Project

Residential Development, Cornelscourt, Dublin 18

Report Title

Preliminary Construction Environmental Management Plan

Client

Cornel Living Ltd.

INFRASTRUCTURE

DBFL CONSULTING ENGINEERS

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1. WORKS PROPOSAL

This Construction Management Plan is for the works associated with the construction of 412 apartments, 7 houses, residential amenities (concierge, tenant lounges and gym), café, retail unit and creche on a 2.15 Ha site (approx.) located at Cornelscourt Village, Old Bray Road, Cornelscourt, Dublin 18.

The site which is currently greenfield (with the exception of a temporary carpark in its north-west corner) is located adjacent to Cornelscourt Village (refer to Figure 1.1).

The N11 road is located to the north-east of the site, existing residential development (Willow Grove) is located to the south-east of the site and the AIB (and associated carparking) is located to the north-west of the site. Old Bray Road is located to the south-west of the site.

Figure 1.1, Site Location

The construction management issues addressed within this plan include the following:

- Health and Safety
- Working Hours
- Traffic Management
- Stripping of Topsoil and Excavation of Subsoil
- Erosion and Sediment Control
- Accidental Spills and Leaks
- Biodiversity
- Construction Waste Management
- Noise and Vibration
- Air Quality and Dust Control
- Landscape and Visual Impact
- Material Assets – Site Services
- Site Compound Facilities and Parking

This Preliminary Construction Environmental Management Plan shall be referenced in all tender and contract documentation for the proposed works and is to be read in conjunction with all relevant Engineering and Architectural documentation.

2. COMPLIANCE WITH GENERAL SAFETY REQUIREMENTS

The Contractor shall be responsible for overall management of the site for the duration of the proposed works and must progress their works with reasonable skill, care, diligence and to proactively manage the works in a manner most likely to ensure the safety and welfare of those carrying out construction works.

The Contractor shall comply with all relevant Statutory requirements such as the 2005 Safety Health and Welfare at Work Act, The Construction Regulations (SI 291 of 2013), the General Application Regulations (SI 299 of 2007), etc. (and any amendments thereof).

In addition, the Contractor shall comply with all the reasonable safety requirements of the Client, the Project Supervisor for the Design Process and the Project Supervisor for the Construction Stage as well as providing all staff with a site specific safety induction and appointment of a safety officer.

3. WORKING HOURS

For the duration of the proposed infrastructure works, the maximum working hours shall be 07:00 to 19:00 Monday to Friday (excluding bank holidays) and 09:00 to 13:00 Saturdays, subject to the restrictions imposed by the local authority.

No working will be allowed on Sundays and Public Holidays.

Subject to the agreement of the local authority, out of hours working may be required for water main connections, foul drainage connections etc.

4. OUTLINE TRAFFIC AND TRANSPORTATION PLAN

A Traffic Management Plan (TMP) will be prepared for the works in accordance with the principles outlined below:

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

A permanent site entrance off Old Bray Road will be constructed, in the position of the existing site access shared with AIB. All construction traffic will enter the site via Old Bray Road and will be routed to the site via the primary road network in the area (i.e. N11 dual carriageway). Queuing of material delivery vehicles will not be permitted on the access road to the site (which also serves as access to the AIB carpark).

In general, the impact of the construction period will be temporary in nature and less significant than the operational stage of the proposed development.

Construction Traffic will consist of the following categories:

- Private vehicles owned and driven by site staff and management
- Construction vehicles e.g. excavation plant, dump trucks
- Materials delivery vehicles involved in site development works

The following initiatives will be implemented to avoid, minimise and/or mitigate against traffic issues:

- During the pre-construction phase, the site will be securely fenced off/hoarded off from adjacent properties, public footpaths and roads.
- A large proportion of construction workers are anticipated to arrive in shared transport. It is likely that some numbers of the construction team will be brought to/from the site in vans/minibuses, which will serve to reduce the trip generation potential.
- On-site employees will generally arrive before 08:00, thus avoiding morning peak hour traffic. These employees will generally depart after 16:00.

- Delivery vehicles to and from the site will be spread across the course of the working day, therefore, the number of HGVs travelling during the peak hours will be relatively low. Queuing of material delivery vehicles will not be permitted on the public roads adjacent to the site;
- Truck wheel washes will be installed at construction entrances and adjacent public roads swept as required.
- Any specific recommendations with regard to construction traffic management made by Dun Laoghaire Rathdown Council will be adhered to.
- Potential localised traffic disruptions during the construction phase will be mitigated through the implementation of industry standard traffic management measures such as the use of traffic signage. These traffic management measures shall be designed and implemented in accordance with the Department of Transport's Traffic Signs Manual "Chapter 8 Temporary Traffic Measures and Signs for Roadworks" and "Guidance for the Control and Management of Traffic at Roads Works – 2nd Edition" (2010).
- Site entrance point/s from the public road will be constructed with a bound, durable surface capable of withstanding heavy loads and with a sealed joint between the access and public highway.
- Material storage zones will be established in the compound area and will include material recycling areas and facilities.
- 'Way finding' signage will be provided to route staff / deliveries into the site and to designated compound / construction areas.
- On completion of the works, all construction materials, debris, temporary hardstands etc. from the site compound will be removed off-site and the site compound area reinstated in full on completion of the works.

5. SOILS AND GEOLOGY

Site development works will include stripping of topsoil and excavation of subsoil layers. These activities have potential to expose the soils and geological environment to pollution.

The contractor shall obtain approval of their proposed erosion and sediment control measures from Dun Laoghaire-Rathdown County Council's Environment Section prior to commencing works on site.

The following measures are to be implemented in order to mitigate against such risks.

Stripping of Topsoil

- Stripping of topsoil will be carried out in a controlled and carefully managed way and coordinated with the proposed staging for the development
- At any given time, the extent of topsoil strip (and consequent exposure of subsoil) will be limited to the immediate vicinity of active work areas
- Topsoil stockpiles will be protected for the duration of the works and not located in areas where sediment laden runoff may enter existing surface water drains
- Topsoil stockpiles will also be located so as not to necessitate double handling

Excavation of Subsoil Layers

- The duration that subsoil layers are exposed to the effects of weather will be minimized
- Disturbed subsoil layers will be stabilized as soon as practicable (e.g. backfill of drainage trench excavations)
- Stockpiles of excavated subsoil material will be protected for the duration of the works, stockpiles of subsoil material will be located separately from topsoil stockpiles

Weather Conditions

- Typical seasonal weather variations will also be taken account of when planning stripping of topsoil and excavations with an objective of minimizing soil erosion

Dust Control

- Dust suppression practices are to be implemented during stripping of topsoil layers and excavation of subsoil layers as outlined in Section 10 of this Preliminary Construction Environmental Management Plan.

Area Impacted by Hydrocarbons Adjacent to Filling Station

An area of the site adjacent to the neighbouring filling station (adjacent to the western boundary) has been impacted by hydrocarbons. Investigation within the hydrocarbon impacted area confirms that the reduction in degree of impact moving downgradient and away from the filling station suggests that the impact is related to the filling station.

Two locations have been identified where these materials should be excavated and removed from site in the event of residential development. These materials should be classified as and disposed of as hazardous. All subsoil impacted by hydrocarbons which are affected by the proposed development is to be remove.

The natural subsoils outside the impacted area have been assessed and are suitable for removal to a suitably licenced inert facility.

The Contractor is to provide a Method Statement (to be agreed prior to commencing any works on site) for works in the vicinity of areas impacted by hydrocarbons including but not limited to details of:

- Their proposed specialist sub-contractors
- Proposals for containment of contamination,
- Proposal for removal of hydrocarbons from dewatered groundwater prior to discharge
- Co-ordination of contamination removal with other site works
- Proposed licenced waste receiving facility
- Compliance with relevant legislation including HSA publications and the Waste Management Act.

6. WATER AND HYDROGEOLOGY

The following measures are to be implemented during the construction phase in order to mitigate risks to the water and hydrogeological environment.

Erosion and Sediment Control

- Measures will be implemented to capture and treat sediment laden surface water runoff (e.g. sediment retention ponds, surface water inlet protection, fencing and signage around specific exclusion zones and earth bunding adjacent to open drainage ditches)
- Surface water runoff from areas stripped of topsoil and surface water collected in excavations will be directed to on-site settlement ponds where measures will be implemented to capture and treat sediment laden runoff prior to discharge of surface water at a controlled rate
- On-site settlement ponds are to include geotextile liners and riprapped inlets and outlets to prevent scour and erosion
- Surface water discharge points during the construction phase are to be agreed with Dun Laoghaire-Rathdown County Council's Environment Section prior to commencing works on site

Accidental Spills and Leaks

- All oils, fuels and other chemicals will be stored in a secure bunded hardstand area
- Refueling and servicing of construction machinery will take place in a designated hardstand area which is also remote from any surface water inlets (when not possible carry out such activities off site)
- 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 the equipment

Concrete

- Concrete batching will take place off site, wash down and wash out of concrete trucks will take place off site and any excess concrete is not to 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

Wheel Wash Areas

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

7. BIODIVERSITY

Proposed mitigation measures with regard to biodiversity during the construction phase are detailed in the EIAR. These mitigation measures are to be incorporated into the detailed Construction Management Plan.

8. CONSTRUCTION WASTE MANAGEMENT

The principle of 'Duty of Care' in Waste Management Act 1996 (as amended) states that the waste producer is responsible for waste from the time it is generated through to its legal disposal (including its method of disposal). Waste materials generated by earthworks, demolition and construction activities will be managed according to the Department of the Environment, Heritage and Local Government's 2006 Publication – Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects.

Proposed mitigation measures with regard to construction and demolition waste are detailed in Byrne Environmental Consulting Ltd. "Construction Phase Waste and By-Produce Management Plan" (included as part of this application) and are to be incorporated into the detailed Construction Management Plan.

The following measures are to be implemented during the construction phase in order to reduce the amount of waste produced, manage the wastes generated responsibly and handle waste in such a manner as to minimise the effect on the environment:

- Copies of the final Construction and Demolition Waste Management Plan will be made available to all relevant personnel on site. All site personnel and sub-constructors will be instructed on the objectives of the Construction Waste Management Plan and informed of their responsibilities.
- The nominated Construction and Demolition Waste Manager responsible for implementation of this Construction Waste Management Plan will be identified prior to construction commencement and will arrange for a waste audit of the project once construction has fully commenced on site (and of any facilities to which waste from the project is delivered as required).
- Building materials will be chosen with an aim to 'design out waste'
- On-site segregation of non-hazardous waste materials into appropriate categories. All waste material will be stored in skips or other suitable receptacles in a designated area of the site.

- On-site segregation of hazardous waste materials into appropriate categories. Hazardous waste will be separately stored in appropriate lockable containers prior to removal from site by an appropriate waste collection licence holder.
- All wastes segregated at source where possible
- All waste material will be stored in skips or other suitable receptacles in a designated area of the site.
- Waste bins, containers, skip containers and storage areas will be clearly labelled with waste types which they should contain including photographs as appropriate.
- The site will be maintained to prevent litter and regular litter picking will take place throughout the site.
- Materials will be ordered on a 'just in time' basis to prevent over supply and site congestion (i.e. to minimise materials stored on site)
- Materials will be correctly stored and handled to minimise the generation of damaged materials
- Left over materials (e.g. timber off-cuts) shall be re-used on site where possible
- All waste leaving the site will be recycled, recovered or reused where possible
- All waste leaving the site will be transported by suitable permitted contractors and taken to suitably registered, permitted or licensed facilities
- All waste leaving the site will be recorded and copies of relevant documentation maintained
- All site works shall also comply with the requirements of the Construction and Demolition Waste Management Plan prepared by AWN Consulting

9. NOISE AND VIBRATION

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 Application) Regulations 2007, Part 5 Noise and Vibration.

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 (e.g. Standard 2.4m high construction hoarding) to remove direct line of sight between noise source and receiver when construction works are being carried out in proximity to noise sensitive receivers.
- Establishing channels of communication between the contractor, local authority and residents.
- Appointing a site representative responsible for matters relating to noise.
- A noise and vibration monitoring specialist will be appointed to periodically carry out independent monitoring of noise and vibration during random intervals and at sensitive locations for comparison with limits and background levels.
- 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.
- Avoid unnecessary revving of engines and switch off plant when idle.
- All vehicles and mechanical plant used for the purpose of the works shall be fitted with effective exhaust silencers and shall be maintained in good and efficient working order. In addition, all diesel engine powered plant shall be fitted with effective air intake silencers.
- All ancillary pneumatic percussive tools shall be fitted with mufflers or silences of the type recommended by the manufacturers, and where commercially available, dampened tools and accessories shall be used.

Noise Limits

Noise Limits to be applied for the duration of construction works are as set out in the National Roads Authority (NRA) Guidelines for Treatment of Noise and Vibration in National Roads Schemes (summarised below in Figure 9.1) and BS 5228-1:2009+A1:2014 (Code of Practice for Noise Control on Construction and Open Sites).

Date	Noise Level (dB re $2x10^{-5}$ Pa)	
	$L_{Aeq(1hr)}$	L_{AFmax}
Monday to Friday 07:00 to 19:00hrs	70	80
Monday to Friday 19:00 to 22:00hrs	60*	65*
Saturdays 08:00 to 16:30hrs	65	75
Sundays & Bank Holidays 08:00 to 16:30hrs	60*	65*

Figure 9.1, NRA Guidelines for Maxium Permissible Noise Levels at the Façade of Dwellings During Construction.

BS 5228 applies a noise limit of 70 dBA between 07:00 am and 19:00 pm 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 construction works, a daytime noise limit (07:00 am to 19:00 pm) of 70 dBA shall apply (in accordance with the requirements of BS 5228 and generally in agreement with the NRA guidelines).

Vibration Limits

Vibration Limits to be applied for the duration of construction works are as set out in BS 5228-2:2009+A1:2014 (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 damage levels from ground borne vibration). Allowable vibration during the construction phase is summarised below in Figure 9.2.

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 15Hz	15 to 40Hz	40Hz and above
12 mm/s	20 mm/s	50 mm/s

Figure 9.2, Allowable Vibration (in terms of peak particle velocity) at the closest part of sensitive property to the source of vibration

10. AIR QUALITY AND CLIMATE

The primary air quality impact during the construction phase relates to nuisance dust emissions.

The following dust suppression practices are to be implemented during the construction phase:

- The Contractor shall prepare a dust minimisation plan (including a documented system for managing site practice with regard to dust and specification of effective measures to deal with any complaints received) which shall be communicated to all site staff
- Hard surface roads will be swept to remove mud and aggregate materials from their surface while any un-surfaced roads will be restricted to essential site traffic
- Any road that has the potential to give rise to fugitive dust must be regularly watered, as appropriate, during dry and/or windy conditions
- Vehicles using site roads will have their speed restricted, and this speed restriction must be enforced rigidly (on any un-surfaced site road, this will be 20 kph and on hard surfaced roads as site management dictates)
- Vehicles delivering material with dust potential (soil, aggregates etc.) will be enclosed or covered with tarpaulin at all times to restrict the escape of dust
- Public roads outside the site will be inspected on a daily basis for cleanliness and cleaned as necessary
- Debris, sediment, grit etc. captured by road sweeping vehicles is to be disposed off-site at a licensed facility
- Vehicles exiting the site shall make use of a wheel wash facility where appropriate prior to entering onto public roads
- Material handling systems and site stockpiling of materials will be designed and 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
- During movement of materials both on and off-site, trucks will be stringently covered with tarpaulin at all times. Before entrance onto public roads, trucks will be adequately inspected to ensure no potential for dust emissions

Monitoring of dust deposition levels (via the Bergerhoff method) shall take place at a number of locations at the site boundary of the proposed development to ensure that dust nuisance is not occurring at nearby sensitive

receptors. This monitoring aims to ensure that the dust mitigation measures outlined above remain effective.

11. LANDSCAPE AND VISUAL IMPACT ASSESSMENT

Proposed construction phase mitigation measures are summarised below:

- Site hoarding will be erected to restrict views of the Construction activity e.g. standard 2.4m high construction hoarding
- Establishment of tree protection measures as required (no-dig construction zones, tree protection fencing and existing hedgerow retention). Any trees which are not to be taken down shall remain undisturbed and undamaged
- Tree protection fences if required are to be constructed in accordance with BS 5837:2012 "Trees in Relation to Design, Demolition and Construction - Recommendations"
- A 'Construction Exclusion Zone' notice shall be placed on tree protection fencing at regular intervals
- Tree Protection Zones are not to be used for car parking, storage of plant, equipment or materials
- A post construction re-assessment of any retained trees shall be carried out

12. MATERIAL ASSETS: SITE SERVICES

Existing Underground Services

- The location of all existing underground services are to be confirmed by the contractor prior to commencing any works on site

Existing Overhead Services

- Existing overhead ESB lines (LV) are located in the vicinity of the site entrance. For works in the vicinity of existing overhead electrical lines refer to ESB's Code of Practice for Avoiding Danger from Overhead Electrical Lines

13. SITE COMPOUND FACILITIES AND PARKING

The exact location of the construction compound is to be confirmed in advance of commencement of the works (and agreed with Dun Laoghaire-Rathdown County Council).

The location of the construction compound may be relocated during the course of the works.

- The construction compound will include adequate welfare facilities such as wash rooms, drying rooms, canteen and first aid room as well as foul drainage and potable water supply
- Foul drainage discharge from the construction compound will be tankered off site to a licensed facility until a connection to the public foul drainage network has been established
- The construction compound's potable water supply shall be protected from contamination by any construction activities or materials
- The construction compound will be enclosed by a security fence
- Access to the compound will be security controlled and all site visitors will be required to sign in on arrival and sign out on departure
- A permeable hardstand area will be provided for staff carparking
- A separate permeable hardstand area will be provided for construction machinery and plant
- The construction compound will include a designated Construction material recycling area
- A series of way finding signage will be provided to direct staff, visitors and deliveries as required
- All construction materials, debris, temporary hardstands etc. in the vicinity of the site compound will be removed off-site on completion of the works

14. EIAR MITIGATION MEASURES – CONSTRUCTION STAGE

For ease of reference and clarity, all construction phase mitigation measures contained in the Environmental Impact Assessment Report (EIAR) prepared in respect of the proposed development have been compiled and are included in Appendix A of this report.

APPENDIX A – EIAR MITIGATION MEASURES – CONSTRUCTION STAGE

SUMMARY OF EIAR MITIGATION MEASURES – CONSTRUCTION STAGE

For ease of reference and clarity, all construction phase mitigation measures contained in the Environmental Impact Assessment Report (EIAR) prepared in respect of the proposed development have been compiled below. All measures included below will be implemented in full.

Population & Human Health

Character of Potential Impact	Mitigation Measure
Construction Phase	
Impact on residential amenity.	A Preliminary CEMP has been submitted as part of this application which provides details on the implementation of the various mitigation measures as outlined. The CEMP will ensure adherence to the Mitigation Measures as outlined in this EIAR which will then, in turn, ensure that the proposed development will have an imperceptible and neutral impact in terms of the Construction Phase.

Biodiversity

Character of Potential Impact	Mitigation Measure
Construction Phase	
Disturbance of breeding birds	Section 40 of the Wildlife Act 1976, as amended by Section 46 of the Wildlife (Amendment) Act 2000, restricts the cutting, grubbing, burning or destruction by other means of vegetation growing on uncultivated land or in hedges or ditches during the nesting and breeding season for birds and wildlife, from 1 March to 31 August. The scrub (brambles etc) on site and the tall rank grassland has potential to support nesting birds. Removal of such vegetation will be done outside of the restricted period to comply with the Wildlife Acts.
Damage from invasive species	Japanese knotweed had been present on site in 2019 but was treated at the time and presently (2021) does not appear to be on site. However, as there may be a source in the local area, a further assessment for the presence of this species will be carried out prior to any ground works taking place on site. If found, standard procedures for its removal will be implemented prior to any ground works taking place. Any soil import to the site will be screened for invasive plant species.
Pollution of water	Implementation of the Preliminary CEMP including the following:

courses	• Sensitive stripping of topsoil and excavation of subsoil layer • Management of suspended solids in run-off • Control of concrete run-off • Management of accidental spills and leaks
Damage from contaminated soil	Contamination will be removed under strict conditions (as outlined in the Preliminary CEMP) and disposed of in a facility licensed to receive hazardous materials. The main Contractor will prepare a Method Statement in relation to the safe removal of the contaminated soils

Land, Soils & Geology

Character of Potential Impact	Mitigation Measure
Construction Phase	
Stripping of Topsoil	Stripping of topsoil will be carried out in a controlled and carefully managed way and coordinated with the proposed staging for the development. At any given time, the extent of topsoil strip (and consequent exposure of subsoil) will be limited to the immediate vicinity of active work areas. Topsoil stockpiles will be protected for the duration of the works and not located in areas where sediment laden runoff may enter existing surface water drains. Topsoil stockpiles will also be located so as not to necessitate double handling. Surface water runoff from areas stripped of topsoil will be directed to on-site settlement ponds where measures will be implemented to capture and treat sediment laden runoff prior to discharge of surface water at a controlled rate. On-site settlement ponds will include geotextile liners and riprapped inlets and outlets to prevent scour and erosion.
Excavation of Subsoil Layers	Excavation of existing subsoil layers has been minimised as the proposed basement level, ground floor levels and external pavement levels have been designed to follow the natural topography of the site. Disturbed subsoil layers will be stabilized as soon as practicable (e.g. backfill of service trenches, construction of road capping layers, construction of building foundations and completion of landscaping). The

	duration that subsoil layers are exposed is to be minimised in order to mitigate against weather effects. Similar to comments regarding stripped topsoil, stockpiles of excavated subsoil material will be protected for the duration of the works. Stockpiles of subsoil material will be located separately from topsoil stockpiles. Measures will be implemented to capture and treat sediment laden surface water runoff (e.g. sediment retention ponds and surface water inlet protection). An area of the site adjacent to the neighbouring filling station (adjacent to the western boundary) has been identified as impacted by hydrocarbons. Subsoil impacted by hydrocarbons which are affected by the proposed development will be removed. The Contractor will provide a Method Statement (to be agreed prior to commencing any works on site) for works in the vicinity of areas impacted by hydrocarbons including but not limited to details of their proposed specialist sub-contractors, proposals for containment of contamination, proposal for removal of hydrocarbons from dewatered groundwater prior to discharge, co-ordination of contamination removal with other site works, proposed licenced waste receiving facility and compliance with relevant legislation including HSA publications and the Waste Management Act.
Imported Fill	No large or long-term stockpiles of fill material will be held on the site. At any time, the extent of fill material held on site will be limited to that needed in the immediate vicinity of the active work area. Smaller stockpiles of fill, where required, will be suitably protected to ensure no sediment laden runoff enters existing surface water drains. Such stockpiles will be located in order to avoid double handling.
Construction Traffic	Earthworks plant and vehicles delivering construction materials to site will be confined to predetermined haul routes around the site. Vehicle wheel wash facilities will be installed in the vicinity of any site entrances and road sweeping implemented as necessary in order to maintain the road network in the immediate vicinity of the site. Dust suppression measures (e.g. dampening down) will be implemented as necessary during dry periods
Accidental Spills and Leaks	In order to mitigate against spillages contaminating underlying soils, all oils, fuels, paints and other chemicals will be stored in a secure bunded hardstand area.

	When not possible to carry out such activities off site, refuelling and servicing of construction machinery will take place in a designated hardstand area which is remote from any surface water inlets.
Geological Environment	The Contractor will provide a Method Statement (to be agreed prior to commencing any works on site) for works in the vicinity of areas impacted by hydrocarbons including proposals for containment of contamination and removal of hydrocarbons from dewatered groundwater prior to discharge.
Risks to Human Health	• Contractor will prepare Method Statement, method statement to be agreed with PSDP. • Contractor/PSCS will implement safe systems of construction including but not limited to battering the sides of trench excavations and installation of excavation shoring systems. • Full precautions will be taken when working in vicinity of boundary structures for protection of same. Method and sequence of construction to be agreed with design team prior to commencement of work. Contractor's Temporary Works Designer to prepare Method Statement and Temporary Works Cert to ensure stability of excavations and adjacent structures. • The Contractor will provide a Method Statement (to be agreed prior to commencing any works on site) for works in the vicinity of areas impacted by hydrocarbons including but not limited to details of their proposed specialist sub-contractors, proposals for containment of contamination, proposal for removal of hydrocarbons from dewatered groundwater prior to discharge, co-ordination of contamination removal with other site works, proposed licenced waste receiving facility and compliance with relevant legislation including HSA publications and the Waste Management Act. • Contractor will obtain utility company network plans and arrange observation as required. • Contractor will locate and record all services on site prior to commencement of excavations. • Contractor will prepare and implement a Construction Traffic Management Plan that will be agreed with the Design Team and local authority and which will ensure the safety of the public during construction. • Contractor will supervise vehicle movements to and from the site during construction in order to ensure that this traffic management

	plan is fully implemented. Plan to include deliveries to the site, staff parking, works outside the defined site such as utility connections. • Public pedestrian routes will be established at site entrance as required. • All personnel using machinery/plant will have undergone training on the use of said machinery/plant. Ongoing site supervision will be undertaken to ensure all use of machinery/plant is in accordance with the training undertaken. • Contractor's employees to be provided with all required PPE in accordance with Safety, Health and Welfare at Work Act, 2005. • Contractor will prepare a Dust Minimisation Plan

Water: Hydrogeology & Hydrology

Character of Potential Impact	**Mitigation Measure**
Construction Phase	
Risks to the surrounding hydrological environment.	• A site-specific Construction and Environment Management Plan will be implemented during the construction phase. Site inductions will include reference to the procedures and best practice as outlined in the Construction and Environment Management Plan. • Surface water runoff from areas stripped of topsoil and surface water collected in excavations will be directed to on-site settlement ponds where measures will be implemented to capture and treat sediment laden runoff prior to discharge of surface water at a controlled rate. • Weather conditions and typical seasonal weather variations will also be taken account of when planning stripping of topsoil and excavations with an objective of minimizing soil erosion. • In order to mitigate against spillages contaminating the surrounding surface water and hydrogeological environments, all oils, fuels, paints and other chemicals will be stored in a secure bunded hardstand area. Refuelling and servicing of construction machinery will take place in a designated hardstand area which is also remote from any surface water inlets (where not possible to carry out such activities off site). • Concrete batching will take place off site and wash down and wash out of concrete trucks will take place off site (at authorized concrete batching plant in full compliance with relevant planning and environmental

	consents). • Discharge from any vehicle wheel wash areas willbe directed to on-site settlement ponds. • The construction compound will include adequate staff welfare facilities including foul drainage and potable water supply. Foul drainage discharge from the construction compound will be tankered off site to a licensed facility until a connection to the public foul drainage network has been established. • The construction compound's potable water supply will be protected from contamination by any construction activities or materials.
Risks to human health	• Contractor will prepare Method Statement, method statement to be agreed with PSDP. • Contractor/PSCS will implement safe systems of construction including but not limited to battering the sides of trench excavations and installation of excavation shoring systems. • Full precautions will be taken when working in vicinity of boundary structures for protection of same. Method and sequence of construction to be agreed with design team prior to commencement of work. Contractor's Temporary Works Designer will prepare Method Statement and Temporary Works Cert to ensure stability of excavations and adjacent structures. • The Contractor will provide a Method Statement (to be agreed prior to commencing any works on site) for works in the vicinity of areas impacted by hydrocarbons including but not limited to details of their proposed specialist sub-contractors, proposals for containment of contamination, proposal for removal of hydrocarbons from dewatered groundwater prior to discharge, co-ordination of contamination removal with other site works, proposed licenced waste receiving facility and compliance with relevant legislation including HSA publications and the Waste Management Act. • Contractor will obtain utility company network plans and arrange observation as required. • Contractor will locate and record all services on site prior to commencement of excavations. • Contractor will prepare and implement a Construction Traffic Management Plan that will be agreed with the Design Team and local authority and which will ensure the safety of the public during construction.

	• Contractor will supervise vehicle movements to and from the site during construction in order to ensure that this traffic management plan is fully implemented. Plan will include deliveries to the site, staff parking, works outside the defined site such as utility connections. • Public pedestrian routes will be established at site entrance as required. • All personnel using machinery/plant will have undergone training on the use of said machinery/plant. Ongoing site supervision will be undertaken to ensure all use of machinery/plant is in accordance with the training undertaken. • Contractor's employees will be provided with all required PPE in accordance with Safety, Health and Welfare at Work Act, 2005.

Noise & Vibration

Character of Potential Impact	Mitigation Measure
Construction Phase	
Negative, short-term noise and vibration emissions	• Limiting the hours during which site activities likely to create high levels of noise or vibration are permitted; • Establishing channels of communication between the contractor/developer, Local Authority and residents; • Appointing a site representative responsible for matters relating to noise and vibration; • Monitoring typical levels of noise and vibration during critical periods and at sensitive locations; • All site access roads will be kept even so as to mitigate the potential for vibration from lorries. • Selection of plant with low inherent potential for generation of noise and/ or vibration; • Erection of barriers as necessary around noisy processes and items such as generators heavy mechanical plant or high duty compressors; • Placing of noisy / vibratory plant as far away from sensitive properties as permitted by site constraints and the use of vibration isolated support structures where necessary.

Air Quality, Dust & Climate Factors

Character of Potential Impact	Mitigation Measure
Construction Phase	
Negative, short-term dust soiling impacts to people and property	A dust management plan will be implemented.
Construction Traffic Emissions	On-site or delivery vehicles will be prevented from leaving engines idling.
Waste and Carbon Footprint	Waste of materials will be minimised.

Wind & Microclimate

Character of Potential Impact	Mitigation Measure
Construction Phase	
Control of Dust	During the construction phase, the site will be surrounded by large panels/hoarding up to 2.4m high. This will prevent any dust being blown from the site on to the neighbouring locations.

Landscape & Visual Impact

Character of Potential Impact	Mitigation Measure
Construction Phase	
Visibility of construction works	Implementation of the Preliminary CEMP including provision of site hoarding along the property boundaries.

Material Assets: Traffic & Transport

Character of Potential Impact	Mitigation Measure

Construction Phase	
Increased number of vehicles on the road network due to any construction traffic entering and leaving the site throughout the construction phase.	• During the pre-construction phase, the site will be securely fenced off from adjacent properties, public footpaths and roads; • Appropriate on-site parking and compound area will be provided to prevent overflow onto the local network; • It is likely that some members of the construction team will be brought to/from the site in vans/minibuses, which will serve to reduce the trip generation potential; • Delivery vehicles to and from the site will be spread across the course of the working day, therefore, the number of HGVs travelling during the peak hours will be relatively low; • Truck wheel washes will be installed at construction entrances and any specific recommendations with regard to construction traffic management made by Dún Laoghaire – Rathdown County Council will be adhered to; • Potential localised traffic disruptions during the construction phase will be mitigated through the implementation of industry standard traffic management measures. These traffic management measures shall be designed and implemented in accordance with the Department of Transport's Traffic Signs Manual "Chapter 8 Temporary Traffic Measures and Signs for Roadworks" and "Guidance for the Control and Management of Traffic at Roads Works – 2nd Edition" (2010); and • Site entrance point/s from the public highway will be constructed with a bound, durable surface capable of withstanding heavy loads and with a sealed joint between the access and public highway. This durable bound surface will be constructed for a distance of 10m from the public highway. • Material storage zone will be established in the compound area and will include material recycling areas and facilities; • 'Way finding' signage will be provided to route staff / deliveries into the site and to designated compound / construction areas; • Dedicated construction haul routes will be identified and agreed with Dún Laoghaire – Rathdown County Council prior to commencement of activities on-site; and • On completion of the works, all construction materials, debris, temporary hardstands etc. from the site compound will be removed off-site and the site compound area reinstated in full on completion of

	the works.

Material Assets: Utilities

Character of Potential Impact	Mitigation Measure
Construction Phase	
Potential interruptions to ESB Networks, Gas Networks Ireland and Eir's Infrastructure	• Contractor will prepare Method Statement detailing proposals for works in the vicinity of existing utilities (method statement to be agreed with PSDP (Project Supervisor for Design Phase). • Contractor will locate and record all services on site prior to commencement of excavations. • A GPR utility survey has been carried out along Old Bray Road to confirm the location of power, gas and telecommunications infrastructure. This survey will be supplemented with slit trench investigation as required by the contractor in advance of commencing works in the vicinity of the proposed site entrance. • Connections to the existing power, gas and telecommunications networks will be coordinated with the relevant utility provider and carried out by approved contractors. • Contractor will comply with the Health and Safety Authority's Code of Practice for Avoiding Danger from Underground Services. • Contractor will obtain utility company network plans and arrange observation as required. • Contractor/PSCS will implement safe systems of construction including but not limited to battering the sides of trench excavations and installation of trench shoring systems • Contractor will prepare and implement a Construction Traffic Management Plan that will be agreed with the Design Team and local authority and which will ensure the safety of the public during construction. • Contractor will supervise vehicle movements to and from the site during construction in order to ensure that this traffic management plan is fully implemented. Plan will include deliveries to the site, staff parking, works outside the defined site such as utility connections. • Public pedestrian routes will be established at site entrance as required.

	• Contractor will prepare Method Statement for works in confined spaces, method statement to be agreed with PSDP. Contractor to comply with HAS Code of Practice for Working in Confined Spaces. • All personnel using machinery/plant will have undergone training on the use of said machinery/plant. Ongoing site supervision will be undertaken to ensure all use of machinery/plant is in accordance with the training undertaken.

Cultural Heritage: Archaeology & Architectural Heritage

Character of potential impact	Mitigation Measure
Construction Phase	
Likely, negative, profound & permanent impact of construction activity on currently unknown buried archaeological remains	Monitoring of topsoil stripping will be undertaken by a suitably qualified archaeologist