

**CONSTRUCTION AND ENVIRONMENTAL
MANAGEMENT PLAN**

**Ratoath South SHD
For Beo Properties Limited**

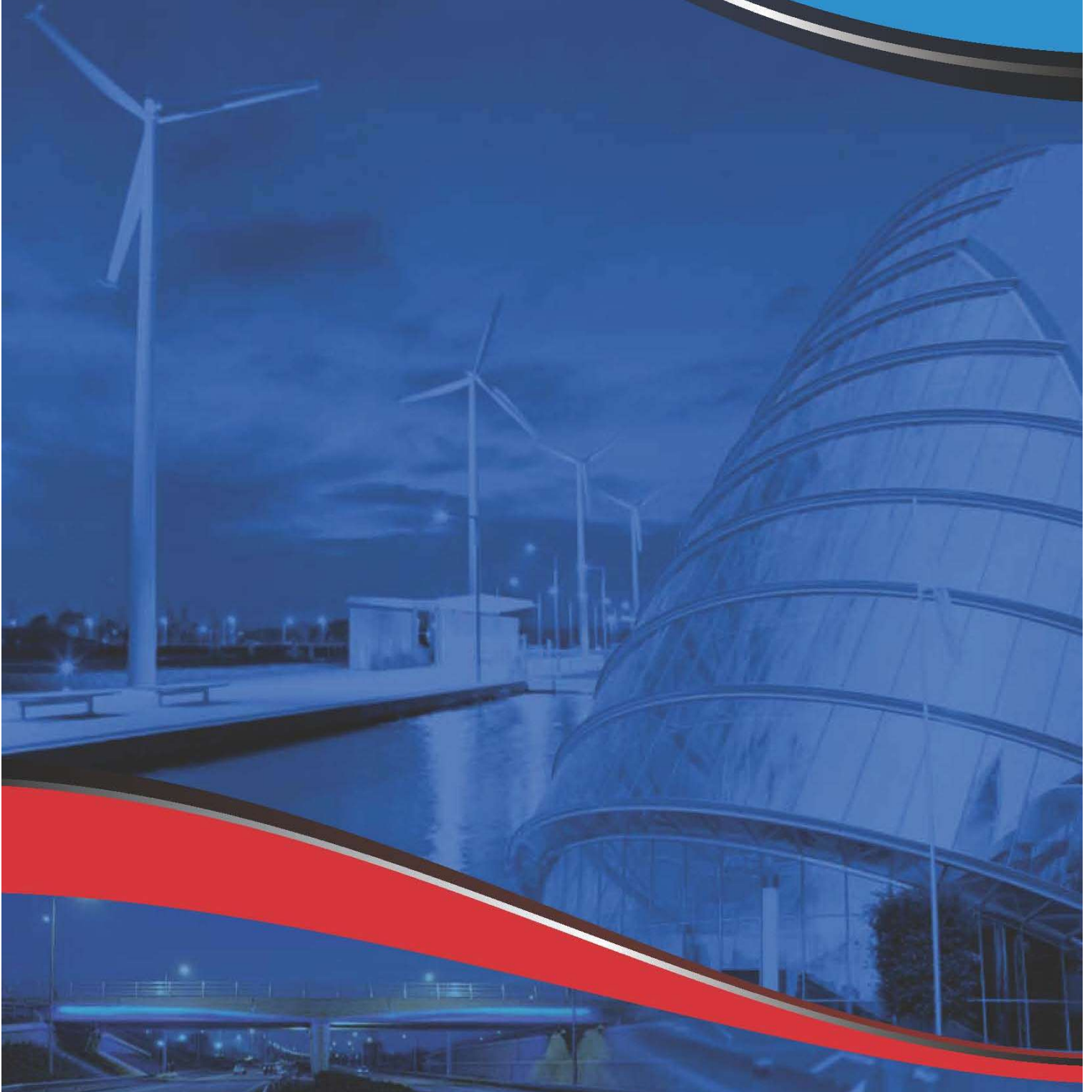
Project No. L308
25 May 2022



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O'CONNOR | SUTTON | CRONIN

Multidisciplinary
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Construction and Environmental Management Plan

**Ratoath South SHD
at Ratoath,
Co. Meath**



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1. INTRODUCTION

General

OCSC were commissioned by Beo Properties Ltd. to prepare a Construction and Environmental Management Plan (CEMP) in respect of the SHD development of a site in Ratoath, County Meath. This document serves to inform the planning process in respect of the proposed development. It is intended that this Construction and Environmental Management Plan will be an interim assessment and it is not intended to be a final version to cover the eventual construction of any permitted development. A detailed Construction and Environmental Management Plan will be prepared by the appointed contractor for the works. This document will be updated continuously to take account of any necessary changes on foot of the planning process and throughout any phased construction period.

The Construction and Environmental Management Plan to be prepared by the appointed contractor, and agreed with the Local Authority prior to the commencement of any construction works, will ultimately include details on the following:

- Daily and weekly working hours;
- Agreed haul routes for incoming materials;
- Licensed hauliers to be used;
- Disposal sites;
- Travel arrangements for construction personnel;
- Appropriate on-site parking arrangements for construction personnel to prevent overspill parking on the local road network;
- Temporary construction entrances to be provided;
- Wheel wash facilities if required;
- Road cleaning and sweeping measures to be put in place if required;
- Temporary construction signage to be put in place and maintained;
- Any proposed traffic management measures such as temporary traffic lights and signage on any public roads.

2. PROJECT DESCRIPTION & SITE LOCATION

Site Location

The subject site is located on Fairyhouse Road, Ratoath, Co. Meath. The subject site is bounded by Fairyhouse Road to the west, Glascarn Lane to the north and agricultural lands to the east and south.

The development will principally consist of the construction of 452 no. residential units which are located in 12 neighbourhoods. Building heights ranging from 2-3 storey terraced houses and 3-4-storey duplex buildings (1 storey ground floor units and 2 storey first and second floor units; 2 storey ground and first floor units and 2 storey second and third floor units) and 6-storey apartment blocks. Private open space associated with the residential units is provided in the form of rear gardens, balconies, terraces and winter gardens. The development includes a crèche with associated outdoor play areas at ground floor and at roof level; 4 no. commercial/retail units; a landscaped public open space which includes a civic plaza; communal open space in the form of communal courtyards for each neighbourhood; associated car and cycle parking serving the full development and uses therein; solar PV panels; a second phase of the Ratoath Outer Relief Road (RORR), that will run along the southern boundary of the application site join up to the existing constructed section of the RORR, with two priority controlled junctions; a series of pedestrian and cycle connections from the Fairyhouse Road (R155), Cairn Court, Glascarn Lane and the new RORR; internal road and shared surface networks including pedestrian and cycle paths; public lighting and all associated site development and infrastructural works, services provision, ESB substations, foul and surface water drainage, extension to the foul network, access roads/footpaths, lighting, landscaping and boundary treatment works and all ancillary works necessary to facilitate the development. Please refer to the development description within the statutory notices for a complete description of the proposed development.

The second phase of the Ratoath Outer Relief Road (RORR) is proposed as part of this development. This section of the RORR runs from a new

junction with the R155 east for approximately 1100m to the end of the site boundary. It is proposed to have two access for the site off the RORR.

The subject is currently greenfield and used for agricultural purposes and can be accessed from Glascarn Lane to the east and Fairyhouse Road to the west of the site.

The site location can be seen in Figure 1 below.



Figure 1: Site Location Map

The proposed development layout is shown in Figure 2 below overleaf.



Figure 2: Proposed Layout

It is noted that the development proposed includes the provision of a new three armed signalised junction on Fairyhouse Road (R155). The junction accommodates a 3m shared path to the north-eastern side of the junction to incorporate a shared facility that extends from Carraig Na Gabhna street, as proposed in the Part 8 application for the Ratoath Pedestrian and Cycle Scheme.

The proposed path is shown below in Figure 3.

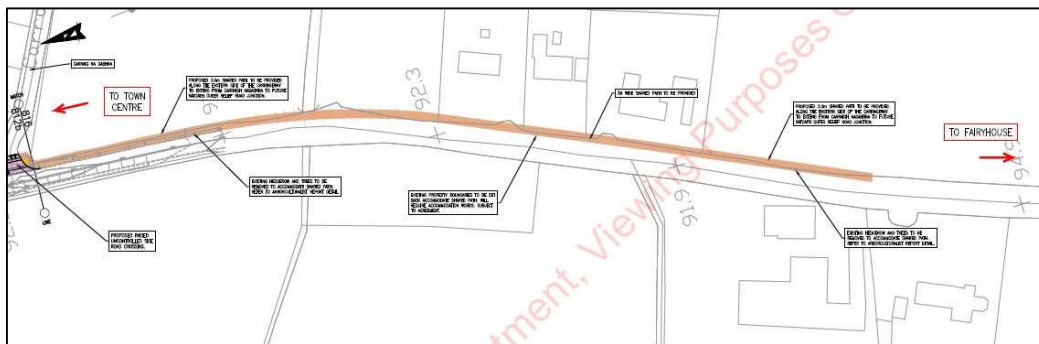


Figure 3: Ratoath Pedestrian and Cycle Scheme shared use facility

3. CONSTRUCTION PROGRAMME & PHASING

Phasing

Given the size and scale of the proposed development it is expected that it will be developed in four individual but sequential development phases. The proposed development phasing plan is showcased below in Figure 4.



Figure 4: Development Phasing Plan

Programme

The development programme will be market driven to a large extent; however, it is expected, given the nature and scale of the development, that it will be rolled out over a 24 – 48 months post receipt of planning permission.

Applicant & Design Team

The following are the main participants in the project:

Table 1: Project Participants

Role	Name
Developer	Aledo Donabate Limited
Project Manager	Floton Consulting
Planning Consulting	KPMG Future Analytics
Architect/ Lead Consultants	RKD Architects

Role	Name
Landscape Architects	Brady Shipman Martin
Mechanical and Electrical	BBSC Limited
Ecologist	Altamar Limited
Civil, Structural, Transportation Engineers	O'Connor Sutton Cronin

4. SITE ESTABLISHMENT

Site Access

The site is currently accessed off an existing gateway located on Fairyhouse Road. A new site entrance is proposed on Fairyhouse Road for construction vehicles to access during the construction stage as shown in Figure 4.



Figure 4: Initial Access and Site Set Up Area

The main movement will be from the south coming off the R147. Minimal provision will be allowed within Ratoath, for vehicles traveling from the M2.

Fencing

Perimeter fencing will be provided around the different phases of the site and along the public road so as to prevent unauthorised access to the site. Controlled access points will also be provided. Fencing will be maintained to a high standard and painted or covered as appropriate.

Temporary fencing will be provided as necessary within the site as safety restrictions, to prevent public access. The locations of this temporary fencing will vary as work progresses across the site.

Tree Protection

Appropriate measures will be put in place to protect any trees on the site which are designated for protection or retention under any granted planning permission for the development.

Archaeology

Appropriate arrangements will be made with a licensed archaeologist to monitor soil stripping and other development works as may be conditioned in any planning permission for the proposed development.

Works on the Public Road

Access to the site will be from the proposed site entrance via the Fairyhouse Road.

All works on the public road Works, including the proposed junction and mixed use facility will be carried out subject to, and in accordance with, a Road Opening Licences with Meath County Council and all works will be carried out in accordance with MCC and HSA guidelines for working on public roads.

5. CONSTRUCTION TRAFFIC

Site Access

As noted earlier, the site will be accessed via the proposed site entrance on Fairyhouse Road. All construction traffic will enter and leave the site through this access.

Construction Traffic Routing

It is proposed that all construction traffic will use the Fairyhouse Road via the Regional Roads R147 and R157 to the M3 interchange motorway and continue along the M3 to a suitable disposal site. Similarly, all deliveries will approach the site via the M3 and Fairyhouse Road. This will remove construction traffic from Ratoath Town Centre.

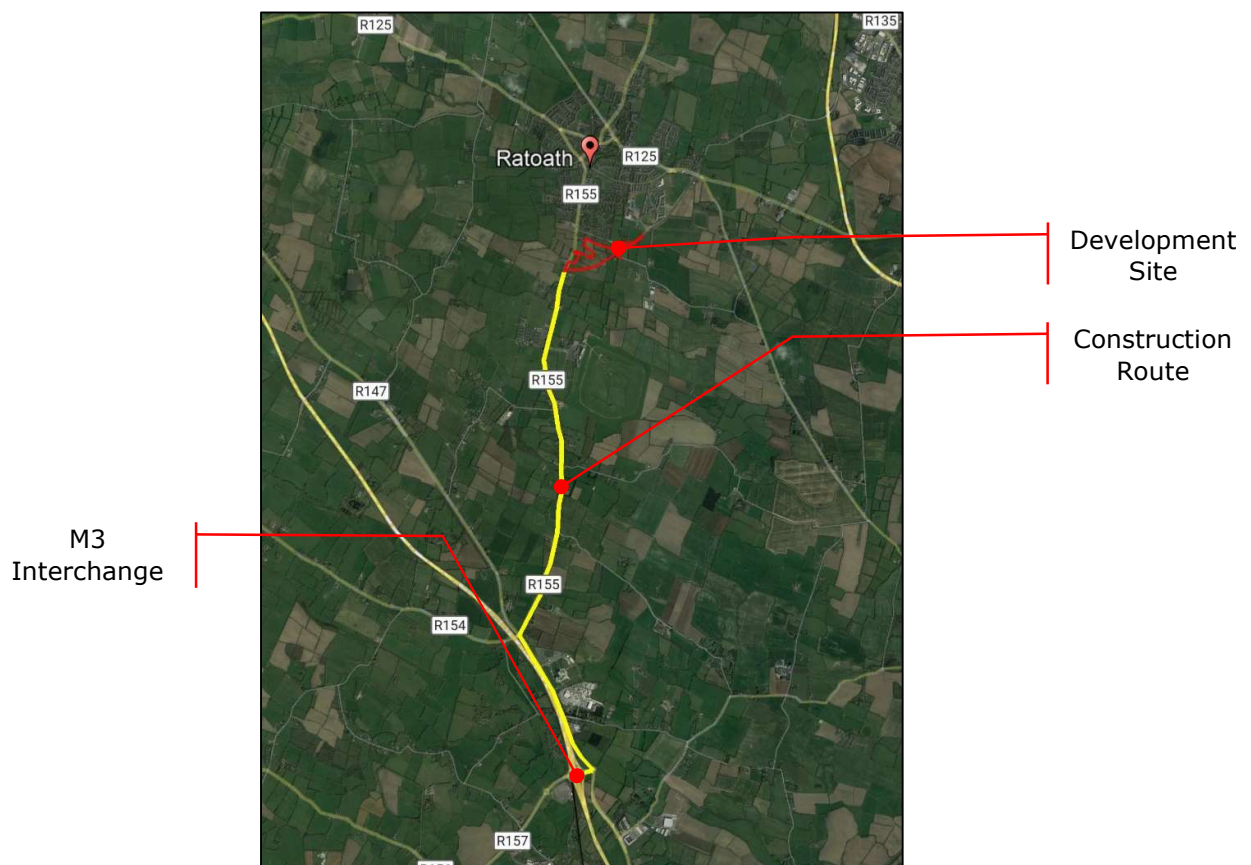


Figure 5: Construction Haul Route

The exact location of batching plants and disposal sites will be established once a contractor has been appointed. However, the route outlined in

Figure 5 will be the preferred access and egress route for the site. Details of all routes will be agreed with the Transportation Department of MCC prior to the commencement of works.

Estimate of Construction Movements

In order to estimate the volume and rate of construction traffic, it is first necessary to estimate the amount of excavation and earthworks required on the site. Topsoil and subsoil/stones will be excavated to accommodate roads, footpaths, services and housing construction. Based on a 3d ground model of the existing site and stripping to 600mm level the expected volume of soil and stone is calculated as 65 800m³, with the assumption of repurposing 20% of the material (13 160 m³) as fill, the export volume amounts to 52 640 m³. Further elaboration on waste material is discussed in the Construction Demolition Waste Management Plan.

Based on experience of similar construction projects, it is considered that there will be a maximum of 8 HGV's serving the site during any given daytime hour. This is based upon the knowledge that it takes, on average, 10 minutes to load a lorry with spoil. As such, the two-way HGV traffic is unlikely to be higher than 12 vehicles per hour at any point of the day. Based on an 8 hour day and a 22 working day month, 6 vehicles per hour equates to 1408 vehicles per month. For the duration of the construction period. Allowing for some seasonal and holiday modulation in site activity, the average monthly construction trip rate for the development is shown in Figure 6 overleaf.

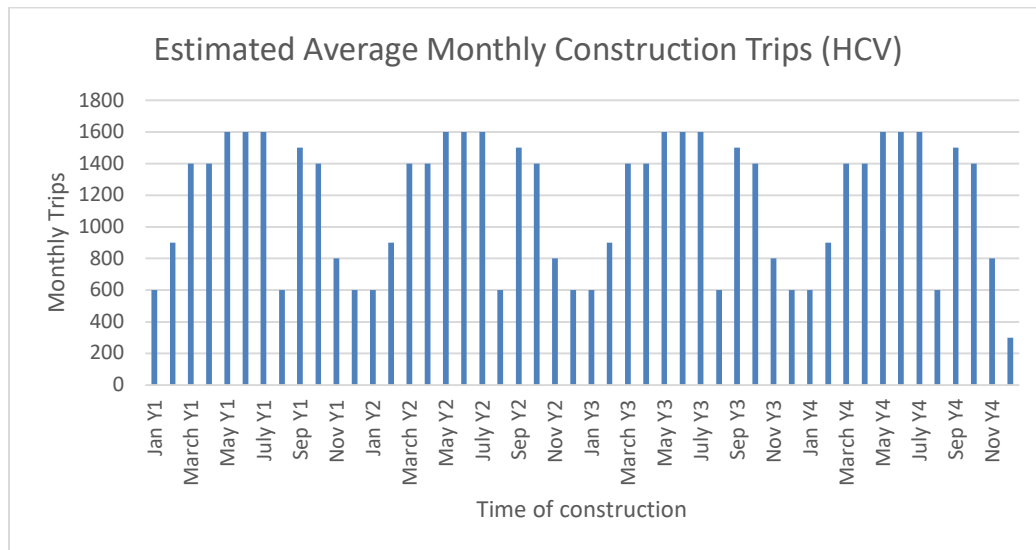


Figure 6: Average Monthly Construction Trips

Measures will be put in place to minimise the amount of construction traffic generated by the development. These measures will include utilising cut material generated on the site within the site for landscape purposes to limit the amount of spoil. In addition, the contractor will maximise the use of precast materials or prefabricated materials wherever possible and economically viable. Adequate storage space will be provided on site for the storage of materials and a site strategy will be put in place to manage the timing of deliveries to the site. Trips by construction workers can be limited by the provision of car sharing and *Travel to Work Scheme* benefits.

Site Parking

A limited amount of on-site parking will be provided for construction workers and visitors. A separate parking and staging area will be constructed alongside the Site Compound and will be maintained for the duration of the construction period.

Staff Welfare

Appropriate welfare facilities will be provided on site for construction staff and will include, inter alia:

- Canteen facilities;
- Toilet Facilities;

- Office accommodation;
- Tool storage areas.

Construction Traffic Mitigation Measures

The appointed contractor will put in place measures to keep public roads free of muck and debris. This will include providing a wheel wash on site and undertaking regular road sweeping by mechanical sweeper.

6. SEGREGATION OF WASTE STREAMS

Waste Storage & Segregation

Waste materials generated will be segregated on site. This will allow for the maximum possible degree of recycling. Where on-site segregation of certain wastes types is not practical, off-site segregation will be carried out. Skips and receptacles will be provided to facilitate segregation at source.

All waste receptacles leaving site will be covered or enclosed. The on-site waste storage area will be secured within the overall site which will be hoarded off from public and unauthorised access.

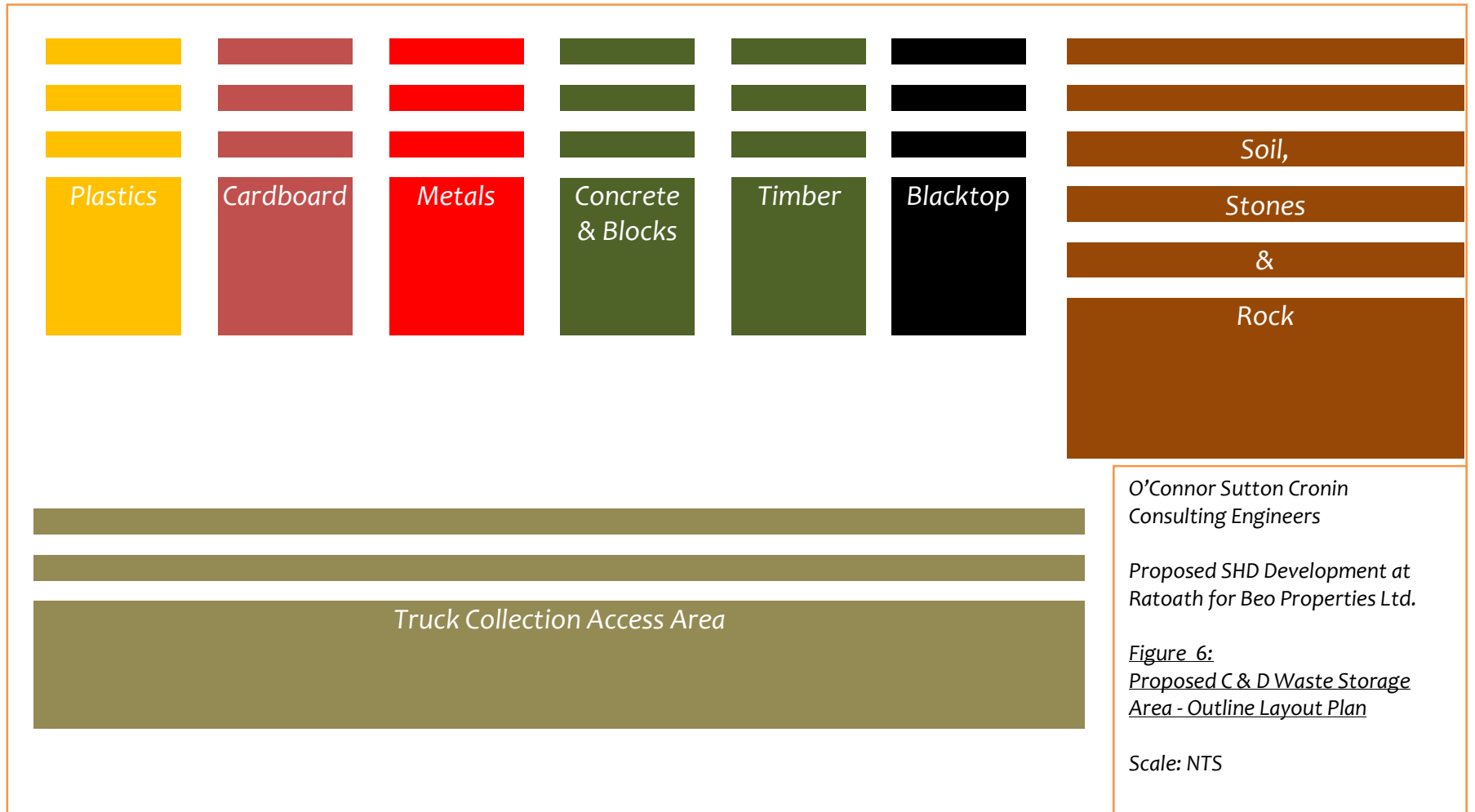
The appointed waste contractor will collect and transfer the wastes as receptacles are filled. Any soil removed off-site will be carried by contractors licensed under the Waste Management Acts 1996 - 2008, the Waste Management (Collection Permit) Regulations 2007 and Amendments and the Waste Management (Facility Permit & Registration) Regulations 2007 and Amendments.

Non-Recyclable Waste:

C&D waste which is not suitable for reuse or recovery will be placed in separate skips or other receptacles. This will include polystyrene, some cardboard and plastic which are deemed unsuitable for recycling.

Prior to removal from site, the non-recyclable waste skip/receptacle will be examined by a member of the waste team to determine if recyclable materials have been misplaced. If this is the case, efforts will be made to determine the cause of the waste not being segregated correctly and recyclable waste will be removed and placed into the appropriate receptacle.

An outline Layout Plan for a site-based waste segregation compound is shown in Figure 6 overleaf.



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Consulting Engineers

Proposed SHD Development at
Ratoath for Beo Properties Ltd.

Figure 6:
Proposed C & D Waste Storage
Area - Outline Layout Plan

Scale: NTS

7. ENVIRONMENTAL MANAGEMENT

Pollution Prevention

Pollution prevention measures will be undertaken in accordance with best practice guidelines from Inland Fisheries Ireland (2016). There are no sensitive fisheries habitats on the site however extensive earth works are planned. A programme for the control of sediment will therefore be required. This will be put in place by the appointed contractor.

All works will be carried out in compliance of the Water Pollution Act 1977 and the Wildlife Act 1976 and all relevant amendments.

Only sediment free run-off is to leave the site. A suitably sized detention basin or settlement area will be installed at the lowest point prior to discharge where excess run-off must leave the site. Silt curtains or earth berms will be used to channel run-off to locations where it can be controlled. These may take the form of an open detention area or, where the need arises, a portable skip/s, or similar, where inflow passes through straw bales, gravel etc.

The Site Manager will be responsible for the pollution prevention programme and will ensure that at least daily checks are carried out to ensure compliance. A record of these checks will be maintained.

Preliminary locations of temporary surface water lagoons used at construction stage can be seen overleaf in Figure 7. The location of 4 lagoons is noted in Figure 7 to correspond to the envisaged 4 phases of construction. The exact locations of these including the detailed design will be undertaken prior to construction stage by the appointed contractor.

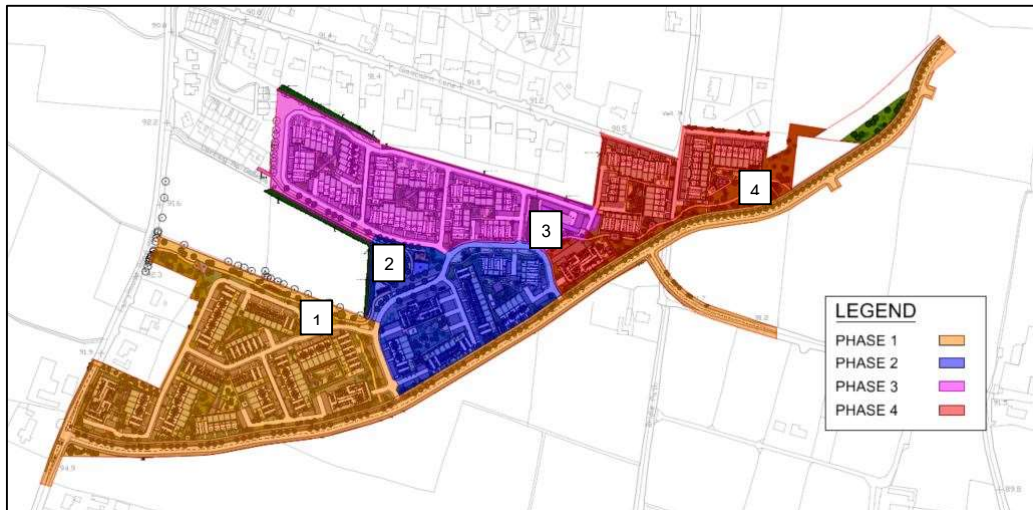


Figure 7: Proposed lagoon locations

The site compound will include a dedicated bund for the storage of dangerous substances including fuels, oils etc. Refuelling of vehicles/machinery will only be carried out within the bunded area. The site compound will clearly display emergency contact details for Inland Fisheries Ireland, the National Parks and Wildlife Service, Meath County Council and the Environmental Protection Agency in the event of a pollution incident or environmental emergency. Adequate spill kits will be available in the event of a spill of oil or other hazardous substance.

Training

All site personnel will be trained in the importance of good environmental practices including reporting to the site manager when pollution, or the potential for pollution, is suspected.

Protection of Trees

As noted earlier, there are very limited tree species on the site however, a *Tree Protection Plan* and tree protection details will be put in place for the site as generally set out hereunder.

General

Damage to root systems affect long-term health, balance, growth and life expectancy of a tree. Damage can arise from a number of activities including:

- Compaction of the Root Protection Area (RPA) as the result of vehicular or pedestrian activity and/or the storage of materials, particularly in clay soils;
- Alteration of ground levels around the tree, including temporarily;
- Covering the soil around the tree with an impervious layer;
- The release of materials that are toxic to plants; and,
- Physical severance of structural roots.

Soil fills that raise the grade around trees are harmful: they disrupt aeration, water movement and reduce oxygen levels resulting in root problems. Where grade changes greater than 75mm cannot be avoided, porous soils, such as sandy loam, will be used as fill material. Excessive soil lowering will be avoided where possible.

Pre-Construction Remedial Works

Instalment of protective measures and undertaking of remedial works will be carried out prior to commencement of site construction. Remedial works to trees identified for retention will be carried out prior to construction by qualified tree surgeons in accordance with BS 3998 (1989). Vertical barriers and/or ground protection will protect all trees that are being retained on site. Appropriate signage will be provided at tree barriers.

Protecting Trees During Construction

Excavation works within any RPA will be undertaken with extreme care and be carried out with due diligence, avoiding damage to the protective bark covering larger roots. This may involve excavation by mini-digger and/or hand as deemed appropriate. Exposed roots will be wrapped in a hessian sacking to avoid desiccation and roots less than 2.5cm in diameter pruned back to a side root. The advice of a qualified arborist will be sought if larger roots that influence anchorage need to be severed. Trunk protection will also be put in place using hessian.

Noise Control

Measures will be implemented to minimise the impact of noise emissions at sensitive locations during the construction phase. Such measures will include the following:

- Construction contractors will be required to comply with the requirements of the European Communities (Construction Plant and Equipment) (Permissible Noise Levels) Regulations and the Safety, Health and Welfare at Work (Control of Noise at Work) Regulations;
- All plant items used during the construction phase should comply with standards outlined in the 'Safety, Health and Welfare at Work (Control of Noise at Work) Regulations' and the 'European Communities (Construction Plant and Equipment) (Permissible Noise Levels) Regulations'. Reference will be made to BS 5228: Part 1: 2009 (Noise Control on Construction and Open Sites - Part 1. Code of Practice for Basic Information and Procedures for Noise Control) and will include the following mitigation measures:
 - Training of site staff in the proper use and maintenance of tools and equipment;
 - The positioning of machinery on site to reduce the emission of noise and to site personnel;
 - Sources of significant noise will be enclosed where practicable;
 - Machines that could be in intermittent use will be shut down between work periods or will be throttled down to a minimum;
 - Plant known to emit noise strongly in one direction will, when possible, be orientated so that the noise is directed away from noise sensitive areas; and
 - Plant and/or methods of work causing significant levels of vibration at sensitive premises will be replaced by other less intrusive plant and/or methods of working where practicable.
- Inherently quiet plant will be selected where appropriate;
- Screening and enclosures will be utilised in areas where construction works are continuing in one area for a long period of time or around items such as generators or high duty compressors. For maximum effectiveness, a screen will be positioned as close as possible to either the noise source or receiver. The screen will be constructed of

- material with a mass of $>7\text{kg/m}^2$ and should have no gaps or joints in the barrier material. This can be used to limit noise impact to any noise sensitive receptors;
- Operators of all mobile equipment will be instructed to avoid unnecessary revving of machinery and mobile equipment will be throttled down or switched off when not in use;
 - Accordingly, where possible all construction traffic to be used on site will have effective well- maintained silencers; and
 - All mobile plant will be maintained to a high standard to reduce any tonal or impulsive sounds.

Vibration Control

Any construction works that have the potential to cause vibration at sensitive receptors will be carried out in accordance with the limit values in Table 2 hereunder, at the most affected sensitive receptor.

Table 2: Vibration Limits

Allowable PPV (mm/s) at Sensitive Receptors at Given Frequencies (Hz)		
<10 Hz	10 – 15 Hz	50 Hz and above
8 mm/s	12.5 mm/s	20 mm/s

Dust Control

The main activities that may give rise to dust emissions during construction include the following:

- Materials handling and storage; and
- Movement of vehicles (particularly HGV's) and mobile plant.

The following mitigation measures will be implemented on site during the construction phase, as required:

- Vehicles exiting site will use a wheelwash to ensure dust emissions are not generated from tyres. It will also prevent vehicles from carrying excess material onto public roads;
- Site roads shall be regularly cleaned and maintained as appropriate;
- Hard surface roads shall be swept to remove mud and aggregate materials from their surface as a result of the development works;

- Any un-surfaced roads shall be restricted to essential site traffic only;
- Any road that has the potential to give rise to fugitive dust may be regularly watered, as appropriate, during extended dry and/or windy conditions;
- On-site speed limits will be stipulated to prevent unnecessary generation of fugitive dust emissions;
- Material handling systems and site stockpiling of materials shall be designed and laid out to minimise exposure to wind;
- A complaints register will be maintained on-site and any complaints relating to dust emissions will be immediately dealt with;
- In periods of dry weather when dust emissions would be greatest, a road sweeper, which would also dampen the road, will be employed in order to prevent the generation of dust;
- Water misting or sprays shall be used as required if particularly dusty activities are necessary during dry or windy periods; and
- If appropriate, dust monitoring will be carried out during the construction phase of the scheme. If the level of dust is found to exceed 350mg/m²/day in the vicinity of the site, further mitigation measures will be incorporated into the construction of the proposed scheme.

8. HEALTH AND SAFETY

General Health, Safety and Environmental Consideration

Construction and demolition works will be carried out in such a way as to limit, as far as practicable, adverse environmental impact. Works will be carried out in accordance with the following general provisions:

- Planning approvals from the Local Authority;
- Requirements of the Local Authority.

As part of the Construction Method Statement, the process will ensure that construction techniques and materials used are a fundamental consideration of the design and intended long-term use, the aim below is achieved:

- Design for durability and low maintenance;
- Design for flexibility and adaptability;
- Use of materials from sustainable sources;
- Use of local materials where possible.

Safety, health and environmental issues on the development are a primary consideration in the construction methods adopted. The construction team will develop detailed health and safety plans, specific environmental, fire and accident procedures to suit the construction sequence of the Development. Contractors involved in the development will ensure that all non-English speaking employees are provided with relevant Health & Safety information in their national language. All contractors will be required to adopt the relevant skills certification required for that element of the works. A site specific Safety Statement and a detailed Construction Stage Safety & Health Plan will be compiled prior to any works on site and will be in accordance with the Health & Safety Authority and Local Authority guidelines.

Control of Substances Hazardous to Health

The strategy for controlling all substances and all work processes that may generate hazardous substances will have to be addresses and control measures put in place. Some of the control measures to be employed include the following:

- All fuel and chemicals to be stored in designated areas, with deliveries of hazardous materials supervised.
- Storage tanks and container facilities will be appropriately bunded.
- In the case of spills or discharges, remedial action will be taken as soon as possible in accordance with company procedures.
- Personal protective equipment (PPE) suitable to the pertaining conditions will be used by all site personnel.

Environmental, Emergency and Accident Procedure

Measures will be carried out to avoid environmental incidents, however if these occur then the following types must be reported to the responsible person in the construction team. The overall strategy in the event of a spillage will be to 'Stop-Contain-Notify' in the event of:

- Spills or discharge to the atmosphere , water supplies, sewage systems, rivers and other watercourses, or to the ground:
 - Any chemical products
 - Oils or fuels
 - Effluent/fumes and gases
 - Waste or contaminated materials
- Damage to existing:
 - Trees and wildlife
 - Flora and existing local habitats
- Any environmental incidents that could lead to:
 - Local Authority or regulatory enforcement
 - Public complaint

Emergency routes and procedures will be continuously adapted to suit the construction sequence and stage of the development. An *Emergency &*

Evacuation Plan will be prepared following the guidelines detailed below and updated on a regular basis during construction:

- Definition of the management organisation and responsibility for safety
- Definition of appropriate fire prevention measures, including good housekeeping of site, welfare facilities and offices.
- Adequate provision of fire extinguishers across the site.
- Use of non-flammable/fire retardant materials for protection of finished works.
- Safe use and safe storage of flammable materials of all categories, whether solid, liquid or gas.
- Appropriate waste management procedures.
- Monitoring the type and frequency of fire inspections/audits.
- Development of evacuation plans, to include escape routes, muster stations, means of sounding alarms and general emergency procedures.
- Site safety inductions and fire drills.
- The application of permit systems for Hot works, Confined Space Entry and Electrical Access Control.
- The provision of first aiders. Checking of emergency routes are available and unobstructed at all times.
- Liaison with the emergency services and occupants of the adjacent buildings.

First aid facilities will be established and at least one trained first aider will be present on-site at all times. In addition, trained Fire Wardens / Fire Marshalls will be in place on-site to address fire safety.

9. HOURS OF WORKING

General

Construction operations will be carried out in accordance with any granted planning conditions. It is expected that normal working hours will be from 07:00 – 19:00 Monday to Friday and from 08:00 – 14:00 on Saturdays.

It may be necessary for some specific construction activities to take place outside of these times and in those case, a specific derogation will be sought from the Planning Authority, Meath County Council.

Deliveries to site will be arranged to arrive within normal working hours as set out above.

There may, again, be specific deliveries which need to arrive outside of these hours e.g. in respect of wide loads. In all such cases the applicant will again liaise and agree any necessary derogations with the Planning Authority.

Lizmary Alfirs

Professional Civil Engineer (ECSA)

O'Connor Sutton Cronin & Associates