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Construction Environmental Management Plan (CEMP)

PRESENTED TO

Kavco Group

Proposed Large-Scale Residential Development (LRD) on Lands at Riverside Cottage, Kilgobbin Road, Stepaside, Dublin 18

DATE

September 2025

Environmental Consultancy Services

DOCUMENT CONTROL SHEET

Client	Kavco Group
Project Title	Proposed Large-Scale Residential Development (LRD) on Lands at Riverside Cottage, Kilgobbin Road, Stepaside, Dublin 18
Document Title	Construction Environmental Management Plan (CEMP)

Rev.	Status	Author(s)	Reviewed by	Approved by	Issue Date
01	ISSUE	Cormac Hennessy *Environmental Consultant*	Gareth Carroll *Principal Consultant*	Gareth Carroll *Principal Consultant*	30/04/2025
02	FINAL	Cormac Hennessy *Environmental Consultant*	Gareth Carroll *Principal Consultant*	Gareth Carroll *Principal Consultant*	01/09/2025

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1 INTRODUCTION

Enviroguide Consulting (hereafter referred to as EGC) was retained by Kavco Group (hereafter referred to as the Main Contractor) to prepare a Construction Environmental Management Plan (CEMP) for the construction phase of the proposed Large-Scale Residential Development (LRD) on lands at Riverside Cottage, Kilgobbin Road, Stepaside, Dublin 18 (hereafter referred to as the 'proposed development' and 'site').

A description of the Proposed development is provided in Section 2 of this report.

The CEMP is an integral part of the Project's Health, Safety, Environmental and Quality Management System (HSEQMS). The CEMP is subject to the requirements of the Site Quality Management System (QMS) with respect to documentation control, records control, and other relevant measures.

The primary distribution list for this document includes the following personnel.

- Construction Director.
- Construction Manager.
- Construction Management Team (CMT).
- Environmental Manager.
- Site Supervisors.
- Other relevant personnel including authors of reports submitted with the planning application.

1.1 Objective and Purpose

This CEMP has been prepared in response to the Section 32D Opinion received from Dún Laoghaire-Rathdown County Council (DLRCC) on the 2nd of April 2025 (DLR Reference PAC/LRD2/001/25) and satisfies Item 6a(ii) which is summarised as follows:

"6.Environmental Enforcement: The following information should be clarified (and associated recommended documents provided) in the final Application documentation:

a. A Construction Management Plan that includes the following elements (which can be standard-alone documents):

ii. A Construction Environmental Management Plan"

The purpose of this CEMP is to provide effective, site-specific procedures and mitigation measures to monitor and control environmental impacts throughout the construction phase of the project and ensure that construction activities do not adversely impact the environment.

The objective of this document is to set out and communicate the procedures, standards, management responsibilities and key environmental obligations that apply to the Main Contractor and sub-contractors to address and prevent environmental effects that may arise from the construction phase of the proposed development.

This CEMP is to be read in conjunction with the Resource and Waste Management Plan (RWMP) (EGC, 2025; submitted with the planning application) prepared for the proposed development.

The CEMP will be updated by the Main Contractor in advance of construction works commencing onsite.

1.2 Scope of CEMP

This CEMP defines the approach to environmental management during implementation and roll-out of the construction phase of the project.

Compliance with the CEMP, procedures, work practices and controls is mandatory and must be adhered to by all personnel and contractors employed on the construction phase of the Proposed development. This CEMP seeks to promote best environmental practices on-site for the duration of the construction phase.

This CEMP will provide a framework to:

- Comply with current environmental and waste legislation, codes of best practice and guidelines (refer to Section 3.1).
- Comply with all relevant conditions attached to the Grant of Planning from Dún Laoghaire Rathdown County Council (DLR) (once issued) (refer to Section 3.2).
- Provide a plan for achieving and implementing construction related mitigation measures including those identified in the particulars submitted with the planning application (refer to Section 3.3).
- Identify the roles and responsibilities contractor organisations, their sub-contractors and employees to the roles specific to environmental management.
- Ensure that environmental risks are identified and will be appropriately mitigated to ensure any adverse effects are minimised during construction.
- Promote best environmental on-site practices for the duration of the construction phase.
- Outline the procedures for reporting and communicating on environmental aspects of the construction phase of the Proposed development.

It is noted that an RWMP (EGC, 2025; submitted with the planning application) has been prepared for the construction phase of the proposed development under separate cover. The RWMP details the approach to materials and waste management to ensure that the management of construction and demolition (C&D) waste arising during construction is undertaken in accordance with all statutory requirements.

1.3 Live document

The CEMP is considered a ‘live’ document which will be continually reviewed and updated throughout the construction phase by the Construction Management Team (CMT).

This document forms the basis of the CEMP, which the Main Contractor will be required to update and implement prior to commencement of works onsite.

Updates to this CEMP may be necessary to address changes in environmental management practices and to include further mitigation measures that may be identified as part of ongoing reviews throughout the construction phase of the proposed development.

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The procedures described in this CEMP will be audited throughout the construction phase of the proposed development to ensure compliance. All documentation required by this CEMP such as plans, programmes and operating procedures will be appended to this document and reviewed and updated as part of the overall CEMP for the construction phase of the proposed development.

2 PROJECT DESCRIPTION

2.1 Site Location and Description

The site is located on lands at Riverside Cottage, Kilgobbin Road, Stepaside, Dublin 18.

The site comprises approximately 3.01 hectares (Ha) of predominantly undeveloped greenfield land. A residential building (known as 'Riverside') is located to the east on Kilgobbin Road. It is noted that this building is located on lands within the ownership of the applicant but does not form part of the current application.

There are residential buildings to the north, public open space to the west, Gaelscoil Thaobh Na Coille primary school to the southwest and Kilgobbin Castle (in ruins) with extended undeveloped lands to the south.

The site topography slopes from the southwest to the northeast with ground elevations ranging from approximately 106.5 meters above Ordnance Datum (mOD) to 101mOD.

The site location is presented in Figure 2-1 and the current layout of the site is presented in Figure 2-2.

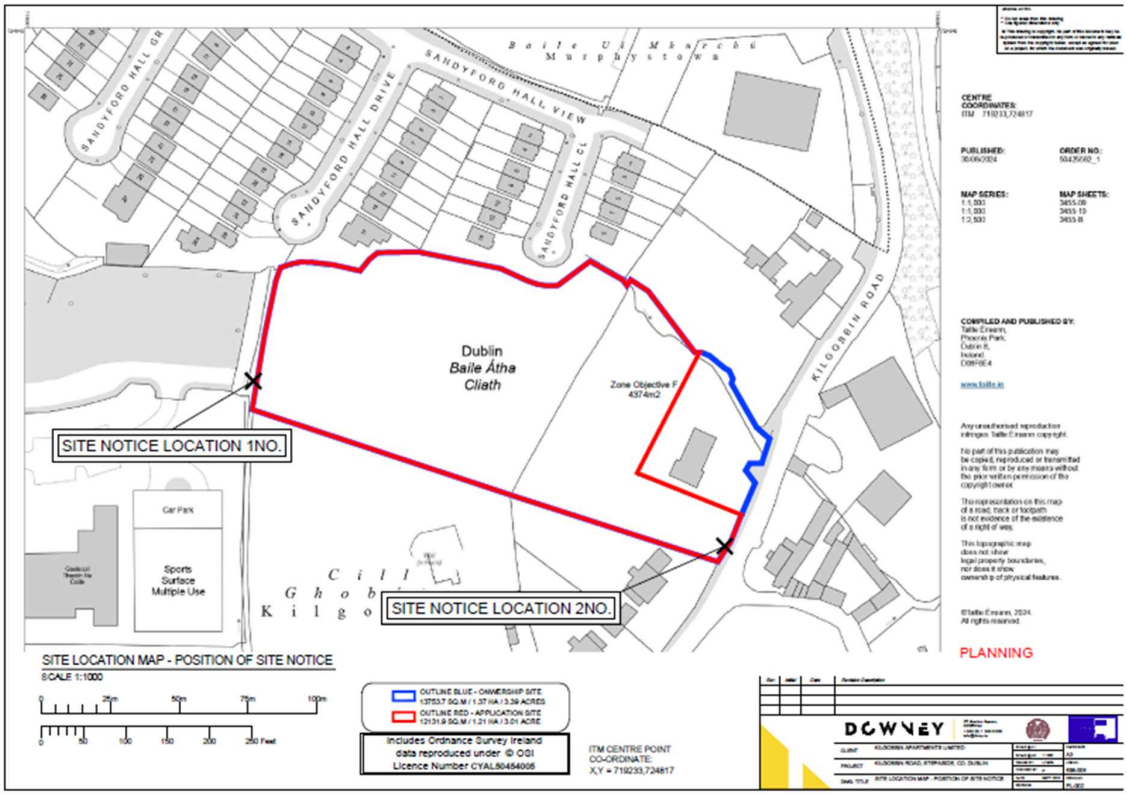

Figure 2-1. Site Location (Downey, 2025)

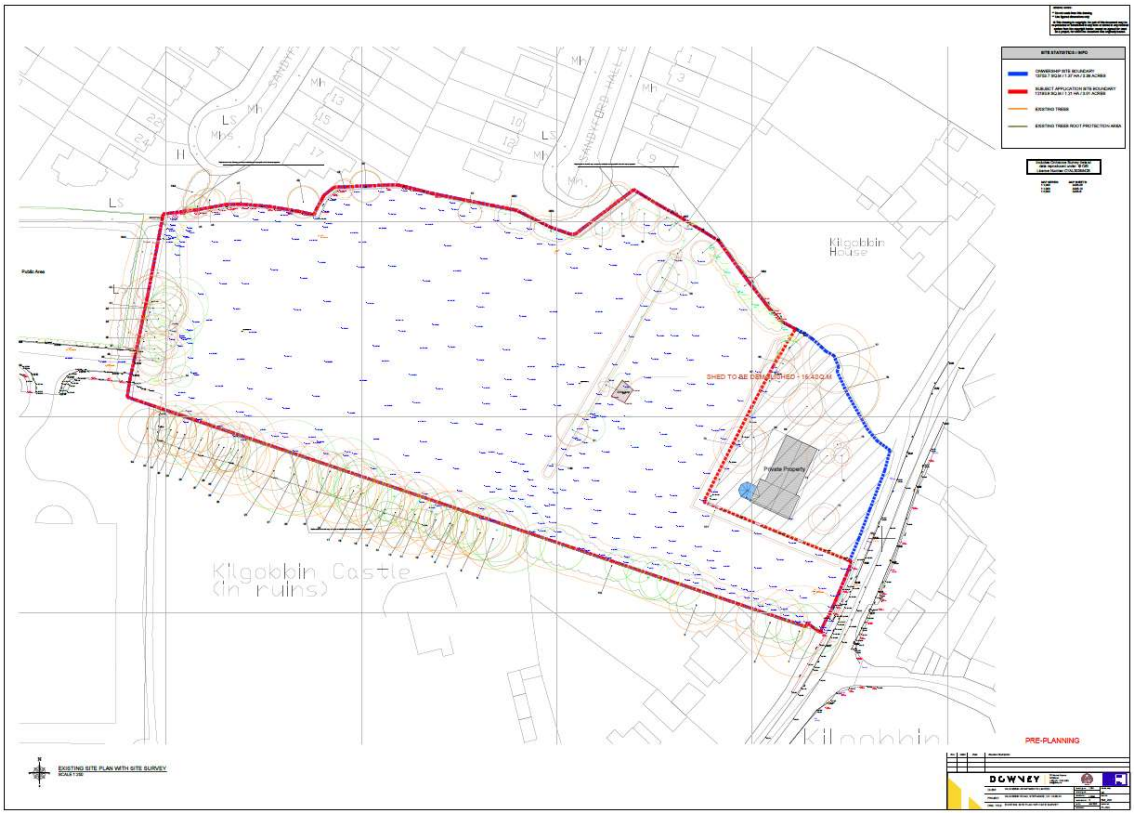

Figure 2-2. Existing Site Layout (Downey, 2025)

2.1.1 Soil, Subsoil and Geology and Hydrogeology

The soils beneath the site are mapped by Teagasc (Teagasc, 2025) as deep well drained mineral (Mainly acidic) Acid Brown Earths, Brown Podzolics derived from mainly non-calcareous parent materials (IFS Soil Code: AminDW).

The subsoil or quaternary sediments beneath the site are mapped by the GSI (GSI, 2025) as till derived from granites (Quaternary Sediment Code: TGr).

The bedrock beneath the site is mapped by the GSI (GSI, 2025) as Type 3 muscovite porphyritic (New Code: IDNLGR3) which is described as granite with muscovite phenocrysts.

While there is no bedrock outcrops mapped within the site boundary, there are a number of bedrock outcrops mapped by the GSI (GSI, 2025) within a 2km radius of the site. The closest bedrock outcrops recorded by the GSI (GSI, 2025) are located approximately 0.50km north, 0.66km south and 0.88km west of the site.

There are no karst features mapped by the GSI (GSI, 2025) at the site or within a 2km radius of the site.

2.1.2 Hydrogeology

The EPA (EPA, 2025) maps the groundwater body (GWB) beneath the site as the Wicklow GWB (EU Code: IE_EA_G_076).

The underlying bedrock aquifer beneath the site is classified by the GSI (GSI, 2025) as a poor aquifer, bedrock which is generally unproductive except for local zones (Pl).

The GSI (GSI, 2025) has assigned a groundwater vulnerability rating of 'High' (H) for the groundwater beneath the site.

The Wicklow GWB Report (GSI, 2025) identifies that groundwater flow paths will be in the order of a couple of hundred metres, with discharge occurring to the closest surface water feature (i.e., the Ballyogan Stream).

2.1.3 Previous Site Investigations

Ground investigation works undertaken by Site Investigations Ltd. (SIL) in November 2024 (SIL, 2024; included in Appendix C) included the drilling of six (6No.) boreholes to depths ranging from 1.0 meters below ground level (mbGL) at BH03 to 5.7mbGL at BH02.

The ground conditions are summarised as brown and brown grey (slightly) sandy (slightly) gravelly silty CLAY with cobbles overlying stiff black slightly sandy slightly gravelly silty CLAY with cobbles. Possible weathered bedrock described as light brown slightly silty sandy GRAVEL with cobbles was encountered beneath the CLAY units.

Groundwater was recorded during drilling at depths ranging from 2.20mbGL (BH05) to 3.20mbGL (BH02).

Three (3No.) soakaway tests were also completed. The soakaway tests failed the specification as the water level did not fall sufficiently enough to complete the test.

2.1.4 Hydrology

The site is mapped by the EPA (EPA, 2025) as within the Ovoca-Vartry WFD Catchment (Catchment ID: 10), the Dargle_SC_010 WFD Sub-catchment (Sub-catchment ID: 10_5) and the Carrickmines Stream_010 WFD River Sub-Basin.

The closest surface water feature to the site is mapped by the EPA (EPA, 2025) as the Barnaculla River (River Waterbody Code: IE_EA_10C040350; WFD Name: Carrickmines Stream_010), known locally as the Ballyogan Stream, which is located along the western and northern boundary of the site. The Barnaculla River is partially culverted and partially open and flows in a west to east direction before converging with the Carrickmines Stream (River Waterbody Code: IE_EA_10C040350; WFD Name: Carrickmines Stream_010) approximately 2.53km downstream of the site.

2.2 Description of the Proposed development

The proposed Large-Scale Residential Development (LRD) will provide 120 no. apartment units within 2 no. blocks ranging in height from 4- to 6-storeys. The development will consist of; Block A, consisting of 44 no. units (27 no. 1 bed (2-person), 13 no. 2 bed (3-persons), 1 no. 2 bed (4-persons) and 3 no. 3 bed (5-persons) of 4- to 5-storeys height and of Block B, consisting of 76 no. units (40 no. 1 bed (2-persons), 12 no. 2 bed (3-persons), 16 no. 2 bed (4-persons) and 8 no. 3 bed (4-persons) of 5- to 6-storeys height.

The proposed development will provide all associated public open space and play area, 54 no. car parking spaces including accessible parking and Electric Vehicle parking, 273 no. bicycle parking spaces, 3 no. motorcycle parking spaces, bin/waste store and a plant room at ground floor level, 1 no. detached ESB substation and 1 no. detached bicycle store for Block A residents. The proposed development will also provide for all associated site development

and infrastructural works including foul and surface water drainage, roads, footpaths, landscaping, boundary treatment and a pedestrian and cycling pathway connecting Belarmine Vale and Kilgobbin Road. Vehicular access to the development will be via Belarmine Vale.

The layout of the proposed development is presented in Figure 2-3.

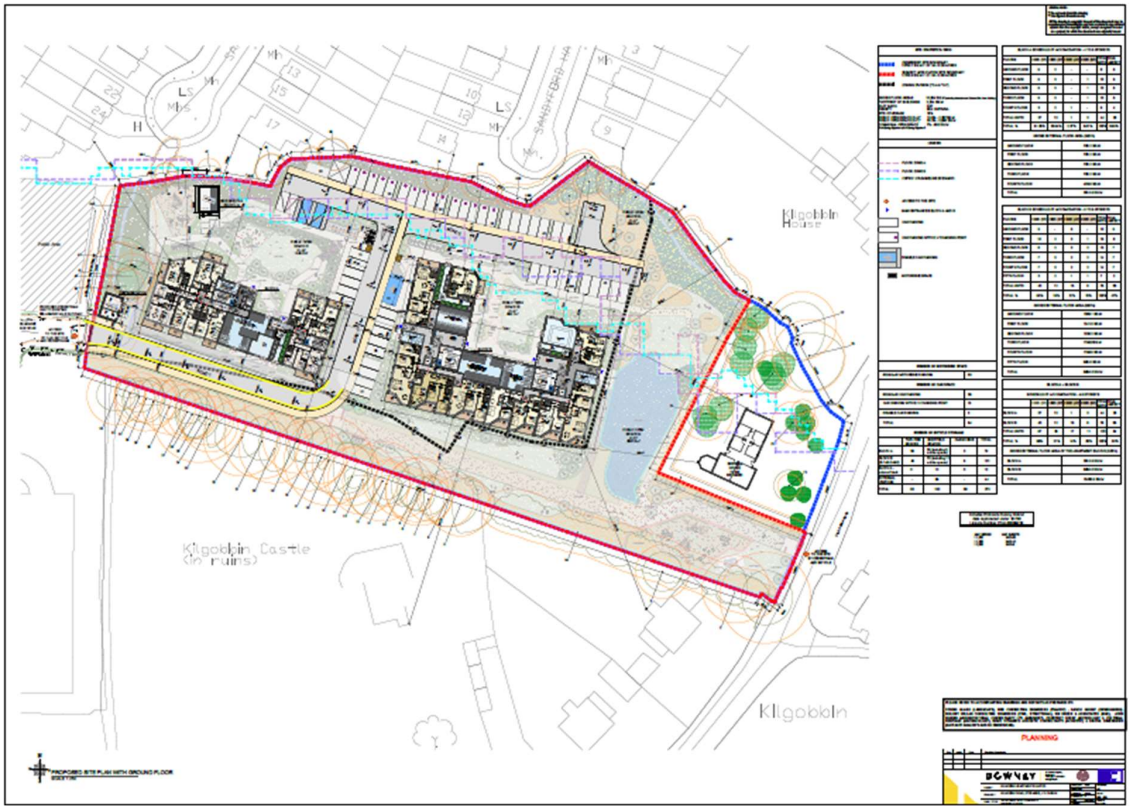

Figure 2-3. Proposed Development Site Layout (Downey, 2025)

2.2.1 Construction Phase

The Construction Phase of the Proposed development will include:

- Excavation of soil and subsoil for the construction of building foundations, drainage and other infrastructure. It is anticipated that there will be no requirement for the excavation of bedrock during the construction phase of the proposed development.
- Where possible, it is intended to reuse suitable excavated soil and subsoil for landscaping and engineering use. However, where required, surplus materials will require removal offsite in accordance with all statutory legislation.
- The importation of aggregate fill materials will be required for the construction of the proposed development (e.g., granular material beneath road pavement, under floor slabs and for drainage and utility bedding / surrounds etc.). There may also be a requirement to import soil for landscaping use.
- It is proposed to culvert the Ballyogan tributary along the western boundary, completing the existing culvert from the south western corner to the north western corner of the site.
- There may be a requirement for management of surface water (rainwater) and shallow groundwater, where encountered during groundworks.

- Construction of new foul and mains water connections in accordance with UE Code of Practice for Wastewater Infrastructure (IW-CDS-5030-03), UE's Code of Practice for Water Infrastructure (IW-CDS-5020-03).
- Construction of new surface water drainage designed in accordance with the principles and objectives of Sustainable Drainage Systems (SuDS), the Greater Dublin Strategic Drainage Study (GDSDS) and the requirements of DLRCC.

3 ENVIRONMENTAL REGULATORY AND OTHER REQUIREMENTS

The CEMP provides a framework for compliance with current environmental and waste legislation and other regulatory obligations for the Construction Phase of the Proposed Development.

This CEMP will be updated as required throughout the construction phase of the Proposed development should there be any amendments to any of the following:

- Project specific demolition and construction requirements.
- Legislative requirements.

Where compliance obligations have been assessed and recorded, they will be reviewed on an ongoing basis, when personnel become aware of relevant changes that impact directly on operations, where obligations have changed or where there have been significant changes in work type. All contractors involved in the construction phase of the Proposed development must comply with these documents and specific requirements of the CEMP.

3.1 Environmental Legal Register

The environmental legal register will record regulatory and legal requirements and summarise applicable environmental legislation, (as well as other requirements) that the project must adhere to. The environmental legal register will be maintained onsite and will be made available through the Environmental Manager's (refer to Section 4) office onsite. The environmental legal register will be a controlled document and will be updated and reviewed on an ongoing basis.

A typical register of environmental legislation is divided into a number of categories, which include:

- General Environmental Legislation.
- Biodiversity.
- Emissions to Air.
- Emissions to Water & Groundwater.
- Waste Management.
- Noise & Vibration.

For each piece of legislation, the following information should be provided:

- Index Number.
- Title of Legislation.
- Summary of Legislation.
- Relevance.

All legislation included in the environmental legal register can be readily accessed on http://www.irishstatutebook.ie and will be made available onsite by the Main Contractor.

3.2 Conditions of Planning Permission

All works undertaken throughout the construction phase of the permitted development will be required to comply with the relevant environmental conditions and control measures of the Grant of Planning from DLRCC (once issued).

3.3 Environmental Assessments and Reports

All environmental and ecological control and mitigation measures identified in the CEMP will be implemented for the duration of the construction phase of the Proposed development.

The CEMP will be updated throughout the construction phase to include further mitigation measures that may be identified as part of any relevant environmental / ecological documents (e.g., Ecological Impact Assessment, Arboricultural Assessment, Invasive Species Survey etc.). All contractors involved in the project must comply with these documents.

4 CONSTRUCTION ENVIRONMENTAL MANAGEMENT TEAM

4.1 Project Roles and Responsibilities

The roles and responsibilities of personnel and the lines of communication specific to resource and waste management are outlined in the following sections.

All parties involved in the Construction Phase of the Permitted Development will have responsibility for waste management. Responsibility will vary at different stages of the project lifecycle.

The Main Contractor will have overall responsibility for the implementation of the RWMP and appointing the following roles and responsibilities within the CMT. It should be noted that one person may be appointed to multiple roles.

The roles and responsibilities are indicative and may be amended over the course of the project. The project organogram will be prepared by the Main Contractor in advance of construction works commencing and will be maintained and updated in the live RWMP.

The key responsibilities are set out in Table 4-1.

Table 4-1. Construction Environmental Management Team – Key Responsibilities

Role	Responsibilities
Construction Director	Overall responsibility for the implementation of the CEMP Ensuring adequate resources are available to ensure the implementation of the CEMP Management review of the CEMP for suitability, adequateness, and effectiveness Setting out the focus of environmental policy, objectives, and targets for the Main Contractor
Construction Manager	Responsible for reporting to the Construction Director on the on-going performance of the CEMP Discharging his/her responsibilities as outlined in the CEMP Supporting the CMT and the Environmental Manager through the provision of adequate resources and facilities to ensure the implementation of the CEMP Providing Contractors with precise instructions as to their responsibility to ensure correct working methods where risk of environmental damage exists Where appropriate, ensuring Contractor's method statements include correct waste disposal methods Co-ordinating of environmental planning of CMT activities to comply with environmental authorities' requirements and with minimum risk to the environment
Environmental Manager	Ensuring that the requirements of the CEMP are developed and environmental system elements (including procedures, method statements and work instructions) are implemented and adhered to with respect to environmental requirements Reviewing the Environmental responsibilities of all sub-contractors in scoping their work and during their contract tenure Ensuring that advice, guidance, and instruction on all CEMP matters is provided to all managers, employees, construction contractors and visitors on site Reporting to the Construction Manager on the environmental performance of Line Management, Supervisory Staff, Employees and Contractors Advising site management on environmental matters and delegating responsibility to sub-contractors, where necessary

Role	Responsibilities
	Being aware of any potential environmental risks relating to the Contractors and bring these to the notice of the appropriate management. Ensuring that all waste is managed accordingly, is recorded, and the materials/waste register is completed Maintenance of records of all necessary documentation including contractor waste collection permits, waste destination consents, waste transfer documents and waste management facility gate receipts in the waste management file and any environmental related documentation
Project Communications Officer	Conducting all public liaison associated with the construction phase of the project Responding to any concerns or complaints raised by the public in relation to the Construction phase of the project Liaising with the Environmental Manager on community concerns relating to the environment Ensuring the Environmental Manager is informed of any complaints relating to the environment Keeping the public informed of project progress and any construction activities that may cause inconvenience to the local community Receive training on environmental sensitivities and SAC Conservation Objectives and mitigation measures in place
Site Supervisors	Read, understand, and implement the CEMP when it is fully developed, and receive adequate training on environmental constraints Being knowledgeable of the requirements of the relevant law in environmental matters and take whatever action is necessary to achieve compliance Ensuring that environmental matters are considered at all times Being aware of any potential environmental risks relating to the site, plant, or materials to be used on the premises and bring these to the notice of the appropriate management Ensuring that any plant is environmentally suited to the task in hand
Site Personnel	Co-operation with the CMT and the Environmental Manager in the implementation of the CEMP at the site To conduct all their activities in a manner consistent with regulatory and best environmental practice To participate fully in the environmental training programme and provide management with any necessary feedback to ensure effective environmental management at the site Adhere fully to the requirements of the site environmental rules
Project Environmental Consultant (as required)	If required, the Main Contractor will engage with a Project Environmental Consultant(s) to provide specialist environmental inputs and act in the roles of Environmental Clerk of Works (including Contaminated Land Consultant). The key responsibilities of the Project Environmental Consultant are summarised as follows: • Updating of the CEMP and advising the Main Contractor in the updating of the CEMP, environmental control plans and supporting procedures. • Advising the Site management on environmental matters as appropriate. • Carrying out environmental surveys (data logging (noise, water, dust, etc.)) as required. • Generating reports when required to show environmental data trends and incidents. • Advising on the production of written method statements and Site environmental rules and on the arrangements to bring these to the attention of the workforce as required; and

Role	Responsibilities
	• Investigating incidents of significant, potential, or actual environmental damage, ensure corrective actions are carried out and recommend means to prevent recurrence. • Provision of specialist input and supervision where necessary, of construction activities in relation to the environment and any specified protection measures in accordance with the conditions of the Grant of Planning and those identified in the particulars submitted with the planning application for the Construction Phase of the Permitted Development.
Project Ecologist / Ecological Clerk of Works (ECoW)	The Contractor will engage a suitably experienced ecologist, the Project Ecologist / Ecological Clerk of Works (ECoW), who will be a member of a relevant professional institute such as CIEEM and have relevant experience in the management of ecological constraints during construction. The Project Ecologist will be appointed sufficiently in advance of construction commencing to allow for any pre-commencement surveys to be conducted, to arrange for any mitigation requirements to be incorporated into the CEMP, and any site-specific method statements to be prepared. The key responsibilities of the Project Ecologist / ECoW are summarised as follows: • The Project Ecologist / ECoW will review and provide input (where required) to the Emergency Response Plan (ERP) or similar protocol which will be included in the CEMP and based on the Contractor's Risk Assessment. • The Project Ecologist / ECoW will review and provide input (where required) to the detailed construction method statement prepared by the Main Contractor prior to works on the weir commencing. • All works carried out on the weir including in-stream / near stream works will be supervised by the Project Ecologist / ECoW. • The Project Ecologist / ECoW will undertake all required pre-commencement surveys (e.g., otter surveys, Invasive Alien Species (IAS) Survey • The Project Ecologist / ECoW will provide additional specialist input and supervision where necessary, of construction activities in relation to the habitats and species and any specified protection measures in accordance with the conditions of the Grant of Planning and those identified in the particulars submitted with the planning application for the Construction Phase of the Permitted Development. • The Project Ecologist / ECoW will provide specialist advice on ecological monitoring and site inspections and surveys as required. The Project Ecologist / ECoW will also liaise with the National Parks and Wildlife Service (NPWS), Inland Fisheries Ireland (IFI) and other relevant stakeholders.
Project Archaeologist Clerk of Works (as required)	A Project Archaeologist Clerk of Works (ACoW) may be engaged on an ad-hoc basis if required. The appointed Project Archaeologist Clerk of Works will be competent, qualified, and experienced. Where required, the key responsibilities of the ACoW are summarised as follows: • Undertaking archaeological assessments (and impact assessments) of the Permitted Development, including all temporary and enabling works, geotechnical investigations (e.g., boreholes, engineering test pits, etc.). • Making appropriate recommendations for mitigation including watching briefs and detailed surveys as necessary. • Undertaking archaeological monitoring, and if necessary archaeological excavation and/or the preservation in situ of archaeological remains, which may negate the facilitation of all, or part of any basement.

Role	Responsibilities
	• Supervision of all sub-surface works. • Liaising with DLRCC and other relevant bodies including the National Monuments Services Section of the Department of Culture, Heritage and the Gaeltacht as required. • Submission of reports containing the results of archaeological investigations and assessment, where required.
Arboriculturist	The Arboriculturist will advise and supervise all works associated or in proximity to the existing trees to ensure their retention and condition. The Arboriculturist will make appropriate recommendations for mitigation, where necessary, including protection fence beyond the branch spread, with no construction work or storage carried out within the protective barrier.
Landscape Architect	The Landscape Architect will advise the site management on the implementation of the landscape scheme. Making appropriate recommendations, where necessary, for boundary treatments either proposed, retained or enhanced. Where required, the Landscape Architect will also prepare the Landscape Completion Report.

4.2 Site Contact Details

The Main Contractor will ensure that the contact details for the Project Manager, Construction Manager, Environmental Manager and Project Communications Officer will be made available to DLRCC in advance of construction works commencing and will be included in the live CEMP. These will also be displayed on the site hoarding at appropriate locations across the site and at the site entrance, together with the permitted operating hours, including any special permissions given for out of hours work and contact details for relevant public bodies and emergency services.

5 CONSTRUCTION SCHEDULE AND WORKS MANAGEMENT

5.1 Programme

It is anticipated that the construction phase of the proposed development will take approximately twenty (20No.) months to complete.

The proposed sequence of construction will be developed by the Main Contractor in advance of construction works commencing onsite and will be included in the live CEMP.

5.2 Working Hours

Normal site working hours will apply to the Construction Phase of the Proposed Development (07:00 to 19:00 Monday to Friday (excluding bank holidays) and 07:00 to 14:00 Saturdays).

No works are envisaged to be carried out on Sundays or Bank Holidays. However, should there be a need to work on Sundays, Bank Holidays or outside the specified normal working hours, a written submission, with compelling reasons for the proposed deviation, seeking authorisation will be made by the Main Contractor to DLRCC.

The Mian Contractor must demonstrate in writing that the works required cannot be carried out during normal working hours. The documentation sent in must be accompanied by a detailed engineering or/and traffic management or/and safety case as to why the works are required outside normal hours. All reasonable and appropriate measures to minimise noise associated with these works must be put in place and no works other than those approved may be carried out during extended working hours. The Main Contractor must give the times and dates of the proposed work, and the mitigation measures that are to be used to minimise noise/disturbance.

No works will be undertaken outside normal working hours without the subsequent receipt of the written consent of DLRCC. Any such approval from DLRCC may be subject to conditions pertaining to the particular circumstances being set by DLRCC.

It is noted that any breaches of proposed working hours or proposed extended working hours or developers or subcontractors not carrying out their requirements under this protocol may lead to enforcement action and may also result in the withdrawal of any extension of hours of works for a period that will be at the discretion of DLRCC.

5.3 Construction Compound

All construction support related activities including office facilities, welfare facilities such as toilets and canteen and car parking facilities will be contained within a designated site compound area. The exact location, layout and size of the compound area will be developed by the Main Contractor (with the agreement of DLRCC) in advance of works commencing and will be maintained in the live RWMP. The compound area will be secured from the construction site by means of surrounding Heras fencing. Information notices located at the site entry, site compound and appropriate locations throughout the site will identify the site-specific PPE requirements and the potential risks associated with entering a live construction environment.

All cabins will be brought to site in good condition and will be maintained in good order throughout the project. Double stacking of cabins may be required, with safe stairs and walkways provided to the upper levels of offices.

A power supply from ESB Networks to power both the compound and the construction site will be applied for by the Main Contractor. Prior to any site works commencing, the Main Contractor will investigate/identify the exact location of and tag all existing services and utilities around and through the site with the assistance of the relevant DLR technical divisions and utility companies. The size of the required supply will be calculated to ensure it is sufficient to power both the site compound and construction site activities. In the event of any delays securing the required power supply to power offices and cranes, generators may be required. Diesel generators will have sound enclosures and will be regularly serviced to prevent noise and odour pollution, and setup in a spill tray to prevent any spillage contaminating the ground. Temporary site lighting will be installed to provide safe and well- lighted walkways around the site compounds, and task lighting to the construction sites.

Water and drainage will be required to service the site welfare facilities. The Main Contractor will carry out a site survey to identify the locations of the water and foul drainage connections to the site. It will be the Main Contractor's responsibility to apply to Uisce Eireann for connections to the water main and foul drain, ideally utilising existing connections.

Materials handling and storage areas, including waste segregation and storage areas (including waste segregation and storage, chemical, fuel and oil stores), will be contained within the boundary of the site. The required size for the site compound and waste storage areas will be specified by the Main Contractor in advance of construction works commencing.

Designated storage areas will be maintained within the boundary of the site for materials handling, waste segregation and temporary storage of soils (e.g., of skips or stockpiled material until a viable load is available or if pending waste classification). The designated storage areas will house all bins and skips for the storage of segregated construction waste generated. All designated storage areas will be identified by clear legible signage and recorded on the site layout drawings which will be maintained onsite. All containers will be marked with clear signage which will identify which waste types are to be placed into each container.

The storage of construction materials will not be permitted on any public road or footpath, unless agreed in writing with DLRCC, having regard to the prior reasonable justification and circumstances of any such storage.

5.4 Construction Traffic

Access for construction of the development will be via Kilgobbin Road at the eastern side of the side boundary. This will be the only construction access point to the site. A secondary access route will become available at the western side of the site as the projects develops.

Construction traffic will consist of the following categories:

- Private vehicles owned and driven by site staff and management.
- Construction vehicles (e.g., excavation plant, dump trucks (including trucks for delivery of imported fill to site).

- Materials delivery vehicles involved in site development works.

A Construction Traffic Management Plan (CTMP) has been prepared in response to the Section 32D Opinion received from Dún Laoghaire-Rathdown County Council (DLRCC) on the 2nd of April 2025 (DLRCC Reference PAC/LRD2/001/25) to satisfy Item 6a(iii). The CTMP has been submitted with the planning application under separate cover.

The CTMP details all information regarding the traffic management required to complete the project works, inclusive of:

- Traffic management plans.
- Implementation phases of the project.
- Risk assessment for the works.

All traffic management measures will be designed and implemented in accordance with the Department of Transport's Traffic Signs Manual "Chapter 8 Temporary Traffic Measures and Signs for Roadworks" and "Guidance for the Control and Management of Traffic at Roads Works - 2nd Edition" (2010). Furthermore, all traffic management measures will be implemented, maintained, and removed by competent personnel holding CSCS (Construction Skills Certification Scheme) Signing, Lighting and Guarding certification.

Applications will be made to DLRCC, as required throughout the construction phase of the proposed development, for permits and approval for road restrictions including relevant road opening licenses and abnormal load licenses. Where required, the Main Contractor will update the CTMP to identify the potential impacts and procedures for traffic management during construction work on, across or along public roads.

A gate attendant with appropriate training and qualifications will be appointed to control manoeuvres and traffic flows at the site. 'Way finding signage will be provided to route staff / deliveries into the site and to designated compound / construction areas.

There will be no deliveries to the site or removal of materials outside of normal site hours (refer to Section 5.2). Deliveries to Site will be coordinated and planned to avoid high volume periods and minimise traffic impact. Therefore, the number of HGVs travelling during the peak hours will be relatively low. Queuing of material delivery vehicles will not be permitted on the public roads adjacent to the site.

On-site employees will generally arrive before 08:00, thus avoiding morning peak hour traffic. These employees will generally depart after 16:00. It should be noted that a large proportion of construction workers would arrive in shared transport. It is likely that some numbers of the construction team will be brought to/from the site in vans/minibuses, which will serve to reduce the trip generation potential. Parking of cars by persons associated with the construction phase of the permitted development will not be permitted on the surrounding public roads. All construction support related car parking facilities will be located within the designated site compound.

A general condition survey of the roads and infrastructure in the area prior to any work being carried out on the site. Where required, all costs incurred by DLRCC, including any repairs to the public road and services necessary as a result of the construction phase of the permitted development (e.g., the transportation of materials and equipment to or from the site), will be at the expense of the Main Contractor.

Separation of vehicular and heavy plant traffic from pedestrians and operatives will be implemented as far as is practical. Where a site access crossing is required over a pavement, a dedicated pedestrian management setup will ensure there are no incidents of crossovers between pedestrians and site vehicles. This may require a turtle-gate barrier in addition to semi-permanent barriers along the kerb edge, flagmen to control barriers and flagmen to watch truck movement and pedestrians.

5.5 Site Security, Public Health and Safety and Site Access and Egress

The designated site construction compound including car parking facilities will be established prior to the commencement of the construction phase of the permitted development.

Prevention of unauthorised access to the site is a very high priority and will be vigorously managed throughout the construction phase of the permitted development. The site entrances and boundaries will be appropriately secured with lockable gates and hoarding / fencing will be erected as required to ensure the security of the site. No stored material will be stacked against hoarding and no storage will be allowed adjacent to public trafficked areas. Regular inspections of the gates / fencing / hoarding will be undertaken by the Construction Site Manager or appointed delegate the to ensure the integrity of the site security and safety measures.

In addition to the perimeter hoarding at the site, the following security measures will be adopted by the Main Contractor:

- A dedicated site security team with 24hr access to the site and direct contact with the local An Garda Síochána station.
- The Main Contractor will know who is on site at all times.
- There will be a site CCTV system which may be extended to cover the footpaths and roads around the site (depending on the GDPR regulations).
- Siting the cabins with windows overlooking the streets will provide a greater degree of natural surveillance to the area to prevent anti-social behaviour.

Site access for all personnel and visitors will be controlled and all visitors will report to the site security hut, which will be located at the entrance to the designated site compound.

All visitors will sign into the Site Visitor Logbook and will be accompanied by an authorised person who has been fully inducted and aware of the current site conditions.

Information notices located at the site entry, site compound and appropriate locations throughout the Site will identify the site-specific personal protection equipment (PPE) requirements and the potential risks associated with entering a live construction environment.

5.6 Communication & Consultation

All project related communications will be undertaken in accordance with the Project Communications Management Plan developed as part of health and safety documentation. The Project Communications Officer will undertake any required third-party communication and liaise directly with local authorities, members of the public, as required throughout the construction phase of the permitted development. A copy of this plan will be provided to DLRCC upon request.

5.6.1 Managing Enquiries and Complaints

All complaints and requests for information from members of the public will be handled appropriately and efficiently and in line with Project Communications Management Plan. All follow up actions on the construction site will be managed by the Project Communications Officer and supported by the CMT.

All enquiries and complaints will be recorded on the Communications Log (refer to template included in Appendix A) which will be maintained onsite in the Construction Site Manager's office. The Communications Log will be made available to DLRCC upon request. The Communications Log will detail the following as a minimum :

- Name and address of complainant (if provided).
- Time and date the complaint was made.
- Date, time, and duration of incident.
- Nature of the complaint (e.g., noise nuisance, dust nuisance).
- Characteristics, such as rumble, clatters, intermittent.
- Likely cause or source of incident.
- Weather conditions, such as wind speed and direction.
- Investigative and follow-up actions.
- Root cause analysis and preventive actions.

All personnel working on the Site will be inducted into the complaints handling procedure and mitigation requirements and will be aware that complaints are to be directed immediately to the Project Communications Officer.

All enquiries and complaints received will be investigated by the Project Communications Officer with support from the CMT.

Where appropriate corrective and preventative actions will be implemented as required to ensure that the complaint is effectively dealt with and to prevent a recurrence of the incident which led to the complaint being received. Staff will be informed by toolbox talk of corrective and preventative actions implemented as relevant to their role or overall operations.

5.7 Consultation With Relevant Bodies

5.7.1 Local Authority

The local authority, DLRCC, will be consulted as required throughout the construction phase of the proposed development.

All environmental management documentation and records maintained digitally onsite will be made available to DLRCC or other relevant statutory bodies authorities as requested.

5.7.2 Members of the Public

The Project Communications Officer (once appointed) will be responsible for regular consultation and public communications of activities required during the construction works.

6 PROJECT ENVIRONMENTAL POLICY

The Main Contractor recognises and seeks to minimise the impacts of its business on the environment. The Main Contractor will be obliged to:

- Carry out the project in full compliance with all applicable environmental regulations and to other requirements to which we subscribe.
- Implement good environmental practice as part of designs (e.g., carry out design reviews, risk assessments, etc.) on all relevant projects.
- Prevent pollution from activities through a system of operational controls that include written instructions and staff training appropriate to the environmental requirements of their work.
- Continually improve project environmental performance by setting objectives and targets and implementing them through an environmental programme.
- Informing all project employees about Environmental Policy and explaining what they are required to do to protect the environment.
- Implement this Policy through the successful operation of the CEMP.

This policy will be reviewed periodically, considering current and potential future business issues.

6.1 Site Environmental Awareness

6.1.1 General Site Environmental Rules

The following Site Environmental Rules will apply for the duration of the construction phase of the Proposed development. These general rules will be communicated to all site personnel via the site induction training, and they will be posted across the site at strategic locations, such as the site entrance, canteen and near the entrances to buildings.

- Report any signs of pollution or environmental damage, no matter how small, to the Construction Manager, Environmental Manager, or Site Supervisor.
- Report any spills, incidents or near misses that occur on site immediately to the Construction Manager, Environmental Manager, or Site Supervisor.
- Refuel using bunded mobile bowsers or static bunded tanks in designated, impermeable areas equipped with spill kits.
- Oil or lubricant changes and maintenance work will be carried out offsite.
- All waste must be sent to the designated site waste management areas for interim storage pending compliant removal offsite.
- Do not dispose of anything into a drain, watercourse or onto land.
- Do not throw litter, all waste must be sent to site the Waste Management Contractor.
- As best-practice, all construction-related waste on site e.g., plastic sheeting, netting etc. must be kept in a designated area on site and kept off ground level to protect fauna from entrapment and death.
- Do not drive plant or machinery outside the authorised working boundaries of the site.
- If in doubt, ask the contracted Construction Manager, Environmental Manager, or Site Supervisor for further information.

The Main Contractor and CMT will develop Environmental Procedures to control the potential impacts from the construction phase of the proposed development. These procedures together with the site Environmental Policy will be made available in the main offices and in the main EHS information points at the site.

The training of site construction staff is the responsibility of the CMT. All personnel working on site will be trained in pollution incident control response. An environmental training programme will be organised for onsite personnel to outline the CEMP and to detail the site environmental policy.

A summary of the main points of this CEMP will be incorporated into the site induction course.

All contractors will verify the competency of all plant and equipment operators including those employed by sub-contractors.

An environmental audit and inspection programme will be developed by the Main Contractor to ensure compliance with the compliance measures identified in the CEMP (refer to Section 8.2).

6.2 Managing Environmental Incidents

All environmental incidents and complaints from members of the public / third parties will be handled appropriately, efficiently in compliance with the incidents and corrective action procedures to be developed by the Main Contractor. All follow up actions on the construction site will be managed by the CMT.

An environmental incident may include but is not limited to the following:

- Spillage of chemical, fuel or oil.
- Fire.
- Release of any contaminant to surface water, groundwater, air or soil.
- Exceedance of noise limits.
- Exceedance of dust limits.

A record will be maintained on site of all incidents detailing the following as a minimum:

- Date, time, and duration of incident.
- Nature of the complaint/ incident (e.g., noise nuisance, dust nuisance etc.).
- Characteristics.
- Likely cause or source of incident.
- Weather conditions, such as wind speed and direction.
- Investigative and follow-up actions.
- Root cause analysis and preventive actions.

All incidents will be investigated by the Environmental Manager and reported to the Construction Manager. Corrective and preventative actions will be implemented as required to ensure that the incident is effectively dealt with and to prevent a recurrence of the incident. Staff will be informed by toolbox talk of corrective and preventative actions implemented as relevant to their role or overall operations.

7 ENVIRONMENTAL MANAGEMENT AND CONTROLS

The environmental control measures that will be implemented during the construction phase of the Proposed development are detailed in the following sections.

7.1 Potential Impacts

The CEMP is designed to implement mitigation measures to control impacts relating to:

- Fuel and Oil Storage.
- Land, Soil and Geology.
- Hydrology and Hydrogeology.
- Biodiversity.
- Noise and Vibration.
- Air Quality.
- Waste and Waste Management.

This CEMP is to be read in conjunction with the relevant design drawings and reports relating to the proposed development.

The CEMP outlines the measures that will be implemented to prevent and mitigate any potential environmental issues that may arise during the construction phase of the proposed development.

7.2 Implementation of Control Measures

The Environmental Manager / CMT will be responsible for the implementation of control measures as identified in Section 7.3. The Main Contractor and all sub-contractors will comply with the requirements of the CEMP to document and seek approval for Method Statements, Permits and other site- generated documentation as requested.

This CEMP will form part of tender and contract documentation for each works contract. Requirements and responsibilities will be reviewed with each contractor at inception meetings and at progress update meetings.

Any contractor submitting a tender for the project must declare any legal proceedings with a regulatory authority, including the Environmental Protection Agency (EPA) or environmental agencies or competent authorities from other jurisdictions.

The Main Contractor will ensure that all sub-contractors are supplied with a copy of the CEMP, receive sufficient environmental training and are aware of the environmental obligations of the project.

Environmental requirements will be controlled as follows:

- Procedures and control measures as set out in this CEMP.
- Approved Method Statements and Risk Assessments from contractors which will address all potential environmental impacts for the specific task.
- Detailed contractor plans for specific environmental aspects.
- Emergency response plans.
- Specific induction training before commencing work.

In summary, it is expected that all contractors will follow good environmental practice throughout all activities.

7.2.1 Communication & Training - Construction Personnel

In addition to the contractor provided site induction, the CMT will be obliged to conduct safety meetings / toolbox talks on relevant Environmental Health and Safety (EHS) topics for all employees in their care on a weekly basis. Details of all safety meetings / toolbox talks, including topics and attendees must be submitted to the Environmental Manager.

7.3 Construction Operational Controls

7.3.1 Control of Fuel and Chemical Storage and Use

The storage and use of fuel and oils will be kept to a minimum at the site. The storage of fuels and refuelling of plant and machinery onsite will be undertaken at the site in strict accordance with procedures outlined below.

All construction-related fuel and oil will be strictly controlled in accordance with procedures outlined in the CEMP and will be stored on an impervious base within a bund remote from any surface water drains and water courses. All tank, container and drum storage areas will be rendered impervious to the materials stored therein and will be rooved to exclude rainwater. Bunds will be designed having regard to the EPA guidelines on the 'Storage and Transfer of Materials for Scheduled Activities' (EPA, 2013) and Enterprise Ireland Best Practice Guidelines (BPGCS005). All tank and drum storage areas will, as a minimum, be bunded to a volume not less than the greater of the following:

- 110% of the capacity of the largest tank or drum within the bunded area; or
- 25% of the total volume of substance that could be stored within the bunded area

Any fuels retained on drip trays, mobile bunds, etc., will be emptied into a secure bunded waste oil drum to await appropriate disposal offsite in accordance with the RWMP (EGC, 2025) and all relevant waste management legislation.

Refuelling of plant during the construction phase of the Proposed development will be carried out in accordance with standard best practice. Onsite refuelling will only be carried out at the out at the designated, impermeable refuelling station location onsite with appropriate containment in place. All fuel/oil deliveries to onsite oil storage tanks will be supervised, and records will be kept of delivery dates and volumes.

The refuelling station and designated areas for fuel, oil and chemical storage will be established according to best practice including the criteria below:

- Located at least 50m from a spring or borehole and 10m from a watercourse or drain which will be protected / temporary diversion put in place (i.e., sandbags) as required.
- Located on level ground.
- Located on an impermeable base (e.g., concrete slab or other areas of hardstanding).
- Located under cover to prevent damage from the elements.
- Located in secure areas.
- Located well away from moving plant, machinery and vehicles.

The refuelling station and designated areas for fuel, oil and chemical storage will be fully equipped for spill response. Spill kits and oil absorbent material will also be carried within mobile plant and located at vulnerable locations around the site. A specially trained and dedicated Environmental and Emergency Spill Response Team will be appointed before the commencement of works at the site.

Daily checks of machinery will be carried out to ensure it is in good working order. Any equipment not meeting the required standard will not be Proposed for use within the site. Where possible, any oil and lubricant changes and maintenance will take place offsite. Only emergency breakdown maintenance will be carried out onsite. Drip trays and spill kits will be available on site to ensure that any spills from vehicles are contained and removed offsite.

Where oils and chemicals are used and stored onsite, they will be sealed, secured and stored in a dedicated internally bunded chemical storage cabinet unit or inside concrete bunded areas to prevent any seepage to ground. There will be clear labelling of containers so that appropriate remedial measures can be taken in the event of a spillage.

An up-to-date inventory of the type of product stored / used and the quantity available onsite will be established and maintained by the Main Contractor. The register will be available at all times and will include the following as a minimum:

- Valid Safety Data Sheets (SDS).
- Health and Safety (H&S) controls and procedures.
- Environmental controls to be implemented when storing, handling, using and in the event of spillage of materials.
- Emergency response procedures / precautions for each material.
- Details of Personal Protective Equipment (PPE) required when using the material.

Waste oils and hydraulic fluids will be collected in leak-proof containers and removed from the Proposed development for disposal or recycling in accordance with the RWMP (EGC, 2025) and all relevant waste management legislation.

Any spillage of fuels, lubricants, or hydraulic oils will be immediately contained in accordance with the procedures outlined in the Environmental Emergency Preparedness and Response (refer to Section 9) which will be developed by the Main Contractor prior to the commencement of the construction phase and will be implemented by the Environmental Manager / CMT.

All personnel working onsite will be trained in in the handling of materials, the sensitive nature of the receiving environment, the drainage system, the consequences of accidental spillages and pollution incident control response. Emergency silt control and spillage response procedures contained within the CEMP will ensure that appropriate information will be available on site outlining the spillage response procedures and a contingency plan to contain silt during an incident.

Provided that these requirements are adhered to, and site crew are trained in the appropriate refueling techniques, it is not expected that there will be any fuel / oil wastage at the site.

7.3.2 Control and Management of Soil (including Contaminated) and Other Materials

The removal of all surplus and waste materials including soil will be managed in accordance with the resource and waste management procedures outlined in the RWMP (EGC, 2025; submitted with the planning application) and appropriate statutory requirements.

Where required, site investigation including soil sampling and environmental risk assessment will be undertaken by the Project Environmental Consultant, in accordance with the EPA Guidance on the Management of Contaminated Land and Groundwater at EPA Licensed Sites (EPA, 2013) and British Standard Investigation of Potentially Contaminated Sites - Code of Practice(BS10175:2011+A2:2017), to determine the suitability of soils to be retained onsite for the Proposed development in terms of environmental (receiving water environment) and human health risk.

The Main Contractor (once appointed) will implement procurement procedures to ensure that aggregate, fill material, and topsoil (where required) are acquired from reputable sources with suitable environmental management systems as well as regulatory and legal compliance. The Main Contractor will vet the source of aggregate, fill material, and topsoil imported to the site in order to ensure that it is of a reputable origin and that it is “clean” (i.e. it will not contaminate the environment).

Measures laid out in Section 7.3.1 will serve to prevent contamination of the soil from any potential fuel, oil and chemical spillages. However, in the unlikely event soil becomes contaminated, by for example a fuel spill onsite or a burst / leaking hydraulic hose, the Main Contractor will ensure that the management of contaminated material is undertaken in accordance with the procedures outlined in Section 9.

In the event that hazardous wastes, previously deposited wastes or previously unidentified contaminated soil are discovered onsite or in the unlikely event soil becomes contaminated (e.g., a fuel spill onsite or a burst / leaking hydraulic hose), the Main Contractor will ensure that the material will be segregated and stored appropriately for sampling, assessment and / or classification in accordance with the procedures outlined in the RWMP (EGC, 2025). A hazardous waste/soil management plan will be designed and implemented by the Project Environmental Consultant detailing the estimated volumes, mitigation measures, destinations for the authorised disposal/ treatment and the designated authorised contractors for the movement of the material.

The removal of contaminated materials onsite, if encountered, will be undertaken in consultation with the Project Environmental Consultant.

7.3.2.1 Control of Stockpiles

The Main Contractor (once appointed) will ensure that the stockpiling of excavated materials, other C&D waste materials generated at the site or construction materials (e.g., imported aggregates, pipework etc.) will be kept to a minimum. However, in the event that the stockpiling of materials at the site is necessary (i.e., pending the results of environmental risk assessment or waste classification), the Main Contractor (once appointed) will ensure that stockpiles are managed as follows:

- A suitable temporary storage area will be identified and designated.
- All stockpiles will be assigned a stockpile number.
- Stockpiled materials will be protected from exposure to wind by storing the material in sheltered regions of the site.
- Soil waste categories will be individually segregated and all segregation, storage & stockpiling locations will be clearly delineated on the Site drawing.
- Any waste to be temporarily stockpiled will be stockpiled only on hard-standing or high-grade polythene sheeting to prevent cross-contamination of the soil below.

- Soil stockpiles will be sealed / covered polythene sheeting with to prevent run-off of rainwater and silt from the stockpiled material generation and/or the generation of dust.

7.3.3 Control and Management of Water

The following measures will serve to prevent any negative effects occurring in the Barnaculla River (located along the western and northern boundary of the site) and downstream receiving waterbodies including the Carrickmines Stream associated with surface and groundwater discharges from the site during the construction phase of the proposed development.

Personnel working at the site will be trained in the implementation of environmental control and emergency procedures. The CEMP and the relevant documents produced will be formulated in consideration of standard best international practice including but not limited to:

- Construction Industry Research and Information Association (CIRIA), 2001. Control of Water Pollution from Construction Sites – Guidance for Consultants and Contractors.
- Construction Industry Research and Information Association (CIRIA), 2006. Control of Water Pollution from Linear Construction Projects: Technical Guidance (C648).
- Construction Industry Research and Information Association (CIRIA), 2015. Environmental Good Practice onsite Guide. 4th edition (C741).
- Environmental Protection Agency, 2013. Storage and Transfer of Materials for Scheduled Activities.
- Enterprise Ireland BPGCS005, Oil Storage Guidelines.
- UK Environment Agency, 2004. UK Pollution Prevention Guidelines (PPG).
- Inland Fisheries Ireland, 2016. Guidelines on Protection of Fisheries during Construction Works In and Adjacent to Waters.

The following standard operational measures will protect the receiving surface water and groundwater environment during the construction phase of the Proposed development:

- There will be no discharge of water to ground and no requirement for dewatering of groundwater during the construction phase of the proposed development.
- There will be no direct discharge to watercourses during the construction phase of the proposed development.
- The Main Contractor will ensure that any run-off from the site or any areas of exposed soil will be managed as required with temporary pumping and following appropriate treatment (e.g., settlement or hydrocarbon interceptor). Surface water runoff from areas stripped of topsoil and surface water collected in excavations will be directed to temporary onsite settlement ponds / silt busters where measures will be implemented to capture and treat sediment laden runoff prior to discharge at a controlled rate.
- Where dewatering of shallow groundwater is required or where surface water runoff must be pumped from the excavations, water will be managed in accordance with best practice standards (i.e., CIRIA C750), the CEMP and regulatory consents to minimise the potential impact on the local groundwater flow regime within the soil and bedrock.
- Unauthorised discharge of water (groundwater / surface water runoff) to ground, drains or watercourses will not be Proposed. The Main Contractor will ensure that the discharge of water to ground, drains or watercourses will be in accordance with the necessary discharge licences issued by Uisce Eireann (UE) under Section 16 of the Local Government (Water Pollution) Acts and Regulations for any water discharges to

sewer or from DLR under Section 4 of the Local Government (Water Pollution) Act 1977, as amended in 1990 for discharges to surface water.

- Under no circumstances will any untreated wastewater generated onsite (from equipment washing, road sweeping etc.) be released to ground or to drains. Existing surface water drainage located along public roads (i.e., Stocking Avenue) will be protected for the duration of the works to ensure that any untreated wastewater generated onsite does not enter the public sewers.
- Prior to commencement of the construction phase of the proposed development silt fencing or bunding will be installed along the western and northern boundary of the site to divert surface runoff and prevent any negative effects occurring in the Barnaculla River. The silt fencing will comprise wooden posts and double walled geotextile membrane buried in an 'L' shape to a minimum depth of 250mm. The silt fencing will act in filtering any potential surface water run-off from the site generated during the proposed works.
- Any imported materials (i.e., aggregate materials) will be placed on-site in designated locations and double handling will be avoided. Where this is not possible, designated temporary material storage areas will be used.
- Temporary stockpiled materials will be managed in accordance with the procedures outlined in. Section 7.3.2.1 in order to prevent runoff generation and wind-whipping of dust and placement of stockpiles on impermeable areas.
- Stockpiles of loose materials pending re-use onsite or removal offsite will be located as far as feasible from the Barnaculla River (a minimum set back of 10m from watercourses will be maintained) and will be appropriately sealed / covered and a silt fence or bunding will be installed around it to ensure no soils and sediments are washed out overland to the existing surface water networks.
- The performance of all surface water management measures including settlement ponds and silt fences will be monitored to ensure that they remain functional throughout construction of the Proposed Development. Where necessary, maintenance will be carried out to ensure that the measures continue to be effective. This will be particularly important after heavy rainfall events. The checks will be undertaken by the Environmental Manager. As a minimum, the surface water management measures will be checked weekly and after periods of heavy rainfall to ensure they remain fit for purpose and a record of these checks will be kept and signed off. It is noted that the frequency of monitoring will depend on the stage of works, and local environmental conditions. The frequency of checks will be increased during critical works including the initial decommissioning works, during concrete pours and after storm events.
- Precast concrete will be utilised where possible. However, where in-situ pours are required pumping of concrete will be monitored to ensure that there is no accidental discharge. All work will be carried out in the dry and effectively isolated from any drains. The production, transport, and placement of all cementitious materials will be strictly planned and supervised by the Main Contractor. A suitable risk assessment for wet concreting will be completed prior to works being carried out.
    - All ready-mixed concrete will be delivered to the site by truck. Shutters will be designed to prevent failure. Grout loss will be prevented from shuttered pours by ensuring that all joints between panels achieve a close fit or that they are sealed. Where concrete is to be placed by means of a skip, the opening gate

of the delivery chute will be securely fastened to prevent accidental opening. Where possible, concrete skips, pumps and machine buckets will be prevented from slewing over water when placing concrete.

- Concrete batching will take place offsite and surplus concrete will be returned to batch plant after completion of a pour. Under no circumstances is any excess concrete to be disposed of onsite. Wash down and wash out of concrete trucks will take place into a container located within a controlled bunded area which will then be emptied into a skip. The Main Contractor will dispose of all alkaline wastewaters and contaminated stormwater offsite in accordance with the RWMP (EGC, 2025) and all relevant waste management legislation.

- A regular review of weather forecasts of heavy rainfall will be conducted, and a contingency plan will be prepared for before and after such events to minimise any potential nuisances. As the risk of the break-out of silt laden run-off is higher during these weather conditions, no work will be carried out during such periods, where possible.
- Where required, wheel washing facilities will be provided at the entry / exit point to the site so that traffic leaving the site compound will not generate dust or cause the build-up of aggregates and fine material in the public domain. Where necessary, additional measures (e.g., hardcore/stone surfaces along haul routes to prevent dirt and debris on wheels) will also be provided for site vehicles. The wheelwash will be maintained in a satisfactorily operational condition during all periods of construction. Wheel washings will be contained and treated prior to removal offsite in accordance with all relevant statutory legislation.
- Refuelling of plant and machinery onsite will take place in accordance with the with the refuelling procedures outlined in Section 7.3.1.
- In the event of a leak or spill from equipment in the instance of a mechanical breakdown during operation, any contaminated soil will be removed from the Site and compliantly disposed offsite in accordance with the procedures outlined in the CDWMP and Section 7.3.2. Residual soil will be tested to validate that all potentially contaminated material has been removed.
- All drainage and water supply works will be in accordance with the UE Code of Practice for Wastewater and Water Supply, the Wastewater Infrastructure Standard Details (Document Number: IW-CDS-5030-01) and the Water Infrastructure Standard Details (Document Number: IW-CDS-5020-01). Drain inlets will be protected with a drain guard designed to filter oil and silt from stormwater run-off. sandbags will be placed around the inlet to provide additional protection from sediment. Inlet protection can only be removed once all construction activity that could generate sediment or result in emissions of other pollutants such as chemicals and fuel has ceased in a given location and the drainage infrastructure is operational (e.g., to allow for the discharge of stormwater from the roofs of newly constructed and completed dwellings into the stormwater network).
- All new drainage will be tested by means of an approved air test during the Construction Phase in accordance with Irish Waters Code of Practice and Standard Details. All private drainage will be inspected and signed off by the design Engineer in accordance with the Building Regulations Part H and BCAR requirements. Drainage will be surveyed by CCTV to identify possible physical defects. The connection of the

new drainage to the public sewer will be carried out under the supervision of Irish Water and will be checked prior to commissioning

- Foul drainage from temporary welfare facilities during the construction phase of the Proposed development will be discharged to temporary holding tank(s) the contents of which will periodically be tankered off Site to a licensed facility. All waste from welfare facilities will be managed in accordance with the relevant statutory obligations by tankering of waste offsite by an appropriately authorised contractor. Any connection to the public foul drainage network during the construction phase of the Proposed development will be undertaken in accordance with the necessary temporary discharge licences issued by UE.

7.3.3.1 Instream Works

It is proposed to culvert the Barnaculla River along the western boundary, completing the existing culvert from the south western corner to the north western corner of the site.

All instream works or works carried out in or adjacent to the Barnaculla River will adhere to the Inland Fisheries Ireland (IFI) Guidelines on Protection of Fisheries during Construction Works in and Adjacent to Waters (IFI, 2016), the Transport Infrastructure Ireland (TII) Guidelines for the Crossing of Watercourses during the Construction of National Road Schemes (TII, 2008) and CIRIA C648 Control of Water Pollution from Linear Construction Projects (CIRIA, 2006).

All instream works will include the following measures:

- A detailed method statement will be prepared by the Main Contractor, in consultation with the Project Environmental Consultant, in advance of any in-stream works.
- Prior to works commencing a fenced exclusion zone will be set up to a maximum width of 6m. Site traffic will only be permitted within this buffer to facilitate in-stream works.
- Entry to the Barnaculla River by vehicles will be avoided, while vehicle usage along the banks will be restricted as much as practicable. Any machines working in close proximity of the watercourse must be protected against leakage or spillage of fuels, oils, greases and hydraulic fuels.
- Works will be carried out from the bank side, as best practice in-stream works will be restricted to the period 1st of July through 30th of September, to comply with the seasonal restrictions in salmonid rivers.
- Any required temporary diversion of water flow will maintain continuous flow and prevent flooding during the connection process.
- Silt fences and other sediment control measures will be utilised as required to prevent sedimentation in the watercourse.
- Regular monitoring of water quality upstream and downstream of the works area will be undertaken to detect any changes and take corrective actions if necessary.
- Existing vegetation will be preserved where possible. Any areas of disturbed ground will be seeded with a native wetland wild flora seed mix which will be allowed to establish for a 6-8 week period. This is a grass mix with some wildflower elements which will aid the overall biodiversity approach/green infrastructure and provide “green” erosion prevention of the outfall channel and prevent siltation of the Barnaculla River.

7.3.4 Controls to Protect Biodiversity

The Main Contractor will engage with the Project Environmental Consultant and the Project Ecologist / ECoW as required throughout the construction phase of the proposed development, to ensure all relevant legislation, all relevant conditions of the Grant of Planning (once issued) and all the recommended control measures identified in the particulars submitted with the planning application are adhered to.

In addition to the measures outlined in Sections 7.3.1 and 7.3.3, the following construction mitigation measures will be implemented in relation to the protection of biodiversity (habitats and sensitive species and other key ecological receptors).

7.3.4.1 Noise

Control measures as outlined in Section 7.3.5 will be adhered to, in order to protect potential noise sensitive receptors during the construction phase of the Proposed development.

7.3.4.2 Dust

Control measures as outlined in Section 7.3.6 will be adhered to, in order to minimise emissions during the construction phase of the Proposed development.

7.3.4.3 Bats

Where potential for bats or impacts on bats are identified, the Main Contractor will undertake measures to reduce impacts on bats. In the event that bats are identified the appointed Contractor will engage with a the Project ECoW or specialist Bat Ecologist to undertake bat surveys and identify measures to reduce impacts on bats related to the construction works at the site. Such measures may include:

- Where required, tree-felling, using heavy plant and chainsaw, will be undertaken in the period late August to late October / early November in accordance with the procedures outlined in the bat survey report and in consultation with the Project ECoW.
- The design of lighting will have regard to any recommendations outlined in bat survey reports.

7.3.4.4 Timing of Vegetation Clearance

Table 7-1 provides guidance for when vegetation clearance is permissible. Information sources include British Hedgehog Preservation Society's Hedgehogs and Development and The Wildlife (Amendment) Act, 2000.

The preferred period for vegetation clearance is within the months of September and October. Vegetation will be removed in sections working in a consistent direction to prevent entrapment of protected fauna potentially present (e.g., hedgehog). Where this seasonal restriction cannot be observed, a check will be carried out immediately prior to any site clearance by the Project Ecologist / ECoW and repeated as required to ensure compliance with legislative requirements.

Table 7-1. Seasonal Restrictions on Habitat/Vegetation Removal for Relevant KER Species.

<table>
<tr><th>Ecological Feature</th><th>January</th><th>February</th><th>March</th><th>April</th><th>May</th><th>June</th><th>July</th><th>August</th><th>September</th><th>October</th><th>November</th><th>December</th></tr>
<tr><td>Breeding Birds</td><td colspan="2">Vegetation clearance permissible (Sept - Feb)</td><td colspan="5"><u>Nesting bird season</u>.
No clearance of vegetation unless confirmed to be devoid of nesting birds by an ecologist. (Mar - Aug)</td><td colspan="3">Vegetation clearance permissible (Sept - Feb)</td></tr>
<tr><td>Hibernating mammals (e.g., Hedgehog)</td><td colspan="3"><u>Mammal hibernation season.</u>
No clearance of vegetation unless confirmed to be devoid of hibernating mammals by an ecologist. (Jan - Mar)</td><td colspan="6">Vegetation clearance permissible (Apr - Oct)</td><td><u>Mammal hibernation season</u>.
No clearance of vegetation unless confirmed to be devoid of hibernating mammals by an ecologist. (Nov - Dec)</td></tr>
<tr><td>Bats</td><td>Tree felling permissible but sub-optimal. If hibernating bats are found, felling must wait until after hibernation season.</td><td>Tree felling optimal (Feb-March)</td><td colspan="5">Tree felling permissible, provided a check is also done for breeding birds prior to felling. Should nests be found, felling must wait until young are fledged.</td><td>Tree felling optimal (Sept - Oct)</td><td>Tree felling permissible but sub-optimal. If hibernating bats are found, felling must wait until after hibernation season.</td></tr>
<tr><td colspan="12">Note: Red boxes indicate periods when clearance/works are not permissible</td></tr>
</table>

Additionally, all vegetation clearance will be carried out in sections working in a consistent direction to prevent entrapment of protected fauna potentially present (e.g., hedgehog). A phased cutting approach under the supervision of a suitably qualified Project Environmental Consultant will be used to allow wildlife (e.g. small mammals, reptiles) to move away from any suitable habitat that will be removed:

- Phase 1 – Cutting vegetation to 150-200 mm and removing the arisings.
- Phase 2 – After a minimum of one hour, hand-searching the cut areas (conducted by an Project Environmental Consultant) and removing any sheltering habitat (e.g. logs or debris) then cutting vegetation to ground level and removing the arisings.
- Phase 3 – Soil scrape.

Should any suitable refugia or day nesting habitats need to be removed, this will be carried out outside the most vulnerable breeding periods for hedgehogs wherever practicable (main hedgehog birthing months June and July) and will be supervised by the Project ECoW.

Should nesting birds be found, then the area of habitat in question will be noted and suitably protected until the ecologist confirms the young have fledged. A derogation licence will be required for the removal of nests if found during the pre-clearance survey. This would note the section of habitat that is a suitable nesting site, the precise location within the hedgerow/trees, the species present; and also elaborate the means by which the species would be protected prior to nest removal. If eggs have been laid, the nest will be protected until the young have fledged after which time the nest could be destroyed (under licence from the NPWS only). This would also require further compensatory measures including nesting sites for birds if practicable.

7.3.4.5 Tree Protection

If required, the Main Contractor will ensure that the removal of any trees / hedgerows will be undertaken in accordance with BS 5837:2012 'Trees in relation to design, demolition and construction – Recommendations' and in consultation with the DLRCC.

7.3.4.6 Lighting

The Main Contractor will comply with the working hours set out in Section 5.2 to ensure that no excess night-time light emissions will be generated during construction works at the site, thereby causing no nuisances to sensitive receptors in the vicinity. No lighting shall be left illuminated overnight except that which is necessary to ensure the security of the site.

7.3.4.7 Construction Site Management for Mammals

As best-practice, all construction-related rubbish on site (e.g., plastic sheeting, netting etc.) will be kept in a designated area and kept off ground level so as to prevent small mammals such as hedgehogs and pine marten from entrapment and death.

Trenches/pits must be either covered at the end of each working day or include a means of escape for any animal falling in (e.g., a plank or objects placed in the corner of an excavation). It is noted that species such as badgers will continue to use established paths across a site even when construction work has started.

Any temporarily exposed open pipe system will be capped in such a way as to prevent animals gaining access as may happen when contractors are offsite.

7.3.4.8 Invasive Alien Species

Any invasive plant species identified will be managed in accordance with statutory obligations and guidance including TII (formerly NRA) Guidelines on The Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads (2010), with consideration given to the prevention of spread of these plants.

In addition, the following will be adhered to, to avoid the introduction of invasive species to the Site of the Proposed Development.

- Any stockpiles of soil that are or could be contaminated with IAPS must be clearly marked. Designated and clearly marked cleaning and/or disinfection stations should

be strategically placed within the work site for use by staff, vehicles and machinery. Where it is necessary to work in contaminated areas, every effort should be made not to use vehicles with caterpillar tracks.

- All vehicles and equipment that have been used in IAPS control operations must be thoroughly pressure-washed in a designated wash-down area each time they leave the works site and once work in that area has been completed. This also includes footwear, personal protective equipment (PPE), tools, and other light equipment.
- It is important to remove soil that may contain seeds or plant fragments, which otherwise could be transported along the road corridor as works are being undertaken. Vehicles leaving contaminated area(s) should either be confined to marked haulage routes protected by root barrier membranes or be pressure-washed before leaving the area.
- Only vehicles that are deemed to be bio-secure (i.e., sealed so that no soil can escape) shall be used to transport contaminated soil and all must be thoroughly pressure-washed in the designated washdown area before exiting the infested area

7.3.5 Control of Noise and Vibration

To minimise the potential effect of noise and vibration from the construction phase of the proposed development, the Main Contractor will comply with best practice control measures for control of noise and vibration from construction sites as documented in the following:

- British Standard, 2014. Code of Practice for Noise and Vibration Control on Construction and Open Sites Parts 1 and 2 (BS 5228: 2009 +A1 2014).
- National Roads Authority, 2004. Guidelines for the Treatment of Noise & Vibration in National Road Schemes (NRA, 2004).
- British Standard, 1993.Evaluation and Measurement for Vibration in Buildings Part 2: Guide to Damage Levels from Ground Borne Vibration (BS 7385: 1993).
- European Commission Directive EC 2002/49/EC (S.I. No. 140/2006) - Environmental Noise Regulations 2006.
- World Health Organisation (WHO), 1999. Guidelines for Community Noise (WHO, 1999).

7.3.5.1 Noise Limits

To control, limit and prevent the generation of unacceptable levels of Environmental Noise Pollution from occurring during construction activity, no Equipment or Machinery (to include pneumatic drills, on-site construction vehicles, generators, etc.) that could give rise to unacceptable levels of noise pollution as set out generally for evening and night-time in European Commission Directive EC 2002/49/EC (S.I. No. 140/2006) - Environmental Noise Regulations 2006 will be operated on the site before 7.00 on weekdays and Saturdays nor after 19.00 on weekdays and 14.00 hours on Saturdays, nor at any time on Sundays, Bank Holidays or Public Holidays.

The following noise levels will be strictly adhered to for the duration of the construction phase (refer to Table 7-2). Where noise levels exceed the thresholds identified in Table 7-2, the Main Contractor will undertake steps to review the works and implement additional mitigation measures where applicable.

Any construction work outside these hours that could give rise to unacceptable levels of noise pollution shall only be Proposed following a written request to DLRCC and the subsequent receipt of the written consent of DLRCC, having regard to the reasonable justification and circumstances and a commitment to minimise as far as practicable any unacceptable noise outside the hours stated below.

Table 7-2. Maximum Permissible Noise Levels During Construction

Days and Times	Noise Levels (dB)**
	$L_{Aeq(T)}$
Monday to Friday 07:00 to 19:00hrs (Daytime)	70
Monday to Friday 19:00 to 23:00hrs (Evenings)	60*
Monday to Friday 23.00 to 07.00hrs (Night-time)	50*
Saturdays 07.00 to 13.00hrs (Daytime)	70
Saturdays 13.00 to 23.00hrs (Evenings)	60*
Sundays & Bank Holidays 07.00-23.00hrs	60*

Notes:
*Construction activity at these marked times, other than that required in respect of emergency works, will require a written submission seeking authorisation to DLRCC.
**If the ambient noise level exceeds the threshold noise levels (i.e., the ambient noise level is higher than the above values), the maximum permissible noise levels due to site activities will be 3dB above the ambient noise level .
Source: British Standard, 2014. Code of Practice for Noise and Vibration Control on Construction and Open Sites Parts 1 and 2 (BS 5228: 2009 +A1 2014).

7.3.5.2 Noise Sensitive Locations

The site is bounded on two sides by well-established residential areas where the majority of properties are in private ownership. Steps will be taken to ensure that any noise arising will be adequately mitigated (refer to Section 7.3.5.4).

7.3.5.3 Baseline Noise Survey

A baseline noise monitoring programme will be completed prior to construction works commencing. Survey details, procedures and results of this aspect of the baseline noise monitoring programme will be included in the live CEMP.

7.3.5.4 Control of Noise

Short-term increases in disturbance levels as a direct result of human activity and through increased generation of noise during the construction phase of the proposed development can have a range of impacts depending upon the sensitivity of the receptor including residential receptors, ecological receptors, the nature and duration of the disturbance and its timing.

In order to mitigate any potential disturbances, the following measures will be implemented for the duration of the construction phase of the proposed development.

<u>Communication</u>

Prior to works commencing, channels of communication will be established between the Main Contactor, DLRCC, and other stakeholders where appropriate.

All staff will be briefed on noise mitigation measures and the application of best practicable means to be employed to control noise.

A designated noise liaison officer (i.e., the Project Communications Officer; refer to Section 5.6) will be appointed to oversee the site during construction works. Any noise complaints will be logged and followed up in a prompt fashion by the Project Communications Officer.

Prior to particularly noisy construction activity (e.g., rock breaking) the Project Communications Officer will inform the nearest noise sensitive locations of the time and expected duration of the noisy works.

Project Programme

The construction programme will be arranged to control the amount of disturbance in noise and vibration sensitive areas at times that are considered of greatest sensitivity. Where rock breaking works are in progress onsite at the same time as other works of construction that themselves may generate significant noise and vibration, the working programme will be phased so as to ensure noise limits are not exceeded due to cumulative activities.

For the duration of the construction phase, the hours during which site activities are likely to create high levels of noise will be limited to normal working hours (refer Section 5.2).

Vehicle movements including material and plant loading and unloading will only take place during normal working hours (refer to Section 5.2) unless the requirement for extended hours is for traffic management (i.e., road closure) or health and reasons (an application must be made to DLRCC prior to the proposed works).

Selection of Quiet Plan

This practice is recommended in relation to static plant such as compressors and generators. It is recommended that these units be supplied with manufacturers' proprietary acoustic enclosures. The assessment of any item of plant to generate noise will be assessed prior to the item being brought onto the site with regard to the following:

- Consideration of Alternatives.
- Information to be submitted by the Main Contractor.
- In-situ Noise Measurement.

The least noisy item will be selected wherever possible. Should a particular item of plant already onsite be found to generate high noise levels, the first action will be to identify whether or not said item can be replaced with a quieter alternative.

Screening

Screening is an effective method of reducing the noise level at a receiver location and can be used successfully as an additional measure to all other forms of noise control.

Standard construction site hoarding with a mass per unit of surface area greater than 7 kg/m2 can provide adequate sound insulation. The Main Contractor will erect good quality site hoarding to maximise the reduction in noise levels where noise thresholds are likely to exceed 55-65db.

- For compressors, generators and pumps, these can be surrounded by acoustic lagging or enclosed within acoustic enclosures providing air ventilation.
- Localised screens can be erected around breaker or drill bit when in operation in close proximity to noise sensitive boundaries.

Control of Noise at Source

If replacing a noisy item of plant is not a viable or practical option, consideration will be given to noise control "at source". This refers to the modification of an item of plant or the application of improved sound reduction methods in consultation with the supplier. For example, resonance effects in panel work or cover plates can be reduced through stiffening or application of damping compounds; rattling and grinding noises can often be controlled by fixing resilient materials in between the surfaces in contact.

The following work methods will be implemented to ensure minimal noise and vibration are generated at sources during the construction phase of the Proposed development.

- Keep internal routes well maintained and avoid steep gradients.
- Identification of dedicated delivery areas. Minimise drop heights for materials or ensure a resilient material underlies.
- All plant and equipment liable to create noise whilst in operation will, as far as reasonably practicable, be located as far away from sensitive receptors and neighbouring occupied buildings as Proposed by site constraints.
- Plan deliveries and vehicle movements so that vehicles are not waiting or queuing on the public roads. If unavoidable engines should be turned off.
- Plan the site layout to ensure that reversing is kept to a minimum. Where reversing is required use broadband reverse sirens or where it is safe to do so disengage all sirens and use banksmen.
- Minimise opening and shutting of gates through good coordination of deliveries and vehicle movements.
- Use rubber linings in chutes, dumpers and hoppers to reduce impact noise.
- Ensure that each item of plant and equipment complies with the noise limits quoted in the relevant European Commission Directive 2000/14/EC (SI No 632 of 2001).
- No plant used on site will be Proposed to cause an ongoing public nuisance due to noise:
    - All items of plant will be subject to regular maintenance. Such maintenance can prevent unnecessary increases in plant noise and can serve to prolong the effectiveness of noise control measures.
    - Any plant, equipment or items fitted with noise control equipment found to be defective will not be operated until repaired
    - For steady continuous noise, such as that generated by diesel engines, it may be possible to reduce the noise emitted by fitting a more effective exhaust silencer system.
    - For mobile plant items such as cranes, dump trucks, excavators and loaders, maintaining enclosure panels closed during operation can reduce noise levels over normal operation.

- For percussive tools such as concrete breakers, a number of noise control measures include fitting muffler or sound reducing equipment to the breaker 'tool' and ensure any leaks in the air lines are sealed.
- Where possible, employ the use of rubber/neoprene or similar non-metal lining material matting to line the inside of material transportation vehicles to avoid first drop high noise levels.
- Where possible, power all plant by mains electricity where possible rather than generators.
- Where noise originates from resonating body panels and cover plates, additional stiffening ribs or materials should be safely applied where appropriate.
- Use all plant and equipment only for the tasks for which it has been designed.
- Avoid of unnecessary revving of engines. Shut down all plant and equipment in intermittent use in the intervening periods between work or throttle down to a minimum.
- For concrete mixers, control measures will be employed during cleaning to ensure no impulsive hammering is undertaken at the mixer drum.

7.3.5.5 Control of Vibration

Ground vibration may also potentially occur during the construction phase of the Proposed development. Vibration can be measured in terms of Peak Particle Velocity (PPV), this is expressed in millimetres per second (mm/s). Vibration standards can be considered in two varieties: those dealing with human comfort and those dealing with cosmetic or structural damage to buildings. For example, vibration is perceptible at around 0.5mm/s in the case of road traffic, however at higher magnitudes, this vibration may become an annoyance.

All construction works will be required to comply with the vibration mitigation measures defined in the CEMP and the recommendations of BS 5228-1:2009+A1:2014 Code of Practice for Noise and Vibration Control on Construction and Open Sites – Noise and the European Communities (Noise Emission by Equipment for Use Outdoors) Regulations, 2001.

Vibration levels will be kept below 1.0 mm/sec (PPV) for the duration of the construction phase of the Proposed development. In the event that site activities are expected to exceed this value (e.g., rock breaking with higher levels of vibrations up to 12mm/s), the Client, DLRCC and nearby residents will be notified, and an explanation provided.

The following measures will be taken to ensure that no significant vibration levels occur, and that all appropriate steps are taken to assist in effective vibration level management:

- Equipment is to be task specific.
- Vehicle engines shall be switched off when not in use.
- Machines will be fitted with suitable and properly operating silencers.
- If appropriate, acoustic screens will be deployed.
- Offsite fabrication (where possible).
- Siting of plant as far away from sensitive receptors as Proposed by site constraints.
- Best practice vibration control measures will be employed by the Main Contractor and screening provided to adjoining properties where required.

- In the method statement/risk assessment, the Main Contractor will highlight any activity that may cause significant vibration levels (e.g., rock breaking) and include measures in helping to mitigate these emission levels. Such measures will include:
    - Use low impact demolition methods such as non-percussive plant where practicable.
    - Avoid the transfer of noise and vibration from demolition activities to adjoining occupied buildings through cutting any vibration transmission path or by structural separation of buildings.
    - 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.

7.3.5.6 Noise and Vibration Control Inspections

Noise and vibration control inspections and audits will be conducted daily through the construction phase of the Proposed development.

The purpose of the inspections will be to ensure that all appropriate steps are being taken to control construction noise emissions and vibration. To this end, consideration will be given to issues such as the following:

- Hours of operation being correctly observed.
- Opportunities for noise and vibration control 'at source'.
- Number and type of plant.
- Optimum siting of plant items.
- Plant items being left to run unnecessarily.
- Presence of mitigation measures.
- Correct use of proprietary noise and vibration control measures.
- Correct use of screening provided and opportunities for provision of additional screening.
- Construction methods.
- Materials handling.
- Poor maintenance.

Noise and vibration control inspections and audits will be recorded in the live CEMP onsite and made available to DLRCC upon request.

7.3.5.7 Monitoring of Noise and Vibration

Given that the nature and duration of the proposed site activities during the construction phase of the proposed development, it is anticipated that noise and vibration levels will comply with the respective limit values (i.e., 70db ($L_{Aeq\ (1hr)}$) for noise and 1mm/sec for vibration) outlined in Section 7.3.5.1 and Section 7.3.5.5 above

However, noise and vibration monitoring will be carried out, as required, during critical activities and times of potential increased noise generating activities and during critical periods and at sensitive locations (e.g., rock breaking). Monitoring will be carried out by a specialist sub-contractor engaged by the Main Contractor to monitor, collate and report on noise and vibration results.

Where required, the monitoring systems will be combined with a real-time alarm system to ensure that the action level thresholds are strictly adhered to for the duration of the works. Where noise levels exceed the action level thresholds, the Main Contractor will undertake steps to review the works and implement additional mitigation measures where applicable.

The results of the monitoring will be forwarded to the DLRCC as requested.

7.3.6 Control of Air Quality and Dust

In order to sufficiently mitigate any likely air quality impact, a schedule of air control measures has been formulated for the duration of the construction phase as set out in the following sections.

All works will be undertaken in accordance with the requirements of DLRCC. The aim is to ensure good site management by avoiding dust becoming airborne at source. This will be done through good design and effective control strategies.

The Main Contractor will implement the Dust Management Plan (DMP) for the duration of the construction phase in order to sufficiently prevent fugitive emissions affecting those occupying neighbouring properties or pathways. The DMP outlined below sets out a schedule of practical air control measures and monitoring requirements to control fugitive dust for the duration of the construction phase of the proposed development.

The dust minimisation measures will be reviewed at regular intervals during the construction phase to ensure the effectiveness of the procedures in place and to maintain the goal of minimisation of dust using best practise and procedures. In the event of dust nuisance occurring outside the site boundary, site activities will be reviewed, and satisfactory procedures implemented to rectify the problem.

7.3.6.1 Dust Control Measures – General

The aim is to ensure good site management by avoiding dust becoming airborne at source.

During the construction phase of the Proposed development, the siting of construction activities and temporary stockpiling of materials will take note of the location of sensitive receptors and prevailing wind directions in order to minimise the potential for significant dust nuisance. In addition, good site management will include the ability to respond to adverse weather conditions (e.g., wind) by either restricting operations on-site or using effective control measures quickly before the potential for nuisance occurs:

- During working hours, technical staff will be onsite and available to implement dust control methods as appropriate.
- Complaint registers will be maintained on site detailing all telephone calls and letters of complaint received in connection with construction activities, together with details of any remedial actions carried out.
- The Main Contractor will demonstrate full compliance with the dust control conditions at all times.
- Regular Toolbox Talks / briefings will be given to construction staff, sub-contractors, and operatives to raise awareness of the need to minimise dust. The implementation

of dust suppression will be monitored, reviewed and any actions required addressed on an ongoing basis.
- At all times, the procedures put in place will be strictly monitored and assessed.

The dust minimisation measures will be reviewed at regular intervals during the construction phase of the Proposed development to ensure the effectiveness of the procedures in place and to maintain the goal of minimisation of dust through the use of best practise and procedures. In the event of dust nuisance occurring outside the site boundary, site activities will be reviewed, and satisfactory procedures implemented to rectify the problem.

Specific dust control measures to be employed are highlighted detailed below.

7.3.6.2 Dust Control – Preparing and Maintaining the Site

- Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.
- Where required, adequate dust/debris screening will be in place at the site boundary to contain and minimise the amount of windblown dust. This will be maintained in good condition at all times. Where required, this may include:
    - Erection of solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiled materials on site.
    - Full enclosure of specific operations where there is a high potential for dust production and the site is active for an extensive period.
- Dust suppression equipment must be used when point source emissions are likely. The site will 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, bowsers fitted with spray nozzles) will be put in place from the commencement of the works where required. Hard to reach areas will be kept wet by the use of water cannons fitted to the rear of the bowsers.
- Avoid site runoff of water or mud.
- Keep site fencing, barriers and scaffolding clean using wet methods.
- Netting of scaffolding will be undertaken as required
- Covering skips and slack heaps
- Remove materials that have a potential to produce dust from site as soon as possible.

7.3.6.3 Dust Control – Site Roads and Track Out

Site roads (particularly unpaved) can be a significant source of fugitive dust from construction sites if control measures are not in place. The most effective means of suppressing dust emissions from unpaved roads is to apply speed restrictions. Studies show that these measures can have a control efficiency ranging from 25 to 80%.

- A speed restriction of 20km/hr will be applied as an effective control measure for dust for on-site vehicles, in particular at site access/egress locations.
- Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use.
- Avoid dry sweeping of large areas.

- Vehicles entering and leaving the site will be covered to prevent escape of materials during transport.
- On-site haul routes will be regularly inspected by the Environmental Manager or appointed delegate for integrity and instigate necessary repairs to the surface as soon as reasonably practicable.
- Dust suppression equipment must be used when point source emissions are likely.
- Where required, hard surfaced haul routes will be regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned.
- Bowsers will be available during periods of dry weather throughout the construction period. Research has found that the effect of watering is to reduce dust emissions by 50%. The bowser will be used during dry periods to ensure that unpaved areas are kept moist. The required application frequency will vary according to soil type, weather conditions and vehicular use; and any hard surface roads will be swept to remove mud and aggregate materials from their surface while any unsurfaced roads will be restricted to essential site traffic only.

7.3.6.4 Dust Control – Public Roads

Spillage and blow-off of debris, aggregates and fine material onto public roads should be reduced to a minimum by employing the following measures:

- All consignments containing material with the potential to cause air pollution being transported by skips, lorries, trucks or tippers must be covered (e.g., tarpaulin or similar) during transit onsite and offsite to restrict the escape of dust.
- Public roads outside the site will be regularly inspected for cleanliness, as a minimum on a daily basis, and cleaned as necessary. Where required, a road sweeper will be deployed to ensure that public roads are kept free of debris.
- Where required, a wheel washing facility will be established at the entry / exit point to the site to ensure that traffic leaving the site compound will not generate dust or cause the build-up of aggregates and fine material in the public domain.

7.3.6.5 Dust Control – Operating Vehicles / Machinery

- Ensure all vehicles switch off engines when stationary – no idling vehicles.
- Avoid the use of diesel or petrol-powered generators and use mains electricity or battery powered equipment where practicable.
- Regular servicing of machinery (including trucks, excavators, diesel generators or other plant equipment) to ensure exhaust emissions from vehicles are minimised.
- Impose and signpost a maximum-speed-limit of 20 kph haul roads and work areas.

7.3.6.6 Dust Control – Operations

- Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction (e.g., suitable local exhaust ventilation systems).
- Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate; and
- Ensure equipment is readily available on site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.

7.3.6.7 Dust Control – Waste Management

- Bonfires and burning of waste materials are prohibited onsite.
- All loads of C&D materials and waste leaving the site will be covered.

7.3.6.8 Dust Control – Measures Specific to Construction

- Avoid scabbling (roughening of concrete surfaces) if possible.
- Ensure sand and other aggregates are stored in bunded areas within sheltered regions of the Site and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.
- Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery.
- For smaller supplies of fine power materials ensure bags are sealed after use and stored appropriately to prevent dust.

7.3.6.9 Dust Control – Measures Specific to Earthworks / Groundworks

Groundworks / earthworks during periods of high winds and dry weather conditions can be a significant source of dust.

- During dry and windy periods, and when there is a likelihood of dust nuisance, a bowser will be used to ensure moisture content is high enough to increase the stability of the soil and thus suppress dust.
- Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable.
- Use Hessian, mulches or tackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable.
- Only remove the cover in small areas during work and not all at once; and
- During dry and windy periods, and when there is a likelihood of dust nuisance, a bowser will operate to ensure moisture content is high enough to increase the stability of the soil and thus suppress dust.

7.3.6.10 Dust Control – Stockpiles

Stockpiling of excavated soils and imported materials (e.g., quarry stone, sand) will be avoided where possible. However, should stockpiling of materials be required onsite during the construction phase, the location and moisture content of stockpiles are important factors which determine their potential for dust emissions. The following dust control measures will be employed as best practice where stockpiling of materials is required:

- Where possible, storage stockpiles will be located down wind of sensitive receptors.
- Overburden material will be protected from exposure to wind by storing the material in sheltered regions of the site.
- Where materials are required to be stockpiled for longer periods of time during the development, regular watering will take place to ensure the moisture content is high enough to increase the stability of the soil and thus suppress dust. The regular watering of stockpiles has been found to have an 80% control efficiency.

7.3.6.11 Dust Control – Site Management

- Regular inspections of the site and site boundary will be carried out to monitor dust. Records and notes on these inspections will be logged and recorded in live CEMP onsite. This will include regular dust soiling checks of surfaces such as street furniture, cars and windowsills within 100m of the site boundary, with cleaning to be provided if necessary.
- Records will be kept of all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken.
- The Main Contractor will maintain a complaints log in the live CEMP onsite and make it available to the DLRCC when requested.
- Where necessary, regular liaison meetings will be held with other high risk construction sites within the vicinity of the site, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised. It is important to understand the interactions of the off-site transport/deliveries which might be using the same strategic road network routes.

7.3.6.12 Dust Monitoring

Dust monitoring will be carried out, if deemed required, during critical activities. Monitoring will be carried out by a specialist sub-contractor engaged by the Main Contractor to monitor, collate and report on dust monitoring results.

In Ireland, there are no statutory limits for dust deposition. Instead, the German Technical Instructions on Air Quality, known as the TA Luft standards, are commonly used as a guideline for assessing dust deposition emission levels. Dust sampling is performed using Bergerhoff dust gauges, following the German Standard VDI 4320.

The Bergerhoff gauge consists of a collecting vessel mounted on a stand, with its opening positioned approximately 2 meters above ground level. The sampling and analysis methods for dust deposition are detailed in VDI 4320: Measurement of Atmospheric Depositions, Determination of Dust Deposition According to the Bergerhoff Method. According to the TA Luft standards, dust emission levels refer to the mass concentration of dust deposited as an air pollutant over a defined period. For receptors located outside the site boundary, the maximum allowable emission level for dust deposition over a one-month period is 350 mg/(m²/day). Where the maximum allowable emission levels for dust deposition are exceeded, the Main Contractor will undertake steps to review the works and implement additional mitigation measures where applicable.

7.3.6.13 Dust Management Summary

The proactive control of fugitive dust it is necessary to ensure that the prevention of significant emissions, rather than an inefficient attempt to control them once they have been released, will contribute towards the achievement of no dust nuisance occurring during the construction phase. The key features with respect to control of dust emissions and nuisance dust will be:

- The specification of a site policy on dust and the identification of the site management responsibilities for dust issues.
- The development of a documented system for managing site practices with regard to dust control.

- The development of a means by which the performance of the dust management can be monitored and assessed.
- The specification of the measures to be taken to control dust emissions before it occurs and effective measures to deal with any complaints received.

7.3.7 Control and Management of Materials and Waste

Waste management during the construction phase of the Proposed development will be managed in accordance with the procedures outlined in the RWMP (EGC, 2025) and appropriate statutory requirements including the Waste Management Act 2006 (as amended).

- All waste leaving the site will be transported by suitable Proposed contractors and taken to suitably authorised treatment facilities.
- All waste will be tracked to its destination and a waste log will be drawn up and left on-site. The log will include the date, vehicle registration, haulier employed, the driver, List of waste code, volume, end destination license or permit number, receiving gate receipts for all waste (both construction and excavation material) etc.

Measures to minimise waste generation, promote re-use and recycling and recovery of wastes will be implemented throughout the construction phase of the Proposed development.

Waste will be stored onsite in such a manner as to:

- Prevent environmental pollution.
- Minimise nuisance generation such as dust.
- Maximise waste segregation to minimise potential cross contamination of waste streams and facilitate subsequent re-use, recycling, and recovery.

Where required, the importation of aggregates will be subject to control procedures which shall include off-site assessment for suitability for use prior to acceptance for use at the site. Contract and procurement procedures will be in place to ensure that all aggregates and fill material that may be required for the Proposed development are sourced from reputable suppliers operating in a sustainable manner and in accordance with industry conformity/compliance standards and statutory obligations. Any unsuitable material identified prior to unloading / placement on-site will be rejected and removed offsite.

7.4 Maintenance of Roads

A CTMP has been prepared in response to the Section 32D Opinion received from Dún Laoghaire-Rathdown County Council (DLRCC) on the 2nd of April 2025 (DLRCC Reference PAC/LRD2/001/25) to satisfy Item 6a(iii). The CTMP has been submitted with the planning application under separate cover. The Main Contractor will ensure that the appropriate procedures are in place to ensure that all site traffic during the construction phase of the Proposed development will be managed in accordance with the CTMP.

The Main Contractor will ensure that measures are in place to prevent any nuisance and debris on public roads adjoining the site associated with the construction works. The Main Contractor will ensure that the following control measure are implemented as required throughout the construction phase of the proposed development:

- Where required, wheel washing of vehicles will be implemented prior to exiting the site so that traffic leaving the site compound will not generate dust or cause the build-up of aggregates and fine material in the public domain. Where necessary, additional measures (e.g., hardcore/stone surfaces along haul routes to prevent dirt and debris on wheels) will also be provided for site vehicles.
- Regular washing of adjoining streets and footpaths will be carried out by the Main Contractor. A road sweeper (vacuum type) will be available for use throughout the Construction Phase of the Permitted Development to ensure that internal roads and public roads are kept clear of mud and debris.
- Dust suppression equipment must be used when point source emissions are likely. The site will 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, bowsers fitted with spray nozzles) will be put in place from the commencement of the works where required. Hard to reach areas will be kept wet by the use of water cannons fitted to the rear of the bowsers.
- Where required, road gullies/drains/sewers along public roads in the vicinity of the site (i.e., along Stocking Avenue) will be protected and maintained throughout the construction phase of the Proposed development.
- There will be no storage of construction materials on any public road or footpath.
- All works will be carried out in such a manner as to ensure that the adjoining street(s) are kept clear of debris, soil and other material and if the need arises for cleaning works to be carried out on the adjoining public roads. Where required, any such cleaning works will be carried out at the expense of the Main Contractor. Furthermore, all costs incurred by DLR, including any repairs to the public road and services necessary as a result of the Proposed development, will also be at the expense of the Main Contractor.

7.5 Site Tidiness and Housekeeping

The Main Contractor will operate onsite using good housekeeping practices. Work areas will be left in a clean state by construction personnel. The site induction will communicate the requirement for site housekeeping and tidiness.

Further to measures described in the relevant sections below, the following measures will be implemented to maintain site tidiness:

- Construction works will be carried out with regard to a defined schedule agreed with the Project Director and CMT and with regard to the hours of work outlined in the CEMP (refer to Section 5.2). Any delays or extensions required will be notified at the earliest opportunity to the Project Director and CMT.
- The Main Contractor will ensure that road edges and footpaths are swept on a regular basis.
- The Main Contractor and appointed sub-contractors will be responsible for the clearance of their plant, equipment and any temporary buildings upon completion of construction.
- Upon completion of the construction phase of the Proposed development, the site will be left in a safe condition.

8 RECORD KEEPING, AUDITS, INSPECTIONS AND REPORTING

8.1 Record Keeping

Records pertaining to all aspects of the construction environmental management procedures outlined in this document will be maintained in the live CEMP onsite. Information stored in the live CEMP will include:

- Records of induction training for operatives, drivers, workers, and visitors.
- Attendance by site personnel and visitor logs.
- The location of waste storage areas on site.
- The details of environmental incidents and near misses including incident investigation and corrective and preventative measures implemented.
- Records of environmental inspections completed during the Construction phase to ensure compliance with the CEMP control measures.
- Records of environmental monitoring (e.g., groundwater, surface water, noise, vibration and dust monitoring).
- Copies of Safety Data Sheets (SDS)
- Complaints register (refer to template provided in Appendix A). All corrective action requests will be numbered and logged and tracked to ensure completion in accordance with the HSEQMS
- Records of the movement and recovery/disposal of all waste generated during the Construction phase of the project to include date removed from site, waste type, quantities, waste carrier and off-site destination.

If requested, all records will be made available to DLRCC and other regulatory bodies as required.

8.2 Monitoring, Audits, and Inspections

The Main Contractor will undertake regular inspection and monitoring of construction activities to ensure that the recommended mitigation measures are being correctly implemented and are having the desired effect. This is to ensure adequate environmental protection is afforded to the receiving environment by identifying potential issues, non-conformances, and the necessary corrective action at an early stage to reduce the likelihood of significant effects on human health or the environment.

The Main Contractor will undertake inspections to address environmental issues including groundwater, surface water, impacts on biodiversity, dust, litter, noise, traffic, waste management and general housekeeping. These will be carried out on both scheduled and random intervals. The findings of these inspections will be logged and recorded in the live CEMP onsite.

Monitoring required as a condition of any consent for discharges or water supply will be the responsibility of the Main Contractor. The Main Contractor will also be responsible for any additional monitoring that may be required by the Client. The monitoring results will be compiled and maintained in the live CEMP onsite and if requested, will be made available to DLRCC and other regulatory bodies as required.

Noise and vibration control inspections and audits by the Environmental Manager will also be recorded in the live CEMP onsite and made available to DLRCC upon request.

The Main Contractor and/or an independent auditing consultant may undertake environmental audits at random intervals to ensure that all procedures, monitoring and recording/ reporting are being undertaken as outlined in the CEMP. The findings of these audits, inspections and monitoring results will also be recorded in live CEMP (a template of the routine site inspection log is included in Appendix B).

8.3 Reporting

Where groundwater, surface water, noise, vibration and/or dust monitoring is undertaken, the results will be recorded in the live CEMP onsite and reports summarising the results will be made available to DLRCC and other regulatory bodies as required.

In the event that hazardous wastes, previously deposited wastes or previously unidentified contaminated soil are discovered onsite, the results of any environmental risk assessments (including Generic Quantitative Risk Assessment (GQRA) and Detailed Quantitative Risk Assessment (DQRA) will be included in the live CEMP onsite and will be made available to DLRCC and other regulatory bodies as required. It is noted that any waste classification reports for surplus and waste materials including soil to be removed offsite will be included in the RWMP.

8.4 Non-Conformance and Corrective and Preventative Action

Non-conformances may be raised through site inspection or audit, or by any site personnel by reporting a non-conformance to the Main Contractor. Non-conformances will be recorded and investigated by the Main Contractor to determine the root cause, and Corrective Action Requests (CARs) will be issued to ensure that prompt action is agreed and committed to, with a view to the effective resolution of any deviations from the CEMP requirements or any environmental issues.

CARs may be raised as a result of:

- An internal or external communication.
- An internal audit.
- A regulatory audit or inspection.
- A suggestion for improvement.
- A complaint.
- An incident or potential incident.

All CARS will be numbered and logged, tracked and recorded in the CEMP to ensure completion. CARs will only be closed out on sign off by the Main Contractor that the required corrective actions have been completed. CARs will be compiled and maintained in the live CEMP.

9 EMERGENCY PLANNING AND RESPONSE

The purpose of the CEMP is to address the potential emissions from the site, and to implement any necessary mitigation measures as discussed in Section 7.3 to ensure that there will be no negative impact on the receiving environment. The Main Contractor will ensure that all works are carried out consistent with existing emergency response plans and procedures.

9.1 Emergency Response

The accident and emergency procedures, that will be outlined in the Health and Safety documentation, will ensure that emergencies such as fires, explosions, accidents, leaks, sabotage or emergencies caused by force majeure occur as little as possible; if they do, however, occur, the Emergency Response Procedure ensures that all counter-measures proceed in a controlled manner so that greater damages are avoided and the possible effects upon persons, the environment and property are avoided or limited. Related procedures are as follows:

- Emergency preparedness and response procedure.
- Incident investigation procedure.
- Nonconformity, Corrective Action and Preventative Action.
- Spillage Containment Procedure.
- Pollution Prevention Programme.

An environmental emergency at the site may include:

- Discovery of a fire within the site boundary.
- Uncontained spillage / leakage / loss of containment action.
- Discharge concentration of potential pollutants in excess of environmental trigger levels.

The general required emergency response actions will be posted at strategic locations, such as the site entrance, canteen and near the entrances to buildings.

All environmental incidents (including emergency situations and accidents that can have an impact on the environment) are to be managed in accordance with the following procedure. In the event of an incident, the Main Contractor will:

- Carry out an investigation to identify the nature, source and cause of the incident and any emission arising there from.
- Isolate the source of any such emission.
- Evaluate the environmental pollution, if any, caused by the incident.
- Identify and execute measures to minimise the emissions/malfunction and the effects thereof.
- Identify the date, time and place of the incident.
- Notify all relevant authorities.

In the event of a spillage, the following procedure shall be followed:

1. IF SAFE (USE PPE), stop the source of the spill and raise the alarm to alert people working in the vicinity of any potential dangers.

2. IF SAFE (USE PPE), contain the spill using the absorbent spills material provided. Do not spread or flush away the spill.
3. Cover or bund off any vulnerable areas where appropriate.
4. If possible, clean up as much as possible using the absorbent spills materials.
5. Do not hose the spillage down or use any detergents.
6. Contain any used absorbent material so that further contamination is limited.
7. Notify the Construction Environmental Site Manager so that used absorbent material can be disposed of using a licensed waste contractor.
8. An accident investigation should be performed in accordance with procedures and the report sent to the Construction Site Manager and the Project Director.

9.2 Managing Environmental Incidents

All environmental incidents and complaints from members of the public / third parties will be handled appropriately, efficiently in compliance with the incidents and corrective action procedures to be developed by the Main Contractor. All follow up actions on the construction site will be managed by the Environmental Manager / CMT.

An environmental incident may include but is not limited to the following:

- Spillage of chemical, fuel or oil.
- Fire.
- Release of any contaminant to surface water, groundwater, air or soil.
- Exceedance of noise limits.
- Exceedance of dust limits.

A record will be maintained on site of all incidents detailing the following as a minimum:

- Date, time, and duration of incident.
- Nature of the complaint/ incident (e.g., noise nuisance, dust nuisance).
- Characteristics of the incident.
- Likely cause or source of incident.
- Weather conditions, such as wind speed and direction.
- Investigative and follow-up actions.
- Root cause analysis and preventive actions.

All incidents will be investigated by the Environmental Manager / CMT and reported to the Project Manager. Corrective and preventative actions will be implemented as required to ensure that the incident is effectively dealt with and to prevent a recurrence of the incident. Staff will be informed by toolbox talk of corrective and preventative actions implemented as relevant to their role or overall operations.

9.3 Emergency Contacts

The relevant emergency contact details for essential environmental and H&S services (refer to Table 10-1) will be displayed on the site hoarding and included within the live register of documents. These emergency contact details will be kept up to date by the Main Contractor.

Table 9-1. Emergency Contacts

Emergency Service Contact Numbers	Contact
Ambulance	999 or 112
Fire Brigade	999 or 112
Dún Laoghaire-Rathdown County Council	(01) 677 8844
EPA - Headquarters McCumiskey House	(01) 268 0100
HSE – St Columcille's Hospital	(01) 211 5000
Inland Fisheries Ireland	(01) 884 2693
ESB Emergency	1850 372 999
Gas Emergency	1850 20 50 50
First Aid Officer	To be confirmed by the Main Contractor in advance of construction works commencing
National Monuments Service, Department of the Arts, Heritage and the Gaeltacht	(01) 888 2000
National Parks & Wildlife Service - North Eastern Division	(01) 539 3175 / (01) 539 3230
Health and Safety Authority	1890 289 389
Stepaside Garda Station	(01) 666 5700

10 REFERENCES

British Standard Institution (2009). BS 5228 (2009 +A1 2014) Code of Practice for Noise and Vibration Control on Construction and Open Sites Parts 1 and 2. British Standards Limited.

Construction Industry Research and Information Association (CIRIA), 2001. Control of Water Pollution from Construction Sites - Guidance for Consultants and Contractors.

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European Commission Directive EC 2002/49/EC (S.I. No. 140/2006) - Environmental Noise Regulations 2006.

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Enviroguide Consulting, 2023. Resource and Waste Management Plan.

National Roads Authority, 2004. Guidelines for the Treatment of Noise and Vibration in National Road Schemes.

Transport Infrastructure Ireland, 2020. The Management of Invasive Alien Plant Species on National Roads – Standard. GE-ENV-01104.

World Health Organisation (WHO), 1999. Guidelines for Community Noise (WHO, 1999).

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Environmental Consultancy Services

Appendix A

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Complaint Handling Form

Complain Type	**Air** ☐	**Noise** ☐		**Waste** ☐	
Complaint No.:			**Date of Event:**		
Year:			**Date of Report:**		
Complaint Received By:					
Name and Address of Person Making Complaint (if appropriate):			**Contact No:**		
			E-mail:		
Details of Complaint:					
Date/ Time:					
Ongoing: (Yes/ No)					
Weather Details:					
Action taken/ Investigation Details:					
Was the Local Authority Notified by the Complainant? : (Yes/ No)					
Signed Name:			**Date:**		
Print Name:					
Further Action Taken: (Yes/ No)					
Details of Further Action Taken:					
Further Action Completed:	**Signed Name:**		Date:		
	Printed Name:				

Complaints Register						
					Rev Date:	
Number	Date	Nature of Complaint	Complainants Name	Address	Comment	Corrective Action Completion Date
1						
2						
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Appendix B

ENVIRONMENTAL MANAGEMENT SYSTEM – RECORD FORM		
ROUTINE SITE INSPECTION LOG		
Date: 05/04/2025	**Ref:** LOG001	
Revision No: 01-Draft	**Authorised by:**	

This sheet must be used DAILY to record all required daily checks at the facility.

Weekly checks must be completed on the first working day of each week.
Monthly checks must be completed on the first working day of each month.

Where there is no issue, record Y for compliant. Where there is an issue, record N for not compliant and detail the issue in the comment section.

Inspection Completed by:								
Date (Week Commencing):								
Time of Inspection:								
Area of Inspection	**Daily/Weekly/ Monthly**	**Compliant Yes/ No**						**Details/Comment**
		Mon	**Tues**	**Wed**	**Thurs**	**Fri**	**Sat**	
Weather Conditions	**Daily**							
Wind Direction	**Daily**							
Wind Speed	**Daily**							
Housekeeping visual check	**Daily**							
Spills-visual check	**Daily**							
General Operations	**Daily**							
Perimeter fence observational check	**Daily**							
Temporary Stockpiles visual check	**Daily**							
Dust visual check	**Daily**							
Noise observational check	**Daily**							
Access Roads visual check	**Daily**							
Surface Water Runoff/ Ponding Water visual check	**Daily**							
Fire access route clear visual check	**Daily**							

ENVIRONMENTAL MANAGEMENT SYSTEM – RECORD FORM		
ROUTINE SITE INSPECTION LOG		Kavco Group Building Vision, Creating Reality
Date: 05/04/2025	**Ref:** LOG001	
Revision No: 01-Draft	**Authorised by:**	

Fuel and Chemical storage area visual check	**Daily**							
Waste storage area visual check	**Weekly**							
Fire Extinguishers	**Monthly**							
Corrective Action Required (Yes/ No):								
Corrective Action Details:								
Signed Name:					**Date:**			
Print Name:								
Received in office Date:						Read		
						Noted		
Received By:						Fw to:		
						File	Site Inspections File	

Appendix C

S.I. Ltd Contract No: 6400

Client: Kavco Group

Contractor: Site Investigations Ltd

Kilgobbin,
Stepaside, Co. Dublin
Site Investigation Report

Prepared by:

.....

Stephen Letch

Issue Date:	18/03/2025
Status	Final
Revision	0

Contents:

Appendices:

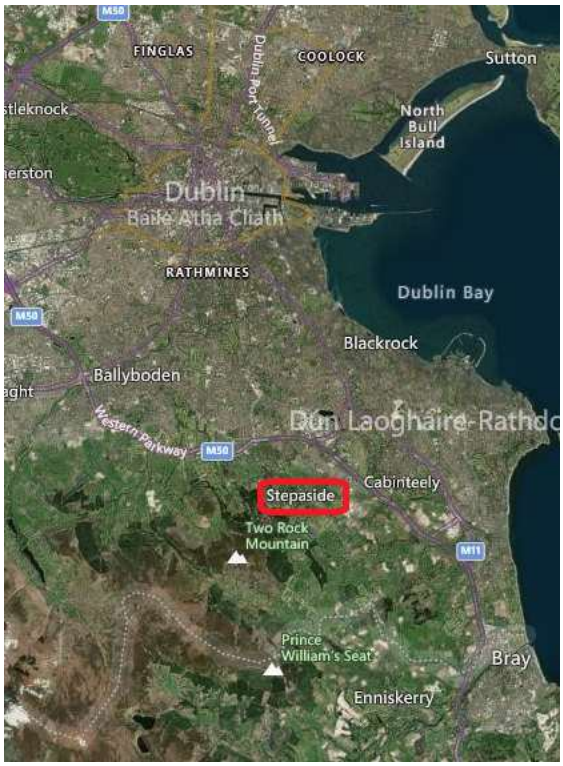
1. Introduction

On the instructions of the Client, Kavco, Site Investigations Ltd (SIL) was appointed to complete a ground investigation at Kilgobbin, Stepaside, Co. Dublin. The investigation was for a residential development and was completed in November 2024.

This report presents the factual geotechnical data obtained from the field and laboratory testing with interpretation of the ground conditions discussed.

2. Site Location

The site location is in Stepaside, south Dublin, close to the Luas Green line and Junction 14 of the M50 motorway. The map on the left below shows the location of Stepaside in south Dublin and the second map shows the location of the site in the local area.



3. Fieldwork

All fieldwork was carried out in accordance with BS 5930:2015, Engineers Ireland GI Specification and Related Document 2nd Edition 2016 and Eurocode 7: Geotechnical Design. The fieldworks comprised of the following:

- 6 No. cable percussive boreholes
- 3 No. soakaway tests

3.1. Cable Percussive Boreholes

Cable percussion boring was undertaken at 6 No. locations using a Dando 2000 rig and constructed 200mm diameter boreholes. BH03 encountered a shallow obstruction at 1.90mbgl so a reattempt was made to advance the borehole, BH03A and this terminated at 3.00mbgl. The other boreholes terminated at similar depths of 4.20mbgl (BH06) to 5.70mbgl (BH02) after an hour and a half chiselling was completed and no further progress was made. Bulk disturbed samples were recovered at regular intervals as the boreholes progressed.

To test the strength of the stratum, Standard Penetration Tests (SPT's) were performed at 1.00m intervals in accordance with BS 1377 (1990). In soils with high gravel and cobble content it is appropriate to use a solid cone (60°) (CPT) instead of the split spoon and this was used throughout the testing. The test is completed over 450mm and the cone is driven 150mm into the stratum to ensure that the test is conducted over an undisturbed zone. The cone is then driven the remaining 300mm and the blows recorded to report the N-Value. The report shows the N-Value with the 75mm incremental blows listed in brackets (e.g., BH01 at 1.00mbgl where N=9-(1,1/2,2,2,3)). Where refusal of 50 blows across the test zone was encountered was achieved during testing, the penetration depth is also reported (e.g., BH01 at 3.00mbgl where N=50-(4,10/50 for 135mm)).

At BH06, a standpipe was installed to allow for long term monitoring of the groundwater table. This consisted of a slotted pipe with a gravel surround to allow for equalisation of water within the pipe and bentonite seals at the surface to prevent downward migration water.

The cable percussive borehole logs are presented in Appendix 1.

3.2. Soakaway Tests

At 3 No. locations, soakaway tests were completed and logged by SIL geotechnical engineer. BRE Special Digest 365 stipulates that the pit should be filled three times and that the final cycle is used to provide the infiltration rate. The time taken for the water level to fall from 75% volume to 25% volume is required to calculate the rate of infiltration. However, if the water level does not fall at a steady rate, then the test is deemed to have failed and the area is unsuitable for storm water drainage.

The soakaway test results and photographs are presented in Appendix 2.

3.3. Surveying

Following completion of all the fieldworks, a survey of the exploratory hole locations was completed using a GeoMax GPS Rover. The data is supplied on each individual log and along with a site plan in Appendix 4.

4. Laboratory Testing

Geotechnical laboratory testing was completed on representative soil samples in accordance with BS 1377 (1990). Testing included:

- 7 No. Moisture contents
- 7 No. Atterberg limits
- 7 No. Particle size gradings
- 7 No. pH, sulphate and chloride content

The geotechnical laboratory test results are presented in Appendix 3.

5. Ground Conditions

5.1. Overburden

The natural ground conditions are consistent across the site with firm brown and brown grey (slightly) sandy (slightly) gravelly silty CLAY with cobbles overlying stiff black slightly sandy slightly gravelly silty CLAY with cobbles. This then overlies a dense light brown slightly silty sandy GRAVEL with cobbles and this may possibly be weathered bedrock but rotary coring would be required to confirm this.

The boreholes recorded slightly different N-values at 1.00mbgl with BH01, BH05 and BH06 recording lower values of 9, 6 and 8 respectively whereas BH02 and BH03 recorded values of 14 and BH04 recorded a higher value again of 26. The values increase at 2.00mbgl to 16 at BH06 to 34 at BH02 with refusals at BH03A and BH05. Finally, BH02 recorded a SPT of 18 at 3.00mbgl and BH06 recorded a value of 28.

The laboratory tests recorded CLAY soils with low to intermediate plasticity indices ranging from 8% to 17%. The particle size distribution curves were poorly sorted straight-line curves with low fines content of 17% to 52% in the cohesive soils.

5.2. Groundwater

Groundwater was recorded in four of the boreholes, BH01, BH02, BH04 and BH05, at 2.90mbgl, 3.20mbgl, 2.70mbgl and 2.20mbgl respectively and this correlates with the boreholes encountering the higher permeability GRAVEL soils.

6. Recommendations and Conclusions

Please note the following caveats:

The recommendations given, and opinions expressed in this report are based on the findings as detailed in the exploratory hole records. Where an opinion is expressed on the material between the exploratory hole locations or below the final level of excavation, this is for guidance only and no liability can be accepted for its accuracy. No responsibility can be accepted for adjacent unexpected conditions that have not been revealed by the exploratory holes. It is further recommended that all bearing surfaces when excavated should be inspected by a suitably qualified Engineer to verify the information given in this report.

Excavated surfaces in clay strata should be kept dry to avoid softening prior to foundation placement. Foundations should always be taken to a minimum depth of 0.50mBGL to avoid the effects of frost action and possible seasonal shrinkage/swelling.

If it is intended that on-site materials are to be used as fill, then the necessary laboratory testing should be specified by the Client to confirm the suitability. Also, relevant lab testing should be specified where stability of side slopes to excavations is a concern, or where contamination may be an issue.

6.1. Shallow Foundations

Due to the unknown depth of foundation and no longer-term groundwater information, this analysis assumes the groundwater will not influence the construction or performance of these foundations.

For cohesive soils, a correlation proposed by Stroud and Butler between SPT N-values and plasticity indices can be used to calculate the undrained shear strength. Dependent on the plasticity index at each site, the Stroud and Butler correlation is C_u=4 to 6N. With the low plasticity indexes recorded in the laboratory for the soils on this site, the correlation chosen is C_u=6N. The C_u value can then be used to calculate the ultimate bearing capacity, which is the total loading that the soil could withstand but then a factor of safety is used to ensure that failure of the soils does not occur. A factor of safety of 3 has been chosen for this site.

In granular soils, the SPT N-value can be used to calculate the allowable bearing capacity, as per Terzaghi and Peck, using the correlation of SPT N-value x 10 = ABC. The test from 2.00mbgl at 2.00mbgl extends into the granular soils and therefore, this method of calculating the allowable bearing capacity has been chosen for this location and depth.

The table overleaf shows the SPT N-value, C_u, the ultimate bearing capacity and finally, the allowable bearing capacities at 1.00mbgl and 2.00mbgl. For the refusals, no bearing capacity is calculated. The C_u, ultimate bearing capacity and allowable bearing capacities are in kN/m^2.

Depth	BH01				BH02				BH03A			
	N-Value	Cu	UBC	ABC	N-Value	Cu	UBC	ABC	N-Value	Cu	UBC	ABC
1.00	9	54	293	**100**	14	84	446	**150**	14	84	446	**150**
2.00	29	174	923	**308**	34	204	1076	**360**	-[1]	-[1]	-[1]	**-[1]**
Depth	BH04				BH05				BH06			
	N-Value	Cu	UBC	ABC	N-Value	Cu	UBC	ABC	N-Value	Cu	UBC	ABC
1.00	26	156	814	**270**	6	36	202	**67**	8	48	263	**88**
2.00	23	-	-	**230**	-[1]	-[1]	-[1]	**-[1]**	16	96	526	**175**

Key:
-[1]: Refusal

It would be recommended that all founding strata be inspected by a suitably qualified Engineer prior to pouring the foundations and additional insitu testing completed if required to confirm the soils are suitable for the final foundation design.

The following assumptions were made as part of these analyses. If any of these assumptions are not in accordance with detailed design or observations made during construction these recommendations should be re-evaluated.

- Foundations are to be constructed on a level formation of uniform material type.
- All man-made or filled material is to be removed prior to construction.
- The bulk unit weight of the material in this stratum has a minimum density of 19kN/m^3.
- Based on groundwater observations this analysis assumes the groundwater will not influence the construction or performance of these foundations.
- All bearing capacity calculations allow for 25mm settlement.

6.2. Groundwater

The caveats below relating to interpretation of groundwater levels should be noted:
There is always considerable uncertainty as to the likely rates of water ingress into excavations in clayey soil sites due to the possibility of localised unforeseen sand and gravel lenses acting as permeable conduits for unknown volumes of water.

Furthermore, water levels noted on the borehole and trial pit logs do not generally give an accurate indication of the actual groundwater conditions as the borehole or trial pit is rarely left open for sufficient time for the water level to reach equilibrium.

Also, during boring procedures, a permeable stratum may have been sealed off by the borehole casing, or water may have been added to aid drilling. Therefore, an extended period of

groundwater monitoring using any constructed standpipes is required to provide more accurate information regarding groundwater conditions. Finally, groundwater levels vary with time of year, rainfall or any nearby construction sites.

Pumping tests would be required to determine likely seepage rates and persistence into excavations taken below the groundwater level. Deep trial pits also aid estimation of seepage rates.

As discussed previously, groundwater was recorded in the boreholes from 2.20mbgl and below when the higher permeability GRAVEL soils were encountered.

There is always considerable uncertainty as to the likely rates of water ingress into excavations in cohesive soil sites due to the possibility of localised unforeseen sand and gravel lenses acting as permeable conduits for unknown volumes of water. Based on this information at the exploratory hole locations to date, it is considered likely that any shallow ingress into excavations will be slow to medium.

If groundwater is encountered during excavations then mechanical pumps will be required to remove the groundwater from sumps. Sumps should be carefully located and constructed to ensure that groundwater is efficiently removed from excavations and trenches.

6.3. Soakaway Tests

The soakaway tests failed the specification as the water level did not fall sufficiently enough to complete the test. The BRE Digest stipulates that the pit should half empty within 24hrs, and extrapolation indicates this condition would not be satisfied. The tests were terminated at the end of the first (of a possible three) fill/empty cycle since further testing would give even slower fall rates due to increased soil saturation.

6.4. Aggressive Ground Conditions

The chemical test results in Appendix 3 indicate a general pH value between 8.32 and 8.86, which is close to neutral and below the level of 9, therefore no special precautions are required.

The maximum value obtained for water soluble sulphate was 130mg/l as SO_3. The BRE Special Digest 1:2005 – '*Concrete in Aggressive Ground*' guidelines require SO_4 values and after conversion ($SO_4 = SO_3 \times 1.2$), the maximum value of 156mg/l shows Class 1 conditions and no special precautions are required.

6.5. Radon Gas

The Environmental Protection Agency (EPA) has recently updated the Radon gas exposure map and this is available to view on the EPA website. This shows the possible exposure to

radon gas with the bedrock geology, subsoil geology, soil permeability and aquifer type analysed to produce the map. The map is shows that the site falls within the highest level of 1 in 5 homes have a possibility of high radon exposure. Measures should be taken in the form of radon protection barriers to protect from radon exposure in the new structure.

EPA map identifying possible Radon exposure.
https://gis.epa.ie/EPAMaps/Radon?&lid=EPA:RadonRiskMapofIreland

Appendix 1

Cable Percussive Borehole Logs

Contract No: 6400	**Cable Percussion Borehole Log**			Borehole No: **BH01**
Contract:	Kilgobbin	Easting:	719169.609	Date Started: 28/11/2024
Location:	Stepaside, Co. Dublin	Northing:	724821.789	Date Completed: 28/11/2024
Client:	Kavco	Elevation:	104.83	Drilled By: J. O'Toole
Engineer:	-	Borehole Diameter:	200mm	Status: FINAL

Depth (m) Scale	Depth	Stratum Description	Legend	Level (mOD) Scale	Depth	Samples and Insitu Tests Depth	Type	Result	Water Strike	Backfill
0	0.20	TOPSOIL.		104.5	104.63					
0.5		Firm brown grey slightly sandy slightly gravelly silty CLAY with low cobble content.		104.0		1.00	B	JOT16		
1.0						1.00	C	N=9 (1,1/2,2,2,3)		
1.5	1.50	Stiff black slightly sandy slightly gravelly silty CLAY with low cobble content.		103.5	103.33					
2.0				103.0		2.00	B	JOT17		
2.5				102.5		2.00	C	N=29 (2,5/5,7,9,8)		
3.0	2.90	Dense light brown slightly silty sandy GRAVEL with medium cobble content.		102.0	101.93	3.00	B	JOT18	▼	
3.5				101.5		3.00	C	50 (4,10/50 for 135mm)		
4.0				101.0		4.00	B	JOT19		
4.5				100.5		4.00	C	50 (9,15/50 for 105mm)		
5.0				100.0		5.00	B	JOT20		
	5.20	Obstruction - possible boulders.		99.5	99.63	5.00	C	50 (7,9/50 for 40mm)		
5.5	5.40	End of Borehole at 5.40m			99.43	5.40	C	50 (25 for 5mm/50 for 5mm)		
6.0				99.0						
6.5				98.5						
7.0				98.0						
7.5				97.5						
				97.0						

Chiselling:

From:	To:	Time:
3.20	3.40	01:00
4.20	4.40	01:00
5.20	5.40	01:30

Water Strikes:

Strike:	Rose:	Depth Sealed
2.90	2.80	NS

Water Details:

Date:	Hole Depth:	Water Depth:
28/11	5.40	5.00

Installation:

From:	To:	Pipe:

Backfill:

From:	To:	Type:
0.00	5.40	Arisings

Remarks:

Borehole terminated due to obstruction.

Legend:
B: Bulk
D: Disturbed
U: Undisturbed
ES: Environmental
W: Water
C: Cone SPT
S: Split spoon SPT

Contract No: 6400	**Cable Percussion Borehole Log**				Borehole No: **BH02**
Contract:	Kilgobbin	Easting:	719182.008	Date Started:	29/11/2024
Location:	Stepaside, Co. Dublin	Northing:	724801.735	Date Completed:	29/11/2024
Client:	Kavco	Elevation:	104.85	Drilled By:	J. O'Toole
Engineer:	-	Borehole Diameter:	200mm	Status:	FINAL

Depth (m) Scale	Depth	Stratum Description	Legend	Level (mOD) Scale	Depth	Samples and Insitu Tests Depth	Type	Result	Water Strike	Backfill
0.5	0.20	TOPSOIL.		104.5	104.65					
1.0		Firm brown grey sandy gravelly silty CLAY with low cobble content.		104.0		1.00 1.00	B C	JOT21 N=14 (1,1/2,3,4,5)		
1.5	1.80			103.5						
2.0		Stiff black slightly sandy slightly gravelly silty CLAY with low cobble content.		103.0	103.05	2.00 2.00	B C	JOT22 N=34 (2,5/7,7,9,11)		
2.5				102.5						
3.0				102.0		3.00 3.00	B C	JOT23 N=18 (3,4/4,5,5,4)	▼	
3.5	3.20	Dense light brown slightly silty sandy GRAVEL with medium cobble content.		101.5	101.65					
4.0				101.0		4.00 4.00	B C	JOT24 50 (7,9/50 for 135mm)		
4.5				100.5						
5.0				100.0		5.00 5.00	B C	JOT25 50 (10,15/50 for 115mm)		
5.5	5.60			99.5	99.25					
	5.70	Obstruction - possible boulders. End of Borehole at 5.70m		99.0	99.15	5.70	C	50 (25 for 5mm/50 for 5mm)		
6.0				98.5						
6.5				98.0						
7.0				97.5						
7.5				97.0						

Chiselling: From:	To:	Time:	Water Strikes: Strike:	Rose:	Depth Sealed	Water Details: Date:	Hole Depth:	Water Depth:	Installation: From:	To:	Pipe:	Backfill: From:	To:	Type:	Remarks:
4.30	4.50	01:00	3.20	3.00	NS	29/11	5.70	3.10				0.00	5.70	Arisings	Borehole terminated due to obstruction.
5.60	5.70	01:30													

Legend:
B: Bulk
D: Disturbed
U: Undisturbed
ES: Environmental
W: Water
C: Cone SPT
S: Split spoon SPT

Contract No: 6400	**Cable Percussion Borehole Log**				Borehole No: **BH03**
Contract:	Kilgobbin	Easting:	719219.183	Date Started:	27/11/2024
Location:	Stepaside, Co. Dublin	Northing:	724817.754	Date Completed:	27/11/2024
Client:	Kavco	Elevation:	104.15	Drilled By:	J. O'Toole
Engineer:	-	Borehole Diameter:	200mm	Status:	FINAL

Depth (m) Scale	Depth	Stratum Description	Legend	Level (mOD) Scale	Depth	Samples and Insitu Tests Depth	Type	Result	Water Strike	Backfill
0	0.20	TOPSOIL.		104.0	103.95					
		Brown sandy gravelly silty CLAY.								
0.5				103.5						
1.0	1.00	Firm brown slightly sandy slightly gravelly silty CLAY with low cobble content.		103.0	103.15	1.00 1.00	B C	JOT13 N=14 (2,2/3,3,4,4)		
1.5				102.5						
2.0	1.80 1.90	Obstruction - possible boulders. End of Borehole at 1.90m		102.0	102.35 102.25	1.90	C	50 (25 for 5mm/50 for 5mm)		
2.5				101.5						
3.0				101.0						
3.5				100.5						
4.0				100.0						
4.5				99.5						
5.0				99.0						
5.5				98.5						
6.0				98.0						
6.5				97.5						
7.0				97.0						
7.5				96.5						

Chiselling:

From:	To:	Time:
1.80	1.90	01:30

Water Strikes:

Strike:	Rose:	Depth Sealed

Water Details:

Date:	Hole Depth:	Water Depth:
27/11	1.90	Dry

Installation:

From:	To:	Pipe:

Backfill:

From:	To:	Type:
0.00	1.90	Arisings

Remarks:

Borehole terminated due to obstruction - borehole relocated and reattempt made.

Legend:
B: Bulk
D: Disturbed
U: Undisturbed
ES: Environmental
W: Water
C: Cone SPT
S: Split spoon SPT

Contract No: 6400	**Cable Percussion Borehole Log**				Borehole No: **BH03A**
Contract:	Kilgobbin	Easting:	719216.868	Date Started:	27/11/2024
Location:	Stepaside, Co. Dublin	Northing:	724817.312	Date Completed:	27/11/2024
Client:	Kavco	Elevation:	104.12	Drilled By:	J. O'Toole
Engineer:	-	Borehole Diameter:	200mm	Status:	FINAL

Depth (m) Scale	Depth	Stratum Description	Legend	Level (mOD) Scale	Depth	Samples and Insitu Tests Depth	Type	Result	Water Strike	Backfill
0		TOPSOIL.		104.0						
	0.30	Brown sandy gravelly silty CLAY.			103.82					
0.5				103.5						
	0.90	Firm brown slightly sandy slightly gravelly silty CLAY with low cobble content.			103.22	1.00	C	N=14 (3,3/3,4,3,3,4)		
1.0				103.0						
1.5				102.5						
2.0						2.00	B	JOT14		
				102.0		2.00	C	50 (25 for 65mm/50 for 40mm)		
	2.30	Dense light brown slightly silty sandy GRAVEL with medium cobble content.			101.82					
2.5				101.5						
	2.90	Obstruction - possible boulders.			101.22					
3.0	3.00	End of Borehole at 3.00m			101.12	3.00	B	JOT15		
				101.0		3.00	C	50 (25 for 5mm/50 for 5mm)		
3.5				100.5						
4.0				100.0						
4.5				99.5						
5.0				99.0						
5.5				98.5						
6.0				98.0						
6.5				97.5						
7.0				97.0						
7.5				96.5						

Chiselling:

From:	To:	Time:
2.10	2.30	01:00
2.90	3.00	01:30

Water Strikes:

Strike:	Rose:	Depth Sealed

Water Details:

Date:	Hole Depth:	Water Depth:
27/11	3.00	Dry

Installation:

From:	To:	Pipe:

Backfill:

From:	To:	Type:
0.00	3.00	Arisings

Remarks:

Borehole terminated due to obstruction.

Legend:
B: Bulk
D: Disturbed
U: Undisturbed
ES: Environmental
W: Water
C: Cone SPT
S: Split spoon SPT

Contract No: 6400	**Cable Percussion Borehole Log**				Borehole No: **BH04**
Contract:	Kilgobbin	Easting:	719234.702	Date Started:	26/11/2024
Location:	Stepaside, Co. Dublin	Northing:	724783.955	Date Completed:	26/11/2024
Client:	Kavco	Elevation:	104.29	Drilled By:	J. O'Toole
Engineer:	-	Borehole Diameter:	200mm	Status:	FINAL

Depth (m) Scale	Depth	Stratum Description	Legend	Level (mOD) Scale	Depth	Samples and Insitu Tests Depth	Type	Result	Water Strike	Backfill
	0.20	TOPSOIL.			104.09					
		Brown sandy slightly gravelly silty CLAY.		104.0						
0.5										
	0.80			103.5	103.49					
1.0		Stiff black slightly sandy slightly gravelly silty CLAY with low cobble content.				1.00	B	JOT09		
						1.00	C	N=26 (2,5/5,7,7,7)		
1.5				103.0						
				102.5						
2.0						2.00	B	JOT10		
	2.20				102.09	2.00	C	N=23 (2,5/5,5,6,7)		
		Dense light brown slightly silty sandy GRAVEL with medium cobble content.		102.0						
2.5										
				101.5						
3.0						3.00	B	JOT11		
						3.00	C	50 (5,7/50 for 175mm)		
				101.0						
3.5										
				100.5						
4.0						4.00	B	JOT12		
						4.00	C	50 (4,9/50 for 125mm)		
				100.0						
4.5										
	4.80			99.5	99.49					
		Obstruction - possible boulders.								
5.0	5.00				99.29	5.00	C	50 (25 for 5mm/50 for 5mm)		
		End of Borehole at 5.00m		99.0						
5.5										
				98.5						
6.0										
				98.0						
6.5										
				97.5						
7.0										
				97.0						
7.5										
				96.5						

Chiselling:

From:	To:	Time:
3.40	3.50	01:00
4.80	5.00	01:30

Water Strikes:

Strike:	Rose:	Depth Sealed
2.70	2.50	NS

Water Details:

Date:	Hole Depth:	Water Depth:
26/11	5.00	1.10

Installation:

From:	To:	Pipe:

Backfill:

From:	To:	Type:
0.00	5.00	Arisings

Remarks:

Borehole terminated due to obstruction.

Legend:
B: Bulk
D: Disturbed
U: Undisturbed
ES: Environmental
W: Water
C: Cone SPT
S: Split spoon SPT

Contract No: 6400	**Cable Percussion Borehole Log**			Borehole No: **BH05**
Contract:	Kilgobbin	Easting:	719263.300	Date Started: 25/11/2024
Location:	Stepaside, Co. Dublin	Northing:	724823.575	Date Completed: 25/11/2024
Client:	Kavco	Elevation:	102.59	Drilled By: J. O'Toole
Engineer:	-	Borehole Diameter:	200mm	Status: FINAL

Depth (m) Scale	Depth	Stratum Description	Legend	Level (mOD) Scale	Depth	Samples and Insitu Tests Depth	Type	Result	Water Strike	Backfill
	0.20	TOPSOIL.		102.5	102.39					
		Soft dark brown sandy gravelly silty CLAY.		102.0		1.00	B	JOT05		
				101.5		1.00	C	N=6 (1,0/1,1,2,2)		
	1.50	Firm brown slightly sandy slightly gravelly silty CLAY with low cobble content.		101.0	101.09					
	1.90	Dense light brown slightly silty sandy GRAVEL with medium cobble content.		100.5	100.69	2.00	B	JOT06	▼	
						2.00	C	50 (5,11/50 for 200mm)		
				100.0						
				99.5		3.00	B	JOT07		
						3.00	C	50 (25 for 135mm/50 for 30mm)		
				99.0						
				98.5		4.00	B	JOT08		
						4.00	C	50 (7,18/50 for 50mm)		
				98.0						
	4.80	Obstruction - possible boulders.			97.79					
	5.00	End of Borehole at 5.00m		97.5	97.59	5.00	C	50 (25 for 5mm/50 for 5mm)		
				97.0						
				96.5						
				96.0						
				95.5						
				95.0						

Chiselling:

From:	To:	Time:
2.30	2.40	01:00
3.20	3.40	01:00
4.80	5.00	01:30

Water Strikes:

Strike:	Rose:	Depth Sealed
2.20	2.00	NS

Water Details:

Date:	Hole Depth:	Water Depth:
25/11	5.00	3.20

Installation:

From:	To:	Pipe:

Backfill:

From:	To:	Type:
0.00	5.00	Arisings

Remarks: Borehole terminated due to obstruction.

Legend:
B: Bulk
D: Disturbed
U: Undisturbed
ES: Environmental
W: Water
C: Cone SPT
S: Split spoon SPT

Contract No: 6400	**Cable Percussion Borehole Log**			Borehole No: **BH06**
Contract:	Kilgobbin	Easting:	719282.283	Date Started: 22/11/2024
Location:	Stepaside, Co. Dublin	Northing:	724795.568	Date Completed: 22/11/2024
Client:	Kavco	Elevation:	102.69	Drilled By: J. O'Toole
Engineer:	-	Borehole Diameter:	200mm	Status: FINAL

Depth (m) Scale	Depth	Stratum Description	Legend	Level (mOD) Scale	Depth	Samples and Insitu Tests Depth	Type	Result	Water Strike	Backfill
	0.20	TOPSOIL.		102.5	102.49					
0.5		Brown sandy slightly gravelly silty CLAY.								
	0.70			102.0	101.99					
1.0		Firm brown slightly sandy slightly gravelly silty CLAY with low cobble content.				1.00	B	JOT01		
				101.5		1.00	C	N=8 (1,1/1,2,2,3)		
	1.30				101.39					
1.5		Stiff brown grey slightly sandy slightly gravelly silty CLAY with low cobble content.		101.0						
2.0						2.00	B	JOT02		
				100.5		2.00	C	N=16 (2,2/3,4,4,5)		
2.5										
				100.0						
3.0						3.00	B	JOT03		
	3.20			99.5	99.49	3.00	C	N=28 (2,3/5,7,7,9)		
3.5		Stiff brown slightly sandy slightly gravelly silty CLAY with low cobble content.								
	3.80			99.0	98.89					
4.0		Dense light brown slightly silty sandy GRAVEL with medium cobble content.				4.00	B	JOT04		
	4.10				98.59	4.00	C	50 (25 for		
	4.20	Obstruction - possible boulders.		98.5	98.49	4.20	C	95mm/50 for 15mm)		
4.5		End of Borehole at 4.20m						50 (25 for 5mm/50 for 5mm)		
				98.0						
5.0										
				97.5						
5.5										
				97.0						
6.0										
				96.5						
6.5										
				96.0						
7.0										
				95.5						
7.5										
				95.0						

Chiselling: From:	To:	Time:	Water Strikes: Strike:	Rose:	Depth Sealed	Water Details: Date:	Hole Depth:	Water Depth:	Installation: From:	To:	Pipe:	Backfill: From:	To:	Type:	Remarks:
4.10	4.20	01:30				22/11	4.20	Dry	0.00 1.50	1.50 4.20	Solid Slotted	0.00 1.00	1.00 4.20	Bentonite Gravel	Borehole terminated due to obstruction.

Legend:
B: Bulk
D: Disturbed
U: Undisturbed
ES: Environmental
W: Water
C: Cone SPT
S: Split spoon SPT

Appendix 2

Soakaway Test Results and Photographs

SOAKAWAY TEST

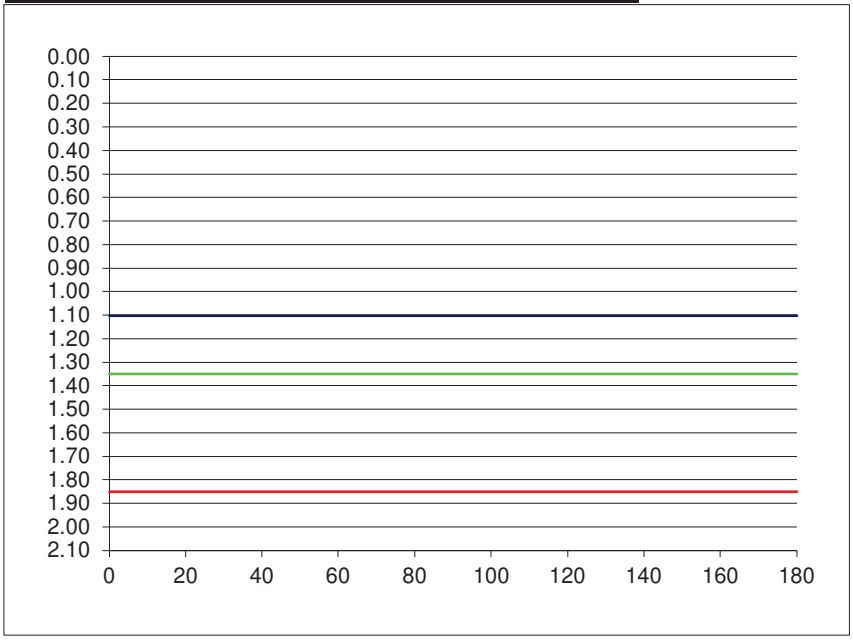
Project Reference:	6400
Contract name:	Kilgobbin
Location:	Stepaside, Co. Dublin
Test No:	SA01
Date:	21/11/2024

Ground Conditions

From	To	
0.00	0.30	TOPSOIL.
0.30	1.60	Firm brown slightly sandy slightly gravelly silty CLAY with medium cobble content.
1.60	2.10	Stiff black slightly sandy slightly gravelly silty CLAY with medium cobble and low boulder content.

Elapsed Time (mins)	Fall of Water (m)
0	1.10
0.5	1.10
1	1.10
1.5	1.10
2	1.10
2.5	1.10
3	1.10
3.5	1.10
4	1.10
4.5	1.10
5	1.10
6	1.10
7	1.10
8	1.10
9	1.10
10	1.10
12	1.10
14	1.10
16	1.10
18	1.10
20	1.10
25	1.10
30	1.10
40	1.10
50	1.10
60	1.10
75	1.10
90	1.10
120	1.10
150	1.10
180	1.10

Pit Dimensions (m)		
Length (m)	2.30	m
Width (m)	0.50	m
Depth	2.10	m
Water		
Start Depth of Water	1.10	m
Depth of Water	1.00	m
75% Full	1.35	m
25% Full	1.85	m
75%-25%	0.50	m
Volume of water (75%-25%)	**0.58**	m3
Area of Drainage	**11.76**	m2
Area of Drainage (75%-25%)	**3.95**	m2
Time		
75% Full	N/A	min
25% Full	N/A	min
Time 75% to 25%	**N/A**	min
Time 75% to 25% (sec)	**N/A**	sec



f = **Fail** **m/min** or **Fail** **m/s**

SOAKAWAY TEST

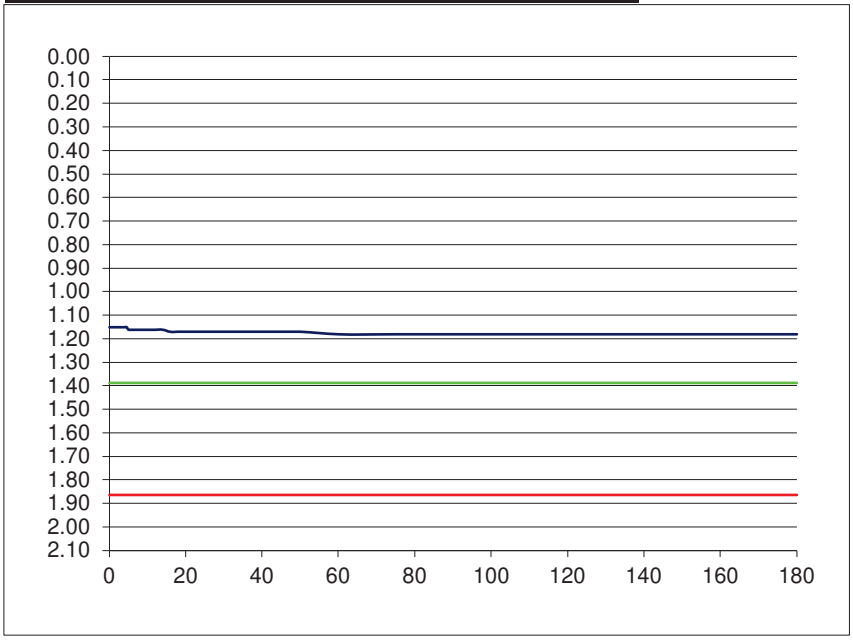
Project Reference:	6400
Contract name:	Kilgobbin
Location:	Stepaside, Co. Dublin
Test No:	SA02
Date:	21/11/2024

Ground Conditions

From	To	
0.00	0.40	TOPSOIL.
0.40	1.60	Firm brown slightly sandy slightly gravelly silty CLAY with medium cobble content.
1.60	2.10	Stiff black slightly sandy slightly gravelly silty CLAY with medium cobble and low boulder content.

Elapsed Time (mins)	Fall of Water (m)
0	1.15
0.5	1.15
1	1.15
1.5	1.15
2	1.15
2.5	1.15
3	1.15
3.5	1.15
4	1.15
4.5	1.15
5	1.16
6	1.16
7	1.16
8	1.16
9	1.16
10	1.16
12	1.16
14	1.16
16	1.17
18	1.17
20	1.17
25	1.17
30	1.17
40	1.17
50	1.17
60	1.18
75	1.18
90	1.18
120	1.18
150	1.18
180	1.18

Pit Dimensions (m)		
Length (m)	2.20	m
Width (m)	0.50	m
Depth	2.10	m
Water		
Start Depth of Water	1.15	m
Depth of Water	0.95	m
75% Full	1.39	m
25% Full	1.86	m
75%-25%	0.48	m
Volume of water (75%-25%)	**0.52**	m3
Area of Drainage	**11.34**	m2
Area of Drainage (75%-25%)	**3.67**	m2
Time		
75% Full	N/A	min
25% Full	N/A	min
Time 75% to 25%	**N/A**	min
Time 75% to 25% (sec)	**N/A**	sec



f = **Fail** m/min or **Fail** m/s

SOAKAWAY TEST

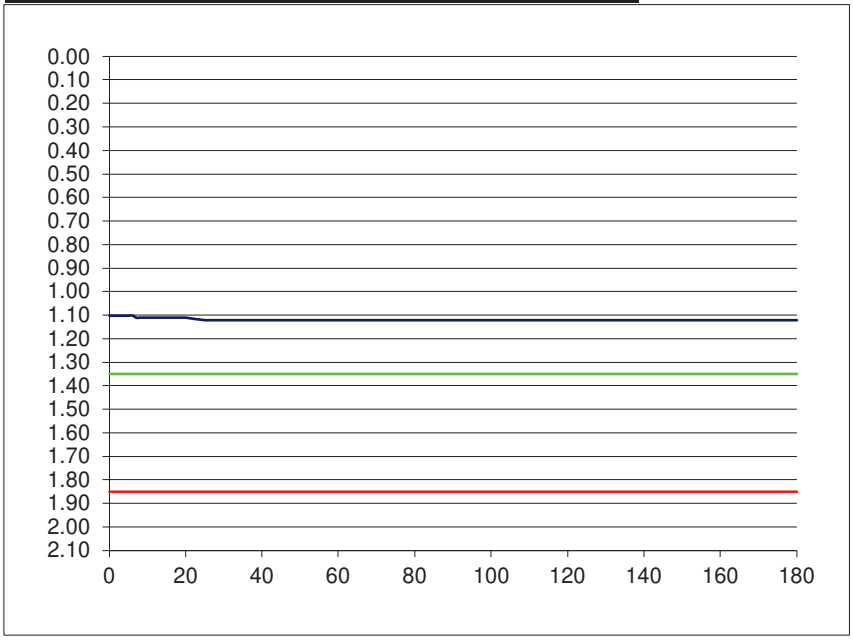
Project Reference:	6400
Contract name:	Kilgobbin
Location:	Stepaside, Co. Dublin
Test No:	SA03
Date:	21/11/2024

Ground Conditions

From	To	
0.00	0.30	TOPSOIL.
0.30	1.90	Firm brown slightly sandy slightly gravelly silty CLAY with medium cobble content.
1.90	2.10	Stiff black slightly sandy slightly gravelly silty CLAY with medium cobble and low boulder content.

Elapsed Time (mins)	Fall of Water (m)
0	1.10
0.5	1.10
1	1.10
1.5	1.10
2	1.10
2.5	1.10
3	1.10
3.5	1.10
4	1.10
4.5	1.10
5	1.10
6	1.10
7	1.11
8	1.11
9	1.11
10	1.11
12	1.11
14	1.11
16	1.11
18	1.11
20	1.11
25	1.12
30	1.12
40	1.12
50	1.12
60	1.12
75	1.12
90	1.12
120	1.12
150	1.12
180	1.12

Pit Dimensions (m)		
Length (m)	2.30	m
Width (m)	0.50	m
Depth	2.10	m
Water		
Start Depth of Water	1.10	m
Depth of Water	1.00	m
75% Full	1.35	m
25% Full	1.85	m
75%-25%	0.50	m
Volume of water (75%-25%)	**0.58**	m3
Area of Drainage	**11.76**	m2
Area of Drainage (75%-25%)	**3.95**	m2
Time		
75% Full	N/A	min
25% Full	N/A	min
Time 75% to 25%	**N/A**	min
Time 75% to 25% (sec)	**N/A**	sec



f = **Fail** **m/min** or **Fail** **m/s**

SA01 Sidewall

SA01 Spoil

SA02 Sidewall

SA02 Spoil

SA03 Sidewall

SA03 Spoil

Appendix 3

Geotechnical Laboratory Test Results

Classification Tests
In accordance with BS 1377: Part 2

Client	Kavco
Site	Kilgobbin, Stepaside
S.I. File No	6400 / 24
Test Lab	Site Investigations Ltd., Carhugar The Grange, 12th Lock Rd., Lucan Co. Dublin. Tel (01) 6108768 Email:info@siteinvestigations.ie
Report Date	12th December 2024

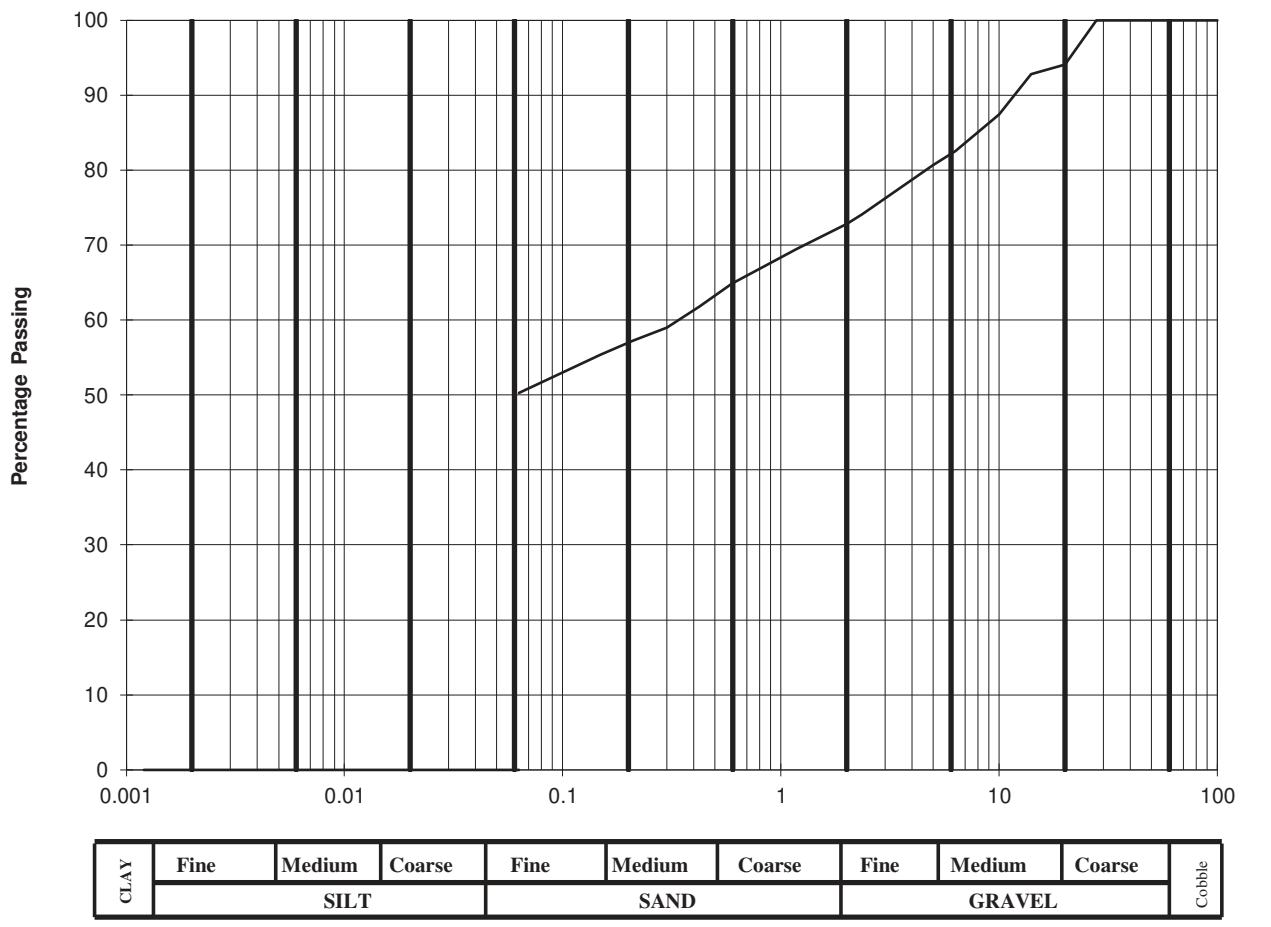
Hole ID	Depth	Sample No	Lab Ref No.	Sample Type	Natural Moisture Content %	Liquid Limit %	Plastic Limit %	Plastic Index %	Bulk Density g/cm^3	Specific gravity	% passing 425um	Comments	**Remarks** **C**=Clay; **M**=Silt **Plasticity**: **L**=Low; **I**=Intermediate; **H**=High; **V**=Very High; **E**=Extremely High
BH01	1.00	JOT16	24/1796	B	15.5	38	21	17			61.8		CI
BH02	1.00	JOT21	24/1797	B	13.0	27	19	8			29.1		CL
BH03	1.00	JOT13	24/1798	B	18.6	36	20	16			56.5		CI
BH04	1.00	JOT09	24/1799	B	13.7	36	19	17			55.1		CI
BH05	1.00	JOT05	24/1800	B	33.2	28	20	8			35.5		CL
BH06	1.00	JOT01	24/1802	B	15.0	39	23	16			66.2		CI

BS 1377 Particle Size Analysis

Site Investigations Limited

BS Sieve size, mm	Percent passing	Hydrometer analysis	
		Diameter, mm	% passing
100	100	**0.0630**	
90	100	**0.0200**	
75	100	**0.0060**	
63	100	**0.0020**	
50	100		
37.5	100		
28	100		
20	94.1		
14	92.8		
10	87.4		
6.3	82.5		
5.0	80.7		
2.36	74.1		
2.00	72.8		
1.18	69.5		
0.600	64.9		
0.425	61.8		
0.300	59		
0.212	57.3		
0.150	55.4		
0.063	50		

Cobbles, %	0
Gravel, %	27
Sand, %	23
Clay / Silt, %	50



Client :	Kavco
Project :	Kilgobbin, Stepaside

Lab. No :	24/1796
Sample No :	JOT16

Hole ID :	BH 01
Depth, m :	1.00

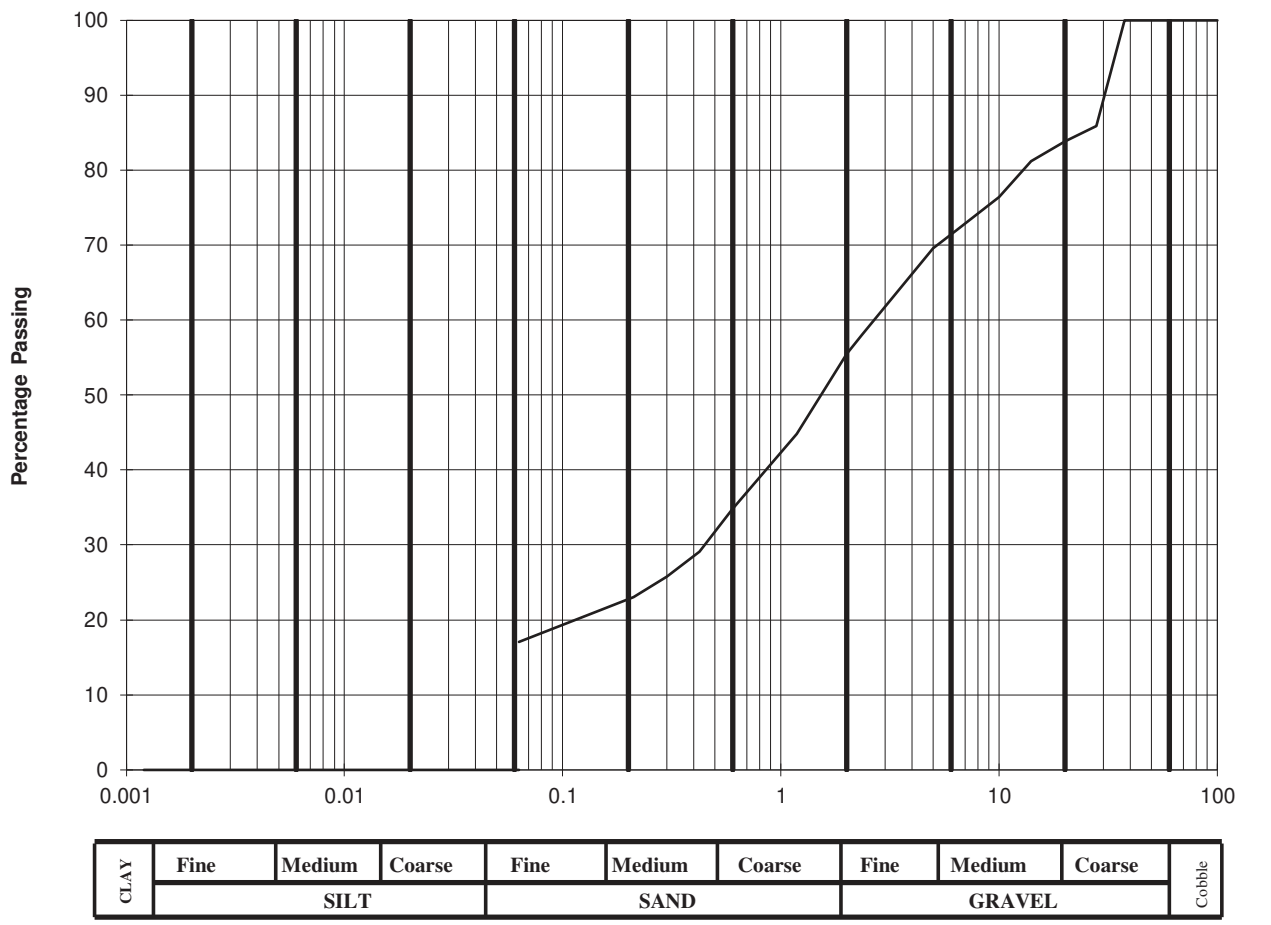
Material description :	slightly sandy slightly gravelly silty CLAY
Remarks :	Soils with clay or silt content between 15% - 35% can be classified as clay or silt depending on the field Engineers assessment of in-situ behaviour. Where material is for re-use and therefore disturbed, only soils with clay or silt >35% are classified as clay or silt

BS 1377 Particle Size Analysis

Site Investigations Limited

BS Sieve size, mm	Percent passing	Hydrometer analysis	
		Diameter, mm	% passing
100	100	**0.0630**	
90	100	**0.0200**	
75	100	**0.0060**	
63	100	**0.0020**	
50	100		
37.5	100		
28	85.9		
20	83.8		
14	81.2		
10	76.4		
6.3	71.9		
5.0	69.6		
2.36	58		
2.00	55.5		
1.18	44.8		
0.600	34.7		
0.425	29.1		
0.300	25.8		
0.212	23		
0.150	21.3		
0.063	17		

Cobbles, %	0
Gravel, %	45
Sand, %	39
Clay / Silt, %	17



Client :	Kavco
Project :	Kilgobbin, Stepaside

Lab. No :	24/1797
Sample No :	JOT21

Hole ID :	BH 02
Depth, m :	1.00

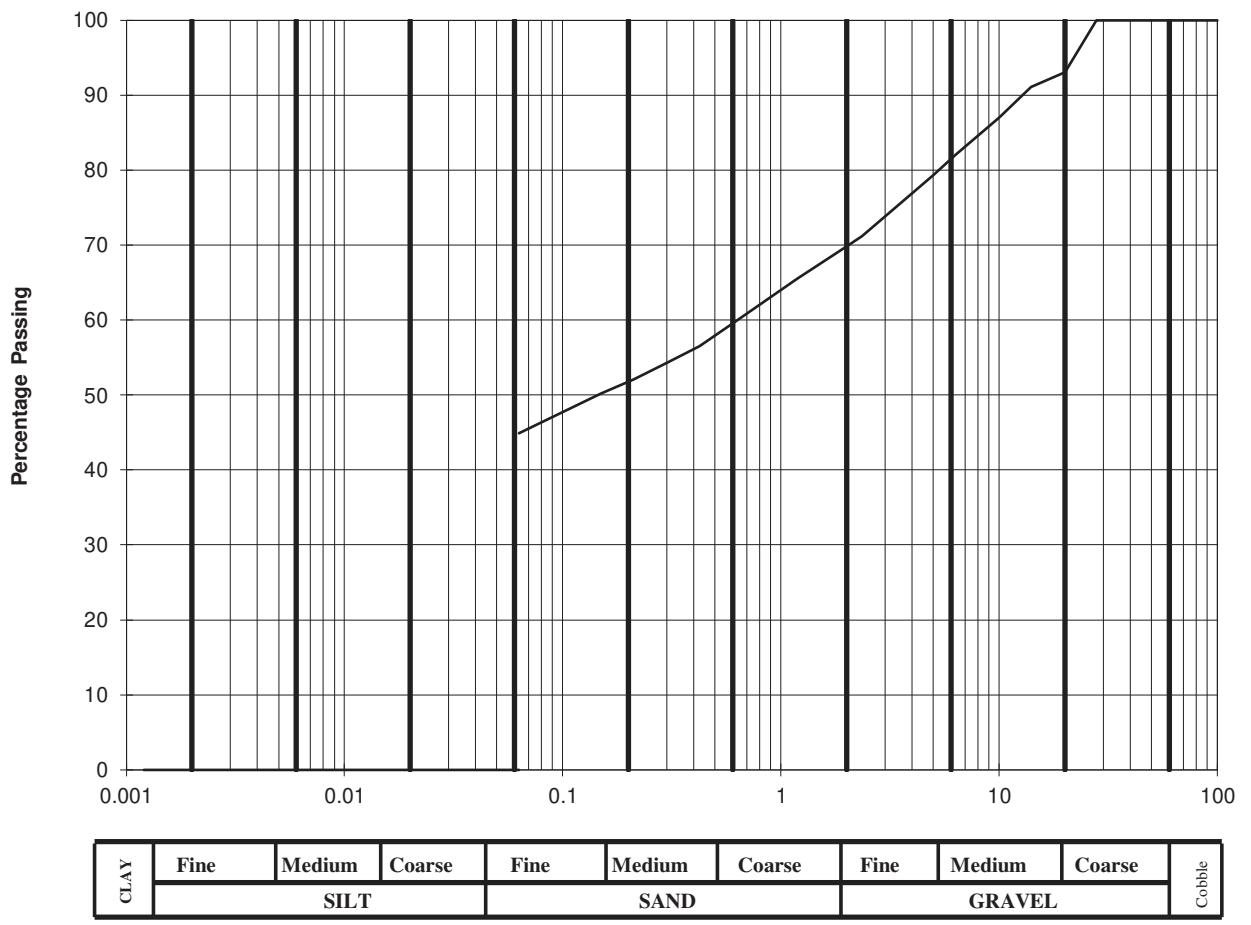
Material description :	sandy gravelly silty CLAY
Remarks :	Soils with clay or silt content between 15% - 35% can be classified as clay or silt depending on the field Engineers assessment of in-situ behaviour. Where material is for re-use and therefore disturbed, only soils with clay or silt >35% are classified as clay or silt

BS 1377 Particle Size Analysis

Site Investigations Limited

BS Sieve size, mm	Percent passing	Hydrometer analysis	
		Diameter, mm	% passing
100	100	**0.0630**	
90	100	**0.0200**	
75	100	**0.0060**	
63	100	**0.0020**	
50	100		
37.5	100		
28	100		
20	93		
14	91.1		
10	87		
6.3	82		
5.0	79.3		
2.36	71.2		
2.00	69.8		
1.18	65.5		
0.600	59.5		
0.425	56.5		
0.300	54.3		
0.212	52.1		
0.150	50.2		
0.063	45		

Cobbles, %	0
Gravel, %	30
Sand, %	25
Clay / Silt, %	45



Client :	Kavco
Project :	Kilgobbin, Stepaside

Lab. No :	24/1798
Sample No :	JOT13

Hole ID :	BH 03
Depth, m :	1.00

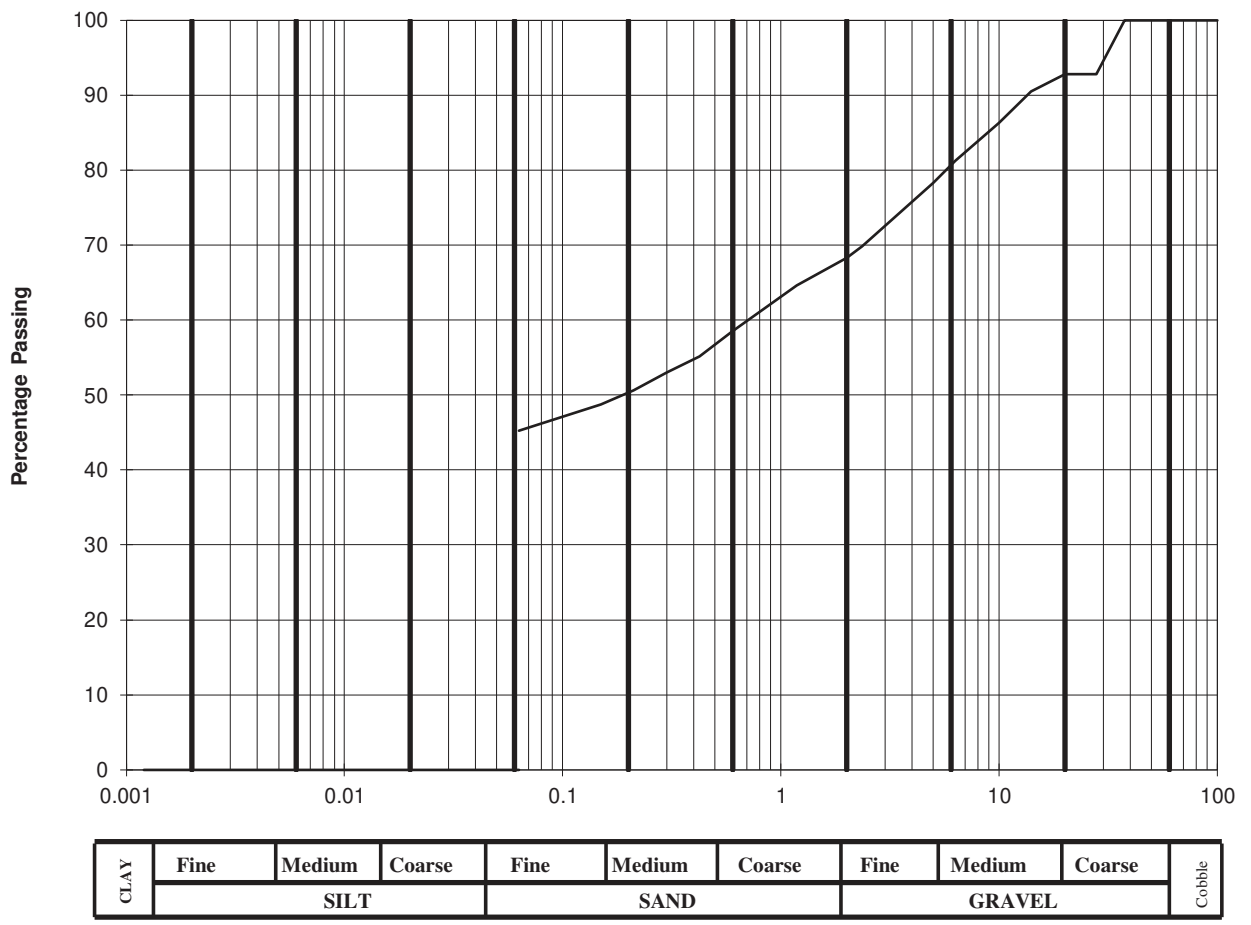
Material description :	slightly sandy slightly gravelly silty CLAY
Remarks :	Soils with clay or silt content between 15% - 35% can be classified as clay or silt depending on the field Engineers assessment of in-situ behaviour. Where material is for re-use and therefore disturbed, only soils with clay or silt >35% are classified as clay or silt

BS 1377 Particle Size Analysis

Site Investigations Limited

BS Sieve size, mm	Percent passing	Hydrometer analysis	
		Diameter, mm	% passing
100	100	**0.0630**	
90	100	**0.0200**	
75	100	**0.0060**	
63	100	**0.0020**	
50	100		
37.5	100		
28	92.8		
20	92.8		
14	90.5		
10	86.3		
6.3	81.3		
5.0	78.3		
2.36	69.8		
2.00	68.3		
1.18	64.6		
0.600	58.5		
0.425	55.1		
0.300	53		
0.212	50.6		
0.150	48.7		
0.063	45		

Cobbles, %	0
Gravel, %	32
Sand, %	23
Clay / Silt, %	45



Client :	Kavco
Project :	Kilgobbin, Stepaside

Lab. No :	24/1799
Sample No :	JOT09

Hole ID :	BH 04
Depth, m :	1.00

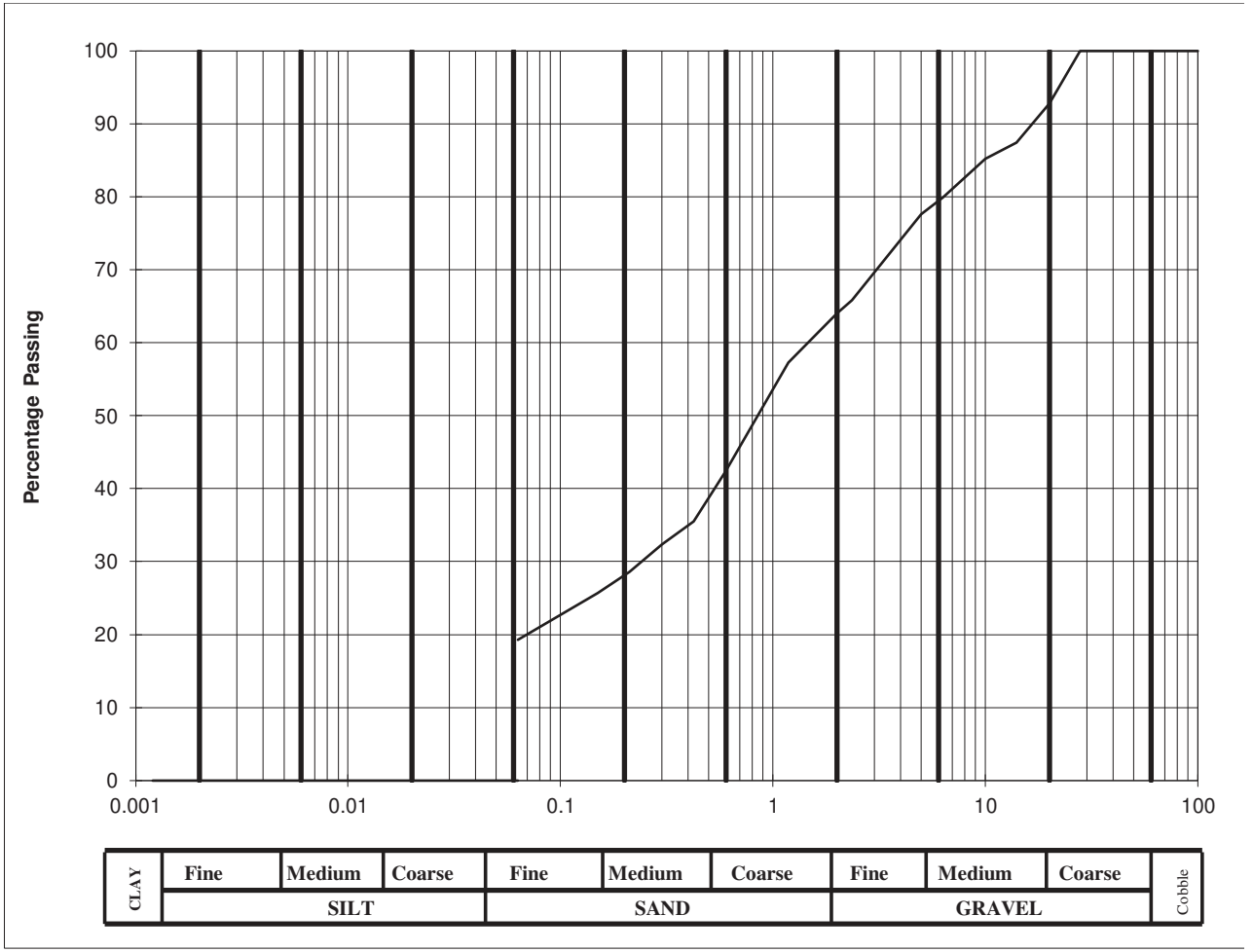
Material description :	slightly sandy slightly gravelly silty CLAY
Remarks :	Soils with clay or silt content between 15% - 35% can be classified as clay or silt depending on the field Engineers assessment of in-situ behaviour. Where material is for re-use and therefore disturbed, only soils with clay or silt >35% are classified as clay or silt

BS 1377 Particle Size Analysis

Site Investigations Limited

BS Sieve size, mm	Percent passing	Hydrometer analysis	
		Diameter, mm	% passing
100	100	**0.0630**	
90	100	**0.0200**	
75	100	**0.0060**	
63	100	**0.0020**	
50	100		
37.5	100		
28	100		
20	92.8		
14	87.4		
10	85.2		
6.3	79.9		
5.0	77.6		
2.36	65.8		
2.00	64		
1.18	57.3		
0.600	42.3		
0.425	35.5		
0.300	32.3		
0.212	28.6		
0.150	25.7		
0.063	19		

Cobbles, %	0
Gravel, %	36
Sand, %	45
Clay / Silt, %	19



Client :	Kavco
Project :	Kilgobbin, Stepaside

Lab. No :	24/1800
Sample No :	JOT05

Hole ID :	BH 05
Depth, m :	1.00

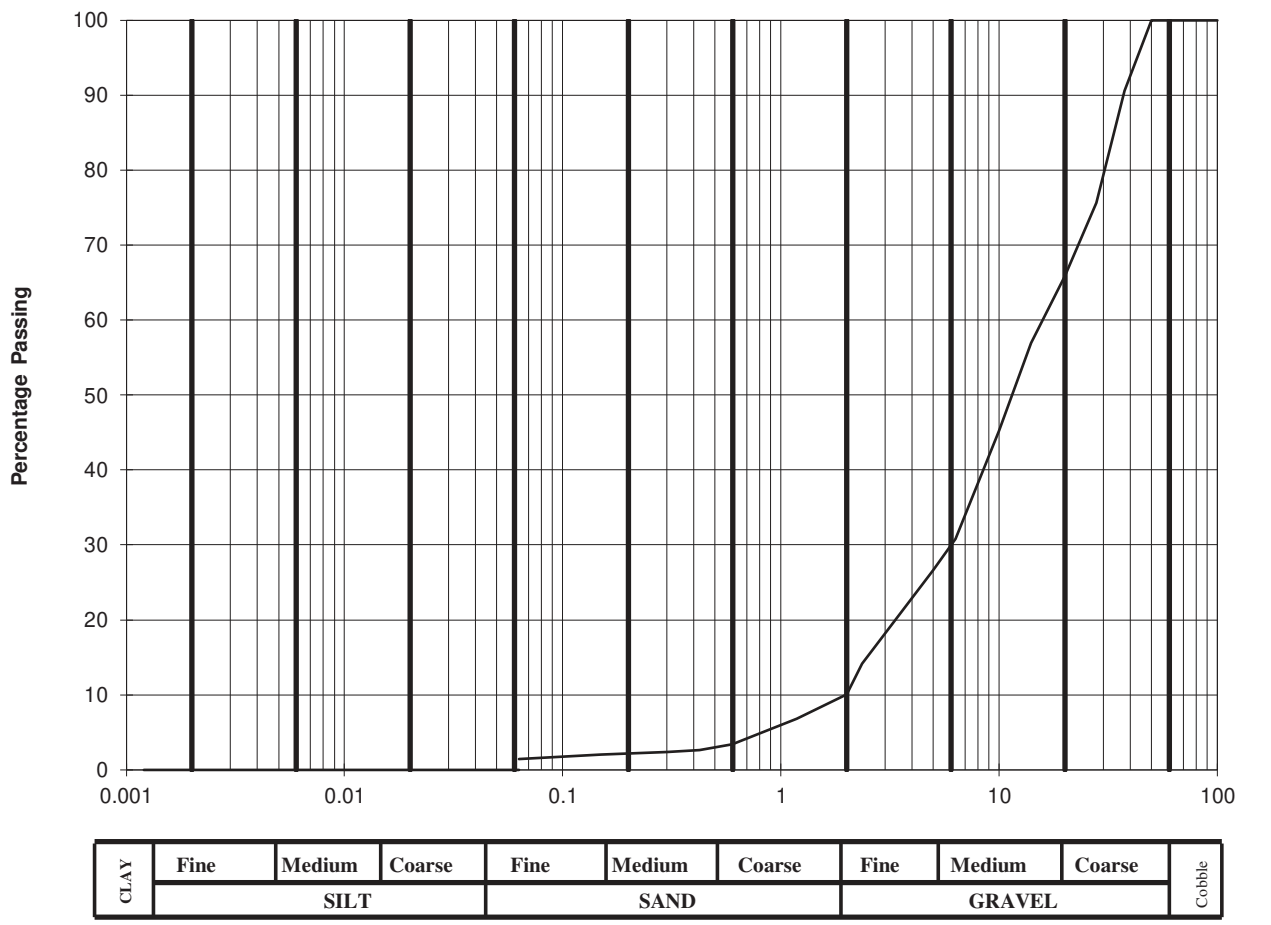
Material description :	sandy gravelly silty CLAY
Remarks :	Soils with clay or silt content between 15% - 35% can be classified as clay or silt depending on the field Engineers assessment of in-situ behaviour. Where material is for re-use and therefore disturbed, only soils with clay or silt >35% are classified as clay or silt

BS 1377 Particle Size Analysis

Site Investigations Limited

BS Sieve size, mm	Percent passing	Hydrometer analysis	
		Diameter, mm	% passing
100	100	**0.0630**	
90	100	**0.0200**	
75	100	**0.0060**	
63	100	**0.0020**	
50	100		
37.5	90.6		
28	75.6		
20	65.9		
14	56.9		
10	45.2		
6.3	30.8		
5.0	26.6		
2.36	14.2		
2.00	10.1		
1.18	6.8		
0.600	3.4		
0.425	2.6		
0.300	2.4		
0.212	2.2		
0.150	2		
0.063	2		

Cobbles, %	0
Gravel, %	90
Sand, %	8
Clay / Silt, %	2



Client :	Kavco	Lab. No :	24/1801	Hole ID :	BH 05
Project :	Kilgobbin, Stepaside	Sample No :	JOT06	Depth, m :	2.00

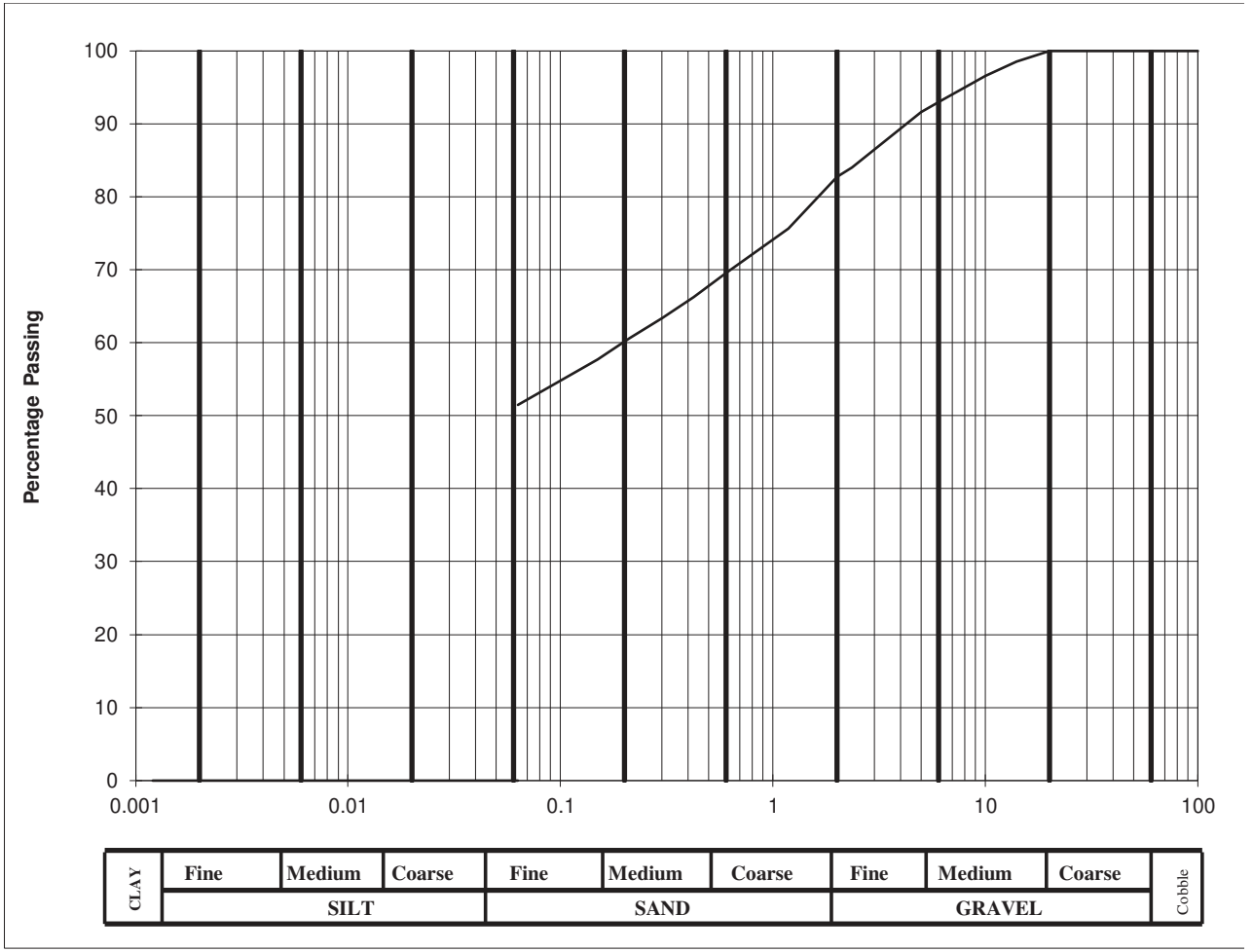
Material description :	slightly silty sandy GRAVEL
Remarks :	Soils with clay or silt content between 15% - 35% can be classified as clay or silt depending on the field Engineers assessment of in-situ behaviour. Where material is for re-use and therefore disturbed, only soils with clay or silt >35% are classified as clay or silt

BS 1377 Particle Size Analysis

Site Investigations Limited

BS Sieve size, mm	Percent passing	Hydrometer analysis	
		Diameter, mm	% passing
100	100	**0.0630**	
90	100	**0.0200**	
75	100	**0.0060**	
63	100	**0.0020**	
50	100		
37.5	100		
28	100		
20	100		
14	98.5		
10	96.5		
6.3	93.3		
5.0	91.6		
2.36	84		
2.00	82.7		
1.18	75.6		
0.600	69.5		
0.425	66.2		
0.300	63.3		
0.212	60.6		
0.150	57.7		
0.063	52		

Cobbles, %	0
Gravel, %	17
Sand, %	31
Clay / Silt, %	52



Client :	Kavco
Project :	Kilgobbin, Stepaside

Lab. No :	24/1802
Sample No :	JOT01

Hole ID :	BH 06
Depth, m :	1.00

Material description :	slightly sandy slightly gravelly silty CLAY
Remarks :	Soils with clay or silt content between 15% - 35% can be classified as clay or silt depending on the field Engineers assessment of in-situ behaviour. Where material is for re-use and therefore disturbed, only soils with clay or silt >35% are classified as clay or silt

Chemical Testing
In accordance with BS 1377: Part 3

Client	Kavco
Site	Kilgobbin, Stepaside
S.I. File No	6400 / 24
Test Lab	Site Investigations Ltd., Carhugar The Grange, 12th Lock Rd., Lucan Co. Dublin. Tel (01) 6108768 Email:info@siteinvestigations.ie
Report Date	12th December 2024

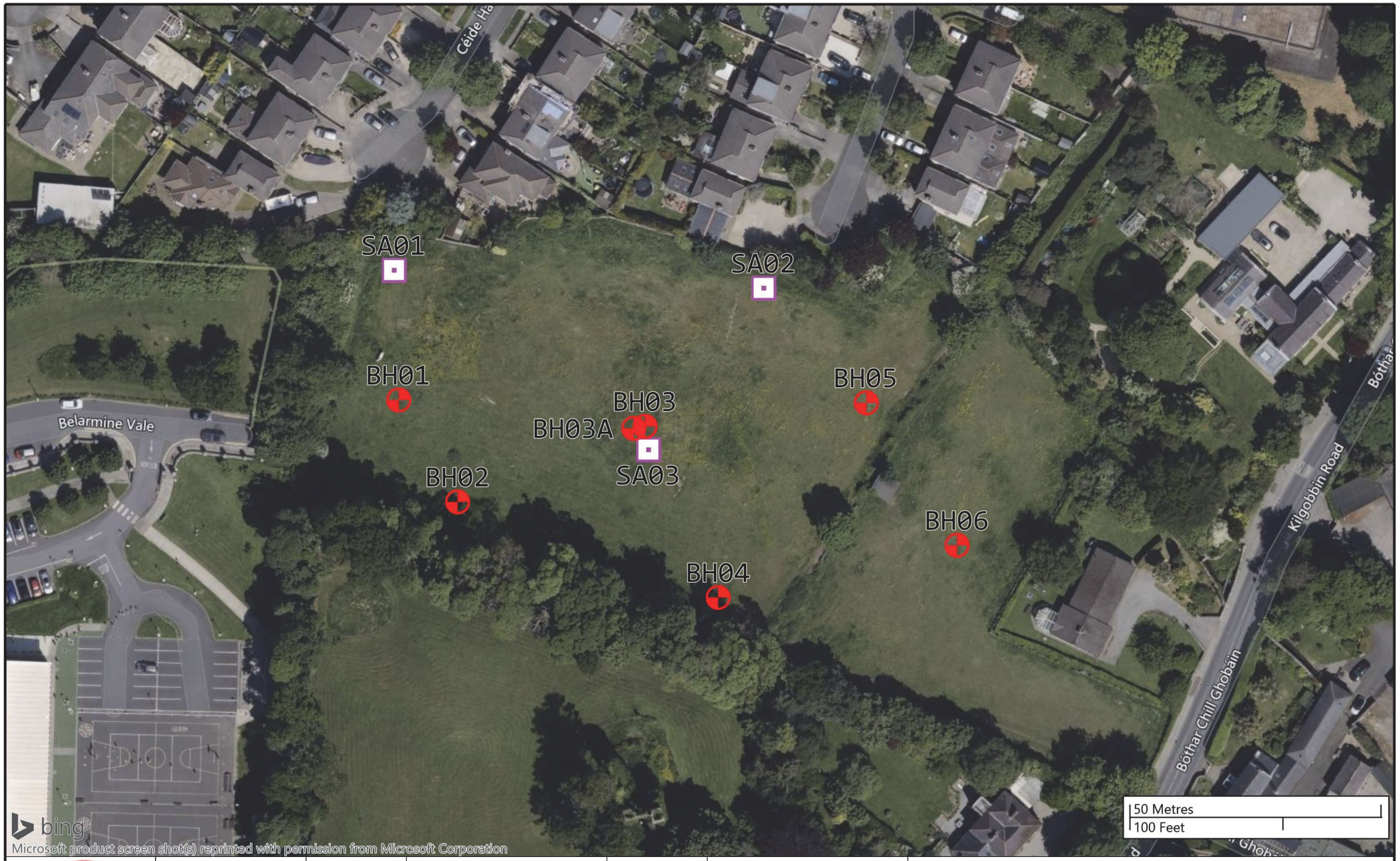
Hole Id	Depth (mBGL)	Sample No	Lab Ref	pH Value	Water Soluble Sulphate Content (2:1 Water-soil extract) (SO_3) g/L	Water Soluble Sulphate Content (2:1 Water-soil extract) (SO_3) %	Acid Soluble Sulphate Content (2:1 Water-soil extract) (SO_3) g/L	Acid Soluble Sulphate Content (2:1 Water-soil extract) (SO_3) %	Chloride ion Content (water:soil ratio 2:1) %	% passing 2mm
BH01	1.00	JOT16	24/1796	8.86	0.126	0.092			0.15	72.8
BH02	1.00	JOT21	24/1797	8.73	0.117	0.065			0.18	55.5
BH03	1.00	JOT13	24/1798	8.78	0.130	0.091			0.19	69.8
BH04	1.00	JOT09	24/1799	8.74	0.123	0.084			0.16	68.3
BH05	1.00	JOT05	24/1800	8.32	0.117	0.075			0.18	64.0
BH06	1.00	JOT01	24/1802	8.48	0.129	0.106			0.15	82.7

Appendix 4

Survey Data

Survey Data

Location	Irish Transverse Mercator		Elevation	Irish National Grid	
	Easting	Northing		Easting	Northing
Cable Percussive Boreholes					
BH01	719169.609	724821.789	104.83	319244.790	224793.511
BH02	719182.008	724801.735	104.85	319257.192	224773.453
BH03	719219.183	724817.754	104.15	319294.375	224789.476
BH03A	719216.868	724817.312	104.12	319292.059	224789.034
BH04	719234.702	724783.955	104.29	319309.898	224755.669
BH05	719263.300	724823.575	102.59	319338.501	224795.298
BH06	719282.283	724795.568	102.69	319357.489	224767.285
Soakaway Tests					
SA01	719168.006	724847.673	104.43	319243.187	224819.401
SA02	719242.230	724845.959	102.81	319317.427	224817.687
SA03	719219.962	724813.111	104.35	319295.154	224784.832



Site Investigations Ltd
The Grange
12th Lock Road
Lucan
Co. Dublin
T: 01 6108768
e: info@siteinvestigations.ie

Contract No:	6400	Client:	Kavco
Contract Name:	Kilgobbin	Engineer:	-
Location:	Stepaside, Co. Dublin	Scale:	1:1000
Title:	Site Plan	Drawn By:	SL

Legend Key

- Locations By Type - CP
- Locations By Type - IP