

Client:

Cork County GAA Board

Project:

Proposed Residential Development at Kilbarry, Cork

Report:

Construction & Environmental Management Plan (CEMP)

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SECTION 1: Introduction

1.1 Introduction

This Construction and Environmental Management Plan (CEMP) has been prepared as part of the planning application for the proposed Strategic Housing Development (SHD) at Kilbarry, Cork.

The CEMP considers the proposed works associated with the construction of a strategic housing development of 319 no. residential dwellings comprising of 85no. semi-detached units, 118no. terraced units, 53no. duplex units and 63no. apartments. The development also includes the provision of a crèche facility and a riverside amenity park to the north and northeast of the site. The proposed total gross floor area is 33,718 sqm. The proposed development includes a new junction with the Old Whitechurch Road to the west and a new connection to an existing road which links to the Upper Dublin Hill road to the east. The development also consists of the demolition of an existing, disused, single-storey commercial building and disused, former stone house ruins near the western boundary. This CEMP will assist with avoiding, reducing, or mitigating construction and environmental impacts arising from the proposed development.

This document has been prepared based on known assessment issues related to construction works management, traffic and transportation measures, air quality, noise and vibration, water and wastewater, landscape management, archaeology, waste management, emergency planning response and inspection and monitoring, all of which are associated with the construction works. This information will be built on prior to commencement of construction in an updated CEMP.

More detailed site-specific measures will be developed and agreed with Cork City Council prior to the commencement of construction works, subject to a successful planning application. The final CEMP will consider any conditions attached to a grant of planning permission.

1.2 Proposed Development

1.2.1 Existing Site

The application site is at Kilbarry, considered within the north-eastern suburbs of Cork City as defined in the Cork City Development Plan 2022 -2028. Access to/from the site is currently via a junction with Old Whitechurch Road immediately to the west of the site. The existing development lands currently accommodate an existing, disused and dilapidated, single storey commercial building and existing, disused and dilapidated, former stone cottages/outbuildings, and large open space, treed and vegetated areas used for informal amenity uses and walking. The site is bounded to the north by the Glenamought River. The site is therefore considered predominantly greenfield. Nearby uses include Delaneys GAA club buildings and playing pitches to the east, Kilbarry Enterprise Centre/City North Business Park to the south and existing private dwelling houses to the south-west and west.

The surrounding lands are therefore predominantly a mix of residential and commercial/industrial buildings.

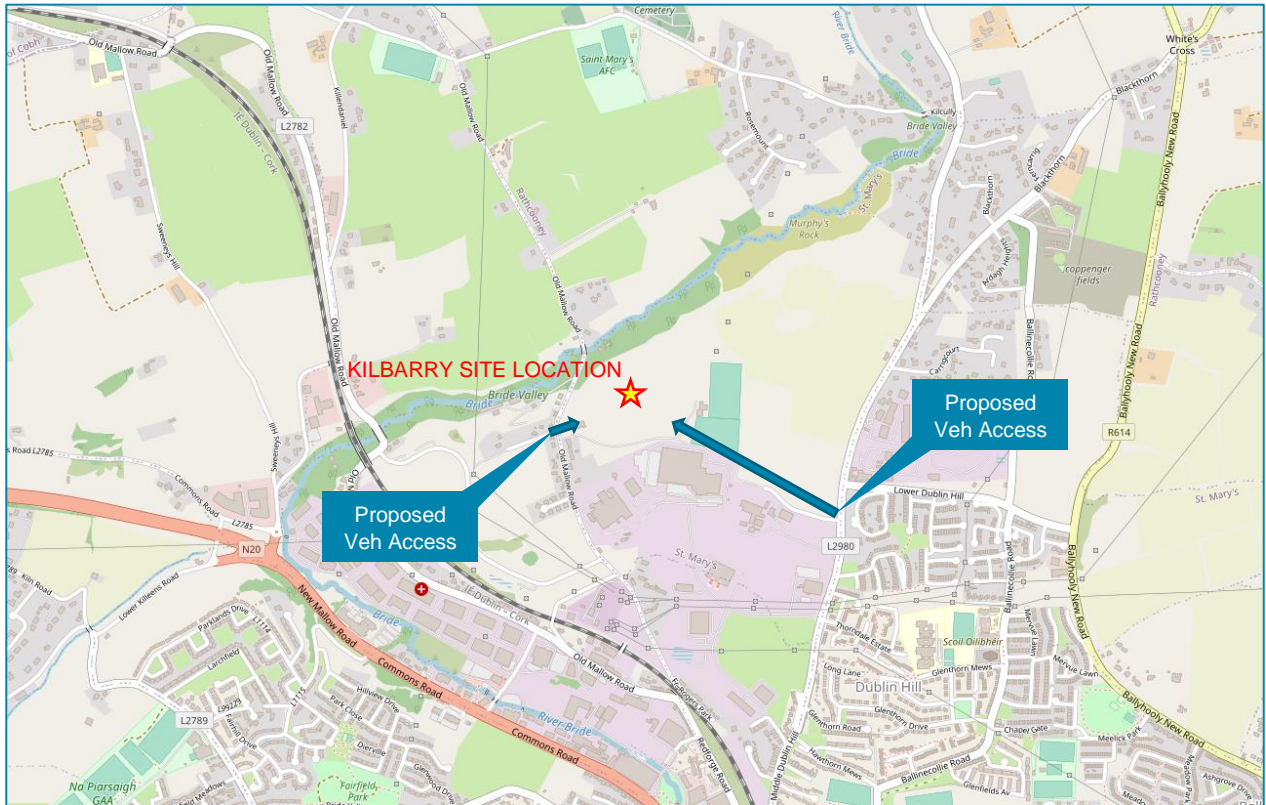


Figure 1-1: Site location and access route

1.2.2 Proposed Development Site Overview

The proposed development is ultimately intended to comprise 319 no. residential dwellings comprising of 85no. semi-detached units, 118no. terraced units, 53no. duplex units and 63no. apartments. The development also includes the provision of a crèche facility and a riverside amenity park to the north and northeast of the site and associated site development works located on lands bounded by the Old Whitechurch Road, the Glenamought River and the industrial/residential lands to the south.

Permission for the proposed development is being sought under an SHD planning application.

1.2.3 Proposed Development

A proposed site layout plan is shown in Figure 1.3 below and included in Appendix 1.

The proposed development provides for the demolition of an existing, disused, single-storey commercial building and disused, former stone house ruins near the western boundary.

The proposal includes an improved vehicle and pedestrian link to the Old Whitechurch Road to the west and a new vehicle and pedestrian link to an existing road which connects to Upper Dublin Hill to the east.

The proposed development provides for outdoor amenity areas including publicly accessible parkland, landscaping, surface car parking, bicycle parking, bin stores, substations, public lighting, roof mounted solar panels, wastewater infrastructure including upgrading of existing infrastructure in the area, surface water attenuation and an outfall to the Glenamought River, water supply infrastructure including upgrading of existing infrastructure in the area and all ancillary site development works.



Figure 1-2: Proposed Site Layout

SECTION 2: Roles and Responsibilities

2.1 Client and Contractor

The Applicant will be responsible for ensuring that an appropriate Environmental Management Framework is adhered to, that competent parties are appointed to undertake construction and that sufficient resources are made available to facilitate the appropriate management of risks to the environment.

As part of the Environmental Management Framework, the Building Contractor will need to comply with all relevant environmental legislation, take account of published standards (ISO14001) and relevant documentation including the Environmental Impact Assessment Report (EIAR), any planning conditions from An Bord Pleanála (ABP), this CEMP and the subsequent detailed CEMP. Regarding the subsequent detailed CEMP, the Applicant is responsible for ensuring that this is developed in consultation with the design team and the Local Authority.

The Building Contractor is also responsible for ensuring that all members of the Project Construction Team, including sub-contractors, comply with the procedures set out in the CEMP, including following any specific requirements set-out in the EIAR. The Contractor appointed will be responsible for the organisation, direction and execution of environmental-related activities during the construction of the proposed development. In addition, they will ensure that all persons allocated specific environmental responsibilities are notified of their appointment and confirm that their responsibilities are clearly understood.

2.2 Site Manager

A Site Manager will be appointed by the Contractor to oversee the day-to-day management of the site and ensure that effective, safe and planned construction activities are delivered on an ongoing basis to the highest standards. The Site Manager will be competent, suitably qualified and an experienced professional that will oversee site logistics, communicate regularly with construction staff, accommodate project-specific inductions for staff on-site and ensure that all work is compliant with the relevant design standards and health and safety legislation.

2.3 Site Environmental Manager (SEM)

A Site Environmental Manager will be appointed by the Contractor to ensure that the CEMP is effectively implemented. The Environmental Manager will be suitably qualified and competent. The responsibilities of the SEM include, but are not limited to, the following:

- Preparing, maintaining and implementing the CEMP
- Completing site inspection and environmental compliance reports
- Providing guidance for the site team in dealing with environmental matters, including legal and statutory requirements affecting the works
- Reviewing environmental management content of method statements where relevant
- Reporting environmental performance to the Site Manager
- Liaising with statutory and non-statutory bodies and third parties with an environmental interest in the proposed development.
- Conducting regular environmental inspections as specified in the contract and checking adherence to the CEMP
- Keeping up-to-date with relevant environmental best practice and legislative changes
- Ensuring all personnel have undertaken adequate environmental inductions, awareness briefings and training (including sub-contractors)
- Dealing with environmental complaints
- Managing and responding to environmental incidents and ensuring that all incidents are recorded and reported in an appropriate manner.

2.4 Environmental Specialists

Where relevant, and to fulfil obligations under the CEMP, the Contractor will be responsible for engaging suitably qualified specialists including (where necessary):

- Project archaeologist;
- Project ecologist;
- Project arborist;
- Noise and vibration specialist;
- Air Quality and dust specialist;
- Land, soils and contamination specialist; and
- Water specialist.

2.5 Training and Induction

2.5.1 Site Induction

All personnel involved in the proposed development will receive environmental awareness training. The environmental training and awareness procedure will ensure that staff are familiar with the principles of the CEMP, the environmental aspects and impacts associated with their activities, the procedures in place to control these impacts and the consequences of departure from these procedures.

2.5.2 Specific Training and Awareness Raising

A project specific training plan that identifies the competency requirements for all personnel allocated with environmental responsibilities will be produced by the Contractor. Training will be provided by the Contractor to ensure that all persons working on site have a practical understanding of environmental issues and management requirements prior to commencing activities. A register of completed training is to be kept by the SEM. The Site Manager will ensure that environmental emergency plans are drawn up and the SEM will conduct the necessary training/inductions.

SECTION 3: Construction Works Management

3.1 Proposed Construction Sequencing

The construction of the development will include the construction and completion of 319 no. residential dwellings comprising of 85no. semi-detached units, 118no. terraced units, 53no. duplex units and 63no. apartments. The development also includes the provision of a crèche facility and a riverside amenity park to the north and northeast of the site and associated site development works and all ancillary works. The development will be completed in three phases, with the first phase of 100 units serviceable without the requirement for infrastructure upgrades outside of the site by Irish Water. The second and third phases of the development will include approximately 110 units in each phase, subject to final detailed agreement with the Local Authority and utility providers. See Appendix 2 for a proposed phasing plan layout.

See attached phasing plan drawing attached. The final phasing of the development will be subject to later agreement with the Local Authority when final planning approval is achieved and final planning conditions are understood and addressed.

Prior to any Phase 1 construction works being carried out, the proposed development will initially involve some site clearance, the demolition of existing, disused commercial buildings and stone houses structures and earthworks in order to clear and grade the site to accommodate the construction of all associated engineering works and subsequently the building foundations.

This will involve the delivery of machinery, site equipment/plant and materials and the removal of some material off-site. Any material that can be reused later in the construction process will be stockpiled in an appropriate location; this will reduce the number of vehicular movements on the public roads. Once the site access, parking and compound facilities are established, the main haulage of materials to the site will include stone, concrete, blocks, steel and other building materials. Appropriate traffic management measures will be provided to minimise the impact of construction traffic on the local road network as detailed in Section 4 of this report.

An indicative construction sequence is outlined below to illustrate the buildability of the project. The actual construction sequence will be confirmed when any conditions of planning are received, and construction appointments confirmed.

To develop the site, the following works will be required to be carried out:

- Provision of a temporary construction access from the Old Whitechurch Road and the Upper Dublin Hill Road into the site, provision of a safe and secure site compound including welfare facilities for workers and the erection of temporary boundary fencing.
- Measures, including temporary fencing, to reduce the potential risk of impacts to retained trees, the butterfly habitat area and open space areas in the northern sector of the site.
- Fencing to protect the Marsh Fritillary habitat area in the north-west sector of the site
- Creation of a storage area for surplus plant and materials.
- Creation of a site batch concrete area.
- Installation of silt fencing and creation of silt traps to the north of the construction area of the site to prevent construction runoff towards natural vegetation, the butterfly habitat area and the Glenamought River watercourse.
- Demolition of existing commercial and stone buildings and sheds.
- Trenching for underground services including foul sewer, surface water drainage including attenuation and outfall pipework, water mains, gas, telecommunications, electricity and lighting.
- Construction and connection of underground services to existing underground services, principally connections to the Old Whitechurch Road.
- Surface water connection will be made to the existing Glenamought River on the northern boundary of the site. This outfall pipe will require to be directionally-drilled under the Marsh Fritillary habitat area to avoid impact on that habitat. This will involve the use of a specialist contractor. The final outfall to the

River will be constructed as an open channel through existing vegetated areas to ensure minimum environmental impact.

- Watermain connections will be made to the existing watermain in Old Whitechurch Road.
- Foul sewer connection will be made to the existing foul sewer in Old Whitechurch Road.
- No dwelling unit will be occupied prior to the completion of an approved foul sewer connection and no hard-standing area will be completed without the final surface water outfall being in place.
- Excavation and concrete works for strip and pad footing foundations.
- Piling to some blocks, in areas of previously-placed fill, likely to be bored piles with in-situ concrete and rebar infilling.
- Construction of the apartment buildings and houses, likely to be constructed in reinforced-concrete frames and timber frames respectively, and construction of all plant and storage areas,.
- Construction of ancillary site works including the provision of 4 substations, outdoor amenity areas, landscaping, car parking spaces, motorbike spaces, bicycle parking spaces, bin stores, public lighting and all supporting site development works.
- Erection of permanent boundary fencing, landscaping and lighting.

For later phases of the development foul sewers and watermains in Old Whitechurch Road will have to be upsized to serve the proposed development. This work will be carried out by Irish Water and specific construction controls will be put in place by Irish Water and their contractors for this work. The details of this work and the associated construction controls will be a matter for later detailed agreement between Irish Water and Cork City Council but will involve traffic management and traffic controls on Old Whitechurch Road to facilitate safe construction while facilitating existing traffic.

It is estimated that the full construction of the development will take 36 months to complete, with approximately 12 months construction for each of three phases.

3.2 Working Hours

It is envisaged that normal working hours will be between 7:00am and 6:00pm, Monday to Friday and 8:00am to 2:00pm on Saturdays, subject to any conditions set down by An Bord Pleanála/Cork City Council. No working will be allowed on Sundays or Bank Holidays. Subject to the agreement of the local authority, out-of-hours working may be required for water main connections, foul drainage connections, tower crane erection and removal etc. Any such arrangements will be agreed at construction stage.

Working hours for water supply and foul sewer upgrades on Old Whitechurch Road will be agreed with Irish Water and Cork City Council for the later phases of the development and work outside of normal working hours may be required for significant connections to existing infrastructure.

3.3 Cranes and Lifting of Equipment

The proposed build method for the apartment blocks is likely to be as a reinforced concrete (RC) frame. Tower cranes and concrete placing booms will be required to erect the RC frame. A combination of goods hoists and telehandlers will offload and distribute materials for the construction and finishing trades.

The proposed houses are likely to be constructed using timber frame technology which will require the use of mobile cranes to lift sections of timber kits into place on an ongoing basis as house construction progresses.

All lifting equipment and appliances will carry current test certificates and be inspected prior to use. Trained and competent bankmen will attend the cranes.

Road closures may be required for a short period to enable the cranes to be transported to/from site. The appropriate approvals and permits for any road closures will be applied for and agreed with Cork City Council. All relevant stakeholders will be kept informed of any such closures.

3.4 Site Storage

Storage of materials on site will be kept to the minimum. A construction programme will be developed to ensure that no large materials will be required to be stored on-site until they are needed. Materials such as glazing and cladding systems will be delivered in batches and loaded evenly on the required floors. Throughout the project, storage of materials outside the site boundary or in areas of landscape and ecological value within the site will not be permitted.

3.5 Site Safety and Access/Egress

Appropriate management of the transport operations will be applied throughout the construction process. Construction site compounds and staff parking areas will be set up before any construction works start on-site. The site compounds will be located within the site's boundary at appropriate locations as shown in Figure 3.1. The site compound established for the Phase 1 development is likely to be maintained through the later phases of the development. Hoarding and boundary fencing will be erected to delineate all site works and separate same from the surrounding public areas located adjacent to the development.

Staff parking during construction will be accommodated close to the site compound with access from Upper Dublin Hill generally.

There will be construction access from the Old Whitechurch Road and the Upper Dublin Hill road and final arrangements for such access will be agreed before construction works commence and will be carefully managed throughout the works.

As construction progresses the completed Phase 1 and Phase 2 areas of the development will have permanent access from Old Whitechurch Road with construction access from Upper Dublin Hill to avoid construction travel through completed areas of the development. This will ensure a separation of construction and permanent user access until the construction works are completed.

Works on upgrades to existing water supply and foul sewer pipework on Old Whitechurch Road, by Irish Water, will require traffic management and controls to be employed on Old Whitechurch Road, including managed single-lane traffic flows to facilitate this pie-laying work.

A detailed Construction Traffic Management Plan will be prepared by the Contractor and submitted to the Planning Authority prior to the commencement of any construction on the development site and Irish Water Cork City Council will agree a Traffic Management Plan for the works on the Old Whitechurch Road.

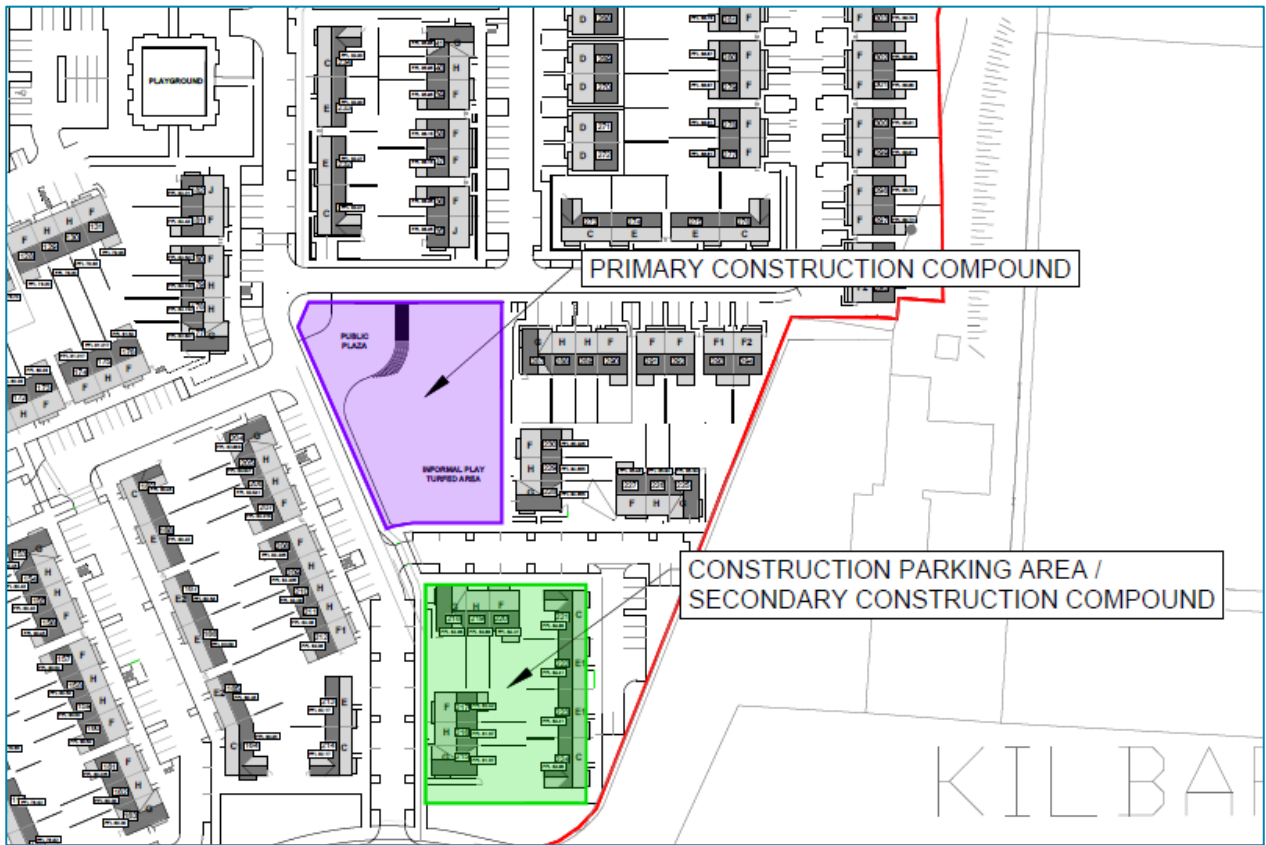


Figure 3-1: Site Compound Location

Security of the site is an important issue with respect to restricting site entry to personnel solely involved in the construction process during working hours and preventing unauthorised access out of hours. Site access for all personnel and visitors will be strictly controlled and all visitors will report to the site office prior to entering the construction area.

SECTION 4: Traffic & Transportation Measures

4.1 Introduction

Chapter 5 of the EIAR and the Traffic and Transport Assessment (TTA) and Mobility Management Plan (MMP) prepared by MHL Consulting Engineers addresses any significant potential impacts in respect of traffic during the construction phase.

It is outlined in the TTA that a detailed Construction Traffic Management Plan (CTMP) will be prepared by the successful contractor in consultation with Cork City Council Roads and Transportation Department. This CTMP will address the requirement for pipe upgrading works, by Irish Water, on the Old Whitechurch Road at later phases of the development

The principal objective of the CTMP is to ensure that the impacts of all building activities generated during the construction phase upon the public (off-site), existing private property owners on or adjacent to the site boundaries, occupiers of early phases of the development (adjacent to the construction works), visitors to the subject site (on-site) and internal (on-site) workers environment are fully considered and proactively managed/programmed, thereby ensuring that safety is maintained at all times, disruption is minimised, and that works are undertaken within a controlled, hazard-minimised environment.

4.2 Access Control

The proposed construction site is located off south-east corner of the site via the existing road which serves the Delaneys GAA complex and the existing IDA lands to the south-east and which links to Upper Dublin Hill further to the east. The site was previously accessed off the Old Whitechurch Road. See Figure 4.1. The proposed development is approximately 620m from the junction with Upper Dublin Hill and is immediately adjacent to the Old Whitechurch Road to the west. These two entrances will be the main access points from the wider road network and will form the preferred haulage route to/from the site in agreement with Cork City Council.

It is anticipated that heavy goods vehicles, HGVs, will be restricted to off-peak times on the local road network to reduce the impact on the road network during the morning and evening peaks. It is expected that HGV movements and general deliveries will otherwise arrive/leave throughout the day at a steady rate.

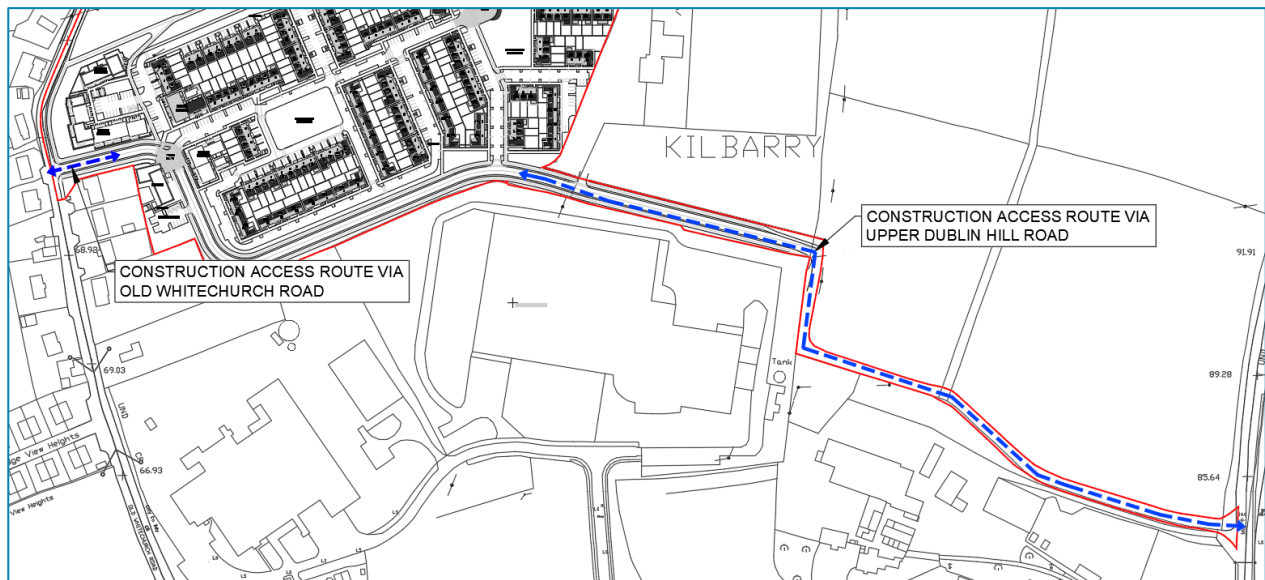


Figure 4-1: Proposed Operational / Construction Site Access

Appropriate signage for the site will be provided on the approach routes to provide clarity for construction vehicles, particularly deliveries who may not be familiar with the site location. This will provide wayfinding for drivers and limit the number of turning manoeuvres outside the site.

The following section includes a range of mitigation measures to minimise the construction traffic generation, ensure the safety of the workforce on the site and accessing the site, and ensuring the safety of the public on the surrounding roads.

4.3 Construction Related Traffic Movements

The demolition, site clearance, piling and general construction activities will generate a level of vehicle movement to and from the site as well as internally within the subject site.

The typical construction trips generated during site clearance and construction comprise:

- Construction employees arriving and leaving work
- Deliveries and removal of machinery; and
- Delivery and removal of materials.

Appropriate measures will be put in place to ensure safe access to/from the site. Measures will also be implemented on-site to ensure safe manoeuvres can be carried out within the construction site. A construction site car park will be located within the Applicant's lands. There will be designated areas on site for loading/unloading and a specified storage area for materials and machinery. A waste and recycling area will be established within the construction site boundary, close to the construction access, to prevent unnecessary trips through the site for collection. To ensure that the internal site routes and the public roads to the construction site entrance are kept in good condition, a wheel washing facility will be located close to the exits from the construction area to minimize mud and dust.

The pipe upgrade works on the Old Whitechurch Road will be managed principally by Irish Water at later phases of the development, subject to detailed discussions with Cork City Council and the main contractor for the development works. Co-ordination of main works and pipe upgrade works will be required to ensure that traffic on the Old Whitechurch Road will continue to be facilitated.

The level of construction traffic throughout the working day is expected to be low to moderate, the highest volume of vehicles is expected when workers arrive to and leave work. Generally, workers are expected to travel by private vehicle and public transport. It is expected that there will be a typical average of approximately 80 no. construction employees on site during each phase of the works.

Deliveries and HGV movement numbers are expected to be low to moderate and evenly spread throughout the day. The HGV traffic is expected to be greater during the initial stage of the development as larger machinery and materials will be delivered. This will, however, reduce as the construction of the buildings advance.

Deliveries of materials to site will be planned to avoid high volume periods where possible, particularly the AM peak hour. There may be occasions, however, when it is necessary to have deliveries within these periods. As previously stated, the Contractor will develop, agree and submit a detailed Construction Traffic Management Plan to the local authority for approval prior to commencement of construction works. The following section details some of the mitigation measures to be included in the detailed CTMP.

4.4 Mitigation Measures

A competent traffic co-ordinator and banksmen will be appointed by the contractor to oversee the following control measures which will be implemented as part of the final CTMP to reduce the risks associated with construction traffic. Some of the following measures also tie in with mitigation measures for dust and noise.

- A detailed site plan/layout of the construction site will be developed to identify locations for site offices/storage areas/waste management areas etc.
- Entrances and exits – separate entry and exit gateways will be provided for pedestrians and vehicles with a gate attendant employed to interface with the traffic and public to facilitate safe access and egress of vehicles.
- Where employees will need to cross the construction route, a clearly signed and lit crossing point will be provided where drivers and pedestrians can see each other clearly.
- Visibility – the site operator will ensure that drivers driving out onto the public roads have the appropriate visibility splays.
- The existing site accommodates significant numbers of public, informal walkers who use the areas for amenity purposes. All such amenity routes will be cordoned-off from construction areas to ensure the safety of the public.
- All operators of construction machinery and vehicles will be trained and competent and have valid CSCS cards.
- All site staff will be made aware that there are employees and visitors to the GAA grounds in the surrounding areas using the construction access roads.
- Approach signage with good sightlines will be provided at the site access route and site entrance.
- Traffic management measures will be co-ordinated such that works on the main site and works on pipe upgrades on the Old Whitechurch Road, by Irish Water, are fully co-ordinated.
- Traffic management procedures will be communicated to suppliers and workers.
- Deliveries to site will be planned to arrive during working hours only, save for exceptional loads for which a detailed plan will be agreed with the local authority..
- The access routes to the construction site entrances and internal site routes will be kept in good condition and clear of obstructions.
- The contractor will put measures in place to mitigate any excessive noise for nearby properties that may be created during construction activities.
- Internal trafficked areas will be watered twice daily on dry days to reduce dust, if required. Vehicles delivering or collecting material with dust potential will be covered with tarpaulin at all times to restrict the escape of dust.
- A stringent 'clean as you go' policy will be implemented on site to ensure no loose material is left on the ground within the construction access road and the public road.
- Vehicle wheel washing facilities will be in place for vehicles leaving the construction site area.
- A road sweep will be deployed if necessary to ensure the site access route between the site access and the Upper Dublin Hill junction, and the Old Whitechurch Road, will be kept clean at all times.
- Construction materials or equipment will not be stored outside the site boundary.
- Pedestrian/vehicular routes, crossing points, parking, loading and vehicle only areas will be clearly marked, signposted and segregated as appropriate.
- Where required site vehicles will be fitted with appropriate audible and visual devices.
- Loading and unloading will be carried out in a designated area within the construction site boundary and reversing activities will be kept to a minimum.
- Loads will be checked prior to unloading and loads will be adequately secured for travel.
- Visitors to site will be accompanied and a safe area will be provided for visiting drivers during loading and unloading.
- Speed limits signage will be used to control speeds on the access route and within the construction site.
- Construction vehicles and machinery will be maintained in good condition by a competent person as per the manufacturer's instructions. A dedicated area for maintenance work will be provided within the construction site area.
- All operators will wear personal protective equipment on-site and seat belts, where fitted by the manufacturer, will be worn when operating equipment.

SECTION 5: Air Quality

5.1 Introduction

As construction activities are likely to generate some dust emissions, dust management requirements will be developed and implemented as part of the detailed Dust Mitigation Plan during the construction phase of the project. The potential for dust to be emitted depends on the type of construction activity being carried out, the dust controls in place and also the weather conditions, such as the level of rainfall, wind speed and direction.

5.2 Dust Sources

The potential impact for dust depends on the distance to potentially sensitive locations, such as neighbouring residential and commercial properties and sensitive environmental receptors in this case. The main activities that give rise to dust emissions during construction include the following:

- Excavations and Piling
- Materials handling and storage
- Temporary stockpiling of any earthworks material for re-use
- Movement of vehicles, particularly HGVs.

The mitigation measures set out below will be put in place during the construction phases. The level of dust control to be implemented will depend on the weather conditions, the specific construction activities (e.g. earthworks activities, construction activities and site vehicle movements) and the potential for dust nuisance as a result of those activities.

5.3 Mitigation Measures

Mitigation measures for dust control will include:

- The contractor shall prepare a dust minimisation plan which shall be communicated to all staff.
- Internal trafficked areas will be watered twice daily on dry days to reduce dust if required. Vehicles delivering or collecting material with dust potential will be covered with tarpaulin at all times to restrict the escape of dust.
- A stringent 'clean as you go' policy will be implemented on site to ensure no loose material is left on the ground within the construction access road and the public roads.
- Vehicle wheel washing facilities will be in place for vehicles leaving the construction site area.
- While works on pipe upsizing on Old Whitechurch Road are underway, by Irish Water, road sweeping/wheel washing will be undertaken to ensure dust minimisation.
- The road linking the site to Upper Dublin Hill and the Old Whitechurch Road public road will be inspected daily for cleanliness and a road sweep will be deployed if necessary to ensure the site access route between the site access and the Upper Dublin Hill road junction, and the Old Whitechurch Road, will be kept clean at all times.
- Topsoil stockpiles will be located in a location so as not to necessitate double handling and topsoil stockpiles will be seeded to promote grass growth and reduce dust.
- Material handling systems and site stockpiling of materials will be laid out to minimise exposure to wind.
- Water misting or sprays will be used as required if particularly dusty activities are necessary during dry or windy periods.

SECTION 6: Noise and Vibration Control Measures

6.1 Introduction

In order to minimise the noise impact on the adjoining community, commercial, sporting and residential properties it is proposed that heavy equipment and machinery including piling drills (if required), pipe-drilling machinery, excavators, construction vehicles and generators only work between the hours detailed below. In addition, no deliveries and/or removal of materials will occur outside of these hours, save for exceptional situations when permissions will be sought from the Local Authority.

Normal working hours are outlined in Section 3.2 above, however these will be subject to detailed agreement with Cork City Council prior to commencement.

On occasions it may prove necessary to carry out construction activities outside of normal working hours. In such instances prior consultation will be carried out with Cork City Council, local residents, and businesses outlining the nature and reason for the works and their likely duration.

6.2 Noise and Vibration Regulations

During the works the contractor shall comply with the requirements of BS 5228-1:2009+ A1:2014 and BS 5228-2:2009 +A1:2014 (Code of Practice for Noise and Vibration Control on Construction and Open Sites) as well as Safety, Health and Welfare at Work (General Applications) Regulations 2007 Noise and Vibration.

Noise Limits

Noise limits to be applied for the duration of the construction works are as set out in BS 5528. This applies a noise limit of 70dBA between 07:00 and 19:00 outside the nearest window of the occupied room closest to the site boundary in suburban areas away from main road traffic and industrial noise.

For the duration of the construction works, a daytime noise limit (07:00 to 19:00) of 70 dBA shall apply (in accordance with BS 5228).

Vibration Limits

Vibration limits to be applied for the duration of construction works are as set out in BS 5228 (Code of Practice for Vibration Control on Construction and Open Sites) and BS 7385:1993 (Evaluation and measurement for vibration in buildings Part 2: Guide to daameg levels from ground borne vibration). Allowable vibration during the construction phase is summarised below in Figure 5.1.

Allowable vibration (in terms of peak particle velocity) at the closest part of sensitive property to the source of vibration, at a frequency of [□]		
Less than 4Hz [□]	15 to 40Hz [□]	40Hz (and above) [□]
12 mm/s [□]	12.5 mm/s [□]	50 mm/s [□]

Figure 6-1: Guidelines for Allowable Vibration

6.3 Mitigation Measures

In particular, the following practices are to be implemented during the construction phase:

- Limiting the hours during which site activities that are likely to create high levels of noise and vibration are permitted
- Erection of a barrier along the construction site boundary (e.g. standard 2.4m high construction hoarding and additional, higher hoarding at boundaries with adjacent existing buildings) to remove direct line of

sight between noise sources and receiver when construction works are being carried out in proximity to noise sensitive receivers

- Rock excavation by digging and ripping rather than by use of a rock-breaker. Blasting of rock will not be required on the site.
- Establish channels of communication between the contractor, local authority and local businesses/local sports facility owners and residents
- Appoint a site representative (SEM) responsible for matters relating to noise
- Selection of plant with low inherent potential for generation of noise
- Siting of noisy plant as far away from sensitive properties as permitted by site constraints and implementation of noise reduction measures such as acoustic enclosures when required
- Avoidance of unnecessary revving of engines and switching off of plant when idle
- All plant and equipment will be maintained in good working order in accordance with BS.5228 in order to minimise air and noise emissions.
- All ancillary pneumatic percussive tools shall be fitted with mufflers or silencers of the type recommended by the manufacturers, and where commercially available, dampening tools and accessories shall be used.
- Noise monitors will be erected and data collected to assess sound levels.
- Ear protection zones will be established and all personnel will be trained on ear protection.

SECTION 7: Water and Wastewater Controls

7.1 Introduction

All works carried out as part of these works will comply with all Statutory Legislation including the Local Government (Water Pollution) Act, 1977 and 1990 (as amended) and the contractor will cooperate in-full with Irish Water and the Environmental Department of Cork City Council. The Glenamought River is located along the northern boundary of the overall site, some 130 m from the edge of the proposed residential development works.

The following description outlines the proposed water/wastewater works to be carried out during each phase:

- **Surface Water** - The proposed surface water network will include a drainage pipe network, attenuation storage and SuDS features. The restricted discharge from the site will be conveyed in a directionally-drilled underground pipe for part of the outfall route and then in a new open surface water channel laid from the northern boundary of the western side of the site in a northerly and easterly direction across the open space area to the north of the development area to a final outfall to the Glenamought River.
- **Foul Drainage** - Wastewater collection within the proposed development will be via a network of 150mm and 225mm diameter gravity sewers, which will direct the flows to the western side of the site. This new gravity sewer will then connect directly to the existing foul sewer on Old Whitechurch Road. The first 100 units of the development can be served by this existing foul sewer. Later phases of the development will be served by an upgraded foul sewer, the upgrading works to be carried out by Irish Water, for which Irish Water will levy the Applicant and which work will take place as the development is progressed beyond the first phase.
- **Potable Water** - A 150mm diameter watermain is located in Old Whitechurch Road immediately to the west of the site. Irish Water have advised that the connection to serve the development is to be made to this existing main. The first 100 units of the development can be served by this existing watermain. Later phases of the development will be served by an upgraded watermain, the upgrading works to be carried out by Irish Water, for which Irish Water will levy the Applicant and which work will take place as the development is progressed beyond the first phase.

The mitigation measures outlined below provide the water management controls required to be implemented by potential Contractors and Sub-contractors and set out the proposed procedures and operations to be utilised on the proposed development to mitigate against any water related environmental impacts. The mitigation and control measures outlined herein will be employed on site during the construction phase of the development.

The main areas of water related concerns covered by this section are:

- Pre-Construction (Inc Site Clearance/Tree felling)
- Construction Phase drainage controls
- Earthworks (i.e. infrastructure & drainage) and surface water quality protection
- Temporary stockpiles water management and controls; and
- Fuel usage, storage and management.

7.2 Mitigation Measures

Surface water runoff during site clearance and construction stage can be potentially contaminated. The most likely forms of contamination are 'siltation' and spillage. Siltation occurs when soil and particulate matter are washed away in rainfall events by rainwater. Siltation will be mitigated on the project using silt fencing, stilling basins and strainers within the site to prevent silt being discharged to the existing drainage network and watercourses.

Excavation, Erosion and Sediment Control

- Measures will be implemented to capture and treat sediment laden water run off (e.g. silt fences, silt traps; siltbuster).
- The area of exposed ground will be minimised and as much vegetation as possible will be retained for as long as is practical.
- Clearing and topsoil stripping of each area will be delayed until work is ready to proceed.
- Closing and backfilling of trenches will take place as soon as practically possible.
- Any earthworks temporary stockpile areas will require silt fencing to be installed upstream of sensitive areas.
- Any on-site settlement areas are to include geotextile liners and riprapped inlets and outlets to prevent scour and erosion.
- Surface water runoff from areas stripped of topsoil and surface water collected in excavations will be directed to on-site settlement areas prior to discharge of surface water at a controlled rate.
- Surface water discharge points during the construction phase are to be agreed Cork City Council's Environment Section prior to commencing works on site.
- Arisings from directional drilling will be stored in sealed tank units to ensure that no silt/mud-laden discharges escape to ground. A specific method statement for this work will be agreed with the Local Authority and site ecologist before this work commences as it will take place close to the butterfly habitat area.

As fuels and oils are required during construction stage, it is necessary to mitigate the possibility of there being an accidental leakage of these liquids. All fuels stored on site will be bunded and all chemicals will be stored in an appropriate tank. Should any spillage occur on site during construction, it is likely that there will be a localised moderate impact in the short term on the environment.

Accidental Spills and Leaks

- All oils, fuels, paints and other chemicals will be stored in a secure bunded hardstand (impervious) area
- Refuelling and servicing of construction machinery will take place in a designated hard stand area which is also remote from any surface water inlets or sensitive receptor areas.
- A response procedure will be put in place to deal with any accidental pollution events and spillage kits will be available and construction staff will be familiar with the emergency procedures and use of equipment.

Concrete

- Concrete batching will take place on-site and offsite. Wash down and wash out of concrete trucks will take place off site and any excess concrete will not be disposed of on site.
- Pumped concrete will be monitored to ensure there is no accidental discharge.
- Mixer washings are not to be discharged into surface water drains and will be directed to settlement areas.

Wheel Wash Areas

- Discharge from any vehicle wheel wash areas is to be directed to onsite settlement areas, debris and sediment captured by vehicle wheel washes are to be disposed off-site at a licensed facility.

Through consultation with the Site Manager (SM) /Site Environmental Manager (SEM), a schedule for surface water quality monitoring will be drawn up. This will be finalised prior to the start of construction. Where monitoring parameters are found to exceed the standards laid down, the SM/SEM will initiate and report corrective actions. This may necessitate the alteration of the environmental control measures and in turn the relevant construction method statement.

It is proposed to implement a programme for monitoring water quality at the outfall tie-in as part of the construction of this development, in agreement with the Planning Authority. This programme and sampling requirements will be agreed with Cork City Council.

SECTION 8: Landscape Management

During each phase of construction, site security fencing and solid hoarding will be used where appropriate to restrict visibility, minimise noise pollution and restrict visibility into the site, minimising the temporary landscape and visual impacts. There is a significant area of existing vegetation/trees to the north of the development works site and along the routes of surface-water outfall/connections. These areas will require protection measures to be employed during construction works, particularly during the construction of the stormwater attenuation area and the storm outfall to the river. The stormwater outfall route has been designed to avoid the need to remove significant trees and to have the least possible impact on existing vegetation and this aspect of the work is addressed elsewhere, in detail, as part of the EIAR.

To protect the habitat area for the Marsh Fritillary butterfly this area will be cordoned-off to ensure that no construction work will take place within this area. The stormwater outfall pipe from the attenuation storage area to the outfall is to be directionally drilled under this habitat area to ensure that no excavation works will take place through the habitat area.

The mitigation measures set out below will be implemented to minimise the impact on any trees/vegetation.

Although the removal of some trees will be required for the construction of the surface water outfall channel such tree removal will be restricted to that identified for removal in the application.

- All mitigation measures to be put in place to protect such trees and vegetation shall be prepared in consultation with a qualified Arborist, who shall supervise works for which an Arboriculture Method Statement is required.
- The specific Arboriculture Method Statement shall be prepared for any works within the root protection area of any tree to be retained and the measures outlined shall be strictly enforced on site.
- Trees will be protected in accordance with BS: 5837:2012 *Trees in relation to design, demolition and construction. Recommendations* and any further agreed procedures.
- The construction works close to the butterfly habitat area will be fenced off and protected from construction vehicles and equipment. The contractor will liaise and co-ordinate these works with the site ecologist and with Cork City Council.
- Reinstatement of trees and vegetation will be undertaken by a suitably qualified landscape contractor.

SECTION 9: Archaeology & Heritage

9.1 Pre-Construction

Prior to any construction commencing, an archaeological and heritage assessment and surveys will be carried to include advance archaeological testing across the footprint of the development where machine or hand excavated test trenches allow for the early indication of relevant material. This allows for informed decisions to be made as to how best to progress with construction works and deal with any discovered archaeological finds should they arise.

Based on the results of the above assessments/surveys, detailed monitoring of all groundworks associated with the development may be recommended, with the provision for full excavation of any archaeologically significant material uncovered.

9.2 During Construction

Following the archaeological and heritage assessment, during the construction process, if deemed necessary, archaeological monitoring will be carried out where the construction works are suspected to be in the proximity to an archaeological site. This may involve a forensic archaeologist or human osteoarchaeologist maintaining a watching brief while groundworks are taking place in order to identify and record any archaeological remains that may be present. In the event of archaeological features or material being uncovered during construction monitoring, it is important that all machine work in the immediate area ceases to allow the archaeologist to assess, excavate and record any findings.

Should archaeological features or material be uncovered, adequate funds to cover excavation, fencing, post-excavation analysis and reporting will be made available. This work should be done under license in accordance with Section 26 of the National Monuments Act 1930-2014 and with a method statement agreed in advance with the National Monuments Service (Dept. of Culture, Heritage and the Gaeltacht) and the National Museum of Ireland.

9.3 Mitigation Measures

A programme of archaeological supervision/monitoring of all ground works will be undertaken by a suitably-qualified archaeologist. Given the developed nature of portions of the site the archaeological risk is considered to be low. In the unlikely event of an archaeological discovery, the National Monuments Service and Cork City Council will be consulted to agree how the encountered archaeological remains are recorded and resolved.

SECTION 10: Waste Management

10.1 Introduction

A detailed Construction Waste Management Plan will be agreed with Cork City Council and put in place in order to control waste management on site, ensure segregation of waste streams and minimise construction waste costs. Waste arising from the site will be considered in relation to the waste management hierarchy of prevention, reduce, reuse, recycle, energy recovery and disposal.

Construction and demolition waste is the largest “municipal” waste stream contributing to the current pressure on landfill facilities in the region. Unsustainable management and inappropriate disposal of this waste stream can result in impact on natural resources and lead to environmental pollution. The main source of waste material at the site will be construction waste.

Waste is defined as any substances or object belonging to a category of waste specified in the First Schedule (of the Waste Management Act 1996) or included in the European Waste Catalogue, which the holder discards or intends or is required to discard and anything which is discarded or otherwise dealt with as if it were waste shall be presumed to be waste until the contrary is proved.

There are two main types of construction waste – Hazardous and Non-hazardous as detailed below:

Non-hazardous

- Timber Waste
- Scrap Metal
- Plastic
- Paper / Cardboard
- Canteen Waste
- Litter

Hazardous

Hazardous Wastes are defined as wastes which can have a harmful effect on the environment and on human health as they exhibit ignitability, reactivity, corrosivity and/or toxicity and/or are listed as hazardous by the European Waste Catalogue and/or may be identified as hazardous by application of the EPA Waste Characterisation Tool compiled by The Clean Technology Centre.

The hazardous wastes that may be experienced at a development of this nature are as follows:

- Adhesives and Sealants
- Aerosols
- Batteries
- Chemicals
- Cleaning Products
- Oil (Contaminated absorbent Material or debris)
- Paints and Thinner
- Fuels (hydrocarbons such as diesel)
- Concrete waste

The proposed development will result in the generation of waste material from the following sources:

- Removal of existing boundaries
- Demolition of existing buildings and stone ruins
- Excavation of soil for site access, to foundations, ductwork and sewers/watermains
- Excavation of stone / made ground across the site to achieve proposed development levels
- Surplus material (off-cuts, damaged materials, packaging etc.) generated during the construction of the new development.

Soil will be excavated to facilitate construction of foundations, access roads, the installation of site services and general landscaping. Where possible, excavated topsoil will be reused on site for landscaping.

It is anticipated that any surplus material cut from the previously-filled area of the site in the south-east area of the site will be removed from the site as it will have be the least valuable material for re-use on the site. This will be disposed of to an approved site for re-use and/or recovery or to a licenced waste site.

Material cut in other areas of the site will be re-used on site to create the proposed development levels, subject to a detailed soils management strategy.

The Waste Management Hierarchy states that the most preferred option for waste management is prevention and minimisation of waste, followed by reuse and recycling/recovery, energy recovery (i.e. incineration) and, least favoured of all, disposal. Excavations are required to facilitate construction of the development and the majority of the material excavated will be re-used within the development. There will be a surplus of excavated material so the preferred option (prevention and minimisation) cannot be fully accommodated for the bulk excavation phase.

The next option (beneficial reuse) may be possible for most, and potentially all, of the inert natural material (Category A1). Beneficial reuse of surplus excavation material as engineering fill may be subject to further testing to determine if materials meet the specific engineering standards for their proposed end-use.

Any nearby sites requiring clean fill/capping material will be contacted to investigate reuse opportunities for clean and inert material. If any of the material is to be reused on another site European Communities (Waste Directive) Regulations 2011, Article 27 requires that certain conditions are met and that by-product decisions are made to the EPA, via their online notification form.

If the material is deemed to be a waste, removal and reuse/recycling/ recovery/disposal of the material will be carried out in accordance with the Waste Management Acts 1996-2008, the Waste Management (Collection Permit) Regulations 2007 (as amended) the Waste Management (Facility Permit & Registration) Regulations 2007 (as amended). The volume of waste removed will dictate whether a Certificate of Registration (COR), Waste Facility Permit or Waste Licence is required by the receiving facility.

Once all available beneficial reuse options have been exhausted, the options of recycling and recovery at waste permitted and licensed sites will be considered. The option of disposal of inert natural material to landfill will only be considered once all available reuse options have been explored and where capacity cannot be secured at appropriately permitted/licensed facilities for recycling or recovery purposes.

Any soil/subsoil that is deemed to be contaminated will be stored separately to the clean and inert soil/subsoil. The material will be appropriately tested and classified as either non-hazardous or hazardous in accordance with the EPA publication 'Waste Classification: List of Waste & Determining if Waste is Hazardous or Non-Hazardous' using the HazWasteOnline application (or similar approved classification method). The material will then need to be classified as clean, inert, non-hazardous or hazardous in accordance with the EC Council Decision 2003/33/EC.

The highest volume of materials generated will be topsoil and subsoil/stones from site clearance to accommodate access routes, footpaths, services, and foundation excavation to enable construction of the houses and apartment blocks. Some of the material will be re-used on site, however, some will be removed off-site. Given that the proposed developable area is approximately 9 hectares, the following estimations of excavated material have been calculated:

- An average depth of 300 - 400mm for topsoil strip across the developable area of the site will generate approximately 19,230 m³ of topsoil.
- Bulk subsoil excavation for access route and footpath construction, piling and excavation for foundations in the previously filled area of the site will generate approximately 21,270 m³ of material.

- Excavation for watermains, foul and surface water sewers in this previously filled area will generate approximately 3,225 m³ of material.
- Bulk subsoil excavation in the remaining site will generate approximately 13,390 m³ of material.
- Excavation for watermains, foul and surface water sewers and attenuation storage areas will generate approximately 12,500 m³ of material.
- The total subsoil excavation is therefore approximately 34,385 m³.
- Approximately 2,100 m³ of fill material will be required in the previously filled area of the site to achieve proposed development levels.
- Approximately 33,440 m³ of fill material will be required in the remainder of the site to achieve proposed development levels.

As such, it is estimated that approximately 18,075 m³ of material will need to be transported off-site for reuse/recycling, mainly from the previously filled area of the site. (See Table 9.1).

Also, the demolition of the existing building and stone ruins on the site will generate quantities of rubble/stone, structural steel and corrugated metal roof sheeting. It is unlikely that any of this material will be re-usable on site so this material will have to be taken off-site to approved recycling/recovery facilities. Surveys to date have established that there is no asbestos materials in these existing buildings and this will be confirmed at pre-demolition stage.

An estimated 435 m³ of rubble/stone will be generated, with approximately 8 tonnes of structural steel and 2 tonnes of corrugated roof sheeting.

A standard 4-axle rigid construction tipper capacity weight is 20 tonnes which is equivalent to approximately 11 cubic metres of soil. Therefore, approximately 1,640 HGV loads will be required to export the excess soil off-site, while a further 42 HGV loads will be required to export the demolition waste generated.

Table 10-1: Cut and Fill Calculation

Item	Excavate	Reuse	Export
Topsoil Strip	19,230 m ³		
Topsoil Reuse		9,615 m ³	
Topsoil for Export			9,615 m ³
Subsoil from Excavation	34,385 m ³		
Fill Required		25,929 m ³	
Subsoil Excess for Export			8,456 m ³
Total Surplus for Export off-site			18,071 m³

SECTION 11: Emergency Planning and Response

A set of standardised emergency response procedures will govern the management of emergency incidents. The contractor will be required to outline emergency incident response procedures in the detailed CEMP and to develop an Emergency Incident Response Plan. These procedures will be as follows:

- Emergency preparedness and response procedure (incl. emergency phone numbers)
- Incident investigation procedure
- Nonconformity, corrective action and preventative action
- Spillage containment procedure
- Pollution prevention programme and corrective action reporting

In the event of spillages or other incidents, steps will be taken to prevent environmental pollution, for example through protection of drains by use of drain covers or booms, use of absorbent granules following a fuel or oil / chemical spill and turning off equipment or other sources of noise or dust.

Once the situation has been rectified, full details the incident and remedial actions undertaken will be provided to the City Council and relevant authorities and recorded appropriately.

Appropriate measures to prevent a recurrence of such incidents will be developed in consultation with these authorities.

SECTION 12: Inspections and Monitoring

The environmental performance of the contractor will be monitored through site inspections. Monitoring will be carried out in accordance with the requirements of the EIAR so that construction activities are undertaken in a manner that does not give rise to significant negative effects. Suitable monitoring programmes will need to be developed, implemented, documented, and assessed in accordance with the measures outlined in the detailed CEMP and EIAR.

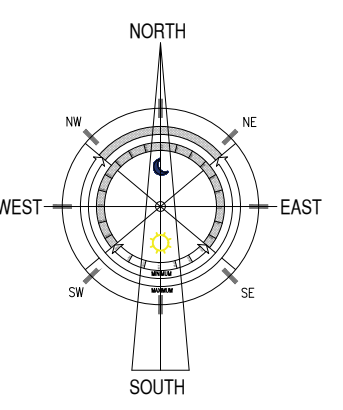
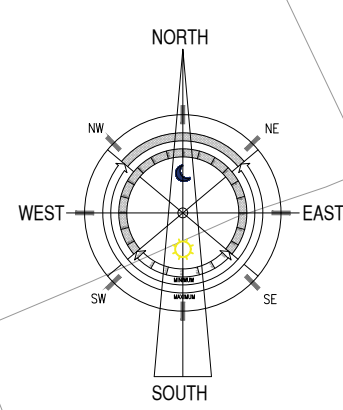
The results of all environmental monitoring activities will be reviewed by the Site Environmental Manager on an ongoing basis to enable trends to be identified and corrective actions to be implemented as necessary.

Routine inspections of construction activities will be carried out by the Site Environmental Manager on a daily basis to ensure all necessary environmental measures relevant to the construction activities are being effectively implemented by construction staff. Detailed inspections should be carried out weekly which would be appropriately documented by the Environmental Manager. The inspection routine should include:

- Summary of compliance/non-compliance with the detailed CEMP
- Results and interpretation of monitoring programmes
- Key issues noted during inspections
- Summary record of non-conformities, incidents and corrective actions
- Summary of environmental complaints and queries received in relation to environmental matters; and
- Summary record of environmental training undertaken by staff.

Appendix 1

PROPOSED DEVELOPMENT LAYOUT



DRAWING NO. 19012-4002-1-PA

DRAWING NO. 19012-4001-1-PA

REVISIONS		DATE	BY

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CORK COUNTY GAA BOARD

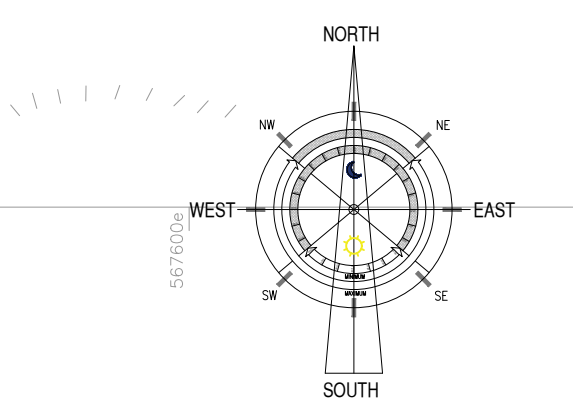
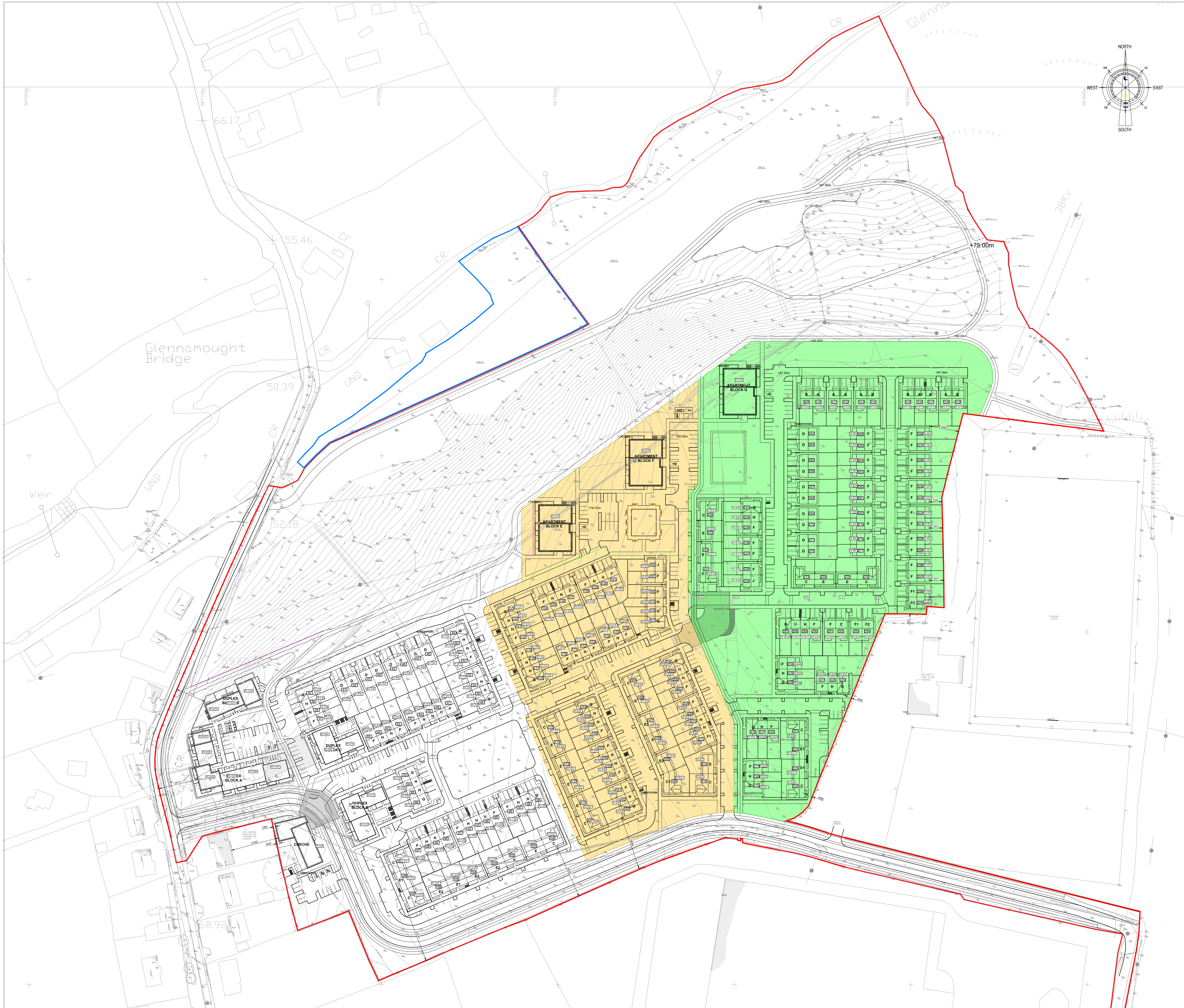
RESIDENTIAL DEVELOPMENT AT KILBARRY, CORK

OVERALL LANDSCAPE MASTERPLAN

SCALE: 1:1000@A1
 NO: 19012
 DATE: 4000
 SHEET: 1 PA

Appendix 2

PROPOSED PHASING PLAN



SCHEDULE OF UNITS - PHASE 1

TOTAL 109 UNITS						
UNIT TYPE	AREA/ NOS. OF BEDROOMS	TERRACED	SEMI - DET.	DUPLEX	APART.	TOTAL NO.
C	4 BED 137.69 sq.m.	2	1			3
D	3 BED 114.68 sq.m.	8				8
E/E1/E2	3 BED 114.62 sq.m.	3	4			7
F/F1/F2	3 BED 112.96 sq.m.	12				12
G	3 BED 109.12 sq.m.	6				6
H	2 BED 83.73 sq.m.	20				20
DUPLEX BLOCK A	2 BED 1 BED			11		11
DUPLEX BLOCK B	2 BED 1 BED			5		5
DUPLEX BLOCK C	2 BED 1 BED			5		5
DUPLEX BLOCK D	2 BED 1 BED			6		6
TOTALS		43	13	53	00	109

SCHEDULE OF UNITS - PHASE 2

TOTAL 105 UNITS						
UNIT TYPE	AREA/ NOS. OF BEDROOMS	TERRACED	SEMI - DET.	DUPLEX	APART.	TOTAL NO.
C	4 BED 137.69 sq.m.		4			4
C1	4 BED 149.50 sq.m.		1			1
E/E1/E2	3 BED 114.62 sq.m.		9			9
F/F1/F2	3 BED 112.96 sq.m.	18	1			19
G	3 BED 109.12 sq.m.	6	1			7
H	2 BED 83.73 sq.m.	23				23
APARTMENT BLOCK E	2 BED 1 BED				16	16
APARTMENT BLOCK F	2 BED 1 BED				05	05
TOTALS		47	16	00	42	105

SCHEDULE OF UNITS - PHASE 3

TOTAL 105 UNITS						
UNIT TYPE	AREA/ NOS. OF BEDROOMS	TERRACED	SEMI - DET.	DUPLEX	APART.	TOTAL NO.
A/A1	4 BED 146.91 sq.m.	2	5			7
B	4 BED 146.31 sq.m.	1	3			4
C	4 BED 137.69 sq.m.	2	4			6
D	3 BED 114.68 sq.m.		10			10
E/E1/E2	3 BED 114.62 sq.m.	2	4			6
F/F1/F2	3 BED 112.96 sq.m.	6	31			37
G	3 BED 109.12 sq.m.	6	1			7
H	2 BED 83.73 sq.m.	7				7
APARTMENT BLOCK G	2 BED 1 BED				16	16
TOTALS		26	58	00	21	105

PHASING LEGEND

NAME	TAG
PHASE 1	
PHASE 2	
PHASE 3	

1 ISSUED FOR PLANNING APPLICATION 28.08.22 SD
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Stage Abbreviations:
 SD: Survey, SK: Sketch, PP: Programming, PA: Planning Application, F: Further Information, AP: Approval, RC: Response To Conditions, TC: Tender, FC: Full Case, LC: Local Case, CC: Construction, AB: As Built

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CLIENT:
CORK COUNTY GAA BOARD

JOB TITLE:
RESIDENTIAL DEVELOPMENT AT KILBARRY, CORK

DWG TITLE:
SITE LAYOUT - PROPOSED PHASING

Drawn By: SD	Checked By: KMCD	Scale: 1:1000@A1	Issue No: 19012	Revision: 1007	Sheet: 1	Total: PA
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