


PLAN

Outline Construction and Environmental Management Plan for Planning Stage of Whitebox Student Campus at Groody Road, Newcastle, Castletory, Limerick

May 2025

GARLAND
Concepts Realised

CONTENTS

Description of change	Originator	Rev	Approval	Date
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1. INTRODUCTION

This Construction and Environmental Management Plan (CEMP) has been prepared for a proposed student campus development at Groody Road, Newcastle, Castletrpy Limerick. The CEMP provides a framework from which a construction stage CEMP will be developed to implement the mitigation measures described below which are designed to avoid, minimise or mitigate adverse construction effects on the environment during construction of the development.

The Contractor shall comply with any conditions arising from the site constraints identified and specified, all Statutory Regulations governing the works, and any additional measures or modifications that may be imposed on the proposed development by the local authority.

1.1. Project Background

This development comprises student accommodation development within a greenfield site. The site is located adjacent to the existing Groody Road and the River Groody.

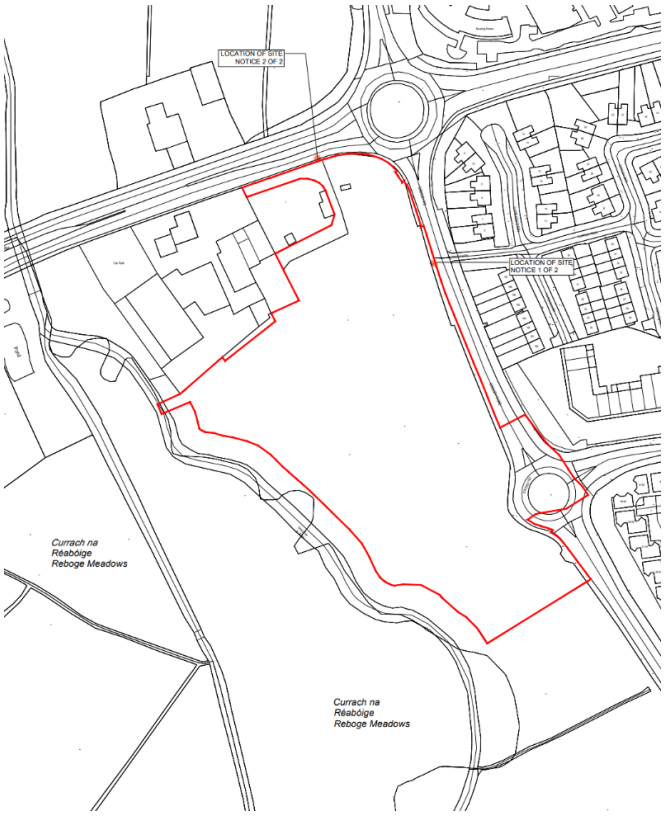


Figure 1 - Site Location Map

1.2. Description of the Works

The development will consist of 196 no. Bed Clusters, distributed across 5 no. separate blocks, ranging in height from 5 - 8 storeys, with a total of 1,400 no. student bedspaces to be delivered in two phases of development including: (i) Block A comprising 8 storeys providing for (a) 28 no. bed clusters and 224 no. bedspaces; (b) Student library; (c) Student union; (d) Plant room; (e) Bin store; (f) Bicycle store; (ii) Block B comprising 7 storeys providing for (a) 52 no. bed clusters and 400 no. bedspaces; (b) Reception & Office; (c) Post room; (d) Laundry room; (e) Student canteen; (f) Maintenance store; (g) Plant room; (h) ESB sub station & switch room; (i) Bin Storage; (j) and Bicycle store; (iii) Block C comprising 6 storeys providing for (a) 51 no. bed

clusters and 355 no. bedspaces; (b) Student Gym; (c) Maintenance store; (d) Plant room; (e) ESB sub station & switch room; (f) Bin Storage; (g) and Bicycle store; (iv) Block D comprising 6 storeys providing for (a) 32 no. bed clusters and 211 no. bedspaces; (b) Reception & Office; (c) Post room; (d) Laundry room; (e) Student canteen; (f) Student supply retail unit (60m2); (g) Plant room; (h) Maintenance store; (i) Bin Storage; and (k) Bicycle Storage; (v) Block E comprising 5 storeys providing for (a) 33 no. bed clusters and 210 no. bedspaces; (b) Reception & Office; (c) Laundry room; (d) Maintenance store; (e) Bicycle store; and (f) Plant room; and (vi) ancillary site development works including car and bicycle parking provision; boundary treatments; roof plant; public lighting; water supply; foul and surface water drainage infrastructure; signage; and a temporary construction access to facilitate Phase 2. Vehicular access to the site will be from the Groody Road with pedestrian access to the Dublin Road. Extensive landscaping proposals, including (a) landscaped courtyards; (b) pedestrian and cycle connections from the Groody Road to the Groody Green Wedge; (c) natural landscaping and public walkways within the Groody Green Wedge; and (d) a Wetland area adjacent to the Groody River are also proposed. Planning permission is also sought for use of the accommodation, outside of student term time, for short-term letting purposes. Drawings of the development can be found within the planning documents; an outline of the development is reproduced below in Figure 2.

Figure 2 - Site Layout

1.2.1. Topography

The site is relatively flat with a small fall from Groody Road along the Eastern Boundary of the site to the River Groody located along the Western Boundary of the site. There is approximately a 1-2m fall in level from east to west across the site. The level of the site adjacent to the existing Groody Road varies from 9.50m OD to 7.50m OD while the levels vary from 9.50m to 6.50m along the northern boundary. The existing site levels are indicated within Figure 3.

Figure 3 - Site Topography

1.2.2. Boundary Treatments

It is proposed to retain the existing open boundary to the West of the site and install a fence line. A fence is already present along the Eastern boundary adjacent to the Groody Road. Landscaping and fencing are proposed along the Northern and Southern boundaries. It is envisaged that existing boundary levels will be maintained.

1.2.3. Access Road

Access to the site will be via a new junction to be constructed from the existing roundabout at Groody Road. The junction will tie into existing road levels.

1.2.4. Development Roads

Roads within the development will be constructed to provide access to car parking, bin stores and electrical buildings. Roads will consist of an asphalt pavement on granular

capping and subbase layers. Concrete footpaths will be provided. Services such as foul and surface water drainage, water, electricity, public lighting and telecommunications will be run under or next to the roads. Surface water from the roads will be directed to road gullies or bioretention systems which discharge to an attenuation system below the open space prior to discharging via a wetland to the existing River Groody.

1.2.5. Apartment Blocks

The unit breakdown is given in Section 1.2 above. The exact sub-structure and superstructure for the apartment blocks will be the subject of greater detailed design and the establishment of existing geotechnical conditions present under the footprint of the buildings. From initial investigations it is envisaged that piled foundations will be used.

At this stage, it is envisaged that the superstructure of the builds will consist of reinforced concrete floor slabs supported by reinforced concrete walls and columns with infill blockwork and lightweight partitions throughout. The buildings will contain an outer leaf consisting of brick or composite paneling or rendered blockwork.

1.2.6. Outfall to the River Groody

The construction of the no. 2 headwalls on the proposed surface water system within the wetland shall be carried out in close proximity to the River Groody. Prefabricated headwalls are recommended in order to minimise the use of materials that may cause polluting effects to the existing River, e.g. the pouring of concrete in situ. The raised earthworks for the wetland will be constructed prior to the installation of the headwalls which will create natural barrier for these works to take place within.

An outfall from the wetland to the River Groody is required. The outfall has been designed to have a minimal impact on the lands adjacent to the River Groody to avoid excessive earthworks and disturbance of the area. The outfall from the wetland will consist of an outfall flow control manhole adjacent to the wetland and a pipe network which will direct the water flow from the wwetland to the watercourse. The outfall manhole should be prefabricated to avoid construction works and concrete pours in the vicinity of the River Goody.

The works will be programmed to suit the identified animal species present within and along The River Groody and their associated critical seasons. Dewatering is not envisaged for these works which will be undertaken at periods of low tide and the area satisfactorily restored after each low tide cycle of works. The operation of machinery for these works will be kept to an absolute minimum. All construction machinery used will be mechanically sound to avoid leaks of oils, hydraulic fluid, etc. Machinery should be steam cleaned and checked prior to commencement of works adjacent to the river.

All works within the river boundary will be carried out in accordance with an approved method statement and under the direction of Inland Fisheries Board and National Parks and Wildlife Service.

1.2.7. Landscape Areas

Several green spaces and landscaped areas are provided within the development, refer to the Landscape planning information for further details.

2. CONSTRUCTION OF THE DEVELOPMENT

2.1. Safety, Health, and Environmental Considerations

In accordance with the Safety, Health and Welfare at Work (Construction) Regulations, the appointed Contractor will be required to prepare a Construction Health & Safety Plan which will be put in place prior to commencement of the works. At a minimum, this plan will include:

- Construction Health & Safety training requirements
- Induction procedures
- Emergency protocols
- Details of welfare facilities
- Risk assessments and Method Statements

2.2. Phasing and Scheduling of the Development

It is proposed that the project will proceed to construction if planning is successful, and all associated statutory procedures have been approved. While the precise sequencing of the sites phasing construction will be the subject of greater detailed, it is envisaged that the project will be delivered in two phases:

- Phase 1 will be the completion of Blocks C, D and E along with the retention pond, surface water outfall and western section of the park.
- Phase 2 will be the completion of Blocks A and B along with the eastern and southern sections of the park

The phasing and compound strategy is outlined within Figure 4.

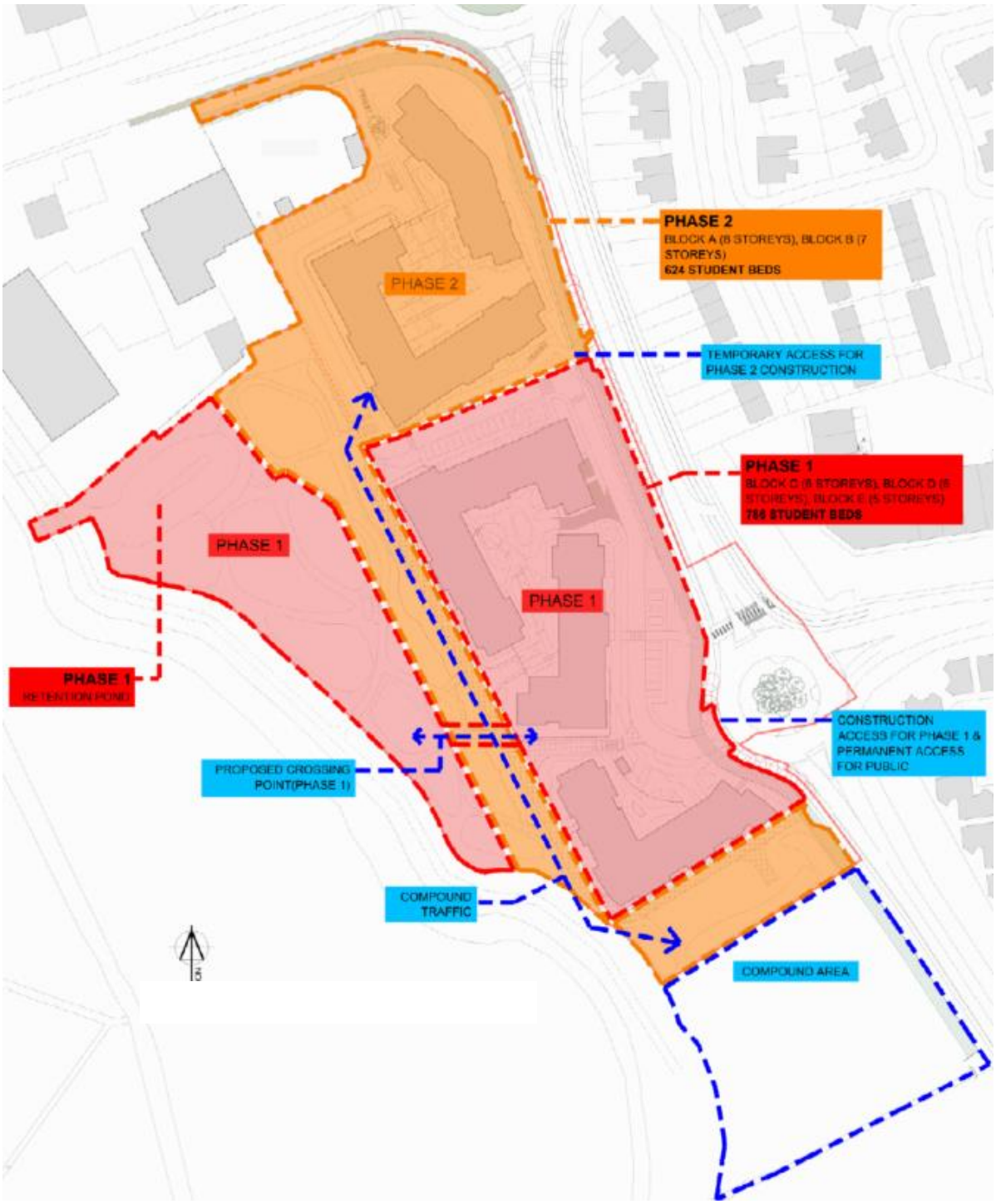


Figure 4 – Phasing

2.3. Works Description

The client, if successful with this planning application, will appoint an experienced Main Contractor for the construction phase of this proposed development. The appointed Main Contractor for the works will be required to comply with this Preliminary Construction & Operations Waste Management Plan and any revisions made to this document in the preparation of method statements for the various elements of the construction phase of the proposed development. An overview of the proposed Construction Methodologies is provided below in this non-exhaustive list of primary construction activities:

- Site set up & construction compound
- Temporary roads will be constructed to provide access to each row of units and to the nursing home and apartment building. This will include the construction of surface water management and silt control infrastructure, including settlement ponds and silt fencing.
- Site clearance and associated specialist works
- Protection of existing live services
- Within a sequenced manner around the site, excavation operations of the previously filled material within phase with screening, remediation and stabilisation of same prior to the replacement of suitable compacted material back on site and the removal of unsuitable material to the correct landfill waste stream off site to an approved licenced facilities
- Construction of foundations for new structures
- Construction of new building superstructures
- Construction of new roof structures and coverings and plant areas
- Fitting windows, doors and screens to new buildings
- Mechanical and electrical fit out
- Internal buildings fit out and finishes, painting, decorating etc.
- Construction of on-site drainage and utility pipe networks including connections to existing services
- Markings to new car parking areas
- Finishes
- Landscaping, boundaries and finished pavement surfaces.

2.3.1. Site Access

Construction site access will be from the existing Groody Road.

2.3.2. Site Establishment and Security

The development site shall be secured with minimum 2.4m high anti-intruder fence/ hoarding to prevent unauthorised access to the works site area and protect the public from any site dangers. Adequate security will be provided to prevent unauthorised entry to or exit from the working areas also. The following measures may be used to prevent unauthorised access:

- Install CCTV and alarm systems where required.
- CCTV and security systems will be sited and directed so that they do not intrude into occupied residential properties.
- Provide adequate security guards and patrols if required.
- When there is no site activity, close and lock site gates and set appropriate site security provisions in motion.
- Consult with neighbouring properties, local businesses and local crime prevention officers in An Garda Síochána and Limerick City and County Council on site security matters as required; and
- Prevent access to restricted areas and neighbouring properties by securing equipment on site such as scaffolding and ladders.

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).

The erection of hoarding would be of a similar nature to what is carried out on most construction sites. Mounting posts would be erected and the posts will be set in concrete or otherwise secured. The size and nature of the posts and hoarding would depend on the requirements for any acoustic mitigation as well as preferences that the Contractor may have. Where practicable, hoarding and fencing would be retained, reconfigured and re-used between working areas as the construction activities progress. The following measures will be applied in relation to hoarding and fencing:

- Maintenance of adequate fencing and hoardings to an acceptable condition to prevent unauthorised access to working areas and provide noise attenuation, screening, and site security where required.
- Appropriate sight lines/ visibility splays will be maintained around working areas to ensure safety of both vehicles and pedestrians is preserved.
- Use of different types of fencing and hoarding (e.g., mesh fence of solid hoarding including hoardings used for noise control).
- Temporary fences may be used in certain areas, such as for short term occupation of working areas.
- Display information boards with out of hours contact details, telephone helpline number (for comments/ complaints) and information on the works.
- Erect notices on site boundaries to warn of hazards on site such as deep excavations, construction access, etc.
- Signage to be displayed which direct pedestrians and convey “Business as Usual” for adjoining businesses.
- Keep hoarding and fencing free of graffiti or posters.
- Retain existing walls, fences, hedges and earth banks as far as reasonably practicable; and
- Appropriate positioning of the fencing or hoarding to minimise the noise transmitted to nearby receptors or from plant, equipment and vehicles entering or leaving the working area.

2.3.3. Lighting

Lighting will be provided as necessary at construction compounds. Consideration of best practice and guidance in relation to lighting and wildlife impact such as *Bats & Lighting Guidance Notes for Planners, engineers, architects and developers* (Bat conservation Ireland, December 2010); All lighting will be directional with appropriate cowling installed to minimise light spillage from the site. The height of lamp posts will be restricted (e.g. <8m where possible) to reduce the amount of light spillage where it is not needed. The lights will be positioned facing away from the River Groody to the wets where possible to minimize impact on bats that may use this area as a commuting route as well as other species who may use this habitat e.g. otters. Where possible all light fittings will be LED, have asymmetrical projection i.e. directional, and with colour temperature of 2700K (warm spectrum preferred by bats). The radiation will be above 500nm to avoid the blue or UV light, most disturbing to bats.

Construction work will generally be confined to daylight hours and lighting will generally not be required for the construction phase. There will however be occasions where the provision of portable lighting will be required such as evening work during later winter/early spring, works on roadways and power floating floors. Where possible and without jeopardising site safety, lights will be pointed down at a 45-degree angle and away from sensitive receptors. The site compound will have external lights for safety and security. This lighting will also be controlled by occupancy/motion sensors so that it will remain at a low output unless activated. This will mitigate light overspill as well as avoiding energy wastage. Construction stage lighting will be designed to minimise the broadcast of light to surrounding areas including sensitive receptors.

2.3.4. Site Clearance

To facilitate the earthworks operation, site clearance will have to be carried out to remove vegetation. Removal of woody vegetation shall only take place outside the bird breeding season (1st March to 31st August). No removal of habitats or movement of construction machinery will occur outside of the development works area/ footprint during the construction phase. Existing trees and hedgerows shall be retained where possible. Temporary surface water management measures will be put in place prior to stripping of topsoil and will remain in place until the completion of the development. Refer to Section 3.1 below for details of the surface water management measures.

Topsoil will be stripped from the area to be developed. All excavated topsoil will be stored in dedicated stockpiles with environmental controls in place.

Topsoil stripping across these limited areas will be monitored by an archaeologist under license by the National Monuments Service. If archaeological features are revealed during the monitoring programme, these features will be recorded in written, drawn and photographic formats and remain in situ until consultations are undertaken with the National Monuments Service on the appropriate mitigation strategy.

2.3.5. Earthworks

A large proportion of the site has previously been filled with construction and demolition waste, mostly clay with stones and boulders but also containing waste associated with being from construction sites. The envisaged strategy for the site is of segregation and reuse where possible on site but disposal where required to licensed facilities. An outline methodology is outlined herewith:

- Produce a Remediation Strategy
- Obtain appropriate licenses to undertake the remedial works.
- Surface water management measures to be put in place
- Excavation of made ground and transport to a designated treatment area within the site.
- Processing the made ground through a 100mm screener and picking station to remove oversize and unacceptable materials.
- Disposal of unacceptable picked waste material removed from the soils at suitabliy licenses waste dispoal / recycling facility

- Placement of the picked soils back in the excavation and compaction with stabilization if deemed appropriate and necessary
- Onsite environmental monitoring during the works and provision of dust mitigation and odour suppression during the works.
- Provision of a Validation Report detailing the works undertaken.

Figure 5 - Estimate of Filled Ground

Material will be excavated by 360° excavators and transported to the processing and screening area for possible reuse within the site

The proposed buildings will be constructed on a foundation designed specifically by the appointed structural engineers, who will have considered the loading requirements for this superstructure.

Where filling of the site is required, approved and selected fill materials will be imported to the site. Given the aforementioned remediation strategy envisaged for the site and that existing material will be removed to licensed facilities along with the compaction of existing material ono the site, there will be a loss of material and it will not possible to avoid the

use of some imported fill. The fill will then be placed by dozers and compacted using vibratory rollers. A testing regime will be implemented to ensure the acceptability of the fill and that the degree of compaction is sufficient. Fill will be brought to the required level across the site to allow construction of roads and floors.

2.3.6. Construction of Buildings

On completion of the bulk earthworks, construction of remaining building rising elements and/ or foundations for the buildings will commence. The exact construction sequence has not been determined, but it will be similar to what is described below:

- Completion of foundations and rising elements
- Construction of ground floor
- Erection of reinforced concrete frame
- Construction of floors and roof slab and rising elements between levels
- Facades
- Fit out

2.3.7. Cranage

The construction works will require the use of at least 1 fixed crane per phase and also the use of mobile cranes when required. A cranage plan will be developed when the exact superstructure construction is determined. Heavy machinery transport on the road network to and from the working areas will be restricted to outside of peak hours and will be confirmed by the Main Contractor to the relevant authorities.

2.3.8. Landscaping

These areas will be brought to a level below the final grading and will be finished with reclaimed topsoil on completion. Seeding and planting will be in accordance with the landscape plan for the site.

2.3.9. Extreme Weather Events

The Main Contractor will consider the effects of extreme weather events and related conditions during construction. The Main Contractor will use a short to medium range weather forecasting service from Met Eireann or other approved meteorological data and weather forecast provider to inform short to medium term programme management, environmental control and mitigation measures.

All measures deemed necessary and appropriate to manage extreme weather events will be considered 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, e.g., construction works adjacent to public roads and business premises.

2.3.10. Unexpected Discoveries

Appropriate procedures will be put in place in the event of encountering unexpected archaeological or cultural heritage assets or subsurface contamination during intrusive ground works.

Appropriate procedures will be developed as part of the site management plan and the Environmental Manager will ensure that specialists (e.g., archaeologist) are facilitated to ensure management in accordance with industry best practice and effective compliance with the relevant legislation. All unexpected discoveries will be reported to the appropriate authorities and documented in an appropriate manner.

3. ENVIRONMENTAL MANAGEMENT

3.1. Surface Water Management

The site falls east to west towards the River Groody to the west of the site. The high point of the site is at the eastern boundary along Groody Road. As the ground level is higher on the east side of the boundary, there is therefore no risk of surface water from the site affecting the existing Road and houses along Groody Road.

Currently, surface water on the existing site either infiltrates naturally through the ground or by overland flow to the River Groody. This development site does not have any open drains or streams within it. The most sensitive parts of the site in relation to surface water will be the western boundary because of the presence of the River Groody.

Run-off into excavations/ earthworks cannot be prevented entirely and is largely a function of prevailing weather conditions. Care will be taken to ensure that exposed soil surfaces are stable to minimise erosion. All exposed soil surfaces will be within the main excavation site which limits the potential for any offsite impacts. All run-off will be prevented from directly entering any excavations and water courses as no major construction will be undertaken directly adjacent to open water.

No significant dewatering is envisaged during the construction phase which would result in the localised lowering of the water table. There may be localized pumping of surface run-off from the excavations during and after heavy rainfall events to ensure that the excavations are kept safe and relatively dry.

The measures outlined in the following sections will be put in place during the construction phase to ensure protection of surface waterbodies and groundwater. Construction works will be informed by best practice guidance from Inland Fisheries Ireland on the prevention of pollution during development projects. These measures comply with the following relevant CIRIA and Inland fisheries guidance documents:

- Control of Water Pollution from construction Sites, Guidance for consultants and contractors (C532)
- Environmental Good Practice on Site (3rd edition) (C692)
- Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters (2016).

3.1.1. Pollution Control

3.1.1.1. Management of suspended solids in run off

Prior to the commencement of topsoil stripping and earthworks operations, the following site-specific surface water management measures will be put in place:

1. Where possible, significant earthworks operations should be limited to the summer months and periods of low rainfall.

2. It is suggested that a berm be constructed at the western boundary of the site to prevent any flow of surface water into the River Groody during construction.

3. Silt fencing will be installed strategically around and through the site. The location of the silt fencing will be determined in the construction stage CEMP and will be subject to a detailed assessment of the planned works methodology and works area. The purpose of the silt fencing is to prevent silt laden water leaving the site and entering adjoining lands and the River Groody with the potential to impact watercourses. A typical silt fence detail is shown below in Figure 6 1. It will consist of a double layer of geotextile membrane fixed to wooden stakes approximately 600mm high. The membrane will be anchored into the ground to form a continuous barrier to silt laden water from the works site. Silt fences will be monitored via a silt inspection log (to be maintained by the Environmental Manager/ ECoW) and periodically maintained during the construction period. Typical maintenance will consist of repairs to damaged sections of membrane and removal of a build-up of silt on the upslope side of the fence. Daily silt fence inspections are recommended as part of their operation ensuring that any necessary repairs can be expedited.

   This location of the silt fencing needs to to be at least 10m from the River Groody and the drainage ditch to protect the riparian zone and any areas of seasonal flooding as per the Inland Fisheries Ireland Guidelines

   The specification of the silt fencing geotextile is to be:
   - Tensile Strength (kN/m) MD,CD: 17,17
   - Elongation at Max Load (%) MD,CD: 25,15
   - CBR Puncture Resistance: 2300N
   - Cone Drop Penetration: 13mm
   - Grab Tensile Strength (N) MD,CD: 750,550
   - Trapezoidal Tear Strength (N) MD,CD: 400,300
   - Pore Size 90% finer than: 180 microns
   - Water Flow: 6l/m2 /sec

Figure 6 - Silt Fencing

4. Drainage ditches will be installed to intercept surface water where there is a risk of significant water flow into excavations, adjoining lands or the River Groody. There will also be a requirement to periodically pump water from excavations. All collected and pumped water will have to be treated prior to discharge. The run-off will be directed through appropriately sized settlement ponds or tanks to remove suspended solids.

5. Emergency contact numbers for the Local Authority Environmental Section, Inland Fisheries Ireland, the Environmental Protection Agency and the National Parks and Wildlife Service will be displayed in a prominent position within the site compound. These agencies will be notified immediately in the event of a pollution incident.

6. Site personnel will be trained in the importance of preventing pollution and the mitigation measures described here to ensure same.

7. The Environmental Manager or ECoW will be responsible for the implementation of these measures. They will be inspected on at least a daily basis for the duration of the works, and a record of these inspections will be maintained.

8. Any temporary storage of soil, hardcore, crushed concrete or similar material will be stored 50m from any surface water drains. All temporary storage areas should also have surface run- off controls in place to prevent migration of possible materials. There can be no direct pumping of silty water from the works directly to any watercourse. All water from excavations must be treated by infiltration over lands or via settlement areas, silt busters etc.

9. Where water must be pumped from the excavations during the construction phase of the Proposed Development, water will be discharged by the contractor, following appropriate treatment (e.g., settlement or hydrocarbon interceptor) to sewer in accordance with the necessary discharge licences

issued by UE under Section 16 of the Local Government (Water Pollution) Acts and Regulations for any water discharges to sewer or from LCC under Section 4 of the Local Government (Water Pollution) Act 1977, as amended in 1990 for discharges to surface water. The Contractor will be required to provide a site-specific dewatering plan, clearly setting out proposed excavation methodology, estimated dewatering rates, details of the proposed treatment system, and discharge location. Under no circumstances will any untreated wastewater generated onsite (from washing equipment, road sweeping etc.) be released to ground or to drains. Where required, all public sewers will be protected to ensure that any untreated wastewater generated onsite enters the public sewers.

3.1.1.2. Management of Ground Water contamination

The proposed construction works primarily occur above the groundwater table, significantly reducing the risk of widespread groundwater contamination. However, the installation of piled foundations—which will extend into bedrock from an elevated platform—presents a localized but direct pathway for potential contaminants to migrate vertically into the underlying aquifer system. This is particularly relevant given the piles may breach confining or low-permeability layers.

Other activities such as site remediation, road and surface infrastructure construction, and shallow utility and drainage works, including attenuation tanks and wetlands (with depths up to 3.8m), are generally confined to the unsaturated zone and in already filled and to be remediated areas of the site. As such, they pose low risk to groundwater, provided that best management practices are followed, especially during handling of potentially contaminated fill.

In summary the key risks to ground water include:

- Creation of preferential pathways through piling, allowing surface water or residual contaminants to reach groundwater. However this would be typical of most construction projects where deep foundations are required.
- Disturbance or mobilization of existing contamination during remediation or excavation, particularly in filled areas.
- Infiltration of contaminated runoff or construction-related fluids, especially during wet weather or through poorly managed drainage.
- The creation of the large area wetland within a lower portion of the site at one of the lowest open excavation levels relative to Ordinance Daturm.

The following measures will be required to avoid easy and rapid pathways to the ground water via high level bedrock and in areas of extreme to moderate ground water vulnerability:

1. Stockpiles of soil shall be kept at areas of the site with low bedrock levels where there is at least 1m of soil above the bedrock

2. Silt fencing and settlement ponds shall be placed in areas with low bedrock levels where there is at least 1m of soil above the bedrock. Silt fences shall

be inspected as part of the daily inspection regime. Trapped silt shall be removed from silt fencing at regular intervals and especially prior to any predicated flood event.

3. Earthworks shall be left exposed for the minimum time possible. Earthworks formations shall be protected by a layer of imported granular fill.

4. Landscaping and seeding of the site shall be carried out as early as possible.

5. Site compounds, fuel storage areas, generators and the like shall be sited away from areas of high level bedrock

6. Taps, nozzles or valves will be fitted with a lock system.

7. Implement cased bored piles or continuous flight auger (CFA) piles or other suitable piling techniques to minimize risk to groundwater

8. Ensure remediated ground is appropriately screened and unsuitable and contaminated materials disposed of appropriately off site.

9. Control runoff and prevent infiltration of hazardous substances during construction by implementing best practice construction methodologies.

10. Given the intend programme duration for the project, schedule the construction of the wetlands for the summer months when ground water levels will be lowest. In advance of the construction of the wetland monitor the water level. Employ best practice run-off control to avoid unnecessary surface water entering the under construction wetland excavation. Employ best practice stockpiling and excavation methodologies.

3.1.1.3. Control of Concrete run-off

The washing out of concrete delivery vehicles is a potential source of pollution and shall be carried out at the concrete plant only. The ability to establish a designated wash-out areas will be possible on site.

Wash-out areas on site will be located greater than 50m from any natural watercourse and properly designed with an impermeable liner to contain all cement laden water. No wash-out of ready-mix concrete vehicles shall be located within 10 metres of any temporary or permanent drainage features. Signage shall be erected to clearly identify the wash-out areas. Sufficient wash-out areas shall be provided to cater for all vehicles at peak delivery times.

The weather forecast will be checked prior to the pouring of the concrete and no such works will be undertaken when bad weather is forecast. Any works at any time when water levels that may cause inundation of the works area will be avoided. Concrete will not be poured at times when rain is predicted as this may lead to run

off and over spillage. Concrete (including waste and wash down) will be contained and managed appropriately to prevent pollution of watercourses. Pouring will occur in the dry, with appropriate curing times (48 hours) before re-flooding.

Mixer washings and excess concrete will not be discharged to water. If cement washings are to be discharged they will first be held in a treatment facility in order to neutralise the pH and to settle out solids.

On-site batching of concrete is not envisaged, but ready to use mortar silos is possible. These systems involve the delivery and storage of dry cement and aggregates in silos, water is added at the point of delivery to make mortar or plaster. The following controls shall be put in place for the on-site batching of concrete, mortar and render:

- The plant shall be maintained in good condition.
- Delivery of cement shall be by means of a sealed system to prevent escape of cement.
- The plant shall be situated on a paved area at least 20m from any temporary or permanent drainage features.
- Emergency procedures shall be in place to deal with accidental spillages of cement or mortar.

Figure 7 - Temporary Concrete wash-out area with impermeable liner

3.1.1.4. Flooding

Flooding is not a concern for the majority of the site, except for works in connection with the construction of the surface water outfall in the lower part of the lands. The key flood risk to this area of the lands site is caused by flooding of rivers and streams.

Protection of life and critical infrastructure will be the overriding concerns. The following measures will be required:

1. Stockpiles of soil shall not be kept in this area of the site

2. Silt fencing and settlement ponds shall be placed at the highest level possible within the site. Silt fences shall be inspected as part of the daily inspection regime. Trapped silt shall be removed from silt fencing at regular intervals and especially prior to any predicated flood event.

3. Earthworks shall be left exposed for the minimum time possible. Earthworks formations shall be protected by a layer of imported granular fill.

4. Landscaping and seeding of the surface water outfall pipe in accordance with the Landscaping Plan shall be carried out as early as possible.

5. An Emergency Response plan shall be developed for this section of the site and shall consider the following:
   a. Flood forecasting shall be used to determine the probability of this area of the site being flooded.
   b. Emergency evacuation routes will be included in the plan to ensure that flooding does not threaten the safety of construction personnel.
   c. Site compounds, fuel storage areas, generators and the like shall not be located within this area of the site

3.1.1.5. Accidental Spills and Leaks

Bulk fuel storage areas should be adequately protected with the provision of appropriate bunding to provide a minimum storage volume of 110% of total fuel storage capacity or 25% of the total volume of the substance that could be stored within the bunded area with the provision of a spill kit and the use of drip trays. Fuel storage must be sited away from any watercourse or on-site services as far as possible and have a designated area.

Where sub-contractors are required to refuel vehicles on-site, this will be carried out at a central refuelling location only. The sub-contractor will be required to make the necessary arrangements with the Main Contractor to access and purchase fuel oil from a central supply. All refuelling areas will be on areas of hard standing only at designated agreed locations. Open valves will not be left unattended.

All fuel, oil and chemical deliveries will be supervised by a responsible person who will be trained to deal with any spillage to prevent a pollution problem occurring. Storage tank levels will be checked before delivery to prevent overfilling and to ensure that the product is delivered to the correct tank.

The storage of materials in the main compound and work sites will be controlled in such a manner to ensure that materials are not damaged prior to use either through vehicle or people movements or through exposure to the elements.

All fuel, oil and chemicals will be stored on an impervious base within a bunded area and secured. The bund shall have a capacity of 110% of the volume of the products stored within it. All tanks and containers will be kept in a secure compound and be protected from vandalism and will be clearly marked with their contents. Stores shall be located at least 10 metres from any watercourse.

All mobile plant will be refuelled in a designated area on an impermeable surface and away from drains. In case of any spillages, there will be a spill response kit available at each refuelling point and within each machines working area. Where it is impractical to refuel within a bunded area, a drip tray will be available to catch any spills caused by over fuelling.

Every effort will be made to prevent pollution incidents associated with spills during the construction of the proposed development. The risk of oil/ fuel spillages will exist on the site and any such incidents will require an emergency response procedure. Given the scale and extent of the proposed development all contractors will carry spill kit materials in their site cabins.

The following steps provide the procedure to be followed in the event of an oil/ fuel spill occurring on site:

- 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.
- Contain the spill using the spill control materials, track mats or other material 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 the 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 Limerick City and County Council, National Parks and Wildlife Service, Department of Communications, Climate Action and Environment and Department of Housing, Planning and Local Government and/or the EPA.
- Environmental incidents are not limited to just fuel spillages, therefore, any environmental incident must be reported, recorded and investigated in accordance with the procedures described.

3.1.1.6. Monitoring

Daily checks will be carried out and recorded in a Surface Water Management Log to ensure surface water drains are not blocked by silt, or other items, and that all storage is located the required distance from surface water receptors. A daily log of inspections will be maintained, and any significant blockage or spill incidents will be recorded for root cause investigation purposes and updating procedures to ensure incidents do not reoccur.

3.2. Noise, Vibration and Dust Control

Construction of the development has the potential to create significantly increased noise and dust levels locally unless adequate controls are put in place. Earthworks operations will involve the use of heavy construction plant. Stockpiles of material could become dusty in dry weather. Construction sites are also potential sources of noise and dust.

3.2.1. Noise

Specific noise abatement measures shall comply with the recommendations of BS5228-1 2009. BS5228 includes guidance on several aspects of construction site practices, including, but not limited to:

- Selection of quiet plant;
- Control of noise sources;
- Screening (boundary, and or localised plant screening);
- Hours of work;
- Liaison with the public, and;
- Monitoring.

Noise measures will include:

- No plant used on site will be permitted to cause an ongoing public nuisance due to noise.
- The best means practicable, including proper maintenance of plant, will be employed to minimise the noise produced by on site operations.
- All items of plant should be subject to regular maintenance. Such maintenance can prevent unnecessary increases in plant noise and can serve to prolong the effectiveness of noise control measures.
- For mobile plant items such as cranes, dump trucks, excavators and loaders, the installation of an acoustic exhaust and or maintaining enclosure panels closed during operation can reduce noise levels by up to 10dB. Mobile plant should be switched off when not in use and not left idling.

- Compressors and generators will be attenuated models fitted with properly lined and sealed acoustic covers which will be kept closed whenever the machines are in use and all ancillary pneumatic tools shall be fitted with suitable silencers.
- Machinery that is used intermittently will be shut down or throttled back to a minimum during periods when not in use.
- Any plant, such as generators or pumps, required to operate before 07:00hrs or after 19:00hrs will be surrounded by an acoustic enclosure or portable screen.
- Location of plant shall consider the likely noise propagation to nearby sensitive receptors.
- For percussive tools such as pneumatic concrete breakers and tools a number of noise control measures include fitting muffler or sound reducing equipment to the breaker 'tool' and ensure any leaks in the air lines are sealed. Erect localised screens around breaker or drill bit when in operation in close proximity to noise sensitive boundaries.
- For concrete mixers, control measures should be employed during cleaning to ensure no impulsive hammering is undertaken at the mixer drum.
- For all materials handling ensure that materials are not dropped from excessive heights, lining drops chutes and dump trucks with resilient materials.
- Demountable enclosures can also be used to screen operatives using hand tools/ breakers and will be moved around site as necessary.

Quiet Plant will be selected for use on this development. 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.

If replacing a noisy item of plant is not a viable or practical option, consideration will be given to noise control "at source". This refers to the modification of an item of plant or the application of improved sound reduction methods in consultation with the supplier. For example, resonance effects in panel work or cover plates can be reduced through stiffening or application of damping compounds; rattling and grinding noises can often be controlled by fixing resilient materials in between the surfaces in contact.

The earthworks will generate typical construction activity related noise and vibration sources from use of a variety of plant and machinery such as rock breakers (where required), excavators, lifting equipment, dumper trucks, compressors and generators. The noise levels shall comply with the mitigation measures and any planning conditions.

A designated noise liaison should be appointed to site during construction works. All noise complaints should be logged and followed up in a prompt fashion by the liaison officer. In addition, prior to particularly noisy construction activity, the liaison officer should inform the nearest noise sensitive locations of the time and expected duration of the noisy works.

Noise Screening will be employed when and where required. Typically screening is an effective method of reducing the noise level at a receiver location and can be used successfully as an additional measure to all other forms of noise control. The effectiveness of a noise screen will depend on the height and length of the screen and its position relative to both the source and receiver.

Screening may be a useful form of noise control when works are taking place at basement and ground level to screen noise levels at ground floor adjacent buildings. In addition, careful planning of the site layout should also be considered. The placement of site buildings such as offices and stores and in some instances materials such as aggregate can provide a degree of noise screening if placed between the source and the receiver. The use of localised mobile (mobile hoarding screens and / or acoustic quilts) to items of plant with the potential to generate high levels of noise are an effective noise control measure. These options should be considered when percussive works are taking place in close proximity to the nearest sensitive perimeter buildings.

All works on site shall comply with BS 5228 2009+ A1 2014 (Parts 1 & 2) which gives detailed guidance on the control of noise and vibration from construction activities. In general, the contractor shall implement the following mitigation measures during the proposed infrastructure works:

- Avoid unnecessary revving of engines and switch off equipment when not required.
- Keep internal haul roads well maintained and avoid steep gradients.
- Minimise drop height of materials.
- Start-up plant sequentially rather than all together

3.2.2. Vibration

Vibration limits to be applied for the infrastructure works will be those specified in the TII document Guidelines for the Treatment of Noise and Vibration in National Road Schemes (TII, Revision 1, 2004). These limits are outlined below:

Allowable vibration (in terms of peak particle velocity) at the closest part of sensitive property to the source of vibration shall comply with the mitigation measures and any planning conditions.

3.2.3. Dust

The aim is to ensure good site management by avoiding dust becoming airborne at source. This will be done through good design, planning and effective control strategies. The siting of construction activities and soil stockpiles will take note of the location of sensitive receptors and prevailing wind directions to minimise the potential for significant dust nuisance. In addition, good site management will include the ability to respond to adverse weather conditions by either restricting operations on-site or using effective control measures quickly before the potential for nuisance occurs.

- During working hours, technical staff (e.g. Environmental Manager/ ECoW) will be available to monitor dust levels as appropriate; and
- At all times, the dust management procedures put in place will be strictly monitored and assessed.

The dust minimisation measures will be reviewed at regular intervals during the construction phase to ensure the effectiveness of the procedures in place and to maintain the goal of minimisation of dust generation. In the event of dust nuisance occurring outside the site boundary, site activities will be reviewed, and procedures implemented to rectify the problem. Dust levels shall comply with the mitigation measures and any planning conditions.

Specific dust control measures to be employed are presented below.

3.2.3.1. Site Routes

Site access routes (particularly unpaved areas) can be a significant source of fugitive dust from construction sites if control measures are not in place. The most effective means of suppressing dust emissions from unpaved roads is to apply speed restrictions.

- A speed restriction of 15 km/ hr will be applied as an effective control measure for dust for on-site vehicles or delivery vehicles within the vicinity of the site.
- Bowsers will be available during periods of dry weather throughout the construction period, with water sourced from the mains supply. The bowser will operate during dry periods to ensure that unpaved areas are kept moist. The required application 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 while any unsurfaced areas shall be restricted to essential site traffic only.

3.2.3.2. Excavation

Excavation works during periods of high winds and dry weather conditions can be a significant source of dust.

- During dry and windy periods, and when there is a likelihood of dust nuisance, watering shall be conducted to ensure moisture content of materials being moved is high enough to increase the stability of the soil and thus suppress dust.
- During periods of very high winds (gales), activities likely to generate significant dust emissions will be postponed until the gale has subsided. The movement of truck containing materials with a potential for dust generation to an off-site location will be enclosed or covered.

3.2.3.3. Stockpiling

The location and moisture content of stockpiles are important factors which determine their potential for dust emissions. The following measures will be put in place:

- Overburden material will be protected from exposure to wind by storing the material in sheltered parts of the site, where possible.

- Regular watering will take place during dry/ windy periods to ensure the moisture content is high enough to increase the stability of the soil and suppress dust.
- Permanent or long-term stockpiles of topsoil shall be seeded to limit dust emission.

3.2.4. Site Traffic

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 material with potential for dust emissions to an off-site location shall be enclosed or covered at all times to restrict the escape of dust.
- Any hard surface site roads will be swept to remove mud and aggregate materials from their surface while any unsurfaced roads shall be restricted to essential site traffic only.
- A power washing facility or wheel cleaning facility will be installed near to the site compound for use by vehicles exiting the site when appropriate.
- Road sweepers will be employed to clean the site access route as required.

3.3. Biodiversity and Invasive Species Management

A Natura Impact Statement (NIS) has been prepared by Russell Environmental. All site-specific mitigation measures from same must be adopted to ensure the protection of biodiversity during the construction works. This includes precautionary/enhancement measures for bats that maybe using the site for foraging but not deemed to be roosting wihtin the development area.

- Any tree removal or undergrowth cutting back should take place during the bat hibernation period (1st November to 1st May). In addition, 'Bat-sensitive lighting' should be implemented for this development and during construction all lighting should be directed away from the treelines and watercourses.
- All works to be completed during daylight hours so as to minimise disruption to nocturnal animals.

It is noted that there is an existing white willow tree outside of the development area that has the potential to contain a bat roost. This tree is not to be interfered it. To ensure same, the following will be implemented:

- Establishment of a Tree Protection Zone (TPZ) around the white willow tree based on its canopy size and root protection area. This zone will be clearly marked and delineated with physical barriers (e.g., fencing or hoarding).
- Prohibit all construction activities within the TPZ, including storing materials, using heavy machinery, or excavation that could affect the tree's roots.
- Ensure that the buffer zone extends beyond the TPZ to prevent disturbance to the surrounding environment, which may include important foraging or flight paths for bats.

Figure 8 - Protection of White Willow Tree

An Ecological Impact Assessment has been prepared by Russell Environmental Services which found no invasive species recorded at the proposed development site.

3.4. Consents and Licences

All statutory consents and licenses required to commence on-site construction activities will be obtained ahead of works commencing, allowing for the appropriate notice period. These will include, but are not limited to:

- Construction commencement notices
- License to connect to existing utilities and mains sewers, where required

3.5. Site Compound/ Welfare Facilities

The construction compound will be used as the location for worker welfare facilities such as locker rooms, toilets, showers, kitchen, etc. with a potable water supply to be made available by installing a temporary construction water connection. The proposed site compound shall be located within the site boundary and positioned so as to ensure that deliveries, staff parking and visiting vehicles do not wait on the public road before entering the site insofar as is practicable. (The appointed Main Contractors will confirm details and location of the proposed works compound before proceeding on site if required by the local authority).

Construction of the compound shall be from clean materials and the Contractor shall ensure that run-off from potentially contaminating surfaces, i.e., parking or material stockpiles, is contained and treated appropriately in a either a temporary, on-site settling pond or a holding tank. All construction support activities will be controlled within the site construction compound, including office facilities, toilets, canteen, etc. Materials and waste handling, and storage will all be within the confines of the development site. Adequate statutory warning signs will be on display to illustrate the required PPE and risks associated when entering the construction site.

The site shall be appropriately hoarded prior to commencement of the works and the hoarding shall display an emergency out of hours contact telephone number for the Main Contractor at the main entrance.

Welfare facilities have the potential, if not managed appropriately, to release organic and other contaminants to ground or surface water courses. Foul drainage from temporary welfare facilities during the Construction Phase of the Proposed Development will either be discharged to temporary holding tank(s), the contents of which will periodically be tankered off site to a licensed facility or discharged to public sewer in accordance with the necessary temporary discharge licences issued by UE.

3.6. Material Handling, Storage and Delivery

The Contractor will ensure that the delivery of materials is coordinated to minimise impacts to adjacent properties. The Contractor will ensure that all materials are adequately stored and secured in their site compound. The Contractor will ensure the roads adjacent to the site are kept clean and free of debris.

It is proposed to source general construction materials from the local area to minimise transportation distances (subject to suitable material costs). Where possible 'Just in Time' delivery system will operate to minimise storage of materials on-site.

Aggregate materials such as sands and gravels will be stored in clearly marked areas in the compound area. Liquid materials will be stored within temporary bunded areas, doubled skinned tanks or bunded containers (all bunds will conform to standard bunding specifications – BS EN 1992-3:2006) to prevent spillage.

Construction materials will be brought to site by road from the recently constructed road. Construction materials will be transported in clean vehicles. Lorries/ trucks will be properly enclosed or covered during transportation of friable construction materials and spoil to prevent the escape material along the public roadway.

The majority of construction materials generated will be soil from excavation works, but it is planned to reuse all excavated soil on site and achieve a cut-fill balance. Movement of spoil and soil will be carried out in accordance with the recommendations detailed in the Invasive Species Management Plan for the site to prevent the inadvertent spread of invasive species within the site itself and off site to other areas.

3.7. Visitor Management

Visitors will only be allowed to enter the main site compound via the designated pedestrian access gate. A dedicated, secured footpath to the site office is established at the gate for registration and obtaining PPE prior to entering the site. A log will be maintained by security to control access to the site. Visitors will be required to attend a site-specific induction to allow access to the compound and/ or construction site unless being accompanied by an inducted member of the site team. Visitors will then be taken by an inducted member of the construction team to the required area of the site.

3.8. Site Working Hours

The proposed hours of work on site will be stipulated in the planning conditions attached to the planning grant. Any working hours outside the normal construction working hours will be agreed with the planning authority. The planning of such works will take consideration of sensitive receptors.

3.9. Employment and Management Workforce

Construction employment numbers will vary depending on the construction stage of the project and the actual approach adopted by the Main Contractor. However, it is anticipated that at the peak of construction there will be a workforce varying in a range of approximately 25-50 people employed depending on the stage of construction.

Initial stages of construction such as site clearance will be limited to specific disciplines which will not require large numbers of personnel. However, multiple trades may be active on the buildings during internal fit-out of the completed structures on a staggered basis as the works are progressed leading to higher numbers of personnel being present.

It is estimated that there will initially be 10-20 staff on site on a typical day, however during peak construction periods this is expected to fluctuate up to 50 staff and contractors on site per day. It is anticipated that the key project managers and main contractor representatives will maintain a presence on site for the whole duration of the project and the labour workforce will be determined by the specialist contractors required on site.

All employees working on the site will be required to have a SafePass Card (or similar approved Construction Health & Safety card), manual handling training and the necessary certificates to operate machinery as required. The details of training required, records maintained, and induction procedures will be outlined in the Main Contractor's Health and Safety Plan(s).

3.10. Communications with Local Stakeholder Management

The works are expected to be restricted to the confines of the site and, as such, disruption to third parties must be limited. Certain noisy activities, such as piling, may impact on the surrounding area; however, the site is relatively isolated with only one other commercial business located to the south of the site in the immediate vicinity.

The Contractor should endeavour to notify all adjacent site users in advance of potentially disruptive activities that may arise and should record and respond to any complaints received due to the works.

In general, the longer the duration of activities on a site, the more likely it is that noise from the site will prove to be an issue. In this context, good public relations and communication are important. The hours of working should be planned and disseminated. There will be a need to adhere strictly to the stated schedule and ensure that the community is informed of their likely durations or disruptions.

3.11. Preliminary Traffic Management Plan

A Traffic Management Plan (TMP) will be prepared for the site works in accordance with the principles outlined below and shall comply with the requirements of:

- Department of Transport Traffic Signs Manual 2010 – Chapter 8 Temporary Traffic Measures and Signs for Roadworks
- Department of Transport Guidance for the Control and Management of Traffic at Road Works (2010)
- Any additional requirements detailed in the Design Manual for Roads and Bridges (DMRB) & Design Manual for Urban Roads & Streets (DMURS)

The Contractor shall prepare a detailed traffic management plan for works at that interface with the existing road network and obtain all required road opening licenses. Access for construction of the development will be via the proposed primary access for the development from the existing Groody Road.

The construction shift times will ensure any staff travelling to the site by car will have limited impact on the peak periods of 08:00 - 09:00 in the morning and 17:00 - 18:00 in the evening as it is envisaged most construction staff will arrive to work before 08:00 in the morning and leave after 18:00 in the evening.

The site set-up shall allow for parking for all site staff within the confines of the proposed site boundary or at a dedicated parking facility local to the development site. No site vehicles will be permitted to park along the public roads or outside the working site boundary adjacent to the development site. The Main Contractor will provide a suitable secure area for all site personnel vehicles for the duration of the works. Additionally, this area is well served with public transport links and site workers will be encouraged to utilise the public transport network when possible.

Construction traffic shall route to the site via Groody Road. Haulage contractors will be notified of this main access route and alternative haul routes if required.

Construction vehicles should, where possible, adhere to the following principles:

- Avoid peak hour movements,
- Vehicles should endeavour for two-way use if possible,
- Ensure part loads are avoided to minimise trips.

Signage should be provided by the Main Contractor on approach roads to the site to notify the public of the site entrance ahead. Traffic management and on-site signage shall indicate clear routes for construction vehicles. New temporary signage advertising construction access ahead will be provided along the access roads to the site at agreed locations with local authority.

Adequate measures shall be provided to minimise tracking of dirt and debris onto the public roads network. Precautions shall be taken to control run-off from any washing facilities and a road sweeper shall be utilised to clean roads and car park surfaces when required.

The construction works will generate additional traffic which will use the public infrastructure around the site. It is anticipated that deliveries will be continuous throughout the build process, but certain peaks will be expected for the following activities:

- Soil export,
- Superstructure,

- Car Park and site development works.

In general, all deliveries to the site should be scheduled so as to avoid traffic congestion and be programmed for non-peak traffic flow periods.

The on-site earthworks operations require no significant import/ export of materials to generate vehicle movements. Additional traffic will primarily be generated by construction workers travelling to and from the site. The additional traffic generated by the construction site daily will not represent a significant increase on existing traffic levels.

In order to ensure the safe access of all construction vehicles to the development site the Client will instruct the appointed Main Contractor to provide a site specific "Construction Traffic Management Plan" for this project to the local authority for approval prior to works proceeding. In general, all materials used for the construction of this type of building are delivered in regular sized HGV or rigid vehicles.

3.12. Waste Management

This section outlines the measures that will be undertaken to minimise the quantity of waste produced at the site and the measures to handle the waste in such a manner as to minimise the effects on the environment. A site-specific Resource and Waste Management Plan (RWMP) has been prepared and will be employed to ensure sustainable and effective waste management throughout the construction and demolition phases of the project.

Adherence to the RWMP prepared for the construction works will ensure that the management of waste arising is dealt with in compliance with the provisions of the Waste Management Acts 1996 – 2022 and amendments. The waste management hierarchy to be adopted will be as follows:

1. Prevention and Minimisation
2. Reuse of Waste
3. Recycling of Waste
4. Disposal

Typical waste materials that will be generated from the demolition and construction works will include:

- Soil and stones
- Concrete, bricks, tiles and ceramics
- Wood, glass and plastics
- Metals
- Gypsum-based construction material
- Paper and cardboard
- Mixed C&D waste
- Chemicals (solvents, paints, adhesives, detergents etc.)

The management of all hazardous waste arisings, if they occur, shall be coordinated in liaison with Health and Safety Management.

3.12.1.1. Waste Minimisation

Waste minimisation measures proposed are summarised as follows (and are described in more detail in the RWMP):

- Materials will be ordered on an 'as needed' basis to prevent over supply.
- Materials will be correctly stored and handled to minimise the generation of damaged materials.
- Materials will be ordered in appropriate sequence to minimise materials stored on site.
- A waste tracking log will be established.
- Sub-contractors will be responsible for similarly managing their wastes.
- All wood waste generated by site works will be inspected and examined and will be segregated as re-useable wood and scrap wood waste.

3.12.1.2. Waste Storage

The main waste storage area will be located in the site compound. A dedicated and secure area containing bins, and/ or skips, and storage areas, into which all waste materials generated by construction site activities, will be established within the development.

Waste materials generated will be segregated at the site compound, where it is practical to do so. Where the on-site segregation of certain waste types is not practical, offsite segregation will be carried out. There will be skips and receptacles provided to facilitate segregation at source. All waste receptacles leaving site will be covered or enclosed. The appointed waste contractor will collect and transfer the wastes as receptacles are filled.

The site Construction Manager will ensure that all staff are informed of the requirements for segregation of waste materials by means of clear signage and verbal instruction. Appointed employees will be made responsible for ensuring good site housekeeping.

3.12.1.3. Records

A written record of all quantities and nature of wastes removed from the site will be maintained on-site in a waste file (in hardcopy or electronically).

It is the responsibility of the project manager or his/ her delegate that all contracted waste haulage drivers hold an appropriate waste collection permit for the transport of waste loads and that all waste materials are delivered to an appropriately licenced or permitted waste facility in compliance with the relevant Regulations as outlined in the RWMP.

The Contractor, as part of regular site inspection audits, will determine the effectiveness of the waste management strategy and will assist the project manager in determining the best methods for waste minimisation, reduction, re-use, recycling and disposal as the construction phase progresses and waste materials are generated.

3.13. GHG Emmisions and Impacts to Climate

During the construction phase the following best practice measures shall be implemented on site to prevent significant GHG emissions and reduce impacts to climate:

- Prevention of on-site or delivery vehicles from leaving engines idling, even over short periods.
- Ensure all plant and machinery are well maintained and inspected regularly.
- Minimising waste of materials due to poor timing or over ordering on site will aid to minimise the embodied carbon footprint of the site.
- Sourcing materials locally where possible to reduce transport related CO_2 emissions.

4. ROLES AND RESPONSIBILITIES

4.1. Construction Manager

The Construction Manager will have overall responsibility for the site during the construction phase. This will include implementation of the CEMP. The Construction Manager shall:

- Manage all construction staff and subcontractors to ensure the requirements of the CEMP, planning permission and all legislative requirements are complied with.
- Cooperate with the Environmental Manager to ensure that the do not pose an environmental risk.
- Ensure all monitoring plans are maintained throughout the construction phase.
- Be responsible for implementing all response plans and notifying relevant bodies of any incidents.
- Report to the project team any environmental incidents or non-compliance issues

4.2. Environmental Manager/ ECoW

The Environmental Manager will be responsible for all environmental monitoring during the construction phase. The duties of the Environmental Manager are summarised as follows:

- Carry out (or manage) all environmental monitoring and maintain auditable logs of all environmental requirements including completion of a weekly checklist.
- Liaise with statutory bodies in relation to environmental issues.
- Prepare regular environmental reports and maintain the CEMP.
- Carry out environmental site audits to ensure the works are carried out in accordance with the CEMP. Advise the Construction Manager of non-conformances and areas for improvement. This audit report will be forwarded to Limerick CC if required.
- Review the Contractor's method statements with respect to environmental issues.
- Monitor compliance with the mitigation measures and any planning conditions relating to the environment.
- Assist the Construction Manager in the notification and investigation of all environmental incidents.
- Act as a point of contact to allow all site staff to take responsibility for and report environmental issues.
- Provide education and toolbox talks for all site staff and maintain an Environmental Notice Board.
- Carry out the role of Noise Liaison with the Public

4.3. Client Representatives

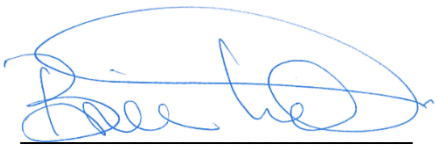
The project managers (client representatives) will be continuously monitoring the works and will be fully briefed and aware of the environmental constraints and protection measures to be employed.

The works will be periodically monitored during the construction phase by a qualified ecologist.

Following completion of the works, the ecologist will complete a final audit report to show how the works complied with the environmental provisions described in this document.

5. CONCLUSION

This CEMP sets out the overall management strategy for construction works for the proposed development. The CEMP aims to ensure the management of construction activity is carried out in a planned, structured and considerate manner which minimises the impacts of the works on the local environment, residents and commercial activities in the vicinity of the site. Due to the nature of construction works, there may be unforeseen events which occur at the site and the project team will actively manage any changes and discuss with the relevant authorities, where required. The project team are committed to ensuring that the construction activities to be carried out are pro-actively managed to minimise potential impacts.

Signed: 

BRIAN LAHIFF
CHARTERED ENGINEER

Date: 13 May 2025

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