

## Proposed Battery Energy Storage System Knockraha Co. Cork



**Construction & Operational Environmental  
Management Plan**

**Clients: Drumkee LCIS Limited**

**Client Ref: NOR0002-1**

**January 2026**

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## Report Sign Off

<b>CLIENT REF:</b>	<b>DRUMKEE LCIS LIMITED</b>		
<b>DEVELOPMENT ADDRESS</b>	<b>KNOCKRAHA, CO. CORK</b>		
<b>REVISION</b>	<b>DATE</b>	<b>ORIGINATOR</b>	<b>REVIEWER</b>
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# 1 Introduction

## 1.1 Introduction

This report has been prepared by Rowan Engineering Consultants Ltd. (Rowan) on behalf of Drumkee LCIS Limited to accompany a planning application for a proposed Battery Energy Storage System (BESS) development in Knockraha, Co. Cork. The proposed development is adjacent to the existing Knockraha ESB substation (Cork planning ref: 136404).

## 1.2 The Applicant

The Applicant is Drumkee LCIS Limited.

## 1.3 Overview of the Proposed Development

The proposed development will consist of a 10-year planning permission for the construction of a: 1 No. enclosed battery energy storage system compound on a total of c. 2-hectare site to include: up to 64 battery storage blocks on concrete support foundations including heating, ventilation and air conditioning units (HVAC units), and 32 Power Conversion Systems (PCS) contained within 16 twin skid units, 1 no. 110 kV AIS electrical substation building and 1 no. single-storey customer substation building, control and switch room, 33/110 kV transformer and 1 no. auxiliary transformers, construction compound, firewater reservoir, store room, welfare unit, dam along the northern boundary, a retention basin, soakage swale, and a diesel backup generator, on lands at Ballynanelagh, Knockraha., Co. Cork.

Works will include upgrading the access road and site entrance, associated electrical cabling and ducting, security gates, perimeter security fencing, CCTV system, landscaping works and all associated ancillary infrastructure. The site entrance and access road will be constructed or completed in accordance with the adjacent site's approved planning application (ABP-321518-24). Operational right of way for that facility will be maintained through construction and operation.

The proposed development will have a projected life span of 35 years. The proposed site will be used as a single purpose site as a BESS facility, supporting the decarbonisation of the electrical grid.

## 1.4 Purpose and Scope of the Construction and Operational Environmental Management Plan (CEMP)

The scope of the CEMP covers the activities relating to the proposed BESS development in Knockraha, Co. Cork and is developed with the objective of avoiding adverse impacts to the proposed development area and its environs.

The CEMP is applicable to the Client, the appointed construction contractor and also any sub-contractor's site staff during the construction phase of the proposed works.

This CEMP will be updated and finalised following consultation with the appointed contractor.

## 2 The Proposed Development

### 2.1 Site Location and Site Layout

The proposed development is located in the townland of Ballynanelagh, Co. Cork, which is c.2km East of Knockraha village and c. 15km Northeast of Cork City as shown in **Figure 2-1**. The site area for the proposed development is c. 2 ha. The proposed development is located at Irish grid reference, E578323 N578219 ITM. The Site layout and an aerial view of the Site is displayed in **Figure 2-2** and **Figure 2-3**.

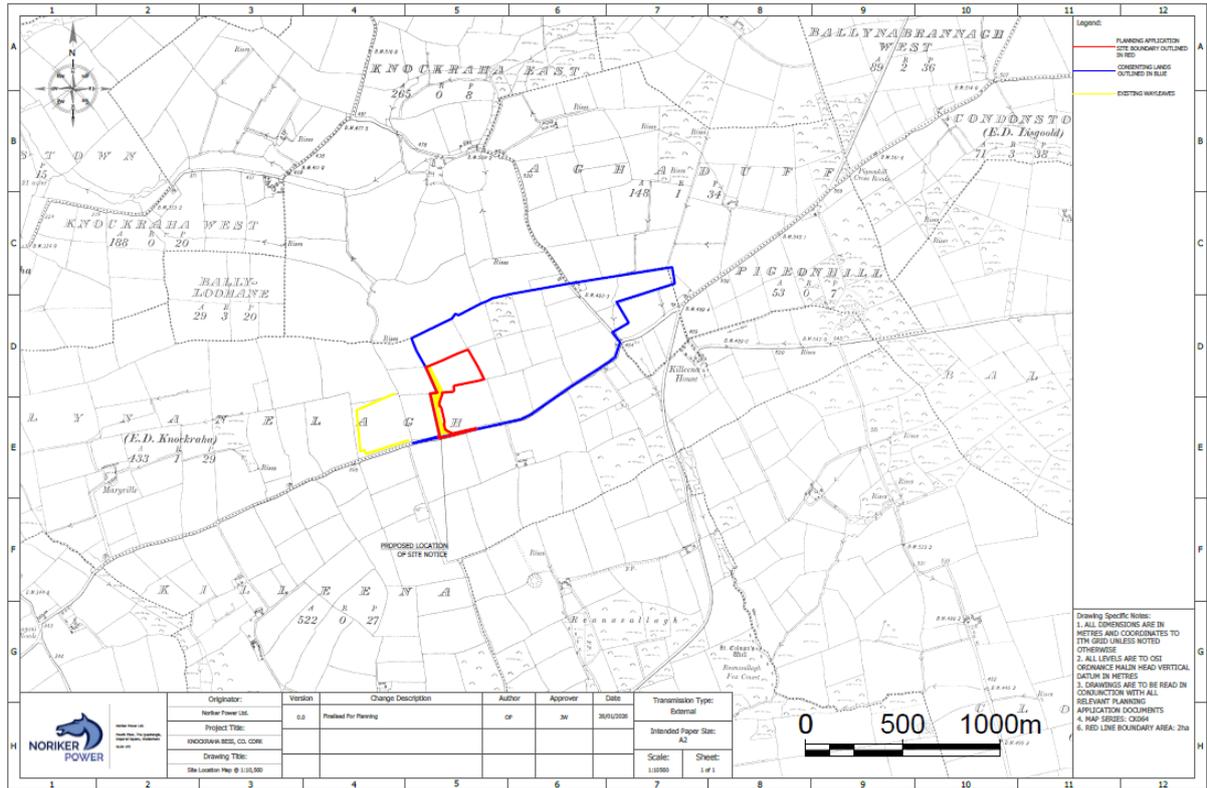


Figure 2-1: Site Location

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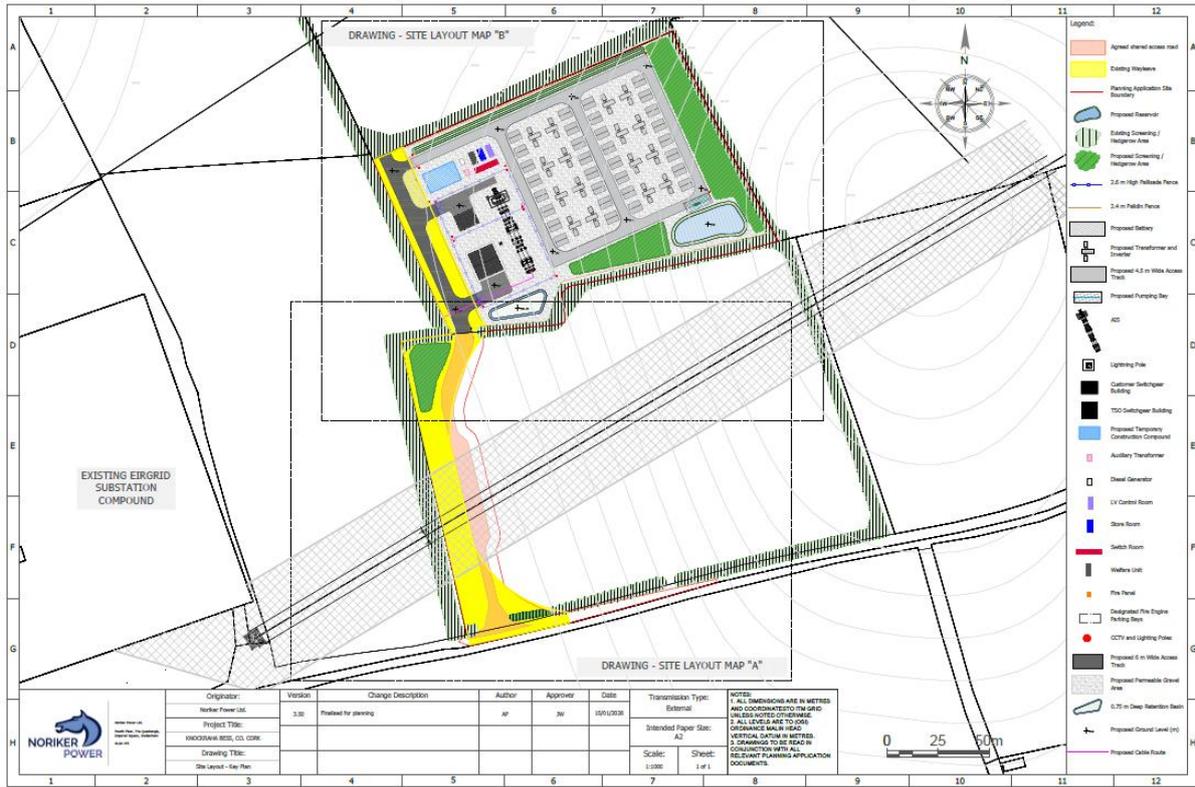


Figure 2-2: Site Layout



Figure 2-3: Aerial view of the proposed Site



Material required for the construction of the BESS development roads, hardstands, substation compound and grid connection are expected to come from local quarries. Material to be delivered to site will mainly consist of stone aggregate for the construction of access roads, stone capping material for roads and hardstands, and concrete for the construction of the reinforced concrete base and substation infrastructure. There are numerous quarry sites on the outskirts of Cork City, located c. 6km southeast from the proposed development.

Site access and thoroughfare will be maintained on the entrance road and through the Site to the Ballyvatta substation during working hours. It is anticipated that construction work for the Ballyvatta Solar Farm substation to the north of the proposed development will be completed prior to the development's construction commencement date. Traffic from that facility will be associated with either commissioning, with fewer vehicles than their construction phase, or operational attendance where there will be minimal vehicle movements operated by small teams with intermittent inspection and maintenance of the equipment.

### **2.3.1 Construction Period**

The construction period of the proposed development is c. 12-18 months. This may vary depending on the time of year and weather conditions.

The construction working hours (pending confirmation with Cork County Council) will be Monday – Friday 7am-7pm and Saturday 8am-4pm.

Works scheduled to take place outside of these times i.e. Sundays or Bank Holidays will be agreed with Cork County Council in advance.

### **2.3.2 Construction Traffic Generation**

The delivery of the Battery Storage Units and associated electrical equipment and infrastructure will require a number of loads using articulated haulage trucks. Other vehicles requiring access to the site will include tracked excavators, dump trucks, mobile cranes and articulated haulage trucks.

There will only be a small increase in movements of private cars and vans at the beginning and end of each working day as personnel arrive at and depart the Site. The workforce is expected to be c. 2 - 20 people during the construction period depending on the Site activities at varying stages of construction. Where possible, carpooling will be encouraged.

## **2.4 Traffic Management Plan**

### **2.4.1 Equipment Delivery Route**

It is envisaged that Kennedy Quay at Cork Port will be the chosen destination to offload any materials, as there is active commercial docking. Equipment delivered to Kennedy Quay will be transported to the Site via the following route:

- Kennedy Quay at Cork Port is the most likely destination to offload any materials as there is active commercial docking.
- Loads turn right onto Albert Quay Roadway;

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- Turn Right onto N8 and continue to Dunkettle Interchange before merging onto the M8;
- Continue to travel along the M8 until arriving at R639 at Junction 18;
- Take R639 towards Watergrasshill crossing over the M8 at Junction 17;
- Continue on Local roads to the Site entrance via the following roads;
  - L3012
  - L3011
  - L1540
  - L3602
  - L7609
  - L3604
  - L6989

The chosen delivery route from the Port of Cork to the proposed development is not the shortest route available, though it appropriately accommodates larger vehicles required to transport some of the components used during the construction period.

This detail will be confirmed in a Detailed Traffic Management Plan, (DTMP), to Cork County Council at preconstruction stages.

All construction personnel, plant, and equipment will access the site from the National Road R473 as shown **Figure 2-5**.

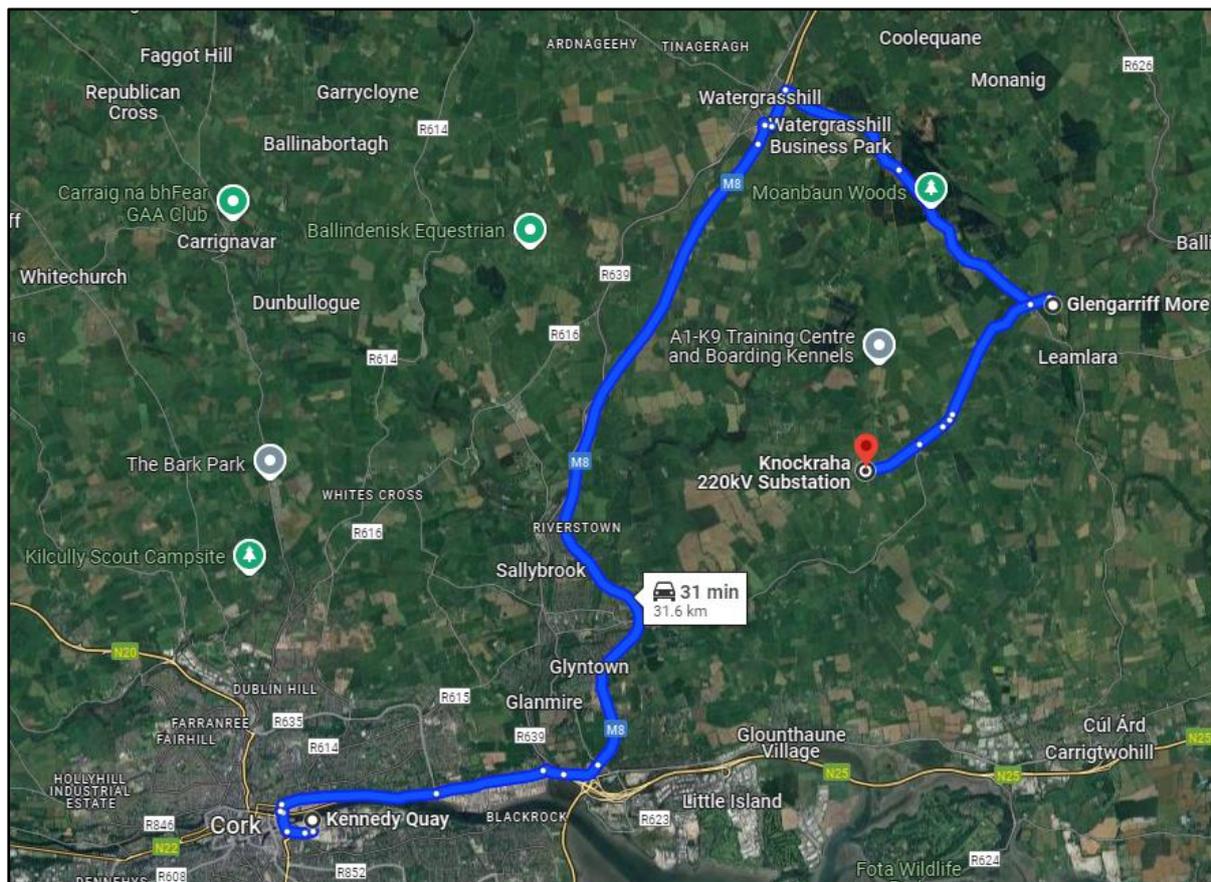


Figure 2-5: Proposed Equipment Delivery Route

## 2.4.2 Management Procedures

Prior to construction, a finalised DTMP will address and incorporate the following details:

1. Confirm any sensitive areas. Anyone making deliveries to and from the Site will be informed of any sensitive areas prior to travelling to the Site. These sensitive areas will be taken into consideration during the planning of the final route for large component parts to the Site.
2. Confirm any road restrictions in relation to any heavy loads. The supplier will finalise the most suitable route for delivery to the Site. In doing this, they shall take account of any existing road restrictions such as narrow bends, bridges, railway crossings etc.
3. Site deliveries will be scheduled outside of peak traffic times.
4. Deliveries to the proposed development Site shall be suspended on the day of any major local shows/events that have the potential to cause larger than normal traffic volumes.
5. All deliveries will avoid passing schools at opening and closing times when it is reasonably practicable.
6. Adequate advance signage of the works. The contractor shall undertake consultation to confirm any signage requirements with the relevant authorities.

All signage shall be provided in accordance with the Department of Transport's *Traffic Signs Manual, November 2010 – Chapter 8 – Temporary Traffic Measures and Signs for Roadworks*.

7. There will be no parking by construction vehicles or staff cars on the public road network.
8. Any loads leaving the site will be evaluated and covered if considered necessary to minimise dust or prevent material loss during transport.
9. Regular road inspections during the works shall be undertaken and cleaning implemented as required.

An **Outline Construction Traffic Management Plan** is included in support of this application.

## 2.5 Environmental Constraints of Note at the Site

### 2.5.1 Site Habitats

There are no records of protected or rare flora within 2km of the proposed development lands.

Improved Agricultural Grassland (**GA1**) covers almost the entirety of the proposed development Site. This habitat was dominated by grasses including Yorkshire fog (*Holcus lanatus*) and Creeping bent (*Agrostis stolonifera*). Rye Grass was occasional. The field boundaries were recorded as earthen banks (**BL2**) with pitched stone on their lower sides. They have a covering of low scrub, rank grassland and dense bracken. Where hedgerow (**WL1**) habitat was recorded it was composed primarily of Hawthorn (*Crataegus monogyna*), Goat Willow (*Salix caprea*) and Bramble (*Rubus fruticosus* agg).

Additionally, a belt of immature woodland (**WS2**) has been planted around the fringes of the adjacent ESB substation.

Scrub (**WS1**) was dominated by Bramble (*Rubus fruticosus*) with occasional Gorse (*Ulex europaeus*) and Hawthorn (*Crataegus monogyna*). Much of which has been cleared to make more built ground.

A summary of the habitats is displayed in **Table 2-1**.

#### Invasive Species

The Wildlife Acts, 1976 and 2000, contain a number of provisions relating to Invasive Non-Native Species (INNS), covering several sections and subsections of the Acts. It is prohibited, without a licence, to plant or otherwise cause to grow in a wild state, in any place in the State, any species of flora, or the flowers, roots, seeds or spores of invasive flora listed on the Third Schedule.

Articles 49 and 50 of the aforementioned Acts set out the legal implications associated with alien invasive species and Schedule 3 (the Third Schedule) of the regulations lists non-native

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species subject to the restrictions of Articles 49 and 50, which make it an offence to plant, disperse, allow dispersal or cause the spread of invasive species.

No Third Schedule invasive species were found on or surrounding the proposed development site.

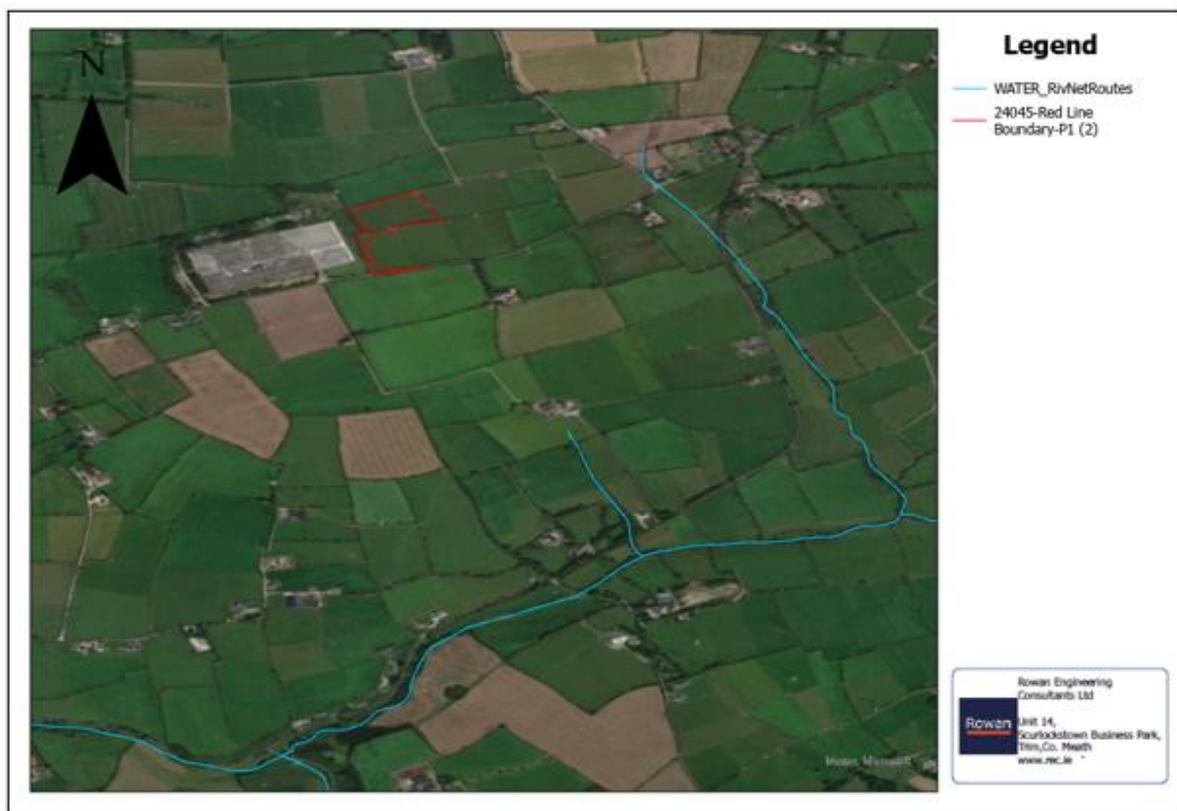
**Table 2-1: Habitats Summary (excerpt from EclA Report)**

Habitat/Species/Site	Highest Ecological Valuation Level	Key Ecological Receptor inside the ZOI	Rationale
<b>Designated Sites</b>			
European Sites	International	No	None within the ZOI. The closest designated site is Great Island Channel Special Areas Conservation (SAC), which is 4.8km east of the Site. The potential for effects on the Quality Indicator Species (QIS) of this SAC and any other designated site can be ruled out due to the intervening distance between the development Site and the SAC/SPA and the absence of a source-pathway-receptor chain for likely significant effects.
Proposed Natural Heritage Areas (pNHA) and Nationally Designated Sites	National	No	
<b>Habitats &amp; Flora</b>			
Earth Banks (BL2) and hedgerows	Low Local Importance	No	The majority of the Site's earthbank and hedgerow habitat is to be retained. A small section must be removed to aid in site access, but this is not considered a significant ecological impact. Where possible, landscaping should be used to improve onsite habitats.
Improved Agricultural Grassland (GA1)	Low Local Importance	No	The proposed development is located in a field of improved agricultural grassland, which is not rated as ecologically valuable, and the loss of this habitat is neutral.
<b>Fauna</b>			
Bats	None recorded	Yes	The Site was recorded as having no bat roosting potential. Potential impacts may occur to bat foraging and navigation during the construction and operational phase of the development.
Otters and Freshwater Aquatic Species	National and International importance	No	No suitable habitat for otters was recorded within or directly surrounding the subject Site. No evidence of otters was recorded.
Other terrestrial mammals	High Local Importance	No	No evidence of mammal species was recorded within the ZOI of the proposed works.
Birds	High Local Importance	Yes	The loss of hedgerow habitat within the ZOI will result in the loss of nesting and foraging habitat locally.

### 2.5.2 Water Features

The Republic of Ireland has been divided into 46 large catchments, 583 sub catchments and 4,829 smaller water bodies. On a national scale, the proposed development Site is situated

within the Lee, Cork Harbour and Youghal Bay catchment, and the Glashaboy (L.Mahon) subcatchment. The closest water body is the River Butlerstown (IE\_SW\_19B060800), which is located c. 500m East from the proposed development, at its nearest point as displayed in **Figure 2-7**. This stream rises near Waterglasshill town and flows in a southwesterly direction prior to its confluence with the Glashaboy river, which discharges into the River Lee.



**Figure 2-7. Surface Water Features**

### 2.5.3 Soils, Geology & Hydrogeology Environment

**Groundwater Aspects:** There are no Source Protection Zones, Karst Features. Three groundwater wells encroach onto the lands of the proposed development.

**Aquifer Vulnerability:** Groundwater vulnerability is a measure of how easily a groundwater body can be contaminated, it is heavily influenced by the amount of subsoil covering the aquifer and the permeability of overlying material. The groundwater vulnerability at a specific point can be determined based on the natural geological and hydrogeological characteristics at that point.

The majority of the Site location falls within an area of Extreme groundwater vulnerability, while a small portion of the Site to the north is classified as being located within an area of High Vulnerability. Refer to **Figure 2-8**.



Figure 2-8: Groundwater Vulnerability at the Proposed Site.

### 3 Construction Environmental Management Plan

#### 3.1 Compensation and Enhancement

The majority of the Site's hedgerow habitats will be retained as part of this development. To ensure hedgerow condition is maintained, hedge cutting and verge/bank cutting should be restricted to a 3 – 5-year basis, with only one side of the hedge cut in any one year. All hedge-cutting should be carried out during the winter months outside the bird nesting season (1st March to 31st August, inclusive). To ensure the best outcomes for biodiversity, incremental hedge-cutting should be practised. Incremental Hedge Cutting: Most hedgerow species will not flower or fruit on 1-year-old growth. Cutting to the same depth and height annually, therefore, severely limits the ability of hedgerows and scrub to provide food and shelter for wildlife. Cutting incrementally wider (even just 10cm) at each cut ensures that there is always 2+-year-old wood available for fruiting and flowering. After 10 or 20 years, if hedgerows become too wide, they can be cut back, and the process can start again.

#### 3.2 Bats

Works must ensure that they do not impact bats' normal functioning, including emergence, foraging, and navigation. This includes the impacts of temporary lighting and anthropogenic disturbance. During construction, works will generally take place during daylight hours only, and the Site will not be lit during the hours of darkness. If some lighting is required for health and safety or security reasons, lighting shall be directed away from retained hedgerows and treelines. These measures are considered sufficient to prevent any adverse impacts on commuting and foraging bats during construction. Additionally, during the operational phase, potential impacts are limited to lighting in previously unlit areas.

#### 3.3 Construction Noise

Noise monitoring by Enfonc took place between September 25th and 29th, 2024 and attended measurements were taken on October 1st, 2024. Noise sources associated with the construction phase include traffic movements on the existing road network and items of plant during site enabling (clearance and excavation) and erection of the Site structure. From the measured  $L_{Aeq(1hr)}$  noise level, the site is defined as Category A and the adopted construction noise limits are set out in **Table 3-1**.

**Table 3-1 Defined Construction Noise Limits at Noise Sensitive Locations (excerpt from Noise Assessment Report)**

Period	Noise Levels	
	$L_{Aeq(1hr)}$	$L_{AFmax}$
Monday to Friday 07:00 to 19:00hrs	65	70
Saturdays 07:00 to 13:00hrs	65	70
Any other times*	55	60
* Construction activity at these times, other than that required for emergency works, will normally require the explicit permission of the relevant local authority.]		

### 3.4 General Mitigation Measures

- During the construction phase, works should be halted before dusk and not started before sunrise to limit anthropogenic disturbance on the Site during bat-active hours. Works occurring between October 1st and March 31st can occur during dark hours as most bat species will be in hibernation during this period.
- Lighting on site should be kept to a security light, which is only turned on as required.
- Where lighting is required, lighting with the following design should be chosen, following Bat Conservation Trust (2018) recommendations:
  - LEDs will be used, as these emit minimal ultraviolet light.
  - Blue wavelengths will be avoided and the colour temperature will be <2,700 Kelvin.
  - Light wavelengths will peak higher than 550nm.
  - Lights will be kept as low to the ground as possible. Lights will be hooded or allowed to direct light towards the ground and reduce light spill.

While possible bat roosting was absent within and surrounding the subject site. Installing bat boxes will help enhance the Site for bats and should be carried out as part of best practices:

- A Flat Bat Colony Box 3FF should also be fixed to one of the large trees near the south of the site
- Installation of No.4 Schwegler Universal Bat Boxes (1FFH) clustered along the woodland.

### 3.5 Other Construction Environmental Mitigation

Construction environmental mitigation will be expected to follow best practice and any specific measures required in the planning conditions. The objective of this mitigation is to avoid/reduce the potential for environmental impacts during the construction phase.

This mitigation will be implemented by the construction contractor and is detailed in **Table 3.2**.

**Table 3.2 : Construction Environmental Mitigation**

Construction Activity	Mitigation incorporated into the Proposed Development
<p><b>Removal of vegetation, tree felling, topsoil and site clearance works.</b></p>	<ul style="list-style-type: none"> <li>● Any stripping when constructing the access track, concrete support structures, and internal site route will be managed sequentially in alignment with the proposed construction sequence.</li> <li>● Construction works will be undertaken in dry conditions when the potential for surface run-off is at its lowest.</li> <li>● The vegetation clearance within the proposed development will be kept to the minimum required for the access road and hard stand for the proposed development.</li> <li>● All existing vegetation on site will be retained and protected in accordance with the landscape and tree protection measures set out in BS 5837:2012.</li> <li>● Prior to the commencement of any site works, protective fencing will be installed to demarcate the Root Protection Areas (RPAs) of all trees, hedgerows, and other vegetation identified for retention.</li> <li>● The protective fencing will be erected in strict compliance with the specifications outlined in BS 5837.</li> </ul>

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Construction Activity	Mitigation incorporated into the Proposed Development
	<ul style="list-style-type: none"> <li>• The protective fencing will remain in place for the full duration of construction works and will only be removed once all heavy construction and machinery movements within proximity to the protected vegetation have ceased.</li> <li>• No storage of materials, excavation, vehicle movements, or discharge of surface water or chemicals will be permitted within the protected zones.</li> <li>• Signage identifying the fenced-off areas as “Tree Protection Zones – Keep Out” will be displayed at regular intervals along the fencing to ensure ongoing contractor awareness and compliance.</li> <li>• All tree and vegetation protection measures will be implemented under the supervision of a suitably qualified Landscape Architect or Arboricultural Consultant, in accordance with the Site-specific Tree Protection Plan.</li> </ul>
<b>Drainage controls and surface water management</b>	<ul style="list-style-type: none"> <li>• Construction works will be undertaken in dry conditions outside of the winter period when the potential for surface run-off is at its lowest.</li> <li>• Works will be undertaken in accordance with Inland Fisheries Ireland Guidelines on Protection of Fisheries during Construction Works in and adjacent to Waters (2016).</li> <li>• Vegetation to be cleared within the Site will be kept to the minimum required for the access road and hard stand for the batteries.</li> <li>• No concrete laitance or wash-out will be allowed to enter the drainage network.</li> <li>• Spill containment and clean-up materials will be held on site at all times during construction works.</li> <li>• Fuels, lubricants and hydraulic fluids for equipment used on the Site will be carefully handled to avoid spillage, properly secured against unauthorised access or vandalism, and provided with 110% spill containment.</li> <li>• Fuelling and lubrication of equipment will be carried out in a dedicated fuelling location.</li> <li>• Any spillage of fuels, lubricants or hydraulic oils will be immediately contained, and the contaminated soil removed from the Site and properly disposed of to a licensed facility.</li> <li>• Waste oils and hydraulic fluids will be collected in leak-proof containers and removed from the Site for disposal or re-cycling to a licensed facility.</li> <li>• It is not expected that significant volumes of water would be generated on-site during the construction period and excavation works are limited. However, any surface water run-off shall only be directed into the local drainage network following suitable silt control inspections and measures.</li> <li>• Silt fences to be installed during construction phase</li> <li>• Additional surface water management features onsite include proposed surface water manholes, surface water inspection chambers, deep retention basin Surface water runoff is not expected to cause significant impacts due to the nature of the proposed development. In the unlikely event of a fire on site, firewater will be retained via firewater reservoirs, as depicted in Planning Drawings attached.</li> <li>• The location of final drainage infrastructure will be developed to suit the Site topography, the existing drainage network and the final detailed design of the proposed development.</li> <li>• Where necessary, drainage infrastructure shall be constructed to prevent discharge of run-off onto the public road network.</li> </ul>

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Construction Activity	Mitigation incorporated into the Proposed Development
<b>Air Quality and Climate</b>	<ul style="list-style-type: none"> <li>● Impacts to air quality during the construction phase are not considered to be significant. Nonetheless, a suite of mitigation measures will be deployed on site during the construction phase and are as follows:               <ul style="list-style-type: none"> <li>○ Hard surfaces will be swept to remove any mud or aggregate build up.</li> <li>○ The local road in the vicinity of the development site will be inspected regularly for cleanliness and cleaned, as necessary.</li> <li>○ No soils will be moved when they are too dry or when there are unusually windy weather conditions.</li> <li>○ With regard to exhaust emissions and greenhouse gas (GHG) emissions.</li> <li>○ Vehicles on the Site will not be left idling for more than a few minutes.</li> <li>○ Daily visual Inspections will be carried at the site boundary. All visual inspections will be summarised in the Weekly Environmental Inspection Checklist which is in Appendix 1 of this CEMP.</li> <li>○ Visual inspections are to be deployed which will assist in monitoring the effectiveness of dust mitigation measures.</li> </ul> </li> </ul>
<b>Construction Traffic management</b>	<ul style="list-style-type: none"> <li>● Mitigation measures with regards to traffic are to be undertaken during the construction phase; a detailed Traffic Management Plan will be prepared prior to the construction phase.</li> <li>● The construction period of the proposed development is expected to be approximately 12-18 months.</li> <li>● The delivery of the batteries and associated equipment and infrastructure will require a number of loads using articulated haulage trucks.</li> <li>● Other vehicles requiring access to the site will include tracked excavators, dump trucks, mobile cranes and articulated haulage trucks.</li> <li>● There will only be a small increase in movements of private cars and vans at the beginning and end of each working day as personnel arrive at and depart the Site. Where possible, carpooling will be encouraged.</li> <li>● These procedures shall be adhered to during the construction phase and agreed during the preconstruction phase with the Planning Authority.</li> <li>● Traffic signage and temporary construction stage traffic measures are to be implemented in accordance with the Department of Transport's Traffic Signs Manual, particularly Chapter 8 entitled "Temporary Traffic Measures and Signs for Road works".</li> </ul>
<b>Population and Human Health</b>	<ul style="list-style-type: none"> <li>● During prolonged dry or windy periods, any areas with the potential to generate dust will be watered and;</li> <li>● Public roads will be inspected regularly for cleanliness and cleaned as necessary.</li> </ul>
<b>Installation of concrete support structures and internal site track</b>	<ul style="list-style-type: none"> <li>● Concrete will be batched off-site and delivered to site ready-mixed, avoiding the risk of pollution from on-site batching. Concrete pouring will be planned in advance to avoid periods of heavy rain, thereby reducing the pollution risk from concrete being washed away. The excavation will be sufficiently dewatered before pouring begins and dewatering will continue while the concrete sets. Covers will be available for freshly poured concrete to prevent rain washing away the surface layer. Surplus concrete will be returned</li> </ul>

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Construction Activity	Mitigation incorporated into the Proposed Development
	<p>to the batching plant and disposed of in an appropriate location. No concrete laitance or wash-out will be allowed to enter the drainage network.</p> <ul style="list-style-type: none"> <li>● Construction works will be undertaken in dry conditions outside of the winter period when the potential for surface run-off is at its lowest.</li> <li>● Works will be undertaken in accordance with Inland Fisheries Ireland Guidelines on Protection of Fisheries during Construction Works in and adjacent to Waters (2016).</li> <li>● The vegetation clearance within the Site will be kept to the minimum required for the access road and hard stand for the proposed development.</li> <li>● Spill containment and clean-up materials will be held on site at all times during construction works.</li> <li>● Fuels, lubricants and hydraulic fluids for equipment used on the site will be carefully handled to avoid spillage, properly secured against unauthorised access or vandalism, and provided with 110% spill containment.</li> <li>● Fuelling and lubrication of equipment will be carried out in a dedicated fuelling location.</li> <li>● Any spillage of fuels, lubricants of hydraulic oils will be immediately contained and the contaminated soil removed from the Site and properly disposed of to a licensed facility.</li> </ul>
<p><b>Noise</b></p>	<ul style="list-style-type: none"> <li>● Restricted speed limits will be implemented on-site to reduce the generation of noise from moving HGV's within the Site;</li> <li>● A site representative responsible for matters relating to noise will be appointed to liaise with clients and residents.</li> <li>● No plant used on-site will be permitted to cause an on-going public nuisance due to noise.</li> <li>● The best means practicable, including proper maintenance of plant, will be employed to minimise the noise produced by on site operations.</li> <li>● All vehicles and mechanical plant will be fitted with effective exhaust silencers and maintained in good working condition for the duration of the contract.</li> <li>● Compressors will be attenuated models, fitted with properly lined and sealed acoustic covers which will be kept closed whenever the machines are in use and all ancillary pneumatic tools shall be fitted with suitable silencers.</li> <li>● Machinery that is used intermittently will be shut down or throttled back to a minimum during periods when not in use.</li> <li>● Any plant, such as generators or pumps, which is required to operate before 07:00hrs or after 19:00hrs will be surrounded by an acoustic enclosure or portable screen.</li> <li>● During the construction programme, supervision of the works will be included, ensuring compliance with the appropriate limits.</li> <li>● The hours of construction activity will be limited to avoid unsociable hours where possible. Construction operations shall generally be restricted to between 07:00hrs and 19:00hrs weekdays and between 08:00hrs and 16:00hrs on Saturdays. However, any necessary or emergency out of hours working will be agreed in advance with the local Planning Authority.</li> </ul>

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Construction Activity	Mitigation incorporated into the Proposed Development
<b>Construction operating hours</b>	<p>To be confirmed by Cork County Council but current expectations are:</p> <ul style="list-style-type: none"> <li>● Monday – Friday: 07:00-19.00hrs</li> <li>● Saturday: 08.00-16.00hrs</li> <li>● Sunday: No operations unless prior approval received from Cork County Council</li> </ul>
<b>Flood Management Risk</b>	<ul style="list-style-type: none"> <li>● Implementation of the 2009 Guidelines on the Planning System and Flood Risk Management (DHPLG/OPW)</li> <li>● Promotion of Sustainable Urban Drainage Systems</li> <li>● Land use assessments and promotion of Natural Flood Risk Management (NFRM) measures</li> <li>● Continuation of the Minor Works Scheme, subject to funding availability and ongoing review</li> <li>● Maintenance of Arterial Drainage Schemes</li> <li>● Maintenance of Drainage Districts</li> <li>● Maintenance of drainage channels that are not part of a scheme</li> <li>● Continuous review and improvement of emergency response plans</li> <li>● Doing flood-related data collection</li> </ul>
<b>Waste Management</b>	Refer to the Waste Management section (Section 5) .
<b>Severe Weather Events</b>	<p>Works should be suspended if severe weather events including any of the following weather conditions are forecast or occur:</p> <ul style="list-style-type: none"> <li>● 10 mm/hr (i.e. high-intensity local rainfall events);</li> <li>● &gt;25 mm in 24 hours (heavy frontal rainfall lasting most of the day);</li> </ul> <p>or</p> <ul style="list-style-type: none"> <li>● &gt;half monthly average rainfall in any 7 days.</li> </ul> <p>Prior to works being suspended the following control measures shall be completed:</p> <ul style="list-style-type: none"> <li>● Secure all open excavations;</li> <li>● Provide temporary or emergency drainage to prevent back-up of surface runoff; and,</li> <li>● Avoid working during heavy rainfall and for up to 24 hours after heavy events to ensure drainage systems are not overloaded.</li> </ul>

## 4 Emergency Response Procedure

The purpose of the emergency response procedure (ERP) is to address an emergency situation which may originate on-site. The main scenarios which were considered to potentially occur on site were associated with:

- A spill or leakage;
- A fire;
- Bunding and Storage of Chemical/Oils/Fuels On-site; and
- Refuelling of Plant and Equipment.

### 4.1 Emergency Spill/Leakage Protocol

The procedure for dealing with spillages and/or leakages on site is as follows:

- The Site operator shall be notified of a spill/leakage immediately by site staff;
- Where there is any indication that environmental pollution (releases to the environment) has, or may have, taken place, then the Site operator will liaise with the appropriate Authority as deemed required;
- If possible, the type and nature of the spilled material, and the volume, shall be confirmed. Any risks to human health and/or the environment shall be determined;
- Stop the source and contain the spillage;
- Limit the spillage-affected area by blocking, diverting or confining the spillage;
- Smaller leaks/spillages shall be contained using a spill kit, where absorbent product will be applied to the spill and removed as soon as it has absorbed all the material. All contaminated spill kit material shall be put into a suitable waste container and labelled as to the contents, prior to collection by a licenced waste contractor;
- If a bigger spillage occurs, access to any surface water features is to be blocked off to stop potential discharges. Then, staff shall clear up the spillage and dispose of the spill material to an authorised waste facility;
- If a spillage results in discharges to a surface water feature or there is potential for adverse impact on the environment, the site operator shall report to the appropriate authority (eg Cork County Council / Irish Water, Inland Fisheries Ireland) and agree a course of action;
- A record of the spill/leakage incident shall be retained on-site.

### 4.2 Fire

In the event of a fire, persons near the outbreak of the fire shall alert the site operator. In an emergency situation, the appropriate services will be notified.

A Fire Safety Management Plan has been prepared and is appended to this report.

The following information will be provided:

**1. The name of the company**

Drumkee LCIS Limited

**2. Townland**

Ballynanelagh, Co. Cork

**3. Details of the Fire**

Emergency contact details are:

Local Garda Station: Glanmire: +353 21 455 6370

Local Fire Station: Ballyvolane

**Dialling 999/112 will connect the caller with any of the emergency services.**

If a fire on-site has an adverse impact on the environment, Cork County Council, Irish Water and Inland Fisheries Ireland (as relevant) will be notified and they shall agree a course of action.

### **4.3 Bunding and Storage of Chemicals/Oils/Fuels On-Site**

Minimal volumes of oil/fuels/chemicals are expected to be stored on site. The following controls shall be implemented by the construction contractor in relation to the storage of chemicals, oils and fuels on-site:

- Appropriate and sufficient spill control materials will be installed at strategic locations within the site. Spills kits for immediate use will be kept in the cab of mobile equipment.
- Oil booms and oil soakage pads should be maintained on-site to enable a rapid and effective response to any accidental spillage or discharge. The correct disposal of these booms and pads will be demonstrated during the toolbox talks. Records will be maintained by the environmental manager of the used booms and pads taken off site for disposal.
- Fuel, oils, greases and hydraulic fluids shall be stored in bunds.
- Bunds shall be able to contain at least 25% of the total volume of the stored products or 110% of the total volume the largest container (whichever is greater);
- Damaged or leaking containers will be removed from use and replaced immediately.
- Spill kits will be stored in the site compound with easy access for delivery to site in the case of an emergency. A minimum stock of spill kits will be maintained at all times and site vehicles will carry spill kits at all times. Spill kits must include suitable spill control materials to deal with the type of spillage that may occur and where it may occur. Typical contents of an on-site spill kit will include the following as a minimum:
  - Absorbent granules.

- Absorbent mats/cushions.
- Absorbent booms.
- Spill kits will contain gloves to handle contaminated materials and sealable disposal sacks.
- Track mats, drain covers and geotextile material.
- Any pollutant chemicals, fuels of any kind, etc. stored on site throughout the development will be stored in labelled waterproof and secured protective containers to mitigate the risk of pollution of the watercourses; and at no point should there be storage of material or vehicles/machinery within 50m of watercourses.
- The site compound fuel storage areas and cleaning areas will be rendered impervious and will be constructed to ensure no discharges will cause pollution to surface or ground waters.
- Re-fuelling of construction vehicles and the addition of hydraulic oils or lubricants to vehicles, will take place in a designated area (refer to Construction Compound Layout) which will be away from any existing surface water drains which could also provide pathways to the underlying geology.
- Mobile plant will refuel over a drip tray with an absorbent mat.
- The contractor will ensure that no hazardous or noxious materials enters a watercourse/drain. Should this situation arise emergency procedures will be activated.
- Potentially contaminated run off from plant and machinery maintenance areas will be managed within the site compound surface water collection system.
- Damaged or leaking containers will be removed from use and replaced immediately.
- Storage of fuels, oils and chemicals shall be away from the surface drainage systems on-site.
- Any bunds shall be checked daily by the contractor to:
  - Determine if it is necessary to drain the contents of the bund;
  - Ensure that the bund contents will not overflow the bund (Ideally the bund should be dry, as any volume occupied by liquid within the bund reduces the potential of the bund to retain the spilled contents of a tank should a spillage or leakage occur);
  - Check the condition of the bund; and
  - Confirm that any drain valves are in the closed position and locked if necessary.

### **4.4 Refuelling of Plant and Equipment**

The requirement for refuelling on-site will be limited.

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Where it is required, the following controls shall be implemented by the construction contractor:

- Delivery and/or transport of any fuel will be in approved vehicles and tanks;
- All refuelling of construction vehicles and the addition of hydraulic oils or lubricants to vehicles will be undertaken in a designated area, away from any surface water drainage;
- Refuelling shall not be undertaken when plant and equipment engines are running;
- The construction contractor will confirm that all equipment, fittings, hoses, tanks and nozzles are in good condition and free from leaks;
- All dispensing of fuel will be attended for the duration of the operation; and
- The construction contractor staff member will inspect the refuelling area prior to and on completion of the refuelling activity.

### **4.5 Construction and Operational Fire and Emergency Management**

The Fire Safety Report is included with this CEMP. The report includes the Emergency Response Plan.

The construction contractor will include the site provisions in the plan.

## 5 Construction Waste Management

### 5.1 Minimisation of Waste Generation

In accordance with the waste management hierarchy and best practice, the proposed construction works will operate to prevent the generation of waste where possible.

Measures implemented to achieve these aims will include, but are not limited to, the following:

- Ordering of appropriate quantities of materials using the “just in time” philosophy;
- Appropriate handling procedures for materials will be developed to prevent damage; and
- Co-ordination in the supply of materials and services to avoid repeated and/or redundant deliveries.

Measures will be taken by the contractor to maintain the development site and surroundings to a high standard of cleanliness. These measures will include but are not limited to the following;

- A regular programme of site tidying to maintain a safe and orderly site;
- In the event of any litter or debris escaping the site, it will be collected immediately and removed to waste storage on site and subsequently disposed-of in the required manner.

The following management measures will apply:

- Appropriate waste containers will be used to ensure that different waste types are appropriately segregated and stored at all times;
- All waste containers will be kept clean;
- All waste will be appropriately sealed or covered in order to prevent nuisance and potential emissions to air, ground and water and to prevent cross contamination of waste streams;
- Where containment/bunding of the waste is required, this area will be banded to retain a potential leakage comprising the capacity of 110% of the largest container or 25% of the total storage requirement, whichever is greater;
- Waste will be held in containers to prevent leakage, spillage or escape of the contents under normal conditions of handling, storage and transport;
- All waste will be clearly labelled and the label will be accurate and sufficient so as to enable proper and safe handling, storage and transportation;
- General non-hazardous waste generated on-site can be stored in movable, labelled skips at particular workplaces.

### 5.2 Management of the Movement of Waste

All waste will be documented prior to leaving the site.

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All waste receptacles will be covered or enclosed when leaving the site.

All movement of waste and the use of waste contractors will be undertaken in accordance with waste legislation including the:

- Waste Management Acts 1996-2011;
- Waste Management (Collection Permit) Regulations 2007 as amended; and
- Waste Management (Facility Permit and Registration) Regulations 2007 as amended.

## 6 Operational Phase

### 6.1.1 Drainage controls and surface water management

The proposed development will utilise surface water to provide water to the firewater reservoirs on site. The firewater reservoirs will be constantly full for use in case of a fire. Silt traps and oil interceptors will be provided prior to the surface water entering the reservoir.

Surface water Management measures are as follows:

- All surface water will settle in the firewater reservoirs and retention basin and pass through a pumping station.
- A swale is proposed on the northern boundary of the Site.
- Sediment and silt control measures will be installed as per **Figure 6-2**.
- The location of drainage infrastructure will be developed to suit the Site topography, the existing drainage network and the final detailed design of the proposed development
- Drainage channels shall be constructed at the entrance to prevent discharge of run-off onto the public road network as shown in **Figure 6-1**.
- Clearance works will be planned outside of periods when heavy rainfall is expected.
- Daily and weekly inspections will be undertaken on any sediment control devices, and these will be stabilised/repared as required.
- Daily and weekly inspections will be undertaken on any watercourses receiving flows from the proposed site.
- Storage of fuels, other hydrocarbons and chemicals and refuelling activities will not be permitted within 50m of any watercourses. All such materials will be stored within bunds with sufficient capacity which is 110% of the largest tanks capacity or 25% of the total capacity of all the tanks (whichever is greater).
- Emergency procedures and spill kits will be available and construction personnel will be trained appropriately.

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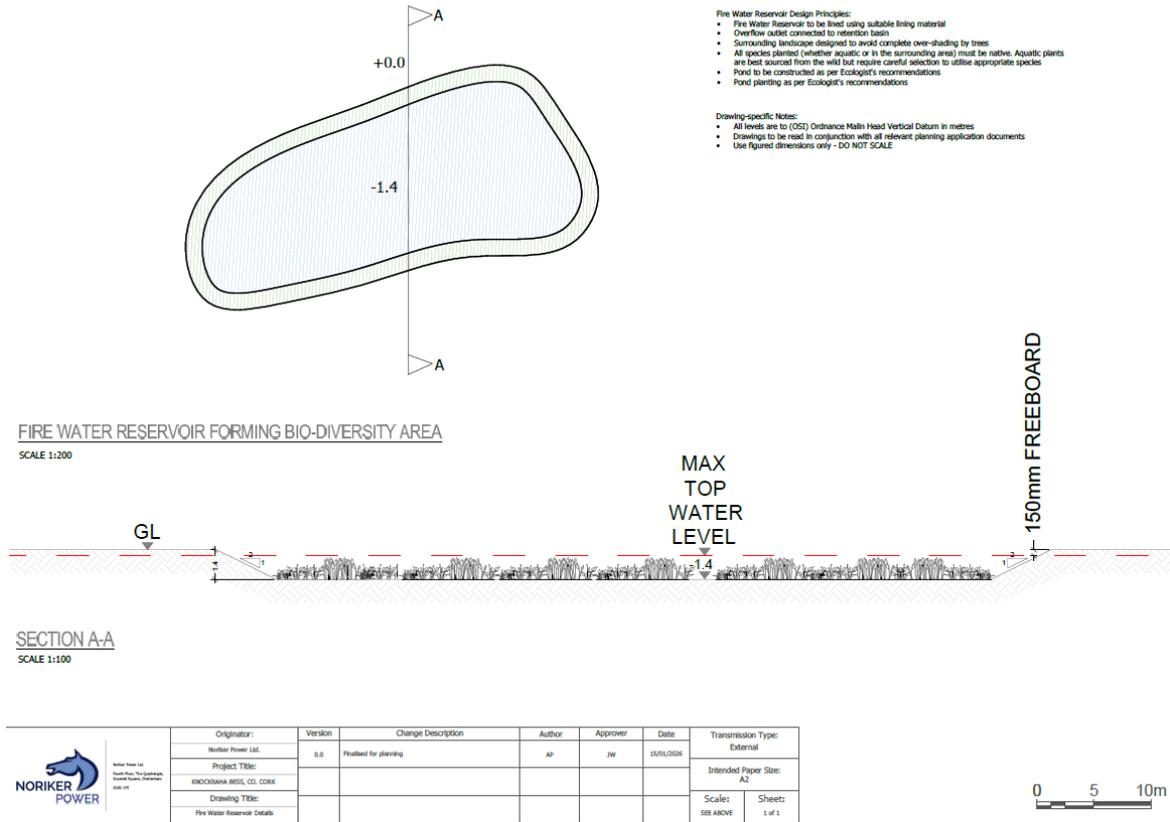


Figure 6-1: Typical Drainage and Fire Water Details (Drawing ref. no. 24045-151)

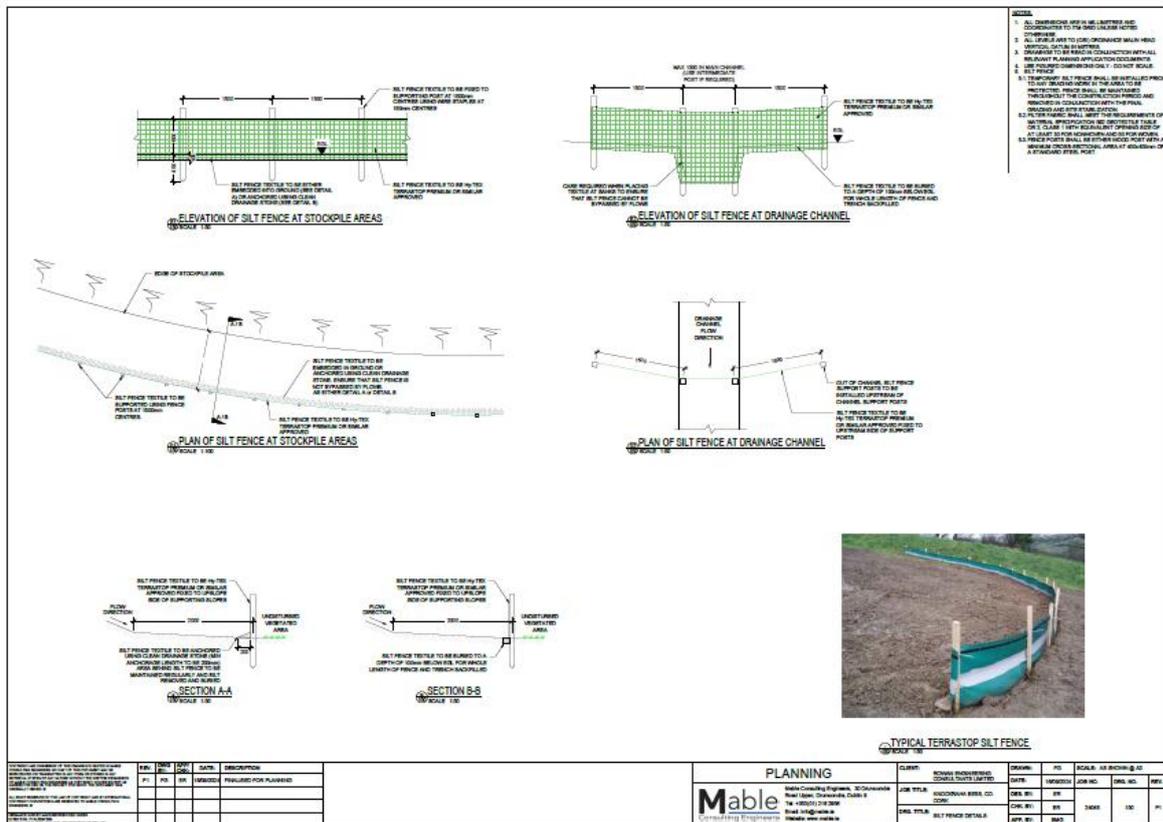


Figure 6-2: Silt Fence Detail (Drawing ref. no. 24045-150)

## 7 Site Inspection Procedure and Checklist

Regular site assessments will be undertaken to confirm that the CEMP is being followed. Where required, the Site's Environmental Manager, or an independent Environmental Clerk of Works will undertake site inspection or site audit.

These assessments will include.

- Daily and weekly site walkovers using prescribed check lists.
- Daily and weekly inspections will be undertaken on any sediment control devices, and these will be stabilised/repaired as required.
- Daily and weekly inspections will be undertaken on any watercourses receiving flows from the proposed Site.
- Scheduled and *ad hoc* site inspection and audits.
- Environmental Toolbox talks.
- Visual checking and recording of mechanical plant for leaks and mechanical issues in order to minimise leakage and breakdowns on site. The purpose is to identify any need for pre-emptive maintenance, so as to avoid any accidental spillage of hydrocarbons.

The checklists proposed for use are appended to this **CEMP**.

## **Appendix 1 – Environmental Checklist**

### **Introduction & Scope**

This environmental inspection procedure outlines the requirements for the conduct of regular visual inspections at the site, Knockraha, Ballynanelagh, Co. Cork

Regular visual inspections are performed to ensure a clean working environment.

The inspections also aim to identify potential environmental hazards in the work area and to minimise associated risks.

### **Responsibilities**

#### **The site operator**

- Undertake regular visual inspections of the Site;
- Undertake and record the Weekly Check inspections (as per checklist attached); and
- Implement and adhere to any required corrective actions / control measures.

#### **Inspection Procedure**

1. Review the Weekly Checklist Form;
2. Conduct the inspection by walking around the work environment;
3. Identify any hazards and areas of non-compliance against the checklist;
4. Record all findings, ensuring the Form is signed and dated and includes details of the personnel conducting the environmental inspection;

Monthly or as directed, an environmental inspection will be carried out by the appointed Environmental Manager, an independent Environmental Clerk of Works, or the Client Representative.

## Environmental Inspection Checklist

Date: \_\_\_\_\_

Person: \_\_\_\_\_

Weather condition (precipitation, sun, wind- speed and direction)

Environmental Inspection Checklist	Comments	Corrective Actions Needed (Y/N)
<b>GENERAL</b>		
Site clean and tidy – no litter, good housekeeping?		
Are there any leaks or mechanical issues with plant and equipment on-site?		
Do any corrective action records remain open?		
<b>DUST EMISSIONS</b>		
Are site activities sprayed to minimise dust generation?		
Are dusty sections of the site sprayed with water?		
Are speed control measures being complied with		
<b>WATER ENVIRONMENT</b>		
Are daily and weekly inspections undertaken on any sediment control devices		
Are daily and weekly inspections undertaken on any watercourses		

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Environmental Inspection Checklist	Comments	Corrective Actions Needed (Y/N)
receiving flows from the proposed site.		
Is wastewater regularly removed off-site		
Is water recycled where possible for dust suppression/ wheelwash etc?		
<b>NOISE</b>		
Is idle equipment turned off?		
Any noise mitigation measures adopted?		
<b>WASTE MANAGEMENT</b>		
Are wastes regularly removed off-site for recycling/ appropriate disposal?		
Are all wastes collected and disposed of by licensed contractors		
Are waste containers appropriately & clearly labelled?		