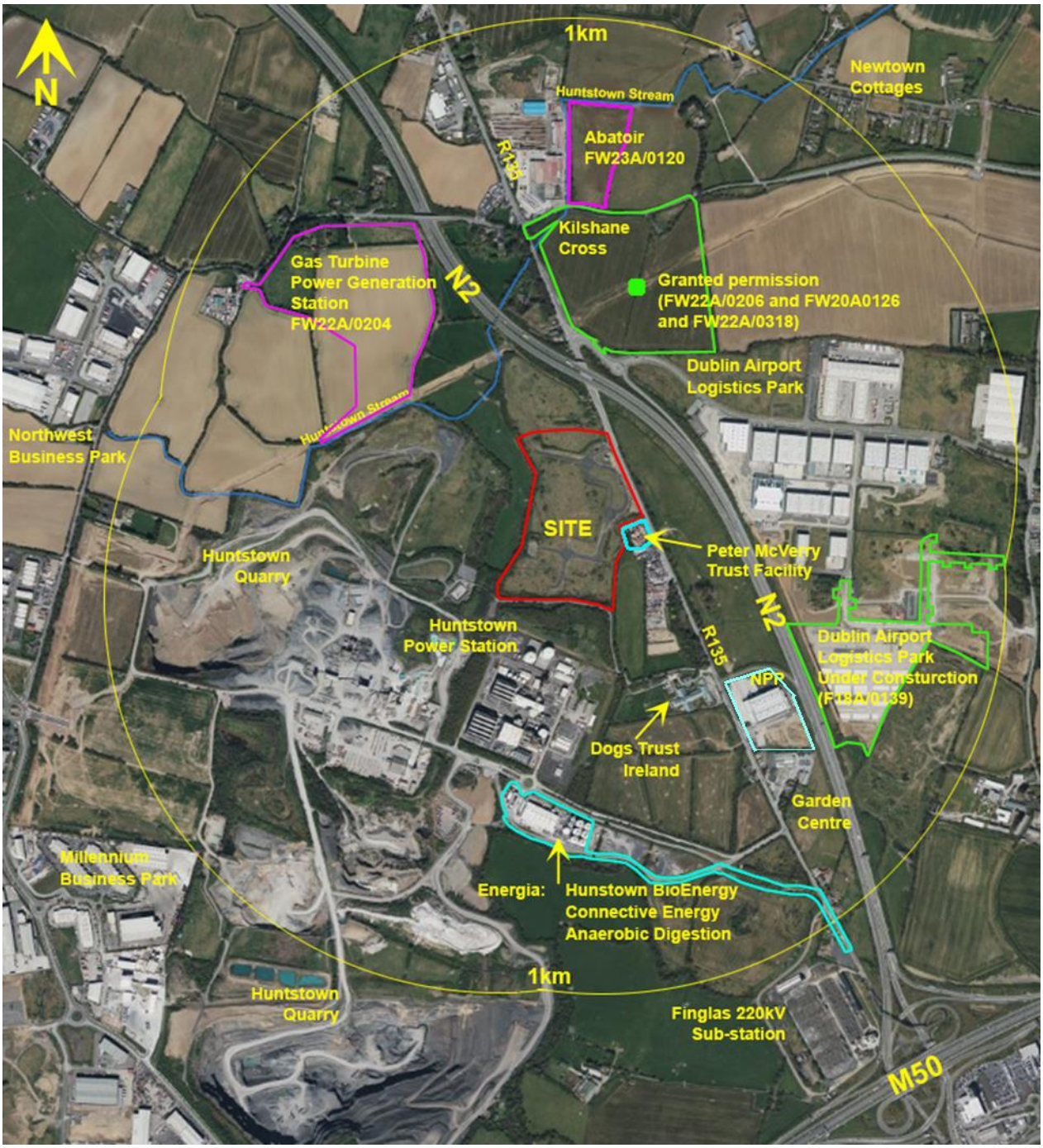


Figure 14-1: Site Context (source: Google Maps) (Permitted (but not built) developments outlined in green. Pending (not permitted) developments outlined in pink. Constructed since 2018 RBSF submission outlined in light blue)

14.3.2 Landscape Planning Designations

This Section of the EIAR in the 2018 planning application made reference to the Fingal Development Plan for 2017-2023. Since then, the Fingal Development Plan 2023-2029 has come into effect, and this has been taken into consideration for this Addendum.

14.3.2.1 Fingal Development Plan 2023-2029

The Fingal Development Plan 2023-2029 provides the statutory planning framework for the lands, and the land use zoning of the Fingal Development Plan 2017-2023 (i.e. “HI – Heavy Industry”) remains unchanged

in the Fingal Development Plan 2023-2029. Similarly, the surrounding land use zoning of "GE – General Employment" remains unchanged.

The Fingal Development Plan 2023-2029 includes Local Objective 68 in relation to the Proposed RBSF Component site and this objective is to "*Facilitate the development of infrastructure for waste management, including construction and demolition waste processing, biological treatment of organic waste, a sludge treatment facility and a waste transfer station*". It is noted that this local objective was Local Objective 78 in the previous Fingal Development Plan 2017-2023, however, the description remains unchanged.

There is no change to the landscape character area (LCA) designations, Seveso sites, green infrastructure and visual or amenity considerations in the surrounding environment.

Given the consistency of the planning policies and objectives between the previous and current Fingal Development Plan, this matter is not considered further.

14.3.3 Summary of Significance and Sensitivity of the Existing Landscape and Visual Environment

There are no changes to the information presented in this Section of the EIAR since the 2018 planning application.

14.4 Characteristics of the RBSF Component of the Proposed GDD Project

Since the design of the Proposed RBSF Component has not changed since the original submission of the EIAR, there are no changes to the information presented in this Section of the EIAR since the 2018 planning application.

14.5 Potential Impacts

14.5.1 Do-nothing Impacts

Since the land zoning within the new FDC remains the same and the development remains of an industrial nature in line with the FDC 2023-2029 zoning, there are no changes to the information presented in this Section of the EIAR since the 2018 planning application.

14.5.2 Construction Phase

The duration of the construction works of the initial phase of the Proposed RBSF Component is now estimated to be approximately 18 months. This change has implications in the effect duration assessment. Effects noted as temporary/short-term in the EIAR, due to the duration of the phase being the threshold between both duration ranges, are now likelier to just be short-term instead.

There are no additional changes to the information presented in this Section of the EIAR since the 2018 planning application.

14.5.3 Operational Phase

There have been no changes to the design, so there are no changes to the visual nature and scale of the Proposed RBSF Component. Therefore, the impacts outlined in this Section of the EIAR of the 2018 planning application remain unchanged.

It is noted that the Peter McVerry residential units to the immediate southeast of the Proposed RBSF Component site has been developed and occupied since the 2018 planning application. The residential units are substantially screened from the Proposed RBSF Component site by an existing landscape berm which obscures any visibility from the residential units towards the Proposed RBSF Component.

14.5.3.1 Impacts on Landscape and Visual Policy

The Proposed RBSF Component will have no impact on landscape or visual policies or objectives as identified in the new FDP 2023-2029, therefore there are no changes to the information presented in this Section of the EIAR since the 2018 planning application. Notwithstanding the development of the Peter McVerry Trust residential units to the immediate southeast of the RBSF Component site, and landscape and visual impacts arising from the development on this facility will be not significant.

14.5.3.2 Impact on Views

A series of photomontages were prepared and submitted with the 2018 application. Given the intensification of Heavy Industrial and General Employment type development in the locality and the establishment of the redeveloped Peter McVerry Trust residential units, new photomontages have been prepared from the same locations as before and using updated baseline photography prepared. As the Peter McVerry Trust residential units (also known as Ravenswood Estate) is immediately adjacent to the Proposed RBSF Component site and the nearest sensitive receptor, an additional View 2A has been included to further consider the potential visual impact of the proposed development on the new residential facility. All of the views are scheduled in Table 14-1 below with the new View 2A from alongside the Peter McVerry Trust residential units highlighted in black. The photomontages are included in Appendix 14A of Volume 4A Part B of this EIAR Addendum.

Figure 14-2: Location and Viewpoint of Updated Photomontages (Proposed RBSF Component site outlined in red)

Table 14-1: Photomontage References

View	Description	Photomontage Reference (appendix 14A)	
		As Existing	As Proposed
View 1	View 1 from footbridge over N2/M50 Interchange	Figure 1.1.1	Figure 1.1.2
View 2	View 2 from North Road (R135) southeast of the Site	Figure 1.2.1	Figure 1.2.2
View 2A	View 2 from North Road (R135) adjacent to Peter McVerry Trust residential units	Figure 1.2A.1	Figure 1.2A.2
View 3	View 3 from North Road (R135) east of the Site	Figure 1.3.1	Figure 1.3.2
View 4	View 4 from North Road (R135) north of the Site entrance	Figure 1.4.1	Figure 1.4.2
View 5	View 5 from N2 bridge over R135	Figure 1.5.1	Figure 1.5.2
View 6	View 6 from Kilshane Road (L3120) bridge over N2	Figure 1.6.1	Figure 1.6.2
View 7	View 7 Newtown Cottages (L7231)	Figure 1.7.1	Figure 1.7.2

View 1

View 1 As Existing (Photomontage Figure 1.1.1) is from the same location as the one included in the 2018 planning application. The principal change is the addition of the NPP industrial warehousing facility (Vantage Business Park) which now forms part of the skyline to the right of the R135. There is no change in view sensitivity.

View 1 As Proposed (Photomontage Figure 1.1.2) shows that the Proposed RBSF Component will be fully screened by intervening vegetation. The landscape and visual impacts remain imperceptible, as reported in the 2018 planning application.

View 2

View 2 As Existing (Photomontage Figure 1.2.1) is from the same location as the one included in the 2018 planning application. The primary change is that a group of coniferous trees along the R132 and adjacent to the Peter McVerry site has been removed and the new Peter McVerry residential units have been constructed. The sensitivity of the view in unchanged.

In View 2 As Proposed (Photomontage Figure 1.2.2) the Proposed RBSF Component will be mostly screened by intermediate structures with only the upper element/roof of the proposed storage buildings partially visible as before. The landscape and visual impacts remain imperceptible/not significant and neutral, as reported in the 2018 planning application.

View 2A

View 2A is a new viewpoint included in the updated photomontages looking north/northwest from the R135 located immediately south of the Proposed RBSF Component site and adjacent to the more recently redeveloped Peter McVerry Trust residential units. The existing landscaped berm within the Proposed RBSF Component site can be seen immediately behind the residential unity in the foreground as shown in the existing view (Photomontage Figure 1.2A.1). The view is representative of the view from within the Peter McVerry Trust residential units from where it would be of high sensitivity.

The Proposed RBSF Component will be mostly screened by the extended landscaped berm along the southern and south-eastern site boundaries with the Peter McVerry Trust residential units with only the uppermost elements of the roofscape being visible beyond and over the landscape screening (Photomontage Figure 1.2A.2).

The landscape and visual effects are low to medium in magnitude and in significance and hence, the impact from View 2A is assessed as being moderate and negative.

View 3

View 3 As Existing (Photomontage Figure 1.3.1) is from the same location as the one included in the 2018 application and is substantially unaltered since 2018 with no change in sensitivity.

In View 3 As Proposed (Photomontage Figure 1.3.2) the Proposed RBSF Component will appear the same as represented in the 2018 planning application. The landscape and visual impacts remain moderate and significant in the short term and slight to moderate and neutral in the medium and long term, as reported in the 2018 planning application.

View 4

View 4 As Existing (Photomontage Figure 1.4.1) is from the same location as the one included in the 2018 application and is substantially unaltered since 2018 save for the absence of the coniferous trees at the southeastern corner of the Proposed RBSF Component site. Sensitivity of the view is unchanged.

In View 4 As Proposed (Photomontage Figure 1.4.2) the Proposed RBSF Component will appear the same as represented in the 2018 planning application. The landscape and visual impacts remain moderate and significant in the short term and slight and neutral in the medium and long term, as reported in the 2018 planning application.

View 5

View 5 As Existing (Photomontage Figure 1.5.1) is from the same location as the one included in the 2018 application and is substantially unaltered since 2018 save for the absence of the coniferous trees at the southeastern corner of the RBSF Component site. Sensitivity of the view is unchanged.

In View 5 As Proposed (Photomontage Figure 1.5.2) the Proposed RBSF Component will appear the same as represented in the 2018 planning application. The landscape and visual impacts remain of slight to moderate significance in the short term and not significant and neutral in the medium and long term, as reported in the 2018 planning application.

View 6

View 6 As Existing (Photomontage Figure 1.6.1) is from the same location as the one included in the 2018 application and is substantially unaltered since 2018 and sensitivity of the view is unchanged.

In View 6 As Proposed (Photomontage Figure 1.6.2) the Proposed RBSF Component will appear the same as represented in the 2018 planning application. The landscape and visual impacts remain of not significant to slight significance in the short term and negligible and neutral in the medium and long term, as reported in the 2018 planning application.

View 7

View 7 As Existing (Photomontage Figure 1.7.1) is from the same location as the one included in the 2018 application and is substantially unaltered since 2018 and sensitivity of the view is unchanged.

In View 7 As Proposed (Photomontage Figure 1.7.2) the Proposed RBSF Component will continue to be fully screened as was the case in the 2018 planning application. The landscape and visual impacts remain of negligible magnitude and significance, with a negligible impact, as reported in the 2018 planning application.

14.6 Mitigation Measures

Based on the comparative assessment of impacts identified in this Section of the EIAR in the 2018 planning application and the present day, new impacts on views have been identified during the photomontage preparation. However, the RBSF Component will be screened from the Peter McVerry Trust residential development by the extended landscaped berm. Therefore, additional mitigation measures are not required for either the new or existing impacts, and the previously proposed mitigation measures remain applicable. Therefore, there are no changes required to the information presented in this Section of the EIAR in the 2018 planning application.

14.7 Residual Impacts

As the material changes to the previously assessed impacts of the Proposed Project in Section 14 in Volume 4 Part A of the EIAR of the 2018 planning application do not require additional measures, and therefore the mitigation measures originally proposed will remain unchanged, the residual impacts of the Proposed Project are considered to be the same as presented in this Section of the EIAR in the 2018 planning application.

14.7.1 Cumulative Impacts

Consideration of potential Cumulative Impacts was in the context of an established and continually emerging Heavy Industrial and General Employment land use zoning. There is no change in the land use zoning since 2018 and the profile of ongoing development is as anticipated. Developments constructed and proposed developments permitted and / or pending in the surrounding area are shown on Figure 14.1 of this addendum.

The Peter McVerry Trust development (FW18A/0038 (& FW14A/0162)) addressed in Section 14.7.1 of the EIAR submitted with the 2018 planning application has been constructed. This relatively small development is now part of the baseline environment, and no cumulative landscape or visual impact would arise.

The Huntstown Bio-energy Anaerobic Digestion Facility (FW13A/0089) addressed in Section 14.7.1 of the EIAR submitted with the 2018 planning application has been constructed over 500m to the south of the site. This development is so screened and separated by existing intervening development (Huntstown Power Station) such that no cumulative landscape or visual impact would arise.

Proposed developments FW22/0204 (Gas Turbine Power Generation Station); FW22A/0318; FW22A/0206; FW20A/0126 (at Kilshane Cross); FW23A/0120 are located at such distance from the site and/or are separated by the N2 road corridor such that no cumulative landscape or visual impact would arise either during construction or operation phase.

Subsequent phases of Dublin Airport Logistics Park are under construction to the east of the N2 road corridor, approximately 400m east of the site. However, the development is screened and separated from the site such that no cumulative landscape or visual impact would arise either during construction or operation phase.

14.8 Monitoring

Based on the comparative assessment of impacts identified in Section 14 in Volume 4 Part A of the EIAR of the 2018 planning application and the present day, it is not considered that additional monitoring measures are now required, or that the previously proposed monitoring measures should be altered or removed. Therefore, there are no changes required to the information presented in this Section of the EIAR in the 2018 planning application.

14.9 Difficulties Encountered

No difficulties were encountered during the preparation of this Addendum assessment.

14.10 Conclusion

This Section of the EIAR Addendum has considered all relevant updates to the landscape and visual environment for the Proposed Project, including updates to the baseline environment, the planning context, and to guidance and reference material since the 2018 planning application submission. Given changes in the receiving environment, the photomontages prepared for the 2018 application have been updated and one additional photomontage (No. 2A) has also been prepared to represent the visual expression of the proposed development in the existing views. Following this consideration, there are no changes to the assessment of landscape and visual impacts as a result of any of the updates discussed in this Section of the EIAR Addendum.

14.11 References

Environmental Protection Agency (EPA) (2017). *Draft Guidelines on the Information to Be Contained in Environmental Impact Assessment Reports*.

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SECTION 15A Risk Management

15.1 Introduction

As detailed in Chapter 1A (Introduction) in Volume 2A Part A of this Environmental Impact Assessment Report (EIAR) Addendum, Section 15 (Risk Management) in Volume 4 Part A of the EIAR submitted with the original 2018 planning application has been review in the light of:

- Changes to the baseline environment;
- The requirement for updated surveys;
- Updated development plans;
- The updated cumulative assessment;
- EPA updated guidelines; and
- Changes to the law, policy, and industry standards and guidance in the intervening period.
- The description of the Regional Biosolids Storage Facility (RBSF) remains as presented in Chapter 4 (Proposed Project Description) in Volume 2 Part A of the EIAR submitted with the original 2018 planning application, as supplemented by Chapter 4A (Proposed Project Description) in Volume 2A Part A of this EIAR Addendum.

In 2022, the Environmental Protection Agency (EPA) published the Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (hereafter referred to as the updated EPA Guidelines) (EPA 2022). The updated EPA Guidelines have been considered in terms of the methodology applied in this Section of the EIAR in the 2018 planning application, which incorporated the previous Draft Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (hereafter referred to as the previous EPA Guidelines) (EPA 2017). It has been determined that the methodology used for the original assessment is consistent with the updated EPA Guidelines.

The risk assessment definitions stated in the Draft EPA Guidelines have remained unchanged in the updated EPA Guidelines.

15.2 Methodology

15.2.1 Scope and Context

There has been no update to the Chemicals Act (Control of Major Accident Hazards Involving Dangerous Substances) since the 2018 planning application and the scoping criteria of this risk assessment remains the same. Therefore, there are no changes to the classification of the Proposed RBSF Component and the information presented in this Section of the EIAR since the 2018 planning application.

15.2.2 Guidelines and Reference Material

Since the submission of the EIAR in the 2018 planning application, the following guidelines have been updated:

- The Draft EPA Guidelines (EPA 2017) have been superseded by the updated EPA Guidelines (EPA 2022);
- The National Risk Assessment 2023 – Overview of Strategic Risks (Department of Taoiseach, 2023) supersedes the National Risk Assessment 2017 – Overview of Strategic Risks (Department of Taoiseach, 2017);
- The National Risk Assessment for Ireland 2020 (Department of Defence, 2020) has superseded the National Risk Assessment for Ireland 2017 (Department of Defence, 2017).

15.2.3 Risk Assessment Methodology

The main stages of the assessment outlined in this Section of the EIAR in the 2018 planning application remain valid.

15.2.3.1 Identification and Screening

The identification and screening criteria stated in this Section of the EIAR in the 2018 planning application remain valid. There are therefore no changes to the information presented in this Section of the EIAR since the 2018 planning application.

Tables 15-1 and 15-2 in Section 15 of Volume 4 Part A of the EIAR follow the *Guide to risk assessment in Major Emergency Management* (DoEHLG 2010). As this document has not been updated since the EIAR, both classifications remain unchanged.

15.2.3.2 Risk Classification

The updated EPA Guidelines (EPA 2022) still state that the risk assessment should be based on a worst-case approach. Therefore, the approach taken in this Section of the EIAR in the 2018 planning application remains valid.

15.2.3.3 Risk Evaluation

Since the DoEHLG Guidelines have not been updated since 2010, the risk categories and Levels of Significance stated in this Section of the EIAR that were based on DoEHLG Guidelines, remain unchanged since the 2018 planning application. The description of the significance of the effects has not changed between the Draft EPA Guidelines (EPA 2017) and the updated EPA Guidelines (EPA 2022) either. Consequently, there are no changes to the information presented in this Section of the EIAR since the 2018 planning application.

15.3 Predicted Impacts

Predicted impacts were outlined in Table 15-4 in this Section of the EIAR in the 2018 planning application. Referred to as a Risk Register, the table outlined possible events and provided an assessment of their likelihood and consequence rating. The events included in fire damage; damage to high voltage overheads; road traffic accidents associated to construction traffic or on haul route; incidents at the adjacent IED sites; and aircraft related accidents are still possible.

The Risk Register was reassessed in light of changes to the existing environment and changes to policy, legislation and guidelines discussed above. A new risk category has been added as a result of this Addendum assessment, as outlined in Table 15-4. The addition of this risk category recognises and responds to developments in climate-related legislation, policy and knowledge base, which have emerged and evolved since the submission of the original planning application in 2018. This category evaluates the risk of extreme weather events (including events resulting from climate change) on the Proposed RBSF Component.

The results of the assessment in this section of the Addendum have been applied and are presented in Table 5-5 below. It is shown that the newly identified risks fall within the ‘Low risk’ or ‘Green zone’ and are not required to be carried forward for further assessment. However, the embedded design measures that minimise the vulnerability of the Proposed RBSF Component to extreme weather events are discussed in Section 15.4.1, and out of an abundance of caution, additional mitigation has been recommended in Section 15.4.3.

Table 15-4: Rating of Major Accidents and Disasters without mitigation (Updated)

Risk ID	Event	Likelihood	Rating	Consequence	Rating
Construction and Operation Phase					
G	Extreme Weather Events (including events resulting from Climate Change) – Risk of extreme weather events such as prolonged flooding resulting in sediment load runoff, storm damage, snowstorm, wildfire etc	Unlikely	3	Limited: Potential fatality and injuries. Potential for localised damage to infrastructure, localised displacement of a small number of people and short duration and localised effects.	2

The results from the evaluation have been applied to Table 15-5 (updated since the 2018 planning application) below to determine the Levels of Significance.

Table 15-5: Evaluation of Levels of Significance without Mitigation (Updated)

Likelihood						
	5 – V. Likely					
	4 – Likely					
	3 – Unlikely		[G]			
	2 – V. Unlikely					
	1 – Ext. Unlikely					
		1 - Minor	2 - Limited	3 – Serious	4 – V. Serious	5 - Catastrophic
	Consequence of Impact					

15.4 Mitigation Measures

The mitigation measures presented in this section of the EIAR in the 2018 application can be categorised as mitigation by design or mitigation by management.

Since the design of the RBSF has not changed since the 2018 planning application, mitigation measures by design have not changed. As outlined in Section 15.3, the new risk category for Extreme Weather Events (Risk G) does not fall within the 'Amber' ('Medium risk') or 'Red' ('High risk') zones in Table 15.5, and was therefore not required to be carried forward for further assessment. However, out of an abundance of caution, additional mitigation has been recommended in Section 15.4.3. Mitigation measures embedded by design in relation to flooding risk are explained in 15.4.1.

Mitigation measures by management included the implementation of Traffic Management Plans and/or Environmental Incident Response Plans. On review, there is no cause to change this approach and additional mitigation measures are not deemed necessary. Therefore, there are no changes to the information presented in this Section of the EIAR in the 2018 planning application.

15.4.1 Mitigation Measures Embedded in the Proposed RBSF Component Design

The relevant Safety, Health, Environment and Quality (SHEQ) regulations have not been changed since the submission of the EIAR in the 2018 Planning Application and there have not been additional meetings or consultations with the Dublin Fire Brigade Senior Fire Prevention Officer or other representatives.

As explained in Section 4A (Water) in Volume 4A of this EIAR Addendum, a flood risk assessment (FRA) was carried out in accordance with the Department of Environment, Heritage and Local Government's

"Planning System and Flood Risk Management: Guidelines for Planning Authorities" (DEHLG, 2009). To ensure that any changes to the baseline environment or flood information has been considered, an updated site-specific flood risk assessment report (SSFRA) was compiled in July 2023. The SSFRA determined the site is located in Flood Zone C (low risk zone), in agreement with the information presented in this section of the 2018 EIAR, and determined that the pluvial flood risk is mitigated by the drainage design. The SSFRA did not identify any new flood risks, recent nearby flood events, or required mitigation measures compared to the FRA referenced in the 2018 planning application

15.4.2 Traffic Management Plans

Since the development and implementation of a Traffic Management Plan is still required, as detailed in the EIAR in the 2018 planning application, there are no changes to the information presented in this Section of the EIAR in the 2018 planning application.

15.4.3 Environmental Incident Response Plan

The implementation of an Environmental Incident Response Plan by the appointed contractor / operator of the facility, as outlined in the EIAR in the 2018 planning application will continue to reduce the risk of MANDs.

Although the assessment of the new risk category in this Section of the EIAR Addendum did not require the category to be brought forward for additional consideration, out of an abundance of caution, the response plan to potential extreme weather events is presented here. The appointed contractor will be contractually required by Uisce Éireann to pay due consideration to the impacts of extreme weather events during the Construction Phase as part of their Environmental Incident Response Plan.

Contractors' Construction Environmental Management Plan (CEMP) will be required to consider all measures deemed necessary to manage extreme weather events and will require as a minimum training of personnel and prevention and monitoring arrangements. Mitigation will include:

- Construction method statements to consider extreme weather events where risks have been identified;
- Emergency preparedness and contingency procedures in place for an extreme weather event on the construction site or within the supply chain;
- Contractor to schedule concrete curing to avoid peak temperatures;
- Contractor to consider increased dust suppression measures in hot and dry conditions;
- Contractor to have health and safety plan in place that takes into consideration dust-related air quality concerns; and
- Use short to medium range weather forecasting to inform short to medium term programme management, environmental control, and impact adaptation measures. Contractor to register with the flood warning service in areas of flood risk.

Uisce Éireann and the site operator will maintain a Severe Weather Management Plan during the Operational Phase to ensure that critical infrastructure is protected during operation from the impacts of severe weather.

15.5 Residual Impacts

As there are no material changes to the previously assessed impacts of the Proposed RBSF Component in Section 15 in Volume 4 Part A of the EIAR of the 2018 planning application, and therefore the mitigation measures originally proposed will also remain unchanged, the residual impacts of the Proposed RBSF Component are considered to be the same as presented in this Section of the EIAR in the 2018 planning application.

15.6 Monitoring

The Environmental Incident Response Plan outlined in this Section of the EIAR in the 2018 planning application will continue to be a live document that undergoes monitoring, review and update throughout the lifetime of the Proposed RBSF Component. As outlined in Section 15.4.3, this will now include a Severe

Weather Management Plan for the Operational Phase, which will also be a live document that will be subject to monitoring, review and update throughout the lifetime of the Proposed RBSF Component. All activities on-site will continue to be monitored to ensure that risk does not increase over time on the site.

15.7 Difficulties Encountered

There were no difficulties encountered in compiling this Section of the EIAR Addendum.

15.8 Conclusion

This Addendum Section has considered all relevant risk management updates to the baseline environment, and to guidance and reference material since the 2018 planning application submission. Following consideration, one additional risk category was included but was assessed not to present a sufficient combination of risk and consequence that would lead to significant residual impacts or environmental effects.

There are no other material changes to the assessment of risk management as a result of any of the updates discussed in this Section of the EIAR Addendum.

15.9 References

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Department of Taoiseach (2022). *National Risk Assessment 2021/2022. Overview of Strategic Risks*. Available at: https://www.gov.ie/en/policy-information/795550-national-risk-assessment/

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(2016). *Roadstone Quarry – Environmental Contingency Plan.*

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SECTION 16A Environmental Interactions

16.1 Introduction

This Section of the Environmental Impact Assessment Report (EIAR) in the 2018 planning application addressed the interactions between the various environmental aspects of the Regional Biosolids Storage Facility (RBSF) Component of the Proposed GDD Project, covered in Sections 3 to 14 (with the exception of Section 5, Biodiversity - Marine, which is not used in this Volume) of Volume 4 Part A of the EIAR.

It is explained in this section of the EIAR in the 2018 planning application that the assessment of environmental interaction was directed by *Article 3 section 1 (e) of DIRECTIVE 2014/52/EU on the Assessment of the Effects of Certain Public and Private Projects on the Environment*, the EPA *Guidelines on Information to be contained in Environmental Impact Assessment Reports* (Draft 2017) and *Advice Notes for Preparing Environmental Impact Statements* (Draft, September 2015).

In 2022, the Environmental Protection Agency (EPA) published an updated set of Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (hereafter referred to as the updated EPA Guidelines) (EPA 2022). The updated EPA Guidelines have been considered in terms of the methodology applied in this Section of the EIAR in the 2018 planning application, which incorporated the previous Draft Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (hereafter referred to as the previous EPA Guidelines) (EPA 2017). It has been determined that the methodology used for the original assessment is consistent with the updated EPA Guidelines. There are no other changes to the guidelines adopted for the assessment methodology.

Consideration has been given to interactions between environmental aspects of the Proposed RBSF Component by the specialists for each Section since the 2018 planning application. A summary is provided in section 16.2 and presented in Table 16-1 of this Section of the EIAR Addendum.

Upon review of this Section of the EIAR in the 2018 planning application, it was identified that interactions between environmental aspects of the Proposed RBSF Component described in Sections 3 to 14 of Volume 4 Part A in were incorrectly indicated in Table 16-1. There were three incorrect interactions shown. An interaction (✓) was indicated between 'Traffic' and 'Land and Soils'; and 'Population and Human Health' and 'Land and Soils'. No interaction (✗) was indicated between 'Population and Human Health' and 'Landscape'. In these three cases it was a typographical error, and this has been corrected in Table 16 -1 of this Section of the EIAR Addendum. Notwithstanding the typographical error, environmental interactions are presented and fully assessed in the relevant environment Sections of Volume 4 Part A of the 2018 planning application, as amended by Volume 4A Part A of this EIAR Addendum. Notwithstanding these typographical errors, the interactions were fully and accurately assessed as presented and assessed in the relevant environment Sections of Volume 4 Part A of the 2018 planning application, as amended by Volume 4A Part A of this EIAR Addendum.

In addition, an interaction between 'Air and Climate' and 'Water' has been identified since the submission of the EIAR in the 2018 planning. This interaction is explained in section 16.2 and shown in Table 16 -1 of this Section of the EIAR Addendum.

Table 16-1: Summary of Interactions (Updated)

	Water	Biodiversity - Terrestrial	Land and Soil	Air and Climate	Noise and Vibration	Odour	Cultural Heritage	Material Assets	Traffic	Landscape	Population and Human Health
Water		✓	✗	✓	✗	✗	✗	✗	✗	✗	✓
Biodiversity - Terrestrial			✓	✓	✓	✗	✗	✗	✗	✓	✗
Land and Soil				✓	✓	✗	✓	✓	✗	✓	✗
Air and Climate					✗	✓	✗	✗	✓	✗	✓
Noise and Vibration						✗	✗	✗	✓	✗	✓
Odour							✗	✗	✗	✗	✓
Cultural Heritage								✗	✗	✗	✗
Material Assets									✓	✗	✗
Traffic										✗	✓
Landscape											✓
Population and Human Health											

✓ = Interaction ✗ = No interaction

16.2 Interdisciplinary Interactions

The principal interactions requiring information exchange between the environmental specialists and the design team were summarised in this section of the EIAR in the 2018 planning application. Changes in the assessment described in Sections 3A to 14A (with the exception of Section 5A, Biodiversity - Marine, which is not used in this Volume) of Volume 4A Part A of this EIAR Addendum that required consideration are discussed under the relevant headings below.

16.2.1 Water

16.2.1.1 Biodiversity

Since the submission of the EIAR in the 2018 planning application, an additional Small Stream Risk Score Assessment (SSRS) was undertaken in 2023 and the results were communicated between the Water specialist and Biodiversity specialists. The potential impacts on aquatic biodiversity are addressed in Section 6A: Biodiversity – Terrestrial in Volume 4A Part A of the EIAR Addendum.

16.2.1.2 Air and Climate (New)

An additional interaction identified since the 2018 planning application is between 'Air and Climate' and 'Water'. The impact of flood risk has been assessed and the surface water drainage network will be designed to cater for run-off from the building and the surrounding hardscaped areas in accordance with, at minimum, 1 in 100-year event plus 20% climate change allowance.

16.2.1.3 Population and Human Health (New)

The interaction between Water and Population and Human Health described in the Section 3.7.3 in Volume 4 Part A of the EIAR submitted in the 2018 planning application was not transferred and summarised in section 16.2.1 of Volume 4 Part A of the EIAR submitted in the 2018 planning application. For clarity, and consistency with the interaction shown in Table 16-1, a new heading is added in this Addendum. The interaction has not changed since the 2018 planning application.

16.2.2 Biodiversity

16.2.2.1 Water

See section 16.2.1.1

16.2.2.2 Land and Soils

As there are no changes to the design of the RBSF or to the baseline environment, there are no changes to the information presented in this Section of the EIAR and interactions remain as per the 2018 planning application.

16.2.2.3 Air and Climate

As there are no changes to the design of the RBSF or to the baseline environment, there are no changes to the information presented in this Section of the EIAR and interactions remain as per the 2018 planning application.

16.2.2.4 Noise

As there are no changes to the design of the RBSF or to the baseline environment, there are no changes to the information presented in this Section of the EIAR and interactions remain as per the 2018 planning application.

16.2.2.5 Landscape and Visual

As there are no changes to the design of the RBSF or to the baseline environment, there are no changes to the information presented in this Section of the EIAR and interactions remain as per the 2018 planning application.

16.2.3 Land and Soils

16.2.3.1 Biodiversity

See section 16.2.2.2.

16.2.3.2 Landscape and Visual

As there are no changes to the design of the RBSF or to the baseline environment, there are no changes to the information presented in this Section of the EIAR and interactions remain as per the 2018 planning application.

16.2.3.3 Air and Climate

Since the submission of the EIAR in the 2018 planning application, changes to policy and guidance for climate change have been considered in the interactions with Land and Soils.

Waste management measures will be put in place to minimise the amount of waste entering landfill, which has higher associated embodied carbon emissions than other waste management such as recycling or incineration.

The risk to building design in terms of material vulnerability to climate change, specifically extreme heat and cold, has been considered since the 2018 planning application.

16.2.3.4 Noise

As there are no changes to the design of the RBSF or to the baseline environment, there are no changes to the information presented in this Section of the EIAR and interactions remain as per the 2018 planning application.

16.2.3.5 Cultural Heritage

As there are no changes to the design of the RBSF or to the baseline environment, there are no changes to the information presented in this Section of the EIAR and interactions remain as per the 2018 planning application.

16.2.3.6 Material Assets

As there are no changes to the design of the RBSF or to the baseline environment, there are no changes to the information presented in this Section of the EIAR and interactions remain as per the 2018 planning application.

16.2.4 Air and Climate

16.2.4.1 Biodiversity

See section 16.2.2.3

16.2.4.2 Land and Soils

See section 16.2.3.3

16.2.4.3 Odour

As there are no changes to the design of the RBSF or to the baseline environment, there are no changes to the information presented in this Section of the EIAR and interactions remain as per the 2018 planning application.

16.2.4.4 Traffic

Since the submission of the EIAR in the 2018 planning application, an additional traffic survey was undertaken in 2023 and the results were communicated between the Traffic specialist Air and Climate specialist. The potential impacts on air and climate are addressed in Section 8: Air and Climate.

16.2.4.5 Population and Human Health

Since the submission of the EIAR in the 2018 planning application, the additional traffic survey results that were communicated between the Traffic specialist and the Air and Climate specialist, were in turn communicated to the Human Health specialist. The potential impacts on human health are addressed in Section 3: Population and Human Health.

16.2.4.6 Water (New)

An additional interaction identified since the 2018 planning application is between 'Air and Climate' and 'Water'. See section 16.2.1.2.

16.2.5 Noise and Vibration

16.2.5.1 Biodiversity

See section 16.2.2.4.

16.2.5.2 Land and Soils

See section 16.2.3.4.

16.2.5.3 Traffic

Since the submission of the EIAR in the 2018 planning application, an additional traffic survey was undertaken in 2023 and the results were communicated between the Traffic specialist and Noise and Vibration specialist. The potential impacts due to noise and vibration are addressed in Section 9A: Noise and Vibration in Volume 4A Part A of the EIAR Addendum.

16.2.5.4 Population and Human Health

Since the submission of the EIAR in the 2018 planning application, an additional baseline noise survey was undertaken in 2023 and the results were communicated between the Noise and Vibration specialist and Human Health specialist. The potential impacts on human health are addressed in Section 3A: Population and Human Health in Volume 4A Part A of the EIAR Addendum.

16.2.6 Odour

16.2.6.1 Population and Human Health

Since the submission of the EIAR in the 2018 planning application, predictive odour modelling was updated, and the results were communicated between the Odour specialist and Human Health specialist. The potential impacts of odour on human health are addressed in Section 3A: Population and Human Health in Volume 4A Part A of the EIAR Addendum.

16.2.6.2 Air and Climate (New)

The interaction between Odour and Air and Climate is addressed 16.2.4.3. The subheading for this interaction was not included in this section (16.2.6) in Volume 4 Part A in the EIAR submitted in the 2018

planning application. For consistency with other subheadings in Section 16A, it is added here as a new subheading.

16.2.7 Cultural Heritage

16.2.7.1 Land and Soils

See section 16.2.3.5.

16.2.8 Material Assets

16.2.8.1 Land and Soils

See section 16.2.3.6.

16.2.8.2 Traffic

Since the EIAR in the 2018 application, an additional traffic survey was undertaken in 2023 and the results were communicated between the Traffic specialist and Material Asset specialist. The potential impacts due to traffic on material assets are addressed in Section 12: Material Assets.

16.2.9 Traffic

16.2.9.1 Air Quality

See section 16.2.4.4.

16.2.9.2 Noise

See section 16.2.5.3.

16.2.9.3 Material Assets

See section 16.2.8.2.

16.2.9.4 Population and Human Health

Since the submission of the EIAR in the 2018 planning application, an additional traffic survey was undertaken in 2023 and the results were communicated between the Traffic specialist and Population specialist. The potential impacts due to traffic on the population are addressed in Section 13A:Traffic in Volume 4A Part A of the EIAR Addendum.

16.2.10 Landscape and Visual

16.2.10.1 Biodiversity

See section 16.2.2.5.

16.2.10.2 Land and Soils

See section 16.2.3.2.

16.2.10.3 Population and Human Health (New)

The interaction between Landscape and Visual and Population and Human Health addressed in section 3.7.3 in Volume 4 Part A of the EIAR submitted in the 2018 planning application was not transferred and summarised in section 16.2.1. For clarity, and consistency with the interaction shown in Table 16-1, a new heading is added in this section of the Addendum. The interaction has not changed since the 2018 planning application.

16.2.11 Population and Human Health

Any changes to the details of the impacts related to construction related to water, dust, noise and vehicular movements and the proposed mitigation measures since the submission of the 2018 planning application are discussed in detail in the Addendum in Section 4A: Water, Section 8A: Air and Climate, Section 9A: Noise and Vibration, Section 10A: Odour, Section 13A: Traffic and Section 14A: Landscape in Volume 4A Part A of this EIAR Addendum.

There are no changes to the information presented in this Section of the EIAR since the 2018 planning application.

16.3 References

Environmental Protection Agency (EPA) (2022). *Guidelines on Information to Be Contained in Environmental Impact Statements.* [Online] https://www.epa.ie/publications/monitoring--assessment/assessment/EIAR_Guidelines_2022_Web.pdf.

SECTION 17A Summary of Mitigation

The mitigation commitments made in Section 3 to Section 15 of Volume 4 Part A of the Environmental Impact Assessment Report (EIAR) submitted with the 2018 planning application were collated and summarised in Section 17 (Summary of Mitigation) in Volume 4 Part A. In addition to the mitigation measures proposed, appropriate best practice measures relating to construction activities were also provided.

In this Section 17A (Summary of Mitigation) in Volume 4 Part A in this EIAR Addendum, any amended or new mitigation measures identified in the Mitigation Measures subsection of Section 3A to Section 15A in Volume 4 Part A of the EIAR Addendum have been collated and summarized in the tables below. Where existing mitigation measures have not changed since the EIAR submitted in the 2018 planning application, this is also noted.

Mitigation by Design

The design of the Proposed RBSF Component and the expected general methodologies to construct it have not changed since the submission of the EIAR in the 2018 planning application. The explanation of mitigation by design in the context of the Proposed RBSF Component provided in this section of the EIAR submitted with the 2018 planning application has not changed.

Mitigation by Management

It was explained in this section of the EIAR submitted with the 2018 planning application, that potential environmental impacts associated with construction activity and methodology were identified and that an outline Construction Environmental Management Plan (CEMP) was drafted (Appendix 17A in Volume 4 Part B of the EIAR in the 2018 planning application) to incorporate all the mitigation measures proposed in Volume 4 Part A of the EIAR, as well as other good practices and guidelines. Updated or new mitigation measures in this section of the EIAR Addendum have been included in an updated Outline CEMP that is provided in Appendix 17A in Volume 4A Part B of this EIAR Addendum.

The numbering convention of mitigation measures provided in the tables in this section of the EIAR submitted with the 2018 planning application remains unchanged. Mitigation measures are itemised and numbered based on the stage that they are relevant to (i.e. construction (C) or operational (O)) and the Section that they come from. Only amended or additional mitigation measures since the 2018 planning application have been provided in this section of the EIAR Addendum. For example, mitigation measure O.8.3 relates to a new operational mitigation measure from Section 8A (Air and Climate) in Volume 4A Part A of the EIAR Addendum.

Table 17- 1: Summary of Mitigation Measures

Mitigation Measure no.	Constructional/Operational Stage	Impact/Topic	Mitigation and Environmental Commitments
C.Gen.1 and O.Gen.1	Construction and Operational	Construction Impacts General	There is no requirement for additional mitigation measures above the measures outlined in the EIAR in the 2018 planning application. Therefore, there are no changes required to the information presented in this Section of the EIAR in the 2018 planning application.
Section 3A: Population and Human Health			
Updated information on the baseline environment, as well as any policy and legislative updates were assessed in the context of the Proposed RBSF Component, and no additional impacts above those identified in Section 3 (Population and Human Health) in Volume 4 Part A of the EIAR in the 2018 planning application, were identified. There is therefore no requirement for additional construction or operational mitigation measures, above the measures outlined in the original Section 3 (Population and Human Health) in Volume 4 Part A of the EIAR in the 2018 planning application. As a result, there are no changes to the information presented in this Section of the EIAR since the 2018 planning application.			
Section 4A: Water			
Updated information on the baseline environment, as well as any policy and legislative updates were assessed in the context of the Proposed RBSF Component, and no additional impacts above those identified in Section 4 (Water) in Volume 4 Part A of the EIAR in the 2018 planning application, were identified. There is therefore no requirement for additional construction or operational mitigation measures, above the measures outlined in the original Section 4 (Water) in Volume 4 Part A of the EIAR in the 2018 planning application. As a result, there are no changes to the information presented in this Section of the EIAR since the 2018 planning application.			
Section 5A: Biodiversity - Marine			
Not applicable to Volume 4 or 4A of the EIAR and its Addendum, respectively.			
Section 6A: Biodiversity - Terrestrial			
Habitat enhancement measures as per those outlined in the 2018 EIAR, Figure Y17702-PL-011 are now captured in the Biodiversity Assessment, as indicated on Appendix E of the Biodiversity Assessment included as Appendix 2 to the Addendum Planning Report. Changes to the mitigation measures in this Section of the EIAR submitted in the 2018 Planning Application are provided below. C.6.2, C.6.3, C.6.4, O.6.3, O.6.4 have been added.			
C.6.2	Construction	Habitat enhancement	All habitats that are within the redline boundary and are to be retained during the Construction Phase (including hedgerows, drainage ditches and other water features at the edge of the redline boundary) will be protected in advance of, and during construction, to avoid any incursion into them by personnel, construction plant or materials and to avoid and minimise any changes to the quality of those habitats (e.g., through changes in water quality such as with respect to silts, hydrocarbons or other pollutants).

Mitigation Measure no.	Constructional/Operational Stage	Impact/Topic	Mitigation and Environmental Commitments
C.6.3	Construction	Habitat enhancement	A Biodiversity Implementation and Monitoring Plan will be prepared by the appointed contractor and the EcCOW, in consultation with Uisce Éireann, prior to the commencement of construction and implemented thereafter. The Biodiversity Implementation and Monitoring Plan will be required to include the following: ▪ Measures to secure the delivery of the area and linear measurements of habitats identified to be delivered post-development; ▪ Measures to ensure the post-development habitat values attributed to each habitat are at least achieved within five to 10 years post habitat creation / restoration following completion of the Construction Phase. This will include the use of nutrient poor soil (subsoils) in the creation of dry meadow grasslands. Reference should be made to *Biodiversity Guidance for Irish Water Developments* (IW-AMT-GL-021) (Uisce Éireann, 2021); ▪ Operational Phase habitat management measures following completion of the Construction Phase. This will include a schedule of requirements for the management of woodland, hedgerow and grasslands consistent with *Biodiversity Action Plan* (Uisce Éireann, 2021);
C.6.4	Construction	Habitat enhancement	All measures will include specifications for the creation and restoration of all habitats identified, cross-referencing, as appropriate, to the relevant Landscape Management Plan which will be prepared and implemented by the appointed contractor and will align with the Landscape Layout presented in Figure Y17702-PL-011 of the 2018 EIAR, which include mitigations as follows: ▪ Immature woodland, dry meadows and scrub within the site; and ▪ Protection / creation of hedgerows along the sites boundaries.
O.6.3	Operational	Habitat enhancement	The Biodiversity Implementation and Monitoring Plan established for the Construction Phase will continue to be implemented for the Operation Phase as follows: ▪ Operational Phase habitat monitoring to ensure that the Operational Phase management is delivering, as a minimum, the post-development five to 10 year habitat values assigned in this assessment. This will involve habitat surveys of all created, reinstated and enhanced habitats within Uisce Éireann's control in Year 1, 3, 5, 8 and 10 of the Operational Phase.

Mitigation Measure no.	Constructional/Operational Stage	Impact/Topic	Mitigation and Environmental Commitments
O.6.4	Operational	Habitat enhancement	Habitat enhancement measures as per those outlined in the 2018 EIAR, Figure Y17702-PL-011 are now captured in the Biodiversity Assessment, as indicated on Appendix E of the Biodiversity Assessment included as Appendix 2 to the Addendum Planning Report. ▪ The Biodiversity Assessment outlines enhancement measures for bats. A minimum of eight bat boxes will be erected at the RBSF site. The bat boxes will be Schwegler-type (woodcrete) type boxes (or similar) and a range of different type boxes (e.g. 2F, 1FF, 3FF, 1FW, 1FE and 1FTH) will be provided. Using a range of boxes will provide additional roosting opportunities for a range of bat species. ▪ The Biodiversity Assessment outlines enhancement measures for birds. A minimum of eight bird boxes will be erected at the RBSF sites. The bird boxes will be Schwegler-type (woodcrete) type boxes (or similar) and a range of different type boxes (e.g. 1B, 2H, 17C) will be provided. Using a range of boxes will provide additional nesting opportunities for a range of bird species.
Section 7A: Land and Soils (Including Waste)			
Updated information on the baseline environment, as well as any policy and legislative updates were assessed in the context of the Proposed RBSF Component, and no additional impacts above those identified in Section 7 (Land and Soils (Including Waste)) in Volume 4 Part A of the EIAR in the 2018 planning application, were identified. There is therefore no requirement for additional construction or operational mitigation measures, above the measures outlined in the original Section 7 (Land and Soils (Including Waste)) in Volume 4 Part A of the EIAR in the 2018 planning application. As a result, there are no changes to the information presented in this Section of the EIAR since the 2018 planning application.			
Section 8A: Air and Climate			
Changes to the summary of mitigation measures in this Section of the EIAR submitted in the 2018 Planning Application are provided below. C.8.2 has been amended. O.8.3 has been added as a new mitigation measure.			
C.8.2	Construction	Reduction of Emissions Climate	Mitigation measures have been put in place with respect to the Construction Phase to reduce the impact of GHG emissions. Details of changes to recommended mitigation since the submission of the EIAR in the 2018 planning application are provided in Appendix 8C Greenhouse Gas Assessment. These include: A whole-life Carbon Management Plan will be implemented and will be aligned to the revised PAS 2080:2023 Carbon Management in Buildings and Infrastructure (BSI 2023).

Mitigation Measure no.	Constructional/Operational Stage	Impact/Topic	Mitigation and Environmental Commitments
			Lifecycle assessments for major asset components will be undertaken and recommendations will be implemented to influence the procurement of low carbon / sustainable / locally sourced materials and equipment, where possible. Materials procured for major asset components will have verified Environmental Product Declarations (EPDs). The Contractor will be required to ensure that construction vehicles will conform to the latest EU emissions standards, and where reasonably practicable, emissions will meet upcoming (new) standards to ensure emissions on construction access routes are minimised. The Contractor will be required to ensure that on-road vehicles including passenger vehicles and shuttle buses for staff transportation must comply with set emissions standards (2023).
O.8.3	Operational	Greenhouse Gas Emissions	Mitigation measures have been put in place with respect to the Operational Phase to reduce the impact of GHG emissions. Details of changes to recommend mitigation since the original 2018 planning application are provided in Appendix 8C Greenhouse Gas Assessment in Volume 4A Part B of this EIAR Addendum. A whole-life Carbon Management Plan will be implemented and will be aligned to the Revised PAS 2080:2023 Carbon Management in Buildings and Infrastructure (BSI 2023) to inform the operation of the Proposed RBSF Component using a purpose-built carbon assessment tool and aligned to an industry adopted and verified assessment tool such as TII's online Carbon Assessment Tool (2023); Net zero for operational emissions in relation to both process and energy related emissions will be supported through energy demand reduction, increased energy efficiency and implementation of process control optimisation. A comprehensive Operational Commissioning Plan will be developed and implemented to demonstrate that the RBSF is run using robust and modern methods to minimise emissions during the storage stage. Fugitive emissions will be minimised by ensuring effective containment through detailed design stage; and Scheduled capital replacement and regular planned maintenance will minimise carbon emissions.

<table>
<tr><th>Mitigation Measure no.</th><th>Constructional/Operational Stage</th><th>Impact/Topic</th><th>Mitigation and Environmental Commitments</th></tr>
<tr><td colspan="4">Section 9A: Noise and Vibration</td></tr>
<tr><td colspan="4">Changes to the mitigation measures in this Section of the EIAR submitted in the 2018 Planning Application are provided in below.
Measures relevant to C.9.1 have been amended.
O.9.5 has been added as a new mitigation measures.</td></tr>
<tr><td>C.9.1</td><td>Construction</td><td>Management – Noise Limits</td><td>Construction activities will be required to comply with the following updated noise limits, measured at the nearest noise sensitive receptor:
<table>
<tr><th rowspan="2">Period</th><th colspan="3">2023 Baseline Assessment</th></tr>
<tr><th>Rounded Baseline Noise Level LAeq (dB)</th><th>Category</th><th>Suggested CNT</th></tr>
<tr><td>Daytime (07:00 – 19:00) and Saturdays (07:00 – 13:00)</td><td>60</td><td>A</td><td>65</td></tr>
<tr><td>Evening (19:00 to 23:00hrs)</td><td>60</td><td>C</td><td>65</td></tr>
<tr><td>Night-time (23:00 to 07:00hrs)</td><td>60</td><td>C</td><td>55</td></tr>
</table></td></tr>
<tr><td>O.9.5</td><td>Operational</td><td>Noise Control Measures</td><td>In respect of inward noise impact on the noise-sensitive spaces within the development itself, the following internal criteria will be adopted during the detailed design stage. Intrusive noise levels within the spaces shall not exceed:
▪ Open plan office ≤ 50 dB $L_{Aeq,T}$, and;
▪ Individual offices ≤ 40 dB $L_{Aeq,T}$.

Prior to the commencement of the development, a detailed noise compliance statement confirming the building envelope sound insulation performances and expected noise levels will be submitted to the planning authority for their approval.</td></tr>
<tr><td colspan="4">Section 10A: Odour</td></tr>
<tr><td colspan="4">Updated information on the baseline environment, as well as any policy and legislative updates were assessed in the context of the Proposed RBSF Component, and no additional impacts above those identified in Section 10 (Odour) in Volume 4 Part A of the EIAR in the 2018 planning application, were identified. There is therefore no requirement for additional construction or operational mitigation measures, above the measures outlined in the original Section 10 (Odour) in Volume 4 Part A of the EIAR in the 2018 planning application. As a result, there are no changes to the information presented in this Section of the EIAR since the 2018 planning application.</td></tr>
</table>

Mitigation Measure no.	Constructional/Operational Stage	Impact/Topic	Mitigation and Environmental Commitments
Section 11A: Cultural Heritage			
Updated information on the baseline environment, as well as any policy and legislative updates were assessed in the context of the Proposed RBSF Component, and no additional impacts above those identified in Section 11 (Cultural Heritage) in Volume 4 Part A of the EIAR in the 2018 planning application, were identified. There is therefore no requirement for additional construction or operational mitigation measures, above the measures outlined in the original Section 11 (Cultural Heritage) in Volume 4 Part A of the EIAR in the 2018 planning application. As a result, there are no changes to the information presented in this Section of the EIAR since the 2018 planning application.			
Section 12A: Material Assets			
Updated information on the baseline environment, as well as any policy and legislative updates were assessed in the context of the Proposed RBSF Component, and no additional impacts above those identified in Section 12 (Material Assets) in Volume 4 Part A of the EIAR in the 2018 planning application, were identified. There is therefore no requirement for additional construction or operational mitigation measures, above the measures outlined in the original Section 12 (Material Assets) in Volume 4 Part A of the EIAR in the 2018 planning application. As a result, there are no changes to the information presented in this Section of the EIAR since the 2018 planning application.			
Section 13A: Traffic			
Changes to the mitigation measures in this Section of the EIAR submitted in the 2018 Planning Application are provided below. C.13.6 has been added as a new mitigation measure.			
C.13.6	Construction	Traffic Management	A temporary traffic signal or STOP/GO traffic management systems at N2 Northbound Slip Road (Priority) Junction shall be implemented as part of the Detailed Traffic Management Plan process and restrictions shall be placed on the movement of construction related traffic if deemed necessary following consultation with Fingal County Council and/or an Garda Síochána.
Section 14A: Landscape			
Updated information on the baseline environment, as well as policy and legislative updates were assessed in the context of the Proposed RBSF Component, and no additional impacts above those identified in Section 14 (Landscape) in Volume 4 Part A of the EIAR in the 2018 planning application, were identified. There is therefore no requirement for additional construction or operational mitigation measures, above the measures outlined in the original Section 14 (Landscape) in Volume 4 Part A of the EIAR in the 2018 planning application. As a result, there are no changes to the information presented in this Section of the EIAR since the 2018 planning application.			
Section 15A: Risk Management			
Changes to the mitigation measures in this Section of the EIAR submitted in the 2018 Planning Application are provided below. C.15.2 and O.15.2 have been added as new mitigation measures.			

Mitigation Measure no.	Constructional/Operational Stage	Impact/Topic	Mitigation and Environmental Commitments
C.15.2	Construction	Extreme Weather Events	Contractors' Construction Environmental Management Plan (CEMP) considers all measures deemed necessary to manage extreme weather events and should as a minimum covers training of personnel and prevention and monitoring arrangements. Mitigation will include: ▪ Construction method statements to consider extreme weather events where risks have been identified; ▪ Emergency preparedness and contingency procedures in place for an extreme weather event on the construction site or within the supply chain; ▪ Contractor to schedule concrete curing to avoid peak temperatures; ▪ Contractor to consider increased dust suppression measures in hot and dry conditions; ▪ Contractor to have health and safety plan in place that takes into consideration dust-related air quality concerns; and ▪ Use short to medium range weather forecasting to inform short to medium term programme management, environmental control, and impact adaptation measures. Contractor to register with the flood warning service in areas of flood risk.
O.15.2	Operational	Extreme Weather Events	The Proposed RBSF Component is designed to ensure the pluvial flood (+ climate change) risk is reduced to 1 in 100 years with the risk of flooding from river being lower at 1 in 1000 years. ▪ Uisce Éireann will maintain their Severe Weather Event Plan and Incident Management and Emergency Response to ensure critical infrastructure is protected during operation from the impacts of severe weather. ▪ Road signage to include ice warnings and decreases of on-site speed limit in dangerous conditions. ▪ Detailed design will include redundancy in design in the event of loss of power. ▪ Design to include minimum clearing distance between road edge and landscaping to ensure fallen trees do not impact road users. ▪ Establish a maintenance and inspection program for landscaping. ▪ Implement regular maintenance regime to detect deterioration and damage of buildings, drainage and other assets. ▪ Drainage design accounts for expected sea level rise over the lifetime of the asset and increased severity of storm surge event. Design to incorporate flood alleviation measures

Table 17-2 Summary of Monitoring Requirements

Monitoring Measure No.	Construction/ Operational Stage	Impact/Topic	Monitoring Requirements
General			
C.Gen.1	Construction	General Construction	There are no changes to the design or impact compared to the 2018 planning application. Therefore, no requirement for additional monitoring requirements above the ones outlined in this Section of the EIAR in the 2018 planning application.
O.Gen.1	Operational	General Operational	There are no changes to the design or impact compared to the 2018 planning application. Therefore, no requirement for additional monitoring requirements above the ones outlined in this Section of the EIAR in the 2018 planning application.
Section 3A: Population and Human Health			
Updated information on the baseline environment, as well as policy and legislative updates were assessed in the context of the Proposed RBSF Component, and no additional impacts above those identified in Section 3 (Population and Human Health) in Volume 4 Part A of the EIAR in the 2018 planning application, were identified. There is therefore no requirement for additional construction or operational monitoring requirements, above the requirements outlined in the original Section 3 (Population and Human Health) in Volume 4 Part A of the EIAR in the 2018 planning application. As a result, there are no changes to the information presented in this Section of the EIAR since the 2018 planning application.			
Section 4A: Water			
Updated information on the baseline environment, as well as policy and legislative updates were assessed in the context of the Proposed RBSF Component, and no additional impacts above those identified in Section 4 (Water) in Volume 4 Part A of the EIAR in the 2018 planning application, were identified. There is therefore no requirement for additional construction or operational monitoring requirements, above the requirements outlined in the original Section 4 (Water) in Volume 4 Part A of the EIAR in the 2018 planning application. As a result, there are no changes to the information presented in this Section of the EIAR since the 2018 planning application.			
Section 5A: Biodiversity - Marine			
Not applicable to Volume 4 of the EIAR			
Section 6A: Biodiversity - Terrestrial			
Updated information on the baseline environment, as well as policy and legislative updates were assessed in the context of the Proposed RBSF Component, and no additional impacts above those identified in Section 6 (Biodiversity - Terrestrial) in Volume 4 Part A of the EIAR in the 2018 planning application, were identified. There is therefore no requirement for additional construction or operational monitoring requirements, above the requirements outlined in the original Section 6 (Biodiversity - Terrestrial) in Volume 4 Part A of the EIAR in the 2018 planning application. As a result, there are no changes to the information presented in this Section of the EIAR since the 2018 planning application.			

Monitoring Measure No.	Construction/ Operational Stage	Impact/Topic	Monitoring Requirements
Section 7A: Land and Soils (Including Waste)			
Updated information on the baseline environment, as well as policy and legislative updates were assessed in the context of the Proposed RBSF Component, and no additional impacts above those identified in Section 7 (Land and Soils (Including Waste)) in Volume 4 Part A of the EIAR in the 2018 planning application, were identified. There is therefore no requirement for additional construction or operational monitoring requirements, above the requirements outlined in the original Section 7 (Land and Soils (Including Waste)) in Volume 4 Part A of the EIAR in the 2018 planning application. As a result, there are no changes to the information presented in this Section of the EIAR since the 2018 planning application.			
Section 8A: Air and Climate			
Changes to the monitoring in this Section of the EIAR submitted in the 2018 Planning Application are provided below. Additional monitoring requirements relevant to C.8.2 and O.8.1 have been added.			
C.8.2	Construction	Climate	The successful contractor will be obliged to monitor and report GHG emissions during construction. The obligations will be included as part of the CEMP. The elements to be monitored include: ▪ Embodied carbon from products; ▪ Transportation of staff, projects, waste etc; ▪ Water use; ▪ Raw material extraction; ▪ Fuel usage, and ▪ Waste
O.8.1	Operational	Climate	Monitoring will also include the ongoing management of adaptation and resilience of the operational phase in order to measure their effectiveness.
Section 9A: Noise and Vibration			
Updated information on the baseline environment, as well as policy and legislative updates were assessed in the context of the Proposed RBSF Component, and no additional impacts above those identified in Section 9 (Noise and Vibration) in Volume 4 Part A of the EIAR in the 2018 planning application, were identified. There is therefore no requirement for additional construction or operational monitoring requirements, above the requirements outlined in the original Section 9 (Noise and Vibration) in Volume 4 Part A of the EIAR in the 2018 planning application. As a result, there are no changes to the information presented in this Section of the EIAR since the 2018 planning application.			
Section 10A: Odour			
Updated information on the baseline environment, as well as policy and legislative updates were assessed in the context of the Proposed RBSF Component, and no additional impacts above those identified in Section 10 (Odour) in Volume 4 Part A of the EIAR in the 2018 planning application, were identified. There is therefore no requirement for additional construction or operational monitoring requirements, above the requirements outlined in the original Section 10 (Odour) in Volume 4 Part A of the EIAR in the 2018 planning application. As a result, there are no changes to the information presented in this Section of the EIAR since the 2018 planning application.			

Monitoring Measure No.	Construction/ Operational Stage	Impact/Topic	Monitoring Requirements
Section 11A: Cultural Heritage			
Updated information on the baseline environment, as well as policy and legislative updates were assessed in the context of the Proposed RBSF Component, and no additional impacts above those identified in Section 11 (Cultural Heritage) in Volume 4 Part A of the EIAR in the 2018 planning application, were identified. There is therefore no requirement for additional construction or operational monitoring requirements, above the requirements outlined in the original Section 11 (Cultural Heritage) in Volume 4 Part A of the EIAR in the 2018 planning application. As a result, there are no changes to the information presented in this Section of the EIAR since the 2018 planning application.			
Section 12A: Material Assets			
Updated information on the baseline environment, as well as policy and legislative updates were assessed in the context of the Proposed RBSF Component, and no additional impacts above those identified in Section 12 (Material Assets) in Volume 4 Part A of the EIAR in the 2018 planning application, were identified. There is therefore no requirement for additional construction or operational monitoring requirements, above the requirements outlined in the original Section 12 (Material Assets) in Volume 4 Part A of the EIAR in the 2018 planning application. As a result, there are no changes to the information presented in this Section of the EIAR since the 2018 planning application.			
Section 13A: Traffic			
Updated information on the baseline environment, as well as policy and legislative updates were assessed in the context of the Proposed RBSF Component, and no additional impacts above those identified in Section 13 (Traffic) in Volume 4 Part A of the EIAR in the 2018 planning application, were identified. There is therefore no requirement for additional construction or operational monitoring requirements, above the requirements outlined in the original Section 13 (Traffic) in Volume 4 Part A of the EIAR in the 2018 planning application. As a result, there are no changes to the information presented in this Section of the EIAR since the 2018 planning application.			
Section 14A: Landscape			
Updated information on the baseline environment, as well as policy and legislative updates were assessed in the context of the Proposed RBSF Component, and no additional impacts above those identified in Section 14 (Landscape) in Volume 4 Part A of the EIAR in the 2018 planning application, were identified. There is therefore no requirement for additional construction or operational monitoring requirements, above the requirements outlined in the original Section 14 (Landscape) in Volume 4 Part A of the EIAR in the 2018 planning application. As a result, there are no changes to the information presented in this Section of the EIAR since the 2018 planning application.			
Section 15A: Risk Management			
Updated information on the baseline environment, as well as policy and legislative updates were assessed in the context of the Proposed RBSF Component, and no additional impacts above those identified in Section 15 (Risk Management) in Volume 4 Part A of the EIAR in the 2018 planning application, were identified. There is therefore no requirement for additional construction or operational monitoring requirements, above the requirements outlined in the original Section 15 (Risk Management) in Volume 4 Part A of the EIAR in the 2018 planning application. As a result, there are no changes to the information presented in this Section of the EIAR since the 2018 planning application.			

17.1 References

Environmental Protection Agency (EPA) (2022). *Guidelines on Information to Be Contained in Environmental Impact Statements*. Dublin. [Online] Available at: https://www.epa.ie/publications/monitoring--assessment/assessment/EIAR_Guidelines_2022_Web.pdf.

Fingal County Council (2023). *Fingal County Development Plan 2023-29*. [Online] Available at: https://www.fingal.ie/development-plan

SECTION 18A Summary of Residual Impacts

This section of the Addendum summarises the changes to and any additional residual impacts, which will result from the Construction Phase and Operational Phase of the Proposed RBSF Component, as identified as part of the Addendum assessment. Table 18-1 below lists the changes to the residual impacts (both positive and negative) of the Proposed RBSF Component following mitigation identified in the assessment since the 2018 planning application.

This section should be read in conjunction with Section 18 (Summary of Residual Impacts) in Volume 4 Part A of the EIAR in the 2018 planning application. It was explained in this section of the EIAR in the 2018 planning application that based on the assessment of potential impacts and the recommended mitigation measures in this Volume of the EIAR, the Proposed RBSF Component is not likely to impose any significant adverse effects on the environment. It has been shown through the updated assessment provided in Volume 4A of this EIAR Addendum, that this summary has not changed since the 2018 planning application.

Table 18- 1: Summary of Residual Impacts (changes since 2018 EIAR)

Environmental Element	Stage	Residual Impact	Change to Description of Effects since 2018 EIAR
Section 3: Population	Construction	There are no changes to the information presented in this Section of the EIAR since the 2018 planning application, where it was outlined that there is a likelihood of effects on the population directly adjacent to the site arising from the Proposed RBSF Component; that the Proposed RBSF Component will provide further jobs for the working population during the construction stage; and the likelihood of no direct significant impacts on the visiting population.	
	Operational	There are no changes to the information presented in this Section of the EIAR since the 2018 planning application, where it was outlined that there is a likelihood of no effects on the population directly adjacent to the site arising from the Proposed RBSF Component; that the Proposed RBSF Component will provide further jobs for the working population; and the likelihood of no significant impacts on the visiting population.	
Section 3: Human Health	Construction	There are no changes to the information presented in this section of the EIAR since 2018 planning, where it was outlined that there is no residual impacts on human health predicted as a result of the Construction Phase.	
	Operational	There are no changes to the information presented in this section of the EIAR since 2018 planning, where it was outlined that there is no residual impacts on human health predicted as a result of the Operational Phase.	
Section 4: Water	Construction	There are no changes to the information presented in this section of the EIAR since 2018 planning, where it was outlined that there are no significant residual impacts on water environment predicted as a result of the Construction Phase.	
	Operational	There are no changes to the information presented in this section of the EIAR since 2018 planning, where it was outlined that there are no significant residual impacts on water environment predicted as a result of the Operational Phase.	
Section 6: Biodiversity	Construction	There are no changes to the information presented in this section of the EIAR since 2018 planning, where it was outlined that there is no significant residual impacts on biodiversity predicted as a result of the Construction Phase.	
	Operational	There are no changes to the information presented in this section of the EIAR since 2018 planning, where it was outlined that there are no significant residual impacts on biodiversity predicted as a result of the Operational Phase.	

Environmental Element	Stage	Residual Impact	Change to Description of Effects since 2018 EIAR
Section 7: Land and Soils	Construction	There are no changes to the information presented in this section of the EIAR since 2018 planning, where it was outlined that there are no residual impacts on land and soils predicted as a result of the Construction Phase.	
	Operational	There are no changes to the information presented in this section of the EIAR since 2018 planning, where it was outlined that there are no residual impacts on land and soils predicted as a result of the Operational Phase.	
Section 8: Air and Climate	As a result of the changes to the methodology for assessment to Air and Climate presented in Section 8A and Appendix 8C (Greenhouse Gas Assessment) of Volume 4A of this EIAR Addendum since the 2018 planning application, the summary of Air and Climate residual risks presented in the section of Table 18-1 has been updated with separate headings for Air and for Climate.		
	Air quality		
	Construction	There are no changes to the information presented in this section of the EIAR since 2018 planning, where it was outlined that there are no significant residual impacts on air quality predicted as a result of the Construction Phase.	
	Operational	There are no changes to the information presented in this section of the EIAR since 2018 planning, where it was outlined that there are no significant residual impacts on air quality predicted as a result of the Operational Phase.	
	Climate		
	Construction	Since the 2018 planning application, the estimate for GHG emissions has been updated. GHG emissions of 1.95kt CO_2e over an 18-month construction period are estimated. This is equivalent to an annualised total of 0.0058% of Ireland's non-ETS 2030 emissions target and 0.040% of Ireland's carbon sectoral ('Industry') budget for 2030. Adopting significance criteria based on PE-ENV-01104 (TII, 2022a), the description of the residual impact has been updated but it is not a material change.	Short-term, not significant & Slight Adverse
	Operational	The Proposed RBSF Component will result in some impacts to climate through the release of GHGs, however the project's Energy Analysis and design aims to minimise operational phase energy requirements. The description of the residual impact has been updated. Adopting significance criteria based on PE-ENV-01104 (TII, 2022a), the description of the residual impact has been updated but it is not a material change.	Long-Term, Not Significant and Slight Adverse
Section 9: Noise and Vibration	Construction	Since the EIAR in the 2018 planning application, updated EPA Guidelines (EPA 2022) and DMRB guidance (UKHA, 2020) have been adopted for assessment of impact for noise and vibration. As result, the description of the residual impact has been updated	

Environmental Element	Stage	Residual Impact	Change to Description of Effects since 2018 EIAR
		and the residual impact is described separately for Site Activity and Additional Construction Traffic on Public Roads. There is no material change to the assessment presented in the 2018 planning application.	
		Site Activity	Short-Term, Not Significant to Slight and Negative
		Additional Construction Traffic on Public Roads	Short-Term, Imperceptible and Neutral
	Operational	Since the EIAR in the 2018 planning application, updated EPA Guidelines (EPA 2022) and DMRB guidance (UKHA, 2020) have been adopted for assessment of impact for noise and vibration. As result, the description of the residual impact has been updated. There is no material change to the assessment presented in the 2018 planning application.	Long-Term, Not Significant and Neutral
Section 10: Odour	Construction	There were no residual impacts for construction in this section of the EIAR in the 2018 planning application and this remains the case.	
	Operational	The predictive modelling exercise has been updated since the EIAR in the 2018 planning application and it has shown that odour impacts will not be perceptible by local receptors.	
Section 11: Cultural Heritage	Construction	There are no changes to the information presented in this section of the EIAR since 2018 planning, where it was outlined that there are no residual impacts on cultural heritage predicted as a result of the Construction Phase.	
	Operational	There are no changes to the information presented in this section of the EIAR since 2018 planning, where it was outlined that there are no residual impacts on cultural heritage predicted as a result of the Operational Phase.	
Section 12: Material Assets	Construction	There are no changes to the information presented in this section of the EIAR since 2018 planning, where it was outlined that there are no residual impacts on material assets predicted as a result of the Construction Phase.	
	Operational	There are no changes to the information presented in this section of the EIAR since 2018 planning, where it was outlined that there are no residual impacts on material assets predicted as a result of the Operational Phase.	

Environmental Element	Stage	Residual Impact	Change to Description of Effects since 2018 EIAR
Section 13: Traffic	Construction	There are no changes to the information presented in this section of the EIAR since 2018 planning, where it was outlined that there are no significant residual impacts on traffic predicted as a result of the Construction Phase.	
	Operational	There are no changes to the information presented in this section of the EIAR since 2018 planning, where it was outlined that there are no significant residual impacts on traffic predicted as a result of the Operational Phase.	
Section 14: Landscape and Visual	Construction	There are no changes to the information presented in this section of the EIAR since 2018 planning, where it was outlined that there are no residual impacts on landscape and visual environment predicted as a result of the Construction Phase.	
	Operational	There are no changes to the information presented in this section of the EIAR since 2018 planning, where it was outlined that there are no residual impacts on landscape and visual environment predicted as a result of the Operational Phase.	

SECTION 19A Cumulative Impacts

19.1 Introduction

As detailed in Chapter 1A (Introduction) in Volume 2A Part A of this Environmental Impact Assessment Report (EIAR) Addendum, we have reviewed Section 19 (Cumulative Impacts) in Volume 4 Part A of the EIAR submitted with the original 2018 planning application, in the light of:

- Changes to the baseline environment;
- The requirement for updated surveys;
- Updated development plans;
- The updated cumulative assessment;
- EPA updated guidelines; and
- Changes to the law, policy, and industry standards and guidance in the intervening period.

The description of the Regional Biosolids Storage Facility (RBSF) remains as presented in Chapter 4 (Proposed Project Description) in Volume 2 Part A of the EIAR submitted with the original 2018 planning application, as supplemented by Chapter 4A (Proposed Project Description) in Volume 2A Part A of this EIAR Addendum.

19.2 Methodology

19.2.1 Legislative Context and Guidelines

19.2.1.1 Legislation

In this section of EIAR in the 2018 planning application it is explained that Article 3(1) and Annex III of the EIA Directive (2014/52/EU) confirms that the likely significant effects on the environment must be considered with regard to the impact of any project. The 2014 EIA Directive, which requires an assessment of the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the project, hasn't changed since the 2018 planning application in this regard. Since the 2018 planning application, the Planning European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018, which transpose the requirements of the 2014 EIA Directive into Irish planning law, have come into effect.

There has been no other changes to legislation governing the assessment criteria of Cumulative Impacts since the submission of the 2018 planning application.

19.2.1.2 Guidelines

This section was reviewed in order to determine if there have been any updates to the guidelines governing the assessment criteria of Cumulative Impacts in the intervening period since the 2018 planning application.

In 2022, the Environmental Protection Agency (EPA) published an updated set of Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (hereafter referred to as the updated EPA Guidelines) (EPA 2022a). The updated EPA Guidelines have been considered in terms of the methodology applied in this Section of the EIAR in the 2018 planning application, which incorporated the previous Draft Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (hereafter referred to as the previous EPA Guidelines) (EPA 2017).

It has been determined that the methodology used for the original assessment is consistent with the updated EPA Guidelines, and therefore, do not have a material consequence for the assessment contained in this Addendum.

The other guidelines included in this Section of the EIAR in the 2018 planning application remain unchanged.

19.2.2 Characteristics of the Proposed RBSF Component

There are no changes to the design of the Proposed RBSF Component presented in this section of the EIAR in the planning application.

The proposed programme for construction and delivery of the Proposed RBSF Component referred to in this section of the EIAR in the 2018 planning application has changed from approximately 12 months to 18 months, as presented in Chapter 4 (Description of the Proposed Project) in Volume 2A in this EIAR Addendum since the 2018 planning application,

19.2.3 Identification of Plans / Projects

The scoping exercise to identify existing and/or approved projects with the potential for cumulative impacts, considering any existing environmental problems relating to areas of environmental importance likely to be affected or the use of natural resources process described in this section of the EIAR in the 2018 planning application has not changed.

An updated scoping exercise was carried out and the projects identified within the vicinity of the Proposed RBSF Component site that have the potential to give rise to significant cumulative effects are as follows:

- Hunstown Quarry, Hunterstown
- Huntstown Power Station, Huntstown
- Huntstown BioEnergy Limited
- Dublin Airport Authority Development
- Mooretown Gas Insulated Switchgear (GIS) Substation
- Vantage Business Park Development
- Gas Peaking Facility Permission was sought by Energy Stability Services Ltd.
- Electric Infrastructure for Sub station
- Huntstown Data Centre Facility
- Vantage Business Park Warehouse/Logistics Facility Phase 3
- Kilshane Gas Turbine Power Generation Station
- Battery Storage Facility
- Huntstown Materials Recovery Facility

19.3 Evaluation of Potential Cumulative Environmental Impacts with other Projects

Since the EIAR in the 2018 planning application, a new desktop study was undertaken for the projects identified in the section 19.2 above to ascertain the nature and scale of their development and to identify where such impacts have the potential to occur. As in the 2018 EIAR, the updated desktop study included a review of plans and particulars – including Environmental Impact Statement, Reports, Planning conditions and Licenses where relevant. The updated findings of this review are presented in Table 19- 1 below and provided to the relevant specialists for assessment.

Table 19- 1: Evaluation for Cumulative, Indirect Impacts and Impact Interactions

Discipline	Projects/Plans												
	Plans or projects included in the 2018 EIAR				Plans or projects since the 2018 EIAR								
	Huntstown Quarry	Huntstown Power Station	Dublin Airport Authority Developments	Hunstown BioEnergy Limited	Gas Turbine Generation Station	Battery Storage Facility	Huntstown Materials Recovery Facility	Vantage Business Park Phase 2	Vantage Business Park Phase 3	Gas Peaking Facility	Electric Infrastructure for Substation	Huntstown Data Centre Facility	Mooretown Gas Insulated Switchgear (GIS) Substation
Population and Human Health	✓	✓	✗	✓	✓	✓	✗	✓	✓	✓	✓	✓	✗
Water	✓	✓	✗	✓	✓	✓	✗	✓	✓	✓	✓	✓	✓
Biodiversity Terrestrial	✓	✓	✗	✓	✓	✗	✗	✓	✓	✓	✗	✓	✗
Land and Soils	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
Air and Climate	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Noise and Vibration	✓	✓	✓	✓	✗	✗	✗	✓	✓	✗	✓	✓	✗
Odour	✗	✗	✗	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗
Cultural Heritage	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
Material Assets	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
Traffic	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Landscape	✓	✓	✗	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗

✓ Denotes potential for cumulative, indirect or interaction amongst impacts

✗ Denotes no potential for cumulative, indirect or interaction amongst impacts

19.4 Assessment of Cumulative Impacts, Indirect Impacts and Impact Interactions

19.4.1 Population and Human Health

Several of the projects in the Table 19-1 have potential to give rise to cumulative impacts for population and human health. However, these cumulative impacts will be mitigated as discussed in other relevant Sections. The positive cumulative impacts determined in this section of the EIAR in the 2018 planning application remain unchanged.

19.4.2 Water

Most of the projects in the Table 19-1 are located in the same catchment as the Proposed RBSF Component and therefore have potential for cumulative impacts. However, it is noted from the available EIAR for these projects that impact on the hydrological environment is assessed as negligible. The assessment in this section of the EIAR in the 2018 planning application, that the Proposed RBSF Component will not give rise to significant cumulative impacts, has not changed.

19.4.3 Biodiversity

As in the EIAR in the 2018 planning application, the site remains as previously evaluated of Low Importance (Higher Value). As summarised in this section of the EIAR in the 2018 planning application, the Proposed RBSF Component will not give rise to significant cumulative impacts.

19.4.4 Land and Soils

The residual impact of the Proposed RBSF Component on land, soils, geology and hydrogeology during both the construction and operational phases is assessed to be neutral. This is unchanged from the EIAR in the 2018 planning application. Accordingly, interaction with the impacts of other existing or permitted projects is unlikely. The assessment in this section of the EIAR in the 2018 planning application, that there are no cumulative impacts with other projects predicted, has not changed.

19.4.5 Air Quality and Climate

As a result of the changes to the methodology for assessment to Air and Climate presented in Section 8 and Appendix 8C (Greenhouse Gas Assessment) of Volume 4A of this EIAR Addendum since the 2018 planning application, the summary of Air and Climate cumulative impacts presented in this section has been updated with separate headings for Air and for Climate.

19.4.5.1 Air Quality

In Section 8 in Volume 4 Part A in the EIAR in the 2018 planning application, it was explained that the predicted dust deposition levels associated with the Proposed RBSF Component are low and preventative and mitigation measures will be in place accordingly to avoid the escape of dust during both construction and operation. Since the 2018 planning application, the design of the Proposed RBSF Component has not changed and there are no expected additional impacts due to the update in guidance above those identified in this Section of the EIAR in planning application. Therefore, the assessment that there are no significant changes to cumulative impacts on air quality remains as per the 2018 planning application.

19.4.5.2 Climate

With respect to the requirement for a cumulative assessment PE-ENV-01104 (TII, 2022d) states that “for GHG Assessment is the global climate and impacts on the receptor from a project are not geographically constrained, the normal approach for cumulative assessment in EIA is not considered applicable.”

However, by presenting the GHG impact of a project in the context of its alignment to Ireland’s trajectory of net zero and any sectoral carbon budgets, this assessment demonstrated the potential for the project to

affect Ireland's ability to meet its national carbon reduction target. Therefore, the assessment approach is considered to be inherently cumulative.

19.4.6 Noise and Vibration

The closest screened sites, particularly the Vantage Business Park Phases 2 & 3, have the potential to give rise to cumulative impacts related to noise. However, these have been assessed and it has been deemed that the change in noise associated to both projects is barely perceptible. Similarly, the cumulative impacts associated with the traffic noise are insignificant. As summarised in this section of the EIAR in the 2018 planning application, the Proposed RBSF Component will not give rise to significant cumulative impacts.

19.4.7 Odour

The only new project with the potential to emit odour is the Huntstown Materials Recovery facility, however its predicted odour concentration is considered to be negligible. Therefore, the assessment in this section of the EIAR in the 2018 planning application, that there are no significant cumulative impacts with other projects predicted, has not changed.

19.4.8 Cultural Heritage

The assessment in the EIAR in the 2018 planning application, that the Proposed RBSF Component will not give rise to residual impacts on Cultural Heritage has not changed. Therefore, the assessment that the Proposed RBSF Component will not give rise to significant cumulative impacts has not changed.

19.4.9 Material Assets

The assessment in the EIAR in the 2018 planning application, that the impact of Proposed RBSF Component on material assets will be neutral or imperceptible has not changed. Therefore, the assessment that the Proposed RBSF Component will not give rise to significant cumulative impacts has not changed.

19.4.10 Traffic

Section 13.7.4 of Volume 4A Part A of this EIAR Addendum provides an updated summary of the cumulative impacts on the local road network. The assessment made allowance for future development of the surrounding undeveloped lands in line with the current land-use zoning contained within the Fingal Development Plan 2023-2029. The assessment highlighted minor changes to the Ratio of Flow to Capacity (RFC) and Degree of Saturation (DOS) for the Construction Years of both project phases, the Year of Opening and the Design Year for Operations.

However, the updated figures do not change the conclusion of the assessment undertaken. The assessment in this section of the EIAR in the 2018 planning application has not changed i.e. that the Proposed RBSF Component will not give rise to perceptible, significant cumulative impacts.

19.4.11 Landscape

The new projects in Table 19-1 have been considered and it has been determined that they are far enough from the RBSF Component or already visually screened from it by separate development, so as not to cause a cumulative impact. The assessment in this section of the EIAR in the 2018 planning application, that the Proposed RBSF Component will give rise to a series of moderate and neutral cumulative impact, has not changed.

19.5 Cumulative Interactions with the Proposed GDD Project and the Proposed Upgrade Project

This section of the EIAR in the 2018 planning application considered the potential cumulative impacts that may result from the Proposed RBSF Component and both the Proposed GDD Project and the Ringsend Wastewater Treatment Plant Upgrade Project (which was granted planning permission in April 2019).

As presented in this section of the EIAR in the 2018 planning application, the Proposed RBSF Component and the Proposed GDD Project and Ringsend Upgrade Project are geographically remote from each other and do not present the potential for cumulative impacts or impact interactions, other than in the generation and handling of biosolids and in traffic between the Proposed RBSF Component and the respective facilities.

The design horizon years and interim milestones for development of Ringsend and GDD WWTP described in Volume 2, Section 3.4.2 have changed since the 2018 planning application. The projected loadings for the Ringsend catchment have also changed as explained in Volume 2A of the EIAR Addendum. As a result, the estimated production of biosolids and storage volumes presented in Volume 2, Section 3.4.2 have been updated. A summary of the updated estimated quantities of biosolids generated by each source, Ringsend WwTP Upgrade Project and Proposed GDD Project is provided in Table 19- 2 below. For the 2040 design horizon, the estimated storage requirement for the 'Most Likely Scenario' has reduced by approximately 1,200 m^3 (3.4%) since the Report submitted with the 2018 application.

Table 19- 2: Storage Volume Requirements for Biosolids

Year	Source	Biosolids Type	Annual		Storage Period	
			Dry Tonnes (tDS)	Wet (Tonnes)	Wet (Tonnes)	Volume (m^3)
2021	Ringsend WwTP	Biocake	5,670	21,800	6,990	6,660
		Biofert	15,320	16,650	5340	12,130
	Total					**18,790**
2025	Ringsend WwTP	Biocake	7,330	28,200	9,040	8,610
		Biofert	15,320	16,650	5,340	12,130
	Proposed Project WwTP	Biocake	8,890	34,200	10,960	10,440
	Total					**31,180**
2040	Ringsend WwTP	Biocake	8,760	33,700	10,800	10,290
		Biofert	15,320	16,650	5,340	12,130
	Proposed Project WwTP	Biocake	9,400	36,160	11,590	11,040
	Total					**33,460**

Notes: Figures are rounded. Bulk density of biofert is approximately 440 kg/m3 and biocake is approximately 1050 kg/m^3.

This minor change does not change the assessment presented in the EIAR in the 2018 planning application, that the Proposed RBSF Component and the Proposed GDD Project and the Proposed Upgrade Project will not give rise to undue or significant impacts.

19.6 Landspreading of Biosolids under the National Wastewater Sludge Management Plan

This section of the EIAR in the 2018 application explained that biosolids produced at the Ringsend WwTP and the Sludge Hub Centre at the proposed GDD WwTP will all be stored at the Proposed RBSF Component and will be ultimately spread as fertilizer on agricultural lands. Uisce Éireann does and will ensure that the lands utilised for the landspreading of all biosolids generated by its WwTPs are only those that comply with all relevant laws and regulation, as committed to in the National Wastewater Sludge Management Plan (NWSMP). It was explained that there are a significant number of important environmental controls on the use of biosolids in agriculture and that the environmental and human health impacts of landspreading were extensively considered in the SEA and AA carried out for the NWSMP, which was the subject of extensive public consultation during 2016 prior to its publication in September 2016.

The estimated quantity of biosolids referred to this section of the EIAR in the 2018 planning application (34,000 tonnes) has reduced slightly as explained in in section 19.5 above, and in Volume 2A of this EIAR Addendum. The change is not material to the assessment provided in this section of the EIAR in the 2018 planning application.

S.I. No. 605/2017 European Union (Good Agricultural Practice for the Protection of Waters) Regulations referred to in this section has been amended since the 2018 planning application by the S.I. No. 40/2020 but this amendment does not affect the practice of biosolids landspreading described in this section of the EIAR planning application. The other legislation/regulations included in this section, namely Waste Management (Use of Sewage Sludge in Agriculture) Regulations, 1998 as amended in 2001; and the Code of Good Practise for Use of Biosolids in Agriculture, remain unchanged. Biosolids will continue to be spread on land in accordance with all applicable law.

There are no other changes to the information presented in this section of the EIAR in the planning application.

19.7 Conclusion

This Section of the EIAR Addendum has considered all relevant updates to the planning permissions/projects as previously set out in this Section of Section 19.2 (Cumulative Impacts) in Volume 4 Part A of the EIAR, as well as planning permissions submitted to FCC since the submission of the EIAR in the 2018 planning application. This section of the EIAR Addendum has also considered relevant updates to legislation, guidance and reference material since the 2018 planning application submission.

Following consideration, there are no changes to the assessment of Cumulative Impacts as a result of any of the updates discussed in this section of the EIAR Addendum.

19.8 References

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

AWN Consulting (2022). Development of Two Data Halls and Ancillary Structures – Environmental Impact Assessment Report (Addendum)

Fingal County Council (2023). Fingal Development Plan 2023-2029. [Online] Available at: https://www.fingal.ie/development-plan-2023-2029;

UK Highways Agency (UKHA) (2020) Design Manual for Roads and Bridges (DMRB) LA 111 Sustainability and Environmental Appraisal LA 111 Noise and Vibration Revision 2.

Environmental Impact Services (2022) Environmental Report for Proposed 220kV Gas Insulated Switchgear (GIS) Substation and Underground 220kV Transmission Line Connection to the Existing Cruiserath 220kv Substation. [Online] Available at: https://kilshanesid.com/wp-content/uploads/EIAR_NTS/Kilshane%20Environmental%20Report%2022.09.pdf

AWN Consulting (2021a) Environmental Impact Assessment Report – Undergrounding of Existing Overhead Transmission Lines – Huntstown, North Road, Dublin 11. [Online] Available at: https://planning.agileapplications.ie/fingal/application-details/90467

AWN Consulting (2021b) Environmental Impact Assessment Report – Development of Two Data Halls and Ancillary Structures on lands adjacent to Huntstown Power Station, Huntstown, North Road (R135, Finglas, Dublin 11. [Online] Available at: https://planning.agileapplications.ie/fingal/application-details/90552