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Construction Environmental Management Plan

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Construction Management Plan

Templar Place SHD, Balbriggan Co. Dublin

Document Control Sheet

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1 Introduction

1.1 Background

ORS were commissioned by *Rhonellen Developments* to complete a Construction Environmental Management Plan (CEMP) for a proposed mixed-use development at Templar Place Development, Balbriggan Co. Dublin.

The proposed development comprises a Build to Rent (BTR), Strategic Housing Development (SHD) as follows: Demolition of the existing buildings (former shopping centre and associated structures). Construction of 3 no. apartment blocks (Blocks A - C) ranging in height from 3 to 6 storeys (with Block B over 3 no. lower courtyard floors) providing a total of 101 units (19 no. studios, 41 no. 1-beds, 41 no. 2-beds). Provision of Resident Support Facilities/Resident Services and Amenities, 2 no. retail units, car parking (at ground floor), cycle parking, ESB substation/switch room, plant, bin stores, open space, landscaping, boundary treatments, all associated site works and services provision comprise a Build to Rent (BTR), Strategic Housing Development (SHD) comprising the following:

1.2 Objective of the Construction Environmental Management Plan (CEMP)

This Construction Management Plan (CMP) is an outline document of the proposed approach to ensure that construction activities have the least impact on the surrounding environment. Below is an outline of the objectives:

- Ensure appropriate measures to prevent or mitigate nuisance emissions of noise and dust and uncontrolled discharges to water during construction.
- Ensure that all activities on site are effectively managed to minimise the generation of waste and to maximise opportunities for reuse and recycling of waste materials.
- Ensure that all wastes generated onsite are removed from site by an appropriately permitted waste contractor and that all wastes are disposed of at an appropriate licensed/permitted facility in accordance with the Waste Management Act 1996 as amended.
- Ensure that an adequate system is in place for the management, storage, segregation and recycling of waste.
- Minimise the impact on local traffic conditions resulting from construction activities.
- Outline how the measures proposed above shall be implemented.

This preliminary Construction Environmental Management Plan has been prepared for the planning phase of the development to outline the general considerations of the works, from initial enabling works to sub-structure and superstructure construction with regards to waste and the environment. An experienced and competent contractor will be appointed for the duration of this project.

The CMP, due to its structure and nature, will also require constant updating and revision throughout the construction period. Therefore, this is a working document and will be developed further prior to and during construction.

1.3 Responsibility

A contractor has not yet been appointed to carry out the proposed project. Once appointed it will be the responsibility of the contractor to maintain and update the construction stage CEMP throughout the work and this updated document will be issued to Fingal County Council.

2 Site details

2.1 Site Location

The proposed development site is located within a part-urban, part-greenspace area of Balbriggan Town. The site is bounded by Quay Street to the north, High Street to the east and several commercial units and a hotel to the south and the west. Land use to the north consists of commercial units, intersected by the Bracken River and a small park. A mixture of commercial, residential and greenspace occupies the lands to the south and west of the site. Land use to the east is predominantly residential interspersed with greenspace and the occasional commercial unit with Balbriggan Harbour located *ca*. 184m east of the site.

The site was previously the former 'Mall Shopping Centre' and historic maps confirming that development has been located on the site since the 1830's.

The total area of the site is *ca.* 0.42 hectares. An approximate outline of the subject site is provided in **Figure 2.1** below.

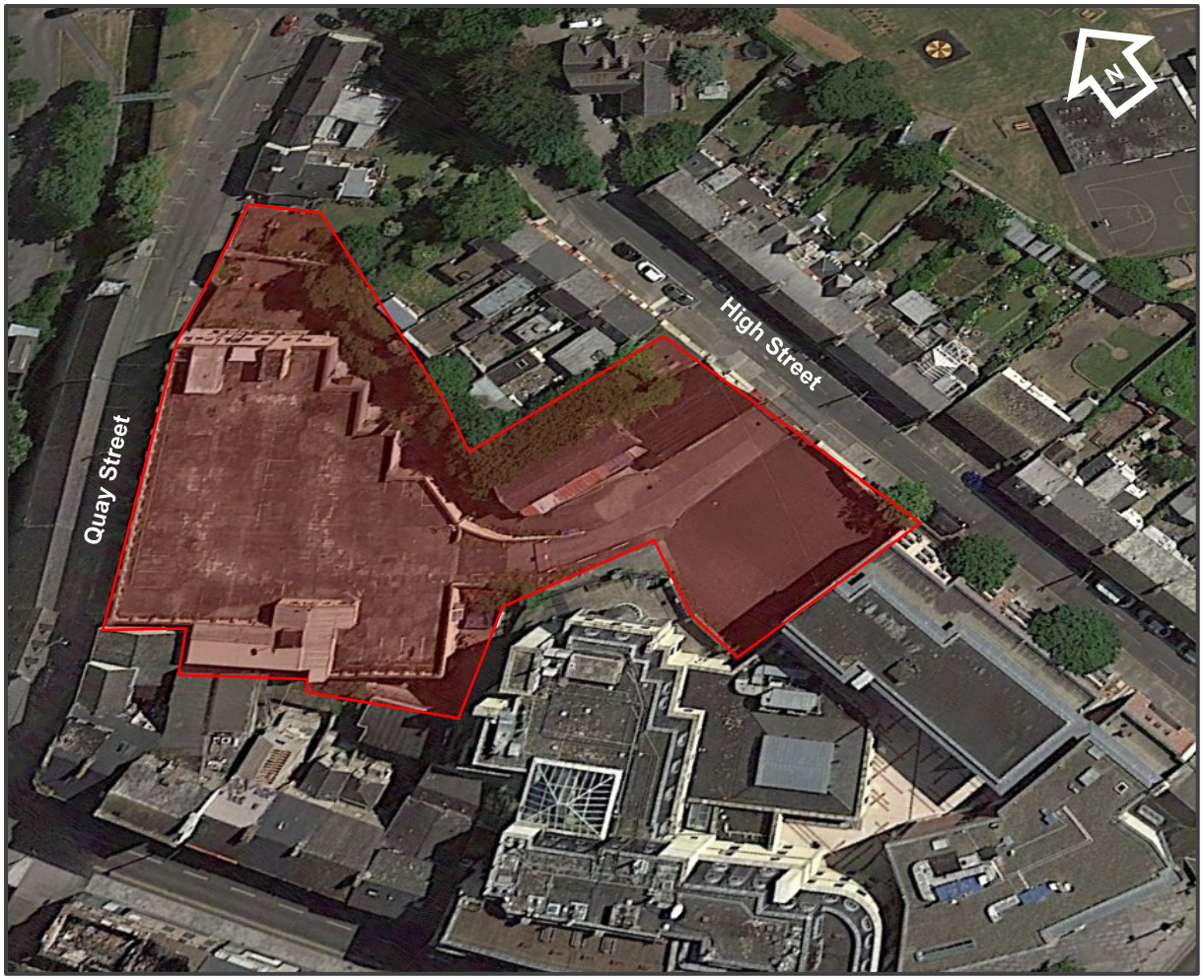

Figure 2.1: Proposed construction boundary marked in red and surrounding urban/greenfield area (Google Earth)

2.2 Site Environmental Considerations

A topographical survey was carried out on the site in August 2020. There is a significant change in levels across the site, the street level fronting the site at High Street is approximately 13.6mOD while at Quay Street it is approximately 4.2mOD. This results in a level change of approximately 9.4m across the site.

The Bracken River (EPA Name: "Matt_010") runs SW-NE *ca.* 15m N of the site, feeding with Balbriggan Harbour (EPA Name: "Northwestern Irish Sea") *ca.* 165m NE of the site. The River Bracken was determined "At Risk" by the Water Framework Directive with no WFD status assigned. The Northwestern Irish Sea was determined "Not At Risk" by the Water Framework Directive and was assigned a WFD Status of "High". A cross reference with the EPA database on the below criteria highlighted the following sensitivities for the watercourses near the site:

- Bathing Waters Areas – Balbriggan, Front Strand Beach ca. 171m NE of site.
- Groundwater for Drinking Water.

The site was cross referenced with the Teagasc SIS soil profile map which states that is underlain with Urban Sediments/Imported Fill Material. According to the Geological Survey of Ireland's map viewer, the quaternary sediments underlying imported fill layer is characterised as Irish Sea till derived from Lower Paleozoic sandstones and shales.

According to the Geological Survey of Ireland's map viewer, the site is underlain by a locally important aquifer – bedrock which is moderately productive; named the Balbriggan Groundwater Body and groundwater vulnerability is classified as "low to moderate" at the site, meaning groundwater is likely to be encountered at 3-10 metres below ground level. Subsoil permeability is classified as "low". Overall the risk posed by the site to groundwater receptors is low.

A local investigation was carried out at the north-eastern corner of the site in June 2021. Access limitations and a significant number of buried services meant the locations of trial holes were restricted to this area. Investigations found a 200mm concrete slab, underlain by made ground to 0.6m below ground level (bgl) which was underlaid by a thin layer of silt to 0.8m bgl and clays to a depth of at least 1.8m bgl. Ground water level was encountered at a depth of 1.7m bgl.

Based on the desk study and local investigations, ground conditions are generally expected to be reasonable with soils overlaying bedrock expected to be a mixed 'till' type material, currently covered with a thin layer of made ground associated with the existing development of the site.

A detailed flood risk assessment (Stage-3) was carried out for the site by *JBA Consulting*. This exercise included a detailed review of flood maps and a modelling study; and concluded that all proposed residential units are at a low risk of inundation and not at risk from a 0.1% AEP flood event. Based on the information available, the flood risk to the site will be managed on-site and the flood risk elsewhere will not be increased as a result of the proposed development.

Following a review of the National Parks And Wildlife Service website, there are no designated areas such as special areas of conservation or special protection areas located within the vicinity of the site.

Overall, the environmental sensitivity of the area in immediate proximity to the proposed site is considered to be low, with the exception of the risk to surface water receptors which is considered to be moderate to high.

2.3 Site Ecological Considerations

An Ecological Impact Assessment was carried out in May 2021 by Whitehill Environmental An evaluation of the ecological features that were identified through desk and field based studies are summarised below:

The site at Balbriggan is within 15km of eleven sites designated under the Natura 2000 network. There is no ecological or hydrological connectivity between the application site and any site designated as an SAC / SPA. A screening report was completed for this proposed development as required under Article 6 (3) of the Habitats Directive. This report concluded that due to the lack of connectivity, that the proposed development is unlikely to have any significant impacts upon any site designated under the Natura 2000 network. No mitigation measures are required as part of this development to specifically protected the integrity of any Natura 2000 site.

The site is also within 15km of nine sites designated as Natural Heritage Areas (NHAs and pNHAs) and there is no connectivity between the application site and any designated area. It can be considered that the proposed development will have no impacts upon any site designated as a pNHA or NHA.

Within the application site itself, the dominant habitat is that associated with the existing shopping mall, i.e., buildings and artificial surfaces. There are some scattered trees and areas of scrub on the site and these areas are of some value to nesting birds. The roof of the building is also being used by nesting herring gulls and swallows.

Habitat loss and fragmentation – The site preparation and construction of the buildings and the associated hard surfaces and landscaping will lead to the loss and fragmentation of the majority of the habitats within the site. Overall, these habitats are artificial and of low biodiversity value. There may be small impacts upon local populations of birds and small mammals as some nesting sites in the existing trees will be lost but overall, these impacts will be negligible.

Disturbance to local wildlife – During site preparation and construction, local populations of birds and mammals may be disturbed by the increase in noise, traffic and human activity. However, there is already an existing level of background level of noise on the site from traffic etc and the impacts upon wildlife locally are likely to be negligible, given the low level of wildlife that use the site. The bat report concluded that there is low potential for bat roosts within the

buildings, and therefore impacts upon bats will be negligible. There will be negligible impacts upon bats arising from loss of feeding opportunity, given the paucity of habitats on the site.

Herring gulls are currently nesting on the roof of the shopping centre. Demolition of the building could lead to direct mortality of these birds and loss of eggs or chicks if done at an appropriate time. However, the overall the loss of this building won't have a significant effect upon these birds when done at an appropriate time. There is a high availability of similar nesting sites for gulls in the Balbriggan area

Pollution – There are no water bodies on site that are likely to be impacted upon from run-off from the site. However, best practice measures will be undertaken on site during all phases of construction.

The NRA guidelines on the Assessment of Ecological Impacts on National Road schemes (NRA, 2009) provides a rationale for the evaluation of ecological receptors within a site. **Table 2.1** lists the habitats that have been described within the site and their associated ecological value, based on the NRA guidelines.

Table 2.1: Ecological Features and their evaluation

Habitat	Rating	Criteria
• Buildings and Artificial Ground Surfaces • Recolonising Bare Ground	No Value	No Biodiversity Values
• Scrub / Scattered Treelines	Local Importance (Low Value	Provide value for local populations of nesting birds

3 Development Description

3.1 Phasing of the Development

This outline Construction Environmental Management Plan (CEMP) will outline an indicative sequence of works. The appointed Contractor will clearly outline works within the construction phase CEMP that shall be submitted and agreed with Fingal County Council (FCC).

A construction program of 18 - 24 months is anticipated for the project. A layout plan of the various phases of the development is detailed in **Figure 3.1** below.

Figure 3.1: Proposed Residential development.

The project is to be divided into several distinct phases as follows:

Pre-Construction Phase – Site clearance and preliminary works

- Site set-up, temporary services and staff welfare facilities.

- Demolition of existing buildings (former shopping centre and associated structures)

Residential Development – Construction of 3 no. apartment blocks (Block A, B & C) comprising a total of 101 units. Units to consist of the following:

- **Block A** – will be a 51-unit, 6-storey building comprised of the following:
  - Ground floor space consisting of a plant room (38.91m^2), 3 no. shared amenity spaces (155.78m^2 – 211.56m^2), indoor bike store (38.95m^2 – 129.68m^2), bin store (22.11m^2).
  - 1st Floor to consist of 11 no. apartments including 2 no. Studios (40.55m^2); 5 no. 1-bed apartments (49.91m^2 – 56.79m^2); and 4 no. 2-bed apartments (84.47m^2 – 89.38m^2).
  - 2nd Floor to consist of 11 no. apartments including 2 no. Studios (40.55m^2); 4 no. 1-bed apartments (49.91m^2 – 56.79m^2); and 5 no. 2-bed apartments (72.89m^2 – 89.38m^2).
  - 3rd Floor to consist of 11 no. apartments including 2 no. Studios (40.55m^2); 4 no. 1-bed apartments (49.91m^2 – 56.79m^2); and 5 no. 2-bed apartments (72.89m^2 – 89.38m^2).
  - 4th Floor to consist of 10 no. apartments including 2 no. Studios (40.55m^2); 3 no. 1-bed apartments (49.97m^2 – 51.46m^2); and 5 no. 2-bed apartments (72.89m^2 – 89.38m^2).
  - 5th Floor to consist of 8 no. apartments including 4 no. Studios (40.55m^2 – 41.29m^2); 1 no. 1-bed apartment (54.40m^2); and 3 no. 2-bed apartments (69.00m^2 – 85.42m^2).

- **Block B** – will be a 46-unit, 5-storey building over ground floor car park with 3.no lower courtyard floors comprised of the following:
  - Ground Floor Car Park.
  - Building Basement consisting of a plant room (54.67m^2), indoor bike store (72.23m^2), bin store (27.12m^2).
  - -2 Floor space consisting of 3 no. apartments including 3 no. 1-bed apartments (50.64m^2 – 53.53m^2).
  - -1 Floor space consisting of 3 no. apartments including 3 no. 1-bed apartments (50.64m^2 – 53.53m^2).
  - Ground floor space to consist of 10 no. apartments including 9 no. 1-bed apartments (47.43m^2 – 60.20m^2); and 1 no. 2-bed apartment (82.44m^2).
  - 1st Floor to consist of 9 no. apartments including 1 no. Studio (43.22m^2); 3 no. 1-bed apartments (50.64m^2 – 53.53m^2); and 5 no. 2-bed apartments (82.44m^2).
  - 2nd Floor to consist of 9 no. apartments including 1 no. Studio (43.22m^2); 3 no. 1-bed apartments (50.64m^2 – 53.53m^2); and 5 no. 2-bed apartments (82.44m^2).

- 3rd Floor to consist of 8 no. apartments including 2 no. Studios (43.22m² 46.92m²); 1 no. 1-bed apartment (50.64m²); and 5 no. 2-bed apartments (69.00m² - 82.44m²)
- 4th Floor to consist of 4 no. apartments including 1 no. Studios (43.22m²); 1 no. 1-bed apartment (50.64m²); and 2 no. 2-bed apartments (68.35m²).

- **Block C** – will be a 4-unit, 2-storey building over a ground floor car park comprised of the following:
  - 1st Floor to consist of 2 no. apartments including 1 no. Studio (42.58m²); and 1 no. 2-bed apartment (84.47m²).
  - 2nd Floor to consist of 2 no. apartments including 1 no. Studio (43.22m²); and 1 no. 2-bed apartment (84.47m²).

- Car parking spaces
- Bicycle storage
- Hard and soft landscaping.
- Pedestrian entrances.

Ancillary works – which will consist of:

- **Water Supply Connection** – The proposed water supply for Block A and C will connect to the existing 101.6mm cast iron watermain in Quay Street while the water supply for Block B will connect to the existing 101.6mm cast iron watermain in High Street.
  - The service connections for each building will extend from the existing watermains in the respective streets into a plant or services room in each building where they will feed a manifold system.
  - All individual service connections to all apartments and the retail unit will extend from these manifold systems.
- **Wastewater Drainage** – There is an existing 525mm Ø gravity wastewater sewer beneath Quay Street which will serve the entire development.
  - The proposed internal wastewater sewer will be predominantly 225mm diameter pipe falling at a grade of 1 in 200 minimum and 150mm diameter falling at a grade of 1:100 minimum.
  - All internal wastewater drainage will be separate to surface water drainage infrastructure in accordance with Irish Water standards.
- **Sustainable Urban Drainage System (SUDS)** – There is an existing Local Authority owned surface water drainage manhole and dedicated 225mm diameter gravity surface water drainage pipe within Quay Street near the northmost point of the subject site. This surface water sewer appears to outfall directly to the Bracken River.
  The proposed development has been designed in accordance with the principles of Sustainable Urban Drainage Systems (SUDS) including the following features:

- The proposed surface water drainage strategy for the development will include collection and attenuation of surface water runoff from the developed site via a blue roof system located on a number of the building flat roofs and on the vast majority of the podium slab area. The blue roof systems proposed will be planted where appropriate and will be supplemented by green roof systems which will be provided to all non-accessible roof areas.
- The outlets from the blue roof attenuation storage system will be flow controlled to limit discharge rates to existing greenfield runoff rates. Following interception and attenuation, surface water will discharge at controlled rates into a piped gravity drainage system which will be installed below the ground floor level carpark and will connect to the existing 225mm diameter surface water drainage sewer in Quay Street.
- Interception storage for the development will be provided by the planting on the green and blue roofs which totals approximately 1,350 m^2 and the landscaped areas of the podium totalling approximately 500m^2.
- The paved areas of the ground floor courtyard to the southwest of Block A will be constructed with permeable paving which will be designed for pedestrian loadings only and will consist of selected paving blocks on a 50mm layer of 2/6.3mm laying course, on approved geotextile on a 250mm layer of 4/20mm coarse graded aggregate.
- A number of downpipes will be provided from the blue roofs which will allow discharge to the gravity surface water drainage in the carpark at ground level. Each of the downpipes will be fitted with flow control mechanisms to limit flow to greenfield runoff rates.
- To prevent possible contamination in the event of an oil spillage a class 1 bypass separator will be provided on the surface water outlet from the ground level carpark.
- Following interception and attenuation, surface water will discharge via a flow control to the existing 225mm diameter surface water drainage sewer in Quay Street.

- **Electrical and telecom services**.

3.2 Pre-Construction Activities

The main contractor will establish site setup, appropriate signing, hoarding, security fencing and welfare facilities.

- **Demolition of existing buildings**: Former shopping centre and associated structures
- **Condition Surveys**: to be completed on adjacent properties, roads boundaries, etc.

3.3 Site Set-Up and Hoarding

Perimeter hoarding will be provided around the site to provide a barrier against unauthorized access from the public areas. Controlled access points to the site, in the form of gates or

doors, will be kept locked for any time that these areas are not monitored (e.g. outside working hours).

The hoarding will be well-maintained and will be painted. Any hoardings may contain graphics portraying project information. The site hoarding will be branded using the appointed contractor's logos etc. Some marketing images or information boards may also be placed on the hoarding. Access to site will be controlled and monitored outside of site working hours. All personnel working on site must have a valid Safe Pass card and the relevant CSCS cards.

Temporary connection to electricity and water services will be set up to facilitate site works.

A suitably secure site compound will be set up, wherever the restricted confines of the site will allow and will facilitate the efficient delivery of materials and personnel to the site. This compound is to include material storage, site office and meeting room, and staff welfare facilities. The final location of the site compound will be highlighted in the Construction Environmental Management Plan to be issued to Fingal County Council by the appointed main contractor.

3.4 Site Access, Deliveries and Traffic Management

A site-specific Traffic Management Plan, (TMP) is detailed in section 6 of this CEMP to introduce temporary measures to facilitate access to the site by plant, machinery, and trucks during the construction phase.

3.5 Site Clearance and Demolition

The proposed development will involve the demolition of and shopping centre roof top structures of former shopping centre and associated buildings with a total are of 4005.8 m^2.

Figure 3.2 overleaf, illustrates the existing site layout and highlights the buildings scheduled for demolition.

The following protocol is to be followed prior to all site clearance works;

- Demolition works are to be carried out in accordance with BS 6187 – Code of Practice for Demolition.
- Establish site welfare facilities with first aid station;
- Surveying and removal of any potentially hazardous materials;
- Detailed services survey to identify all buried services and services which potentially serve adjoining properties;
- Carrying out any necessary services diversions and decommissioning works;
- Removal of free-standing materials which may remain in the property;
- Demolition of internal structures within the existing buildings using a handheld hydraulic breaker or a sledgehammer in a top-to-bottom approach.
- Total demolition of the external structure of the existing warehouses will be carried out using a demolition excavator fitted with concrete pulveriser.

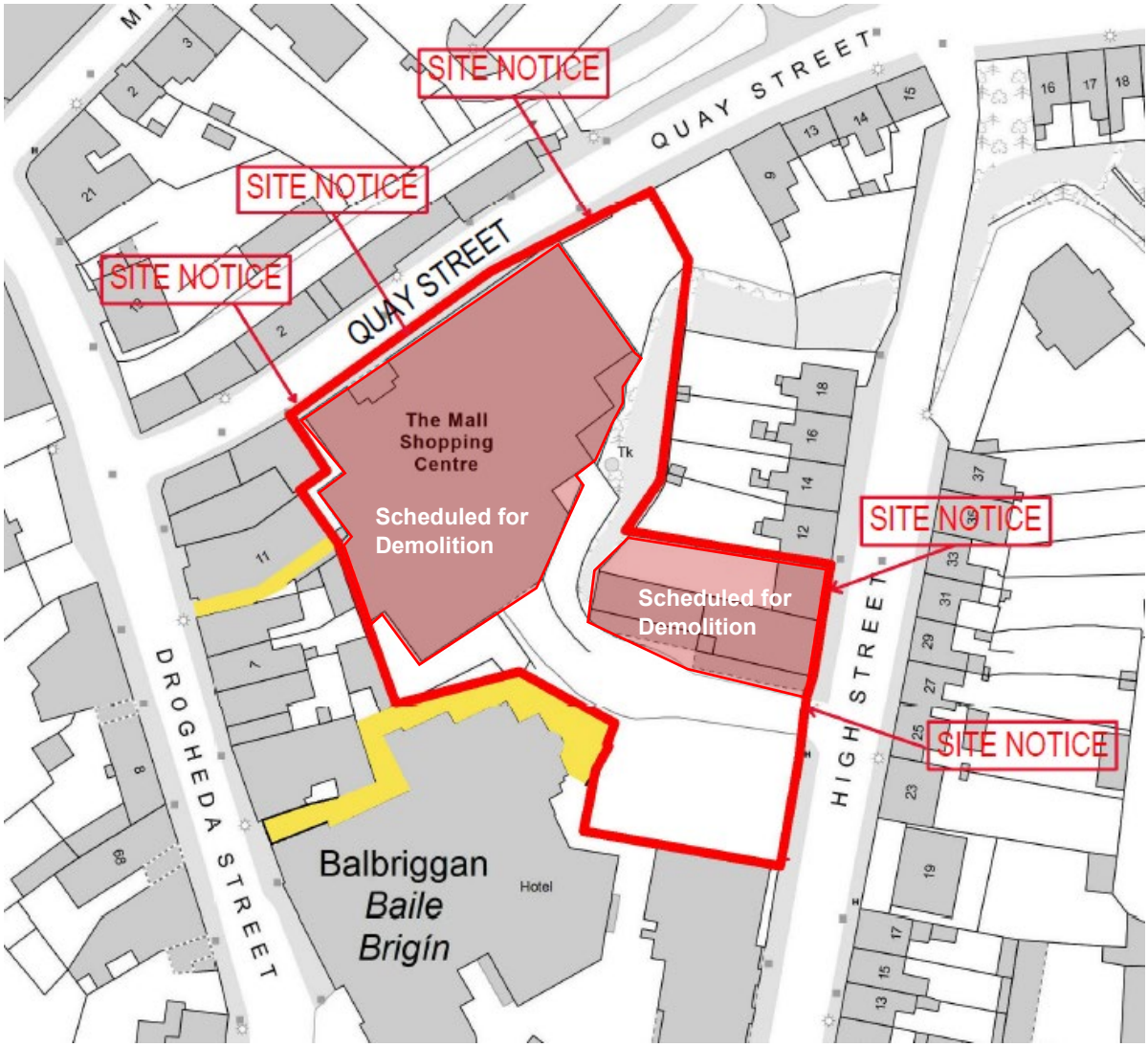

Figure 3.2: Existing Site Layout and Buildings Scheduled for demolition.

3.6 Excavation

Excavation works are expected to be spread across a number of stages given the natural topography of the site, to be finalised by the main contractor once appointed. It is estimated that a total volume of 4,900m^3 of material will be excavated. The appointed contractor will prepare a project-specific Soil Management Plan which will detail the following:

- Detail in-situ (prior to excavation) and ex-situ (post excavation) methodologies to classify waste soil for appropriate disposal, in accordance with relevant Irish and EU legislation and guidance.
- Identify reuse requirements and soils suitable for reuse on site in consultation with the design team, including assessment methodology to determine which soils are suitable for re-use onsite.

- Site management procedures, including waste minimisation, stockpile management, temporary storage procedures, waste licence requirements.
- Waste Management documentation, including waste generation record keeping, waste transfer notes and confirmation of appropriate disposal.
- Cut and fill analysis and completion of **Table 3.1** below.

Table 3.1: Volumes of material to be cut/filled

Area	Area of Cut (m^3)	Area of Fill (m^3)	Net Area of Cut/Fill (m^3)
1	TBC	TBC	TBC
2	TBC	TBC	TBC
Total	TBC	TBC	TBC

3.7 Construction Sequence of Multi-Storey Apartment Blocks

3.7.1 Substructure

The appointed contractor will prepare a project-specific construction programme. This section includes descriptions of construction methodologies of similar developments. This section will be updated accordingly when a contractor is appointed.

Based on the extent of the proposed development, it is anticipated that foundations for the buildings will be piled. Given the site location within an urban area, a form of augered pile solution would be appropriate as this will mitigate construction noise generated by driven pile solutions. This will involve excavation and rock-breaking work; filling, blinding and compacting work; substructure, formwork and under-slab insulation. The concrete operations associated with the pile wall will require carefully scheduled concrete deliveries to site.

This will also provide sufficient load carrying capacities required for the development and the height of structures proposed. Embedded retaining walls will be required around parts of Block B and the podium area. to the centre of the site where sufficient space for battering excavations is not available.

In some areas, where space is available for forming batters, the site can be excavated initially, with reinforced concrete retaining walls constructed ahead of infilling between the retaining walls and the site boundary.

Final construction methodologies and detailed design of piled foundations and temporary and permanent retaining structures will need to be developed following engagement of a specialist geotechnical engineer.

Vibration monitoring techniques will need to be employed during construction to ensure that vibrations from piling are within acceptable limits considering neighbouring properties around the perimeter of the site.

3.7.2 Superstructure

Method statements will be agreed in advance with the appointed contractor to ensure that safe working practices are in place including edge protection, access platforms, fall arrest systems and netting during superstructure works.

The construction of the 3/6-storey superstructure will consist of an insulated concrete form (ICF) building process in the following stages:

Building Structure: The foundations of the building will be piled and are likely to be precast concrete driven piles. Reinforced Concrete (RC) ground beams will be constructed on top of pile caps which will complete the substructure. The ground, first and subsequent floor structures will likely be precast hollowcore slabs with structural screed topping. The building superstructure will be confirmed at detailed design stage but will likely be either Insulated Concrete Formwork (ICF) or masonry and RC columns/beams. The stepped back top floor on both levels is likely to be lightweight steel construction with engineering joists to the roof structure. The stair cores; lift cores and ESB substation and switchroom will be of RC construction and the areas of extensive green roof on all buildings which are not stepped back will be precast hollowcore slabs with structural screed topping.

3.7.3 Envelope

The external walls of the building are to be constructed off the edge of concrete ground floor slab. Ground floor walls will be formed in stone with curtain walling/ windows. Large areas of facade glazing are proposed to be constructed using a modular glazing system that is supported between the main structural elements. Internal block walls will be erected with the perimeter envelope on a floor-by-floor basis. The roof will be a warm roof system.

As each section of the works is made weather tight, working upwards from the ground floor, the internal fitting out will commence including first-fix services installations. The ceilings will then be installed in conjunction with the second fix services followed by joinery, floor finishes and decoration. Inspections and snagging will then be carried out, final testing and commissioning completed and a final clean prior to handover and completion of the ICT installations.

3.7.4 Earth retaining Structures

Prior to works commencing, visual site inspections will be carried out on all adjoining properties to have a record of the existing conditions.

Given the proximity and depth of the excavations with respect to the site boundaries, an embedded retaining wall was selected as an appropriate solution where there is insufficient space to allow for excavation within the site boundary. This form of construction allows for the installation of the retaining wall structure from ground level, prior to the excavation progressing within the site and without the need for excavations immediately outside of the site. Taking this into account, available embedded solutions include –

- King post walls
- Sheet pile walls
- Continuous bored pile walls
- Secant pile walls
- Diaphragm walls

In terms of site-specific sensitivities which are considered in selecting the most appropriate embedded retaining wall, factors such as the site location within an urban environment and proximity of adjacent buildings are important. The presence of adjacent buildings requires a solution which will minimise future lateral movement of the walls either during construction or in the permanent development. Solutions such as king post walls and sheet pile walls are less favoured in these circumstances. In addition, to avoid excessive construction noise resulting from mechanically driving piles into place, steel sheet piles are again less favoured.

A summary of operations for all phases is listed in **Table 3.2** below.

Table 3.2 Summary of operations expected for the various developments at proposed Development, Templar Place, Balbriggan, Co. Dublin.

External envelope will require the following operations:	Internal work will require the following operations:
• Blockwork/ Brickwork • Metal Cladding • Window/ Curtain Walling/ Roof Lights • Roof coverings - Slate & Tile • Low Pitch Roof coverings - Trocal or similar • Flashing & Aprons & Tray – Leadwork/ Powder coated metal	• Electrical Installation • Mechanical Installation • Fireproofing • Partitions & Ceilings – use of gypsum-based products • Painting • Plastering • Joinery • Timber Stairs • Labour-Only Carpentry • Air Tightness sealing and testing • Tiling • Sanitary-ware installation • Vanity Units • Kitchens & wardrobes installer • Metal work • Industrial Cleaners
Above ground external operations:	
• Boundary construction - timber fencing/ block and stone walls • Landscaping • Stone Walling • Signs • Play Equipment • Street Furniture	

3.8 Site Working Hours

Construction operations on site will generally be subject to the planning permission and conditions. However, it may be necessary for some construction operations to be undertaken outside these times, for example; service diversions and connections, concrete finishing and fit-out works, etc.

Deliveries of materials to site will generally be between the hours of 08:00 – 19:00 Monday to Friday, and 08:00 to 14:00 on Saturdays. There may be occasions where it is necessary to

make certain deliveries outside these times, for example, where large loads are limited to road usage outside peak times.

4 Waste Management Plan

4.1 Background

The Waste Management Plan (WMP) will address the following points;

- Analysis of waste arisings / material surpluses
- Specific waste management objectives for the project including the potential to re-use existing on-site materials for further use.
- Methods proposed for prevention, reuse and recycling
- Waste handling procedures
- Waste storage procedures
- Waste disposal procedures
- Waste auditing
- Record keeping

4.2 Policy and Legislation

The principles and objectives to deliver sustainable waste management for this project have been incorporated in the preparation of this report and are based on the following strategic objectives:

- Environmental Protection Agency Act 1992
- Waste Management Acts 1996 to 2005
- Waste Management (Collection Permit) Regulations 2007 (SI No. 820 of 2007)
- Waste Management (Collection Permit) Amendment Regulations 2008 (SI No. 87 of 2008), as amended.
- The Waste Framework Directive (Directive 2008/98/EC)
- Department of the Environment, Heritage and Local Government – Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects – July 2006

In reference to the above legislation the below hierarchy has been adapted for this site:

- Reduction of the amount of waste generated by the construction process.
- Segregation of waste will be implemented during the construction phase of the development to enable easy re-use and recycling, wherever possible.
- Recycle waste material where feasible, including the use of excess excavations as fill material, recycling of various waste fractions such as metals, packaging etc.

4.3 Waste Minimisation

The Construction Project Manager shall take primary responsibility for the minimisation and prevention of waste generation. The following initiatives should be implemented to assist in this task;

- Materials to be ordered on an “as needed” basis to prevent oversupply and material build up on site.
- Appropriate storage facilities should be provided to ensure materials are correctly handled and stored thus reducing damage to materials.
- Material ordering shall coincide with the programme of works to reduce the need to store materials on site.
- Sub-contractors will be responsible for the management of their wastes.

4.4 Ongoing Review of WMP

It is proposed that a review of waste management practices will form part of regular site inspection audits to be carried out by the construction contractor. This information should be forwarded to the Construction Project Manager to assist in determining the best methods for waste minimisation, reduction, re-use, recycling and disposal as the works progress.

4.5 Management of Construction/Demolition Waste Disposal

It is proposed to establish a dedicated and secure compound on site for the setting down of bins / skips to facilitate waste storage prior to disposal.

The site manager on behalf of the construction contractor will ensure that all staff are made aware of their responsibility in relation to waste management on site. The Construction Project Manager shall inform staff by means of clear signage and verbal instruction of housekeeping and waste segregation practices.

It will be the responsibility of the Construction Project Manager to ensure that a written record of all quantities and nature of waste removed off site are maintained on site in a waste file to be kept at the project office.

It is the responsibility of the Construction Project Manager or nominated person that all contracted waste hauliers employed at the site hold an appropriate waste collection permit for the waste streams which will be generated and that all waste materials are disposed of at an appropriately licensed or permitted waste facility.

The Construction Project Manager or nominated person is also responsible for ensuring that all waste materials are disposed of at an appropriately licensed or permitted waste facility.

Typical waste materials anticipated to be generated throughout the course of the project are classified under Section 17 – Construction and Demolition Wastes – of the List of Waste (LoW) as detailed in **Table 4.1**, overleaf.

Table 4.1: Anticipated List of Wastes arising at the site

Description of Waste	EWC Code
Concrete, Bricks, Tiles and Ceramics	**17 01**
Concrete	**17 01 01**
Bricks	**17 01 02**
Tiles and Ceramics	**17 01 03**
Mixture of concrete, bricks tiles & ceramics	**17 01 07**
Wood, Glass and Plastic	**17 02**
Wood	**17 02 01**
Glass	**17 02 02**
Plastic	**17 02 03**
Bituminous mixtures, coal tar and products	**17 03**
Bituminous mixtures containing other than those mentioned in 17 03 01	**17 03 02**
Bituminous Mixtures including Coal Tar and Tarred products	**17 03**
Metals (including their alloys)	**17 04**
Copper, Bronze, Brass	**17 04 01**
Aluminium	**17 04 02**
Lead	**17 04 03**
Zinc	**17 04 04**
Iron and Steel	**17 04 05**
Tin	**17 04 06**
Mixed Metals	**17 04 07**
Cables other than those mentioned in 17 04 10	**17 04 11**
Insulation and asbestos-containing Construction Materials	**17 06**
Gypsum based construction Materials	**17 08**
Other Construction and Demolition Materials	**17 09**
Mixed Construction and Demolition Waste other than those mentioned in 17 09 01, 17 09 02, 17 09 03	**17 09 04**
Sewage Screenings	**19 08 01**
Paper and Cardboard	**20 01 01**
Wood other than that mentioned in 20 01 37	**20.01 38**
Soil and Stones	**17 05 04**
Mixed Municipal Waste	**20 03 01**

It is proposed that materials will be collected and stored in separate, clearly labelled skips, within a predefined waste storage area in the site compound and that these materials will be collected by a permitted waste contractor and disposed of at an appropriately licensed/permitted waste facility.

Prior to the commencement of the project the Construction Project Manager will instruct an appropriately permitted waste contractor to collect the waste and ensure that the waste contractor and licensed/permitted waste facility hold relevant waste permits and licenses.

All waste soils shall be classified as inert, non-hazardous or hazardous in accordance with the EPA's Waste Classification Guidance – List of Waste & Determining if Waste is Hazardous or Non-Hazardous prior to being exported off site. This is to ensure that the waste material is transferred by an appropriately permitted waste collection permit holder and brought to an appropriately permitted or licensed waste facility

4.6 Onsite Waste Reuse and Recycling Management

Each waste stream will have a dedicated area for segregation to allow easy reuse or recycling of materials. Collections for these will be as usage requires. Where possible recyclable waste will be kept dry and clean to allow processing. Recyclable waste will be transferred by suitable means to a licenced/permitted facility. Material for recycling will be segregated into suitable containers which have adequate access for collection vehicles.

4.7 Record Keeping

It is the responsibility of the Construction Project Manager or his/her delegate that a written record of all quantities and natures of wastes reused / recycled during the project are maintained in a waste file at the Project office. Details to be included are as follows:

- Contractors and subcontractors on Site every day
- All main contractor employees on Site
- All plant and equipment on Site
- All visitors [including Health and Safety procedures] and any associated reports
- Weather every day
- Activity during the day
- Invoices showing standard of material installed adheres to specifications
- Results of concrete cube, slump and other testing
- Any accident and incident reports, safety audits internal or external
- Safety statement and safety file
- Site programme
- Any other items required by the Contractor to maintain on site by law, building regulations, building control or health and safety.
- Minutes of all site meetings
- Any applicable certificates

4.8 Waste Collector and Waste Facility Details

Table 4.2 overleaf, summarises the names and permit numbers of the waste collectors and waste facilities which are currently utilised for off-site disposal of the various waste-streams

arising from the development. This table will be updated as the project advances and waste streams change.

Table 4.2: Suitable Qualified Waste Collectors and Waste Facilities

Description of Waste	EWC Code	Waste Collector		Waste Facility	
		Name	NWCP	Name	WFP/WL No.
Concrete, Bricks, Tiles and Ceramics	**17 01**				
Concrete	**17 01 01**				
Bricks	**17 01 02**				
Tiles and Ceramics	**17 01 03**				
Mixture of concrete, bricks tiles & ceramics	**17 01 07**				
Wood, Glass and Plastic	**17 02**				
Wood	**17 02 01**				
Glass	**17 02 02**				
Plastic	**17 02 03**				
Bituminous mixtures, coal tar and products	**17 03**				
Bituminous mixtures containing other than those mentioned in 17 03 01	**17 03 02**				
Bituminous Mixtures including Coal Tar and Tarred products	**17 03**				
Metals (including their alloys)	**17 04**				
Copper, Bronze, Brass	**17 04 01**				
Aluminium	**17 04 02**				
Lead	**17 04 03**				
Zinc	**17 04 04**				
Iron and Steel	**17 04 05**				
Tin	**17 04 06**				
Mixed Metals	**17 04 07**				

Cables other than those mentioned in 17 04 10	**17 04 11**				
Gypsum based construction Materials	**17 08**				
Other Construction and Demolition Materials	**17 09**				
Mixed Construction and Demolition Waste other than those mentioned in 17 09 01, 17 09 02, 17 09 03	**17 09 04**				
Sewage Screenings	**19 08 01**				
Paper and Cardboard	**20 01 01**				
Wood other than that mentioned in 20 01 37	**20.01 38**				
Soil and Stones	**17 05 04**				
Mixed Municipal Waste	**20 03 01**				
Bulky Mixed Municipal Waste	**20 03 07**				

5 Environmental Management Plan

5.1 Background

A preliminary risk assessment was carried out for the proposed site location in accordance with the Air Quality Monitoring and Noise Control Unit's Good Practice Guide for Construction and Demolition, produced by the London Authorities Noise Action Forum, July 2016. This assessment took into account factors relating to the proximity of the site to sensitive receptors and rated the level of nuisance anticipated with scheduled work practices.

Following the completion of this risk assessment, the proposed development was determined to be a high-risk site based on its close proximity to residential units, Balbriggan Library, and several local amenity areas. This section outlines suitable measures to minimise nuisance noise, water and dust emissions in order to minimise any impact of the proposed development on surrounding receptors:

5.2 Noise and Vibration

The Contractor will be required to restrict noise levels to the following levels:

- Daytime (08:00 to 19:00 hrs) – 55dB
- Evening (19:00 to 23:00 hrs) – 50dB
- Night-time (23:00 to 08:00 hrs) – 45dB (measured from nearest noise sensitive location)

A baseline noise monitoring programme will be completed prior to construction works commencing. Noise monitoring will be carried out a several locations within the pubic realm.

To minimize noise from construction operations, no heavy construction equipment/ machinery (to include pneumatic drills, construction vehicles, generators, etc) shall be operated on or adjacent to the construction site before 08.00 or after 19.00, Monday to Friday, and before 08.00 or after 14.00 on Saturdays. No activities shall take place in site on Sundays or Bank Holidays. No activity, which would reasonably be expected to cause annoyance to residents in the vicinity, shall take place on site between the hours of 19.00 and 08.00. No deliveries of materials, plant or machinery shall take place before 08.00 in the morning or after 19.00 in the evening.

The proposed development will be obliged to comply with BS 5228 "Noise Control on Construction and Open Sites Part 1". The appointed contractor shall implement the following measures to eliminate or reduce noise levels where possible:

- All site staff shall be briefed on noise mitigation measures and the application of best practicable means to be employed to control noise.
- All staff should be briefed on the complaint's procedure, the mitigation requirement and their responsibilities to register and escalate complaints received.

- The site entrance shall be located on High Street.
- Good quality site hoarding is to be erected to maximise the reduction in noise levels.
- Contact details of the contractor and site manager shall be displayed to the public, together with the permitted operating hours.
- Material and plant loading and unloading shall only take place during normal working hours.
- Ensure that each item of plant and equipment complies with the noise limits quoted in the relevant European Commission Directive 2000/14/EC.
- Fit all plant and equipment with appropriate mufflers or silencers of the type recommended by the manufacturer.
- Use all plant and equipment only for the tasks for which it has been designed.
- Locate movable plant away from noise sensitive receptors.
- Avoid the transfer of noise and vibration from demolition activities to adjoining occupied buildings through cutting any vibration transmission path or by structural separation of buildings.
- Ensure at least 4 days' notice is given to Fingal County Council Planning Department when applying for extensions to normal working hours. No out of hours work to be undertaken unless permission to do so has been granted.

Any construction works that have the potential to cause significant levels of vibration at sensitive receptors will be carried out in accordance with the limit values in **Table 5.1** below, at the most affected sensitive receptor.

Table 5.1: Vibration Limits

Type of Building	Peak Component Particle Velocity	
	4 Hz – 15 Hz	15 Hz & above
Reinforced or framed structures/ industrial and heavy commercial buildings	50 mm/s @ >4Hz	50 mm/s @ >4Hz
Unreinforced or light framed structures. Residential or light commercial buildings	15 mm/s @ 4Hz 20 mm/s @ 15 Hz	20 mm/s @ 15Hz 50 mm/s @ >40 Hz

The following limits from continuous vibration are required on this project:

- For vibration sensitive spaces an upper limit of 1mm/s is required. This includes educational and residential buildings;
- For commercial buildings where the activities are not of an especially vibration sensitive nature or for potentially vulnerable unoccupied buildings a vibration limit of 3mm/s is required;
- For all other buildings 5mm/s is required. This includes unoccupied buildings and non-sensitive buildings.

Where unavoidable, exceedance in these levels will only be for short durations and with prior notice to the sensitive receivers of concern. The vibration levels will not exceed 10mm/s at any of the adjacent buildings.

Continuous vibration monitoring will be undertaken on each boundary of the site (North, South, East and West) in line with the active demolition/construction and the nearest sensitive receiver. Vibration monitoring will be undertaken in general accordance with B55228 and reporting to relevant stakeholders in a timely manner. Continuous vibration monitoring will be conducted using a vibration monitor that:

- Includes a tri-axial vibration sensor measuring over a frequency range from 1 to 315 Hz;
- Is capable of sending immediate exceedance alerts to relevant site staff
- via email and/or SMS;
- Allows for regular reporting of all data as required and/or in response to complaints;
- Is configured with alarms/alerts the relevant to the vibration limits defined earlier;
- Operates continuously during the nominated construction phases.

In addition to monitoring, the following measures will adhered to minimise impacts on the surrounding environment:

- Adjacent residents and businesses will be informed of the progress of the works. As concern from community is generally regarding possibility of building damage, they will be informed that vibration levels causing building damage are much higher than the levels likely to be experienced
- Where vibration compaction works are occurring near to sensitive receivers or structures, the smallest size roller capable of completing the works will be used where practical
- Processes and equipment that generate lower vibration levels will be implemented where feasible
- Where breaking up of building elements using a hydraulic hammer or pulveriser, the size of the debris (broken up building elements) falling from height will be minimised where practical
- Using excavators to lift and drop large/heavy debris items to assist breakage into smaller pieces will be avoided . Pulverisers will be used instead to break large debris pieces into smaller pieces

5.3 Dust and Air Quality

Dust prevention measures will be put in place for any particulate pollution. The extent of dust generation under construction activities being carried out is dependent on environmental factors such as rainfall, wind speed and wind direction. The most likely sources of dust generation at this site include soil stripping and excavation of foundations for the main building and the sawing of concrete throughout the duration of the project.

Control Measures are outlined as follows:

- Soil will not be exposed until a replacing capping layer is almost ready to be placed. This is to ensure that soil is left exposed for the minimum amount of time possible.
- Material stockpiles will be strategically placed to reduce wind exposure. Materials will be ordered on an ''as needed'' basis to reduce excessive storage.
- The contractor will spray water on the surface of all roads in the vicinity of the site if required in order to minimise dust generation from the construction activities.
- Appropriate dust suppression will be employed to prevent fugitive emissions affecting those occupying neighbouring properties or pathways.
- Restrict vehicle speeds to 15 kmph as high vehicle speeds cause dust to rise.
- Covers are to be provided over soil stockpiles when high wind and dry weather are encountered if required.
- All consignments containing material with the potential to cause air pollution being transported by skips, lorries, trucks or tippers shall be covered during transit on and off site.
- Street and footpath cleaning shall be undertaken during the demolition and ground works phase to minimise dust emissions.
- No materials shall be burned on-site.

5.4 Surface Water and Groundwater Protection

The main pollutants with the potential to impact water receptors are silt, fuel/oil, concrete and chemicals. There are a number of steps outlined below to eliminate contamination of site surface water runoff. The below recommendations are advised with reference to the Eastern Regional Fisheries Board recommendations for protection of adjacent water courses during the construction phase:

- Monitoring of potential impacts to the Bracken River will be carried out for the duration of the construction programme to ensure there is no impact from site activities.
- The site manager will implement a pollution prevention programme and will ensure daily checks are carried out to ensure compliance.
- An environmental Emergency Response Plan will be put in place for the duration of the construction programme.
- Harmful materials such as fuels, oils, greases, paints and hydraulic fluids must be stored in bunded compounds well away from storm water drains and gullies. Refuelling of machinery should be carried out using drip trays. The site compound will include a dedicated bund for the storage of dangerous substances including fuels oils, solvents etc.
- Runoff from machine service and concrete mixing areas must not enter storm water drains and gullies leading off-site.
- Stockpile areas for sands and gravel should be kept to minimum size, well away from storm water drains and gullies leading off-site.

- Open excavations to be backfilled immediately following installation of services/foundations etc.

5.5 Ecology and Biodiversity

The Ecological Impact Assessment carried out in May 2021 by Whitehill Environmental has suggested the following mitigation measures in order to maximise protection for local ecological receptors.

5.5.1 Mitigation for Birds

The removal of the existing vegetation on site should only take place outside of the bird nesting season (March – August).

The demolition of the building must only be done upon confirmation that there are no nesting gulls on the roof. Nesting times for gulls extends from March-August, therefore the building should not be demolished in this period unless it can be confirmed that gulls are not nesting.

In addition, two swift boxes should be placed on the new building or outbuildings. These can be purchased from https://birdwatchireland.ie/shop/.

5.5.2 Mitigation for Downstream Impacts

During construction, run-off from construction and demolition must not be allowed to emit onto the streets or into gullies on the streets.

During construction, fuels, oils, greases and hydraulic fluids must be stored in bunded compounds. Refuelling of machinery, etc., should be carried out in bunded areas. Any bulk fuel storage tank should be properly bunded with a bund capacity of at least 110% of that of the fuel tank.

All waste associated with the development should be disposed of in an environmentally friendly manner. Registered contractors should only be used.

Fuels, oils, greases and hydraulic fluids must be stored in bunded compounds well away from local watercourses / drains. Refuelling of machinery, etc., should be carried out in bunded areas.

Any bulk fuel storage tank should be properly bunded with a bund capacity of at least 110% of that of the fuel tank.

5.5.3 Mitigation for Flora

The future landscaping of the site should adhere to the following recommendations where space allows:

Native trees and shrubs should be used in the landscaping where possible, followed by non-native plants that are of benefit to pollinators. Planting should follow the guidelines within the

All-Ireland Pollinator Plan, available at https://www.biodiversityireland.ie/wordpress/wp-content/uploads/Pollinator-friendly-planting-code-temporary-draft.pdf.

5.5.4 Mitigation for Bats

Four *1FF Schwegler* bat boxes with built-in timber panel bat boxes must be put in place. These should be placed on the building, at least 3m high, with a clear drop below (as bats need to drop to start their flight). These can be purchased from www.nhbs.com. They must be placed in a dark area.

All bats are sensitive to light pollution. Dark skies areas (under 3 Lux) must be maintained to the north and south of the buildings.

Lighting design will be in accordance with the following:

- Bats and Lighting – Guidance Notes for Planners, Engineers, Architects, and Developers (Bat Conservation Ireland, 2010).
- Bats and Lighting in the UK – Bats and the Built Environment Series (Institute of Lighting Professionals, September 2018).
- Guidance Notes for the Reduction of Obtrusive Light GN01 (Institute of Lighting Professionals, 2011.

5.5.5 Mitigation for Invasive Species

Prior to demolition, the location of the Japanese knotweed dead canes should be checked once again for any new growth.

6 Outline Traffic Management Plan

6.1 Background

This Outline Traffic Management Plan, (OTMP) is designed to facilitate access to the site by plant, machinery, and work vehicles during collections/deliveries; and to minimise traffic impacts of construction to local residents in the vicinity of the site.

6.2 Outline Traffic Management Plan

The construction phase OTMP has been prepared in accordance with the following best practices publications and demonstrates compliance with the requirements of the Health and Safety Authority:

1. *Chapter 8 of the Traffic Signs Manual and the Safety, Health & Welfare at Work (Construction) Regulations*- Department of Transport
2. *Temporary Traffic Management Design Guidance* – Department of Transport, Tourism and Sport

The main contractor will be required to ensure that the elements of this outline OTMP shall be incorporated into the final TMP. The contractor shall also agree and implement monitoring measures to confirm the effectiveness of the mitigation measures outlined in the OTMP. The final TMP shall address the following issues (including all aspects identified in this outline TMP):

- Site Access & Egress;
- Traffic Management Signage;
- Routing of Construction Traffic / Road Closures;
- Timings of Material Deliveries to Site;
- Traffic Management Speed Limits;
- Road Cleaning;
- Road Condition;
- Road Closures;
- Enforcement of Construction Traffic Management Plan
- Details of Working Hours and Days;
- Details of Emergency plan;
- Communication;
- Construction Methodologies;
- Particular Construction Impacts

6.3 Construction Entrance and Construction Traffic Control

6.3.1 Access in

The proposed construction entrance is to be from High Street. Construction traffic will approach the site entrance from the south, in order to avoid routing HGV's through the town centre, utilising the network of local roads connecting the site to the R132 road. The entrance will be manned by a banksman at all times who will direct traffic safely into the construction site and facilitate the safe navigation of larger construction vehicles as required.

The entrance gate will be set back off the public road to prevent incoming vehicles from causing obstruction to local traffic. Access will have enough straight entrance controls to allow at least two HGV's to enter the site. Strong lines of communication with hauliers, strict delivery schedules and just-in-time delivery methods will be in operation to ensure no more than two trucks will visit the site at any one time. It is envisaged that strict adherence to these protocols will ensure that no queuing will occur on High Street.

6.3.2 Access Out

When vehicles are due to depart from the site the banksman will ensure the roadway is safe to proceed and will communicate with the driver in the cab. The proposed construction exit from the site will be right turn only, onto High Street.

The main contractor is required to ensure that the provision of adequate guarding and lighting appropriate to the circumstances. Traffic signs should be placed in advance of the works area on both sides to ensure adequate warning to the general public and maintained when necessary, they should be operated as reasonably required for the safe guidance or direction of the public with regard to the needs of people with disabilities. The main contractor will comply with Regulation 97 of the Safety, Health and Welfare at Work (Construction) Regulations 2013.

Access to the construction site will only be to authorised persons. During afterhours, security will be employed by the main contractors to ensure no unauthorised access.

6.3.3 Construction Vehicle Numbers

Construction vehicles will fall into 2 no. categories, heavy and light vehicles. Heavy vehicles will consist of HGV's involved in the removal of material off-site and for the delivery of concrete and other large construction materials. Light vehicles include cars and tradespeople's vans.

Estimates of vehicle movements per day for both categories will be outlined upon appointment of a contractor for the project.

6.4 Deliveries to Site / Site Access

The site entrance will be gated; and manned at all times with access only permitted for site vehicles and plant movements when necessary.

Deliveries of materials to site will be planned and programmed to ensure that the materials are only delivered when required by adopting a 'just in time', lean construction management approach. There will be periods where multiple vehicle deliveries will be required, e.g. site fill material under roads, houses and landscape areas, pre-cast concrete and large concrete pours. These will be planned well in advance and no queuing of vehicles allowed on the public road at the entrance to the site. Supply chain to be directed as not to travel in convoys greater than three at any time.

All off-loading of material will take place within the site, remote from the public road and access via the agreed access construction point only. Bulk deliveries to take place outside of peak traffic hours within a six-day week as to minimise impact on the existing road network.

Access control: The site entrance will always be controlled by a banksman. The contractor will carry out a visitor induction briefing for all visitors or other persons who need access to the construction area. All visitors to the site will be required to have current 'Safe Pass' cards.

Sign Management: Signs are to comply with statutory requirements on public roads. Other construction sites may be carrying out construction activity at the same time as the subject site. It is therefore imperative that directions to each site are distinctly identifiable.

6.5 Cranes & Lifting of Equipment

A tower crane and concrete placing boom will be provided to erect the RC frame. A combination of goods hoists and a telehandler will offload and distribute materials for the finishing trades.

All lifting equipment will carry current test certificates and will be inspected thoroughly, prior to use. Trained banksmen will attend the cranes as always.

6.6 Routing of Construction Traffic

Construction will have x2 options in accessing the site, option 1 involving the use of exit 5 from the M1 motorway and option 2 involving the use of exit 6 from the M1 motorway, both of which are illustrated in **Figure 6.1**, overleaf.

Option 1: Construction traffic will access the site from exit 5 from the M1 motorway and will travel to the site via the R132, connecting exit 5 of the M1 to the south of Balbriggan Town. While the majority of this route is single lane, the route traverses a sparsely settled landscape with a low incidence of sensitive receptors (schools etc.); and there are no particularly narrow road widths throughout with a hard-shoulder present on the majority of the routh on approach to Balbriggan Town. All Construction Traffic will be obligated to adhere to the traffic calming measure in place at Balrothery.

Option 2: Construction traffic will access the site exit 6 from the M1 motorway and will take the R122 to the first roundabout; and will take the 2nd exit on the first roundabout, proceeding straight through a series of roundabouts on the Balbriggan Distributor Road and merging onto the R132 at the roundabout adjacent to St. Peter and Paul's Church. This route option consists predominantly of dual carriage way and avoids any sensitive receptors as much as possible.

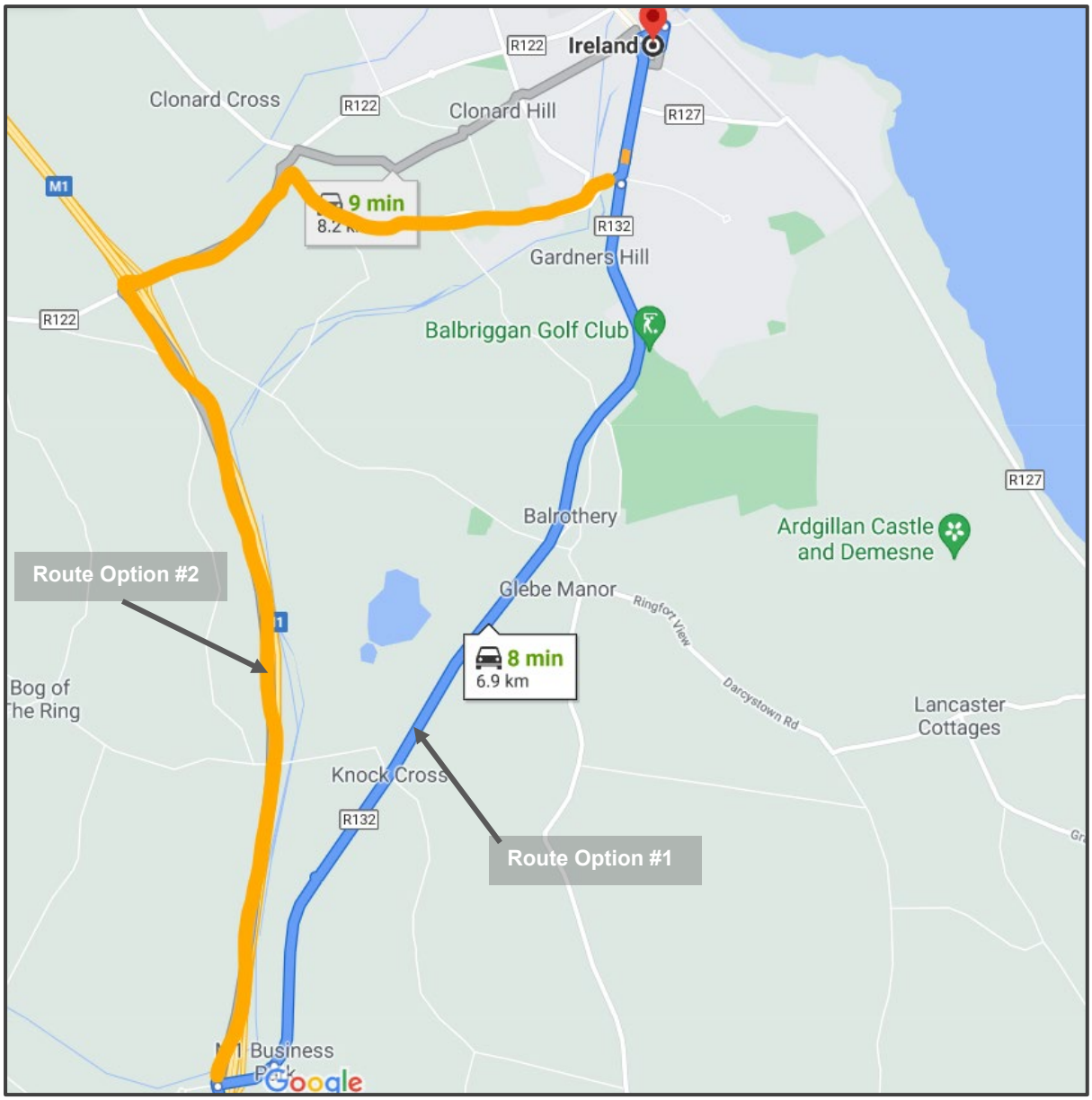

Figure 6.1: Routing of Construction Traffic to the Templar Place SHD site.

Both route options will direct construction traffic on to the R132 towards the south of Balbriggan Town. In order to minimise the incidence of right-hand turns (and associated delays) within the route, construction traffic will proceed along the R132 directly into Balbriggan, turning right at St. George's Square followed by a left-hand turn at High Street,

proceeding finally to the proposed site entrance on High Street. Entrance onto the site will also be a left-hand turn.

Traffic leaving the site will turn left onto High Street, followed by another left-hand turn onto Quay Street and a third left-hand turn onto the R132. Construction traffic will then follow the R132, exiting Balbriggan Town in a southerly direction utilising either route option 1 of 2 described above in reverse fashion back to the M1 Motorway. the local road network, taking the R132 on to the Balbriggan Distributor Road, on to the R122 and back on to the M1 Motorway.

6.7 Traffic Management Speed Limits

Adherence to posted / legal speed limits will be emphasised to all contractors and sub-contractors during induction training.

Drivers of construction vehicles / HGVs will be advised that vehicular movements in locations, such as local community areas, shall be restricted to 50 km/h. Special speed limits of 30 km/h shall be implemented for construction traffic in sensitive areas such as school locations. Such recommended speed limits will only apply to construction traffic and shall not apply to general traffic.

6.8 Road Cleaning

A wheel wash facility will be provided prior to exit of the site when required throughout the various stages of construction on-site. This is to ensure that the minimum road sweeping will be required on the public road, although a requirement for road sweeping cannot be eliminated entirely, control measures within site is aimed at limiting road sweepers. If conditions require it then a manned power washer shall be put in place to assist the wheel wash system.

Road sweeping operations to remove any project related dirt and material deposited on the road network by construction / delivery vehicles will be utilised as required. All material collected will be disposed to a licensed waste facility.

The following additional measures will be taken to ensure that the site, public roads and surroundings are kept clean and tidy:

- A regular program of site tidying will be established to ensure a safe and orderly site;
- Food waste will be strictly controlled on all parts of the site;
- Mud spillages on roads and footpaths outside the site will be cleaned regularly and will not be allowed to accumulate.

6.9 Road Condition

The higher volume of heavy vehicle traffic movements and the nature of the payload may create problems to the local road network in terms of:

- Fugitive losses from wheels, trailers or tailgates.
- Localised areas of subgrade and wearing surface failure.

The main contractors shall ensure that:

- Loads of materials leaving each site will be evaluated and covered if considered necessary to minimise potential dust impacts during transportation.
- The transportation contractor shall take all reasonable measures while transporting waste or any other materials likely to cause fugitive loses from a vehicle during transportation to and from site, including but not limited to:
- Covering of all waste or material with suitably secured tarpaulin/ covers to prevent loss; and utilisation of enclosed units to prevent loss.
- Roads forming part of the haul routes will be monitored visually throughout the construction period and a truck mounted vacuum mechanical sweeper will be assigned to roads along the haul route as required.

6.10 Enforcement of TMP

The traffic management plan will be enforced by both the Construction Project Manager and the Resident Engineer.

All project staff and material suppliers will be informed of the measures proposed by the TMP during site induction and will be required to adhere to the final TMP. As outlined above, the contractor shall agree and implement monitoring measures to confirm the effectiveness of the TMP.

6.11 Working Hours

Deliveries of materials to site will generally be between the hours of 08:00 and 19:00 Monday to Friday, and 08:00 to 14:00 on Saturdays. No deliveries will be scheduled for Sundays or Bank Holidays.

6.12 Emergency Procedures

The main contractor shall ensure that unobstructed access is provided to all emergency vehicles along all routes and site accesses. The contractor shall provide to the local authorities and emergency services, contact details of the contractor's personnel responsible for construction traffic management. In the case of an emergency the following procedure shall be followed:

- Emergency Services will be contacted immediately by dialing 112.
- Exact details of the emergency / incident will be given by the caller to the emergency line operator to allow them to assess the situation and respond in an adequate manner.

- The emergency will then be reported to the Site Team Supervisors and the Safety Officer; All construction traffic shall be notified of the incident (where such occurs off site).
- Where required, appointed site first aiders will attend the emergency immediately.
- The Safety Officer will ensure that the emergency services are en route.

6.13 Communication

The main contractor shall ensure that close communication with the Fingal County Council and the emergency services shall be maintained throughout the construction phase. Such communications shall include:

- Submissions of proposed traffic management measures for comment and approval.
- On-going reporting relating to the condition of the road network and updates to construction programming.
- Information relating to local and community events that could conflict with proposed traffic management measures and construction traffic in order to implement alternative measures to avoid such conflicts.

The contractor shall also ensure that the local community is informed of any proposed traffic management measures in advance of their implementation. Such information shall be disseminated by posting advertisements in local newspapers and delivering leaflets to houses in the affected areas. Such information shall contain contact information for members of the public to obtain additional information and to provide additional knowledge such as local events, sports fixtures etc. which may conflict with proposed traffic management measures.

7 Implementation

7.1 Role and Responsibilities

Due to the nature and scale of this development, the appointment of a full-time environmental manager is deemed surplus to requirements for the duration of the project. The Construction Project Manager will be responsible for the day-to-day implementation of the measures outlined in the Project CEMP. The Construction Project Manager will be supported by an Environmental Consultant who will be involved in the project on an ad-hoc basis should unforeseen or significant environmental incidents arise.

7.1.1 Construction Project Manager

The Construction Project Manager have the overall responsibility of ensuring the measures outlined in the Project CEMP are adhered to for the duration of the construction phase. The primary responsibilities of the Construction Project Manager are as follows:

- Promotion of awareness of environmental issues associated with each project phase.
- Ensure adherence with all environmental and traffic management standards listed in the Project CEMP.
- Facilitate environmental audits and site visits.
- Monitor the impact of construction traffic on local traffic conditions at Park Avenue.
- Awareness and implementation of relevant legislation, codes of practice, guidance notes as stated in the CEMP.
- Conduct regular site inspections to facilitate the timely identification of environmental risks or incidents.
- Ensure all construction activities are carried out with minimal risk to the environment.
- Report environmental incidents in a timely manner to the project environmental consultant and the relevant authorities.

7.1.2 Project Environmental Consultant

The main contractor will nominate a suitably qualified person/organisation as the Project Environmental Consultant, prior to construction works taking place. The primary responsibilities of the Project Environmental Consultant are as follows:

- Quality assurance of the Project CEMP.
- Update of the Project CEMP as required paying particular attention to site-specific environmental hazards or changes in legislation.
- Ensuring compliance of Project CEMP with the conditions of the Planning Permission.

- Provide expertise to the Construction Project Manager on environmental concerns.
- Conduct the various specialist environmental monitoring tasks outlined within the Project CEMP (noise, dust, surface water monitoring etc.).
- Prompt response to environmental issues if they arise.

7.1.3 Resident Engineer

Typically, the Resident Engineer's primary role involves assurance that the construction work of a project is carried out according to the quality, time and cost requirements of the contract. A significant degree of cross-over can usually be anticipated between the roles of a Resident Engineer, a Construction Project Manager and an Environmental Consultant. With respect to the Project CEMP, the Resident Engineer is expected to play a crucial role in the Traffic Management Plan (TMP) along with the following responsibilities:

- Performing or coordinating site inductions.
- Monitoring the performance of subcontractors.
- Monitoring the performance of the traffic management plan.
- Managing and supervising less experienced site engineers and operatives.
- Ensuring that work activities have been carried out in accordance with the plans, specifications and industry standards.
- Ensuring that tests and inspections are performed.
- Liaising with construction management to remove any hazards associated with work activities.
- Ensuring that delivered materials meet specifications and established quality standards.
- Initiating and maintaining records, back-charge procedures, progress reports etc.

7.1.4 Community Liaison Officer

A Community Liaison Officer (CLO) will be appointed by the Main Contractor to lead and manage all community related issues. The CLO will compile a list of stakeholders in the area. These stakeholders will be kept informed of progress and planned works on the site. Newsletters, liaison meetings, progress photos, organised site visits are all methods by which we can communicate how they intend to carry out the works and keep people informed. A display board will be erected outside the site, which at a minimum will identify key personnel contact addresses and telephone numbers.

Many parties will have an interest in this project throughout the duration of the contract. The presence of the construction company during the construction phase will have a direct impact on the local environment, particularly concerning the following:

- Residents and land owners
- Tenants and Residents Associations

- Planning Authority
- Other Statutory Authorities
- Building Control
- Environmental Health
- Utilities Providers

An important element of community liaison will be the provision of updates to the community on the construction programme. In this regard each edition of the Community Newsletter will feature an update to the construction programme along with details of any upcoming Exceptional Activities which may impact on traffic, short term accessibility for businesses or residents or have the potential to be disruptive. It is intended that by implementing a strong community liaison relationship that the environmental impacts of the proposed development on the community can be minimised and the social impacts, by way of local employment or business opportunities may be maximised.

The CLO will also keep a full record of all complaints received and assess each to ensure appropriate action is taken as soon as possible.

Fingal County Council's relevant departments will be contacted and liaised with prior to the commencement of works. Where necessary Road Opening Licence applications will be submitted for approval from Fingal County Council.

Contractors should give utmost consideration to their impact on neighbours and the public by informing, respecting and showing courtesy to those affected by the work. This shows itself in minimising the impact of deliveries, parking and work on the public highway.

7.2 Awareness and Training

7.2.1 Environmental Induction

The key environmental topics outlined in the Project CEMP will be summarised and integrated into the general site induction. Site-specific concerns and best work practices will be outlined to all contractors and sub-contractors due to carry out work at the site. As a minimum this will include:

- The roles and responsibilities of the Construction Project Manager; the Environmental Consultant and the Resident Engineer; along with the responsibilities of contractors/sub-contractors themselves.
- Incident and complaints procedure.
- Outline of the CEMP structure.
- Site specific environmental concerns.
- Best work practices

7.2.2 Toolbox Talks

Daily toolbox talks will be conducted by the Construction Project Manager as standard practice. It is the duty of the Construction Project Manager to liaise with the Project Environmental Consultant and Resident Engineer to assess site operations for environmental concerns particularly as the project advances and new activities commence. Appropriate mitigation measures will be devised and communicated to the relevant personnel prior to the commencement of any such activities.

7.3 Environmental Incidents and Complaints Procedure

The Construction Project Manager will maintain a register of environmental incidents which will document the nature, scale and severity of any environmental incident or complaint which arises as a result of site activities. In the event of an environmental incident the following steps must be followed:

- The Project Environmental Consultant is notified immediately.
- The Project Environmental Consultant will liaise with the competent authority if necessary.
- The details of the incident will be recorded on an Environmental Incident Form which will record the following details:
    - Cause of the incident
    - Extent of the Incident
    - Immediate actions
    - Remedial measures
    - Recommendations made to avoid reoccurrence
- If the incident has impacted on an ecologically sensitive receptor (SPA, SAC, NHA) an ecological specialist will be consulted.
- The Project Environmental Consultant and Construction Project Manager will fully cooperate with any investigations conducted by the competent authority.

8 Conclusion

This Construction Environmental Management Plan (CEMP) will form part of the construction contract and is designed to reduce possible impacts which may occur during the construction of the proposed development.

The proposed development shall be constructed and developed to minimise the generation of construction and demolition waste. During the construction phase, construction waste shall be stored and segregated in dedicated waste storage areas which shall optimise the potential for off-site reuse and recycling. All construction waste materials shall be exported off-site by an appropriately permitted waste contractor.

Extensive measures shall be taken to prevent uncontrolled emissions to drains and gullies leading off the site. Noise mitigation measures will be utilised as required. Several measures have been outlined to ensure adequate dust suppression throughout the project. Noise and dust monitoring shall be carried out at various stages throughout the project to ensure compliance with the relevant standards.

Suitably qualified personnel including a Construction Project Manager, Project Environmental Consultant and Resident Engineer will be appointed to implement the procedures and protocols relevant to their profession as outlined in this CMP.

The Client shall be responsible for ensuring that the contractor manages the construction activities in accordance with this Construction Environmental Management Plan and shall ensure that any conditions of planning are incorporated into the final CEMP prepared by the appointed works contractor.