

FEBRUARY, 2024



FRISBY HOMES

PRELIMINARY CONSTRUCTION,  
ENVIRONMENTAL AND WASTE  
MANAGEMENT PLAN

FOR DEVELOPMENT OF STUDENT VILLAGE, CORK ROAD, CO. WATERFORD

FRISBY HOMES  
1-2 Neptune House, Canada Street , Waterford

## Table of Contents

<b>Introduction .....</b>	<b>3</b>
<b>Project Description .....</b>	<b>4</b>
Site Location, Area and topography and description.....	4
Proposed construction Works.....	6
<b>Construction Management .....</b>	<b>6</b>
Construction Traffic Management.....	6
Construction Site Compound .....	7
Contractors Parking.....	7
Road Cleaning & Dust.....	8
Restrictions on Noise.....	8
Hours of Working / Delivery Times .....	9
Site Signage.....	9
<b>Roles and Responsibilities.....</b>	<b>10</b>
Overview of Design Team .....	10
Project Stakeholders .....	10
<b>Construction Waste Management .....</b>	<b>12</b>
Policy & Legislation .....	12
Predicted Waste Generation.....	12
Construction Waste Composition.....	14
Off-Site Waste Management Licensing/Permitting .....	15
Onsite Management.....	15
Record Keeping .....	15
<b>Environmental Waste Management .....</b>	<b>17</b>
Environmental Policy.....	17
Roles & Responsibilities.....	17
Surface Water Impacts .....	17
Mitigation Measures .....	17
Biodiversity Impacts .....	20
<b>Communications.....</b>	<b>21</b>
<b>Conclusion.....</b>	<b>21</b>

## Introduction

Frisby Homes has prepared this preliminary Construction, Environmental and Waste Management Plan (CEWMP) for a proposed student accommodation development on a site located at the intersection of the Cork Road and Ballybeg Drive, Waterford.

The proposed development consists of a Large-Scale Residential Development (LRD) for a student accommodation development on a site fronting on to the Cork Road, Kilbarry Road and Ballybeg Drive at Kilbarry, Cork Road, Waterford. The proposed development will consist of the construction of 85 no. student accommodation apartments (ranging in size from 5-bed apartments to 8-bed apartments) comprising a total of 582 no. bed spaces in 4 no. blocks ranging in height from 4-6 storeys, with student amenity facilities including 1 no. retail/cafe unit, communal areas, laundry room, reception, student and staff facilities, storage, sub/switch room, bin and general stores and plant rooms. The development also includes the provision of landscaping and amenity areas including a central courtyard space, the provision of a set down area, 1 no. vehicular access point onto Ballybeg Drive, car and bicycle parking, footpaths, road improvements to Lacken Road (including a pedestrian crossing) and all associated ancillary development including pedestrian/cyclist facilities, lighting, drainage, landscaping, boundary treatments and plant including PV solar at roof level.

Figures 1 & 2 outline the site location in the context of Waterford, along with an overview of the scheme extracted from the architectural Design Statement prepared by Fewer Harrington & Partners.

There are no existing structures on site therefore this report will not deal with demolition methodology or waste relating to demolition activities.

A Main Contractor has not yet been appointed to carry out the proposed works. Once appointed, it will be the responsibility of the Main Contractor to prepare and submit a detailed construction management plan for the Client's submission to the local authority for approval. The CEWMP will be a live document that will be updated throughout the project lifecycle by the Main Contractor as required. It is to be read in conjunction with all haulage licences and waste collection permits applicable for the development, and any relevant method statements for works that concern waste management as part of their process.

The report has been prepared with reference to the EPA document 'Best practice Guidelines for the preparation of resource & waste management plans for construction & demolition projects.

## Project Description

### Site Location, Area and topography and description

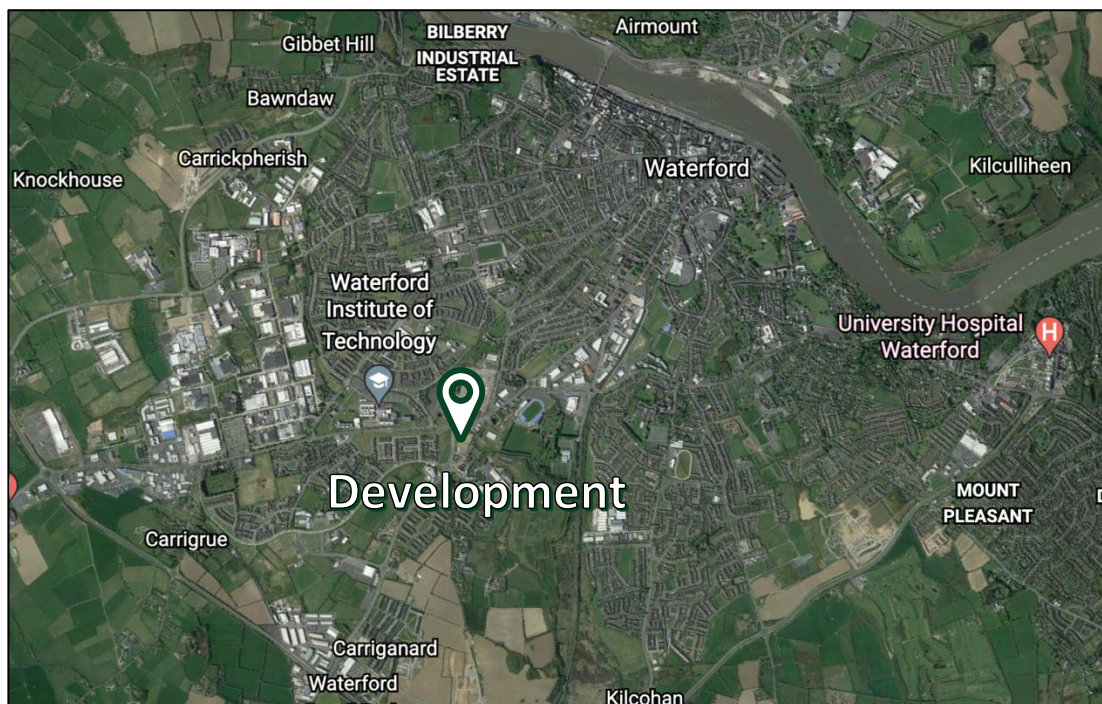
The site area, consisting of 1.99 hectares, is located within the University District of the Kilbarry/ Ballybeg neighbourhood in Waterford Metropolitan area. It is c. 3 kilometres south-west of Waterford city centre. The area is bound to the north by the Cork Road (R680), to the west by Ballybeg Drive, to the south and east by the future upgraded Lacken Road, as shown in Figure X.

The site has a slight fall from north west to south east, however this has been reduced significantly by subsoil which has been deposited at the site under a Waste Permit (ref: COR-WCCC-19-0001-03) granted in December 2020, which allowed for a maximum of 25,000 tonnes to be deposited at the site.

The material brought to the site was good quality subsoil with no contaminated materials. This will be further verified by the site investigations team which are to be appointed in advance of commencing detailed design. Following the fill of material being deposited at the site, the site was levelled off.

There are no existing structures on the site. There are overhead cables which will need to be undergrounded as part of the development.

There is no record of contamination on the site nor any historic uses on the site which would have involved any potential for residual ground contamination from previous uses such as fuel/ material storage, industrial operations (gas works, foundries, collieries, etc.).



*Figure 1 – Site Location – Waterford*





Figure 2 - Site Location 2

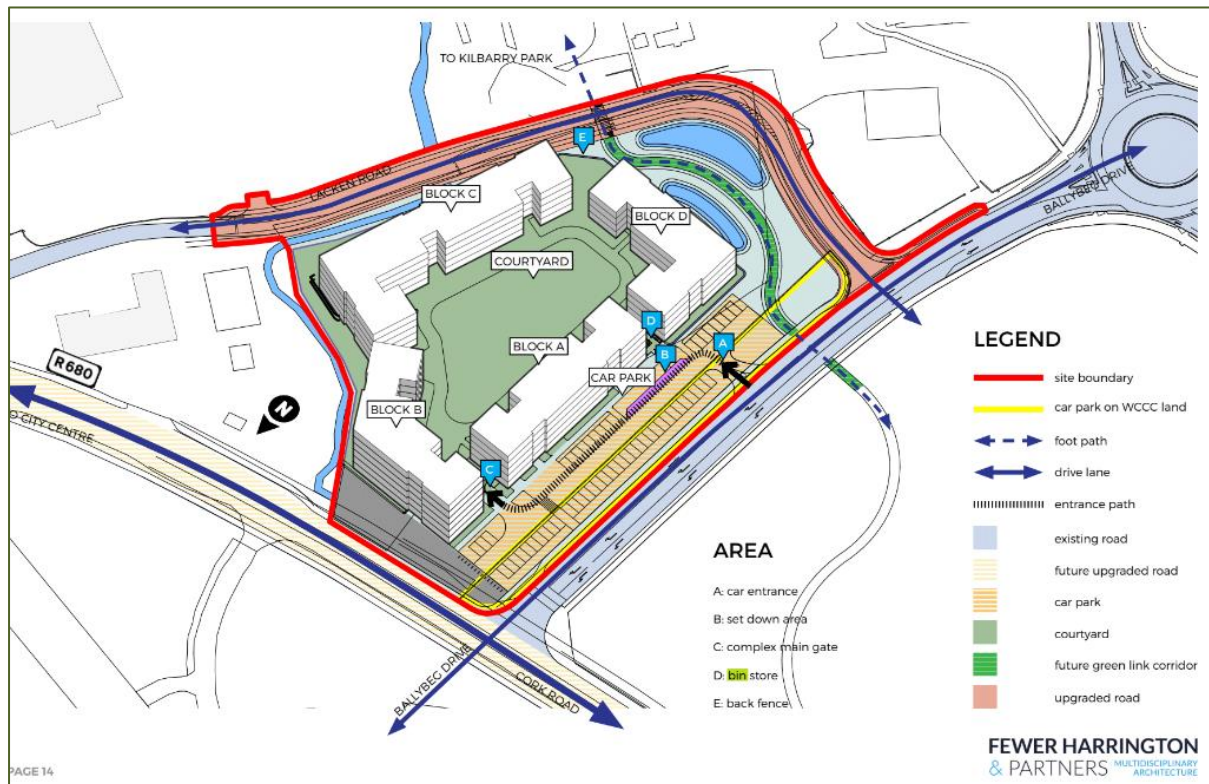


Figure 3 - Development Overview (FHP Architects)

## Proposed construction Works

The proposed work will consist of the following:

- Site preparation.
- Erection of security fencing/perimeter fencing.
- Setting up a secure site compound including wash down area.
- Site clearance including topsoil stripping.
- Construction of infrastructure including access roads, footpaths, drainage, and services.
- Provision of road upgrades and pedestrian links.
- 582 Student Bed Spaces across 4 Blocks (85 Apartments - ranging in size from 5-bed apartments to 8-bed apartments)
- The provision of Student Amenity Spaces, Communal Areas and Ancillary spaces on the ground floor of Block A.
- The provision of 1 retail/cafe unit on the ground floor of Block B
- The provision of a set down area, 1 no. vehicular access point onto Ballybeg Drive, car and bicycle parking, footpaths
- The provision of landscaping and amenity areas including a central courtyard space
- The provision of a portion of the green link connecting Ballybeg Drive with the Kilbarry Eco Park.

## Construction Management

### Construction Traffic Management

The construction phase of the Proposed Development will result in increased traffic activity on the road network, namely Ballybeg Drive, the Lacken Road and the Cork Road. This will encompass the transportation of excavated materials, construction waste, and the delivery of construction materials and ready mixed concrete.

The plan outlines that construction traffic will enter the site via the Lacken Road, utilizing one of the two existing entrances on the south of the site. This entry point will serve as the primary access routes to the site during the construction phase.

This specific area will be enclosed by hoarding and used exclusively for construction access. Access to the site compound within the campus will be managed by flagmen.

To facilitate an efficient operation, all deliveries must be scheduled and confirmed at least one day in advance. Furthermore, all drivers are required to notify the site gatekeeper 15 minutes before their arrival on site to prevent congestion along the Lacken Road.

The site security or gate man will play a crucial role in ensuring a smooth flow of traffic and preventing conflicts between pedestrians and vehicles as they enter or exit the site. As an added safety measure, temporary markings & signage will be applied to the footpath on both sides of the site entrance to alert pedestrians to exercise caution in the vicinity.

Signage will be posted along the Lacken Road indicating the "Construction Access ahead" from all directions. The property boundary along the length of the Ballybeg Drive, Lacken Road and Cork

Road will be securely fenced off at all times with secure 2-metre-high fencing panels.

### Construction Site Compound

The Main Contractor is required to submit a site layout plan that provides detailed information about the intended location of the site compound. The Contractor must ensure that the site compound is appropriately serviced and secured with suitable fencing or hoarding. This compound will serve as the primary area for the storage of materials, plant and equipment, site offices, and worker welfare facilities. In their role as the Project Supervisor Construction Stage (PSCS), the Contractor holds the responsibility for site security and must guarantee that both the site and the site compound are adequately secured at all times.

Similar to other construction activities within the Waterford City & County Council local authority area, operations related to the construction compounds will be subject to specific restrictions regarding the nature and timing of activities to prevent undue disturbance to neighbouring areas and communities.

The site compound will consist at minimum of the following –

- Site Parking approx. 30 cars/vans
- Site office - Meeting Room
- Canteen complete with fridges and a facility for boiling water and heating food.
- QS office
- Health & Safety / Engineering office.
- Toilet block - Drying room.
- AED / First Aid Station
- Secure Material Storage Area

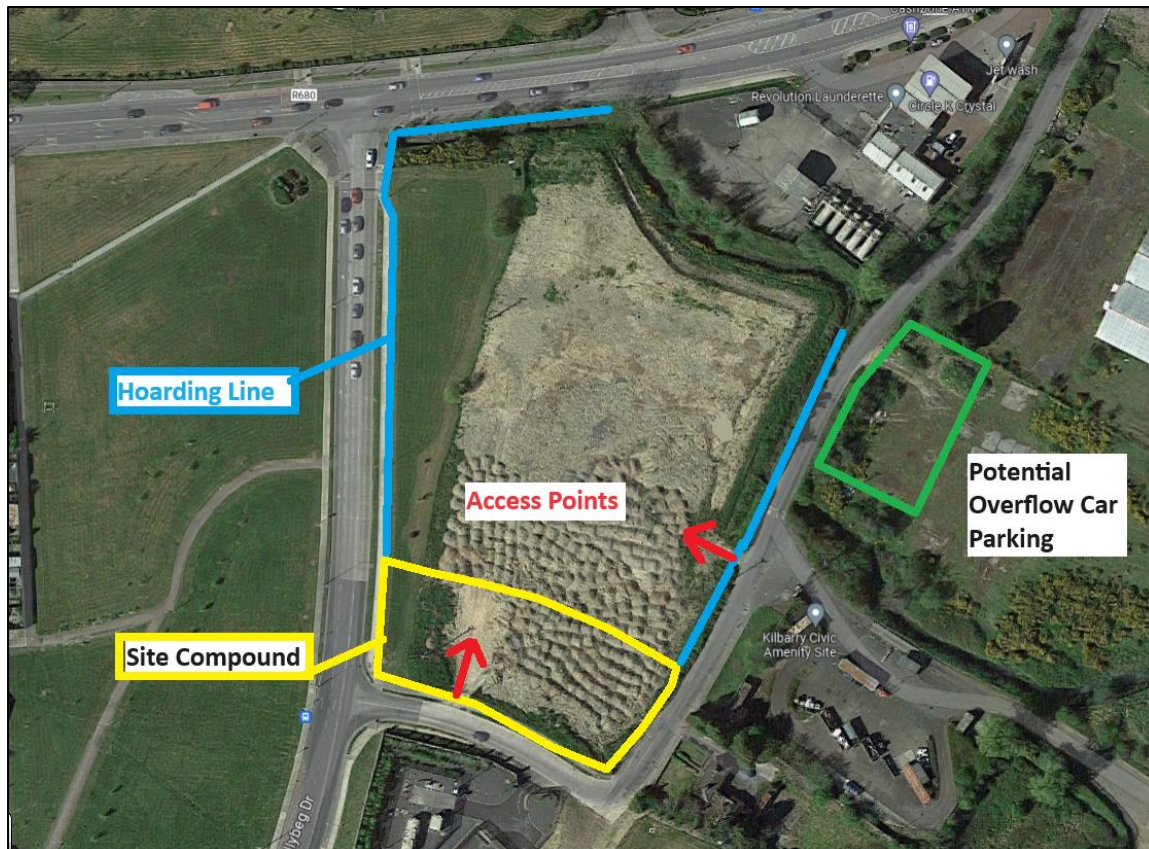
The site set up will be complete prior to commencing construction work.

Materials will be stored in a designated storage area on site suited to the ongoing work. Vehicle access is provided along a hard standing to reduce the amount of construction waste and mud attaching to vehicles.

### Contractors Parking

Parking will be provided for contractors on site as necessary. Public transport or sustainable modes of transportation will be promoted for those capable of travelling using these methods. In the later stages of development and as spaces becomes more restricted, overflow parking may be provided on lands to the south-east which is also in the control of the applicant. This will be in an effort to avoid any illegal parking or parking in nearby residential areas.





*Figure 4 - Overview of Site Setup*

## Road Cleaning & Dust

It will be the responsibility of the Main Contractor to ensure;

- The roadways adjoining the site be maintained free from muck and debris. To ensure their cleanliness, a road sweeping vehicle will be deployed when required, and will be monitored by the site security personnel reporting to the contractor's site manager.
- During the earthworks phase, a specialized wheel wash system will be in operation.
- While levels of dust cannot be eliminated, the main contractor/s will implement the process of wetting down the area to keep dust at ground level. This will be particularly important during the dryer months and where necessary the use of water bunts to moisten roads will be utilized.

## Restrictions on Noise

Site Management will ensure that all noise levels within the working areas, both around the site perimeter and within the site itself, are monitored. with the relevant appropriate action to reduce the noise emissions implemented once the noise levels are known.

Site management will maintain a thorough understanding of the construction site's proximity to neighbouring residential properties in Knights Grange, Ballybeg, and Templars Hall. They will take all necessary measures to mitigate noise emissions from the site. These measures include, but are not limited to:

- Adhering to the specified working hours as outlined in the planning conditions.



- Suspending plant operations when not in use.
- Ensuring that covers are kept on compressors and other plant equipment.
- Managing work activities and sequences to minimize noise exposure.
- Using well-maintained and certified plant and machinery.
- Continuously monitoring noise levels on-site and along the perimeter.

### Hours of Working / Delivery Times

Throughout the construction phase, all work methods will conform to relevant laws and industry best practices aimed at minimizing the environmental impact of the project. Although the construction phase's impacts are typically short-term and localized, every effort will be made to reduce these impacts to the greatest extent possible by following current guidelines established within the construction industry.

The construction phase will adhere to the following timelines:

- Work hours will be from 8:00 am to 6:00 pm, Monday to Friday.
- Work hours will be from 8:00 am to 2:00 pm on Saturdays.
- No construction activities will be carried out on Sundays or public holidays.

Any construction work conducted outside of these specified hours will be restricted to activities that are essential for reasons of health and safety, environmental protection, or activities that have received prior approval from the relevant planning authority.

### Site Signage

Signage will be installed at the site entrance gates and along the public road leading to the entrance. These signs will serve to:

- Clearly mark the site access points to alert the public about both vehicular and pedestrian traffic near the site.
- Indicate the presence of security personnel and access control measures at these points, with visible signage to convey this information.
- Include general warning and "Keep Out" signs along the site's boundaries.
- Display general safety warnings and notices within the site's boundaries.
- Identify specific areas, including vehicle and pedestrian access points, the site office, parking zones, and the locations of First Aid Boxes and equipment.
- Enforce a 15 KPH speed limit through appropriate signage.
- Notify of live services on the premises.
- Remind individuals to wear personal protective equipment (PPE).
- Include general construction site warning signage.
- Provide directional signs guiding to the site compound.

# Roles and Responsibilities

## Overview of Design Team

Architect – Fewer Harrington & Partners

Civil & Structural Engineer – Malone O'Regan Consulting Engineers

M&E Engineer – Lawlor Consulting

Landscape Architect – Cunnane Stratton Reynolds Land Planning & Design

Traffic & Transport Engineer – Coakley Consulting Engineers

Planning Consultant – McCutcheon Halley Chartered Planning Consultants

Environmental Consultant – Russell Environmental and Sustainability Services Limited

Fire & DAC Consultant – GSP Fire Ltd

Quantity Surveyor – Carron Walsh

## Project Stakeholders

### Developer -Frisby Homes

As outlined in the EPA Best Practice Guidelines, numerous stakeholders are accountable for the development of an effective Resource and Waste Management Plan (RWMP) throughout the project's life cycle. Various responsibilities are attributed to different parties under the Waste Framework Directive 2008/98/EC, including the following:

- Original Waste Producer, denoting any entity whose activities generate waste or engage in pre-processing, mixing, or other operations that alter the nature or composition of the waste (in this instance, Frisby Homes).
- Waste Holder, signifying the waste producer or the individual or organization in possession of the waste (Frisby Homes).

It is therefore the intention to ensure that CEWMP is maintained until such time as a contractor is appointed. The document will be updated during the detail design process and incorporate relevant conditions imposed in the planning permission.

Handover of the CEWMP to the Contractor at commencement of construction for the development of the RWMP in a similar fashion to how the safety file is handed over to the Contractor.

### Main Contractor

The Main Contractor for the project is not yet appointed. When engaged by the Client however, best practice guidelines will be followed for the execution of construction activities. The Main Contractor bears the responsibility for the following:

1. Development, execution, and periodic review of the CEWMP during the construction phase, including the supervision of all suppliers and subcontractors, in accordance with the guidelines provided here.
2. Designating and appointing a Resource Waste Manager with suitable qualifications and competence, who will oversee the implementation of the CEWMP.
3. Identification of all haulage service providers responsible for transporting resources or waste off-site. It's important to note that any material legally classified as 'waste' must only be

transported by hauliers possessing a valid Waste Collection Permit. (Refer to Appendix F for information on finding locally authorized hauliers.)

4. Acknowledging that the removal of hazardous waste materials falls under the European Communities (Shipments of Hazardous Waste exclusively within Ireland) Regulations 2011. Each transfer of hazardous waste materials off-site must be accompanied by a legally required Waste Transfer Form (refer to details in Appendix F). Hazardous waste, such as asbestos, should be handled exclusively by competent individuals with appropriate training and expertise. For further guidance on handling asbestos-containing materials, consult the Health and Safety Authority.
5. Identifying all off-site destinations for resources. Similar to the above point, any material classified as 'waste' under the law must only be transported to authorized waste facilities (refer to Appendix F for information on locating authorized facilities).
6. Addressing end-of-waste and by-product notifications with the Environmental Protection Agency (EPA) when necessary.
7. Ensuring compliance with any other statutory waste management obligations, which may involve on-site processing.
8. Maintaining comprehensive records of all resources, including both wastes and other resources, throughout the project's duration.
9. Compiling a CEWMP Implementation Review Report at the project's handover.

### **Construction Waste Manager**

A Construction & Environmental Waste Manager will be required from the Main Contractor's team. They will hold the primary responsibility for executing the project's Construction & Environmental Waste Management Plan (CEWMP) throughout the construction phase. This designated Waste Manager will possess the requisite training and authority to guide all site personnel in adhering to the CEWMP's provisions.

Furthermore, at the operational level, additional specific individuals from the main contractor, as well as each subcontractor involved on the site, may be assigned direct responsibility for consistently carrying out the operations outlined in the CEWMP.

### **Project Environmental Consultant & Ecologist**

Russell Environmental are currently appointed for the design stage of this project and have completed an in depth analysis of the ecological features of the site. It will be the responsibility of the Main Contractor to maintain a project environmental consultant and ecologist to liaise with the Waste Manager throughout the Construction Phase of the project.

### **Site Personnel and Staff Training:**

Every individual working on the site holds a collective responsibility for effectively implementing the plan and its associated procedures. To ensure this, all personnel will undergo training covering waste prevention, segregation, and best practice guidelines.

Staff Training:

1. Copies of the CEWMP will be provided to all relevant site personnel.
2. The Project Manager will coordinate training for site personnel and subcontractors to familiarize them with the goals of the Project CEWMP and materials management. They will also be informed of their associated responsibilities.

### 3. Training topics will encompass:

- Project program and requirements.
- Health and safety requirements.
- CEWMP.
- Specific materials to be segregated.
- Protocols and systems for segregation.
- Procedures for storing and handling reusable materials and recyclables.
- Requirements related to document control.

When source segregation and materials re-use methods are applicable, each staff member will receive instructions on how to align with the Project CEWMP. This information will be displayed on the site for the benefit of all personnel.

## Construction Waste Management

The primary aim of the Construction Waste Management Plan is to reduce the volume of waste produced during construction activities, optimize material usage efficiently, and enhance the separation of construction waste materials on-site to create uncontaminated waste streams suitable for recycling off-site.

Throughout the construction phase of the development, the Waste Management Plan will be put into action to achieve the following objectives:

1. Efficiently oversee all on-site activities to minimize waste generation and exploit opportunities for reusing and recycling waste materials on-site.
2. Guarantee that all waste materials are sorted into distinct waste categories and stored in a designated and controlled waste storage area on-site.
3. Assure that all waste materials resulting from on-site activities are transported off-site by waste haulage contractors with the necessary permits. Additionally, ensure that all waste is disposed of in authorized waste facilities in compliance with the Waste Management Act of 1996 and its accompanying Waste Management Regulations.

### Policy & Legislation

This plan has been prepared with reference to the following legislation and plans:

- The Waste Management Act, 1996 (as Amended) and Associated Regulations.
- The Litter Pollution Act, 1997.
- The Southern Region Waste Management Plan 2015 – 2021.
- “Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects”

### Predicted Waste Generation

It will be the responsibility of Main Contractor to develop an estimate of the predicted waste generation before commencement of the project. This will identify the material which can be re-used, recycled, and disposed of off-site.



It will also be the responsibility of the Purchasing Manager to ensure excessive surplus material is not ordered which may result in damaged or defective materials due to incorrect storage ultimately resulting in creation of additional waste.

### Waste Arising from Site Preparation & Excavation

Excavated material from the site will follow specific management procedures. This material will either be stockpiled on-site for potential re-use or transported off-site to a licensed landfill facility. In the case of stockpiled topsoil or clay, these materials will be preserved for landscaping or berming purposes. The topsoil and clay will be carefully separated into distinct piles on-site, ensuring they remain in segregated storage until they are reused for their intended purposes.

Typical non-hazardous and hazardous wastes generated by construction and demolition at sites are shown in Tables 1 and 2 along with their accompanying European Waste Code (EWC) Classification which is taken from the EPA Website.

*Table 1 - Non-Hazardous Waste Types (Source - EPA Website)*

Waste Description – Non-Hazardous Waste Types	European Waste Code
Concrete, Bricks, Tiles and Ceramics	17 01
Concrete	17 01 01
Bricks	17 01 02
Tiles and Ceramics	17 01 03
Mixture of concrete, bricks, tiles & ceramics	17 01 07
Wood, Glass, and Plastic	17 02
Wood	17 02 01
Glass	17 02 02
Plastic	17 02 03
Bituminous mixtures, coal tar, and products	17 03
Bituminous mixtures containing other than those mentioned in 17 03 01	17 03 02
Bituminous Mixtures including Coal Tar and Tarred products	17 03 02
Metals (including their alloys)	17 04
Copper, Bronze, Brass	17 04 01
Aluminium	17 04 02
Lead	17 04 03
Zinc	17 04 04
Iron and Steel	17 04 05
Tin	17 04 06
Mixed Metals	17 04 07
Insulation and Construction Materials	17 06 04
Gypsum based construction material	17 08 02

Mixed Construction and Demolition Waste other than those mentioned in 17 09 01, 17 09 02, 17 09 03	17 09 04
Sewage Screenings	19 08 01
Paper and Cardboard	20 01 01
Wood other than that mentioned in 20 01 37 20.01 38	20.01 38
Soil and Stones	17 05 04
Mixed Municipal Waste	20 03 01
Hydraulic oils	13 01 01*
Fuel oils and diesel	13 07 01*

*Table 2 - Hazardous Waste Types (Source - EPA Website)*

Waste Description – Hazardous Waste Types	EWC Code
Electrical and Electronic Components	16 02
Oil/water separator contents	13 05
Liquid Fuels	13 07
Chemicals (solvents, pesticides, paints, adhesives, detergents, etc.)	20 01 13, 20 01 14, 20 01 15, 20 01 16, 20 01 17, 20 01 18, 20 01 19, 20 01 27
Batteries	16 06
Soil and stones containing dangerous substances	17 05 03
Waste construction material containing asbestos	17 06 05
Other construction and demolition wastes containing dangerous substances	17 09 03
Wastes from soil and groundwater remediation	19 13

## Construction Waste Composition

The typical construction waste composition for construction sites of this scale are represented as a percentage below. This is based on figures from the EPA waste database.

- Mixed Construction & Demolition Waste: 33%
- Wood: 28%
- Plasterboard (Gypsum materials): 10%
- Ferrous Metals: 8%
- Concrete: 6%
- Mixed other wastes: 15%

## Off-Site Waste Management Licensing/Permitting

All waste materials, when it is deemed necessary and after exploring in-situ reuse and recycling alternatives extensively, must be transported off-site. This process should adhere to the appropriate Duty of Care requirements and is contingent upon approvals and consents from relevant statutory bodies. The Principal Contractor is responsible for verifying that any entity receiving the waste holds legal authorization for such transfers and that the facility receiving the waste is licensed to manage that specific type of waste in accordance with the guidelines established in the Waste Management Acts of 1996-2005. The Waste Collection Permit Register, following the regulations outlined in the Waste Management (Collection Permit) Regulations of 2001, will be consulted to ensure that waste carriers possess the requisite permits.

Contaminated excavated material is required to be transported and disposed of at a waste facility that is both approved and licensed. Additionally, the local planning authority must be informed of the intended disposal route before any material is removed from the site.

It is the Contractor's responsibility to either obtain a waste collection permit or engage specialized waste service contractors who possess the necessary authorizations for collecting and transporting waste off-site. This material will be transported to a facility that currently holds a valid waste disposal license. Comprehensive details of all waste materials will be recorded before they leave the site, and these records will be compiled and retained by the Site Waste Manager.

## Onsite Management

The Construction Waste Manager designated and employed by the contractor will oversee the appropriate management of waste prevention, minimization, storage, and disposal on the construction site. Their primary responsibilities will include:

1. Effectively implementing the provisions outlined in the CEWMP and maintaining accurate records related to waste generation, as well as the associated costs of waste disposal and management.
2. Documenting each shipment of waste, which should include:
  - The type of material being transported.
  - The quantity of material.
  - The name and permit number of the waste collection contractor.
  - The destination of the material and its proposed use. Please note that summary reports must be provided, including estimates of the quantity of waste diverted from landfill.
3. Recording the extent of re-use, salvage, recycling, and waste disposal.

The Construction Waste Manager will have the authority to instruct all site personnel to adhere to the Waste Management Plan.

At the operational level, subcontractors will appoint an individual responsible for ensuring compliance with the requirements of the Waste Management Plan.

## Record Keeping

Comprehensive records of the generation, transport, and handling of construction waste must be maintained within the Waste Auditing system. The responsibility falls on the Waste Manager to secure any essential licenses. Every waste shipment leaving the site will be accompanied by

documentation aligning with the specifications outlined in Table 3, including Transportation Dockets, guaranteeing complete traceability of the material to its ultimate location.

**Table 3 - Typical Waste Record**

Detail	Particulars
Project of Origin	Ballybeg Drive,
Material being Transported	e.g., Soil, Construction waste, general waste
Quantity of Material	TBC
Date of Material Movement	TBC
Name of Carrier	TBC
Destination of Material	TBC
Proposed Use	TBC

### Waste Auditing

The Site Waste Manager, as designated, will be responsible for conducting a quarterly waste audit on the construction site. This audit will encompass a comprehensive review of all records related to the waste generated and transported off-site. The audit process will include the following key components:

- Reviewing details of materials arriving on-site.
- Examining the quantity, nature, and composition of waste leaving the site.
- Calculating the total cost associated with waste management.
- Conducting a review of all project areas and stages to ensure that evident opportunities for waste reduction are not overlooked.
- Compiling a summary of waste generated, which will be submitted to the environmental authority upon completion of the project.

### Estimated Cost of Waste Management

The estimated cost of waste management is a critical component in the overall project planning. The appointed contractor will be responsible for estimating these costs and incorporating them into the tender price. This ensures that all the requirements of the Waste Management Plan can be carried out within the Contractor's bid for the project. The cost estimation includes:

- Purchase costs of waste materials.
- Handling costs.
- Storage and transportation costs.
- Disposal costs, which may involve landfill taxes.

These estimates will enable the calculation of:

- Total waste concrete management costs.
- Total waste soil management costs.



- Total waste masonry management costs.

This approach helps eliminate unproductive and avoidable costs associated with Construction & Demolition waste management, and it enhances internal cost control procedures. The estimate of the cost of waste management will be continually updated throughout the project, particularly at each stage when a waste audit is conducted.

## Environmental Waste Management

### Environmental Policy

The project will be carried out in accordance with the policies / objectives of the appointed Contractor's Environmental Policy and procedures.

### Roles & Responsibilities

The roles and responsibilities will be as per those outlined in the previous section of this document. The primary roles being that of the Client, Appointed Contractor, Contractors Construction & Environmental Waste Manager, and the Environmental Consultant/Project Ecologist.

### Surface Water Impacts

The safeguarding of the watercourse is imperative during the construction phase of the specified development. Furthermore, it is essential to ensure the protection of the trees and hedgerows that are to be retained on the site. To address this, temporary measures will be implemented to mitigate the presence of sediments, oils, and pollutants.

It's important to note that runoff from construction activities on the surface has the potential to become contaminated. The primary contaminants that can emerge from construction operations include:

1. Particulate matter in suspension: Arising from ground disturbances and excavations.
2. Hydrocarbons: Accidental spills from construction machinery and storage facilities.
3. Faecal coliforms: Contamination may occur if there is insufficient containment and treatment of on-site toilet and washing facilities.
4. Concrete and cement-based products: Emanating from construction materials.

These pollutants represent a temporary threat to the quality of surface water throughout the project's duration if not adequately controlled and managed.

### Mitigation Measures

The subsequent measures for mitigation are intended to counteract potential water quality impacts and are necessary to safeguard the Johns River, situated downstream. All activities will be conducted in accordance with the following guidelines:

- CIRIA C532: Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors (Masters-Williams et al., 2001).
- CIRIA C692: Environmental Good Practice on Site, (Audus et al., 2010)
- BPGCS005: Oil Storage Guidelines.
- CIRIA C648: Control of Water Pollution from Linear Construction Projects: Technical

Guidance (Murnane et al., 2006a)

- CIRIA C648: Control of Water Pollution from Linear Construction Projects: Site Guide (Murnane et al., 2006a)
- Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters (IFI 2016)
- Guidelines for Planning Authorities – Architectural Heritage Protection – Guidance on Part IV of the
- Planning and Development Act 2000. (Part 2, Chapter 7) and ICOMOS Principles.
- Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Water, Inland
- Fisheries Ireland (IFI, 2016)

The mitigation measures described in the report align with those specified in the EclA/NIS conducted by Russell Environmental. Nonetheless, any supplementary measures deemed essential in either of these reports will be integrated into the Contractor's Construction and Environmental Waste Management Plan (CEWMP) prior to the initiation of on-site operations.

Furthermore, contact information for emergency situations, pertaining to the Local Authority Environment Section, Inland Fisheries Ireland, the Environmental Protection Agency, and the National Parks and Wildlife Service, will be prominently displayed within the site compound. In the event of a pollution incident, these agencies will be promptly notified.

The mitigation schedule outlined in Table 4 provides a concise overview of the actions to be implemented to minimize the effects on ecological receptors situated within the sphere of influence of the planned development.

**Table 4 – Ecological impacts and mitigations**

No.	Risk	Possible Impact	Mitigation	Result of Mitigation
1	Hydrocarbons from carparking area entering the watercourse.	Adverse effects on water quality. Diminished habitat quality. Mortality of vital aquatic ecological receptors/qualifying interests.	Designated parking at least 50m from any watercourse.	Ensures no soil disturbance or hydrocarbons leak near aquatic zone
2	Pollutants from site compound areas entering the watercourse.	Adverse effects on water quality. Diminished habitat quality. Mortality of vital aquatic ecological receptors/qualifying interests.	The site compound will be located at least 50m from any watercourse.	Prevents pollution of the aquatic zone from toxic pollutants

3	Pollutants from material storage areas entering the watercourse.	Adverse effects on water quality. Diminished habitat quality. Mortality of vital aquatic ecological receptors/qualifying interests.	Ensure that fuels, oils, greases, and other potentially polluting chemicals are securely stored in bunded compounds either at the Contractor's compound or a location positioned at a minimum distance of 50 meters from any body of water. These bunds must possess a capacity equivalent to 110% of the storage container. Additionally, always maintain spill kits on-site, and provide comprehensive staff training in their appropriate usage. The Contractor will also supply method statements for addressing accidental spillages, subject to review by the Employer's Representative.	Prevents contamination of aquatic zone by toxic pollutants
4	Concrete/cementitious materials entering the watercourse from washdown.	Adverse effects on water quality. Diminished habitat quality. Mortality of vital aquatic ecological receptors/qualifying interests.	A designated washdown area within the Contractor's compound will be used for cleaning of any equipment or plant, with the safe disposal of any contaminated water.	Prevents contamination of aquatic zone by suspended solids or pollutants, ensures invasive species material is not transported off-site
5	Leaching of contaminated soil into groundwater.	Adverse effects on water quality. Diminished habitat quality. Mortality of vital aquatic ecological receptors/qualifying interests.	Spill kits will contain 10 hr terrestrial oil booms (80mm diameter x 1000mm) and a plastic sheet, upon which contaminated soil can be placed to prevent leaching to groundwater.	Prevents contamination of aquatic zone by petrochemicals
6	Pollutants from equipment storage/refuelling area entering the	Adverse effects on water quality. Diminished habitat	Any refuelling and maintenance of equipment will be done at designated bunded areas	Prevents contamination of aquatic zone by petrochemicals

	watercourse.	quality. Mortality of vital aquatic ecological receptors/qualifying interests.	with full attendance of plant operative(s) within contained areas at least 50m from any watercourse.	
7	Runoff from exposed work areas and excavated material storage areas entering the watercourse.	Adverse effects on water quality. Diminished habitat quality. Mortality of vital aquatic ecological receptors/qualifying interests.	Contractor to prepare a site plan showing the location of all surface water drainage lines and proposed discharge points to the sewer. The plan will include the location of all surface water protection measures, including monitoring points and treatment facilities.	Prevents contamination of aquatic zone by suspended solids or pollutants.

## Biodiversity Impacts

Russell Environmental carried out an ecological impact assessment as part of this application. A summary of potential biodiversity impacts/risks and their mitigation in table 5 below.

*Table 5 - Biodiversity Impacts and Mitigation*

No.	Risk	Possible Impact	Mitigation	Result of Mitigation
1	Disturbance to nesting birds	Disturbance of nesting birds / breeding fauna may occur during the removal of the tree line as they are likely to be used by nesting birds. If site clearance works are carried out during the bird nesting season (between March and August, inclusive), it is possible that active nests could be destroyed.	Removal of the tree line and individual trees should be completed outside of this time period	Ensures no disturbance to wildlife.
2	Habitats will be lost as a result of the development	These habitats cover a combined area of approximately 0.1km <sup>2</sup> , providing vegetation for nesting birds, mammals and invertebrates and if lost then may result in the loss of species in the area, unless compensatory measures are implemented	Removal of the tree line and individual trees should be completed outside of nesting period and any existing hedgerows are maintained where feasible. Landscape strategy includes suitable replacement habitats	Ensures minimal disturbance to wildlife.
3	Disturbance to Bats	Impact on bats due to artificial lighting	'Bat-sensitive lighting' for this development should adhere to the following	



			design principles, which are taken from the Bats and Lighting guidelines (BCT 2018)	
--	--	--	---	--

## Communications

For this project focusing on both waste and environmental impact management, the following communication tasks are recommended for the Main Contractor's Waste Manager throughout the construction phase, which are based on the EPA Best Practice Guidelines:

1. Regular internal reporting of resource statistics to both the Client and Contractor management. These reports should include a performance assessment in relation to agreed targets and objectives and should be a recurring agenda item during site meetings.
2. Active engagement with the relevant local authority for site inspections and enforcement audits. Any findings and subsequent corrective actions should be meticulously documented and reported to the local authority.
3. Collaboration with other stakeholders such as the Environmental Protection Agency (EPA) and the public, as appropriate. This engagement should focus on resource management aspects of the project.
4. Upon the project's completion, the RM should compile a comprehensive final report summarizing the results of the resource management processes employed. This report should include data on the total reuse and recovery figures, as well as the ultimate destinations of all resources removed from the site. Such a report should be shared with the Client and Contractor management. It's important to note that, depending on the local authority's requirements, they may insist on formal approval and sign-off for full planning compliance.

## Conclusion

In conclusion, this Construction, Environmental, and Waste Management Plan serves as a comprehensive framework to guide the sustainable execution of the project. By addressing key environmental concerns, ensuring responsible waste management, and promoting resource efficiency, the project is committed to reducing the environmental footprint during the design and construction stages.

The appointed Contractor will be required to develop an updated CEWMP prior to the commencement of any construction works and, if required, this will be submitted to the planning authority for approval. The implementation of all the waste and environmental management measures outlined in the plan will ensure that the construction programme will be completed with minimal negative impacts on the environment while also promoting the well-being of the local community and the health of the ecosystem surrounding our project.