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CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

SOCIAL HOUSING BUNDLE 4,
CROKE VILLAS,
SACKVILLE AVENUE,
DUBLIN CITY,
CO. DUBLIN

2024

REPORT NO:	PE_CEMP_22284	**AUTHOR:**	Luis Soares, MSc
DATE:	26th April 2024	**REVIEWED:**	Martin O'Looney, BSc.

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1.0 INTRODUCTION

Panther Environmental Solutions was commissioned by Malone O'Regan Consulting Engineers, on behalf of Dublin City Council, has prepared a Construction Environmental Management Plan (CEMP) for a proposed development seeking permission for the re-development of a brownfield site of 0.88 hectares to a mix of one- and two-bedroom apartments in two separate blocks at Croke Villas, within North Dublin City (ITM E716621, N735768).

1.1 COMPETENCY & EXPERIENCE

PES is a leading environmental consulting firm based in Carlow, Ireland. PES was formed in 2005 by environmental consultant Mr. Mike Fraher who has over two decades of experience working in the environmental consultancy industry, both in Ireland and in the United Kingdom.

The PES team are competent and experienced in preparing environmental planning documents. PES has completed environmental works in a wide range of industries including construction, waste management, industrial and intensive agriculture.

This CEMP has been prepared by experienced environmental consultants within PES Ltd and ecologists within the sister company Panther Ecology Ltd.

Mr Mike Fraher has over 25 years of consultancy experience and has a B.Sc. Degree in Environmental Sciences from the University of Glamorgan, Cardiff in Wales and a Diploma in Food Sciences from Cork Institute of Technology.

Mr. Martin O'Looney has over ten years' consultancy experience and has a B.Sc. Degree in Environmental Science and Technology from Sligo Institute of Technology.

Mr. Nial Ryan has over six years' consultancy experience and has a BSc. in Applied Physics from Dublin City University, an MSc. in Medical Device Regulatory Affairs, a Certificate in Introduction to AutoCAD, and a Certificate in Environmental, Health & Safety Management all from Institute of Technology Carlow.

Mr. Luis Soares has a BSc. in Aquatic Sciences and an MSc in Environmental Sciences and Technology from University of Porto.

Ms Paula Farrell who has a BSc in Wildlife Biology from Munster Technological University (formerly IT Tralee) and has experience in elasmobranch, amphibian, bird, invertebrate, mammal and floral surveys.

Ms Soraia Branco who has a BSc in Biology from Coimbra University and an MSc in Management and Conservation of Nature from Azores University and has experience in ecological and floral surveys.

1.2 PURPOSE OF THE CEMP

The purpose of this CEMP is to communicate key environmental obligations that apply to all site personnel, sub-contractors, and visitors to the site, while carrying out construction activities as part of the proposed development.

The CEMP defines the approach to environmental management at the proposed development site, outlining the work practices, construction procedures and responsibilities to be undertaken during the construction phase. Compliance with the CEMP, the procedures, work practices and controls will be mandatory and must be adhered to by all personnel and sub-contractors employed during the construction phase.

The CEMP outlines, where necessary, the control measures that are required to avoid, minimise, or mitigate potential effects on the environment and surrounding area.

This document has been prepared based upon the information provided during the planning stage, supplied by the client, Malone O'Regan Consulting Engineers, with respect to the proposed development.

The CEMP will be reviewed and updated as appropriate upon planning approval and as necessary throughout the construction phase.

1.3 LIVE DOCUMENT

The CEMP is a "live" document and will be reviewed and updated as necessary throughout the construction phase.

1.4 COMMUNICATION

This CEMP will be communicated to all site personnel during site inductions and briefings. All site personnel will be responsible for undertaking their work in an environmentally sustainable manner and will be encouraged to provide feedback and comments on environmental performance at the site and suggestions for improvement. A Project Manager will be appointed to the proposed development. Any environmental issues, accidents or incidents will be reported to the Project Manager as soon as possible.

The main project communications will comprise of structured reporting arrangements and meetings. Site meetings will be undertaken on a weekly basis, with environmental performance included within the meeting agenda. The CEMP will also be discussed at these meetings, including the effectiveness of the CEMP and potential environmental improvements.

2.0 DESCRIPTION OF THE EXISTING SITE

2.1 SITE LOCATION

The proposed development site is located in the north of Dublin City at Croke Villas, as shown in Figure 2.1 below. Access to the new proposed site is via an entrance off the Sackville Avenue to the south-east, which has good connectivity to the wider regional road network within Dublin City and to the M50 motorway, located approximately 1.7km to the south-east. A new pedestrian and cycle link, which will also serve as an emergency vehicle access, will be created by extending Ardilaun Square to Sackville Gardens. The land use of the surrounding area is a mixture of housing to the south, east and north, the Royal Canal and a rail line to the south and west, and Croke Park stadium to the north-west. The National Handball Centre, which is surrounded by the inner site boundaries, does not form part of the application site area.

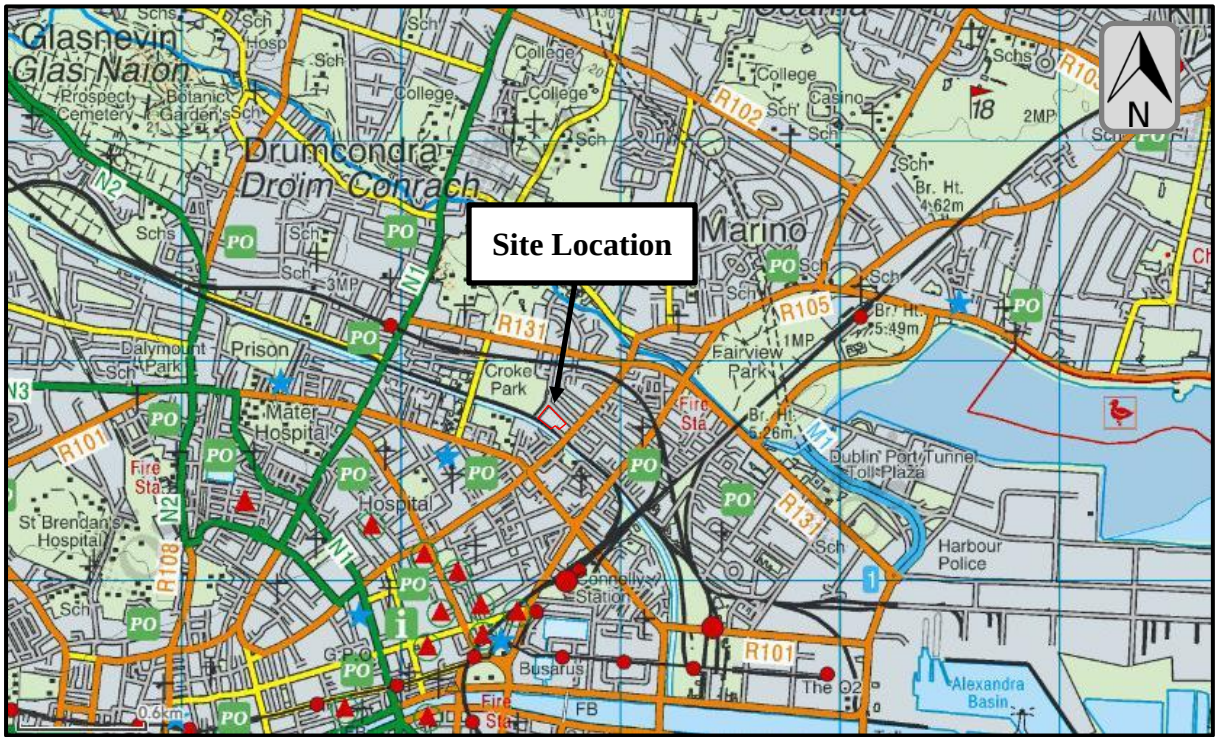

Figure 2.1: Location of Proposed Development at Croke Villas, Dublin City

2.2 PLANNING CONTEXT

The proposed development will provide modern residential dwellings to Dublin City and its environs. The buildings will be mainly used for residential purposes with proposed 152 sqm of internal community space that will be utilised by residents and surrounding community. As good environmental practice, this CEMP has been prepared, to ensure construction works would be undertaken in an environmentally sensitive manner.

The following sections outline the planning policies relevant to the proposed development and the protection of the environment.

National Policies

A number of documents have been published in relation to the Government's commitment to sustainable development, including the *National Planning Framework 2040* and the *National Development Plan 2021-2030.*

Regional Policies

The *Regional Spatial and Economic Strategy 2019-2031*, which includes the counties of the Eastern and Midland Regions outlines the long-term spatial and economic planning strategy for the area. As part of the guidelines, a number of policies relating to the protection of the environment were outlined, as per Table 2.1 below.

Table 2.1: Regional Policies Relevant to the Protection of the Environment and the Proposed Development

POLICY REFERENCE	POLICY
RPO 3.7:	Local authorities shall have regard to environmental and sustainability considerations for meeting sustainable development targets and climate action commitments, in accordance with the National Adaptation Framework. In order to recognise the potential for impacts on the environment, Local authorities shall address the proper site/route selection of any new development and examine environmental constraints including but not limited to biodiversity, flooding, landscape, cultural heritage, material assets, including the capacity of services to serve any new development.
RPO 7.7:	To reduce harmful emissions and achieve and maintain good air quality for all urban and rural areas in the Region and to work with local authorities and the relevant agencies to support local data collection in the development of air quality monitoring and to inform a regional air quality and greenhouse gas emissions inventory.
RPO 7.8:	Local authorities shall incorporate the objectives of the EU Environmental Noise Directive in the preparation of strategic noise maps and action plans that support proactive measures to avoid, mitigate, and minimise noise, in cases where it is likely to have harmful effects
RPO 7.9:	Local authorities shall consider measures to minimise the harmful effects of light pollution in the future provision of outdoor lighting, including improving their approach to street lighting and ensuring that new developments are lit appropriately and to ensure that environmentally sensitive areas are protected.
RPO 7.10:	Support the implementation of the Water Framework Directive in achieving and maintaining at least good environmental status for all water bodies in the Region and to ensure alignment between the core objectives of the Water Framework Directive and other relevant Directives, River Basin Management plans and local authority land use plans.
RPO: 7.11:	For water bodies with 'high ecological status' objectives in the Region, local authorities shall incorporate measures for both their continued protection and to restore those water bodies that have fallen below high ecological status and areas 'At Risk' into the development of local planning policy and decision making any measures for the continued protection of areas with high ecological status in the Region and for mitigation of threats to waterbodies identified as 'At Risk' as part of a catchment based approach in consultation with the relevant agencies. This shall include recognition of the need to deliver efficient wastewater facilities with sufficient capacity and thus contribute to improved water quality in the Region.
RPO 7.14	Local authorities shall take account of and incorporate into the development of local planning policy and decision making the recommendations of the Flood Risk

POLICY REFERENCE	POLICY
	Management Plans (FRMPs), including planned investment measures for managing and reducing flood risk.
RPO 7.15:	Local authorities shall take opportunities to enhance biodiversity and amenities and to ensure the protection of environmentally sensitive sites and habitats, including where flood risk management measures are planned.
RPO 7.16:	Support the implementation of the Habitats Directives in achieving an improvement in the conservation status of protected species and habitats in the Region and to ensure alignment between the core objectives of the EU Birds and Habitats Directives and local authority development plans
RPO 7.27:	Following the adoption of a national landscape character assessment, the Assembly will prepare a Regional Landscape Character Assessment to promote better landscape management and planning in the Region
RPO 10.1:	Local authorities shall include proposals in development plans to ensure the efficient and sustainable use and development of water resources and water services infrastructure in order to manage and conserve water resources in a manner that supports a healthy society, economic development requirements and a cleaner environment.
RPO 10.10:	Support Irish Water and the relevant local authorities in the Region to eliminate untreated discharges from settlements in the short term, while planning strategically for long term growth in tandem with Project Ireland 2040 and in increasing compliance with the requirements of the Urban Waste Water Treatment Directive from 39% today to 90% by the end of 2021, to 99% by 2027 and to 100% by 2040.
RPO 10.15:	Support the relevant local authorities (and Irish Water where relevant) in the Region to improve storm water infrastructure to improve sustainable drainage and reduce the risk of flooding in the urban environment and in the development and provision at a local level of Sustainable Urban Drainage solutions.
RPO 10.16:	Implement policies contained in the Greater Dublin Strategic Drainage Study (GDSDS), including SuDS.

Local Policies

Local planning policies are detailed in the Dublin City Development Plan 2022-2028. A number of policies relate to the protection of the environment and are relevant to the proposed development, summarised as follows:

Table 2.2: Summary of Local Policies Relevant to the Protection of the Environment and the Proposed Development

POLICY REFERENCE	AREA
CA8	To require low carbon development in the city which will seek to reduce carbon dioxide emissions and which will meet the highest feasible environmental standards during construction and occupation, when dealing with development proposals. New development should generally demonstrate/ provide for: a. building layout and design which maximises daylight, natural ventilation, active transport and public transport use; b. sustainable building/services/site design to maximise energy efficiency; c. sensitive energy efficiency improvements to existing buildings; d. energy efficiency, energy conservation, and the increased use of renewable energy in existing and new developments; e. on-site renewable energy infrastructure and renewable energy; f. minimising the generation of site and construction waste and maximising reuse or recycling; g. the use of construction materials that have low to zero embodied energy and CO2 emissions; and

POLICY REFERENCE	AREA
	h. connection to (existing and planned) decentralised energy networks including the Dublin District Heating System where feasible.
CA9	Development proposals must demonstrate sustainable, climate adaptation, circular design principles for new buildings / services / site. The council will promote and support development which is resilient to climate change. This would include: a. measures such as green roofs and green walls to reduce internal overheating and the urban heat island effect; b. ensuring the efficient use of natural resources (including water) and making the most of natural systems both within and around buildings; c. minimising pollution by reducing surface water runoff through increasing permeable surfaces and use of Sustainable Drainage Systems (SuDS); d. reducing flood risk, damage to property from extreme events– residential, public and commercial; e. reducing risks from temperature extremes and extreme weather events to critical infrastructure such as roads, communication networks, the water/drainage network, and energy supply; f. promoting, developing and protecting biodiversity, novel urban ecosystems and green infrastructure.
CA10	All new developments involving 30 residential units and/or more than 1,000sq.m. of commercial floor space, or as otherwise required by the Planning Authority, will be required to submit a Climate Action Energy Statement as part of the overall Design Statement to demonstrate how low carbon energy and heating solutions, have been considered as part of the overall design and planning of the proposed development.
CA15	To actively encourage the development of low carbon and highly efficient district heating and decentralised energy systems across the city utilising low carbon heat sources such as renewable energy and waste heat recovery and to promote the connection of new developments to district heating networks where such systems exist/can be developed in a given area.
GI9	To conserve, manage, protect and restore the favourable conservation condition of all qualifying interest/special conservation interests of all European sites designated, or proposed to be designated, under the EU Birds and Habitats Directives, as Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) (European / Natura 2000 sites).
GI10	To adequately protect flora and fauna (under the EU Habitats and Birds Directives), the Wildlife Acts 1976 (as amended), the Fisheries Acts 1959 (as amended) and the Flora (Protection) Order 2022 S.I No. 235 of 2022, wherever they occur within Dublin City, or have been identified as supporting the favourable conservation condition of any European sites.
GI11	To protect and enhance the ecological functions and connectivity of habitats and species of proposed Natural Heritage Areas (pNHAs) to be designated by the National Parks and Wildlife Service (NPWS).
GI12	To protect sites for nature conservation as designated under the Ramsar Treaty for wetland sites, National Special Amenity Areas, National Nature Reserves, Important Bird Areas and Flora Protection Order Sites.
GI13	To ensure the protection, conservation and enhancement of all areas of ecological importance for protected species, and especially those listed in the EU Birds and Habitats Directives, including those identified as supporting the favourable conservation condition of any European sites, in accordance with development standards set out in this plan.

POLICY REFERENCE	AREA
GI14	To maintain and strengthen the integrity of the city's ecological corridors and stepping stones which enable species to move through the city, by increasing their connectivity [to be shown in the proposed Green Infrastructure Strategy] under Article 10 of the EU Habitats Directive. Development proposals should not compromise their ecological functions and should realise opportunities to contribute to enhancing the nature conservation value of them by landscaping that provides complementary habitats. An Ecological Impact Assessment will be required for any proposed development likely to have a significant impact on habitats and species of interest on or adjacent an ecological corridor.
GI16	That new developments (as appropriate) will be required to support local biodiversity and incorporate biodiversity improvements through urban greening and the use of nature-based infrastructural solutions that are of particular relevance and benefit in an urban context. Opportunities should be taken as part of new development to provide a net gain in biodiversity and provide links to the wider Green Infrastructure network. All suitable new buildings will be required to incorporate swift nesting blocks into the building fabric.
GI17	To increase the percentage of restored and naturalised areas on public land in the city. That new development on private and public lands should provide opportunities for restoration of degraded habitats and soils where feasible and provide for their long-term maintenance to limit degradation.
GI18	To minimise the environmental impact of external lighting and noise at sensitive locations to achieve a sustainable balance between the needs of an area, the safety of walking and cycling routes and the protection of sensitive species such as bats.
GI28	To ensure that in new residential developments, public open space is provided which is sufficient in amenity, quantity and distribution to meet the requirements of the projected population, including play facilities for children and that it is accessible by safe secure walking and cycling routes.
GI40	To require appropriate and long-term tree and native hedgerow planting in the planning of new development, urban spaces, streets, roads and infrastructure projects. New development should seek to provide for additional tree planting using a diversity of species including native species as appropriate to the location of the development in the interests of natural heritage, amenity, environmental quality and climate resilience.
GI41	To protect existing trees as part of new development, particularly those that are of visual, biodiversity or amenity quality and significance. There will be a presumption in favour of retaining and safeguarding trees that make a valuable contribution to the environment.
GI52	To seek the provision of children's playing facilities in new residential developments and mixed developments with a residential element. To provide playgrounds to an appropriate standard of amenity, safety, and accessibility and to create safe and accessible places for socialising and informal play.

According to Dublin City Development Plan 2022 – 2028 Land Use Zoning Objectives, the proposed development falls under Zoning Objective Z1 - To protect, provide and improve residential amenities. The proposed development is permitted in principle by the defined Zoning Objective.

OTHER POLICIES ABBREVIATED					
SI4: Drainage Infrastructure Design Standards	**SI7:** Water Quality Status	**SI22**: Sustainable Drainage Systems	**SI27 & SI28**: Sustainable Waste Management	**SI34**: Management of Air Quality	**SI37 & SI38:** Noise Sensitive Development

Biodiversity Plans

Ireland's fourth National Biodiversity Plan 2023–2030, by building on from the successes of previous NBAP's, "*aims to deliver the transformative changes required to the ways in which we value and protect nature*". It is Government policy for the Local Authorities to take the lead role in the production of Local Biodiversity Action Plans. A number of Local Biodiversity Action Plans have been prepared, including the Dublin City Biodiversity Action Plan 2021-2025. Five themes govern the objectives and actions of the plan:

- Maintaining Nature in the City;
- Restoring Nature in the City;
- Building for Biodiversity;
- Understanding Biodiversity in the City;
- Partnering for Biodiversity;

All-Ireland Pollinator Plan

In 2015, Ireland joined a number of other European countries in developing a strategy to address pollinator decline and protect pollination services. 68 governmental and non-governmental organisations agreed a shared plan, the "*All-Ireland Pollinator Plan*". The new version "*All-Ireland Pollinator Plan 2021-2025*" seeks to build on from the success of the previous plan and identifies 186 actions to make Ireland pollinator friendly. The plan provides a total of 37 targets for six different objectives which include, farmland, public land, private land, All-Ireland Honeybee Strategy, conserving rare pollinators and strategic coordination of the plan.

2.3 EXISTING ENVIRONMENT

The majority of the site is comprised of derelict buildings, hardcore surfaces and amenity grassland with concrete walls and fences along the boundaries. The Royal Canal is approximately 20m to the south-west of the proposed site at its closest. There are no other nearby watercourses to the proposed development site. In the vicinity of the site, there are residential buildings to the south, east and north and Croke Park stadium to the north-west. An ecological survey has been carried out by Panther Ecology Ltd in order to identify the habitats and species at the site.

The development site is located within the Liffey and Dublin Bay catchment (ID: 9) and the Tolka_SC_020 sub-catchment. The nearest mapped watercourse is the Royal Canal Main Line (Liffey and Dublin Bay) (Code: IE_09_AWB_RCMLE), which is located approximately 20m to the south-west. The Royal Canal connects with the Liffey Estuary Lower (Code: IE_EA_090_0300). There are no other watercourses in the vicinity of the site.

The proposed development is not located within any designated area of conservation. The Appropriate Assessment carried out by NM Ecology found no feasible pathways between the site and any designated Natura 2000 site and, therefore, there will be no risk of impacts on European sites.

Corine land cover within the site has been mapped as Artificial Surfaces (Continuous urban fabric). According to Teagasc Soils Map, soil type within the site is built land. The bedrock beneath the site is dark limestone and shale.

An Archaeological Impact Assessment has been undertaken by John Purcell Archaeological Consultancy, which noted that the site does not include any historic structures or archaeological remains. The site has been largely disturbed the potential for historic remains to exist at the site is low.

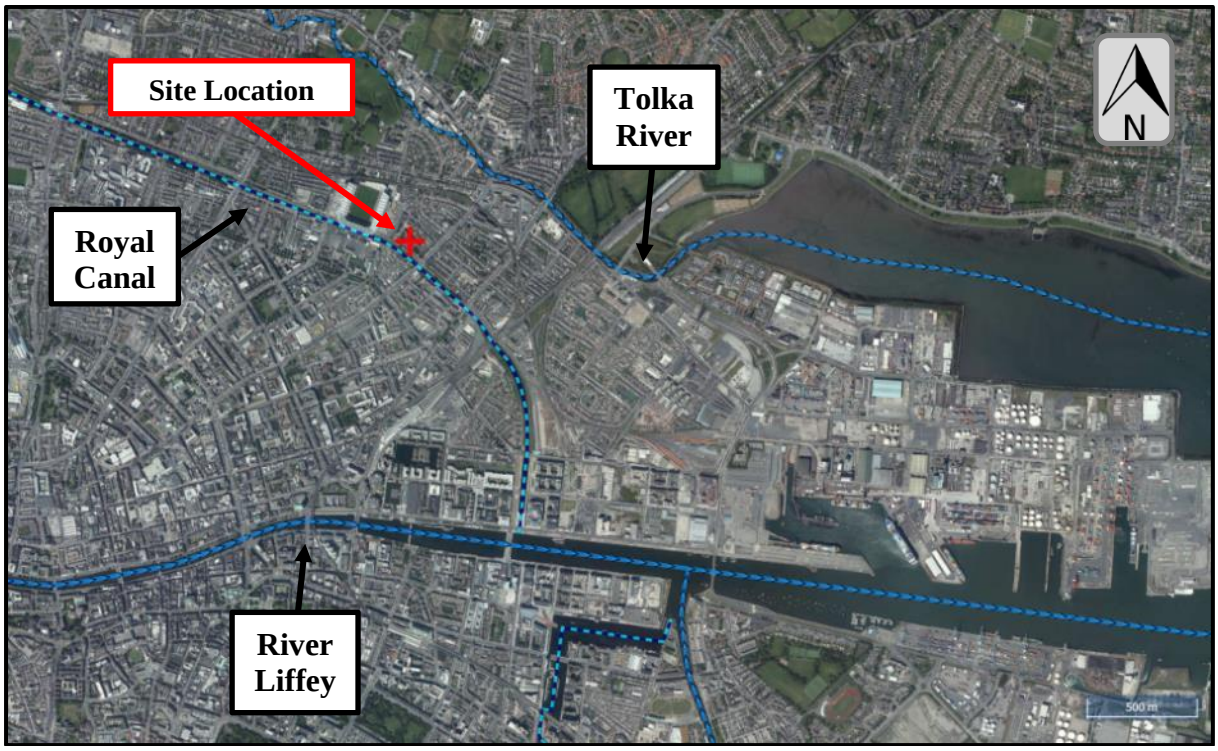

Figure 2.2: Watercourses in the vicinity of the proposed site.

2.4 SITE SENSITIVITIES

The proposed development site is located in the north of Dublin City at Croke Villas, surrounded by residential dwellings, the Royal Canal and Croke Park stadium. In the vicinity of the site are housing estates and residential buildings, with commercial, retail, recreational amenities/buildings and other services located in the wider surroundings of the site. The National Handball Centre, which is surrounded by the inner site boundaries, does not form part of the application site area.

The majority of the site is comprised of derelict buildings, hardcore surfaces and amenity grassland with concrete walls and fences along the boundaries. It is considered that the majority of the site is not of significant conservation value.

Flora and fauna records of the most recent thirty years were reviewed on the National Biodiversity Data Centre (NBDC) website for the proposed development site and vicinity. No protected plant species under the Flora (Protection) Order, 2022 (S.I. No. 235 of 2022) were recorded within the 10km square (Tetrad – O13) in which the proposed development site is located. Eighteen invasive plant species listed in the Third Schedule of the European Communities Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011) were recorded within the 10km square (Tetrad – O13): Water Fern (*Azolla filiculoides*), American Skunk-cabbage (*Lysichiton americanus*), Brazilian Giant-rhubarb (*Gunnera manicata*),

Canadian Waterweed (*Elodea canadensis*), Curly Waterweed (*Lagarosiphon major*), *Fallopia japonica* x *sachalinensis = F.* x *bohemica*, Giant Hogweed (*Heracleum mantegazzianum*), Giant Knotweed (*Fallopia sachalinensis*), Giant-rhubarb (*Gunnera tinctoria*), Indian Balsam (*Impatiens glandulifera*), Japanese Knotweed (*Fallopia japonica*), New Zealand Pigmyweed (*Crassula helmsii*), Nuttall's Waterweed (*Elodea nuttallii*), Parrot's-feather (*Myriophyllum aquaticum*), Rhododendron (*Rhododendron ponticum*), Sea-buckthorn (*Hippophae rhamnoides*), Spanish Bluebell (*Hyacinthoides hispanica*) and Three-cornered Garlic (*Allium triquetrum*).

On the 6th July 2023, a multi-disciplinary survey was conducted by NM Ecology. Bat surveys were undertaken on the 6th and 8th September 2023. Habitats within the site were identified and evidence of high impact invasive plant species listed under the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011), such as Japanese Knotweed (*Fallopia japonica*), was searched for. A small patch of the third schedule invasive three-cornered leek (*Allium triquetrum*) was recorded within the site. The survey also identified a small patch of Japanese Knotweed located on the northern side of Sackville Avenue, outside the boundary of the site. A subsequent site assessment in support of this CEMP was carried out by Panther Ecology Ltd. on the 24th April 2024.

According to the Preliminary Ecological Appraisal Report prepared by NM Ecology Ltd., the bird fauna for the site comprises of the following species: feral pigeon (*Columba livia f. domestica*), wood pigeon (*Columba palumbus*), jackdaw (*Coloeus monedula*), magpie (*Pica pica*), wren (*Troglodytes troglodytes*) and pied wagtail (*Motacilla alba yarrellii*). Other common urban / suburban birds (e.g. tits and finches) are likely to use the site at other times, but species of conservation importance are unlikely to be present. Habitats within the site are unsuitable for brent geese or any other species associated with SPAs in Dublin Bay; these species are only recorded in amenity grassland that is regularly mowed. Four fox cubs were observed during the survey in July 2023 and an adult fox was also observed during the first bat survey on 6th September 2023. The site was likely only being used as a temporary foraging and resting place. No evidence of other mammal species was identified within the proposed development site. Additionally, the unsuitable habitats within the site and the lack of connection to larger areas with suitable habitats make the site of negligible importance for any protected terrestrial mammal species. During the subsequent site assessment, the following common species were identified: wood pigeon (*Columba palumbus*), blackbird (*Turdus merula*), wren (*Troglodytes troglodytes*), blue tit (*Cyanistes caeruleus*), rook (*Corvus frugilegus*), herring gull (*Larus argentatus*), magpie (*Pica pica*), house sparrow (*Passer domesticus*) and starling (*Sturnus vulgaris*). None of the species recorded is red listed. Herring gull, starling and house sparrow are BoCCI amber-listed species.

A screening for Appropriate Assessment Report was carried out by NM Ecology Ltd and is available within submitted planning documents. No pathways or potential direct / indirect impacts were identified during the study and the development area was found to be unsuitable for associated protected habitats or species. The report concluded that the proposed development will not be likely to have a significant effect on any European sites.

The NBDC has records of Bats for the most recent thirty years within the 2km square (Tetrad – O13S) in which the proposed development is located. This includes records for the following species: Common Pipistrelle (*Pipistrellus pipistrellus sensu stricto*), Lesser Noctule (*Nyctalus leisleri*), Nathusius's Pipistrelle (*Pipistrellus nathusii*) and Soprano Pipistrelle (*Pipistrellus pygmaeus*). The derelict 5 storey apartment building and a two-storey derelict dwelling in 30

Sackville Avenue have moderate suitability for roosting bats, which is somewhat reduced by the prevalence of artificial lighting. Both these structures will be demolished as part of other planning consents. The Royal Canal is likely to be of Local importance as a foraging area for bats and will not be directly altered by the proposed development. Bat sensitive lighting techniques have been incorporated into the lighting scheme along Sackville Gardens, which will prevent any impact on the bat foraging habitat.

The proposed site is located within an urban area with residences located in close proximity to the site's southern, eastern and northern boundaries. Therefore, the client will ensure the construction of the development will be undertaken in a manner that is sensitive toward the local residents.

3.0 DESCRIPTION OF THE PROPOSED DEVELOPMENT

The proposed development will be for the construction of 52 no. apartments comprising of:

- Clearance works at the site will comprise the removal of walls and perimeter fencing and an allotment garden at the Croke Villas site bounded by Ballybough Road, Sackville Gardens, Sackville Avenue, Ardilaun Square, Ardilaun Road and GAA National Handball Centre. A wall along the boundary of the site and Irish Rail lands and railway line (to the south) will also be removed and replaced with a new boundary wall.
- Demolition of 1 no. remaining Croke Villas flat block will be demolished in accordance with PA. Reg. Ref. 2946/16
- Construction of two apartment blocks between 4 to 5 storeys, consisting of a total of 52 no. residential units:
    - Block A consists of 35 no. residential units (1 no. 1 bed and 34 no. 2 bed apartments); and
    - Block B consists of 17 no. residential units (4 no. 1 bed and 13 no. 2 bed apartments) and 152 sqm of internal community, arts and cultural space at ground floor.
- 4 no. car parking spaces and 129 no. cycle spaces.
- Sackville Gardens street will be extended to join with Ardilaun Square to form a new perimeter street to the southern edge of Block A, which will function as a new pedestrian and cycle link and also serve as an emergency vehicle access.
- Removal of undesignated car parking spaces along Sackville Avenue and construction of a new Boulevard on Sackville Avenue from the Ballybough Road junction to Ardilaun Road, which will also facilitate vehicular access.
- Provision of c. 961 sqm public open space, c.500 sqm communal open space, c.367 sqm private open space and 68 sqm of outdoor community, arts and cultural space (55 sqm facing Sackville Avenue and 13 sqm in internal courtyard).

- Boundary treatments, public lighting, site drainage works, road surfacing and footpaths, ESB substation, ESB meter rooms, plant rooms, stores, bin and bicycle storage, landscaping; and
- All ancillary site services and development works above and below ground.

The site of approximately 0.88ha is located in Croke Villas, Sackville Avenue, Dublin 3 (ITM E716627, N 735761). The proposed site layout is included in Appendix A.

New storm water and domestic wastewater drainage systems will be constructed. The proposed development will generate effluent that will be discharged into the existing sewer system in Sackville Avenue, south-east of the site. This effluent will then be transported to the Ringsend Wastewater Treatment Plant (Licence Number: D0034-01) for treatment before being released into the Liffey Estuary Lower. The new wastewater drainage system will include manholes and inspection chambers. Some existing services will be removed or diverted. Surface water from the proposed development will be discharged to the existing surface water drain in Sackville Avenue, south-east of the site. The stormwater system has been designed according to Sustainable Drainage Systems and will include manholes, road gullies and permeable paving. Water will be provided to the proposed dwellings in Block A via a new proposed watermain located along the south-western boundary of the site, that will connect to the existing public network. A new proposed watermain will also be provided in Sackville Avenue and connected to the existing public network in order to provide water to the proposed dwellings in Block B. A section of the existing watermains will be diverted to accommodate the proposed development.

Access to the new proposed site for construction traffic will be via an entrance off the Sackville Avenue to the south-east. During the construction phase, site clearance works will be undertaken, which will involve the removal of vegetation from the site and earth-moving activities. Following site clearance works, construction of the residential buildings will commence. The construction of the proposed development is expected to have a duration of between 18-24 months, with hours of operation from 7am to 6pm, Monday to Friday and 8am to 2pm on Saturday.

A temporary site compound will be established at the proposed development site along the western boundary and will serve as material storage area and dedicated refuelling area. An outline waste compound area will also be established at the site in the south-western area of the site, serving as a waste compound, material storage, temporary soil stockpile storage and laydown, and quarantine area. Construction staff welfare facilities such as a canteen, toilets and first aid will be provided. It is important to note that during the construction phase, the occurrence of trade effluent is possible. If necessary, an application for a Trade Discharge Licence will be submitted to the City Council.

The foraging bats and nesting birds within the site are important ecological features, while all other features are of negligible ecological importance. More information provided by the assessment is discussed further in later sections of this CDEMP.

The proposed development includes landscaping elements, which is expected to result in a slight positive increase in biodiversity value. New trees and shrubs will provide berries for birds; new bird boxes will provide nesting structures and meadows will provide nectar for pollinators.

4.0 PROJECT ROLES, RESPONSIBILITIES AND COMMUNICATIONS

Quality & Environmental Management System Policy Statement

Dublin City Council is committed to delivering high-quality housing estate developments while ensuring the protection and enhancement of the environment. Dublin City Council recognises that construction activities have direct and indirect environmental impacts, and strives to manage these in a responsible and sustainable manner. This Quality and Environmental Management System (QEMS) Policy Statement is designed to comply with all relevant environmental legislation, regulations, and industry best practices. Dublin City Council is dedicated to continuous improvement in our environmental performance, prevention of pollution, and minimisation of waste and resource consumption.

Key commitments of our QEMS include:

- **Compliance:** We will comply with all applicable legal requirements and other requirements to which we subscribe that relate to our environmental aspects.
- **Prevention:** We will strive to prevent environmental pollution at all stages of our construction activities.
- **Continuous Improvement:** We will continually improve our environmental performance by setting and reviewing environmental objectives and targets.
- **Training:** We will ensure that all our employees are aware of their individual obligations under this policy.
- **Communication:** We will communicate this policy to all persons working for or on behalf of the organization and make it available to the public.
- **Review:** This policy will be reviewed at least annually or whenever there is a significant change in our business practices or legislation.

Dublin City Council believes that a strong commitment to environmental management is in the best interest of the businesses, residents and the communities within its jurisdiction.

4.1 PROJECT ROLES AND RESPONSIBILITIES

The indicative roles and responsibilities for the relevant site personnel are detailed below.

Project Manager

The Project Manager responsibilities are as follows:

- Management of the project;
- Implementing the Construction Environmental Management Plan;
- Monitoring the performance of the CEMP and maintaining records to demonstrate compliance with the CEMP and Construction Method Statement;
- Ensuring no deterioration of the environment occurs as a result of the project;
- Co-ordinating the construction teams;

- Implementing the Health and Safety Plan and associated responsibilities;
- Production of construction programmes;
- Maintaining of relevant records and registers;
- Ensuring site personnel receive induction and are provided with the relevant information relating to the protection of the environment during works;
- Dealing with any queries or complaints from the public.
- Maintaining a project diary.

Quality Manager

The Quality Manager will report to the Project Manager. His responsibilities are as follows:

- Implementing the Construction Environmental Management Plan;
- Management of quality issues relating to the project;
- Co-ordinating the construction teams;
- Ensuring that method statements are in place;
- Implementing the Health and Safety Plan.

Site Engineer

The Site Engineer will report to the Project Manager. His responsibilities are as follows:

- Ensuring that all aspects of the project comply with the Construction Environmental Management Plan;
- Materials procurement;
- Design of Temporary Works;
- Administration;
- Programming and planning;
- Implementing the Health and Safety Plan;
- Maintaining a project diary.

EHS Officer

The EHS Officer will report to the Project Manager. His responsibilities are as follows:

- Ensuring the Health and Safety Plan is implemented;
- Ensuring the Construction Environmental Management Plan is being implemented and followed at all times;
- Updating the Construction Environmental Management Plan as required;
- Ensuring all personnel have received safety inductions;

- Investigating any accidents, incidents or near misses;
- Ensuring relevant personnel have received training in environmental issues;
- Undertaking site audits on a regular basis.

All Staff and Sub-contractors

All site personnel and sub-contractors have the following responsibilities:

- Ensuring the requirements of the Construction Environmental Management Plan are followed;
- Co-operate with the Project Manager and EHS Officer in the implementation and development of the CEMP;
- Co-operate as required with site inspections and audits;
- Report all incidents, accidents and near misses to the Project Manager and/or EHS Officer.

4.2 TRAINING AND AWARENESS

Prior to works commencing onsite, this CEMP and its contents will be communicated to all site personnel, including sub-contractors, as part of induction training. Site induction will be mandatory for all employees, sub-contractors, and visitors to the development site.

Specific training will be provided, where necessary, to nominated personnel to address any incidents or emergencies that could have a potential to cause environmental pollution. This training will be provided to staff via toolbox talks, and may address issues such as the following:

- Waste Management;
- Spill Control;
- Noise Pollution;
- Dust Pollution;
- Water Pollution;
- Tree protection;
- Invasive Species.

4.3 MONITORING, CONTINUAL IMPROVEMENT AND REVIEW

Safety Monitoring

The EHS Officer will be present at the development site during working hours, to ensure activities are undertaken in a safe manner.

Environmental Monitoring

The EHS Officer will be present at the development site during working hours, to ensure activities are undertaken in an environmentally sensitive manner. The EHS Officer will undertake regular site inspections and audits, to monitor the environmental performance of the site and address any potential environmental issues such as dust, litter, and noise.

The EHS Officer will be responsible for maintaining a register of all environmental monitoring and will communicate the sites environmental performance during site meetings.

As part of environmental monitoring, the Project Manager and EHS Officer will review the performance and implementation of the CEMP on a regular basis and will update the CEMP as necessary.

4.4 REPORTING AND RECORD KEEPING

The Project Manager, in conjunction with the EHS Officer, will ensure that appropriate, detailed records are maintained during the construction phase of the development.

Records of all works associated with the proposed development will be completed by the proposed contractor throughout the construction phase. Environmental records will include waste and site inspection records and where relevant, environmental incident and complaints records. Other records may include Safety Data Sheet records and a copy of the Safety File. Where relevant to the associated works, statutory inspection records will be maintained for such activities as excavations and lifting gear.

Where necessary and as requested by the local authority, copies of relevant construction activity records can be made available.

In the event of an environmental incident occurring at the site with the potential to cause environmental pollution, the Project Manager implement mitigation measures as detailed in this plan and will notify the relevant third parties, as outlined in Section 4.5 below, as soon as practicable. Such environmental incidents may include:

- Excessive noise;
- Excessive dust;
- Water pollution event;
- Hydrocarbon or chemical spill;
- Fire.

4.5 THIRD PARTY COMMUNICATIONS

The client will liaise with the relevant third parties as appropriate, which may include the following:

- Emergency Services;
- Dublin City Council;
- Gaelic Athletic Association;
- Irish Rail;
- National Parks and Wildlife Service;
- Environmental Protection Agency.

4.6 ENVIRONMENTAL COMPLAINTS AND INCIDENTS

In the event of an environmental complaint or incident at the site, the client will investigate the occurrence to determine the circumstances and conditions that resulted in that particular event and ensure prevention of similar episodes as follows:

- The complaint or incident should be described in detail, including the location and who was involved or affected;
- The complaint or incident should be classified according to its intensity and potential to cause negative impacts in the environment;
- The root cause of the complaint or incident should be identified and documented;
- Response actions to the complaint or incident should be detailed;
- In order to prevent a recurrence of the complaint or incident, corrective actions should be defined and implemented;
- A description should be provided of how the complaint or incident was assessed, who it was reported to (both internally and externally), and any regulatory requirements for reporting;
- Follow-up actions should be discussed, as appropriate.

Any complaints and/or incidents will be reported to the Project Manager. The EHS Officer will be responsible for developing and maintaining a register of complaints and a register of incidents, with details on follow-up actions. A template environmental complaints form is included in Appendix B.

5.0 CONSTRUCTION WORKS METHODOLOGY AND ACTIVITIES

5.1 CONSTRUCTION SCHEDULE

The construction phase of the proposed development is expected to have a duration of between 18-24 months. Upon receipt of planning approval, the construction schedule will be finalised at a detailed design stage. Demolition works of the existing buildings within the site will be carried out in accordance with PA. Reg. Ref. 2946/16 prior to the commencement of development.

The proposed development will include the following construction activities:

- Site inductions and relevant training;
- Erection of site fencing and signage;
- Site clearance, including vegetation removal;
- Establishment of temporary site compound, including designated materials storage area;
- Excavations and earth moving activity;
- Development of drainage network, water supply and services;
- Pouring of foundations;
- Construction of apartment units;
- Construction of internal access roads;
- Installation of external lighting;
- Removal of temporary site compound;
- Reinstatement and landscaping of site.

5.2 CONSTRUCTION WORKING HOURS

It is anticipated that construction works will be undertaken during standard construction hours, as follows:

Start	Finish	Days
7am	6pm	Monday – Friday
8am	2pm	Saturday

However, it should be noted that there may be times where it is necessary to undertake construction works outside of the times mentioned above, for example concrete pours. In such cases, notification will be given where necessary to the relevant bodies (i.e. local council) and any potentially effected local residents in good time and prior to specified works commencing.

5.3 CONSTRUCTION WORKFORCE

The number of site personnel during the construction phase of the proposed development will vary depending upon the stage of the project.

5.4 CONSTRUCTION PLANT AND EQUIPMENT

The construction plant and equipment likely to be used during the construction phase of the project are included in the table below. It should be noted that this list is not exhaustive.

ACTIVITY	POSSIBLE PLANT / EQUIPMENT REQUIRED
Site Clearance and Excavations	Tracked Excavator Dumper trucks Bulldozer Graders Rollers
Construction of Apartment Blocks	Piling plant Tracked Excavator JCB Site Dumper Cement Mixer
Construction of Internal Access roads	Tracked Excavator Earth Mover Paving Machine Road Planer Roller
Site Reinstatement and Landscaping	Tracked Excavator Site Dumper Bulldozer

5.5 POTENTIAL FOR HISTORIC CONTAMINATION

The majority of the site is comprised of derelict buildings, hardcore surfaces and amenity grassland with concrete walls, fences and low-lying vegetation along the boundaries. Given the nature of the site, it is considered possible that the site would contain contaminated material. Therefore, in the event contaminated material is encountered during construction works, appropriate measures would be undertaken in compliance with relevant waste legislation, and in accordance with the Resource Waste Management Plan prepared for the proposed development. The relevant authorities would be notified where required. The Waste Characterisation Assessment prepared by O'Callaghan Moran & Associates indicates the presence of hazardous waste for zinc and lead concentrations detected in trial pits and in a borehole sample.

5.6 HEALTH AND SAFETY

All activities undertaken at the proposed development site during the construction phase shall be in accordance with the requirements of the Safety, Health and Welfare at Work Act 2005 and the Safety, Health, and Welfare at Work (Construction) Regulations, 2013. As required by the 2013 regulations, a Health and Safety Plan will be prepared by the client, which will address health and safety issues from the design stages through to the completion of construction works. This plan will be updated and reviewed as required as the proposed development progresses.

Prior to works commencing onsite, all site personnel, including sub-contractors, will receive induction training that will incorporate health and safety requirements and good practice. Site induction will be mandatory for all employees, sub-contractors, and visitors to the development site. Specific training will be provided, where necessary.

All construction personnel, contractors and visitors to the site will wear the following appropriate Personnel Protective Equipment as a minimum at all times:

- Safety helmet;
- Hi-visibility clothing (coat or vest);
- Safety boots;
- Eye protection where identified for specific activities.

Regular site safety audits will be undertaken throughout the construction phase to ensure the rules and regulations established for the site are complied with at all times.

5.7 SECURITY ARRANGEMENTS

The client will ensure the proposed development site is secured, so as to provide the safety of all potentially affected parties, including staff, contractors, traffic, and pedestrians. Only authorised personnel will be allowed onto the site. The site will be secured by a fence, hoarding or another suitable site barrier system to protect against unauthorised entry. The client will implement the appropriate security arrangements, including signing in / out procedures, signage and out-of-hours security.

5.8 TEMPORARY SITE COMPOUND AND STAFF WELFARE FACILITIES

A temporary site compound will be established at the proposed development site, and will house the site equipment storage area and construction staff welfare facilities such as a canteen, toilets and first aid. The temporary site compound will also be used for the storage of fuels and oils required for the various construction plant. In addition, a dedicated waste storage area within the contractor's compound will be provided at the site for the storage of waste materials and waste soils and stones. The compound area will be covered in a suitable layer of hardstanding.

Portable cabin structures will be used to provide the temporary staff canteen. A storage container will be provided for the storage of construction equipment, tools and materials required for construction. All fuels and oils required will be stored within a designated bunded area, located within the storage container or at an alternative designated location with the temporary site compound.

Port-a-loo toilets will be installed at the temporary compound and will be emptied by a licenced contractor on a weekly basis or earlier, if required.

The waste compound will be the designated location for waste receptacles onsite. Waste will be segregated where possible and placed within recycling and general waste skips provided by a licenced waste contractor.

During the early stages of construction works, potable water will be provided via the mains water supply. Power will also be provided from the mains. Telecommunications will be provided using mobile phones and broadband.

Following the completion of construction works, the temporary compound will be removed, and the area landscaped or reinstated as required.

5.9 MAIN STAGES OF CONSTRUCTION

Site Clearance and Excavations

The majority of the site is comprised of derelict buildings, hardcore surfaces and amenity grassland with concrete walls, fences and low-lying vegetation along the boundaries. Demolition works of the existing buildings within the site will be carried out in accordance with PA. Reg. Ref. 2946/16 prior to the commencement of development. The National Handball Centre does not form part of the application site area. The main vehicular access and egress would be provided via an entrance off the Sackville Avenue to the south-east. During site clearance works, vegetation will be removed from the site and appropriately disposed of to a licenced waste contractor. Site clearance works will be carried out between September and February (inclusive), outside bird nesting season. If this is not possible, an ecologist will survey the affected areas in advance to assess whether or not any nesting birds are present. If any are encountered, vegetation clearance will be delayed until the breeding attempt has been completed, i.e. after chicks have fledged and a nest has been abandoned.

The quantity of residual resources has been estimated to be approximately 4,750 tonnes, where c. 4,000 tonnes would be composed of soil and stone, c. 450 tonnes would be made of hazardous soil and stone, c. 200 tonnes would be made of mixed C&D wastes and c. 100 tonnes would be made of bricks. Small amounts of other waste streams would comprise of masonry, wood, packaging, hazardous materials and other waste materials. Any excess of subsoil/topsoil will be sold, subject to Article 37 notification to the EPA, and transported off-site to other construction sites within the region by a licenced haulier. The storage of excavated material on site will be temporary, with excess material exported as soon as possible to other construction sites within the region. If any material is found to contain a Third Schedule invasive species, it will be treated as a hazardous waste and disposed of accordingly.

Provision of Services

Following site clearance and excavations, works will commence on the installation of underground utilities to the site required for water supply, domestic wastewater, electricity, and telecommunications.

Construction of New Buildings

Following site clearance, excavations and works for the provision of services, works will commence on the construction of the residential building blocks with car parking and cycle spaces. Dwellings will be a mix of one-to-two-bedroom apartments of varying size (m^2). The

pouring of concrete foundations will be supervised at all times. The new buildings will be constructed from either in-situ or pre-cast concrete.

Site Reinstatement and Landscaping

The reinstatement and landscaping process shall commence upon completion of construction activities at the proposed development site. Reinstatement and landscaping activities will include the levelling of the site with stockpiled soil from excavations where possible, the removal of the temporary site compound and associated plant, equipment and materials, the reseeding of exposed soil and the planting of trees and shrubs. Other elements include boundary treatments, public lighting, road surfacing and footpaths.

Approximately 902 sqm public open space, c.500 sqm communal open space, c.367 sqm private open space and c.68 sqm of outdoor community, arts and cultural space will be provided. A new Boulevard on Sackville Avenue from Ballybough junction to Ardilaun Road will be constructed, which will include landscaping.

6.0 RISK ASSESSMENT

6.1 RISK ASSESSMENT APPROACH

In order to assist in early planning of construction works, this report has included the Risk Assessment Approach set by Dún Laoghaire-Rathdown County Council in the "Good Practice for Construction and Demolition Environmental Management". Risk Assessment A (Locality/Site Information) assesses the site in relation to the duration of the work, distance to sensitive receptors, ambient noise levels and working hours, while Risk Assessment B (Work Information) represents the fields that are most likely to represent the works in each category. The total number of ticks of each column of Risk Assessment A and B have been added up and these numbers have been included in the Total Risk Assessment table to indicate the risk category that should be employed for the site. See the tables below.

Table 6.1.1 Risk Assessment A – Locality/Site Information

	Low	Medium	High
Expected duration of work			
Less than 6 months			
6 months to 12 months			
Over 12 months			X
Proximity of nearest sensitive receptors			
Greater than 50 metres from site			
Between 25m and 50m			
Less than 25 metres			X
Hospital or school within 100 metres			
Day time ambient noise levels			
High ambient noise levels (>65dB(A))			
Medium ambient noise levels (55-65dB(A)		X	
Low ambient noise levels (<55dB(A)			
Working Hours			
7am – 6pm Mon-Fri; 8am-2pm Sat	X		
Some extended evening or weekend work			

Some night time working, including likelihood of concrete power floating at night			
SUBTOTAL A	1	1	2

Table 6.1.2 Risk Assessment B - Work Information

	Low	Medium	High
Location of works			
Majority within existing building			
Majority External			X
External Demolition			
Limited to two weeks			
Between 2 weeks and 3 months			
Over three months			
Ground Works			
Basement level planned			X
Non-percussive methods only			
Percussive methods for less than 3 months			
Percussive methods for more than 3 months			X
Piling			
Limited to one week			
Bored Piling Only		X	
Impact or vibratory piling			
Vibration generating activities			
Limited to less than 1 week			
Between 1 week and 1 month		X	
Greater than 1 month			
SUBTOTAL B	0	2	3

Table 6.1.3 Total Risk Assessment

	Low	Medium	High
Risk Assessment A	1	1	2
Risk Assessment B	0	2	3
Total	1	3	5

6.2 RISK MANAGEMENT

Following the Risk Assessment carried out in the previous sub-section of this report that categorised the proposed site as a “high risk” site, the appropriate actions described in the “Good Practice for Construction and Demolition Environmental Management” document would be employed. See the following tables.

Table 6.2.1 General Considerations

All site staff shall be briefed on noise mitigation measures and the application of best practicable means to be employed to control noise	All sites
Good Quality site hoarding should be erected, designed to maximise the reduction in noise levels	Medium and high risk sites
The contact details of the contractor and site manager shall be displayed to the public, together with the permitted operating hours, including any special permissions given for out of hours work	Medium and high risk sites
The site entrance shall be located to minimise disturbance to noise sensitive receptors, subject to traffic restrictions	Medium and high risk sites
Internal haul routes shall be maintained and steep gradients shall be avoided, where possible	Medium and high risk sites
Material and plant loading and unloading shall only take place during normal working hours unless the requirement for extended hours is for traffic management (i.e. road closure) or health and reasons (application must be made to DCC a minimum of 4 days prior to proposed works)	All sites
Use rubber linings in chutes, dumpers and hoppers to reduce impact noise	Medium and high risk sites
Minimise opening and shutting of gates through good coordination of deliveries and vehicle movements	Medium and high risk sites
No materials shall be burned on site	All sites
Adequate dust/debris screening should be in place at the site boundary to contain and minimise the amount of windblown dust. This must be maintained in good condition at all times.	Medium and high risk sites
All consignments containing material with the potential to cause air pollution being transported by skips, lorries, trucks or tippers must be covered during transit on and off site.	All sites
The site shall be dampened down as necessary to minimise windblown dust when necessary or during periods of dry weather. Where dust is likely to be a persistent problem a water spray system e.g. (IBC tanks fitted with hoses) must be put in place from the commencement of the works where required.	All sites
Dust suppression equipment must be used when point source emissions are likely.	All sites
The entry and exit points to the site should be constructed of hard standing which is regularly dampened to minimise dust emissions.	Medium and high risk sites
Use of road sweeper and/or hand held dust vacuums as required to wash external site perimeter to include pavements.	All sites
Implementation of a detailed complaints recording and handling procedure	All sites

Table 6.2.2 Plant

Ensure that each item of plant and equipment complies with the noise limits quoted in the relevant European Commission Directive 2000/14/EC	All sites
Fit all plant and equipment with appropriate mufflers or silencers of the type recommended by the manufacturer	All sites
Use all plant and equipment only for the tasks for which it has been designed	All sites
Shut down all plant and equipment in intermittent use in the intervening periods between work or throttle down to a minimum	All sites
Power all plant by mains electricity where possible rather than generators	Medium and high risk sites
Maximise screening from existing features or structures and employ the use of partial or full enclosures for plant	Medium and high risk sites
Locate movable plant away from noise sensitive receptors	All sites

Table 6.2.3 Vehicle Activity

Ensure all vehicle movements (on site) occur within normal working hours. (other than where extension of work requiring such movements has been granted in cases of required road closures or for health and safety reasons)	All sites
Plan deliveries and vehicle movements so that vehicles are not waiting or queuing on the public roads. If unavoidable engines should be turned off.	Medium and high risk sites
Minimise the opening and closing of the site access through good coordination of deliveries and vehicle movements	Medium and high risk sites
Plan the site layout to ensure that reversing is kept to a minimum	Medium and high risk sites
Where reversing is required use broadband reverse sirens or where it is safe to do so, disengage all sirens and use trained banks-men	Medium and high risk sites
Wheel washing of vehicles prior to exiting the site shall take place to ensure that adjoining roads are kept clean of dirt and debris. Regular washing of adjoining streets should also be carried out by the developer, as required by mechanical road sweepers	Medium and high risk sites

Table 6.2.4 Demolition Phase

Employ the use of acoustic screening; this can include planning the demolition sequence to utilise screening afforded by buildings to be demolished	Medium and high risk sites

If working out of hours for Health and Safety reasons (following approval by DCC) limit demolition activities to low level noise activity unless absolutely unavoidable)	All sites
Use low impact demolition methods such as non-percussive plant where practicable	Medium and high risk sites
Use rotary drills and 'bursters' activated by hydraulic or electrical power or chemically based expansion compounds to facilitate fragmentation and excavation of hard material.	Medium and high risk sites
Avoid the transfer of noise and vibration from demolition activities to adjoining occupied buildings where possible through cutting any vibration transmission path, or by structural separation of buildings	Medium and high risk sites
Consider the removal of larger sections by lifting them out and breaking them down either in an area away from sensitive receptors or off site.	High risk sites

Table 6.2.5 Ground Works and Piling Phase

The following hierarchy of groundwork/piling methods should be used if ground conditions, design and safety allows: • Pressed in methods, e.g., hydraulic jacking • Auger/bored piling • Diaphragm walling • Vibratory piling or vibro-replacement • Driven Piling or dynamic consolidation	Medium and high risk sites
The location and layout of the piling plant should be designed to minimise potential noise impact of generators and motors	Medium and high risk sites
Where impact piling is the only option utilise a non-metallic dolly between the hammer and driving helmet or enclose the hammer and helmet with an acoustic shroud	Medium and high risk sites
Consider concrete pour sizes and pump locations. Plan the start of concrete pours as early as possible, subject to DCC approval, to avoid time overruns	Medium and high risk sites
Where obstructions are encountered, work should be stopped and a review undertaken to ensure that work methods that minimise noise are used.	Medium and high risk sites
When using an auger piling rig do not dislodge material from the auger by rotating it back and forth. Use alternate methods where safe to do so.	Medium and high risk sites
Prepare pile caps using methods which minimise the use of breakers, e.g., use hydraulic splitters to crack the top of the pile.	Medium and high risk sites

Table 6.2.6 Monitoring

Establish pre-existing levels of ambient noise by baseline monitoring or use of the noise maps.	Medium and high risk sites
Carry out regular on site observation monitoring and checks/audits to ensure that BPM is being used at all times. Such checks shall include; • • Hours of work • • Presence of mitigation measures • • Number and type of plant • • Construction methods Site reviews must be recorded and made available for inspection	Medium and high risk sites
Monitor noise and vibration continuously during demolition, piling, excavation and sub and superstructure works at agreed locations and report to DCC at agreed intervals and in an agreed format. To comply with this the following must take place. • • The initial monitoring locations must be agreed with officers of DCC and must remain in situ, unless agreed otherwise. If additional monitoring is required the new locations must be agreed with DCC. • • The results of the monitoring must be forwarded to officers of DCC Environmental Enforcement Section every two weeks in the following format: • 1. Provide the construction noise level as defined in British Standard 5228 and the peak particle velocity readings for the hours of operation of the site. This will include the construction noise level for any overtime period worked outside of normal working hours. • 2. Provide a report detailing and discussing the noise and vibration levels over the reporting period. • 3. If a breach is recorded the follow up action that took place to prevent any further breaches must be included in the report. • 4. This information must be provided in electronic format If results are required owing to complaints the results will be provided as soon as possible by the contractor to DCC.	Medium and high risk sites
Appraise and review working methods, processes and procedures on a regular basis to ensure continuous development of BPM	Medium and high risk sites
The 'ABC' Method detailed in Paragraph E.3.2 of BS 5228-1:2009 shall be used to determine acceptable noise levels for day, evening and night time work.	Medium and high risk sites
Vibration levels are recommended to be kept below 1.0 mm/sec (PPV) where possible. Where levels are expected to exceed this value residents must be warned and an explanation given.	Medium and high risk sites

Appropriate dust suppression must be employed to prevent fugitive emissions affecting those occupying neighbouring properties or pathways, in so far as possible Street and footpath cleaning must be undertaken during the demolition and ground works phase	All sites
The following air quality monitoring procedures must be applied: 1. Continuous real time particulate (i.e. PM10 and PM2.5) monitoring along the site boundary must be undertaken during any demolition, ground works or during a construction phase which DCC deems necessary. The location of particulate monitors to be agreed with DCC prior to installation. The results of the monitoring shall be made available to DCC on request in an agreed format. 1. Dust deposition monitoring must be undertaken using a methodology agreed in advance with DCC	Medium and high risk sites

Table 6.2.7 Liaison with Local Community and Businesses

Appointment of a Liaison Officer as a single point of contact to engage with the local community and respond to concerns	Medium and high risk sites
Keeping local residents and businesses informed of progress and timing of particular construction activities that may impact on them, including any special permissions given for out of hours work.	Medium and high risk sites
A copy of this plan must be sent to DCC as a matter of urgency in the case of sites 14 days in advance of commencement of works for any site	High risk sites
Send regular updates at appropriate intervals to all identified affected neighbours/ businesses via a newsletter and post relevant information on the site hoarding. Also make the information available via email/website including weekly noise monitoring reports	High risk sites

Table 6.2.8 Complaints Handling

Maintenance of a site complaints log detailing 1. Name and address of complainant 2. Time and date complaint was made 3. Date, time and duration of noise, or other issues complained of 4. Characteristics of nuisance, such as noise rumble, clatters, intermittent, etc. 5. Likely cause or source of nuisance 6. Weather conditions, such as wind speed and direction 7. Investigative and follow -up actions, including response sent to complainant	All sites
Contact details for the site manager and liaison officer should be displayed prominently on the site hoarding	All sites

7.0 ENVIRONMENTAL CONTROL MEASURES

7.1 INTRODUCTION

Construction works for the proposed development have the potential to cause adverse environmental impacts, discussed under the following headings:

- Noise control;
- Water quality;
- Dust control;
- Materials handling and storage;
- Waste management;
- Biodiversity.

This section outlines the potential environmental consequences of construction works and outlines the proposed control measures that will minimise the potential environmental impacts.

7.2 NOISE CONTROL

A Noise Impact Assessment Report was completed for this project by Wave Dynamics Acoustic Consultants (Project No WDA231119_4). The report accompanies the planning submission documents.

Construction noise impact is predicted to exceed the BS 5228 requirements without any mitigation measures for the Site Set Up, Substructure and Superstructure stages of the project. The report outlines management, mitigation and monitoring measures to ensure that construction noise does not exceed the BS 5228 requirements.

British Standard BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Noise is adopted to establish the acceptable limits for construction and/or demolition noise.

For the purpose of this assessment buildings other than dwellings which have a residential function will be considered for the lower noise limit, this includes Hotels, B&B's, Student Accommodation, Co Living Developments etc.

As per the Wave Dynamics Report, the site is designated as *Category B/C* as defined in Table 7.1 and the daytime threshold values of 70dB and 75dB, for residential and non-residential properties respectively, would apply to the site during the construction phase of the development.

Table 7.1: Threshold of Potential Significant Effect at Dwellings (BS 5228)

Assessment category and threshold value period	Threshold value, in decibels (LAeq, T)		
	Category A[(a)]	Category B[(b)]	Category C[(c)]
Night-time (23.00−07.00)	45	50	55
Evenings and weekends[(d)]	55	60	65
Daytime (07.00−19.00) and Saturdays (07.00−13.00)	65	70	75

NOTE 1: A potential significant effect is indicated if the LAeq, T noise level arising from the site exceeds the threshold level for the category appropriate to the ambient noise level.
NOTE 2: If the ambient noise level exceeds the Category C threshold values given in the table (i.e. the ambient noise level is higher than the above values), then a potential significant effect is indicated if the total LAeq, T noise level for the period increases by more than 3 dB due to site noise.
NOTE 3: Applied to residential receptors only.

a) Category A: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are less than these values.
b) Category B: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are the same as category A values.
c) Category C: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are higher than category A values.
d) 19.00–23.00 weekdays, 13.00–23.00 Saturdays and 07.00–23.00 Sundays.

7.2.1 Key Areas of Concern

The following figure details the noise sensitive locations (NSL) considered as part of the noise impact modelling assessment.

Figure 7.1: Site location and noise sensitive locations 1-4 (Wave Dynamics WDA231119_4)

The following table details the attenuation required at each construction phase to comply with limits at each of the noise sensitive locations (NSL) through a combination of the recommended noise mitigation measures.

Table 7.2: Noise Attenuation required based on the construction noise predictions

Location	Noise Limit	Noise reduction required at each stage of works to meet criteria (dBA)				
		Site Set Up	Demolition	Substructure	Superstructure	External Finishes
NSL1	65	10	20	15	14	8
NSL2	65	8	17	13	12	5
NSL3	65	0	10	5	9	0
NSL4	65	0	9	5	10	0

7.2.2 General Noise Control Measures

- The Wave Dynamics Acoustic Consultants – Acoustic Design Statement (Project No WDA231119_4) should be reviewed by the Project Manager and EHS Officer for full details of the noise assessment.
- Cognisance will be taken of the British Standard 5228: Part 1 "*Code of practice for Noise Control on Construction and Open Sites*" and the CIRIA 2015 "*Environmental Good Practice on Site*";
    - Selection of quiet plant and equipment,
    - Noise control at source of the noise,

  - Screening, and
  - Public Liaison

- Selection of Plant and Equipment

  The noise impact of all plant and equipment should be assessed prior to selection of plant for the project. Where an item of plant is identified as noisy with the potential to cause a negative noise impact it should be reviewed to check if there is an alternative quieter version of the same plant to undertake the same construction task.

- Noise Control at Source

  Where replacing a noisy item of plant is not viable or practical, consideration should be given to control that noise at source. This includes modifying the piece of plant or equipment to generate less noise, using dampening to control vibration induced noise or rattling. Example best practice mitigation measures to be considered are as follows:

  - All plant and equipment to be switched off when idling.
  - The use of white noise reversing alarms.
  - Restriction on the dropping and loading of materials to less sensitive hours.
  - The use of local screening for noisy activities or works with hand tools
  - Not dropping materials onto hard surfaces and using rubber mats etc for the dropping of materials.
  - Ensure all plant and equipment is well maintained and cleaned, all lubrication should be in line with manufacturers guidelines.

- Screening

  Screening when used correctly can be an effective method of reducing the construction noise impact on the NSL's. The use of site hoarding and careful selection of areas for noise works, using buildings on the site, site offices and the building being constructed to screen noise from the works. Local screening of noisy works with the use of temporary acoustic barriers, examples are provided below:

  - https://ventac.com/acoustic-products/noisebreak-acoustic-barrier/
  - https://echobarrier.com/

- Public Engagement

  It is recommended that a public liaison officer should be put forward by the contractor to liaise with the local residents on matters relating to noise. Residents should be informed of any noise works scheduled where there is the potential to generate high levels of construction noise or if specialist works etc need to be conducted out of the working hours. This person should also be the point of contact for all complaints and be responsible for reviewing the noise monitoring results and exceedances.

- Construction Noise Monitoring

  Construction noise monitoring should be undertaken at periodic sample periods on the boundary with the nearest noise sensitive receptors. Noise monitoring should be conducted in accordance with the International Standard ISO 1996: 2017: Acoustics – Description, measurement and assessment of environmental noise.

7.2.3 Site Specific Recommendations

Construction Stage	Recommended Noise Mitigation Measure
Site Setup	Erect a minimum 2.4m high site hoarding that blocks the line of sight between noise source and receiver. Example construction for the site hording would be as follows: • A 2.4m high and 9mm plywood (4.5 kg/m2). Barrier must be solid and not contain gaps at the bottom or between adjacent panels. Local screening, using the examples provided in General Recommendations, are required around hand tools in addition to hoarding. An absorptive lining should be considered for screening around hand tools will need to have an absorptive lining to avoid reflections increasing noise at other receivers. On this project 3 NSL's have been identified it is recommended that a noise monitor should be placed on the boundary with each of nearest noise sensitive locations closest to the works i.e. NSL's 1-2 are the most appropriate locations.
Substructure	Site hoarding to block line of sight. Local screening around noisy plant and equipment. Noise monitoring as above
Superstructure	Local screening around saws/hammers where possible. Use external new building to screen noise from works where possible. Noise monitoring as above
External finishes	Local screening around hand tools. Noise monitoring as above

7.3 VIBRATION CONTROL

The Wave Dynamics Acoustic Consultants - Noise Impact Assessment Report (Project No WDA231119_4) provides recommendations for the treatment of vibration effects during the construction phase.

Vibration monitors should be erected during the substructure phase of the development between the site and the closest vibration sensitive locations on the boundary of the site.

The Vibration monitoring stations should continually log vibration levels using the Peak Particle Velocity parameter (PPV, mm/s) in the X, Y and Z directions, in accordance with BS ISO 4866: 2010: Mechanical vibration and shock – Vibration of fixed structures – Guidelines for the measurement of vibrations and evaluation of their effects on structures.

The recommended vibration limits to avoid cosmetic damage to buildings, as set out in:

- British Standard BS7385: 1993: Evaluation and measurement for vibration in buildings Part 2: Guide to damage levels from ground borne vibration, and;
- British Standard BS5228-2: 2009 + A1: 2014: Code of practice for noise and vibration control on construction and open sites – Vibration.

The standards note that minor structural damage can occur at vibration magnitudes which are greater than twice those presented in the following table and major damage to a building

structure is possible at vibration magnitudes greater than four times these values. Definitions of the damage categories are presented in BS 7385-1:1990.

Table 7.3: Transient vibration Guide for Cosmetic Damage

Vibration PPV at the closest part of sensitive property to the source of vibration Frequency		
4 to 15 Hz	15 to 40Hz	40Hz and above
15 mm/s	20 mm/s	50 mm/s

Note 1: At frequencies below 4 Hz, a maximum displacement of 0.6 mm (zero to peak) is not to be exceeded
Note2: It should be noted that these values are at the base of the building.

7.4 WATER QUALITY

During the construction phase, risks to water quality could arise with potential releases of suspended solids, uncured concrete, and hydrocarbons (fuels and oils). No in-stream works will be required as per the proposed development. The following control measures shall be implemented by the construction works contractor for the protection of groundwater quality:

Proposed Measures for the Protection of Water Quality

The implementation of control measures for dust and materials storage and handling will reduce the potential for a deterioration in water quality. These measures are outlined in Sections 7.5 and 7.6 below.

The following mitigation measures would be employed to ensure that there would be no significant impacts to the environment as listed above, due to a potential deterioration in water quality during construction works:

- The construction works contractor would adhere to standard construction best practice, taking cognisance of the Construction Industry Research and Information Association (CIRIA) guidelines "*Control of Water Pollution from Construction Sites; guidance for consultants and contractors*" 2001 and "*Control of Water Pollution from Construction Sites – Guide to Good Practice*", 2002;
- Where construction works would take place within the immediate vicinity of any watercourses, cognisance would be taken of the 2016 guidelines published Inland Fisheries Ireland, "*Guidelines on Protection of Fisheries During Construction Works in and adjacent to Waters*";
- Where spoil is generated, this would only be stored temporarily. Where possible, spoil would be covered or alternatively, graded;
- Excavations and earth-moving activities would be planned outside periods of heavy rainfall, to limit the potential for suspended solids to become entrained within surface water run-off;
- To avoid water contamination from hydrocarbons and concrete, the construction works contractor will refer to control measures included in Section 7.7;
- Surplus uncured concrete would be returned to the batching plant where possible;

- Vehicle and wheel washing facilities will be provided at site exit, at an area isolated from any drainage network.
- Re-seeding of final areas of bare soil would be undertaken as soon as possible, where required, to promote the rapid stabilisation of soils;
- Appropriate weed management plan should be put in place to help establish grassland sward to prevent runoff;
- If weed control is required then herbicide application should only be carried out by suitably qualified contractors or operators with strict reference to the product label, local land use, health and safety considerations and any pertinent regulations. All herbicide treatment must comply with the pesticide regulations S.I. No. 155/2012 - European Communities (Sustainable Use of Pesticides) Regulations 2012 or any amended or current regulations at the time of use.

In addition to the above measures, the construction works contractor would take cognisance of the following guidelines:

- CIRIA, 2001: *Control of Water Pollution from Construction Sites; guidance for consultants and contractors*;
- CIRIA, 2002: *Control of Water Pollution from Construction Sites – Guide to Good Practice*;
- IFI, 2016: *Guidelines on Protection of Fisheries During Construction Works in and adjacent to Waters*.

It is important to note that during the construction phase, the occurrence of trade effluent is possible. If necessary, an application for a Trade Discharge Licence will be submitted to the City Council.

It is therefore considered that, due to the proposed design and proposed mitigation measures, there would be no significant risk to water quality during the construction phase of the proposed development.

7.5 DRAINAGE AND FLOOD CONTROL

There is no recorded history of flooding at the site and it has not been identified as being at risk of flooding in the CFRAM Study. However, flood events have been recorded in surrounding areas of the site. Additionally, due to changes in hydraulic conditions, information in areas to the north and east of the site are currently under review. To ensure no issues would arise due to excess surface water accumulation at the site, control measures detailed in Sections 7.4 and 7.7 would be implemented.

7.6 DUST CONTROL

Generally, the primary potential nuisance associated with construction activities is dust. Excavations and earth moving operations may generate quantities of construction dust, particularly in drier weather conditions. The extent of any construction dust generation depends

on the nature of the construction dust (soils, sands, gravels, silts etc.) and the construction activity. The potential for construction dust dispersion depends on the local meteorological conditions such as rainfall, wind speed and wind direction.

Excavated material, or spoil, has the potential to cause a deterioration in water quality and a nuisance to nearby dwellings due to high dust levels if not appropriately managed. If the excavated materials are deemed hazardous, the Contractor is responsible for pretreating the waste soils using a method approved by the landfill operator and in compliance with Environmental Protection Agency guidelines. The Main Contractor is urged to reuse and recycle waste materials to the greatest extent possible. This section should be read in conjunction with the dust control measures relating to the storage and handling of spoil outlined in Section 7.7.

The issue of construction dust dispersion may be exaggerated with vehicles transporting sand/gravels/concrete/etc. to and from the site, having the potential to cause an environmental nuisance to use of the local road.

Proposed Dust Control Measures

The following dust control measures shall be implemented by the client for the duration of the construction of the proposed development:

- Cognisance will be taken of the guidelines published by the Institute of Air Quality Management (IAQM), "*Assessment of dust from demolition and construction 2014*";
- Before any excavation begins, a thorough survey of the site should be conducted to identify any potential areas of contamination or other risks. If unidentified contaminated soil is discovered on-site, the appointed Contractor will promptly inform the Client, Dublin City Council, the EPA, and other relevant authorities. A hazardous waste/soil management plan will then be developed and executed. This plan will detail the estimated volumes, mitigation measures, authorized disposal/treatment destinations, and the designated contractors for material transportation;
- As a means to promote community engagement, comprehensive condition surveys will be conducted on specific neighbouring third-party buildings before any construction begins on the site. Additionally, a point of contact for community members to voice concerns will be established, as mentioned in Section 4.6;
- Material handling systems and site stockpiling of materials will be designed and laid out to minimise exposure to wind;
- Methods and equipment should be in place for immediate clean up of spillages of dusty material.
- Prolonged storage of materials onsite will be avoided;
- Where possible, the storage of materials, such as stockpiled excavated soils, will be located as far as possible from adjacent residential properties;
- A 15kph speed limit will be implemented for all traffic onsite to reduce the potential for dust generation;
- When transporting materials to and from the site, vehicles will be fitted with covers where possible to prevent material loss;

- Public roads outside the site will be regularly inspected for cleanliness and cleaned as necessary. A road sweeper will be used where required;
- Noise and Dust Monitoring will be carried out by an independent specialist company, whose monitoring program will be submitted to the appropriate authority for approval. Monitoring results will be reported monthly in relation to proposed works.

Should additional dust control measures be required, for instance during particularly dry weather, dust suppression measures will be undertaken, including the following:

- Water misting plant, such as bowsers and sprays will be used as required and where necessary;
- Wheel-wash facilities will be provided for vehicles exiting the site to reduce the level of dust travelling offsite;
- Where practicable, stockpiles of excavated soils and exposed surfaces will be dampened down via misting plant.

7.7 MATERIALS STORAGE AND HANDLING

Concrete

As noted in Section 7.4, a deterioration in water quality could arise during construction works due to the release of uncured concrete. In the event of uncured concrete entering a waterbody, the pH would be altered locally, potentially causing an adverse impact upon aquatic flora and fauna and causing an alteration to the waterbody substrate. Therefore, the handling, storage and pouring of concrete will be strictly supervised and controlled.

The following controls will be implemented throughout the construction phase:

- The use of pre-cast concrete where possible;
- The delivery and pouring of concrete will be supervised;
- Concrete will be poured directly into the shuttered formwork from the Ready-Mix Truck, reducing the risk of spillage;
- The wash-out of Ready-Mix Truck drums will not be permitted onsite, in the environs of the site, or at a location which could result in a discharge to surface water;
- The disposal of excess uncured concrete will be removed from site by an authorised waste contractor;
- The pouring of concrete will be avoided during periods of expected heavy rainfall;
- Covers will be available for freshly poured concrete to avoid surface washing during heavy rain.

Hydrocarbons

A potential source of water quality contamination would be from the release of hydrocarbons (oils, fuels) from construction plant and equipment. Pollution could occur in a number of ways,

such as neglected spillages, the storage handling and transfer of oil and chemicals and refuelling of vehicles. Site personnel will be informed of the importance of good housekeeping practices, including the immediate cleaning of spillages.

The following controls for the handling and storage of hydrocarbons will be implemented throughout the construction phase:

- All construction plant machinery and equipment will be maintained in good working order and regularly inspected;
- Any fuels, oils or chemicals will be stored in accordance with the EPA guidance on the storage of materials, in designated bunded areas at the site compound, with adequate bund provision to contain 110% of the largest drum volume or 25% of the total volume of containers;
- Material storage areas will be appropriately labelled and marked;
- Deliveries of fuels and oils to the site will be supervised and records maintained;
- All loading and unloading of hydrocarbons will take place within the bunded area where possible;
- Fuels / oils will be handled and stored with care to avoid spillage or leakage;
- Where appropriate, small construction plant equipment will be placed on drip trays;
- The diesel generator will be suitably bunded;
- Any waste fuel / oils will be collected in bunded containers at a designated area within the temporary site compound and properly disposed of to an authorised waste contractor;
- Spill kits, adequately stocked with spill clean-up materials such as booms and absorbent pads, will be available onsite;
- In the unlikely event of a hydrocarbon spillage, contaminated spill clean-up material will be properly disposed of to an authorised waste contractor;
- The designated area for the storage of hydrocarbons will be inspected on a regular basis;
- The client will ensure the relevant site personnel are trained in spillage control;
- Where re-fuelling of construction plant is required to take place onsite, re-fuelling will be undertaken within a designated, bunded area;
- Re-fuelling onsite will only be undertaken by experienced and trained personnel;
- Where construction plant shows signs of hydrocarbon leakage, site personnel will cease the operation of the item in plant in question and notify the Project Manager. Any defective plant will be kept out of service until the necessary repairs are undertaken.

Excavated Materials

The Contractor is required to conduct excavation works in line with best practices, ensuring careful segregation of materials to prevent cross-contamination. Environmental chemistry testing must be performed to classify the waste soils from potentially contaminated areas,

including Waste Acceptance Criteria testing. The testing protocol, agreed upon with the landfill operator, must be executed by an accredited laboratory.

The following controls for the handling and storage of excavated materials will be implemented throughout the construction phase:

- Before any excavation begins, a thorough survey of the site should be conducted to identify any potential areas of contamination or other risks. If unidentified contaminated soil is discovered on-site, the appointed Contractor will promptly inform the Client, Dublin City Council, the EPA, and other relevant authorities. A hazardous waste/soil management plan will then be developed and executed. This plan will detail the estimated volumes, mitigation measures, authorized disposal/treatment destinations, and the designated contractors for material transportation.
- The Contractor will ensure that all necessary health and safety measures are in place to protect workers during the excavation and testing process, as described in Section 5.6 of this document.
- As a means to promote community engagement, comprehensive condition surveys will be conducted on specific neighbouring third-party buildings before any construction begins on the site. Additionally, a point of contact for community members to voice concerns will be established, as mentioned in Section 4.6.
- Earthworks excavations should be kept damp where necessary and where reasonably practicable.
- Spoil will only be stored on an adjoining site temporarily and kept away from sensitive receptors such as residential areas;
- Topsoil will be kept completely separate from all other construction waste as any cross-contamination of the topsoil can render it useless for reuse. Additionally, it will be protected from all kinds of vehicle damage and kept away from site-track, delivery vehicle turning areas and site plant and vehicle storage areas.
- Where possible, spoil will be covered or alternatively, graded, to avoid ponding and water saturation, in addition to minimising exposure to wind.
- Methods and equipment should be in place for immediate clean up of spillages of dusty material.
- After excavation and earth-moving works, topsoil will be used where feasible and as soon as possible to reduce any deterioration through lengthy storage and excess moving around the site.
- Excess subsoil not reused on-site will be sold, after being evaluated for potential reuse as engineering fill or non-engineering fills, such as landscaping, at nearby or other construction sites within the region, subject to Article 37 notification to the EPA.
- The transport of dusty materials and aggregates should be carried out using covered / sheeted lorries.
- The Main Contractor is responsible for the offsite disposal of all waste materials, once in-situ reuse and recycling options have been thoroughly explored. This disposal must comply with the Duty of Care and receive approval from the relevant statutory bodies. The Main Contractor must also ensure that any waste transferred is done so legally, and that the receiving facility is licensed to handle that specific type of waste, as per the

Waste Management Acts 1996-2005. The Waste Collection Permit Register will be consulted in accordance with the Waste Management (Collection Permit) Regulations 2001 to verify that waste carriers hold the necessary permit.

- Under the Waste Auditing regime, records will be maintained for all aspects of construction waste, including its generation, movement, and treatment. The Construction Waste Manager is responsible for ensuring that all necessary licenses are obtained as required. Documentation will be maintained for each consignment of construction waste removed from the site.

Soil Chain of Custody

All excavated materials intended for off-site disposal must be recorded in a chain of custody, which should include the following details: the transfer date and time; the carrier's name; the National Waste Collection Permit Number; the vehicle registration number and driver's name; the LOW Code; waste classification and origin; quantity/volume of waste; proposed reuse/recycling/disposal details and corresponding code; destination facility and its Waste Licence/Permit Number; and confirmation of receipt at the final waste facility.

7.8 WASTE MANAGEMENT

A Resource Waste Management Plan (RWMP) has been prepared by Conviro Ltd. and will be incorporated into the requirements for the Contractor and the Plan will be developed by the Contractor as the construction progresses. The guidelines have been prepared in accordance with the principles and objectives to deliver sustainable waste management for this project and all relevant national and local waste management policies.

Waste management at the site is briefly discussed below, with more detailed management measures outlined in the RWMP. Therefore, this CEMP should be read in conjunction with the RWMP document.

Throughout the construction phase, wastes generated will be managed by the client in order of priority in accordance with Section 21A of the Waste Management Act 1996, as amended, as per the waste hierarchy below.

1. Reduction of the amount of waste generated by the construction process.

2. Segregation of waste is a key concept that will be implemented during the course of the construction phase of the development to enable ease in re-use and recycling, wherever appropriate.

3. Recycle waste material where feasible, including the use of excess excavations as fill material, recycling of various waste fractions such as metals, packaging etc.

Wastes will be segregated as much as possible in order to avoid cross contamination. Where practical, the client will reduce the generation of wastes at source through measures such as the efficient ordering and purchasing of materials to reduce surplus materials, the return of uncured concrete to the batching plant where possible and the re-using of shutters for concrete works.

Where it is not possible to avoid the generation of wastes, wastes will be sent for recycling or recovery as a priority. The generation of waste for disposal will be minimised as much as is practical. Any excess of subsoil/topsoil will be sold, subject to Article 37 notification to the EPA, and transported off-site to other construction sites within the region by a licenced haulier.

It is anticipated that the following categories of waste will be generated during the construction of the project:

- Mixed waste from site offices and canteen;
- Construction waste;
- Waste hydrocarbons;
- Surface water runoff;
- Dry recyclables;
- Timber;
- Metal;
- Sanitary waste from staff welfare facilities.

The site compound will be the designated location for waste receptacles onsite. Waste will be segregated where possible and placed within recycling and general waste skips provided by a licenced waste contractor.

As discussed in Section 7.6, any waste fuel or oils will be storage in bunded containers at a designated area awaiting collection by a suitably authorised waste contractor.

All records of waste transported (quantities) off-site will be retained and copies of waste contractor's waste licences and waste collection permits will be retained on file.

7.9 BIODIVERSITY AND LANDSCAPING

The Preliminary Ecological Appraisal completed by NM Ecology has concluded that the site is of low baseline ecological value, that no ecological impacts are anticipated and that the proposed development is likely to provide a slight positive increase in biodiversity value. The Appropriate Assessment carried out by NM Ecology has concluded that no significant effect on any European sites are anticipated from the proposed development. A subsequent ecological survey has been completed by Panther Ecology Ltd. The assessment confirmed that the site is not of significant conservation value. The following control measures are recommended to ensure the proposed construction works will not have any significant impact upon the biodiversity of the area:

- As standard practice, construction plant will be thoroughly washed and inspected prior to arriving to, and leaving from, the development site;
- Machinery must be used sensitively and appropriately by a skilled operator;

- Should a protected fauna species such as Bats, Badger (*Meles meles*) or Otter (*Lutra lutra*) be found during the construction phase of the project, an officer of the National Parks and Wildlife Services (NPWS) would be notified prior to the resumption of construction works;
- As a minimum, client will comply with all legislative provisions relating to hedgerow / tree removal and the protection of birds and will have regard to reducing impacts on nesting birds.
- Cognisance would be taken of the National Roads Authority's Guidelines on "*The Protection and Preservation of Trees, Hedgerows and Scrub Prior to, During and Post Construction of National Road Schemes*";
- To minimise the impact on the retained trees, no excavation works are permitted to exceed the depth or footprint of the existing sub-base layer within this area. Where possible, the existing sub-base layer should be reused and made good to minimise any potential disturbance to tree roots. All working operations within this area must be carried out under the guidance and supervision of the arboricultural consultant.
- Where additional underground services are required, these should also avoid the Root Protection Areas of retained trees. If this is not possible, they must be installed in accordance with industry best practice. The BS 5837:2012 recommends the National Joint Utilities Group Guidelines for the planning, installation and maintenance of utility apparatus in proximity to trees Volume 4, issue 2: NJUG, 2007 as a normative reference in these instances.
- It is recommended that tree-felling works take place between September and February (inclusive), i.e. outside the nesting season. If this is not possible, an ecologist will survey the affected areas in advance to assess whether or not any nesting birds are present. If any are encountered, vegetation clearance will be delayed until the breeding attempt has been completed, i.e. after chicks have fledged and a nest has been abandoned.

A landscape plan has been completed by Mitchel + Associates and should be followed. The plan includes the following for the protection of biodiversity:

- Areas of the site will be planted with grass, shrubs, wildflower meadows and trees. Any alterations potentially made to the plan during construction would ensure that the design criteria are met regarding appropriate species, location, ecological and amenity value, etc.;
- Planting will be carried out with native and non-invasive naturalised flora species. The Contractor will refer to Section 7.10 regarding control measures for invasive species;
- All proposed trees will are to maintain a 2m clear stem to avoid interference with other infrastructure elements;
- Provision of bird boxes, including designs suitable for common garden birds (e.g. finches, tits, blackbirds) and swift nesting boxes on buildings > 5m height.
- The lighting scheme for the proposed development has been designed to avoid any additional illumination of the Royal Canal, which means that it will have no impact on the bat foraging habitat.

7.10 INVASIVE SPECIES

One high impact invasive species was identified on-site: three-cornered leek (*Allium triquetrum*). The risk of spreading this invasive species into protected sites during the construction phase is considered to be very low. However, general measures were included to reinforce prevention. Butterfly bush (*Budleja davidii*), a medium invasive plant species which is not subject to restrictions, was also found. Typically, as part of the initial site preparation, these would be thoroughly removed by heavy machinery and taken off-site for disposal as green waste. Measures that would be employed to ensure that there would be no significant impacts to the environment due to the spread of invasive species:

- It is recommended that an invasive species assessment be carried out prior to works commencing.

- Individual plants can be killed by herbicide application, and it is recommended that this is carried out in the next growing season, approx. March / April 2025. It is possible that seeds are present in the surrounding soil and may germinate in the future, so it is recommended that treatment is also carried out in 2026 / 2027 to treat any new growth. It is recommended that this is undertaken by Dublin City County Council prior to tendering for the construction of the proposed development, as it should be possible to eradicate the plant before construction commences.

- Any medium invasive plant species can be treated in-situ with an amenity based 360 herbicide, or controlled during site enabling and ground clearance.

- If invasives are identified, implement Invasives Management Plan to remove them.

- If no invasives are identified, continue works as intended (i.e. soil / stone shown to be free of invasives).

- Soil should not be imported to the site if the presence of any invasive species is found, in particular Himalayan/Indian balsam *(Impatiens glandulifera*), Japanese Knotweed (*Fallopia japonica*) and Rhododendron (*Rhododendron ponticum*);

- If newly arrived soil on the site is suspected to be contaminated with invasive plant species such as Knotweed, it should remain untouched until an invasive plant specialist has inspected it.

- Herbicides should not be used on days of precipitation or strong winds or if rain is forecast within twelve hours of application. Care should be taken to apply the herbicide only to the target species and avoid affecting surrounding vegetation by run-off or drift;

- Herbicide application should only be carried out by suitably qualified contractors or operators with strict reference to the product label, local land use, health and safety considerations and any pertinent regulations. All herbicide treatment must comply with the pesticide regulations S.I. No. 155/2012 - European Communities (Sustainable Use of Pesticides) Regulations 2012 or any amended or current regulations at the time of use;

- Where an invasive species is near water, herbicide selection must be limited to products approved for use near water and the operatives applying it must be trained to PA6Aw level;
- Glyphosate is a systemic herbicide, application should be carried out during periods of active growth, before flowering but late enough to ensure that germinating seedlings have grown up sufficiently to be adequately covered by the herbicide (50+ cm would be suitable);
- An invasive species management plan must be put in place such as *Best Practice Management Guidelines by Invasive Species Ireland;* www.invasivespeciesireland.com
- All soil and materials must be tested and monitored for any invasive species;
- Re-seeding of final level areas of bare soil would be undertaken as soon as possible, where required, to promote the rapid stabilisation of soils;
- Appropriate weed management plan should be put in place to help establish grassland sward;
- The construction works contractor would ensure that all equipment and plant is inspected for the presence of invasive species and thoroughly washed prior to arriving to, and leaving from, the development site;
- Where spoil is generated, this would only be stored temporarily and reused within the same part of the route to minimise the risk of spreading invasive species. Where possible, spoil would be covered or alternatively, graded to avoid ponding or water saturation;
- Machinery must be used sensitively and appropriately by a skilled operator;

It is considered that the implementation of the controls and measures outlined in Sections 7.2 – 7.9 will further reduce any potential adverse impact upon biodiversity in the area.

7.11 TRAFFIC MANAGEMENT

Access to the new proposed site is via an entrance off the Sackville Avenue to the south-east and a new pedestrian and cycle link, which will also serve as an emergency vehicle access, will be created by extending Ardilaun Square to Sackville Gardens. Vehicles will approach Sackville Avenue from the R803 Ballybough Road and will approach Ardilaun Road from the R131 Clonliffe Road via St. James Avenue. HGV construction traffic is anticipated to arrive via the R803 route primarily. The client will undertake site entrance works to facilitate the access of traffic associated with the proposed development. Any works to be carried out on the public road or roads that are to transfer into RMS charge shall be carried out in accordance with the Construction Standards for Roads and Street. Any works that impact on the public road, including the footpaths, shall be carried out under a Road Opening Licence. The client will ensure the following:

- Contact details of the site will be provided to all anticipated arrivals and made publicly available to allow the local community to directly communicate with the site;
- Access to the site will be restricted to authorised vehicles only;

- A 15kph speed limit will be implemented for all traffic onsite;
- All vehicles will be parked and or managed within the proposed site carpark located to the west near the proposed site compound area. Signage will be erected advising where parking is available;
- Short-term temporary traffic signals and localised parking restrictions will be considered and implemented, if required;
- Local roads will be inspected and cleaned as necessary;
- The site entrance will be kept unobstructed to allow both access and egress from the site;
- Any HGV traffic requiring additional road space to manoeuvre will be carefully managed to ensure the safety of residents and other road users;
- Deliveries to the site will occur during normal working hours (7:00 a.m to 6:00 p.m Monday to Friday and 8:00 a.m to 2:00 p.m on Saturdays);
- Larger HGVs could be required to communicate with the site ahead of their arrival to ensure their movement will not result in any conflict with others;
- Where possible, large-scale vehicle movements will be timed outside peak hours on the local road network to avoid traffic;
- Allocated delivery time slots may be required to be adhered to by large construction vehicles, during periods when larger vehicle movements may be more frequent;
- Delivery trucks will not be allowed to leave the development site during peak traffic hours;
- Materials will be delivered to the site in such manner to keep vehicle movements to a minimum;
- Materials will not be delivered to the site until required and should be retained onsite for the duration of its requirement in order to avoid unnecessary repeated deliveries;
- Deliveries to the site will be via suitably contained vehicles, with sheeting and covers where required;
- Delivery trucks will queue at the storage area to avoid obstructions to the general traffic in the area;
- The deployment of banksmen to assist HGVs at junctions and prevent conflicts with other road users will be considered and carried out, if deemed necessary;

There is adequate space to accommodate parking on site during the initial construction phase. In the event that, at a later stage during the construction programme, adequate parking is not available on site, off-site parking and shared car arrangements will be organised by site management.

7.12 ARCHAEOLOGY

An Archaeological Impact Assessment has been carried out by John Purcell Archaeological Consultancy, which determined that the site does not include any historic structures or archaeological remains and that the potential for historic remains to exist at the site is low.

There are no archaeological monuments recorded by the Archaeological Survey of Ireland within the proposed development site. No previous excavations have been carried out in the vicinity of the site that have revealed finds or features of archaeological significance.

It is not anticipated that the proposed clearance works, encompassing the excavation activities, vegetation removal, and other disruptive actions, have the potential to impact archaeological features. Therefore, it is not anticipated that it would be necessary to employ measures to ensure that there would be no significant impacts to the archaeological environment due to the proposed construction works.

8.0 MONITORING AND AUDITING

8.1 REPORT AND RECORD KEEPING

The Project Manager, in conjunction with the EHS Officer, would ensure that appropriate, detailed records are maintained during the construction phase of the development. Records of all works associated with the proposed development would be completed by the construction works contractor throughout the construction phase. Environmental records would include waste and site inspection records and where relevant, environmental incident and complaints records. Other records may include Safety Data Sheet records and a copy of the Safety File. Where relevant to the associated works, statutory inspection records would be maintained for such activities as excavations and lifting gear.

Where necessary and as requested by the local authority, copies of relevant construction activity records can be made available.

In the event of an environmental incident occurring at the site with the potential to cause environmental pollution, the Project Manager would notify the clients and the relevant third parties, as outlined in Section 4.6, as soon as practicable. Such environmental incidents may include:

- Fire;
- Water pollution event;
- Hydrocarbon or chemical spill;
- Excessive noise;
- Excessive vibration;
- Excessive dust.

Any complaints and/or incidents would be reported to the Project Manager. The Project Manager would be responsible for developing and maintaining a register of complaints and a register of incidents, with details on follow-up actions. The Project Manager would notify the clients as soon as practicable of any environmental complaint or incident.

8.2 ENVIRONMENTAL PERFORMANCE MONITORING

8.2.1 SAFETY MONITORING

The EHS Officer would be present at the development site during working hours, to ensure activities are undertaken in a safe manner.

8.2.2 ENVIRONMENTAL MONITORING

The EHS Officer would be present at the development site during working hours, to ensure activities are undertaken in an environmentally sensitive manner. The EHS Officer would undertake regular site inspections and audits, at least once per two week period, to monitor the environmental performance of the site and address any potential environmental issues such as dust, litter and noise. Site inspections and audits would include the following:

- Assessment of public access roads;
- Assessment of neighbouring properties;
- Chemical and hydrocarbon storage area;
- Waste storage area;
- Spoil area.

The EHS Officer would be responsible for maintaining a register of all environmental monitoring and would communicate the site's environmental performance during site meetings.

8.2.3 CONTINUOUS ENVIRONMENTAL MONITORING

A construction environmental monitoring programme shall be put in place, as required for the continuous monitoring of dust, noise and vibration during the construction phase of the development.

The Wave Dynamics Acoustic Design Statement (Project No WDA231119_4) recommends a noise and vibration monitoring programme for the construction phase.

The proposed monitoring plan should be reviewed by the Project Manager and EHS Officer prior to commencement of works. Any required alterations to the monitoring plan should be agreed with Dublin City Council.

Prior to the commencement of the proposed site works monitoring stations shall be installed and maintained by a suitably qualified specialist firm to provide continuous monitoring to measure and record the impact of site activities on local receptors.

All monitoring data shall be compiled into a monthly technical report which will include a full assessment of the impacts arising from site construction activities. All construction monitoring reports should be kept on file at the site and made available to City Council upon request.

The following candidate monitoring locations should be considered:

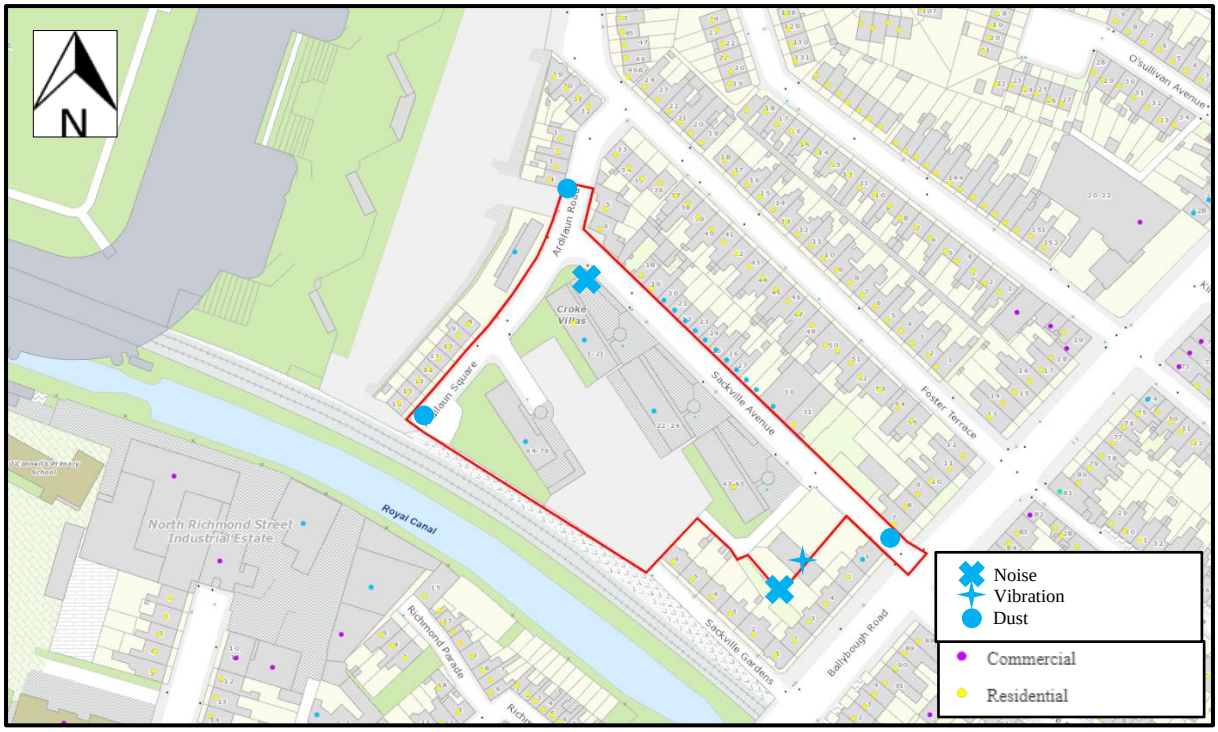

Figure 8.1: Candidate Monitoring Locations

8.3 MONITORING COMPLIANCE REPORTS

Site inspections and audits would be undertaken by the EHS Officer on a regular basis. These site inspections and audits would monitor the environmental performance of the site.

Where works are determined to be in breach of any specifications outlined within the CEMP, the EHS Officer shall notify the Project Manager, who would raise a non-compliance report and notify the clients as soon as practicable. Non-compliance reports may also be raised as a result of an incident or potential incident, the receipt of a complaint or as a result of a regulatory inspection or audit.

The non-compliance report would include details on the nature of the non-compliance, the proposed corrective action required, action taken to prevent recurrence and verification that the corrective actions have been undertaken and the non-compliance has been closed out. Any non-compliances would be discussed at the fortnightly meetings between the construction works contractor and clients.

8.4 PROCEDURES TO REVIEW INSPECTIONS AND STEPS TO ADDRESS NON-COMPLIANCE

The Project Manager would be responsible for reviewing inspections, audits and any arising non-compliances. A review schedule would be decided upon between the construction contractors and the clients upon the approval of the CEMP by Dublin City Council.

The Project Manager would notify the clients as soon as practicable of any non-compliances arising during the construction of the proposed development. The Project Manager would be responsible for notifying the relevant third parties where required of non-compliances at the

site and would liaise with third parties as necessary as to the outcome of the non-compliance. All non-compliances would be investigated immediately, and the construction works contractor would aim to close out non-compliances as soon as possible.

Where it has been determined that revisions to the CEMP are required to ensure recurrence of a non-compliance does not take place, the Project Manager and EHS Officer would make the necessary changes to the CEMP and would ensure that the revisions are effectively communicated as appropriate to onsite personnel and sub-contractors.

9.0 REFERENCES

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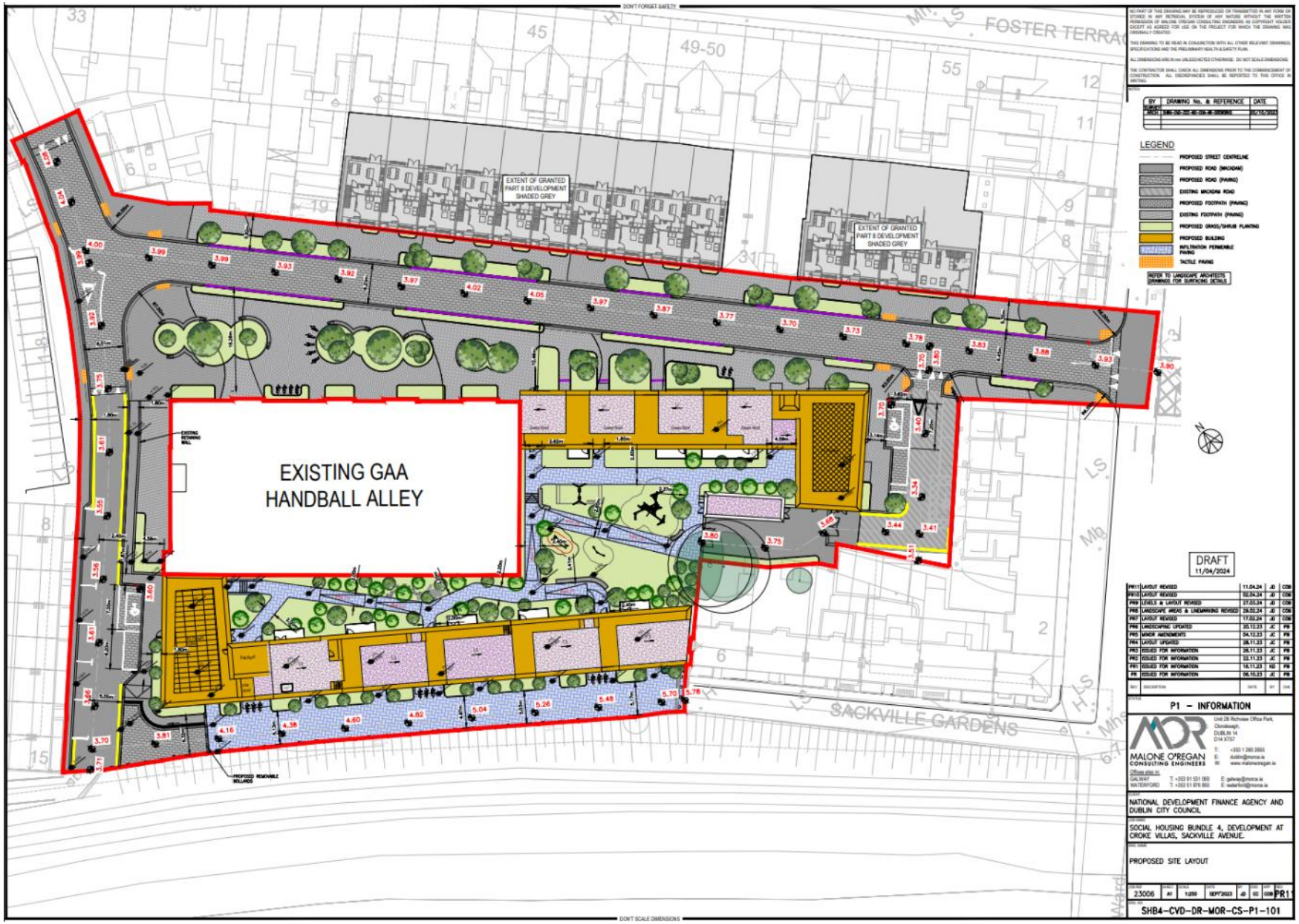
APPENDIX A

PROPOSED SITE LAYOUT


EXISTING GAA
HANDBALL ALLEY
EXTENT OF GRANTED PART 8 DEVELOPMENT SHADED GREY
EXTENT OF GRANTED PART 8 DEVELOPMENT SHADED GREY
FOSTER TERRACE
SACKVILLE GARDENS
LEGEND
PROPOSED STREET CENTRELINE
PROPOSED ROAD (MACADAM)
PROPOSED ROAD (PAVING)
EXISTING MACADAM ROAD
PROPOSED FOOTPATH (PAVING)
EXISTING FOOTPATH (PAVING)
PROPOSED GRASS/SHRUB PLANTING
PROPOSED BUILDING
INFILTRATION PERMEABLE PAVING
TACTILE PAVING
REFER TO LANDSCAPE ARCHITECTS DRAWINGS FOR SURFACING DETAILS
DRAFT
11/04/2024
P1 – INFORMATION
MALONE O'REGAN CONSULTING ENGINEERS
NATIONAL DEVELOPMENT FINANCE AGENCY AND DUBLIN CITY COUNCIL
SOCIAL HOUSING BUNDLE 4, DEVELOPMENT AT CROKE VILLAS, SACKVILLE AVENUE.
PROPOSED SITE LAYOUT
SHB4-CVD-DR-MOR-CS-P1-101

APPENDIX B

COMPLAINTS RECORD FORM

(DRAFT) ENVIRONMENTAL COMPLAINT FORM

Nature of Complaint:	**Ref:**
Time/Day/Date of complaint/incident:	
Name of complainant:	
Address of complainant:	
Phone No. of complainant:	
Details of complaint (description by complainant):	
Weather conditions at the time of the complaint / nuisence (Wind / Wind Direction / Precipitation / Temperature etc.):	
Investigation of site operations:	
Summary & Resolution:	