

Appendix 2.2. Construction Environmental Management Plan (CEMP)

AtkinsRéalis



Outline Construction
Environmental
Management Plan

Uisce Éireann

June 2026

MORTARSTOWN WASTEWATER TREATMENT PLANT UPGRADE

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List of Acronyms

The following list of abbreviations have been used within this document:

ACP - An Coimisiún Pleanála
BRE - Building Research Establishment
C&D - Construction and Demolition
CCC – Carlow County Council
CEMP - Construction Environmental Management Plan
OCEMP- Outline Construction Environmental Management Plan
CIRIA – Construction Industry Research and Information Association
EPA - Environmental Protection Agency
FRA – Flood Risk Assessment
GHG – Greenhouse Gas
GSI - Geological Survey of Ireland
HEMP - Handover Environmental Management Plan
IFI - Inland Fisheries Ireland
MSDS – Material Safety Data Sheet
NRA – National Roads Authority
NPWS - National Parks and Wildlife Services
RWMP- Resource Waste Management Plan
PSCS - Project Supervisor Construction Stage
PSDP - Project Supervisor for the Design Process
SAC - Special Area of Conservation
SID - Strategic Infrastructure Development
SMR - Sites and Monuments Record
SuDS – Sustainable urban Drainage Systems
TSE - Treated Sewage Effluent
WwTP – Wastewater Treatment Plant



1. Introduction

1.1 Overview

This Outline Construction Environmental Management Plan (CEMP) has been prepared by AtkinsRéalis Ireland Ltd. on behalf of the Uisce Éireann (the applicant) as part of the supporting documents for a planning application for a proposed upgrade to Mortarstown Wastewater Treatment Plant (WwTP) in Carlow.

Uisce Éireann are applying to An Coimisiún Pleanála (ACP) for permission for a Strategic Infrastructure Development (SID) comprising of upgrades to the existing Mortarstown Wastewater Treatment Plant (WwTP) and the existing Kilkenny Road Pumping Station at Mortarstown, Co. Carlow. The Proposed Development involves a new outfall pipe from the WwTP to the discharge point and new dual foul rising main from the Kilkenny Road Pump Station to the existing Mortarstown WwTP. The site area is ca. 10.77 hectares (ha) in size.

The redline boundary of the Proposed Development location is presented in Figure 2-1.

1.2 Purpose of Outline CEMP

The purpose of this Outline CEMP is to set out recommended measures to avoid, minimise and control adverse environmental impacts associated with the construction of the Proposed Development. This differs from a full CEMP as; the specific measures have not yet been confirmed. The detailed CEMP also provides more detail than an CEMP and is submitted to the relevant Planning Authority prior to construction whereas, the Outline CEMP is sent during the planning application stage.

The Outline CEMP will document the commitment to safeguarding the environment through the identification, avoidance and mitigation of the potential negative environmental impacts which are associated with the Proposed Development.

The Contractor will undertake the works in accordance with the provisions of the Outline CEMP. These provisions may be updated to address additional detailed construction matters. The CEMP will be updated by the Contractor to address any subsequent planning conditions relevant to the Proposed Development.

The CEMP aims to define good practice as well as specific actions required to implement mitigation requirements as identified in the following environmental reports and documents reviewed by AtkinsRéalis:

- Environmental Impact Assessment Report Volumes 1, 2 and 3 (AtkinsRéalis, 2026).
- Natura Impact Statement (AtkinsRéalis, 2026).

The party responsible for the preparation of the CEMP and the Detailed CEMP is likely to change over the lifecycle of a project. In the absence of Irish guidelines, the relevant UK guidelines (LA 120 Environmental management, March 2020) relating to the preparation of CEMPs have been applied to this document.

1.3 Structure

This Outline CEMP has been structured as follows:

- **Section 1** outlines the purpose of the Outline CEMP and introduces the Proposed Development;
- **Section 2** describes in detail the Proposed Development;



- **Section 3** outlines the minimum standards, legislation and guidance required of the Contractor during the development of the Outline CEMP and Detailed CEMP;
- **Section 4** identifies the relevant roles and responsibilities for developing, implementing, maintaining and monitoring environmental management;
- **Section 5** sets out the mechanisms through which environmental requirements would be managed;
- **Section 6** sets out the general requirements to of the Outline CEMP and Detailed CEMP;
- **Section 7** provides a summary of minimum requirements that should be implemented by the Contractor; and,
- **Section 8** sets out the procedures for the Emergency Response Plan.



2. The Proposed Development

2.1 Site Location and Surrounding Land Use

The Proposed Development site is located in Mortarstown within the administrative area of Carlow County Council. The site comprises approximately 10.77 hectares of predominantly developed land, currently occupied by the existing Mortarstown WwTP and associated infrastructure. The Proposed Development will include developing the vacant area to the west of the existing WwTP.

The existing Mortarstown WwTP is located on the southern side of Carlow town centre, located off Green Road, Mortarstown Upper, Co. Carlow, at approximate grid reference 52°49'09.2"N 6°56'19.1"W. The WwTP is bounded by agricultural land and the Carlow Institute of Further Education and Tyndall College to the South; agricultural land and the Kilkenny Road (R448) to the West; agricultural land and existing residential developments to the North; and agricultural land, residential properties and residential development under construction to the East.

The existing Pumping Station site is bounded on the southern side by the Kilkenny Road (R448) and vegetation/trees; vegetation/trees and the River Barrow to the West; partially cleared vegetation/trees and the River Barrow to the North; and Kilkenny Road (R448), Carlow Institute of Technology and student accommodation to the East. The existing Pump Station is located on the southern side of Carlow town centre, adjacent to the River Barrow at approximate grid reference 52°49'37.2"N 6°56'16.0"W.

The route of the existing microtunnel between the existing Kilkenny Road PS and existing Mortarstown WwTP runs along Kilkenny Road. The existing outfall location is in close proximity to three residential houses, and the area is grassed with thick vegetation.

Figure 2-1 illustrates the site location.

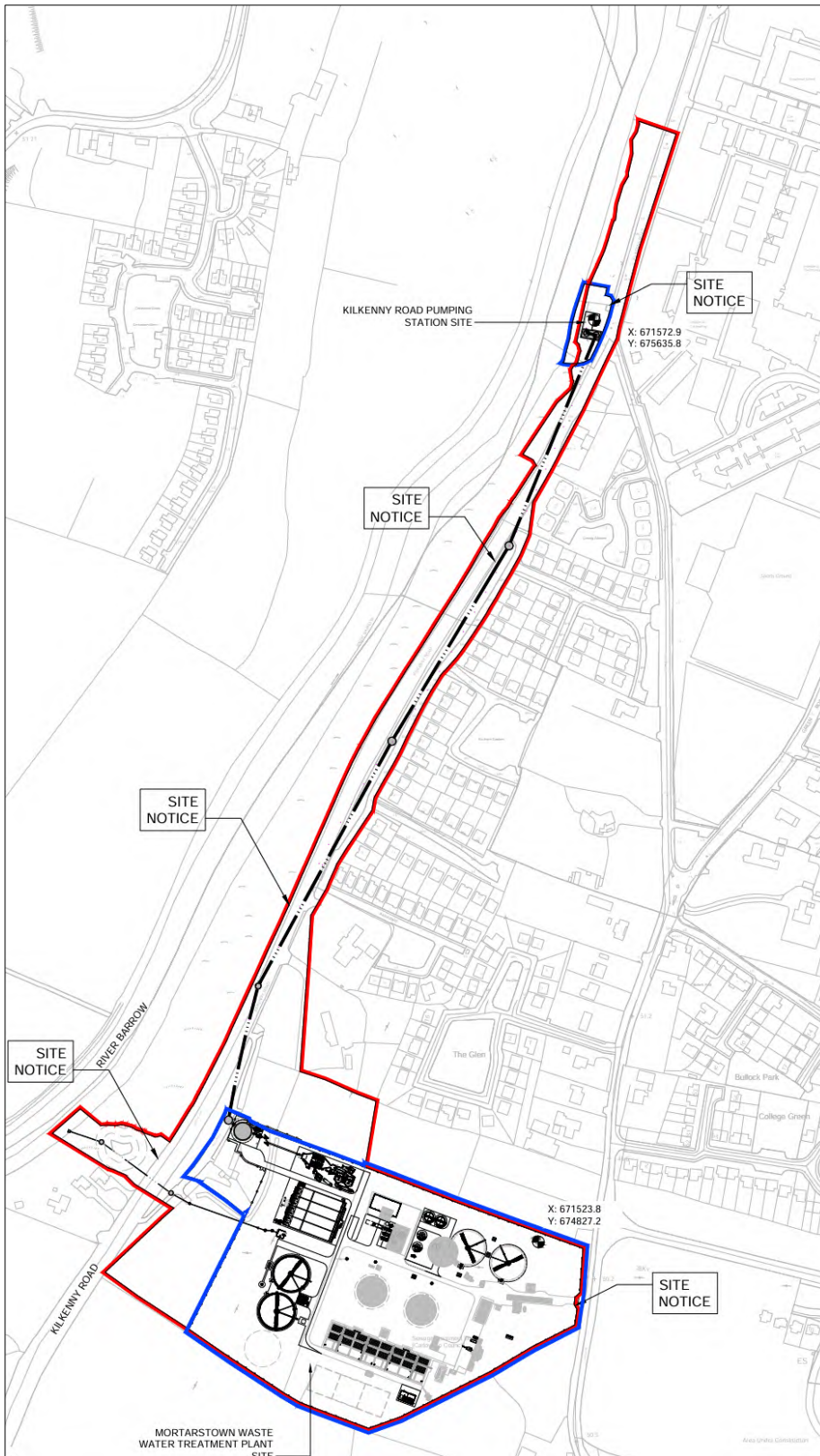


Figure 2-1 - Site Location (AtkinsRealis, 2026)

2.2 Proposed Development

The upgrade works for the Mortarstown WwTP are listed as follows:

- Microtunnel Gravity Sewer
 - Ø1650mm internal diameter.
 - 785m long.
- New Pumping Station (PS)
 - The provision of 1 no. terminal pump station.
 - The provision of 4 no. raw sewerage pumps inclusive of Mechanical, Electrical, Instrumentation, Control, and Automation (MEICA) works.
 - The provision of 1 no. odour control unit.
 - The provision of 1 no. flow meter chamber.
- Existing Kilkenny Road Pumping Station
 - The existing Kilkenny Road pumping station will be decommissioned. The existing building structure will remain. The existing above ground steel gantry structure, access stairs and pumps will be removed from site and repurposed. Incoming flows will be diverted via the existing below-ground holding tank to a newly constructed manhole positioned south of the existing PS, conveying flows to the new gravity microtunnel. Existing overflows at the Kilkenny Road PS will be retained in accordance with the current Wastewater Discharge Licence (EPA WwDL Ref: D0028-01) and utilised in extreme events where the new gravity microtunnel may be at maximum capacity.
- Mortarstown WwTP
 - Provision of a new foul pumping station for local agglomeration adjacent to existing inlet works (supplemented by the WwTP standby generator).
 - Provision of new fuel storage tank (5000l) and standby diesel generator to service the WWTP (roofed).
 - Provision of new inlet works to include fine screening, mechanically raked by-pass screen, screening compaction and conveyance to skips, grit removal, grit classification and conveyance to skips. The new inlet works will be provided with an odour treatment unit.
 - Provision of 2 no. new stormwater storage tanks and 2 no. new stormwater return pumps.
 - Existing final settlement tanks and associated Return Activated Sludge (RAS)/ Waste Activated Sludge (WAS) to be retained, cleaned and decommissioned.
 - Provision of 4 no. new primary settlement tanks and scraper systems.
 - Provision of 4 no. new primary sludge pumps.
 - Provision of a new scum pump.
 - Provision of 4 no. new air blowers and modifications to existing air delivery pipework
 - Provision of a new air blower building (13.6m x 8.6m, roofed) and repurposing of existing blower building for storage purposes.
 - Provision of new fine bubble diffused air system in existing aeration tanks.
 - Provision of 2 no. new final settlement tanks with half-bridge scrapers.
 - Provision of a new RAS/WAS pumping station and station fitted with 2 no. RAS pumps and 2 no. WAS pumps.
 - Structural refurbishment of the existing picket fence tanks.
 - Mechanical and electrical refurbishment of existing picket fence thickener and conversion of second existing tank to a sludge blending tank.



- Provision of 2 no. additional picket fence thickener tanks.
- Provision of 1 no. belt press, polymer prep unit and polymer dosing pumps in the existing sludge dewatering building.
- Provision of a new pumped sludge transfer system between the sledge blending tank and picket fence thickeners.
- Provision of upgrades to the existing sludge import facility.
- Provision of minimum 6 no. new odour control units
- Provision of upgrade to existing chemical storage tank and dosing facility
- Provision of 1 no. new outfall chamber and outfall pipe.
- Modifications to existing administration building.
- Provision of MEICA and SCADA upgrades.
- New storage shed and associated gantry (24.9m x 12.7m, roofed).
- Demolition of existing inlet works structure.
- Existing utility service relocations.
- General civil site works.
- Future storm tank (not part of this planning consent).
- Future aeration tank (not part of this planning consent).
- Future final settlement tank (not part of this planning consent).
- Provision for PV solar panels,
- Diversion of existing ESB 38kv HV overhead lines and 10kV/20kV MV line on site (carried out by ESB).

The proposed upgrade of the WwTP and new pumping station will:

- Meet the requirements of the existing Wastewater Discharge Licence (WWDL) D0028-01;
- Meet Department of Environmental, Housing and Local Government Guidance and Urban Waste Water Treatment Directive criteria in relation to storm water storage and overflows;
- Alleviate current overloading of some process units; and,
- Provide additional capacity to treat future predicted catchment growth.

The layout of the Proposed Development is presented in Figure 2-2 and Figure 2-3 **Error! Reference source not found.**



2.3 Key Stages

The Proposed Development will involve the following key work phases:

- Tender Stage;
- Procurement and appointment of successful Tenderer(s) (hereafter referred to as The Contractor);
- Detailed Design Stage;
- Site preparatory works including the preparation of all required Detailed Safety and Health, and Environmental Management documents;
- Site mobilisation;
- Decommissioning / Demolition Stage;
- Construction Stage;
- Completion; and,
- Operational Stage.

Details of machinery to be used on site are unknown at this time, but are likely to be standard site equipment including tracked excavators, dumpers, bulldozers etc.

2.4 Environmental Constraints

This section summarises the receiving environment along with key environmental factors (at this preliminary juncture) that should be considered during the construction phase.

2.4.1 Noise and Vibration

The Proposed Development site is affected by high levels of noise pollution; primarily due to traffic on Kilkenny Road. Noise surveys were conducted on the site between 13.26 hrs on 18th June and 00.24 hrs on 19th June 2025. Land was surveyed at 5no. different locations, with average daytime noise levels ranging from 46dB to 72dB and average evening to nighttime noise levels ranging from 39dB to 65dB (Refer to Figure 2-5 for locations of surveys). The nearest noise sensitive locations to the site are residential houses except for R22 through R24, which are educational buildings within Carlow Institute of Technology (Refer to Figure 2-4).



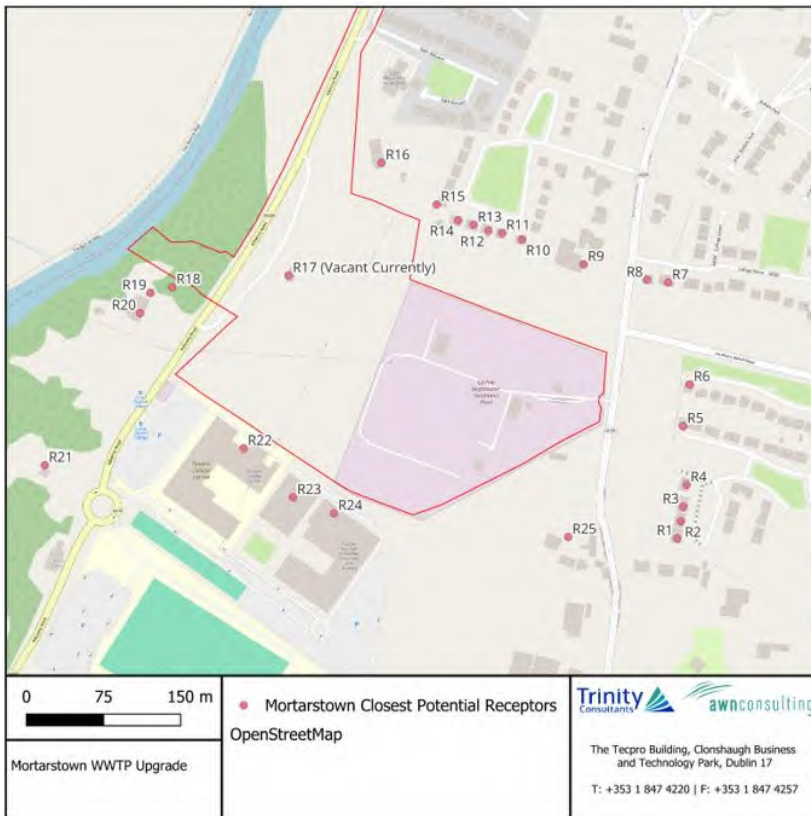


Figure 2-4 - Noise-sensitive Locations



Figure 2-5 - Baseline Noise Measurement Locations

For further details on these survey results, receiving environment, potential impacts and proposed mitigations measures, please refer to Chapter 9 in Volume 2 of the EIAR.

2.4.2 Air Quality and Odour

The site is located within an Air Zone C, applying to other cities and large towns outside the areas of Dublin and Cork. While there is some availability of recent and historic data for air quality in major urban and rural areas, there is no data available from the national air quality monitoring database for air quality specific to Mortarstown. The closest air monitoring station to the site is Carlow Town (CW01), located ca. 1.3 km north of the site.

With regards to Odours, the impact associated with the existing facility is in excess of the guideline limit value of less than or equal to 3.0 OUE/m³ for the 98th percentile of hourly averages for the worst case meteorological year. An Odour Impact Assessment completed as part of Chapter 7 – Air Quality and Odour of Volume 2 of the EIAR concluded that with respect to the Proposed Development, there will be a net overall improvement in odour air quality in the vicinity of the facility as a result of the development and the impact associated with the proposed development is considered **Positive and imperceptible**.

For further details regarding potential impacts on air quality and odour during the construction and operational phases and proposed mitigation measures, please refer to Chapter 7 in Volume 2 of the EIAR. It is predicted that there will be no residual impacts on air quality during the construction phase and as long as proposed mitigation measures are met, any impacts during the operational phase will be minor and non-significant.

2.4.3 Land, Soils and Geology

A ground investigation was carried out by Priority Geotechnical on both the Mortarstown WwTP site and the Kilkenny Road PS site between 23rd February and 25th March 2021 and the 04th March and 16th June 2022 under the supervision of PGL's Engineering Geologist. Refer to Chapter 11 – Land, Soils and Geology of Volume 2 EIAR for summarised results.

The WwTP site power station and micro tunnel are underlain by limestone of the Ballyadams formation and limestone of the Milford formation. The WwTP site is generally underlain by shallow well drained mineral soils. The pumping station site is shown to be underlain by shallow well drained mineral soils and made ground. The discharge pipe will encounter alluvium associated with the River Barrow. The natural soils beneath the WwTP consist of gravels derived from limestones with alluvium beneath the discharge pipe. The pumping station site is underlain with made ground, gravels and alluvium. No landslide susceptibility issues have been noted in the vicinity of the site.

There is 1 no. Geological Heritage Area located within 4 km of the site. Clogrenan Quarry is located ca. 3.5 km south west of the WwTP site. For further details on the receiving environment, potential impacts and proposed mitigation measures, please refer to Chapter 11 in Volume 2 of the EIAR.

2.4.4 Ecology

A number of site visits and walkovers were carried out to inform the environmental assessment between 2018 and 2025, results of which can be referred to in Chapter 5 – Biodiversity in Volume 2 of the EIAR. The Proposed Development site intersects the boundaries of 1 no. Natura 2000 site the River Barrow and River Nore Special Area of Conservation (SAC) (site code: 002162).

There are 2 no. sites designated as Wetlands of International Importance under the Convention on Wetlands of International Importance especially as Waterfowl Habitat ("the Ramsar Convention"), namely the Slieve Bloom

Mountains (site no. 335) and Pollardstown Fen (site no. 474). However, neither are considered an ecological receptor for the Proposed Development.

There are 3 no. NHAs and 37 no. pNHAs (7 no. of which are within 15km of the Proposed Development) designated within the Zone of Influence of the proposed development. Oakpark pNHA and Whitehall Quarries pNHA are situated 4.5km north-east and 14.2km south-west, respectively, of the proposed development and do not have any surface water connectivity to the proposed development. All the remaining sites have some surface water connectivity to the proposed development. However, with the exception of Cloghrick Wood pNHA, which is c. 4.8km downstream of the proposed development (on the River Barrow), all are upstream of the proposed development (the closest is the Barrow Valley at Tankardstown Bridge pNHA, c. 13.5km upstream).

The Natura Impact Statement (NIS) presents a detailed description of this Natura 2000 site and assesses the implications of the Proposed Development.

For further details on the receiving environment, potential impacts and proposed mitigation measures, please refer to Chapter 5 in Volume 2 of the EIAR.

2.4.5 Landscape and Visual Amenity

A Landscape and Visual Impact Assessment of the site was carried out to assess the potential effects on the landscape as a resource in its own right and assess the effects on specific views and on the general visual amenity experienced by people. The chosen Study Area includes lands within a 0.5 km radius of the site. The Study Area is located within 3no. specific character areas: Central Lowlands LCA (Co. Carlow), Urban Fringe LCA (Co. Laois) and Lowland Character Area (Co. Laois). The report reveals that following the implementation of additional mitigation measures there would be no significant adverse residual landscape and visual effects.

For further details on the receiving environment, potential impacts on landscape and visual amenities and proposed mitigation measures, please refer to Chapter 6 – Landscape and Visual in Volume 2 of the EIAR.

2.4.6 Hydrology

A hydrological walkover survey and detailed drainage mapping was completed by Hydro-Environmental Services (HES) at the Proposed Development Site on 19th July 2022. During the walkover survey notes were made on ground conditions, local drainage patterns and potential surface water flowpaths. Baseline surface water monitoring/sampling was undertaken by Atkins at 2 no. locations (SW1 and SW2) on the River Barrow on 28th June and 22nd September 2021.

HES completed additional surface water sampling at the same locations on 29th April 2025. Groundwater monitoring within the installed standpipes was completed by PGL on 16th April 2021 with HES completing manual groundwater level monitoring during subsequent site visits. Results of water monitoring are included in Chapter 12 – Water Volume 2 of the EIAR.

The site is located in the River Barrow sub-catchment (Barrow_SC_090) and the Barrow_160 WFD River Sub-Basin. The closest river waterbody to the site is the River Barrow (EPA Code: 14B01), located directly west of the Proposed Development site. The WFD status 2019-2024 of this waterbody is classed as 'moderate' and it is listed as being 'at risk' of failing to meet adequate WFD status by 2027.

For further details on the receiving environment, potential impacts hydrology and proposed mitigation measures, please refer to Chapter 12 in Volume 2 of the EIAR.



2.4.7 Hydrogeology

The bedrock aquifer underlying the Proposed Development site is classified as being a Regionally Important Aquifer - Karstified (diffuse) (Rkd).

The site is located within the Athy-Bagenelstown Gravels Groundwater Body (GWB) (European Code: IE_SE_G_160). The WFD Status 2019-2024 of this GWB between 23.4km southwest is classed as 'good' and it is listed as be 'at risk' of failing to meet 'good' WFD status by 2027. This aquifer is in turn underlain by a bedrock aquifer which forms part of the Bagenalstown Lower karstic GWB (IE_SE_G_157). There are no karst features recorded within the Proposed Development site or in the surrounding lands. A search of private well locations (accuracy of 1 – 50m) was undertaken and there was no record of any wells with an accuracy of <50m in the immediate vicinity of the site. The closest mapped Group Water Scheme (GWS) is the Ballinabranna GWS, located ~3.1km southwest of the site.

For further details on the receiving environment, potential impacts hydrogeology and proposed mitigation measures, please refer to Chapter 12 in Volume 2 of the EIAR.

2.4.8 Flood Risk

IE Consulting completed a Site-Specific Flood Risk Assessment (SSFRA) (IE Consulting, 2026). The proposed outfall pipe and associated headwall are located within the mapped fluvial flood zones along the River Barrow. All other infrastructure is located in Flood Zone C and is considered to be at low risk of flooding. The elements of the Proposed Development mapped within the flood zones are considered to be "Water Compatible". Modelling has revealed that the construction of these elements will not result in any negative effects to the existing hydrological regime or any increase in the downstream/upstream flood risk. The potential flood risk is considered to be low and the Proposed Development is considered to be appropriate from a flood risk perspective. Furthermore, a Hydrodynamic Technical Report (IE Consulting, 2025) concluded that the construction of the outfall pipe and headwall would not have a significant effect on the existing baseline water levels and flows in the river. The SSFRA is presented in full in Appendix 12.1, Volume 3 of this EIAR.

A Water Framework Directive (WFD) Compliance Assessment has been completed for all waterbodies (surface water and groundwater bodies) with the potential to be impacted by the Proposed Development, as presented in Appendix 12.6, Volume 3 of this EIAR.

2.4.9 Cultural Heritage

John Cronin and Associates (JCA) prepared the Cultural Heritage Chapter of the EIAR. Site inspections took place in 2020, 2021, 2022 and 2025. This chapter states that there are no recorded archaeological heritage constraints within the chosen study area extending for 500 m from the Proposed Development site. The closest architectural heritage constraint is listed as Erindale House (NIAH No. 10300702), located ca. 230 m from the site. JCA state that *no residual effects on these elements of the cultural heritage resources are predicted*.

For further details on the receiving environment, potential impacts on cultural heritage and proposed mitigation measures, please refer to Chapter 13 – Cultural Heritage in Volume 2 of the EIAR.

2.4.10 Traffic and Transportation

In relation to transport, the Contractor will utilise the Traffic Management Control Plan to mark relevant identified receptors so that construction impacts on them can be considered. Mitigation will include traffic management measures and the use of signage with speed restrictions and diversions.



For further details on the receiving environment, potential impacts on traffic and transport and proposed mitigation measures, please refer to Chapter 10 – Traffic and Transportation in Volume 2 of the EIAR. The Contractor shall engage with the adjoining educational campuses (SETU, Tyndall College, and Carlow Institute of Further Education) to coordinate and obtain feedback on the detailed Traffic Management Plan.

2.4.11 Population and Human Health

Sensitive receptors just outside the southern site boundary include Carlow Institute of Further Education and Training, south East Technical University Sports Campus and Tyndall College Carlow. Sensitive receptors to the east of the site are primarily in the form of residential properties. Just outside the northeastern boundary of the site lie various other buildings forming part of the South East Technical University complex. During the 2022 Census the population of Carlow Rural ED was recorded as 16,203 while the population recorded in County Carlow was 61,968.

For further details on the receiving environment, potential impacts on population and human health and proposed mitigation measures, please refer to Chapter 4 in Volume 2 of the EIAR.

2.4.12 Material Assets

Consultation with relevant bodies has been undertaken to determine existing utilities present in the vicinity of the site. As part of the Proposed Development, features such as the existing storm tank will be demolished. A complete set of all utility/service data received has been integrated into the site layout and is presented in Appendix 14.1, Volume 3 of the EIAR.

The following potential impacts could occur during the Construction phase;

- Damage to existing foul water network along Kilkenny Road on the eastern site boundary,
- Damage to existing overhead and underground power supply which runs through the site, and
- Potential power outages to existing services in the surrounding area during the diversion and rerouting of the supply networks within the site.

Overall, no significant effects on built services are likely.

The following waste streams will be generated during the construction and demolition phases: concrete, mechanical, electrical containment, wood, glass, aluminium, iron and steel, insulation material, construction material containing asbestos and soils. This waste will be properly segregated and appropriately disposed of/ removed from the Proposed Development in accordance with the relevant waste management legislation.

Any effects arising from waste management activities during the construction and operational phases will be imperceptible and not significant. Hence there are no likely significant effects identified in respect of waste management and/or waste generation.

For further details on the receiving environment, potential impacts on material assets and proposed mitigation measures, please refer to Chapter 14 in Volume 2 of the EIAR.

2.4.13 Climate

The most significant proportion of Greenhouse Gas (GHG) emissions tend to occur during the construction phase as a result of embodied carbon in construction materials and GHG emissions from construction activities. The construction phase of the Proposed Development is predicted to result in 9,099 tCO₂e (364 tCO₂e annualised). The operational phase of the Proposed Development is predicted to result in 55,874 tCO₂e over



the 25-year lifespan (2,235 tCO₂e annually). The majority of GHG emissions associated with the operational phase and the overall lifespan of the Proposed Development, originate from transport to and from site to deliver chemicals, remove sludge cake and for routine maintenance.

For further details on the receiving environment, potential impacts on climate and proposed mitigation measures, please refer to Chapter 8 in Volume 2 of the EIAR.



3. Legislation and Guidance

All parties, contractors and consultants working on this project shall be subject to the laws of Ireland and the various international/regional protocols and agreements to which Ireland is a party. In the event that legislation is updated the latest version shall be followed. All relevant new legislation will be followed as appropriate. This document outlines current legislation at the date of issue. It is the responsibility of the Contractor to ensure that they are up to date with the details of the latest iterations of legislation relevant to the project throughout the duration of the contract.

The Designer will be aware of all key environmental risks and associated measures set out within this CEMP, and the final detailed design will take due cognisance of these where relevant.

The Contractor will set out the CEMP in a clear format and will address all key environmental risks and associated measures. The Contractor must be aware of and comply with the legislation and guidance set out in this document, any specific planning conditions which may be associated with the Proposed Development, and other relevant documentation as prescribed by the Employer and planning authority.

3.1 Legislation

It should be noted that the appointed Contractor will be required to be aware of their obligations under legislation. Such legislation, includes, but is not restricted, to:

- Planning and Development Act, 2000, as amended 2017 to 2025;
- Planning and Development Regulations 2001 to 2025;
- Safety, Health and Welfare at Work Act 2005;
- Safety Health and Welfare at Work (General Application) (Amendment) Regulations 2023 (S.I. No. 255 of 2023);
- European Framework Directive on Safety and Health at Work (89/391/EEC);
- The Birds Directive: Council Directive on the conservation of wild birds (79/409/EEC);
- The Birds Directive: Council Directive on the conservation of wild birds (2009/147/EC);
- The Habitats Directive: Council Directive on the conservation of natural habitats and of wild fauna and flora (92/43/EEC);
- European Communities (Birds and Natural Habitats) Regulations, 2011 (S.I. 477 of 2011), as amended, 2015 (S.I. No. 355 of 2015), 2021 (S.I. No. 388 of 2021) and 2025 (S.I. 451 of 2025);
- Water Framework Directive (WFD): Directive 2000/60/EC of the European Parliament and Council establishing a framework for Community Action in the field of water policy, as amended;
- European Communities Environmental Objectives (Surface Waters) Regulations, 2009, as amended 2012 to 2025;
- European Communities Environmental Objectives (Groundwater) Regulations 2010 (S.I. No. 9 of 2010), as amended, 2011 (S.I. No. 389 of 2011), 2012 (S.I. No. 149 of 2012); 2016 (S.I. No. 366 of 2016), 2022 (S.I. No. 287 of 2022), and 2025 (S.I. No. 51 of 2025);
- European Communities (Environmental Liability) Regulations, 2008, S.I. No. 547 of 2008, as amended, 2011 (S.I. No. 307 of 2011), 2015 (S.I. No. 293 of 2015);
- Waste Framework Directive 2008/98/EC of the European Parliament and Council on waste, as amended 2018 (S.I. No. 851 of 2018);
- Waste Management Acts of 1996 to 2021;
- The Water Pollution Acts of 1977 and 1998;



- The Wildlife Acts 1976 to 2021;
- Water Policy Regulations 2003(S.I. No. 722 of 2003), as amended, 2005 to 2025;
- Water Conservation Regulations 2008(S.I. No. 527 of 2008);
- European Union (Drinking Water) Regulations 2023 (S.I. No. 99 of 2023), as amended 2025 (S.I. No. 673 of 2025);
- Litter Pollution Act of 1997;
- Litter Pollution Regulations 1999 (S.I. No. 359 of 1999);
- European Union (Waste Electrical and Electronic Equipment) Regulations 2014 (S.I. No. 149 of 2014), as amended 2019 (S.I. No. 233 of 2019), and 2025 (S.I. No. 427 of 2025) ;
- Waste Management (Facility Permit and Registration) Regulations 2007, S.I. No. 821 of 2007, as amended, 2008 (S.I. No. 86 of 2008), 2015 (S.I. No. 198 of 2015), 2019 (S.I. No. 250 of 2019) and 2023 (S.I. No. 471 of 2023)
- Waste Management (Collection Permit) Regulations 2007, S.I. No. 820 of 2007), as amended, 2015 (S.I. No. 197 of 2015), 2016 (S.I. No. 24 of 2016), 2023 (S.I. No. 63 of 2023 & S.I. No. 104 of 2023)
- Waste Management (Licensing) Regulations 2004 (S.I. No. 395 of 2004) as amended 2010 (S.I. No. 350 of 2010);
- Environment (Miscellaneous Provisions) Act 2011, as amended 2015;
- Waste Management (Landfill Levy) Regulations 2008 to 2024;
- Waste Management (Hazardous Waste) Regulations, 1998 (S.I. No. 147 of 1998), as amended, 2000 (S.I. No. 73 of 2000);
- Waste Management (Shipment of Waste) Regulations 2007(S.I. No. 419 of 2007);
- Waste Management (Movement of Hazardous Waste) Regulations, 1998 (S.I. No. 147 of 1998);
- European Communities (Shipments of Hazardous Waste Exclusively within Ireland) Regulations 2011, (S.I. No. 324 of 2011);
- European Communities (Transfrontier Shipment of Waste) Regulations 1994 (S.I. No. 121 of 1994);
- Waste Management (Transfrontier Shipment of Waste) Regulations 1998, as amended, 2014 (S.I. No. 861 of 2014);
- Waste Management (Tyres and Waste Tyres) Regulations 2017 (S.I. No. 400 of 2017), as amended 2018 (S.I. No. 96 of 2018);
- European Union Batteries and Accumulators Regulations 2014(S.I. No. 283 of 2014), as amended, 2014 (S.I. No. 349 of 2014), and 2015 (S.I. No. 347 of 2015);
- Waste Management (Registration of Brokers and Dealers) Regulations 2008, SI No. 113 of 2008;
- Waste Management (Prohibition of Material Disposal by burning) Regulations 2009, S.I. No. 286 of 2009, as amended 2013 (S.I. No. 504 of 2013), 2017 (S.I. No. 599 of 2017), 2019 (S.I. No. 684 of 2019), (S.I. No. 51 of 2022) and 2023 (S.I. No. 16 of 2023);
- European Communities (Waste Directive) Regulations 2020 (S.I. No. 323 of 2020), as amended 2025 (S.I. No. 166 of 2025)
- Waste Management (Food Waste) Regulations 2009, S.I. No 508 of 2009, as amended, 2015 (S.I. No. 430 of 2015) and 2024 (S.I. No. 294 of 2024)
- Protection of the Environment Act 2003;
- European Union (Properties of Waste Which Render It Hazardous) Regulations 2015(S.I. No. 233 of 2015), as amended, 2018 (S.I. No. 383 of 2018);
- Air Quality Standards Regulations 2022 (S.I. No. 739 of 2022);
- Air Pollution Act, 1987 (Emission Limit Values for use of Asbestos) Regulations, 1990(S.I. No. 28 of 1990);



- European Communities (Control of Emissions of Gaseous & Particulate Pollutants from Non-Road Mobile Machinery) Regulations 2007, S.I. No.147 of 2007, as amended, 2011 (S.I. No. 263 of 2011), 2012 (S.I. No. 407 of 2012), 2013 (S.I. No. 417 of 2013);
- Control of Substances that Deplete the Ozone Layer Regulations 2006(S.I. No 281 of 2006), as amended, 2011 (S.I. No. 465 of 2011);
- European Union (Fluorinated Greenhouse Gases) Regulations 2022 (S.I. No. 404 of 2020);
- Environmental Protection Agency Act 1992 (Noise) Regulations, 1994 (S.I. 174 of 1994);
- Environmental Noise Regulations 2006(S.I. No. 140 of 2006);
- European Communities (Environmental Noise) Regulations 2018 (S.I. No. 549 of 2018), as amended 2021 (S.I. No. 663 of 2021);
- European Communities (Noise Emission by Equipment for use Outdoors) Regulations, 2001(S.I. No. 632 of 2001), as amended, 2006 (S.I. No. 241 of 2006), 2025 (S.I. No. 559 of 2025)
- European Communities (Construction Plant and Equipment) (Permissible Noise Levels) Amendment Regulations 1996(S.I. No. 359 of 1996);
- Wildlife Act, 1976 (Protection of Wild Animals) Regulations 2022 (S.I. No. 485 of 2022);
- Wildlife Amendment Act 2023 (Act No. 25/2023)
- European Communities Conservation of Wild Bird Regulations 1985 to 2021;
- Flora (Protection) Order 2022 (S.I. No. 235 of 2022);
- Forestry Regulations, S.I. No. 191 of 2017, as amended 2020 to 2023;
- The National Monuments Act 1930, (S.I. No. 2 of 1930), as amended, 1954 to 2020;
- European Union (Environmental Impact Assessment and Habitats) (Section 181 of the Planning and Development Act 2000) Regulations, 2013 (S.I. No. 403 of 2013), 2015 (S.I. No. 301 of 2015), 2019 (S.I. No. 418 of 2019); and,

3.2 Industry Guidance

The Contractor will take due consideration of, and incorporate best practice guidance, including but not limited to the following:

- BS 5837:2012. Trees in relation to design, demolition and construction;
- BS 3998:2010. Tree Work. Recommendations;
- CIRIA (2001). C532. Control of water pollution from construction sites. Guidance for consultants and contractors;
- CIRIA (2006). C648. Control of water pollution from linear construction projects. Technical Guidance;
- CIRIA (2008). C679. Invasive species management for infrastructure managers and the construction industry.;
- CIRIA (2023). C8IID. Environmental Good Practice on Site;
- CIRIA (2015). C753. The SuDS Manual;
- Environmental Protection Agency (EPA) 2021.). 'Best Practice Guidelines for the preparation of resources & waste management plans for construction & demolition projects';
- Invasive Species Ireland (2016). Best Practice Management Guidelines. Japanese knotweed;
- IFI. 2016. Guidelines on protection of fisheries during construction works in and adjacent to waters'
- NRA (2005a). Guidelines for the Crossing of Watercourses during the Construction of National Road Schemes;
- NRA (2005b). Guidelines for the Treatment of Badger Prior to the Construction of National Road Schemes;



- NRA (2008). Guidelines for the Treatment of Otters prior to the Construction of National Road Schemes;
- NRA (2006). Guidelines for the Protection and Preservation of Trees, Hedgerows and Scrub Prior to, During and Post Construction of National Road Schemes;
- NRA (2006). A Guide to Landscape Treatments.
- NRA (2010). Guidelines on the Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads (Revision 1);
- Sustainability & Environmental Appraisal (March 2020) LA 120 Environmental management;
- TII. 2020. The Management of Invasive Species on National Roads – Technical Guidance;
- TII. 2025. Biodiversity Metric Tool for Road, Greenway and Light Rail Projects: Technical Report;
- TII. 2025. Water Impact Assessment for National Roads, Light Rail, Metro and Rural Cycleways: Overarching Technical Document;
- TII. 2025. Air Quality Assessment of Proposed National Roads;
- TII. 2025. Guidelines for Cultural Heritage Impact Assessment of TII National Road and Greenway Project;
- TII. 2025. Cultural Heritage: Engaging the Public Archaeology, Built Heritage, Landscape, Portable Heritage and Intangible Heritage;

The Contractor will be familiar with the Irish Water's Technical Standards, Environmental Procedures and Guidance in particular the standards that are relevant to the specific project. These include the following:

- Irish Water Asset Delivery Site Supervision Handbook IW-AD-PG-MAN-003;
- 'Management of Health, Safety, Quality and Environment on Capital Projects IW-HSQE-SOP-021;
- Code of Practice for Water Infrastructure IW-CDS-5020-03;
- Code of Practice for Waste Water Infrastructure IW-CDS-5030-03;
- Water Infrastructure Standard Details IW-CDS-5020-01;
- Waste Water Infrastructure Standard Details. IW-CDS-5030-01
- AM-SOP-009 Information and Guidance Document on Japanese Knotweed;
- IW-AMT-GL-001 Irish Water Guidance on the Management of Giant Hogweed;
- IW-AMT-GL-002 Irish Water Guidance on the Management of Himalayan Balsam;
- IW-AMT-GL-007 Irish Water Guidance on Biosecurity for Aquatic Sampling Activities;
- IW-OPM-SOP-10 Biosecurity Standard Operating Procedure for Aquatic Sampling;
- IW-AMT-GL-009 Landscape Treatment Guidelines;
- IW-TEC-300-01 General Civil Engineering Specification - Particularly Section 1.15 and 1.21; and,
- IW-TEC-300-02 General Civil Engineering Specification Notes for Guidance - Particularly Section 3.



4. Project Roles and Responsibilities

For the purposes of clarity, the roles and responsibilities of the project team for the Proposed Development will be determined at the very outset of the Construction Stages of this project. Key roles are listed below. These are typically performed by the Client, Engineer, and Contractor as presented below. Specific details will be determined upon the Detailed Design and Contract Stage. Refer to Table 4-1.

Table 4-1 - Roles and Responsibilities of the Project Team

Employer		Planning Agents	
Client:	Uisce Éireann	The Planner:	TBC
Address:	Colvill House, 24-26 Talbot Street, Dublin 1	Tel:	TBC
Contact:	Conor Delaney	Contact:	TBC
Employers Representative		Civil, Structural and Environmental Team	
The Engineer:	TBC	Consultant:	TBC
Tel:	TBC	Tel:	TBC
Contact:	TBC	Contact:	TBC
Project Supervisor for the Design Process (PSDP)		Contractor	
The Engineer:	TBC	The Contractor:	TBC
Tel:	TBC	Tel:	TBC
Contact:	TBC	Contact:	TBC
Project Supervisor Construction Stage (PSCS)		Environmental Manager	
The Contractor:	TBC	The Contractor:	TBC
Tel:	TBC	Tel:	TBC
Contact:	TBC	Contact:	TBC

4.1 The Client/Employer

Uisce Éireann will be responsible for ensuring that competent parties are appointed to undertake the construction of the Proposed Development and that sufficient resources are made available to facilitate the appropriate management of all potential risks to the environment.

4.2 Environmental Manager

An Environmental Manager will be appointed by the Contractor to ensure that the detailed CEMP is effectively implemented. The Environmental Manager will be a suitably qualified, competent and experienced professional that would perform the necessary tasks, review environmental procedures and consult with the members of the construction team and stakeholders as required. The Environmental Manager will be responsible for:

- Ensuring that the CEMP and all relevant documents such as environmental control plans are developed, implemented and maintained on site;
- Updating the CEMP to address any subsequent planning conditions relevant to the Proposed Development.
- Ensuring compliance with the Conditions of the Planning Permission and any other relevant permits/consents required;
- Ensuring that construction occurs in accordance with the relevant environmental requirements and that such compliance is adequately recorded and documented;
- Conducting regular environmental inspections and compiling an environmental compliance report on a monthly basis;
- Attending site and stakeholder meetings as required;
- Keeping up-to-date with relevant environmental best practice and legislative changes;
- Ensuring all staff have undertaken adequate environmental inductions, awareness briefings and training;
- Dealing with environmental complaints (in the unlikely event that these arise); and
- Managing and responding to environmental incidents and ensuring that all incidents are recorded and reported in an appropriate manner.

4.3 Construction Director

The Construction Director will be responsible for the overall execution and organisation of all environmental related activities, as appropriate. Some responsibilities of the Construction Director will comprise the following:

- Overall responsibility for the implementation of the detailed CEMP;
- Allocating the correct resources in order to ensure the successful implementation of the CEMP; and,
- Assisting in the management review of the CEMP for suitability and effectiveness.

4.4 Construction Manager

The Construction Manager is directly responsible to the Construction Director in assisting with the successful execution of the Proposed Development. The responsibilities of the construction manager in respect of the CEMP comprise the following:

- To report to the Construction Director on the on-going performance and development of the detailed CEMP;
- To discharge his/her responsibilities as per the CEMP; and,
- To support and augment the Construction Management Team (CMT) through the provision of adequate resources and facilities for the duration of the implementation of the CEMP.

5. Environmental Management Procedures

5.1 General

The Contractor will be required to have a recognised environmental management system such as ISO 14001:2015 or be able to demonstrate that they are actively working towards implementing such a system.

The works Contractor will undertake the works in accordance with the provisions of the detailed CEMP. The CEMP will be updated by the Contractor to address any subsequent planning conditions relevant to the Proposed Development and will be reviewed by the Employer and/or the Employer's Representative. The Contractor will review and update the CEMP as appropriate and shall issue an updated CEMP. A record of the review and any recommendations will also provide (for review and approval by the Employer and/or the Employer's Representative) Environmental Control Plans (ECPs), which will be maintained and updated in accordance with the CEMP. ECPs will include (if applicable), but will not be restricted to:

- Air Quality, Odour Control Plan;
- Climate Control Plan;
- Construction Noise and Vibration Control Plan;
- Pollution Prevention Control Plan;
- Water Resources and Energy Use Control Plan;
- Ecological Control Plan;
- Light Pollution Control Plan;
- Archaeological and Cultural Control Plan;
- Traffic Management Control Plan;
- Landscape and Visual Management Plan;
- Material Assets Management Plan;
- Contaminated Land Control Plan; and,
- Soil Erosion and Sedimentation Control Plan.

Guidance on the development of the Control Plans is located in Section 7 of this document.

5.2 Environmental Policy

Contractors shall have an environmental policy dated and signed by the most senior person in the company. The policy shall:

- Be appropriate to the nature, scale and environmental impacts of the organisation's activities, products and services;
- Include a commitment to continual improvement in environmental performance;
- Include a commitment to comply with all applicable legislation and with other requirements to which the organisation subscribes which relate to its environmental aspects;
- Provide a framework for setting and reviewing objectives and targets;
- Be documented, implemented and maintained;
- Be communicated to all persons working for or on behalf of the organisation; and



- Be available to the public.

5.3 Environmental Aspects

Contractors are expected to use a qualitative approach to identify and evaluate potential environmental aspects along with any controls to prevent or mitigate environmental damage. A simple risk matrix (as follows) facilitates quick reference and assignment of risk levels for each environmental aspect:

- Extreme/serious risk;
- High risk;
- Moderate risk; and,
- Low risk.

All environmental aspects rated as High or Extreme/Serious will be classified as significant and will require control or mitigation measures to manage the risk. All environmental aspects covered by a legal requirement, for example an Environmental Permit condition will also be classified as significant even if the risk is low or moderate.

Table 5-1 - Example of Qualitative Risk Matrix

					Probability				
Severity	People	Assets	Environment	Reputation	Impossible / Rare	Improbable / Possible	Probable / Likely	Very Likely / Often	Certainty/ Frequent
Catastrophic	Multiple fatalities or permanent total disabilities	Extensive damage	Massive effects	International impact				Extreme / Serious Risk	
Severe Major	Single fatality or permanent total disability	Major damage	Major effect	National impact		High Risk			
Critical Moderate	Major injury or health effects	Local damage	Localized effect	Considerable impact					
Marginal Minor	Minor injury or health effects	Minor damage	Minor effect	Minor impact		Moderate Risk			
Negligible / Insignificant	Slight injury or health effects	Slight damage	Slight effect	Slight impact	Low Risk				



The Contractor shall record the results of the qualitative risk analysis in an Aspects and Impacts Register (Table 5-2).

Table 5-2 - Examples of Aspects and Impacts Register

Environmental Aspect	Environmental Impact	Risk Rating	Control / Mitigation Measures	Risk Rating After Control
Use of fuel storage tanks on site	Potential contamination of water and land	High Risk	Double skinned tank, bunding, location on hard standing, emergency spill procedure and equipment and training.	Moderate Risk

5.4 Training, Awareness and Competence

The Contractor (and their sub-contractors) will be selected with due consideration of relevant qualifications and experience. The Contractor would be required to employ construction staff with appropriate skills, qualifications and experience appropriate to the needs of the works to be carried out during construction.

A site induction will be provided to all construction staff before they commence work on site. Where appropriate, the Contractor will identify specific training needs for the construction workforce and will ensure that appropriate training requirements are fulfilled. A baseline level of environmental awareness will be established through the site induction programme. Site inductions will cover the following as a minimum:

- Introduction to the Environmental Manager;
- The requirements of the detailed CEMP and consequences of non-compliance;
- The requirements of due diligence and duty of care;
- Identification of environmental constraints and potential impacts of the work;
- Procedures associated with incident notification and reporting including procedures for dealing with damage to the environment; and,
- The benefits of improved environmental and sustainability performance; and the potential consequences of departure from specified procedures, work instructions and method statements.

5.5 Meetings

The Environmental Manager will be responsible for arranging and holding monthly meetings with the Employer and/or the Employer's Representative. The Environmental Manager would develop and distribute minutes on monthly meetings accordingly.

5.6 Monitoring and Inspections

For the duration of the contract, the environmental performance of the Contractor will be monitored through site inspections and audits. The programme for monitoring, inspections and audits shall be specified in the contract. The Contractor shall develop, implement and maintain an Environmental Inspections and Monitoring Plan.



Record of all inspections carried out will be recorded and all actions will be closed out in a reasonable time. If additional monitoring and inspections are required as per the Environmental Impact Assessment Report (EIAR) and due to any subsequent planning conditions, these will be added to the CEMP.

5.6.1 Monitoring

Mitigation and monitoring will be carried out so that construction activities are undertaken in a manner that does not give rise to potential for significant negative effects. Monitoring will be completed as per these requirements within the EIAR and any planning conditions associated with the Proposed Development. Suitable monitoring programmes will need to be developed, implemented, documented and assessed in accordance with guidelines provided in the detailed CEMP.

The results of all environmental monitoring activities will be reviewed by the Environmental Manager on an ongoing basis to enable trends or exceedance of criteria to be identified and corrective actions to be implemented as necessary.

5.6.2 Inspections

Inspections will be completed as per requirements within the EIAR and any planning conditions associated with the Proposed Development. Inspections of construction activities will be carried out by the Environmental Manager on a daily basis to ensure all necessary environmental measures relevant to the construction activities are being effectively implemented by construction staff, ensuring legal and contractual conformity.

5.6.2.1 Daily Inspections

The daily inspections will include, but not be limited to, checking that:

- The site boundary is marked out and respected;
- All waste is appropriately stored and segregated;
- Waste skips are covered to prevent wind-blown litter;
- Drip trays are in place for all stored equipment and plant;
- All chemicals/fuels are stored with appropriate containment/bunds/cover;
- Construction noise is within permitted limits and does not create a nuisance;
- Dust does not create a nuisance; and
- Fencing/hoarding is secure.

5.6.2.2 Weekly Inspections

The inspections will include, but not be limited to confirming that:

- Daily checklists have been completed;
- Waste storage areas have been checked and there is no build-up of waste materials;
- Spill kits have been checked and contain all relevant materials;
- The performance of all pollution control equipment has been checked, and the equipment is working effectively;
- Noise reduction/monitoring equipment has been checked and is operating effectively;
- Septic tanks are not overfull/discharging;
- Special control measures identified in Permit/Planning Conditions and CEMP are adhered to; and



- Ongoing liaising with neighbouring educational campuses.

5.7 Nonconformity, Corrective and Preventative Actions

The Contractor shall establish, implement and maintain procedures to deal with actual and potential non-conformities and for taking corrective and preventative action.

Non-conformities may be identified through:

- Internal contractor audits;
- Audits by the Employer and/or the Employer's Representative;
- Audits undertaken by external certification bodies;
- Audits undertaken by regulatory authorities; and
- General observations.

The Contractor procedures shall define the requirements for:

- Identifying and correcting non-conformities;
- Mitigating the environmental impacts of non-conformities;
- Investigating non-conformities including identify root causes and implementing appropriate actions to avoid their reoccurrence;
- Evaluating the need for actions to prevent non-conformities and implementing appropriate actions designed to avoid their reoccurrence;
- Setting realistic timeframes for undertaking effective corrective and preventative actions;
- Recording the results of corrective and preventative actions taken; and
- Reviewing the effectiveness of corrective and preventative actions.

All actions identified should be appropriate to the nature and magnitude of the issue and the environmental impacts encountered.

5.8 Reporting

The Contractor will be required to submit a report, the frequency to be agreed with the Contractor and Employer and/or the Employer's Representative to the Employer and/or the Employer's Representative for review and approval. The report shall address the following as minimum:

- Summary of compliance with the CEMP including identification of any non-conformances;
- Interpretation of the result of ongoing monitoring;
- Detailed description of any issues and/or non-conformances identified during inspections and/or audits;
- Record of incidents and corrective actions (including Corrective Actions Reports as appropriate);
- Synopsis of environmental complaints received/queries raised by stakeholders; and
- Records of environmental training undertaken (as appropriate).



5.9 Environmental Records

The Contractor shall maintain records of all environmental documentation including monitoring, test results, method statements and plans. All records will be kept up-to-date and be made available for audits, inspections and periodical reporting. The Contractor will maintain the following environmental records (as a minimum) that will be made available for inspection to the Employer and/or the Employer's Representative and the relevant authorities if required:

- Management plans;
- Records of environmental incidents;
- Environmental reports;
- Records of environmental training;
- Register of environmental complaints;
- Corrective Action Reports;
- Environmental control plans;
- Environmental inspection and audit reports;
- All monitoring data;
- Waste and chemical inventories; and
- Health and Safety records.



6. General Requirements

6.1 Good Housekeeping

It is the responsibility of the Contractor to ensure compliance and to avoid and/or reduce significant adverse effects that have been identified where practicable. Where the Contractor diverts from the methodologies and working areas outlined herein and/or defined in the granted planning consent and associated conditions that may be granted, it would be the responsibility of the Contractor to obtain the relevant licenses, permits and consents for such changes.

The Contractor will employ a 'good housekeeping' policy at all times. This will include, but not be restricted, to the following:

- General maintenance of working areas and cleanliness of welfare facilities and storage areas;
- Provision of site layout map showing key areas such as first aid posts, material storage, spill kits, material and waste storage, welfare facilities etc;
- Maintain all plant, material and equipment required to complete the construction work in good order, clean and tidy;
- Keep construction compounds, access routes and designated parking areas free and clear of excess dirt, rubbish piles, scrap wood, etc. at all times;
- Details of site managers, contact numbers (including out of hours) and public information signs (including warning signs) will be provided at the boundaries of the working areas;
- Provision of adequate welfare facilities for site personnel;
- Installation of appropriate security, lighting, fencing and hoarding;
- Effective prevention of oil, grease or other objectionable matter being discharged from the working area;
- Provision of appropriate waste management at each working area and regular collections to be arranged;
- Excavated material generated during construction will be reused on site as far as practicable and surplus materials/soils shall be recovered or disposed of to a suitably authorised waste facility site;
- Effective prevention of infestation from pests or vermin;
- No discharge of site run-off or water discharge without agreement of the relevant authorities; and
- Maintenance of public rights of way, diversions and entry/exit areas around working areas for pedestrians and cyclists where practicable and to achieve inclusive access.

6.2 Site Compound

All C&D waste materials will be segregated onsite into the various waste streams, via. labelled dedicated skips and storage areas. Waste will be removed from site by a suitably permitted waste haulage contractor. The Contractor will clearly identify all proposed waste haulage contractors within the project specific RWMP. Each waste haulage contractor must hold a current valid waste collection permit issued by the National Waste Collection Permit Office (NWCPO).

The site compound will also act as a storage centre for construction materials. The location of the site compound will be selected to avoid any potential impacts to environmental receptors and to reduce any potential for impact on sensitive human.



Site access for all personnel and visitors will be strictly controlled and all visitors will report to the site compound prior to entering the construction area. Regular inspections of the hoarding will be undertaken to ensure that the safety of any vehicles or personal are not compromised.

Storage of materials will be minimal. No large materials will be stored on site until such times as they are required. At no time during the project will materials or other items be placed outside the hoarding line.

6.3 Hours of Working

6.3.1 Core Working Hours

The timing of construction activities, core working hours and the rate of progress of construction works are a balance between efficiency of construction and minimising nuisance and significant defects. The core construction working hours for the Proposed Development will be:

- Monday to Friday 07:00 to 19:00hrs
- Saturday 07:00 to 14:00hrs
- Sunday and Public Holidays no noisy work on site.

6.3.2 Additional working hours

It may be necessary in exceptional circumstances to undertake certain activities outside of the construction core working hours. Any construction outside of the construction core working hours will be agreed by the Contractor in advance with Carlow County Council and scheduling of such works shall have regard to nearby sensitive receptors.

In the case of work required in an emergency or which if not completed would be unsafe or harmful to workers, the public or local environment, Carlow County Council will be informed as soon as reasonably practicable of the reasons and likely duration and timing (outside of the core working hours).

6.4 Security

Security will be the responsibility of the Contractor- who will provide adequate security to prevent unauthorised entry to or from the site. The following measures may be used to prevent unauthorised access:

- Install CCTV and security systems where required;
- Consult with neighbouring properties and local crime prevention officers including Carlow County Council and An Garda Síochána on site security matters where required;
- Prevent access to restricted areas and neighbouring properties by securing equipment on site such as ladders and scaffolding; and
- When there is no site activity, close and lock site gates and set appropriate site security provisions as required.

6.5 Hoarding and Fencing

A site boundary in the form of hoarding or fencing will be established around each of the working areas before any significant construction activities commences in that working area. The hoarding/fencing shall Provide a



secure boundary to what can be a dangerous environment for those that have not received the proper training and are unfamiliar with construction operations.

Site hoarding also performs an important function in relation to minimising nuisance and effects including:

- Noise emissions (by providing a buffer);
- Visual impact (by screening the working areas, plant and equipment); and
- Dust minimisation (by providing a buffer).

6.6 Services and Utility

Site services shall be installed as part of the works. Working areas will be powered by mains supplies or diesel generators where an electrical supply is not available.

The Contractor will be responsible for undertaking their own service to establish full extent of underground services prior to the commencement of construction to support any surveys already undertaken as part of early design work and statutory consent applications.

6.7 Lighting

Artificial lighting will be required for both the construction and operation of the Proposed Development. The following measures will be applied in relation to site lighting.

- Construction works during hours of darkness will be kept to a minimum. Works will be limited to normal working hours (07:00 to 19:00), with the site being secured and lighting being switched off outside of these hours, subject to safety and security requirements.
- Any works lighting shall be directed away from the River Barrow and all trees and vegetation to be retained, following the principles set out below in relation to the permanent lighting design.

6.8 Reinstatement of Working Areas on Completion

The Contractor will reinstate all working areas as work proceeds during construction. All plant equipment, materials, temporary infrastructure and vehicles will be removed at the earliest opportunity and the surface of the ground restored as near as practicable to its original condition.

On completion of construction works the Contractor will ensure that all waste and polluting material is removed from the site and is disposed of using appropriately authorised contractors as per the RWMP (Atkins, 2026). The Contractor shall, as appropriate, undertake visual and ecological rehabilitation of site compound and other areas no longer to be used by the Contractor. Following site clearance and rehabilitation the Employer or Employer's Representative will undertake a final inspection of the site. Any environmental issues identified during the final inspection will be raised with the Contractor. Mitigation measures and timeframes for completion will be agreed between the Contractor and the Employer's Representative in line with agreed procedures prior to final sign off.



6.9 Health and Safety

The Contractor would be required to ensure all relevant health and safety, fire safety and security requirements are in place prior to the commencement of construction and in accordance with the relevant legislation requirements in addition to the specifications of Carlow County Council and Uisce Éireann.

Relevant Irish and EU health and safety legislation would be complied with at all times by all construction staff and personnel during construction. Further, the Contractors would also have to ensure that all aspects of their works comply with good industry practice, and all necessary consents, licenses and authorisations have been put in place for the Proposed Development.

7. Environmental Management and Controls

It should be noted that this section provides a summary of minimum requirements that should be developed by the Contractor when preparing the CEMP.

7.1 Waste Management

Construction activities produce a broad range of wastes, as outlined in the RWMP (AtkinsRéalis, 2026) and EIAR (AtkinsRéalis, 2026).

This section identifies the potential types of waste which may arise from construction and provides guidance on the management, control and disposal of waste.

7.1.1 Risk Identification

Contractors shall undertake a qualitative waste management risk assessment or appraisal prior to the commencement of construction activities. An example assessment is shown in Table 7-1.

Table 7-1 - Example of Waste Management Risk Assessment

	Risk Assessment	Example Procedure
01	Identify the location of all sensitive receptors within or adjacent to the construction site.	Mark up on a site plan with the location of all adjacent housing/commercial centers, schools and educational establishments, agricultural land and other potential receptors. This will help the planning of the overall layout of the construction site and enable the identification of suitable sites for high-risk activities such as waste storage areas.
02	Identify the construction activities and sources of that may result waste production and waste storage, segregation and disposal requirements.	These could include excavations, chemical and materials use etc., waste storage and bulking areas etc., as described within the RWMP (AtkinsRealis, 2026).
03	Implement mitigation to eliminate or reduce risks.	Use the following hierarchy to manage waste: 1. Prevent - Do not generate the waste in the first place. 2. Re-use – Can you re-use without treatment? 3. Recycle – Make sure that wastes are properly segregated to aid recycling. 4. Disposal with energy recovery. 5. Disposal without energy recovery.

7.1.2 Resource Waste Management Plan

Contractors will develop, implement and maintain a Detailed RWMP that is in compliance with Carlow County Development Plan 2022-2028 and updated from the Outline RWMP (AtkinsRealis, 2026) which is submitted as



part of the planning application. The plan will include but not be restricted to the mitigation measures below (Table 7-2). Refer also to the mitigation measures presented in Chapter 14 – Material Assets, Volume 2 of the EIAR.

Table 7-2 - Waste Management Mitigation Measures

Activity	Mitigation Measures
Waste Management	- Asbestos Containing Material (ACMs) will be removed in advance of any refurbishment or demolition works within the existing WwTP. - ACMs will only be removed by a competent contractor in compliance with all relevant waste management and Health and Safety legislation. - An Asbestos Survey of the Kilkenny pump station (scheduled to be decommissioned) will be undertaken prior to commencement of the proposed decommissioning works. - All waste management procedures implemented onsite during the construction phase will be in accordance with the Outline CEMP submitted as part of this planning application, and a project specific RWMP to be prepared by the Contractor, in accordance with the <i>'Best Practice Guidelines on the Preparation of Waste Management Plans for Construction & Demolition Projects'</i> (EPA 2021). The RWMP will take account of the relevant requirements of the Outline CEMP, the EIAR and any relevant planning conditions etc., and will be prepared by the Contractor in advance of the commencement of any construction or demolition works. - The contractor will supply all waste containers / skips, as required, for each of the identified waste streams. Waste will be segregated and removed to licensed facilities by licenced hauliers and all containers will be emptied before they are full to avoid overflowing. The contractor is to provide a waste forecast for waste types and quantities expected to be generated. - Good working practices and take back schemes will be used to reduce the amount of waste generated, as an initial step, with waste management routes for each waste stream to be recorded in the site Waste Management Plan. There is a target of 98% diversion of construction waste from landfill to be achieved with a minimum diversion of 90%. In order to reduce waste generation as far as possible, off cuts, surplus materials and packaging is to be returned to suppliers for closed loop recycling, single used plastics are to be avoided where possible and all materials are to be stored correctly to avoid waste generation from damage and contamination of incorrectly stored materials. - All waste materials will be segregated onsite into the various waste streams, via dedicated skips and storage areas. - All waste will be removed from Site by one or more waste haulage contractor(s) who hold a current valid waste collection permit issued by the National Waste Collection Permit Office (NWCPO). All waste materials generated during the construction phase will be removed offsite to an appropriately permitted or licenced waste disposal / recovery facility. - All waste removed offsite will be appropriately characterised (under the correct LoW / EWC code), transported and disposed of in accordance with relevant waste management legislation (including but not limited to the Waste Management Act of 1996 and 2001, as amended and all subsequent waste management regulations). - All waste management and disposal / recovery records will be maintained onsite throughout the project and will be made available for viewing by the Client, Employer's Representative and statutory consultees (CCC, EPA) as required.

- Scheduling and planning the delivery of materials will be carried out on an ‘as needed’ basis to limit any surplus materials;
- Materials will be ordered in sufficient dimensions so as to optimise the use of these materials onsite, and will be carefully handled and stored so as to limit the potential for any damage;
- Where feasible, sub-contractors will be responsible for the provision of any materials they require onsite in order to help reduce any surplus waste;
- All loaded trucks entering and exiting the Site will be appropriately secured and covered;
- Dust will be controlled at entry and exits to the Site using wheel washes (as required) and/or road sweepers, and tools and plant will be washed out and cleaned in designated areas. Wheel / road sweeper washings will be contained and treated prior to discharge;
- Secure lockable and controlled storage to be provided for the storage of chemicals and other hazardous materials, e.g., asbestos.

7.2 Air Quality and Odour

Construction activities have the potential to impact on air quality through the release of dust and emissions from vehicles and plants, along with activities such as infilling of soil, excavation of trenches, stockpiling and movement of materials, which may all contribute to generating ambient dust. This section identifies the potential causes of air pollution which may arise from construction and provides guidance on the management and control of emissions from site.

Refer also to the mitigation measures presented in Chapter 7 – Air Quality and Odour, Volume 2 of the EIAR (AtkinsRealis, 2026).

7.2.1 Risk Identification

Contractors shall undertake a qualitative risk assessment or appraisal prior to the commencement of demolition and construction activities. An example risk assessment is shown in Table 7-3.

Table 7-3 - Example of Air Quality Risk Assessment

	Risk Assessment	Example Procedure
01	Identify the location of all sensitive receptors within or adjacent to the construction site.	Sensitive receptors located directly east of the R448 are primarily residential properties, along with the Irish Wheelchair Association Centre and the South East Technological University Kilkenny Road Campus. Sensitive receptors located north of the site include Carlow Institute of Further Education and Overhold riverside Lodge. Sensitive receptors located south of the site include Tyndall College and the South East Technical University Sports Campus. Apart from several detached residential properties, the vast area of land west of the site is forested (Bing, 2026).
02	Identify the construction and demolition activities and sources of pollution that	These could include demolition, excavations, concrete use, transport, materials storage, traffic management etc.

	may result in emissions into the air.	
03	Evaluate the risk of the construction and demolition activities resulting in emissions into the air.	Assess the likelihood of an activity causing pollution. Assess the significance of the harm pollution would cause to a particular receptor. For example, the impact of dust in a populated urban area would be significantly greater than dust in an unpopulated rural area.
04	Implement mitigation to eliminate or reduce risks.	Use the following hierarchy to manage the risk: 1. Remove the risk (different construction methods/activities). 2. Control the source (modify construction methods, covers for storage areas). 3. Protect the receptor (provide hard standing and covering for compounds/storage areas, filter, control, contain emissions, ensure appropriate environmental permits are in place). 4. Put emergency procedures in place.

7.2.2 Air Quality and Odour Management Plan

Contractors will develop, implement and maintain an Air Quality and Odour Management Plan. The plan will include but not be restricted to the mitigation measures shown in Table 7-4.

Table 7-4 - Air Quality and Odour Mitigation Measures

Activity	Mitigation Measures
Construction Phase	▪ A dust control strategy has been developed based on recognised international best practice guidance which include IAQM 2014, BRE 2003, UK Government publications (2002), Scottish Office (1996), and USEPA 1997. ▪ A Traffic Management Plan and a Dust Management Plan will be prepared to minimise dust emissions during construction. And will form part of the Construction Environmental Management Plan (CEMP). The plans will be finalised following completion of the detailed design for the proposed development.
Site Management	▪ A site-specific Dust Management Plan (DMP) will be prepared and agreed with stakeholders before construction. The DMP will set out management and operational measures to prevent or minimise dust under normal and high-risk conditions (e.g. dry, windy weather). ▪ The siting of activities and storage of materials will take note of the location of sensitive receptors and prevailing wind directions in order to minimise the potential for significant dust nuisance ▪ As prevailing winds are predominantly south-westerly, material storage will be located downwind (north-west) of sensitive receptors where practicable. ▪ Site management will allow for a rapid response to adverse weather, including restricting activities or implementing additional controls. ▪ Dust generation is generally suppressed during rainfall >0.20 mm/day and increases when wind speeds exceed 10 m/s; particular care will be taken during high winds or gales.

	▪ Meteorological conditions are generally favourable for dust suppression, though additional controls will be applied during infrequent high-risk periods. ▪ Dust control measures will be monitored with controls adjusted based on weather conditions. ▪ A complaints register will be maintained on site, recording all dust-related complaints and remedial actions taken. ▪ All dust control conditions will be strictly implemented, monitored, and reviewed regularly throughout the construction period. ▪ If dust nuisance occurs outside the site boundary, site activities will be reviewed and corrective measures implemented immediately. The following measures shall be taken in order to avoid dust nuisance occurring under unfavourable meteorological conditions: ▪ The operator must monitor performance to ensure that the proposed mitigation measures are implemented and that dust control methods will be monitored as appropriate, depending on the prevailing meteorological conditions; ▪ A complaints register will be kept on site detailing all telephone calls and letters of complaint received in connection with dust nuisance or air quality concerns, together with details of any remedial actions carried out; ▪ All dust control conditions contained within shall be achieved. ▪ At all times, the procedures put in place will be strictly monitored and assessed.
Site Roads and Routes	▪ Bowsers or suitable watering equipment will be available during periods of dry weather through the construction period. Research has found that watering can reduce dust emissions by 50% (USEPA, 1997). Watering shall be conducted during sustained periods to ensure that unpaved areas are kept moist. The required application rate frequency will vary according to soil type, weather conditions and vehicular use; ▪ Any hard surface roads will be swept to remove mud and aggregate materials from their surface.
Site Traffic on Public Roads	Spillage and blow off of debris, aggregates and fine material onto public roads will be reduced to a minimum by employing the following measures: ▪ Vehicles delivering or collecting material with potential for dust emissions shall be enclosed, covered or wetted at all times to restrict the escape of dust; ▪ Public roads directly outside the site shall be regularly inspected for cleanliness, as a minimum on a daily basis, and cleaned as necessary. ▪ Construction traffic will be restricted to standard working hours and exclude Sundays. Construction works will be carried out in accordance with guidance set out in Section 7.5.1, Chapter 7 – Air Quality and Odour, Volume 2 of the EIAR.
Chapter 7 – Air Quality of Volume 2 EIAR	▪ With respect to monitoring measures temporary dust deposition monitoring will be carried out at the facility during construction phase of the project in order to ensure the boundary levels of deposition and nuisance dust are within recommended limit which are typically less than 350 mg/m²/day. These locations and frequency of monitoring will be confirmed prior to the start of construction. ▪ With regards to the operation phase of the project, the facility will be required to monitor odours to ensure compliance with the proposed limit values for the proposed facility (see Table 7-1 Chapter 7 – Air Quality, Volume 2 EIAR).

- Specific limit values will most likely form part of the requirements of the planning decision. The specific monitoring techniques will determine:
 - That the development is not impacting on the environment and or,
 - That the mitigation measures implemented at the facility are effective

7.3 Prevention of Climate Impacts

Construction activities have the potential to result in impacts to the Climate. This section identifies the potential causes of pollution which may arise from construction and provides guidance on the management and control.

Refer to the mitigation measures presented in Chapter 8 – Climate, Volume 2 of the EIAR (AtkinsRealis, 2026).

7.3.1 Risk Identification

Contractors shall undertake a qualitative risk assessment or appraisal prior to the commencement of construction activities. An example risk assessment is shown in Table 7-5

Table 7-5 - Example of Climate Risk Assessment

	Risk Assessment	Example Procedure
01	Identify the location of all sensitive receptors within or adjacent to the construction site.	Mark a site plan with the location of all adjacent housing/commercial centres, schools and educational establishments, agricultural land and other potential receptors. This will help the planning of the overall layout of the construction site and enable the identification of suitable sites for high risk activities such as material storage areas, re-fuelling points and haul routes.
02	Identify the construction activities and sources of pollution that may result in emissions to air.	These could include excavations, concrete use, transport, materials storage, traffic management etc.
03	Evaluate the risk of the construction activities resulting in emissions to air.	Assess the likelihood of an activity causing pollution. Assess the significance of the harm pollution would cause to a particular receptor. Refer to Chapter 8 Climate, Volume 2 of the Environmental Impact Assessment Report.
04	Implement mitigation to eliminate or reduce risks.	Use the following hierarchy to manage the risk: Remove the risk (different construction methods/activities). Control the source (modify construction methods, covers for storage areas). Protect the receptor (provide hard standing and covering for compounds/storage areas, filter, control, contain emissions, ensure appropriate environmental permits are in place). Put emergency procedures in place.

7.3.2 Climate Management Plan

Contractors will develop, implement and maintain a Climate Management Plan. The Plan will include but not be restricted to the mitigation measures below (Table 7-6)

Table 7-6 - Climate Mitigation Measures

Activity	Mitigation Measures
Construction Phase	▪ Minimising waste of materials due to poor timing or over ordering on site will aid to minimise the embodied carbon footprint of the site. A construction waste management plan will be implemented to minimise construction waste sent to landfills. Recycling of materials will be promoted to and reduce the environmental footprint of the site. ▪ Sourcing materials locally will be prioritised. This will help to reduce transport related GHG emissions and helps support local suppliers, further promoting economic sustainability. ▪ Material choices and quantities will be reviewed during detailed design, to identify and implement any lower embodied carbon options, where feasible.

7.4 Construction Noise and Vibration

Construction and demolition activities can produce a significant amount of noise and vibration with the potential to impact adversely on a range of receptors. This section identifies the potential causes of noise and vibration which may arise from construction and provides guidance on management and control.

Refer to the mitigation measures presented in Chapter 9 – Noise and Vibration, Volume 2 of the EIAR (AtkinsRealis, 2026).

7.4.1 Risk Identification

An example risk assessment is shown in Table 7-7.

Table 7-7 - Example of Noise and Vibration Risk Assessment

	Risk Assessment	Example Procedure
01	Identify the location of all sensitive receptors within or adjacent to the construction site.	Mark up on a site plan the location of all nursing homes, housing/commercial centers, schools and educational establishments, agricultural land and other potential receptors. This will help the planning of the overall layout of the construction site and enable the identification of suitable sites for noisy activities or activities likely to cause vibration such as generators, compressors, haul routes and drilling.
02	Identify the construction activities that may affect the receptors identified.	These could include excavations, dewatering, traffic movements, warning sirens, use of machinery and plant etc.

03	Evaluate the risk of the construction activities impact on receptors.	Assess the likelihood of an activity causing noise pollution. Assess the significance of the noise impact on particular receptors.
04	Implement mitigation to eliminate or reduce risks.	Use the following hierarchy to manage the risk: 1. Remove the risk (different construction methods, substitution of materials for less noisy options). 2. Control the source (modify construction methods, provide adequate baffling). 3. Protect the receptor using noise barriers, screening etc. 4. Put emergency procedures in place.

7.4.2 Noise and Vibration Management Plan

Contractors will develop, implement and maintain a Noise and Vibration Management Plan. The Plan will include but not be restricted to the mitigation measures in Table 7-8

Table 7-8 - Noise and Vibration Mitigation Measures

Activity	Mitigation Measures
Construction Phase	With regard to construction activities, best practice operational and control measures for noise and vibration from construction sites are found within BS 5228 (2009 +A1 2014) Code of Practice for Noise and Vibration Control on Construction and Open Sites Parts 1 and 2. BS5228 includes guidance on several aspects of construction site practices, including, but not limited to:
Selection of Quiet Plants	▪ This practice is recommended in relation to sites with static plant such as compressors and generators. It is recommended that these units be supplied with manufacturers' proprietary acoustic enclosures where possible. ▪ The potential for any item of plant to generate noise will be assessed prior to the item being brought onto the site. ▪ The least noisy item should be selected wherever possible.
Noise Control at Source	▪ Where replacement of noisy plant is not feasible, noise control at source will be implemented through modification of plant or enhanced sound-reduction measures in consultation with suppliers. ▪ Examples include stiffening panels, applying damping compounds, and fitting resilient materials to reduce resonance, rattling, or grinding noise. ▪ In accordance with BS 5228, significant noise sources will be enclosed where reasonably practicable, taking into account safety, access, ventilation, and mobility. ▪ Plant suitable for enclosure includes pumps, generators, and similar static equipment. ▪ All plant will be operated in accordance with manufacturers' instructions. ▪ Equipment will be located away from noise-sensitive receptors where possible, including loading and unloading areas.



	▪ Intermittently used plant (e.g. cranes) will be switched off or throttled down when not in active use. ▪ No plant will be left running unnecessarily. ▪ Directional noise sources will be oriented away from noise-sensitive areas where practicable. ▪ Acoustic engine covers will be kept closed during operation and idling. ▪ Materials will be lowered carefully and not dropped, with resilient coverings used where appropriate. ▪ Mobile plant (e.g. cranes, dump trucks, excavators, loaders) will use acoustic exhausts, maintain closed enclosures, and be switched off when not in use, achieving potential noise reductions of up to 10 dB. ▪ Percussive tools will be fitted with mufflers or sound-reducing equipment, air leaks sealed, and localised acoustic screens used near sensitive boundaries. ▪ Impulsive hammering during concrete mixer cleaning will be avoided. ▪ Materials handling will avoid dropping from excessive heights, with dump trucks and chutes lined with resilient materials. ▪ Demountable acoustic enclosures will be used for hand tools and breakers and relocated as required. ▪ All plant will be subject to regular maintenance to prevent unnecessary noise increases and maintain the effectiveness of mitigation measures.
Screening	▪ Noise screening is an effective additional control measure to reduce noise at sensitive receptors when used alongside other mitigation measures. ▪ The effectiveness of screening depends on the height, length, and location of the screen relative to both the noise source and the receptor. ▪ Screening is particularly useful for basement and ground-level works, helping to reduce noise impacts at adjacent ground-floor receptors. ▪ Careful site layout planning can contribute to noise reduction, with site offices, storage areas, or material stockpiles positioned to act as informal noise barriers. ▪ The use of localised mobile noise controls, such as mobile hoarding screens or acoustic quilts, is an effective means of reducing noise from high-noise plant. ▪ These localised measures should be used where percussive or high-noise activities occur close to nearby noise-sensitive buildings.
Liaison with the Public	▪ A designated Noise Liaison Officer will be appointed for the construction phase. ▪ All noise complaints will be recorded, investigated, and responded to promptly by the liaison officer. ▪ Prior to particularly noisy activities (e.g. demolition, breaking, piling), the liaison officer will notify nearby noise-sensitive receptors. ▪ Notifications will include the timing and expected duration of the noisy works to help manage expectations and reduce disturbance.
Hours of Work	▪ Construction works will be undertaken within the times below, taken from the Construction Management Plan: ▪ Monday to Friday 07:00 to 19:00hrs ▪ Saturday 07:00 to 14:00hrs ▪ Sunday and Public Holidays No noisy work on site
Chapter 9 – Noise and	Monitoring Measures



Vibration of Volume 2 EIAR	- Construction noise monitoring will be carried out to monitor construction noise levels at the nearest noise-sensitive locations to the pumping station commissioning works. - In respect of the operational phase, given that the operational noise emissions will not exceed the adopted criterion noise monitoring is not applicable to the proposed development.
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7.5 Prevention of Soil and Water Pollution

Construction activities have the potential to cause pollution to groundwater and/or soils and surface water. This section identifies the potential causes of pollution which may arise from construction and provides guidance on the management and control.

Refer to the mitigation measures presented in Chapter 11 – Land, Soils and Geology and Chapter 12 - Water, Volume 2 of the EIAR (AtkinsRealis, 2026).

7.5.1 Risk Identification

Contractors shall undertake a qualitative pollution risk assessment or appraisal prior to the commencement of construction activities. An example risk assessment is presented in Table 7-9.

Table 7-9 - Example of Soil and Water Pollution Risk Assessment

	Risk Assessment	Example
01	Identify the location of all sensitive receptors within or adjacent to the construction site.	Mark up on a site plan with the location of all water courses, surface water features, boreholes, field drains, ecologically sensitive areas, surface and foul drainage systems and other potential receptors. This will help the planning of the overall layout of the construction site and enable the identification of suitable sites for high risk activities such as chemical/fuel storage areas, refueling points, haul routes and wash out areas.
02	Identify sensitive receptors off site or downstream of the construction project that could potentially be affected by the works. For example, water courses, ecologically sensitive areas.	Establish monitoring regime during construction as appropriate.
03	Identify the construction activities and sources of pollution that may affect the water receptors identified.	These could include excavations, dewatering, water course crossings, as well as general sources of pollution such as surface water runoff, chemical/fuel storage, wash down areas, fueling areas and concrete use.
04	Evaluate the risk of the construction activities polluting the identified water receptors.	Assess the likelihood of an activity causing pollution. Assess the significance of the harm pollution would cause to a particular water receptor. For example, the impact of polluting a water receptor used for potable water would be significantly greater than the pollution of a foul water system.

05	Implement mitigation to eliminate or reduce risks.	Use the following hierarchy to manage the risk: 1. Remove the risk (different construction methods/activities). 2. Control the source (change location, modify construction methods, provide adequate bunding for fuel and other storage areas, install measures such as silt fences or ditches to control runoff). 3. Protect the receptor (provide hard standing for compounds/storage areas, filter, control, contain discharges, ensure appropriate environmental permits are in place). 4. Put emergency procedures in place.
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7.5.2 Pollution Prevention Management Plan

Contractors will develop, implement and maintain a Pollution Prevention Management Plan. The plan will include but not be restricted to the mitigation measures in Table 7-10.

Table 7-10 - Soil and Water Mitigation Measures

Activity	Mitigation Measures
Chapter 11 – Land, Soils and Geology of Volume 2 EIAR	Construction Phase Soil and Waste Removal ▪ Stripping of topsoil will be carried out in a controlled and carefully managed way and coordinated with the staging for the development. At any given time, the extent of topsoil strip (and consequent exposure of subsoil) will be limited to the immediate vicinity of active work areas. ▪ Topsoil stockpiles will be protected for the duration of the works and not located in areas where sediment laden runoff may enter existing surface water drains. ▪ Topsoil stockpiles will also be located so as not to necessitate double handling. Mitigation measures as outlined in Chapter 14 – Material Assets, are also applicable to soil and waste removal. ▪ The design of road levels and finished levels has been carried out in such a way as to minimize cut/fill type earthworks operations. The duration that subsoil layers are exposed to the effects of weather will be minimised. ▪ Disturbed subsoil layers will be stabilised as soon as practicable (e.g. backfill of service trenches, construction of road capping layers, construction of building foundations and completion of landscaping). ▪ Similar to comments regarding stripped topsoil, stockpiles of excavated subsoil material will be protected for the duration of the works. Stockpiles of subsoil material will be located separately from topsoil stockpiles. Measures will be implemented to capture and treat sediment laden surface water runoff (e.g. surface water inlet protection and earth bunding adjacent to open drainage ditches). ▪ The overall excavation of material will be ca. 89,000m³ for the development, will be minimised as much as possible to reduce the impact on soils and geology.

	▪ Subsoil where suitable will be reused onsite as fill material. Topsoil that can be used for amenity purposes will be stockpiled on the development area for use as required in the final landscaping of the development. ▪ Any surplus material, or materials which are deemed not suitable for onsite reuse (including any potentially contaminated materials), will be managed, transported and disposed of in accordance with the requirements of the Waste Management Act 1996, as amended, and the Waste Framework Directive 2008/98/EC of the European Parliament and Council on waste. A project specific Resource and Waste Management Plan (RWMP) will be fully implemented onsite for the duration of the project
Soil / Geology Impact Mitigation	▪ Earthworks plant and vehicles delivering construction materials to site will be confined to predetermined haul routes around the site; ▪ Shoring of all deep excavations will be carried out to ensure sides do not collapse during the excavation of the tanks. ▪ Vehicle wheel wash facilities will be installed in the vicinity of any site entrances and road sweeping implemented as necessary in order to maintain the road network in the immediate vicinity of the site. ▪ Dust suppression measures (e.g. dampening down) will be implemented as necessary during dry periods; ▪ The employment of good construction management practices will serve to minimise the risk of pollution from construction activities at the development in line with the Construction Industry Research and Information Association (CIRIA) publication entitled, Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors, CIRIA - C532 (2001) which are also detailed in Chapter 12 – Water (Hydrology and Hydrogeology). Specifically, with regard to soils and geology, the following will be adhered to; ▫ Fuels, lubricants and hydraulic fluids for equipment used on the construction site, as well as any solvents, oils, and paints will be carefully handled to avoid spillage, properly secured against unauthorised access or vandalism, and provided with spill containment according to best codes of practice; Waste oils and hydraulic fluids will be collected in leak-proof containers and removed from the development for disposal or recycling; ▫ Any spillage of fuels, lubricants or hydraulic oils will be immediately contained, and the contaminated soil removed from the development and properly disposed of; ▫ All site vehicles used will be refuelled in bunded and adequately sealed and covered areas in the construction compound area. ▫ All plant and machinery will be serviced before being mobilised to site; ▫ No plant maintenance will be completed on site, any broken-down plant will be removed from site to be fixed; ▫ Refuelling will be completed in a controlled manner using drip trays at all times; ▫ Mobile bowsters, tanks and drums will be stored in secure, impermeable storage areas away from open water; ▫ Fuel containers will be stored within a secondary containment system, e.g. bunds for static tanks or a drip tray for mobile stores; ▫ Containers and bunding for storage of hydrocarbons and other chemicals will have a holding capacity of 110% of the volume to be stored;

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- Ancillary equipment such as hoses and pipes will be contained within the bund;
 - Taps, nozzles or valves will be fitted with a lock system;
 - Fuel and chemical stores including tanks and drums will be regularly inspected for leaks and signs of damage;
 - Drip-trays will be used for fixed or mobile plant such as pumps and generators in order to retain oil leaks and spills
 - Only designated trained operators will be authorised to refuel plant on site;
 - Procedures and contingency plans will be set up to deal with emergency accidents or spills;
 - An emergency spill kit with oil boom, absorbers etc. will be kept on-site for use in the event of an accidental spill. A specific team of staff will be trained in the use of spill containment;
 - Strict supervision of contractors will be adhered to in order to ensure that all plant and equipment utilised on-site is in good working condition. Any equipment not meeting the required standard will not be permitted for use within the Site. This will minimise the risk of soils and bedrock becoming contaminated through site activity; and,
 - Highest standards of site management will be maintained, and utmost care and vigilance followed to prevent accidental contamination or unnecessary disturbance to the site and surrounding environment during construction. A named person will be given the task of overseeing the pollution prevention measures agreed for the site to ensure that they are operating safely and effectively.
 - Soils on the development may become unnecessarily compacted by machinery during construction. In order to protect against unnecessary compaction of soil by machinery, construction limits, accesses, and haulage roads will be clearly defined:
 - In the event that contaminated ground is encountered during the construction works the following specific environmental management procedures will be adhered to;
 - The contaminated material will be fully characterised in terms of lateral and vertical extent, and a detailed assessment of the potential environmental and human health impacts will be undertaken in accordance with industry standard best practice;
 - Soil Excavated onsite during construction will be reused as 'Other granular 6F1/2 type' fill below the pavements and in landscaping to reduce the quantity of soil requiring disposal offsite.
 - Any soil or topsoil required to be removed offsite to an appropriately licenced/ permitted soil disposal or recovery facility will be characterised in advance in accordance with the Waste Classification List of Waste & Determining if Waste is Hazardous or Non-hazardous (EPA, 2015) and the waste acceptance criteria for the relevant facility.
 - Any waste generated during the works will be managed in accordance with the relevant waste legislation. Any contaminated material requiring offsite disposal will be transported and disposed of to a suitably licenced waste facility;
 - Monitoring and protection measures (inclinometers, extensometers, piezometers, monitoring targets) will be implemented during the micro-tunnel construction.
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	▪ Continuous monitoring during construction of micro tunnel, maintaining slurry pressure and continuously monitoring excavation volumes passing through the machine. ▪ Surface watch when TBM is passing critical locations (e.g. under roads) will reduce severity of impact by enable fast mitigative reaction (e.g. stop traffic). ▪ At excavations proximal to the River Barrow, the excavation temporary support will exclude water ingress with immediate excavation support and water exclusion provided by sheet pile cut-off walls on all sides.
General	The standard following precautionary measures will be implemented. ▪ All excavated materials will be stored away from the excavations, in an appropriate manner at a safe and stable location. The maximum height of temporary stockpiles will be 3m. ▪ A comprehensive monitoring and supervisory regime including monitoring of all excavations and stability assessments as required will be put in place to ensure that the proposed construction works do not constitute a risk to the stability of the site.
Decommissioning Phase	▪ The mitigation measures outlined in Section 11.8 Construction Phase will apply to the decommissioning phase. Further environmental soil testing will be carried out in advance of the decommissioning works to identify any potentially contaminated soils to determine any offsite suitable soil recovery/ disposal facilities as required.
Monitoring Measures – Land, Soils and Geology	Monitoring during the construction phase in relation to the soil and geological environment are as follows: ▪ Adherence to the site-specific Construction Environmental Management Plan (CEMP); ▪ Construction monitoring of the works (e.g. inspection of existing ground conditions on completion of excavation for tanks, foundations and services). ▪ Inspection of fuel / oil storage areas; ▪ Monitoring cleanliness of adjacent road network, implementation of dust suppression and provision of vehicle wheel wash facilities; ▪ Monitoring of contractor's stockpile management (e.g. protection of excavated material to be reused as fill, protection of soils for removal from site from contamination); and, ▪ Monitoring sediment control measures (surface water inlet protection etc.). ▪ Ongoing monitoring proposed as part of the surface water and groundwater monitoring on completion of the construction phase as outlined in Chapter 12 Water (Hydrology and Hydrogeology) will also monitor the potential impact on soils beneath the site. ▪ Further soil characterisation will be required before the soil is transported for offsite recovery/ disposal. ▪ Monitoring and protection measures (inclinometers, extensometers, piezometers, monitoring targets) will be carried out during the construction of the micro-tunnel.

- Management of surface water runoff and subsequent treatment prior to release off-site will be undertaken during construction work as follows.
- Prior to the commencement of earthworks, silt fencing will be placed down-gradient of the construction areas where drains and drainage pathways are present;
- These will be embedded into the local soils to ensure all site water is captured and filtered;
- All surface drains within and down-gradient of the earthworks/ construction area will be blocked temporarily or where there are minor flows silt fencing will be placed within the existing drain;
- No pumped construction water will be discharged directly into the main surface watercourse;
- Pumped water (if necessary) will be discharged via a silt bag which will filter any remaining sediment from the pumped water. If silt bags are required, the entire silt bag discharge area will be enclosed by a perimeter of double silt fencing. Any discharge of pumped water will be onto a vegetated surface, local to the excavation, for infiltration to ground;
- Daily monitoring of the excavation/earthworks and associated water management systems will be completed by a suitably qualified person during the construction phase (Ecological Clerk of Works (ECoW)). All necessary preventative measures (detailed in Section 8.6) will be implemented to ensure no entrained sediment, or deleterious matter will enter the River Barrow; and,
- Earthworks will take place during periods of low rainfall to reduce run-off and potential siltation of watercourses. Monitoring of weather forecasts will be completed (by the ECoW), and construction works will be postponed in the event of an orange or red weather warning for rainfall.
- In addition, the sands and gravels deposits associated with the Athy-Bagenalstown GWB are excellent filters and will polish treated construction water within a couple of meters of flow.

Surface Quality Excavation Dewatering	Water from	Management of groundwater seepages and subsequent treatment prior to discharge into the drainage network will be undertaken as follows: ▪ Appropriate interceptor drainage, to prevent upslope surface runoff from entering excavations will be put in place; ▪ If required, pumping of excavation inflows will prevent build-up of water in the excavation; ▪ The interceptor drainage will be discharged onto natural vegetated surfaces downgradient of the excavations and not directly to surface waters; ▪ The pumped water volumes from excavations will be discharged via temporary volume and sediment attenuation ponds adjacent to excavation areas; ▪ There will be no direct discharge to surface watercourses, and therefore no risk of hydraulic loading or contamination will occur; ▪ Treated water from excavations will be discharged over vegetative surfaces and will percolate into the ground due to the permeable nature of the local soils and subsoils; ▪ Daily monitoring of excavations by a suitably qualified person (ECoW) will occur during the construction phase. If high levels of groundwater seepage inflow occur into the excavation, excavation works will immediately be stopped and a geotechnical assessment undertaken; and,
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		▪ The sand and gravel subsoils are excellent filters and will polish treated construction water within a couple meters of flow.
Release of Hydrocarbons		▪ All plant will be inspected and certified to ensure they are leak free and in good working order prior to use on site; ▪ On-site re-fuelling of machinery will be carried out using a mobile double skinned fuel bowser. The fuel bowser, a double-axel custom-built refuelling trailer or truck will be re-filled off site and will be towed/driven around the site to where machinery is located. The 4x4 jeep/fuel truck will also carry fuel absorbent material and pads in the event of any accidental spillages. The fuel bowser will be parked on a level area in the construction compound when not in use and only designated trained and competent operatives will be authorised to refuel plant on site. Mobile measures such as drip trays and fuel absorbent mats will be used during all refuelling operations; ▪ Fuels stored on site will be minimised. Any storage areas will be bunded appropriately for the fuel storage volume for the period of the construction; ▪ The electrical control building will be bunded appropriately to the volume of oils likely to be stored and to prevent leakage of any associated chemicals and to groundwater or surface water. The bunded area will be fitted with a storm drainage system and an appropriate oil interceptor; ▪ The plant used will be regularly inspected for leaks and fitness for purpose; ▪ An emergency plan for the construction phase to deal with accidental spillages will be contained within the Construction Environmental Management Plan (CEMP). These measures are summarised as follows: ▫ The source of the spill will be identified and stopped; ▫ The Environmental Manager will be immediately notified of the spill so that they can take appropriate action; ▫ The spill will be contained using spill control materials (for example absorbent pads), ensuring not to spread the spill within the wider environment; ▫ If possible, cover or isolate vulnerable areas such as surface water drains; ▫ The spill will be cleaned using spill control materials which will be disposed of by a fully licenced waste contractor with the appropriate permits; ▫ The Environmental manager will inspect the site to ensure that all measures are in place to prevent further spillage from occurring. Any storage areas are to be fully bunded and spill kits available to deal with accidental spillages; and ▫ The Environmental Manager will notify the county council of the spillage and the remedial and preventative actions undertaken.
Release of Cement-Based Products		▪ No batching of wet-cement products will occur on site. Ready-mixed supply of wet concrete products and where possible, emplacement of pre-cast elements, will take place; ▪ Where possible pre-cast elements for culverts and concrete works will be used; ▪ No washing out of any plant used in concrete transport or concreting operations will be allowed on-site; ▪ Where concrete is delivered on site, only the chute will be cleaned, using the smallest volume of water possible. No discharge of cement contaminated waters to the construction phase drainage system or directly to any artificial drain or watercourse will be allowed. Chute cleaning water is to be isolated in temporary lined wash-out pits located near proposed site compounds. These temporary lined wash-out pits will be removed from the site at the end of the construction phase;

	▪ Will use weather forecasting to plan dry days for pouring concrete; and, ▪ Will ensure pour site is free of standing water and plastic covers will be ready in case of a sudden rainfall event
Wastewater Disposal	▪ During the construction phase, self-contained welfare facilities at the site will be utilised. ▪ No additional water or wastewater will be sourced on the site, nor discharged to the site. ▪ Treated effluent will continue to be discharged as normal during the upgrade works
Potential Effects on Groundwater Levels Due to Temporary Dewatering	▪ Proposed excavations will take place within the sands and gravels of the Athy–Bagenalstown Gravels Groundwater Body (GWB). This GWB is classified by the Geological Survey Ireland (GSI) as a Regionally Important Gravel Aquifer. ▪ Groundwater encountered during excavations will be temporarily dewatered and pumped to settlement ponds. ▪ Treated water from the settlement ponds will recharge to ground locally. ▪ There will be no net loss of groundwater, aside from short-distance displacement during temporary dewatering works.
Construction of new outfall	▪ Sheet piles will be used to construct the headwall along the riverbank to minimise the duration and extent of disturbance to the riverbank and riverbed. ▪ Installation and removal of sheet piles will occur over a short period, limiting any increase in suspended solids. ▪ Any effects on water quality will be temporary and localised, with river flow maintained around the temporary cofferdam. ▪ In-stream works will be undertaken in accordance with Inland Fisheries Ireland (2016) Guidelines. Works will be restricted to the July–September in-stream window and carried out during favourable dry weather conditions. ▪ A temporary sheet pile cofferdam will create a dry working area within the river channel. ▪ The cofferdam will be dewatered using a pump, with water discharged to adjacent grassland. ▪ Excavated materials will be stockpiled as far from the riverbank as practicable and covered to prevent sediment runoff. ▪ A Hydrodynamic Assessment confirmed that the proposed outfall pipe and headwall will not adversely affect river water levels or flow velocities. ▪ Sheet piles will be constructed to 46.25 m, providing allowance above relevant flood and climate-change scenarios. ▪ The contractor will determine acceptable flood exceedance levels and ensure sufficient time to remove equipment if works must be abandoned. ▪ A designated person will monitor and record Met Éireann rainfall data before construction and every 2 hours during works. ▪ River water levels upstream of the outfall will be monitored prior to construction and recorded hourly during construction.
Micro-tunnelling	▪ The works area will be clearly marked out with fencing or flagging tape to avoid unnecessary disturbance ▪ Before any ground works are undertaken, silt fencing will be embedded into the local soils to ensure all site water is captured and filtered;

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- The area around the bentonite batching, pumping and recycling plant will be bunded using terram (as it will clog) and sandbags in order to contain any spillages;
 - Drilling fluid returns will be contained within a sealed tank / sump to prevent migration from the works area. A closed-loop system will be used to reduce the overall waster by separating the spoil/returns from the fluid which can be recirculated and reused;
 - Spills of drilling fluid will be cleaned up immediately and contained in an adequately sized skip before been taken off-site;
 - If rainfall events occur during the works, there will be a requirement to collect and treat small volumes of surface water from areas of disturbed ground (i.e. soil and subsoil exposures created during site preparation works);
 - This will be completed using a shallow swale and sump down slope of the disturbed ground; and water will be pumped to a proposed settlement pond area at least 50m from a watercourse;
 - The discharge of water onto vegetated ground will be via a silt bag which will filter any remaining sediment from the pumped water. The entire percolation area will be enclosed by a perimeter of double silt fencing;
 - Any sediment laden water from the works area will not be discharged directly to a watercourse or drain;
 - Works shall be suspended in the event of an orange or red weather warning for rainfall;
 - Daily monitoring of the compound works area; the water treatment and pumping system and the percolation area will be completed by a suitably qualified person during the construction phase. All necessary preventative measures will be implemented to ensure no entrained sediment, or deleterious matter is discharged to the watercourse;
 - If high levels of silt or other contamination is noted in the pumped water or the treatment systems, all construction works will be stopped. No works will recommence until the issue is resolved and the cause of the elevated source is remedied.
 - On completion of the works, the ground surface disturbed during the site preparation works and at the entry and exit pits will be carefully reinstated and re-seeded at the soonest opportunity to prevent soil erosion;
 - There will be no batching of cement;
 - All plant will be checked and inspected for purpose of use prior to mobilisation.
 - Fracture Blow-out (Frac-out) Prevention and Contingency Plan:
 - The drilling fluid will be non-toxic and naturally biodegradable (i.e., Clear Bore Drilling Fluid or similar will be used);
 - The area around the drilling fluid batching, pumping and recycling plants will be bunded using terram and/or sandbags to contain any potential spillage;
 - One or more lines of silt fencing will be placed between the works area and the adjacent river;
 - Spills of drilling fluid will be cleaned up immediately and transported off-site for disposal at a licensed facility;
 - Adequately sized skips will be used where temporary storage of arisings are required;
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		▪ The drilling process / pressure will be constantly monitored to detect any possible leaks or breakouts into the surrounding geology or local watercourse; ▪ This will be gauged by observation and by monitoring the pumping rates and pressures. If any signs of breakout occur, then drilling will be immediately stopped; ▪ Any frac-out material will be contained and removed off-site; ▪ The drilling location will be reviewed, before re-commencing with a higher viscosity drilling fluid mix; and, ▪ If the risk of further frac-out is high, a new drilling alignment will be sought.
Hydrological Connected Designated Sites		▪ Mitigation measures for sediment control are detailed in Section 12.8.1.1 and 12.8.1.2 of Chapter 12 – Water in Volume 2 of the EIAR ▪ Mitigation measures for the control of hydrocarbons during construction works are detailed in Section 12.8.1.3 of Chapter 12 – Water in Volume 2 of the EIAR ▪ Mitigation measures for the control of cement-based products during construction works are detailed in Section 12.8.1.4 of Chapter 12 – Water in Volume 2 of the EIAR ▪ Mitigation measures in relation to wastewater are prescribed in Section 12.5.5 of Chapter 12 – Water in Volume 2 of the EIAR ▪ Mitigation measures in relation to the construction of the new outfall are prescribed in Section 12.8.1.7 of Chapter 12 – Water in Volume 2 of the EIAR ▪ Mitigation measures in relation to micro tunnelling are detailed in Section 12.5.8 of Chapter 12 – Water in Volume 2 of the EIAR ▪ Implementation of these mitigation measures will ensure the protection of surface water quality in receiving waters
Surface Groundwater Status	and WFD	▪ Mitigation measures for sediment control are detailed in Section 12.8.1.1 and 12.8.1.2 of Chapter 12 – Water in Volume 2 of the EIAR ▪ Mitigation measures for the control of hydrocarbons during construction works are detailed in Section 12.8.1.3 of Chapter 12 – Water in Volume 2 of the EIAR ▪ Mitigation measures for the control of cement-based products during construction works are detailed in Section 12.8.1.4 of Chapter 12 – Water in Volume 2 of the EIAR ▪ Mitigation measures in relation to wastewater are prescribed in Section 12.5.5 of Chapter 12 – Water in Volume 2 of the EIAR ▪ Mitigation measures in relation to the construction of the new outfall are prescribed in Section 12.8.1.7 of Chapter 12 – Water in Volume 2 of the EIAR ▪ Mitigation measures in relation to micro tunnelling are detailed in Section 12.5.8 of Chapter 12 – Water in Volume 2 of the EIAR.
Monitoring Measures – Quality	Water	▪ During the construction phase of the Proposed Development visual monitoring will be undertaken as part of regular site audits to ensure discharge to the River Barrow is not impacted by the construction works. During the construction phase the contractor is also required to monitor weather forecasts to inform construction operations.

7.6 Water Resources and Energy Use

Construction activities have the potential to use significant volumes of water and energy. This section identifies the potential impacts associated with water and energy use which may arise from construction and provides guidance on the management and control of water and energy on site.

Refer to the mitigation measures presented in Chapter 12 – Water, Volume 2 of the EIAR (AtkinsRealis, 2026).

7.6.1 Risk Identification

Contractors shall undertake a qualitative water resources and energy use assessment or appraisal prior to the commencement of construction activities. An example risk assessment is shown in Table 7-11.

Table 7-11 - Example of Water Resources and Energy Use Risk Assessment

	Risk Assessment	Example Procedure
01	Identify all items and activities on the construction site with high water and/or energy demands.	Mark up on a site plan with the location of all items and activities with high water and/or energy demands. This will help the planning of the overall layout of the construction site and enable the identification of efficiency opportunities.
02	Implement mitigation to eliminate or reduce water and/or energy demand.	Use the following hierarchy promote water and energy efficiency: 1. Remove the risk (different construction methods/activities). 2. Control the source (change location, modify construction methods, provide adequate bunding for fuel and other storage areas, install measures such as silt fences or ditches to control runoff). 3. Protect the receptor (provide hard standing for compounds/storage areas, filter, control, contain discharges, ensure appropriate environmental permits are in place). 4. Put emergency procedures in place.

7.6.2 Water Resources and Energy Use Management

Contractors will develop, implement and maintain a Water Resources and Energy Use Management Plan. The Plan will include but not be restricted to the mitigation measures below Table 7-12.

Table 7-12 - Water Resources and Energy Use Mitigation Measures

Activity	Mitigation Measures
Chapter 12, Water EIAR	▪ Prior to the commencement of earthworks, silt fencing will be placed down-gradient of the construction areas where drains and drainage pathways are present; ▪ These will be embedded into the local soils to ensure all site water is captured and filtered; ▪ All surface drains within and down-gradient of the earthworks/ construction area will be blocked temporarily or where there are minors flows silt fencing will be placed within the existing drain;

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- No pumped construction water will be discharged directly into the main surface watercourse.
 - Appropriate interceptor drainage, to prevent upslope surface runoff from entering excavations will be put in place;
 - If required, pumping of excavation inflows will prevent build-up of water in the excavation;
 - The interceptor drainage will be discharged onto natural vegetated surfaces downgradient of the excavations and not directly to surface waters;
 - The pumped water volumes from excavations will be discharged via temporary volume and sediment attenuation ponds adjacent to excavation areas;
 - There will be no direct discharge to surface watercourses, and therefore no risk of hydraulic loading or contamination will occur;
 - Treated water from excavations will be discharged over vegetative surfaces and will percolate into the ground due to the permeable nature of the local soils and subsoils;
 - Daily monitoring of excavations by a suitably qualified person (EcoW) will occur during the construction phase. If high levels of groundwater seepage inflow occur into the excavation, excavation works will immediately be stopped and a geotechnical assessment undertaken; and,
 - The sand and gravel subsoils are excellent filters and will polish treated construction water within a couple meters of flow.
 - No batching of wet-cement products will occur on site. Ready-mixed supply of wet concrete products and where possible, emplacement of pre-cast elements, will take place;
 - Where possible pre-cast elements for culverts and concrete works will be used;
 - No washing out of any plant used in concrete transport or concreting operations will be allowed on-site;
 - Where concrete is delivered on site, only the chute will be cleaned, using the smallest volume of water possible. No discharge of cement contaminated waters to the construction phase drainage system or directly to any artificial drain or watercourse will be allowed. Chute cleaning water is to be isolated in temporary lined wash-out pits located near proposed site compounds. These temporary lined wash-out pits will be removed from the site at the end of the construction phase;
 - Will use weather forecasting to plan dry days for pouring concrete; and,
 - Will ensure pour site is free of standing water and plastic covers will be ready in case of a sudden rainfall event.
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Flood Risk Assessment
(IE Consulting, 2026)

In consideration of the findings of the Site Specific Flood Risk Assessment and analysis key conclusions and recommendations have been made in respect of the proposed outfall pipe and associated headwall, as detailed in the Flood Risk Assessment (IE Consulting, 2026).

7.7 Ecology – Natural Habitats, Flora and Fauna

Construction activities can have adverse impacts on natural habitats, flora and fauna. This section identifies potential adverse impacts which may arise from construction and provides guidance on management and control.



7.7.1 Risk Identification

Contractors shall undertake a qualitative ecology risk assessment or appraisal prior to the commencement of construction activities. An example risk assessment is shown in Table 7-13.

Refer to the mitigation measures presented in Chapter 5 – Biodiversity, Volume 2 of the EIAR (AtkinsRealis, 2026).

Table 7-13 - Example of Ecology Risk Assessment

	Risk Assessment	Example Procedure
01	Identify the location of all sensitive ecological receptors within or adjacent to the construction site.	Mark on the site plan the location of all water courses, surface water features, ecologically sensitive areas and habitats. This will help the planning of the overall layout of the construction site and enable the identification of suitable sites for high risk activities such as chemical/fuel storage areas, refuelling points, haul routes and wash out areas.
02	Identify sensitive receptors off site or downstream of the construction project that could potentially be affected by the works. For example, water courses, ecologically sensitive areas and habitats.	Establish monitoring regime during and post construction.
03	Identify the construction activities and sources of pollution that may affect the water/ecological receptors identified.	These could include excavations, dewatering, water course crossings, as well as general sources of pollution such as surface water runoff, fuel storage and concrete use.
04	Evaluate the risk of the construction activities polluting the identified receptors.	Assess the likelihood of an activity causing pollution, damage or harm.
05	Implement mitigation to eliminate or reduce risks.	Use the following hierarchy to manage the risk: 1. Remove the risk (different construction methods/activities). 2. Control the source (modify construction methods, provide adequate bunding for fuel and other storage areas, install measures such as silt fences or ditches to control runoff). 3. Protect the receptor (provide hard standing for compounds/storage areas, filter, control, contain discharges, ensure appropriate environmental permits are in place). 4. Put emergency procedures in place.

7.7.2 Ecology Management Plan

Contractors will develop, implement and maintain an Ecology Management Plan. The Plan will include but not be restricted to the mitigation measures in Table 7-14.



Table 7-14 - Ecology Mitigation Measures

Activity	Mitigation Measures
Protection of Water Quality	- Chapter 12 (Water), particularly Section 12.8, sets out mitigation measures to address all water quality impacts from the proposed development. The Biodiversity chapter authors have reviewed these measures and consider them sufficient to protect relevant Key Ecological Receptors (KERs). The mitigation measures for water quality impacts associated with each impact source are set out in Chapter 12 Water as follows: - Sediment (from earthworks and dewatering) - Section 12.8.1.1 and 12.8.1.2. of Chapter 12 – Water of Volume 2 of the EIAR - Hydrocarbons - Section 12.8.1.3. of Chapter 12 – Water of Volume 2 of the EIAR - Cement-based materials - Section 12.8.1.4. of Chapter 12 – Water of Volume 2 of the EIAR - Wastewater - Section 12.5.5. of Chapter 12 – Water of Volume 2 of the EIAR - Outfall works - Section 12.8.1.7. of Chapter 12 – Water of Volume 2 of the EIAR - Micro-tunnelling - Section 12.5.8. of Chapter 12 – Water of Volume 2 of the EIAR
Artificial Lighting	- Construction works during hours of darkness will be kept to a minimum. Works should be limited to normal working hours (08:00 to 18:00), with the site being secured and lighting being switched off outside of these hours, subject to safety and security requirements (This does not apply to areas within the existing WwTP which are subject to existing operational lighting). - Any works lighting shall be directed away from the River Barrow and all trees and vegetation to be retained, following the principles set out below in relation to the permanent lighting design. - All in-stream works and works near the riverbank shall be restricted to daylight hours. Therefore, there shall be no artificial lighting of the river channel or riverbanks. - The proposed operational lighting is restricted to the access roads within the WwTP site itself (see Figure 5-19). No lighting is proposed west of Kilkenny Road. A lighting plan has been prepared for the WwTP site, which follows the below principles: - Lighting design will be flexible and fully take into account the presence of protected species. Appropriate lighting will be used, with more sensitive lighting regimes (in terms of both the type, extent and timing of light) deployed in wildlife-sensitive areas. - Dark zones will be used to separate habitats or features such as waterbodies, hedgerows, treelines and scrub from lighting by forming a dark perimeter around them. - Buffers will be used to protect dark zones and rely on ensuring light levels within a certain distance of a feature do not exceed defined limits. - The following, which is taken from Institute of Lighting Professionals <i>Guidance Note GN08/23</i>¹, should be considered if choosing new luminaires: - - All luminaires should lack UV elements when manufactured. Metal halide, compact fluorescent sources should not be used. - LED luminaires should be used where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability.

¹ ILP (2023). *Guidance Note GN08/23 - Bats and Artificial Lighting at Night*. Institute of Lighting Professionals.

		▪ A warm white light source (2700 Kelvin or lower) should be adopted to reduce blue light component. ▪ Luminaires should feature peak wavelengths higher than 550nm. ▪ Column heights should be carefully considered to minimise light spill and glare visibility. This should be balanced with the potential for increased numbers of columns and upward light reflectance as with bollards. ▪ The use of bollard or low-level downward-directional luminaires is strongly discouraged. This is due to Issues such as unacceptable glare, poor illumination efficiency, unacceptable upward light output, increased upward light scatter from surfaces and poor facial recognition which makes them unsuitable for most sites. Therefore, they should only be considered in specific cases where the lighting professional and project manager are able to resolve these Issues. ▪ Only luminaires with an upward light ratio of 0% and with good optical control will be used. ▪ Luminaires must always be mounted on horizontally with no light output above 90° and/or no upward tilt. ▪ As a last resort, accessories such as baffles, hoods or louvres may be used to reduce light spill and direct it only to where it is needed.
Installation of Temporary Cofferdam		▪ In-stream works are restricted to the period 1 July to 30 September. ▪ If works are required outside this window, a derogation under the Local Authorities (Works) Act, 1949 (as amended) would be required from the Inland Fisheries Section of the Department of Climate, Energy and the Environment. ▪ Construction of the new outfall will take approximately three weeks, including cofferdam installation and removal. ▪ It is anticipated that the outfall works will be completed within the permitted July–September period. ▪ Any fish (and crayfish, if present) within the cofferdam area will be rescued prior to dewatering and released downstream or upstream outside the cofferdam. ▪ Dewatered material from the cofferdam will be discharged to a settlement pond located at least 20 m from the river bank. ▪ Wherever possible, piles shall be driven by hydraulic pressing. ▪ Where this is not feasible, vibratory piling will be deemed acceptable. ▪ Any percussive piling shall be limited to a small number (between 1 no. and 10 no.) strikes with an impact hammer to drive piles to refusal, where necessary. ▪ During dewatering, the pump intake shall be fitted with a screen or mesh to prevent intake of any fish or other aquatic life. Any fish (and crayfish, if present) within the isolated area shall be rescued (prior to dewatering) and released into the river outside the cofferdam. The dewatering from the cofferdam will be to a settlement pond to be installed at a minimum of 20m from the river bank.
Habitat Loss and Fragmentation		▪ Tree felling and vegetation clearance shall be limited to the areas required for the construction of the proposed development. These areas shall be clearly delineated and marked out prior to commencement of tree felling and vegetation clearance. No tree felling or vegetation clearance will be permitted outside of these areas. ▪ The Tree Protection Plan shall be followed to ensure that there is no direct or indirect loss or damage to trees or other vegetation that is not within areas required to be cleared.

	▪ Clearance of woodland and scrub immediately south of the existing WwPS shall not exceed a total area 520m² and shall under no circumstances encroach on the priority Annex I 'alluvial woodland' (zone A). ▪ Clearance for the temporary works area along the outfall pipeline shall not encroach into the adjoining zone A woodland outside the Red-Line Boundary. ▪ Vegetation clearance in zone A at the outfall location shall be strictly limited to that required to construct the new outfall. Protection of the 2 no. mature willow trees on the riverbank shall be of paramount importance and the measures in the Tree Protection Plan shall be strictly followed in this regard. ▪ Replacement and additional planting in each area shall be established at the earliest opportunity, subject to any seasonal recommendations set out in the Landscape Plan and Specification (EBLA, 2025), landscape rationale set out in Section 5.6. ▪ With regard to the tree group west and north of the cottage (see Tree Protection Plan Drawing No. 25025_TPP Sheet 2), the temporary works for the new WwPS have been rearranged to minimise habitat loss and fragmentation in this area, most especially to allow for the retention of the 2 no. mature Horse Chestnut trees (T675 and T676) and maintenance of a dark buffer zone around these trees to avoid negative impacts on the bat roosts identified
Biosecurity	▪ To prevent the import of invasive non-native species to the proposed development site, all vehicles, plant, equipment, and PPE shall be thoroughly checked for any signs of invasive species or their propagules, e.g. seeds or fragments of rhizomes, before being allowed on site, paying particular attention to wheels and tracks. ▪ If there is any doubt as to the absence of invasive species materials, the vehicle/plant/equipment/PPE concerned shall be taken to one of the dedicated wash-down disinfection facilities described below and thoroughly cleaned and re-checked before being allowed on site. ▪ The Biosecurity Standard Operating Procedure (SOP) set out in Section 3.1 of INVAS (2026), which is presented in Appendix 5-12 to this EIAR, shall be implemented for all works, including surveys, site investigations or any other activities on site.
Terrestrial Environment	During construction, works between the Kilkenny Road and the riverbank to construct the new outfall are assumed to interact with Japanese Knotweed and Himalayan Balsam. Therefore, the following shall be implemented: ▪ The Contractor shall set up dedicated wash-down/disinfection facilities for use on entry to/exit from the two works areas west of the Kilkenny Road, i.e. the outfall area and the area south of the existing pumping station. ▪ All personnel, visitors, materials and equipment shall be thoroughly cleaned in this facility and be checked to ensure that they are free of any signs of invasive species or their propagules, e.g. seeds or fragments of rhizomes, before being allowed to leave the area. ▪ Washings built up in the wash-down/disinfection facility shall be periodically removed and stockpiled for removal as detailed in the first bullet point. ▪ All personnel and visitors shall be made aware of the presence of invasive species, the importance of preventing their spread, and the measures/protocol being implemented by the Contractor to that end. ▪ Appropriate signage shall be erected at entry and exit points from this area to alert all personnel and visitors to the presence of this species.

	▪ All arisings from excavations in this area shall be treated as contaminated with invasive species material and shall be stockpiled accordingly, in a bunded area at least 20m from the riverbank, and then removed to an appropriately licensed waste facility. ▪ Works west of the Kilkenny Road in the vicinity of the existing WwPS shall be assumed to interact with Himalayan Balsam. The same arrangement as described above in relation to the outfall area is required here. ▪ Three-cornered Leek is present along the Kilkenny Road adjacent to the temporary works area for the southernmost intermediate tunnel shaft. ▪ The works area will be restricted to the existing roadway and footpath where possible to avoid disturbance to the infested landscaped area on the eastern side of the road. ▪ If works encroach into the infested area, any contaminated arisings will be removed off-site to an appropriately licensed waste facility. ▪ Any vehicles, plant, equipment, or PPE that come into contact with infested material will be thoroughly cleaned and checked before leaving the area. ▪ Any Ash (<i>Fraxinus excelsior</i>) trees or material encountered during vegetation clearance will be assumed to be infected with ash dieback (<i>Hymenoscyphus fraxineus</i>). ▪ All ash material arising from clearance works will be managed and disposed of in accordance with best practice guidance, such as SEPA advice on infected plant material
Aquatic Environment	During construction, all in-stream works shall be assumed to interact with Nuttall's Waterweed and aphanomycosis ("crayfish Plague"). The following shall be implemented to control the risk of spread: ▪ The Contractor shall set up a wash-down/disinfection facility for use on entry to/exit from the outfall works area, i.e. the works area west of the Kilkenny Road. Contaminated water from the biosecurity station will be tankered off site to a licenced waste facility. ▪ The Contractor shall set up a wash-down/disinfection facility for use on entry to/exit from the outfall works area, i.e. the works area west of the Kilkenny Road. Contaminated water from the biosecurity station will be tankered off site to a licenced waste facility. ▪ All personnel, visitors, materials and equipment which have been in contact with the riverbed material shall be thoroughly cleaned in this facility and be checked to ensure that they are free of invasive species material before being allowed to leave the area. ▪ Washings built up in the wash-down/disinfection facility shall be periodically removed and stockpiled for removal as detailed in the first bullet point. ▪ All personnel and visitors to site shall be made aware of the presence of aquatic invasive non-native species and diseases in the in-stream works area, the importance of preventing their spread, and the measures/protocol being implemented by the Contractor to that end. ▪ Appropriate signage shall be erected on approach to the in-stream works area to alert all personnel and visitors to the presence of this species.² ▪ The Check-Clean-Dry/Disinfect protocol will apply to any vehicles, plant, equipment or PPE in contact with the water, including sheet piles/cofferdam units.

² Templates for invasive non-native species and biosecurity signage are available on *Invasives.ie* (<https://invasives.ie/resources/check-clean-dry-resources/>).

		▪ All arisings from the in-stream works area shall be treated as contaminated with Nuttall's Waterweed and crayfish plague and shall be stockpiled accordingly in a bunded area at least 20m from the riverbank. This material shall then be removed off-site to an appropriately licensed waste facility. ▪ On their removal from the river following completion of the outfall works, the sheet piles shall be treated as per other materials or equipment used for in-stream works before leaving site. ▪ To control the risk of the introduction or spread of aquatic invasive non-native species or diseases associated with the use of a barge for the temporary cofferdam works, the owner or operator of the barge shall submit the following to the Employer or Employer's Representative: ▫ Documentary evidence in the form of a completed and signed Marine Institute 'Cleaning and Disinfection Declaration Form' (Form No. C-038) or appropriate alternative, e.g. from Waterways Ireland, that the barge was fully cleaned and disinfected within 6 months immediately preceding its arrival on site; and, ▫ Records of the barge's movements during the 6 months immediately preceding its arrival on site. ▪ If the above cannot be provided, the barge shall be fully cleaned and disinfected, e.g. at the Waterways Ireland dry dock at Athy, c. 20km north of the works area via the Barrow Navigation, or at another suitable location. This shall be done, under the supervision of the Contractor's ecologist, who shall make a record of the cleaning and disinfection of the barge and include this in their monitoring file. ▪ The barge shall only be permitted to move to site once the Contractor's ecologist is satisfied that it does not pose a significant risk of importing aquatic invasive non-native species or diseases to the works area
Protection of Birds		▪ Section 22(4) of the Wildlife Act makes it an offence to hunt or deliberately injure a wild bird, to take or remove eggs or nests, to destroy, injure or mutilate eggs or nests, or to disturb a wild bird on or near a nest containing eggs or unflown young. However, Section 22(5) states that it is not an offence to unintentionally kill or to injure a wild bird or unintentionally destroy, injure or mutilate eggs or nests while carrying out construction works. Notwithstanding this, every effort shall be made to avoid killing or injuring birds, destroying nests or eggs or disturbing birds near nests. ▪ To further protect nesting birds and other wildlife, Section 40 of the Wildlife Act makes it an offence to "cut, grub, burn or otherwise destroy, during the period beginning on the 1st day of March and ending on the 31st day of August in any year, any vegetation growing on any land not then cultivated". However, this does not apply to "the clearance of vegetation in the course of road or other construction works or in the development or preparation of sites on which any building or other structure is intended to be provided". Notwithstanding this, every effort shall be made to avoid cutting/felling trees or clearing vegetation during this period. ▪ Where tree felling or vegetation clearance is necessary between 1st March and 31st August, a suitably qualified and experienced ecologist will inspect the trees/vegetation and identify any active bird nests present. Any active nests will be protected and any surrounding cover (extent to be determined by suitably qualified ecologist) not cleared until such time as the nest is no longer active, as advised by the Contractor's ecologist.
Protection of Bats		▪ The 2 no. Horse Chestnut trees (T675 and T676) in the garden of the cottage west of the WwTP were previously marked for removal to facilitate the construction of the new WwPS in this area. Bat surveys indicate the presence of at least 1 no. roost for 2 no. Brown Long-eared Bat in these trees. As per Section 5.6.1.4 – Chapter 5 Biodiversity of Volume 2 EIAR, the temporary works for the new WwPS have been rearranged to

	allow for the retention of these trees and maintenance of a dark buffer zone around them to avoid the bat roost(s). ▪ The existing WwPS building is proposed to be decommissioned and not demolished. This building has been assessed as having 'Moderate' bat roost potential. No evidence of current use by bats was found during the surveys. As this building is not being demolished the potential bat roost habitat will remain.
Protection of Otter	▪ All open excavations shall be securely fenced off and include ramps/ladders outside of active working hours to prevent Otters of other species from becoming trapped within them. ▪ No Otter holts or couches were identified in the immediate vicinity of the proposed works. Thus, based on the current baseline, there is no requirement for a Regulation 54 derogation licence. However, given the confirmed presence of otters in the vicinity and the significant time likely to elapse between the surveys and the commencement of works, the possibility that Otters may establish new holts or couches in the vicinity cannot be entirely excluded. Therefore, pre-construction surveys to identify any new Otter holts or couches (should they occur) will be undertaken in advance of works (including any investigatory or preparatory works). ▪ These surveys will be undertaken by a suitably qualified and experienced ecologist (appointed by the Contractor) and in the appropriate survey seasons. ▪ The results of these pre-construction surveys will determine the need or otherwise for any derogation licence (due to any changes in Otter use in the area in the intervening time between the planning application and start of works). The terms and conditions of any licence granted will be strictly observed. The Contractor will be responsible for applying for and executing any licences required, and will be assisted by their own suitably qualified and experienced ecologist
River Barrow and River Nore SAC	▪ All specific mitigation required to address potential adverse effects on the integrity of the River Barrow and River Nore SAC is prescribed in the NIS (AtkinsRéalis Report Ref. 5161805DG0457 rev 0 - NIS) submitted alongside this EIAR
Landscaping	▪ All planting proposed within the Mortarstown WwTP site will comprise native species of Irish provenance. ▪ Existing screen planting along the northern, eastern, and southern boundaries of the site will be largely retained. Additional native species hedgerows will be planted along the entire boundary to the extension to the site to increase biodiversity. These hedgerows, as they mature, will also provide screening. ▪ Grassland areas within the site will be managed to enhance biodiversity. Short grassland areas will be managed through a mowing regime of five cuts per year at approximately six-week intervals, with all arisings removed. Long grassland areas will be managed through a single annual cut, with all arisings removed. ▪ Two wildlife ponds, incorporating marginal planting and pondside trees to provide partial shading, will be provided within the Mortarstown WwTP site. Additional orchard tree planting will be provided within the rear garden of the derelict cottage located to the west of the site. ▪ Replacement tree and hedgerow planting will be provided where sections of existing trees and hedgerows are removed along Kilkenny Road (in the vicinity of Southern Gardens and Carraig Abhainn) to facilitate shafts for micro-tunnelling works. ▪ The small area of woodland removed south of the Kilkenny Road pumping station will be allowed to naturally regenerate following completion of the works. In addition, a native hedgerow will be planted adjacent to the existing stone boundary wall near the Kilkenny Road pumping station.

Monitoring Measures	The Contractor shall retain the services of a suitably qualified and experienced ecologist for the duration of the works. The qualifications and experience of the Contractor's ecologist shall include, as a minimum: - ▪ BSc (Hons) or above in Ecology or a related environmental discipline, ▪ Full membership of the CIEEM or equivalent membership of a similar professional body, ▪ Demonstrable experience in providing ecological/environmental supervision on construction sites, including where there are in-stream works. The main duties of the Contractor's ecologist shall include the following: - ▪ Assist the Contractor in ensuring that the measures in this Biodiversity chapter and the NIS, any conditions of consents/licences and relevant guidelines are fully and properly implemented during construction. ▪ Undertake pre-construction surveys for breeding or resting places of species listed on Annex IV to the Habitats Directive, most notably Otter and bats, as well as nesting birds and invasive non-native plant species. ▪ Oversee the continued implementation of the biosecurity measures described above. ▪ Advise the Contractor on any requirement for a derogation licence under Regulation 54 of the Habitats Regulations due to the presence of breeding or resting places of species listed on Annex IV to the Habitats Directive, if identified during the pre-construction surveys.³ ▪ Directly supervise key activities on site, particularly works near sensitive ecological receptors such as the River Barrow, woodlands and potential bat roost features. ▪ Carry out weekly inspections of the site and document the implementation of the measures in this NIS, any conditions of consents/licences and relevant guidelines. The Contractor's ecologist's inspection records shall be available to UÉ or the Employer's Representative, An Coimisiún Pleanála, the NPWS and IFI, on request. ▪ Provide monthly updates to UÉ or the Employer's Representative on the implementation of the mitigation measures detailed in this chapter and in the accompanying NIS, and any ecological/environmental incidents on site.
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7.8 Light Pollution

Obtrusive light from a construction site is a form of pollution. Construction lights can cause glare and light trespass. These are forms of obtrusive light which may cause nuisance to others.

7.8.1 Risk Identification

Contractors shall undertake a qualitative light pollution risk assessment or appraisal prior to the commencement of construction activities. An example risk assessment is shown in Table 7-15.

Table 7-15 - Example of Light Pollution Risk Assessment

³ The Contractor, with the assistance of the Contractor's ecologist, shall be responsible for applying for any such licence and observing its conditions.

	Risk Assessment	Example procedure
01	Identify the location of all sensitive receptors within or adjacent to the construction site.	Mark a site plan with the location of all potential receptors including housing, schools, hospitals, roads and key wildlife populations. This will help the planning of the overall layout of the construction site and enable the identification of suitable sites for lighting.
02	Identify the construction activities and sources of light pollution that may affect the receptors identified.	These could include depots, storage areas, night working activities etc.
03	Evaluate the risk of the construction activities creating light pollution for the identified receptors.	Assess the likelihood of an activity causing pollution, damage or harm.
04	Implement mitigation to eliminate or reduce risks.	Use the following hierarchy to manage the risk: 1. Remove the risk (different construction methods/activities). 2. Control the source (modify construction methods; provide adequate screening, directional light). 3. Protect the receptor (screens). 4. Put emergency procedures in place.

7.8.2 Light Pollution Control Plan

Contractors will develop, implement and maintain a Light Pollution Control Plan. The Plan will include but not be restricted to the mitigation measures in Table 7-16.

Table 7-16 - Light Pollution Mitigation Measures

Activity	Mitigation Measures
EIAR, Chapter 5, Biodiversity	Artificial Lighting - Construction works during hours of darkness will be kept to a minimum. Works should be limited to normal working hours (08:00 to 18:00), with the site being secured and lighting being switched off outside of these hours, subject to safety and security requirements (This does not apply to areas within the existing WwTP which are subject to existing operational lighting). - Any works lighting shall be directed away from the River Barrow and all trees and vegetation to be retained, following the principles set out below in relation to the permanent lighting design. - All in-stream works and works near the riverbank shall be restricted to daylight hours. Therefore, there shall be no artificial lighting of the river channel or riverbanks. - The proposed operational lighting is restricted to the access roads within the WwTP site itself (see Figure 5-19, Chapter 5 – Biodiversity of Volume 2 EIAR). No lighting is proposed west of Kilkenny Road. A lighting plan has been prepared for the WwTP site, which follows the below principles:

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- Lighting design will be flexible and fully take into account the presence of protected species. Appropriate lighting will be used, with more sensitive lighting regimes (in terms of both the type, extent and timing of light) deployed in wildlife-sensitive areas.
 - Dark zones will be used to separate habitats or features such as waterbodies, hedgerows, treelines and scrub from lighting by forming a dark perimeter around them.
 - Buffers will be used to protect dark zones and rely on ensuring light levels within a certain distance of a feature do not exceed defined limits.
 - The following, which is taken from Institute of Lighting Professionals *Guidance Note GN08/23*⁴, should be considered if choosing new luminaires: -
 - All luminaires should lack UV elements when manufactured. Metal halide, compact fluorescent sources should not be used.
 - LED luminaires should be used where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability.
 - A warm white light source (2700 Kelvin or lower) should be adopted to reduce blue light component.
 - Luminaires should feature peak wavelengths higher than 550nm.
 - Column heights should be carefully considered to minimise light spill and glare visibility. This should be balanced with the potential for increased numbers of columns and upward light reflectance as with bollards.
 - The use of bollard or low-level downward-directional luminaires is strongly discouraged. This is due to Issues such as unacceptable glare, poor illumination efficiency, unacceptable upward light output, increased upward light scatter from surfaces and poor facial recognition which makes them unsuitable for most sites. Therefore, they should only be considered in specific cases where the lighting professional and project manager are able to resolve these Issues.
 - Only luminaires with an upward light ratio of 0% and with good optical control will be used.
 - Luminaires must always be mounted on horizontally with no light output above 90° and/or no upward tilt.
 - As a last resort, accessories such as baffles, hoods or louvres may be used to reduce light spill and direct it only to where it is needed.
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Chapter 14,
Material
Assets EIAR,

- Diversion, rerouting and relocation of the following services will take place prior to construction; existing watermains and hydrants, existing lighting ducts and light poles, and existing underground electrical cables.
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7.9 Archaeology and Cultural Heritage

Heritage is an irreplaceable resource, so it is recognised that cultural resources must be safeguarded for future generations. Construction activities have the potential to impact on archaeology and heritage through the destruction or disturbance of sites or artefacts.

Refer to the mitigation measures presented in Chapter 13 – Cultural Heritage, Volume 2 of the EIAR (AtkinsRealis, 2026).

⁴ ILP (2023). *Guidance Note GN08/23 - Bats and Artificial Lighting at Night*. Institute of Lighting Professionals.

7.9.1 Risk Identification

The Plan will include but not be restricted to the mitigation measures in Table 7-17.

Table 7-17 - Example of Cultural Heritage Risk Assessment

	Risk Assessment	Example Procedure
01	Identify the location of all sensitive receptors within or adjacent to the construction site.	Mark a site plan with the location of all potential receptors including villages, forts, palaces, houses, and towers. The site plan must be updated and approved by the appointed project archaeologist. This will help the planning of the overall layout of the construction site.
02	Identify the construction activities that may affect the receptors identified.	These could include depots, storage areas, excavation, waste storage, haul roads etc.
03	Evaluate the risk of the construction activities damaging the identified receptors.	Assess the likelihood of an activity causing pollution, damage or harm.
04	Implement mitigation to eliminate or reduce risks.	Use the following hierarchy to manage the risk: 1. Remove the risk (different construction methods/activities). 2. Control the source (modify construction methods or operations - alternative haul roads). 3. Protect the receptor (screens). 4. Put emergency procedures in place.

7.9.2 Archaeology and Cultural Heritage Management

Contractors will develop, implement and maintain an Archaeology and Heritage Management Plan. The Plan will include but not be restricted to the mitigation measures below (Table 7-18).

Table 7-18 - Cultural Heritage Mitigation Measures

Activity	Mitigation Measures
Chapter 13 – Cultural Heritage in Volume 2 of the EIAR	Construction Phase - A programme of archaeological monitoring of ground excavation works during the construction phase will be undertaken by a suitably qualified archaeologist licensed by the National Monument Service within the following areas: - Topsoil stripping works in greenfield areas within and to the west of the existing wastewater treatment plant - Ground excavation works required to facilitate the construction of the proposed outfall within woodland, riverbank and in-channel areas to the west of Kilkenny Road - Any ground excavation work required to facilitate the construction of a microtunnel gravity sewer along Kilkenny Road.

Activity	Mitigation Measures
	▪ In the event where archaeological remains are identified during archaeological supervision, works will cease locally and the area will be recorded and securely cordoned off. ▪ The National Monuments Service will be consulted to agree appropriate mitigation. ▪ Mitigation may include preservation in situ by avoidance or preservation by record through archaeological excavation. ▪ Areas within the footprint of the proposed upgrade works have been previously disturbed. ▪ As a result, archaeological monitoring of demolition works within these previously disturbed areas is not considered necessary
Monitoring Measures	▪ A method statement detailing the proposed strategy for archaeological supervision of ground works during the construction phase will be submitted for approval to the National Monuments Service as part of the licence application. ▪ This will clearly outline the proposed extent of ground works and outline the consultation process to be enacted in the event that any unrecorded archaeological remains are identified, which may include preservation <i>in situ</i> by avoidance or preservation in record by archaeological excavation. ▪ A report will be compiled on all archaeological site investigations which will clearly present the results in written, drawn and photographic formats. Copies of this report will be submitted to Carlow County Council, the National Monuments Service and the National Museum of Ireland.

7.10 Traffic Management

Accidents involving construction vehicles and/or mobile equipment have the potential to cause serious injury or death and damage to the environment. Work zones on construction sites are used to move traffic in an approved direction and are typically identified by signs, cones, barrels, and barriers.

Refer to the mitigation measures presented in Chapter 10 – Traffic and Transportation, Volume 2 of the EIAR (AtkinsRealis, 2026).

7.10.1 Risk Identification

Contractors shall undertake a traffic management risk assessment or appraisal prior to the commencement of construction activities. An example risk assessment is shown in Table 7-19.

Table 7-19 - Example of Traffic Management Risk Assessment

	Risk Assessment	Example Procedure
01	Identify the location of all traffic sensitive areas within or adjacent to the construction site.	Mark a site plan with the location of all potential traffic sensitive areas including villages, forts, palaces, houses, schools, shopping districts, commercial/leisure areas roads and other rights of way.

Risk Assessment		Example Procedure
		This will help the planning of the overall layout of the construction site and enable the identification of suitable sites for vehicle/pedestrian entrances, storage areas etc.
02	Identify the construction activities may affect the traffic sensitive areas identified.	These could include depots, storage areas, excavation, waste storage, haul roads etc.
03	Evaluate the risk of the construction activities impacting on traffic sensitive areas.	Assess the likelihood of an activity causing harm or obstruction.
04	Implement mitigation to eliminate or reduce risks.	Use the following hierarchy to manage the risk: Remove the risk (different construction methods/activities). Control the source (modify construction methods or operations - alternative haul roads). Protect the receptor (screens, signs, barriers). Put emergency procedures in place.

7.10.2 Traffic Management Control Plan

Contractors will develop, implement and maintain a Traffic Management Control Plan.

Table 7-20 - Traffic Management Control Plan Mitigation Measures

Activity	Mitigation Measures
Chapter 10, Traffic of EIAR	Construction Phase: Outline Traffic Management - An Outline Traffic Management Plan (OTMP) is provided in Appendix 10-2, with a summary included in Table 10-4, Chapter 10. This provides an initial framework for the future Construction Traffic Management Plan (CTMP) and is a guidance document separate from the final CTMP to be prepared by the contractor. - The appointed contractor will liaise with relevant authorities, including Transport Infrastructure Ireland, Carlow County Council, and the Emergency Services, when developing the CTMP. - The CTMP shall be treated as a live document, allowing for updates to reflect changes in the construction programme, operations, or unforeseen circumstances, as required by the Employer, their agents, or relevant authorities. - The contractor shall ensure that the key elements of the OTMP are incorporated into the final CTMP. The principal contractor(s) must also agree upon and implement monitoring measures to assess the effectiveness of the CTMP. Upon finalisation, the contractor shall adopt the CTMP and its associated monitoring protocols. - The CTMP shall address the following key issues: - Parking will not be permitted along the side of any road. Proposed parking arrangements will utilise the existing WwTP site. - Signage: All signage will comply with the Traffic Signs Manual – Chapter 8 and be agreed with Carlow County Council.

- Construction Route: Materials will be delivered directly to each site. HGV traffic will use National and Regional Roads. Deliveries via Kilkenny Road / Green Road junction.
- Material Delivery Timing: Deliveries restricted to 09:00–16:00 to minimise community impact.
- Speed Limits: Compliance with posted/legal speed limits will be emphasised to all staff, suppliers, and contractors.
- Micro Tunnel Gravity Sewer: Road closures along Kilkenny Road limited to 100m stretches. One side of the road will remain open via 'Stop/Go' system with a minimum 3m carriageway. No road closure for outfall pipe crossing under the Kilkenny Road.
- Regular cleaning of the road network near the site will be required
- Inspections and spot checks will ensure compliance with the CTMP by all project staff and suppliers.
- Emergency services will be contacted immediately via 112. Full incident details will be provided.

7.11 Contaminated Land

The term 'land contamination' covers a wide range of situations where land is contaminated in some way by previous use. This is often associated with industrial processes or activities that have now ceased, but where waste products or remaining residues present a hazard to the general environment.

7.11.1 Risk Identification

Contractors shall undertake a contaminated land risk assessment or appraisal prior to the commencement of construction activities. An example risk assessment is shown in Table 7-21.

Table 7-21 - Example of Contaminated Land Risk Assessment

	Risk Assessment	Example Procedure
01	Identify the location of contamination risks by undertaking site visits and desk-based studies of relevant documents - EIA etc.	Mark a site plan with the location of all potential contamination risks including waste deposits, petrol stations, oil stores etc.
02	Identify the construction activities may create ground contamination.	These could include depots, storage areas, waste storage, etc.
03	Evaluate the risk of the construction activities leading to ground contamination.	Assess the likelihood of an activity causing pollution, damage or harm.
04	Implement mitigation to eliminate or reduce risks.	Use the following hierarchy to manage the risk: 1. Remove the risk (different construction methods/activities).



Risk Assessment	Example Procedure
	- Control the source (modify construction methods or operations) - Protect the ground (screens). - Put emergency procedures in place.

7.11.2 Contaminated Land Control Plan

Contractors will develop, implement and maintain a Contaminated Land Control Plan. The Plan will include but not be restricted to the mitigation measures in Table 7-22.

Table 7-22 - Example of Contaminated Land Mitigation Measures

Activity	Mitigation Measures
General	The Contractor will manage and control the potential contamination of land from construction activities through the implementation of the CEMP and method statements as appropriate. The Contractor will notify AtkinsRéalis immediately if contaminated land is discovered or suspected.
Chapter 11, Land, Soils and Geology	- Earthworks plant and vehicles delivering construction materials to site will be confined to predetermined haul routes around the site; - Shoring of all deep excavations will be carried out to ensure sides don't collapse during the excavation of the tanks - Vehicle wheel wash facilities will be installed in the vicinity of any site entrances and road sweeping implemented as necessary in order to maintain the road network in the immediate vicinity of the site. - Dust suppression measures (e.g. dampening down) will be implemented as necessary during dry periods; - The employment of good construction management practices will serve to minimise the risk of pollution from construction activities at the development in line with the Construction Industry Research and Information Association (CIRIA) publication entitled, Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors, CIRIA - C532 (2001) which are also detailed in Chapter 8 – Water (Hydrology and Hydrogeology). Specifically, with regard to soils and geology, the following will be adhered to; - Fuels, lubricants and hydraulic fluids for equipment used on the construction site, as well as any solvents, oils, and paints will be carefully handled to avoid spillage, properly secured against unauthorised access or vandalism, and provided with spill containment according to best codes of practice; Waste oils and hydraulic fluids will be collected in leak-proof containers and removed from the development for disposal or recycling; - Any spillage of fuels, lubricants or hydraulic oils will be immediately contained, and the contaminated soil removed from the development and properly disposed of; - All site vehicles used will be refuelled in bunded and adequately sealed and covered areas in the construction compound area. - All plant and machinery will be serviced before being mobilised to site; - No plant maintenance will be completed on site, any broken-down plant will be removed from site to be fixed; - Refuelling will be completed in a controlled manner using drip trays at all times;



Activity	Mitigation Measures
	▪ Mobile bowsters, tanks and drums will be stored in secure, impermeable storage areas away from open water; ▪ Fuel containers will be stored within a secondary containment system, e.g. bunds for static tanks or a drip tray for mobile stores; ▪ Containers and bunding for storage of hydrocarbons and other chemicals will have a holding capacity of 110% of the volume to be stored; ▪ Ancillary equipment such as hoses and pipes will be contained within the bund; ▪ Taps, nozzles or valves will be fitted with a lock system; ▪ Fuel and chemical stores including tanks and drums will be regularly inspected for leaks and signs of damage; ▪ Drip-trays will be used for fixed or mobile plant such as pumps and generators in order to retain oil leaks and spills; ▪ Only designated trained operators will be authorised to refuel plant on site; ▪ Procedures and contingency plans will be set up to deal with emergency accidents or spills; ▪ An emergency spill kit with oil boom, absorbers etc. will be kept on-site for use in the event of an accidental spill. A specific team of staff will be trained in the use of spill containment; ▪ Strict supervision of contractors will be adhered to in order to ensure that all plant and equipment utilised on-site is in good working condition. Any equipment not meeting the required standard will not be permitted for use within the Site. This will minimise the risk of soils and bedrock becoming contaminated through site activity; and, ▪ Highest standards of site management will be maintained, and utmost care and vigilance followed to prevent accidental contamination or unnecessary disturbance to the site and surrounding environment during construction. A named person will be given the task of overseeing the pollution prevention measures agreed for the site to ensure that they are operating safely and effectively. ▪ Soils on the development may become unnecessarily compacted by machinery during construction. In order to protect against unnecessary compaction of soil by machinery, construction limits, accesses, and haulage roads will be clearly defined; In the event that contaminated ground is encountered during the construction works the following specific environmental management procedure will be adhered to: ▪ The contaminated material will be fully characterised in terms of lateral and vertical extent, and a detailed assessment of the potential environmental and human health impacts will be undertaken in accordance with industry standard best practice. ▪ Soil Excavated onsite during construction will be reused as 'Other granular 6F1/2 type' fill below the pavements and in landscaping to reduce the quantity of soil requiring disposal offsite. ▪ Any soil or topsoil required to be removed offsite to an appropriately licenced/ permitted soil disposal or recovery facility will be characterised in advance in accordance with the Waste Classification List of Waste & Determining if Waste is Hazardous or Non-hazardous (EPA, 2015) and the waste acceptance criteria for the relevant facility. ▪ Any waste generated during the works will be managed in accordance with the relevant waste legislation. Any contaminated material requiring offsite disposal will be transported and disposed of to a suitably licenced waste facility.

7.12 Soil Erosion and Sedimentation

Soil eroded during land disturbance can wash away and contaminate storm water drains and nearby water bodies. The plan establishes a series of mitigation and management measures to control and minimise these issues if required. Water erosion potential depends on the intensity of the rainfall and/or construction discharges, the soil type and topography. This section identifies the potential causes of erosion and sedimentation which may arise from construction and provides guidance on the management, control and disposal of waste.

Refer to the mitigation measures presented in Chapter 11 – Land, Soils and Geology and Chapter 12 - Water, Volume 2 of the EIAR (AtkinsRealis, 2026).

7.12.1 Risk Identification

Contractors shall undertake a qualitative soil erosion and sedimentation risk assessment or appraisal prior to the commencement of construction activities. An example risk assessment is shown in Table 7-23.

Table 7-23 - Example of Soil Erosion and Sedimentation Risk Assessment

	Risk Assessment	Example Procedure
01	Identify the location of all activities that could result in erosion and sedimentation, for example dewatering, and sensitive receptors within or adjacent to the construction site.	Mark a site plan with the location of all water courses, surface water features, boreholes, field drains, ecologically sensitive areas including surface and foul drainage systems and other potential receptors. This will help the planning of the overall layout of the construction site and enable the identification of suitable sites for high risk activities such as dewatering, haul routes and wash out areas.
02	Identify sensitive receptors off site or downstream of the construction project that could potentially be affected by the works. For example water courses and ecologically sensitive areas/nature reserves.	Mark a site plan with sensitive receptors outside the site boundary. This will help the planning of the overall layout of the construction site and enable the identification of suitable sites for high risk activities such as dewatering, haul routes and wash out areas.
03	Identify the construction activities and sources of sedimentation/erosion that may affect the water receptors identified.	These could include excavations, dewatering, water course crossings, as well as general sources of pollution such as surface water runoff and concrete use.
04	Evaluate the risk of the construction activities polluting the identified water receptors.	Assess the likelihood of an activity causing pollution. Assess the significance of the harm sedimentation/erosion would cause to a particular water receptor.
05	Evaluate the risk of the construction activities contributing to and/or being affected by the groundwater table.	Assess the likelihood of an activity contributing to raised groundwater levels or being affected by these. Assess the significance of the harm additional water would cause to groundwater or other projects/receptors and the significance of the high water table on construction.

	Risk Assessment	Example Procedure
06	Implement mitigation to eliminate or reduce risks.	Use the following hierarchy to manage the risk: 1. Remove the risk (different construction methods/activities). 2. Control the source (modify construction methods, provide adequate bunding for storage areas, install measures such as silt fences or ditches to control runoff). 3. Protect the receptor (provide hard standing for compounds/storage areas, filter, control, contain discharges, ensure appropriate environmental permits are in place). 4. Put emergency procedures in place.

7.12.2 Soil Erosion and Sedimentation Management

Contractors will develop, implement and maintain an Erosion and Sedimentation Management Plan. The Plan will include but not be restricted to the mitigation measures in Table 7-24.

Table 7-24 - Soil Erosion and Sedimentation Mitigation Measures

Activity	Mitigation Measures
Chapter 12 – Water in Volume 2 of the EIAR	▪ Pumped water (if necessary) will be discharged via a silt bag which will filter any remaining sediment from the pumped water. If silt bags are required, the entire silt bag discharge area will be enclosed by a perimeter of double silt fencing. Any discharge of pumped water will be onto a vegetated surface, local to the excavation, for infiltration to ground; ▪ Daily monitoring of the excavation/earthworks and associated water management systems will be completed by a suitably qualified person during the construction phase (Ecological Clerk of Works (ECoW)). All necessary preventative measures (detailed in Section 8.6) will be implemented to ensure no entrained sediment, or deleterious matter will enter the River Barrow; and, ▪ The pumped water volumes from excavations will be discharged via temporary volume and sediment attenuation ponds adjacent to excavation areas ▪ Excavated materials will be stockpiled as far from the riverbank as practicable and covered to prevent sediment runoff ▪ The discharge of water onto vegetated ground will be via a silt bag which will filter any remaining sediment from the pumped water. The entire percolation area will be enclosed by a perimeter of double silt fencing; ▪ Any sediment laden water from the works area will not be discharged directly to a watercourse or drain; ▪ Works shall be suspended in the event of an orange or red weather warning for rainfall; ▪ Daily monitoring of the compound works area; the water treatment and pumping system and the percolation area will be completed by a suitably qualified person during the construction phase. All necessary preventative measures will be implemented to ensure no entrained sediment, or deleterious matter is discharged to the watercourse; ▪ One or more lines of silt fencing will be placed between the works area and the adjacent river

Activity	Mitigation Measures
	If high levels of silt or other contamination is noted in the pumped water or the treatment systems, all construction works will be stopped. No works will recommence until the issue is resolved and the cause of the elevated source is remedied

7.13 Material Assets

Existing assets must be safeguarded during construction of the Proposed Development. The plan establishes a series of mitigation and management measures to control and minimise these issues if required. Refer to the mitigation measures presented in Chapter 14 – Material Assets Volume 2 of the EIAR (AtkinsRealis, 2026).

Contractors shall undertake a built services assessment or appraisal prior to the commencement of construction activities. An example risk assessment is shown in Table 7-25

Table 7-25 - Example of Material Assets Risk Assessment

	Risk Assessment	Example Procedure
01	Identify the location of existing services by undertaking site visits and desk based studies of relevant documents.	Mark a site plan with the location of all existing services
02	Identify the construction activities which may impact existing services during construction.	These could Uisce Eireann mains, Gas Mains etc.
03	Evaluate the risk of the construction activities leading to impact on existing services	Assess the likelihood of an activity having impact on existing services.
04	Implement mitigation to eliminate or reduce risks.	Use the following hierarchy to manage the risk: Remove the risk (different construction methods/activities). Control the source (modify construction methods or operations). Put emergency procedures in place.

7.13.1 Material Assets Management

Contractors will develop, implement and maintain a Material Assets Management Plan – safeguarding existing services. The Plan will include but not be restricted to the mitigation measures below (Table 7-26).

Table 7-26 - Material Assets Mitigation Measures

Activity	Mitigation Measures
Construction Phase – Built Services	The following mitigation measures will be implemented during the construction phase.



	▪ A Construction Environmental Management Plan (CEMP) has been prepared to support this planning application. Prior to the commencement of construction works, the appointed contractor will update and, where necessary, revise the CEMP to reflect any conditions that may be attached to the planning permission. The CEMP will take account of all of the environmental considerations (including water, dust and noise nuisance control; soil / stockpile management; temporary groundwater management; appropriate Site management of compound area; fuel, oil and chemical storage and use; and waste management) set out in the CEMP submitted as part of this planning application. ▪ Diversion, rerouting and relocation of the following services will take place prior to construction; existing watermains and hydrants, existing lighting ducts and light poles, and existing underground electrical cables. ▪ The construction compounds will include adequate temporary welfare facilities including foul drainage and potable water supply; ▪ All newly installed utilities/ services will be assessed, tested and certified as required prior to being fully commissioned. ▪ Connections to the existing and proposed foul networks will be coordinated with the relevant utility provider. All works associated with the existing utilities for the proposed development will be carried out in strict accordance with the guidelines of the relevant stakeholders (specifically ESB, and UÉ), Health and Safety Authority and any additional site-specific requirements. ▪ A copy of all available existing, and as built utility plans will be maintained on Site during the construction of the proposed development. The underground power lines and foul and water mains within the existing UÉ services, located onsite will be clearly marked and all Site personnel will be made aware of the known location of any onsite underground or over ground services during the construction phase; and, ▪ Local drainage will be surveyed and, where necessary, blocked off to prevent runoff of potentially contaminated surface water entering the surface water drainage system. A detailed Surface Water Management Plan will be included in the CEMP to be prepared by the Contractor, to deal with the treatment of surface water runoff prior to discharge to the site drainage system
Monitoring Measures	▪ The Contractor will be responsible for maintaining waste records and documentation for the full duration of the construction phase. ▪ The Contractor will track and monitor all waste volumes transported offsite. All waste records will be maintained onsite throughout the project and will be made available for viewing by the Client, Employer's Representative and statutory consultees (UÉ, CCC, EPA) as required. ▪ All waste soils (including made ground) will be classified in accordance with the EPA Guidance Document 'Waste Classification, List of Waste & Determining if Waste is Hazardous or Non-Hazardous' (2015). It will be the Contractors responsibility to ensure that representative soil samples are taken in advance of removal and disposal offsite. ▪ As noted previously, it will be the Contractors responsibility to ensure that all waste soils are classified correctly and managed, transported and disposed of offsite in accordance with the requirements of the Waste Management Act 1996, as amended, the Waste Framework Directive

7.14 Landscape and Visual Impact

Landscape and Visual considerations must be safeguarded during construction of the Proposed Development. The plan establishes a series of mitigation and management measures to control and minimise these issues if required. Refer to the mitigation measures presented in Chapter 6 – Landscape and Visual, Volume 2 of the EIAR (AtkinsRealis, 2026).

Contractors shall undertake a landscape and visual impact assessment or appraisal prior to the commencement of construction activities. An example risk assessment is shown in Table 7-27.

Table 7-27 - Example of Landscape and Visual Risk Assessment

	Risk Assessment	Example Procedure
01	Identify the location of existing features by undertaking site visits and desk-based studies of relevant documents.	Mark a site plan with the location of all landscape and visual risks
02	Identify the construction activities which may impact existing features during construction.	These could include local residencies, viewpoints etc
03	Evaluate the risk of the construction activities leading to impact on existing features	Assess the likelihood of an activity having impact on these receptors
04	Implement mitigation to eliminate or reduce risks.	Use the following hierarchy to manage the risk: Remove the risk (different construction methods/activities). Control the source (modify construction methods or operations). Put emergency procedures in place.

7.14.1 Landscape and Visual Management Plan

Contractors will develop, implement and maintain a Landscape and Visual Management Plan – safeguarding landscape and visual receptors. The Plan will include but not be restricted to the mitigation measures below (Table 7-28).

Table 7-28 - Landscape and Visual Mitigation Measures

Activity	Mitigation Measures
General	- Hedge planting and natural recolonisation of woodland will be provided to replace the woodland removed south of Kilkenny Road Pumping Station. - Any damage to existing stone walls at the Kilkenny Road Pumping Station will be made good

	▪ A comprehensive landscape scheme will be implemented at the WwTP site and to provide biodiversity enhancements. ▪ Tree and hedge planting will be provided to replace tree and hedges lost on Kilkenny Road due to the provision of shafts for the micro tunnelling works.
Monitoring Measures	▪ The proposed landscape planting for the site should include an initial 4 year post completion establishment maintenance period. The success of planting establishment and landscape management on the site should be checked and reviewed on a regular basis to ensure successful long term establishment. For this reason, a landscape management plan for the site should be undertaken

8. Emergency Response Plan

The Contractor shall establish, implement and maintain procedures to identify and manage potential environmental emergency situations and potential accidents. The contractor shall respond to actual emergency situations and prevent and mitigate adverse environmental impacts. Possible risks, monitoring measures and proposed mitigation measures are discussed in Chapter 15 – Major Accidents and Disasters of the EIAR (AtkinsRealis, 2026).

The Contractor should periodically test, review and update emergency preparedness and response procedures.

8.1 Key Requirements

During construction accidents, incidents and emergencies that have an environmental impact may occur. In the event of an emergency, the first response is to locate the source of that which is giving rise to the environmental impact where appropriate and stop continuation of the situation, followed by the containment, control and mitigation of the situation.

For the construction site The Emergency Response Procedure will be displayed within the Site Office / compound.

A copy of the Material Safety Data Sheets for all the chemicals used on the project site will also be kept at the site office.

The main objectives of the Emergency Response Plan are to:

- Ensure that all means are available to contain the consequences of an accidental spill, fire or release of oil/fuel;
- Ensure that employees are suitably trained to respond to fire and spill;
- Ensure that proper reporting takes place; and
- Ensure that proper investigation is undertaken.

All contractor personnel and sub-contractors will be instructed and rehearsed, as appropriate, in the requirements of the emergency response procedure. Following control of an incident or emergency, an investigation will be conducted, and corrective actions identified and addressed. The Contractor's Environmental Manager will verify the close out of environmental related actions and notify the Employer and/or the Employer's Representative of any emergency.

8.2 Emergency Incidents

Emergency incidents are those occurring that give rise to significant negative environmental effects including but not limited to the following:

- Any malfunction of any environmental protection system;
- Any emission that does not comply with requirements of the contract and relevant licenses/permits;
- Any circumstance with potential environmental pollution; or
- Any emergency that may give rise to environmental effects (e.g. significant spillages).



8.3 Major Accidents and Disasters

The Proposed development has been designed in line with good industry practice, and mitigation against the risk of major accidents and/or disasters is embedded through the design, in accordance with planning and legislative requirements. There is a layered suite of mitigation measures embedded across design, construction, operation and decommissioning to prevent, detect and respond to major accidents and disasters. This includes regulatory compliance with Industrial Emissions licensing and adherence to national and international codes and standards. A detailed CEMP will be prepared prior to the commencement of the any works and monitoring measure will be implemented during construction. The CEMP will be a live document maintained by the appointed Contractor and will ensure that potential risks of major accident and/or disaster are monitored, as required.

8.4 Spill Contingency Plan

The main causes of contamination can occur through:

- Spillage of hazardous material including fuel oils, waste materials or chemicals;
- Spillage of wastewater sewage and other liquid effluents; and
- Spillage of contaminated wash down water with oils, chemicals etc from vehicles, equipment and machinery.

Prior to commencing activities on site, Contractors will develop, implement and maintain a Spill Contingency Management Plan. The Plan will include but not be restricted to the mitigation measures below (Table 8-1).

Table 8-1 - Spill Mitigation Measures

Activity	Mitigation Measures
Mitigation Actions /Emergency Response	Contractors will carry out regular inspections/ audits of hazardous materials usage, handling and storage areas and regular/thorough maintenance of vehicles and hydraulic systems and inspections of sanitary facilities and disposal. All contractors handling hazardous materials will keep appropriate spill cleanup material adjacent to storage and maintenance areas. Minimise the amount of diesel, oil, paint, thinners and other chemicals stored on site that pose potential spillage environmental hazards and use materials that minimise environmental impact such as lead-free paints, asbestos free materials etc. Storage areas will be located away from drains/trenches/wastewater collection devices in an impervious bund area (volume of the storage bund >110% of the largest storage tank contained within the bund). Collection systems will be provided/bunded if necessary, under machinery or equipment that may leak hydrocarbons/hazardous substances. The contractor shall be responsible for training all staff in the procedures for handling spills and shall provide all staff with appropriate personal protective equipment. The contractor shall provide all staff with appropriate personal protective equipment. Avoid impacting adjacent sites by ensuring all contractors activities, equipment and waste storage is confined to the allocated site boundary. In the event of a spill: ▪ Identify and stop the source of the spill and alert people working in the vicinity; ▪ Notify the Environmental Manager immediately giving information on the location, type and extent of the spill so that they can take appropriate action; ▪ If applicable, eliminate any sources of ignition in the immediate vicinity of the incident;

Activity	Mitigation Measures
	▪ Contain the spill using spill control materials, track mats or other materials as required. Do not spread or flush away the spill; ▪ If possible, cover or bund off any vulnerable areas where appropriate such as drains, watercourses and/or sensitive habitats; ▪ If possible, clean up as much as possible using the spill control materials; ▪ Contain any used spill control material and dispose of used materials appropriately using a fully licensed waste contractor with appropriate permits so that further contamination is limited; ▪ The Environmental Manager shall inspect the site as soon as practicable and ensure the necessary measures are in place to contain and clean up the spill and prevent further spillage from occurring; and ▪ The Environmental Manager will notify the appropriate stakeholders such as Carlow County Council, National Parks and Wildlife Service and/or the EPA.

8.5 Emergency Incident Response Plan

The Contractor will be required to detail emergency incident procedures in the detailed CEMP and develop an Emergency Incident Response Plan. The Plan will contain emergency phone numbers and method of notifying local authorities, statutory authorities and stakeholder. The Plan will include contact numbers for key personnel. The Contractor will ensure that all staff and personnel on site are familiar with the emergency requirements.

In the case of work required in an emergency, or which if not completed would be harmful or unsafe to workers, the public to local environment, Carlow County Council will be informed as soon as reasonably practicable of the reasons and likely duration. Examples may include where the ground needs stabilising if unexpected ground conditions are encountered or equipment failure.

In the event of an emergency incident occurring, the Contractor will be required to investigate and provide a report to include the following, as a minimum:

- A description of the incident, including location, type of incident and the likely receptor;
- Contributory causes;
- Negative effects;
- Measures implemented to mitigate adverse effects; and
- Any recommendations to reduce the risk of similar incidents occurring.

Further, if any sensitive receptor is impacted, the appropriate environmental specialists will be informed and consulted with accordingly.

Any response measures will be incorporated into an updated Emergency Incident Response Plan.

8.6 Emergency Access

The Contractor will be required to maintain emergency access routes throughout construction and identify site access points for the working area.



8.7 Extreme Weather Events

The Contractor will consider the impacts of extreme weather events and related conditions during construction. The detailed CEMP will consider all measures deemed necessary and appropriate to manage extreme weather events and will specifically cover training of personnel and prevention and monitoring arrangements for staff. As appropriate, method statements will also consider extreme weather events where risks have been identified.



9. References

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- European Communities (Drinking Water) Regulations 2014, S.I. No. 122 of 2014
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- European Communities (Shipments of Hazardous Waste Exclusively within Ireland) Regulations 2011, S.I. No 324 of 2011
- European Communities (Waste Directive) Regulations 2011, S.I. No. 126 of 2011, as amended, 2016 (S.I. No. 315 of 2016)
- European Communities (Waste Electrical and Electronic Equipment) Regulations 2011 (S.I. 355 of 2011), as amended 2011 (S.I. No. 397 of 2011), 2013, (S.I. No. 32 of 2013). 2014 (S.I. No. 149 of 2014)
- European Communities Conservation of Wild Bird Regulations 1985, S.I. No. 291 of 1985, as amended, 1986 (S.I. No. 48 of 1986), 1995 (S.I. No. 31 of 1995), 1997, (S.I. No. 210 of 1997), 1998 (S.I. No. 154 of 1998), (S.I. No. 131 of 1999), 2005 (S.I. No. 716 of 2005), 2010 (S.I. No. 65 of 2010), 2011 (S.I. No. 626 of 2011), 2012 (S.I. No. 84 of 2012)
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The National Monuments Act 1930, (S.I. No. 2 of 1930), as amended;

The Salmonid Regulations 1988, S.I. No. 293 of 1988

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Waste Framework Directive 2008/98/EC of the European Parliament and Council on waste



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Waste Management (Facility Permit and Registration) Regulations 2007, S.I. No. 821 of 2007, as amended.

Waste Management (Food Waste) Regulations 2009 (S.I. No 508 of 2009), as amended.

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