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JSA John Spain Associates
Planning & Development Consultants
Chartered Town Planners

ENVIRONMENTAL IMPACT ASSESSMENT REPORT VOLUME III APPENDICES

In respect of lands at
Flemington South LRD

Prepared on behalf of
Glenveagh Homes Ltd.

December 2025

DOCUMENT CONTROL SHEET

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Client:	Glenveagh Homes Ltd.
Project Title:	Flemington South LRD
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APPENDIX A: CUMULATIVE PROJECTS AND OTHER ASSESSMENTS

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Appendix A1 - Cumulative Projects & Methodology

Appendix A2 - Other Relevant Assessments Considered

APPENDIX A1 - CUMULATIVE PROJECTS

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Cumulative Projects

Ref:	Location	Description
F23A/0634	Stephenstown Business Park, Stephenstown, Balbriggan, County Dublin, K32X996	Permission for development at the existing waste recovery facility located at Stephenstown Business Park, Stephenstown, Balbriggan, County Dublin, K32X996. The development will consist of: (i) An increase in the total annual waste intake to 95,500 tonnes per annum for recovery; (ii) Revision of operating hours to include public holidays; (iii) Ancillary works comprising a covered bicycle store (6 no. spaces) and reconfiguration of the existing car parking area (7 no. car spaces and 1 no. motorcycle space) to include an electric vehicle charging point and associated underground cable ducting. The development will comprise an activity requiring a review of the existing Industrial Emissions licence (EPA reference no. P1014-01).
F22A/0480	Stephenstown Industrial Estate, Balbriggan, Dublin	The development will principally comprise the construction of a two-storey warehouse unit with ancillary office and staff facilities and associated development as well as a single storey garage. The warehouse unit will have a maximum height of 14.78 metres with a gross floor area of 1,996 sq m including warehouse area (1,670 sq m), ancillary staff facilities (184 sq m) and ancillary office area (142 sq m). The garage will have a maximum height of 14.358 metres and a gross floor area of 500sq m. Final Grant 5th April 2023.
F22A/0033	Lands at Harvest Lodge, Folkstown Lane (Folkstown Little Td) and lands at Folkstown Great Td, Naul Road, Balbriggan, Co Dublin.	The development will consist of a distillery (total floor area of floor area 5659m2) which includes provision of an ancillary visitor centre, storage shed along with associated external plant. Final Grant 10th February 2023
F23A/0075	Bremore Pastures, Balbriggan, Co. Dublin	Permission for the construction of 4no. two storey terraced 3 bedroom dwellings, rear garden areas, boundary walls, connections to existing services and all associated site development works at Bremore Pastures, Balbriggan, County Dublin.
LRD0048/S3E (ABP Ref: 321437-24) – Folkstown LRD	within the townlands of 'Clonard or Folkstown Great', and 'Clogheder',	197 no. dwellings, and ancillary infrastructure to facilitate Phase 4 lands at Ladywell in Balbriggan.

Ref:	Location	Description
	Balbriggan, Co. Dublin c.7.15 hectares	
F22A/0670	(on lands of c. 6.29 ha.) relating to: 'Phase 3' to be known as 'Ladywell', within the townlands of, 'Clonard or Folkstown Great', 'Clogheder' & 'Flemingtown Balbriggan, Co. Dublin	The development will consist of Phase 3C as well as roads, services and public open space relating to the overall Phase 3 Ladywell lands as follows: A) 75 no. dwellings comprising 68 no. houses consisting of 22 no. 2 bedroom dwellings (House Types E1, E2, E4, E6, E7, E8, E9, G1, G2, G3, G4, G5], 41 no. 3 bedroom dwellings (House Types D1, D2, F1, F2, F3, F4, F4A, F5, F5A, N1, N2, N3], 2 no. 4 bedroom detached dwellings (house type M1] - all 2-storey), & 3 no. 5 bedroom detached dwellings [House Type K1 - 2.5 storeys - 3 floors), (in a mixture of semi-detached, terraced, end of terrace and detached units); all with associated private open space; B) 7 no. 1 bedroom apartment units consisting of 3 no. 1 bedroom triplex units (T1, T2, T3] in a 3-storey building, 4 no. 1 bedroom Maisonettes [Apartment Types P1 & P2] in 2 no. 2-storey buildings, (all with private open space); provision of single storey cycle parking; bin stores; and ESB substations, solar panels on roofs; as well as 238 no. surface car parking spaces; C) Public Open Space of c. 1.34 hectares (Phase 3C - c. 0.38 ha), (with additional 0.48 hectares of incidental open space) as well as communal (c. 0.06 ha) and private open space; all associated landscaping and drainage works (including attenuation] with public lighting, planting and boundary treatments, including regrading/reprofiling of site where required; D) Provision of Class 1 Public Open Space (c. 0.65 hectares), with play equipment (accessed from Hamlet Lane) located to the west of Bremore Pastures and Hastings Lawn, south of Flemington Lane, [proposal includes alterations to part of the Class 1 public park and associated works approved under Reg. Ref. F15A/0550]; E) Provision of roads and services infrastructure (surface water, foul and water supply) to facilitate the development of the remainder of Phase 3 lands (Phases 3A, 3B & 3D) including public lighting, SuDS drainage and services infrastructure, as well as vehicular and pedestrian connections to the 'Boulevard Road' and all associated landscaping and ancillary site development works; F) Signalised upgrade of the junction of Boulevard Road and the Clonard Road (R122) as well as pedestrian crossings along Boulevard Road;
F22A/0526	Phase 3 to be known as 'Ladywell' within the townlands of Clonard or Folkstown	Development (on lands of c. 6.70 ha) relating to: 'Phase 3' to beknown as 'Ladywell' within the townlands of Clonard or Folkstown Great, Clogheder & Flemingtown, Balbriggan, Co Dublin. (Phase 3 lands bounded generally by undeveloped lands to the north, undeveloped lands to the south, Boulevard Road to the east, and undeveloped lands to the west (to the rear of

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Ref:	Location	Description
	Great, Clogheder & Flemington, Balbriggan, Co. Dublin	local road L1130). The proposal includes a separate site of Class 1 Public open Space of c. 0.65 hectares in the adjoining townland of Flemington to the north (accessed from Hamlet Lane, Bremore Pastures Drive, Balbriggan). The development will consist of Phase 3B as well as roads, services and public space relating to the overall Phase 3 Ladywell lands as follows: A) 95 no. dwellings comprising 79 no. 2-storey houses consisting of 20 no 2 bedroom dwellings (House Types E1, E1A, E2, E4, E5, E6), 59 no. 3 bedroom dwellings (House Types D1, D1A, D2, D2A, F1, F1A, F2, F3, F4, F5, F6) all with associated private open space (in a mixture of semi-detached, terraced and detached units), 16 no. 1 bedroom Maisonettes (Apartment Types P1, P1A & P2, P2A), all with private open space; in 4 no. 2 storey building, single storey cycle parking; bin stores; and ESB substations, solar panels on roofs; as well as 305 no. surface car parking spaces; B) Public Open Space of c. 1.34 hectares, (with additional 0.48 hectares of incidental open space along riparian corridor) as well as communal and private open space; all associated landscaping and drainage works (including attenuation) with public lighting, planting and boundary treatments, including regrading/re-profiling of site where required; C) Provision of Class 1 Public Open Space (c. 0.65 hectares), with play equipment (accessed from Hamlet Lane) located to the west of Bremore Pastures and Hastings Lawn, south of Flemington Lane, (proposal includes alterations to part of the Class 1 public park and associated works approved under Reg. Ref. F15A/0550); D) Provision of roads and services infrastructure (surface water, foul and water supply) to facilitate the development of the remainder of Phase 3 lands (Phases 3A, 3C & 3D) including public lighting, SuDS drainage and services infrastructure, as well as vehicular and pedestrian connections to the "Boulevard Road" and all associated landscaping and ancillary site development works; E) Signalised upgrade of the junction of Boulevard Road and the Clonard Road (R122) as well as pedestrian crossings along Boulevard Road;
F21A/0055	Phase 3 to be known as 'Ladywell' within the townlands of Clonard or Folkstown Great, Clogheder & Flemington, Balbriggan, Co. Dublin	The development will consist of Phase 3A as well as roads, services and public space relating to the overall Phase 3 Ladywell Masterplan lands as follows: A) 99 no. dwellings comprising 73 no. 2-storey houses consisting of 24 no. 2 bedroom dwellings [House Types E1, E2, E3, E4), 44 no. 3 bedroom dwellings (House Types B1, B2,B3, D1, D3, F1, F2, F3, F4, F5] & 5 no. 4 bedroom dwellings [House Types M1 & M2]), all with private open space; 16 no. duplex apartments (8 no. 2 bedroom [Types X1, X3] and 8 no. 3 bedroom units [Types X2, X4) in a 3 storey duplex building (including terraces at first floor level, single storey refuse storage building and cycle parking); 6 no. 1 bedroom 'triplex' apartments [Types T1, T2, T3] with balconies at first and second storey levels in 2 no. 3 storey buildings along with a single storey bicycle store & 4 no. 1 bedroom 'maisonette' apartments in 2 no 2 storey buildings (Types P1 & P2]) & bin stores as well as 172

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Ref:	Location	Description
		no. car parking spaces; B) Public Open Space of c. 1 hectare, (with additional 0.27 hectares of open space along riparian corridor) as well as communal and private open space; all associated landscaping and drainage works (including attenuation) with public lighting, planting and boundary treatments, including regrading/re-profiling of site (and ditches] where required; C) Provision of Class 1 Public Open Space (c. 0.65 hectares), with play equipment (accessed from Hamlet Lane) located to the west of Bremore Pastures and Hastings Lawn, south of Flemington Lane, (proposal includes alterations to part of the Class 1 public park and associated works approved under Reg. Ref. F15A/0550]; D) Provision of roads and services infrastructure (surface water, foul and water supply) to facilitate the future development of Phase 3 lands (Phases 3B-3D) including public lighting, Suds drainage and services infrastructure, as well as vehicular and pedestrian connections to the 'Boulevard Road' and all associated landscaping and ancillary site development works; E) Signalised upgrade of the junction of Boulevard Road and the Clonard Road (R122) as well as pedestrian crossings along Boulevard Road;
ABP 313210-22 SHD		On the 23rd of March 2023, ACP granted a 10-year permission to the Land Development Agency for development comprising inter alia the construction of 817 no. residential units (377 no. houses, 440 no. apartments), childcare facilities and associated site works, subject to 30 no. standard conditions.
FCC Planning Reg. Ref. F21A/0576 & ABP Ref: 312529-22	Castlelands, Balbriggan	An application for the Advance Infrastructure was submitted to FCC in October 2021 under FCC Reg. Ref. F21A/0576. A decision to grant permission was made by FCC 14th December 2021 and confirmed by ACP on the 8th of November 2022.
F24A.1069E ACP-322977-25	Stephenstown Industrial Estate	Demolition of existing 2 no. storey building on site (c. 1,070 sqm), the construction of a 2 no. storey discount retail store with off-licence use (c. 2,448 sqm gross floor area) c. 1,356 sqm net retail floor area.
An Coimisiún Pleanála - Case reference: PL06F.304673 Planning Authority Case Reference: F19A/0131	Balbriggan Community College, Pine Ridge, Chapel St., Balbriggan, Co. Dublin.	Demolition of existing school and construction of new 3 storey Post Primary School & single storey Special Education Needs Unit. Granted 20/09/2019
An Coimisiún Pleanála - Case reference: OA29N.319866	Located off the coast of Counties Dublin, Meath and Louth	Proposed development known as North Irish Sea Array ("NISA") Offshore Wind Farm.
An Coimisiún Pleanála - Case	Dublin City Centre and Drogheda,	DART + Coastal North Railway Order 2024 - Northern Line between Dublin City Centre and Drogheda

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Ref:	Location	Description
reference: NA29N.320164	located in counties Dublin, Meath and Louth	including the Howth Branch. ACP Decision Make Railway Order with conditions. Date signed 19/08/2025.

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APPENDIX A2 - OTHER RELEVANT ASSESSMENTS CONSIDERED

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Relevant Legislation	Nature of Assessment	Relevant Assessment
Directive 92/43/EEC, the Habitats Directive	Appropriate assessment comes from the Habitats Directive (92/43/EEC), which seeks to safeguard the long-term survival of Europe's most valuable and threatened species and habitats. The geographical areas of particular importance to these species and habitats have been selected as Special Areas of Conservation (SAC) and Special Protection Areas (SPA) which are collectively referred to (in Ireland) as European sites. Together, these sites comprise the pan-European Natura 2000 network of protected areas. One of the measures which protects these areas is the requirement that every project must undergo an assessment of its implications for any European site before consent for the project is given. Consent for the project can only be given after determining that it will not adversely affect the integrity of the site(s) concerned in view of the conservation objectives of that site.1 In order to determine if an appropriate assessment is required, a screening process must be carried out for all applications for planning permission. The Habitats Directive (92/43/EEC) and the associated Birds Directive (2009/147/EC) are transposed into Irish legislation by Part XAB of the 2000 Act and the Birds and Natural Habitats Regulations 2011. The legislative provisions for appropriate assessment screening for planning applications are set out in Section 177U of the 2000 Act.	An Appropriate Assessment Screening Report and NIS prepared by Altemar is included with the planning application. The NIS concludes: "*This report presents an Appropriate Assessment Screening and NIS for the proposed development. It outlines the information required for the competent authority to screen for appropriate assessment and to determine whether or not the proposed development, either alone or in combination with other plans or projects, in view of best scientific knowledge and in view of the sites' conservation objectives, will adversely affect the integrity of the European site.* *On the basis of the content of this report, the competent authority is enabled to conduct an Appropriate Assessment and consider whether, either alone or in combination with other plans or projects, in view of best scientific knowledge and in view of the sites' conservation objectives, will adversely affect the integrity of the European site.* ***No significant effects are likely on Natura 2000 sites, their features of interest or conservation objectives. The proposed project will not will adversely affect the integrity of European sites'*** Fingal County Council, as the competent authority, will carry out an Appropriate Assessment of the proposed development.
Directive 2000/60/EC, The Water	The Water Framework Directive (WFD) (Directive 2000/60/EC) and The Groundwater Directive	The EIAR includes a detailed chapter addressing Water, Hydrology, water quality and the WFD, prepared by AWN.

Relevant Legislation	Nature of Assessment	Relevant Assessment
Framework Directive	(Directive 2006/118/EC) requires all Member States to protect and improve water quality in all waters. The WFD is one of the key overarching instruments in the protection of waters and includes subordinate directives or water-related legislation that complement or have been developed in response to, or coherent with, the requirements of the Water Framework Directive. The WFD requires 'Good Water Status' for all European waters to be achieved through a system of river basin management planning and extensive monitoring by 2015 or, at the least, by 2027. 'Good status' means both 'Good Ecological Status' and 'Good Chemical Status'. The WFD does not require site specific assessments to be undertaken by a developer. It lays down standards for the quality of designated waters ("guide" values as well as "imperative" values) and requires Member States to monitor the quality of designated waters and to take measures to ensure that they comply with the minimum standards1.	According to the EPA maps, the entire proposed development site lies within the Nanny-Delvin Catchment (Catchment ID: 08). The vast majority of the proposed development resides within the PALMERSTOWN_SC_010 Sub-Catchment (Sub-Catchment ID: 08_2). The northernmost portion of the site is located within the Delvin_SC_010 Sub-Catchment (Sub-Catchment ID: 08_1). The current EPA watercourse mapping shows no watercourses within the proposed development site. The main hydrological feature of the area is the Bremore River and its tributaries, the Clogheder Stream and Clonard Brook Stream (EPA Name: CLONARD_or_FOLKSTOWN_GREAT). The Bremore River outfalls / discharges to the Northwestern Irish Sea coastal waterbody (North-West Irish Sea SPA) north of Balbriggan Town Centre approximately 1.7 km east of the subject development (linear distance). The Clonard Brook Stream and Bremore River belongs to the MATT_010 WFD surface water body (European Code: IE_EA_08M010900) whose most recent WFD River (surface) water status (2019- 2024) is 'Poor' with a current WFD risk score (3rd risk cycle) of 'At risk of not achieving good status'. This rating and the main pressures identified on the MATT_010 waterbody is attributed to poor ecological and biological status or potential (Catchments.ie, 2025).
Directive 2001/42/EC, The SEA Directive	The Strategic Environmental Assessment (SEA) Directive 2001/42/EC, on the assessment of the effects of certain plans and programmes on the environment requires that an environmental assessment is carried out of certain plans and programmes which are likely to have significant effects on the environment. Public plans and programmes that are likely to have significant effects on the environment must have a Strategic Environmental Assessment (SEA). The SEA Directive (2001/42/EC) is implemented	The SEA for the Fingal CDP incorporates mitigation to minimise the impact of the plans on the environment. The policies of the plan were formulated with regard to the SEA processes undertaken. The subject site was designated for the nature and form of development proposed under the relevant plan, which has been subject to SEA. This is addressed in further detail in the context of the assessment of alternatives within Chapter 2 of this EIAR.

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Relevant Legislation	Nature of Assessment	Relevant Assessment
	in Ireland by the European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 (SI 435/2004) and the Planning and Development (Strategic Environmental Assessment) Regulations 2004 (SI 436/ 2004), as amended. There are no specific assessments required by the developer under the SEA Directive in respect of the current LRD application on site. SEA has been undertaken by the relevant authority in respect of the South Dublin County Development Plan 2022-2028.	
Directive 2002/49/EC, regarding environmental noise	The Environmental Noise Directive 2002/49/EC relates to the assessment and management of environmental noise; this is the main EU instrument to identify noise pollution levels and to trigger the necessary action both at Member State and at EU level. The Directive requires Member States to prepare and publish, every 5 years, noise maps and noise management action plans for: agglomerations with more than 100,000 inhabitants major roads (more than 3 million vehicles a year) major railways (more than 30.000 trains a year) major airports (more than 50.000 movements a year, including small aircrafts and helicopters) When developing noise management action plans, Member States' authorities are required to consult the concerned public. Relevant bodies develop noise action plans that we consider as appropriate.	Chapter 9 of this EIAR application comprises an assessment of noise and vibration impacts associated with the development. The noise assessment undertaken as part of the EIAR, has regard to the relevant provisions of Directive 2002,49/EC.
Seveso Directive (Directive 82/501/EEC, Directive 96/82/EC, Directive 2012/18/EU)	The Seveso Directive (Directive 82/501/EEC, Directive 96/82/EC, Directive 2012/18/EU) was developed by the EU after a series of catastrophic accidents involving major industrial sites	The subject lands are not proximate to any Seveso/COMAH designated sites. Furthermore, there are no substances to be stored as part of the proposed development that would be controlled under Seveso Directive of COMAH Regulations as set out in Chapter 15 of the EIAR.

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Relevant Legislation	Nature of Assessment	Relevant Assessment
	and dangerous substances. Such accidents can give rise to serious injury to people or serious damage to the environment, both on and off the site of the accident. The Chemicals Act (Control of Major Accident Hazards involving Dangerous Substances) Regulations 2015 (S.I. No. 209 of 2015) (the "COMAH Regulations"), implements the latest Seveso III Directive (2012/18/EU). The purpose of the COMAH Regulations is to transpose the Seveso Directive into Irish law and lay down rules for the prevention of major accidents involving dangerous substances, and to seek to limit as far as possible the consequences for human health and the environment of such accidents, with the overall objective of providing a high level of protection in a consistent and effective manner.	
Directive 2008/50/EC, the clean air for Europe directive	The Clean Air for Europe (CAFE) Directive 2008/50/EC is the prevailing legislation to improve the quality of air in Europe and limit exposure to air pollution. The CAFE Directive set rules including how to monitor, assess, and manage ambient air quality. Overall, the main objective of the CAFE Directive is to reduce human and environmental exposure to air pollutants and ensure that the limits of values and thresholds are not exceeded. The CAFE Directive was transposed into Irish legislation by S.I. No. 180/2011 - Air Quality Standards Regulations 2011. The CAFÉ Directive mandates the location and quantity of air monitoring stations that Environmental Protection Agency (EPA) should	Due to the nature of the proposed development, there are no specific assessments required by the applicant under the CAFE Directive for the Proposed Development. The air quality and climate assessment undertaken as part of the EIAR, which had regard to the relevant provisions of Directive 2008/50/EC, concluded that no significant impacts would arise subject to mitigation

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Relevant Legislation	Nature of Assessment	Relevant Assessment
	undertake ambient air monitoring. If there is an exceedance of the ambient limit value an Air Quality Action Plan must be developed by Local Authorities in conjunction with the EPA. Chapter 9 of this EIAR includes an assessment of air quality and climate impacts associated with the development. The analysis and findings within that chapter of the EIAR were made with regard to the provisions of Directive 2008/50/EC.	
Directive 2007/60/EC, regarding the assessment and management of flood risks	The Floods Directive (Directive 2007/60/EC) establishes a framework for the assessment and management of flood risks, with the aim to reduce the adverse consequences on human health, the environment and material assets. The Floods Directive requires Member States to assess if all water courses and coast lines are at risk from flooding, to map the flood extent and assets and humans at risk in these areas and to take adequate and coordinated measures to reduce this flood risk. The Floods Directive also reinforces the rights of the public to access this information and to have a say in the planning process. The Floods Directive must be implemented in tandem with the WFD. In Ireland, the OPW is the national authority assigned with the implementation of the Floods Directive, which was transposed into Irish law by the EU (Assessment and Management of Flood Risks) Regulations SI 122 of 2010.	Fingal County Council undertook a Strategic Flood Risk Assessment as part of the Development Plan preparation process, which zoned the subject site for the nature of development proposed. The application is accompanied by a detailed Site Specific Flood Risk Assessment Report prepared by Paul McGrail CE.

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APPENDIX B: EIAR SCOPING

Scoping Consultees & Response

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Rory Kunz

From: Rory Kunz
Sent: Thursday 25 September 2025 10:32
To: dublin@fisheriesireland.ie
Subject: FW: Glenveagh Homes Ltd. LRD Balbriggan, Co. Dublin
Attachments: A507-DCA-XX-XX-DR-A-001 - Site Location Map.pdf; A507-DCA-XX-XX-DR-A-015 - Proposed Site Layout.pdf

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Dear Sir/Madam,

On behalf of our client, Glenveagh Homes Ltd., Block C, Maynooth Business Campus, Straffan Road, Maynooth, County Kildare, we enclose an EIAR scoping request in relation to a Large-scale Residential Development (LRD) in respect of lands at Clonard or Folkstown Great in Balbriggan, Co. Dublin.

It is noted that the proposals will replace the previously permitted LRD on the subject lands under FCC Reg. Ref. LRD0006/S3 & ABP-319343-24, which comprised inter alia 564 no. dwelling units on a smaller site of c. 22.62 hectares.

In summary, the development will consist of the construction of 823 no. dwellings, C-Ring Road between Flemington Lane and the Clonard Road roundabout, open space, community/retail floorspace and 2 no. creches on an overall site area of 24.77 hectares comprising 604 no. houses, 204 apartments & 15 no. later living dwellings. The development will also include 2 no. crèches (c. 830 sq. m), Commercial/retail floorspace (2 no. units 300 sq. m), along with 430 sq. m community floorspace in a community mixed use 2 storey pavilion (730 sq. m), Class 1 open space in the western portion of the development (2.38 hectares) as well as a series of public open spaces throughout the site comprising 2.87 ha (c. 16.4% of the net site area of 17.54 hectares).

The subject lands are located on the western edge of Balbriggan and are accessed from the national and regional road network via the M1 Dublin-Belfast Motorway and R122 corridor.

A Confirmation of Feasibility was received from Irish Water on the 22nd of August 2025 and is included with the particulars (CDS25005017 COF).

Rory Kunz

From: Rory Kunz
Sent: Thursday 25 September 2025 10:31
To: manager.dau@npws.gov.ie
Subject: re: Glenveagh Homes Ltd. LRD Balbriggan, Co. Dublin
Attachments: A507-DCA-XX-XX-DR-A-001 - Site Location Map.pdf; A507-DCA-XX-XX-DR-A-015 - Proposed Site Layout.pdf

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It is noted that the proposals will replace the previously permitted LRD on the subject lands under FCC Reg. Ref. LRD0006/S3 & ABP-319343-24, which comprised inter alia 564 no. dwelling units on a smaller site of c. 22.62 hectares.

In summary, the development will consist of the construction of 823 no. dwellings, C-Ring Road between Flemington Lane and the Clonard Road roundabout, open space, community/retail floorspace and 2 no. creches on an overall site area of 24.77 hectares comprising 604 no. houses, 204 apartments & 15 no. later living dwellings. The development will also include 2 no. crèches (c. 830 sq. m), Commercial/retail floorspace (2 no. units 300 sq. m), along with 430 sq. m community floorspace in a community mixed use 2 storey pavilion (730 sq. m), Class 1 open space in the western portion of the development (2.38 hectares) as well as a series of public open spaces throughout the site comprising 2.87 ha (c. 16.4% of the net site area of 17.54 hectares).

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Existing Surface Water

There are 5 no. surface water connection points for this site which it will be into the Flemington Lane at the north boundary of the site, on the Flemington Park at northeast of the boundary, at existing Taylor Hill Terrace, at the north of the Boulevard Road with allowance of 50l/s as part of the granted permission from Taylor Hill Phase 3A, 3B & 3C and to the last connection to the existing Roundabout at R122.

Surface Water Network Design

The surface water design has been designed in accordance with the Greater Dublin Regional Code of Practice for Drainage Works and Sewers for adoption. The drainage network will consist in 5No. catchment attenuating to the green-field runoff at the hydrobrake located in the outfall manhole from each attenuation system. Refer to Figure 6 for Proposed Catchment Area

SUDS

It is proposed to use a sustainable urban drainage system (SuDS) approach to stormwater management throughout the site where possible. The overall strategy aims to provide an effective system to mitigate the adverse effects of urban stormwater runoff on the environment by reducing runoff rates, volumes and frequency, reducing pollutant concentrations in stormwater.

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The SUDs features proposed in our development are as follows:

- Modular Permeable Paving
- Swales
- Bioretention Systems
- Detention Basins
- Petrol Interceptor
- Hydrobrake flow control

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RECEIVED 18/12/2025

Best regards,

Rory Kunz
Executive Director
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Rory Kunz

From: Rory Kunz
Sent: Thursday 25 September 2025 10:32
To: info@nationaltransport.ie
Subject: FW: Glenveagh Homes Ltd. LRD Balbriggan, Co. Dublin
Attachments: A507-DCA-XX-XX-DR-A-001 - Site Location Map.pdf; A507-DCA-XX-XX-DR-A-015 - Proposed Site Layout.pdf

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Sent: Thursday 25 September 2025 10:33
To: landuseplanning@tii.ie
Subject: FW: Glenveagh Homes Ltd. LRD Balbriggan, Co. Dublin
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From: Rory Kunz
Sent: Thursday 25 September 2025 10:27
To: 'planning@water.ie'
Cc: Ian Livingstone
Subject: re: Glenveagh Homes Ltd. LRD Balbriggan, Co. Dublin
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Email: rkunz@johnspainassociates.com
www.jsaplanning.ie | Find us on LinkedIn

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JSA John Spain Associates
Planning & Development Consultants
Chartered Town Planners

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Rory Kunz

From: INFO <Information@tii.ie>
Sent: Wednesday 15 October 2025 14:35
To: Rory Kunz
Subject: TII25-133360 - EIAR Scoping Request - Glenveagh Homes Ltd. LRD. Balbriggan, Co. Dublin.

RECEIVED: 18/12/2025

A Chara,

Thank you for your email of 25 September 2025 in relation to the above. The position in relation to your enquiry is as follows.

Transport Infrastructure Ireland (TII) wishes to advise that it is not in a position to engage directly with planning applicants with respect to proposed developments. TII will endeavour to consider and respond to planning applications referred to it, given its status and duties as a statutory consultee under the Planning Acts. The approach to be adopted by TII in making such submissions or comments will seek to uphold official national road and light rail policy and guidelines, including Spatial Planning and National Roads Guidelines for Planning Authorities (DoECLG, 2012) and TII Publications.

Regard should also be had to other relevant guidance available at www.TII.ie.

The issuing of this correspondence is provided as best practice guidance only and does not prejudice TII's statutory right to make any observations, requests for further information, objections or appeals following the examination of any valid planning application referred.

With respect to EIAR scoping issues, the recommendations indicated below provide only general guidance for the preparation of an EIAR, which may affect the national road networks.

The project promoter should have regard, inter alia, to the following:

Having regard to the EPA Guidelines on the information to be contained in Environmental Impact Assessment Reports, 2022 it is recommended as appropriate that the national road and light rail networks are recognised as strategic transport assets under "material assets". EIAR assessment and mitigation should have regard to the following:

- **National Roads:** Official policy for development at or near national roads is set out in the DoECLG Spatial Planning and National Roads Guidelines for Planning Authorities (2012) available at https://www.gov.ie/en/collection/85b83-planning-guidelines-standards/.

- **TII Publications**: In addition, as part of TII's responsibilities for managing and improving the country's national road and light rail networks, the Authority sets development guidance and standards for traffic and road assessments and construction that may be necessary by reason of proposed development location, scale or typology to be prepared to accompany applications for developments or works. Technical guidance and standards are contained in TII Publications, available at https://www.tiipublications.ie/.

In addition, the EIAR should have regard to, inter alia, the following:

National Road Network:

- TII would be specifically concerned as to the potential significant impacts the development would have on the national road network (and junctions with national roads) in the proximity of the proposed development,

- Consultations should be had with the relevant Local Authority/National Roads Design Office (RDO) with regard to locations of existing and future national road schemes.

- The EIAR should have regard to any prior Environmental Impact Statement or Assessment Report and all conditions and/or modifications imposed by An Bord Pleanála and City Council regarding road schemes in the area. The developer should, in particular, have regard to any potential cumulative impacts.

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TII Publications:

- It would be important that, where appropriate, subject to meeting the appropriate thresholds and criteria and having regard to best practice, a Traffic and Transport Assessment be carried out in accordance with relevant guidelines, noting traffic volumes attending the site and traffic routes to/from the site with reference to impacts on the national road network and junctions of lower category roads with national roads. The Authority's Traffic and Transport Assessment Guidelines (TII Publication No. PE-PDV-02045) should be referred to in relation to proposed development with potential impacts on the national road network. The scheme promoter is also advised to have regard to Section 2.2 of the Guidelines, which addresses requirements for sub-threshold TTA.

- The designers and assessors are asked to consult TII Publications to determine whether a Road Safety Audit is required.

Construction Management and the National Road Network:

- Any Construction Environmental Management Plan (CEMP) prepared to accompany the EIAR shall demonstrate and ensure that any proposed works in the vicinity of the national road comply with TII Publications requirements and mitigation of potential impact on the national road network.

- Any Construction Traffic Management Plan (CTMP) shall demonstrate compliance with TII Publications requirements and include mitigation of potential impact on the national road network.

- Separate structure approvals/permits and other licences and works-specific deeds of indemnity may be required in connection with the proposed routes, including where temporary modification to the road network may be required. Consultation with relevant local authorities, PPP Companies and MMaRC Contractors may also be required.

TII Environmental Assessment Guidance:

- The EIAR should have regard to TII's Environmental Assessment and Construction Guidelines, including the Good Practice Guidance for the Treatment of Noise during the Planning of National Road Schemes (March 2014),

The EIAR should consider the European Communities (Environmental Noise) Regulations 2018 (S.I. No. 549 of 2018) and, in particular, how the development will affect future action plans by the relevant competent authority. The developer may need to consider the incorporation of noise barriers to reduce noise impacts (see Good Practice Guidance for the Treatment of Noise during the Planning of National Road Schemes (March 2014)):

- Environmental Impact Assessment shall include provision for travel planning/mobility management planning in the interests of protecting national roads capacity in the interests of sustainable travel policy. Transport analysis should also consider:

    I. A mobility management plan should accompany the transport assessment.

    II. Modal share targets should be outlined, and how any PT modal share is accommodated.

III. Measures proposed to reduce car dependency should be outlined.

IV. Detailed phasing proposals of development with associated transport infrastructure provision are required.

V. Consider and address cumulative impacts of other development and impacts on road capacity.

VI. The traffic and transport assessment should consider all road users.

VII. Mitigation measures should be aligned with the phasing of road infrastructure improvements and required public transport interventions; all clearly outlined.

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- Any proposals related to future public transport provision are a matter for the NTA.

Notwithstanding any of the above, the developer should be aware that this list is non-exhaustive; thus, site and development-specific issues should be addressed in accordance with best practice.

I hope this information is of assistance to you.

Yours sincerely,

Rachel Begley
Regulatory & Administration Executive
Transport Infrastructure Ireland

www.tii.ie info@tii.ie +353 (0)1 646 3600

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Uisce Éireann
Oifig Sheachadta na
Cathrach Theas
Cathair Chorcaí
Uisce Éireann
PO Box 448
South City
Delivery Office
Cork City
www.water.ie

Uisce Éireanns Ref: PN2500030454

Planning Ref: EIAR Scoping Request

Planning Authority: Fingal County Council

Issue Date: 23 October 2025

Development Location:

Lands at Clonard or Folkstown Great in Balbriggan, Co. Dublin

Development Description:

EIAR scoping request in relation to a Large-scale Residential Development (LRD) in respect of lands at Clonard or Folkstown Great in Balbriggan, Co. Dublin. It is noted that the proposals will replace the previously permitted LRD on the subject lands under FCC Reg. Ref. LRD0006/S3 & ABP-319343-24, which comprised inter alia 564 no. dwelling units on a smaller site of c. 22.62 hectares. In summary, the development will consist of the construction of 823 no. dwellings, C-Ring Road between Flemington Lane and the Clonard Road roundabout, open space, community/retail floorspace and 2 no. creches on an overall site area of 24.77 hectares comprising 604 no. houses, 204 apartments & 15 no. later living dwellings. The development will also include 2 no. crèches (c. 830 sq. m), Commercial/retail floorspace (2 no. units 300 sq. m), along with 430 sq. m community floorspace in a community mixed use 2 storey pavilion (730 sq. m), Class 1 open space in the western portion of the development (2.38 hectares) as well as a series of public open spaces throughout the site comprising 2.87 ha (c. 16.4% of the net site area of 17.54 hectares).

A Chara,

Thank you for your recent EIAR Scoping Request which we have reviewed. Uisce Éireann has the following comments for your consideration.

Uisce Éireann notes that while there are no changes to the site location, there are, however, changes to the overall site size, number of units, and the layout of the Development, since the Developer's previous engagement with Uisce Éireann through the Pre Connection Enquiry Process – our reference for previous engagement at this site location: CDS25005017. It is recommended that the Developer re-engage with Uisce Éireann Connection and Developer Services with a revised Pre Connection Enquiry.

Stiúrthóirí / Directors: Jerry Grant (Cathaoirleach / Chairperson), Niall Gleeson (POF / CEO), Gerard Britchfield, Douglas Millican, Michael Nolan, Patricia King, Eileen Maher, Cathy Mannion, Paul Reid, Michael Walsh.
Oifig Chláraithe / Registered Office: Teach Colvill, 24-26 Sráid Thalbóid, Baile Átha Cliath 1, D01 NP86 / Colvill House, 24-26 Talbot Street, Dublin, Ireland D01NP86
Is cuideachta ghníomhaíochta ainmnithe atá faoi theorainn scaireanna é Uisce Éireann / Uisce Éireann is a designated activity company, limited by shares.
Cláraithe in Éirinn Uimh.: 530363 / Registered in Ireland No.: 530363.

As noted in previously issued Confirmation of Feasibility at this site location, the proposed Development location conflicts with Uisce Éireann assets that are present on the site. The Developer has to demonstrate that proposed structures and works will not inhibit access for maintenance or endanger structural or functional integrity of the assets during and after the works. Drawings (showing clearance distances, changing to ground levels) and Method Statements should be included in the Detailed Design of the Development. For design submissions and queries related to diversion/build near or over, please contact IW Diversion Team via email address diversions@water.ie

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In addition to the above the following aspects of water & wastewater services should be addressed in the scope of an EIAR and planning proposals, ahead of submitting your planning application to avoid unnecessary delays.

a) Protection of drinking water source(s) from potentially adverse impacts is a priority for Uisce Éireann. It is Uisce Éireanns current policy to maintain safe and secure drinking water supplies and ensure that development will not give rise to any deterioration in water quality. Development proposals shall not impact public drinking water sources and/or abstraction point(s). It is also a requirement of the Water Framework Directive that waters used for the abstraction of drinking water are protected to avoid deterioration in quality. Where a development proposal has the potential to impact an Uisce Éireann Drinking Water Source(s), the applicant shall provide details of measures to be taken to ensure that there will be no negative impact to Uisce Éireann's Drinking Water Source(s) during the construction, operational and decommissioning phases of the development.

b) Hydrological / hydrogeological pathways between the applicant's site and receiving waters should be identified as part of an EIAR and/or the planning application.

c) Where the development proposes the backfilling of materials, the applicant is requested to include breakdown of the chemical components of the materials proposed.

d) Where the development proposes the backfilling of materials, the applicant is requested to include details of best practice monitoring regime(s) to inform protection of ground waters, aquifers and drinking water source abstractions.

e) Potential impacts of the development on the capacity of water services (*i.e. do existing water services have the capacity to cater for the new development*) - If your proposals require a connection(s) to either a public water supply or sewage collection system, you are advised to submit a Pre-Connection Enquiry (PCE) enquiry to Uisce Éireann to determine the feasibility of connection to the Uisce Éireann network ahead of lodging your planning application. The PCE should be submitted to Uisce Éireann well in advance of lodging your planning application. Lodging a COF with your planning application helps avoids delays in the consenting process.

f) In relation to a development that would discharge trade effluent, any upstream treatment or attenuation of discharges required prior to discharging to an Uisce Éireann collection network.

g) In relation to the management of surface water; the potential impact of surface water discharges to combined sewer networks and potential measures to stop surface waters from combined sewers. Uisce Éireann does not permit surface waters into our sewer network.

h) Any physical impact on Uisce Éireann assets – reservoir, drinking water source, treatment works, pipes, pumping stations, discharges outfalls etc. including any relocation of assets.

i) When considering a development proposal, the applicant is advised to determine the location of public water services assets, possible connection points from the applicant's site / lands to the public network and any drinking water abstraction catchments to ensure these are included and fully assessed in any pre-planning proposals. Details, where known, can be obtained by emailing an Ordnance Survey map identifying the proposed location of the applicant's intended development to datarequests@water.ie

j) Other indicators or methodologies for identifying infrastructure located within the applicant's lands are the presence of registered wayleave agreements, visible manholes, vent stacks, valve chambers, marker posts etc. within the proposed site.

k) Any potential impacts on the assimilative capacity of receiving waters in relation to Uisce Éireann discharge outfalls including changes in dispersion / circulation characterises. Hydrological / hydrogeological pathways between the applicant's site and receiving waters should be identified within the report.

l) Any potential impact on the contributing catchment of water sources either in terms of water abstraction for the development (*and resultant potential impact on the capacity of the source*) or the potential of the development to influence / present a risk to the quality of the water abstracted by Uisce Éireann for public supply should be identified within the report.

m) Where a development proposes to connect to an Uisce Éireann network and that network either abstracts water from or discharges wastewater to a "protected"/ sensitive area, consideration as to whether the integrity of the site / conservation objectives of the site would be compromised should be identified within the report.

n) Uisce Éireann does not permit build over of its assets. Separation distances from public infrastructure, as per Uisce Éireann's Standards, Codes and Practices must be achieved. It is the applicant's responsibility to submit a diversion enquiry to Uisce Éireann Diversions Section (diversions@water.ie) prior to construction, where a potential build over of public assets is in question and/or where the applicants proposals cannot achieve separation distances from public infrastructure as per UÉ Standards & Codes of Practice. As an applicant you are required to;

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- survey the site to determine the exact location of the public assets. Any trial investigations should be carried out with the agreement and in the presence of Uisce Éireann. All queries relating to in situ public infrastructure should be directed to diversions@water.ie
- Provide evidence of separation distances between the existing Uisce Éireann assets and proposed structures, other services, trees, etc. have to be in accordance with UÉ Standards & Codes of Practice

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o) Where an existing connection is in place, the applicant or developer may be required to enter into a new or revised water and/or wastewater connection agreement(s) with Uisce Éireann prior to the commencement of this development.

p) Where new connection(s) are sought, the applicant shall enter into water and/or wastewater connection agreement(s) with Uisce Éireann prior to the commencement of this development.

Queries relating to the comments above should be directed to planning@water.ie. EIAR Scoping Requests should be sent to planning@water.ie

Dermot Phelan,

Connections Delivery Manager

APPENDIX C: SOIL AND LANDTAKE

Site Investigations (including testing)

Appendix 5.1- TII Criteria Rating Importance

Appendix 6.1- TII Criteria Rating Importance

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Site Investigations (including testing)

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PROPOSED NEW
HOUSING DEVELOPMENT
NAUL ROAD BALBRIGGAN
MALLINCROSS LTD

MARTIN PETERS ASSOC.
CONSULTING ENGS

CONTENTS

I	INTRODUCTION
II	FIELDWORK
III	TESTING
III	DISCUSSION

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I	BORING RECORDS
II	TRIAL PIT LOGS AND PHOTOS
III	BRE DIGEST 365 TESTS
IV	LABORATORY
	a. Geotechnical
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	c. Ground Water Analyses
V	SITE PLAN

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FOREWORD

The following Conditions and Notes on Site Investigation Procedures should be read in conjunction with this report.

General.

Recommendations made, and opinions expressed in the report are based on the strata observed in the exploratory holes, together with the results of in-situ and laboratory tests. No responsibility can be held for conditions which have not been revealed by exploratory work, or which occur between exploratory hole locations. Whilst the report may suggest the likely configuration of strata, both between exploratory hole locations, or below the maximum depth of the investigation, this is only indicative, and liability cannot be accepted for its accuracy.

Unless specifically stated, no account has been taken of possible subsidence due to mineral extraction below or close to the site.

Standards

The ground investigation works for this project have been carried out by IGSL in accordance with Eurocode 7 - Part 2: Ground Investigation & Testing (EN 1997-2:2007). This has been used together with complementary documents such as BS 5930 (1999), BS 1377 (Parts 1 to 9) and Engineers Ireland Specification & Related Documents for Ground Investigation in Ireland (2006). The following Irish (IS) and European Standards or Norms are referenced:

- IS EN 1997-2 Eurocode 7: 2007 – Geotechnical Design – Part 2: Ground Investigation & Testing
- IS EN ISO 22475-1:2006 Geotechnical Investigation and Sampling – Sampling Methods & Groundwater Measurements
- IS EN ISO 14688-1:2002 Geotechnical Investigation and Testing – Identification and Classification of Soil, Part 1: Identification and Description
- IS EN ISO 14688-2:2004 Geotechnical Investigation and Testing – Identification and Classification of Soil, Part 2: Classification Principles

Routine Sampling.

Undisturbed samples of soils, predominantly cohesive in nature are obtained unless otherwise stated by a 104mm diameter open-drive tube sampler or Piston Sampler. In granular soils, and where undisturbed sampling is inappropriate, disturbed samples are collected. Smaller disturbed samples are also recovered at intervals to allow a visual examination of the full strata section.

In-Situ Testing.

Standard penetration tests were conducted strictly in accordance with Section 4.6 of IS EN 1997-2:2007. The SPT equipment (hammer energy test) has been calibrated in accordance with EN ISO 22476-3:2005 to obtain the Energy Ratio (E_r) of each hammer. A calibration certificate is available upon request. The E_r is defined as the ratio of the actual energy E_{meas} (measured energy during calibration) delivered to the drive weight assembly into the drive rod below the anvil, to the theoretical energy (E_{theor}) as calculated from the drive weight assembly. The recorded number of blows (N) reported on the engineering logs are uncorrected. In sands, the energy losses due to rod length and the effect of the overburden pressure should be taken into account (see IS EN ISO 22476-3:2005).

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Groundwater

The depth of entry of any influx of groundwater is recorded during the course of boring operations. However, the normal rate of boring does not usually permit the recording of an equilibrium level for any one water strike. Where possible drilling is suspended for a period of twenty minutes to monitor the subsequent rise in water level. Groundwater conditions observed in the borings or pits are those appertaining to the period of investigation. It should be noted however, that groundwater levels are subject to diurnal, seasonal and climatic variations and can also be affected by drainage conditions, tidal variations etc.

Engineering Logging

Soil and rock identification has been based on the examination of the samples recovered and conforms with IS EN ISO 14688-1:2002 and IS EN ISO 14689-1:2004.

Where peat has been encountered during site works, samples have been logged in accordance with the Von Post Classification (ref. Von Post, L. 1992. Sveriges Gologiska Undersoknings torvinventering och nogra av dess hittils vunna resultat (SGU peat inventory and some preliminary results) Svenska Mosskulturforeningens Tidskrift, Jonkoping, Swedden, 36, 1-37 & Hobbs N. B. Mire morphology and the properties of some British and foreign peats. QJEG, Vol. 19, 1986).

Retention of Samples.

After satisfactory completion of all the scheduled laboratory tests on any sample, the remaining material is discarded unless a period of retention of samples is agreed, it is our normal practice to discard all soil samples one month after submission of our final report.

Reporting

Recommendations made and opinions expressed in this report are based on the strata observed in the exploratory holes, together with the results of in-situ and laboratory tests. No responsibility can be held by IGSL Ltd for ground conditions between exploratory hole locations.

The engineering logs provide ground profiles and configuration of strata relevant to the investigation depths achieved and caution should be taken when extrapolating between exploratory points. No liability is accepted for ground conditions extraneous to the investigation points. Unless specifically stated, no account has been taken of possible subsidence due to mineral extraction, mining works or karstification below or close to the site.

This report has been prepared for the project client and the information should not be used without prior written permission. Any recommendations developed in this report specifically relate to the proposed development. IGSL Ltd accepts no responsibility or liability for this document being used other than for the purposes for which it was intended.

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REPORT ON A SITE INVESTIGATION FOR A HOUSING DEVELOPMENT AT NAUL ROAD BALBRIGGAN FOR MALINCROSS LIMITED

MARTIN PETERS AND AASSOCIATES
CONSULTING ENGINEERS

Report No; 22009 **October 2019**

I Introduction

A new residential development is proposed for lands located at Naul Road, Balbriggan, County Dublin.

An investigation of sub soil conditions in the area of the new development has been carried out by IGSL for Martin Peters Associates (MPA), on behalf of the developers, Malincross Ltd.

The scheduled site investigation included the following elements:

- Boreholes with Standpipes 4 Nr.
- Trial Pit excavations 17 Nr.
- BRE Digest 365 Percolation 4 nr.
- Geotechnical Laboratory Testing
- Environmental Laboratory Testing

This report includes all factual data from field operations and laboratory and discusses these findings relative to the proposed new development.

II Fieldwork

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The site and the proposed exploratory locations are noted on the drawings enclosed in Appendix V. This drawing was provided by MPA.

The development is located off the Naul Road on a sloping greenfield site with residential developments to the north and east.

The various elements of the investigation are detailed in the following paragraphs. All field works were supervised by an experienced geotechnical engineer who carefully recorded stratification, recovered samples as required and prepared detailed records.

Exploratory locations were accurately surveyed and referenced to National Grid Co-Ordinates. Prior to commencement each location was scanned electronically (CAT) to ensure that existing services were not damaged. An inspection pit was opened at each borehole to confirm the absence of services.

Boreholes

Four boreholes were scheduled. Borehole refusal was recorded at shallow depth in several locations and holes were re-bored to advance the investigation depth. Holes are referenced BH01 to BH04.

Detailed geotechnical records are contained in Appendix I to this report - the records give details of stratification, sampling, in-situ testing and groundwater. Note is also taken of any obstructions to normal boring requiring the use of the heavy chisel for advancement. It was not possible to recover undisturbed samples because of the high stone/cobble content of the strata encountered.

Topsoil with some soft sandy clay extends to depths between 0.20 and 0.50 metres. Firm brown sandy gravelly CLAY is then generally encountered and continues to depths ranging from 1.00 to 2.30 metres. The stratum then increases to stiff consistency and boreholes continued to final refusal depths ranging from 2.50 to 4.90 metres. A thin band of angular gravel was noted at the base of BH04A from 2.00 to 2.50 m.

The final refusal depths should not be taken as indicative of bedrock horizon. Proof core drilling to confirm bedrock parameters was not scheduled for this project.

No ground water ingress was observed during the course of borehole construction other than at 1.50 metres BGL in BH03. Standpipes were installed at each location to permit long-term ground water observation.

Trial Pits

Seventeen Trial Pits were opened using an 8 tonne excavator under engineering supervision. Detailed trial pit logs with photographs are enclosed in Appendix II.

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The records reflect some variation in stratification. Topsoil (GL to 0.50 metres) overlies firm brown sandy gravelly SILT/CLAY. This stratum increases to stiff consistency in some locations.

Zones of gravelly SAND were noted in TP04. TP05, TP07, TP09and TPP17. Some FILL material was noted at TP04 and TP11. TP11 was terminated at 1.50 metres due to concerns regarding the possible presence of underground services.

The presence of weathered rock horizon has been indicated by shallow refusal in several trial pit locations and recovery of angular limestone fragments.

All trial pits were dry and stable during the course of the investigation with the exception of TP17 where water was noted at 2.00 metres BGL in weathered rock.

Samples were recovered during the trial pitting operation. These were sent to the laboratory for inspection and a schedule of testing was prepared.

Trial Pits were carefully backfilled with excavated material and the affected areas were reinstated on completion of the investigation.

The visual assessment of excavations by the experienced geotechnical engineer is used to determine the depth to a suitable founding medium. The brown gravelly SILT/CLAY stratum with firm / stiff consistency should be suitable for foundation construction with an allowable bearing pressure of the order of 125 KPa.

The depths to achieve this soil strength are summarised as follows in **TABLE A.**

Ref.No.	Firm Clay	Sand/Gravel	Weathered Rock	Final Depth
TP01	0.40 – 2.30		2.30 – 2.50	2.50
TP02	0.40 – 2.00		2.00 – 2.20	2.20
TP03	0.40 – 3.50			3.50
TP04	0.80 – 2.10	2.10 – 2.90	2.90 – 3.00	3.00
TP05	0.40 – 1.30	1.30 – 3.50		3.50
TP06	0.40 – 1.30		1.30 – 1.50	1.50
TP07	0.40 – 1.40	1.40 – 3.50		3.50
TP08	0.40 – 0.80		0.80 – 1.50	1.50
TP09	0.40 – 1.50	1.50 – 3.10	3.10 – 3.20	3.20
TP10	0.40 – 1.20		1.20 – 2.20	2.20
TP11	**0.00 – 1.50 (FILL)**			**1.50**
TP12	0.40 – 0.60		0.60 – 1.60	1.60
TP13	0.50 – 1.00		1.00 – 1.50	1.50
TP14	0.50 – 1.20		1.20 – 1.50	1.50
TP15	0.40 – 0.80		0.80 – 1.20	1.20
TP16	0.40 – 1.00		1.00 – 1.20	1.20
TP17	0.40 – 0.80	0.80 – 1.50	1.50 – 2.50	2.50

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Percolation Test (BRE Digest 365)

Infiltration testing was performed in accordance with BRE Digest 365 'Soakaway Design' at four locations. Details are presented in Appendix III . The Test Pits were opened to approximately 2.00 metres deep and detailed Logs were prepared. The stratification in each instance consisted of firm to stiff gravelly CLAY or clayey sandy GRAVEL below surface topsoil with underlying weathered limestone in places.

To obtain a measure of the infiltration rate of the sub-soils, water is poured into the test pit, and records taken of the fall in water level against time. The test is carried out over two cycles following initial soakage. The infiltration rate is the volume of water dispersed per unit-exposed area per unit of time, and is generally expressed as metres/minute or metres/second. In these calculations the exposed area is the sum of the base area and the average internal area of the pit sides over the test duration.

In each location very slow infiltration was observed. The calculated infiltration rates at each location are as follows:

Location	**Infiltration Rate (f) metres / minute**
SAO1 (TP01)	2.8E-05
SA02 (TP05)	8.5E-05
SA03 (TP10)	2.9E-05
SA04 (TP17)	8.0E-05

III. Testing

(a) In Situ

Standard penetration tests were carried out at approximate 1.00 metre intervals in the geotechnical boreholes to measure relative in-situ soil strength. N values are noted in the right hand column of the boring records, representing the blow count required to drive the standard sampler 300mm into the soil, following initial seating blows. Where full test penetration was not achieved the blow count for a specific penetration is recorded, or refusal is indicated where appropriate.

The N values indicate an increasing strength depth trend in the gravelly SILT/CLAY overburden. Refusal of equipment was recorded in tests carried out at the base of the boreholes on the presumed bedrock horizon.

The SPT test data is summarised as follows:

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Stratum	Depth BGL	N value Range	Comment
Brown Gravelly TILL	1.00	8 to 32	Firm to Stiff
	2.00	14 to 50	Firm to Very Stiff
	3.00	27 to 50	Stiff to Hard
	4.00	> 50	Hard

(b) Laboratory :

A programme of laboratory testing was scheduled following completion of site operations. Geotechnical soil testing was carried out by IGSL in its INAB-Accredited laboratory. Environmental testing to RILTA parameters was carried out in the UK by CHEMTEST Ltd. Test on the weathered bedrock to establish Sulphate concentration were carried out by Nicholls-Colton in the UK19

The overall test programme included the following elements:

*	Moisture Content	IGSL	19 Nr
•	Liquid and Plastic Limits and MC	IGSL	19 Nr
•	PSD Grading by wet sieve	IGSL	19 Nr
•	PSD Grading by Hydrometer	IGSL	6 Nr
•	CBR	IGSL	3 Nr
•	MCV	IGSL	8 Nr.
•	Dry Density / Moisture Content	IGSL	2 Nr
•	Pyrites	Nicholls Colton	5 Nr
•	RILTA Suite (WAC	CHEMTEST	5 Nr
•	Sulphate / Chloride / pH	CHEMTEST	10 Nr
•	Water Tests (Local Watercourse)	CHEMTEST	1 Nr

Individual test results are discussed in the following paragraphs and details presented in Appendix IVA and IVB.

Classification/ Moisture Content

The results reflect the wide variation in soil type over the site area. The upper gravelly TILL is generally classed in the CI Zone of the standard classification, indicative of low plasticity CLAY matrix material. This stratum occasionally grades to SILT dominant and is classified as non-plastic. The results are typical of glacial till or boulder clay deposition. Several samples from the base of the boreholes and trial pits are classified as clayey sandy GRAVEL (possibly weathered limestone bedrock).

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Grading

Wet sieve and hydrometer analysis was used to establish PSD grading curves for nineteen samples. The graphs for the upper SILT/CLAY stratum generally reflect material smoothly graded from the clay to gravel fraction. The straight-line pattern of these graphs is typical of glacial till or boulder clay deposition.

Samples from the lower gravel / weathered rock reflect much coarser grading generally sandy gravel with up to 20% fines. A number of the graphs indicate sandy gravel with little or no fines.

CBR

CBR values were determined in the laboratory for three soil samples taken at shallow depth (0.50 to 1.00 metre). Values ranged from < 1% to 6.5%, with moisture contents ranging from 17 to 20%.

MCV

Eight samples of the brown gravelly SILT/CLAY had MCV values at Natural Moisture Content established. MCV values range from 1.3 to 12 with moisture content varying from 1.3 to 20%.

Dry Density / Moisture Content

Three samples of the TILL had Dry Density / Moisture Content relationship established in accordance with BS1377 Part 4 (1990). Maximum dry densities of 1.79, 1.81 and 1.82 Mg/cu.m. were established with optimum moisture contents of 14, 11 and 14%.

Pyrite Tests

Five samples were selected for preliminary analysis to determine if the weathered rock contained elevated acid soluble sulphate levels. Testing was carried out by Nicholls Colton and results confirm very low sulphate levels. No issues arise as to possible pyrite presence in the bedrock.

Sulphate and pH

Ten samples were tested to establish pH and Sulphate concentrations. Sulphate content was consistently less than 0.010 g/l and pH values ranged from 6.5 to 7.9. No special precautions are required to protect foundation concrete from sulphate aggression. A sulphate design class of DS-1 (ACEC Classification for Concrete) is indicated for concentrations less than 0.50 g/l.

Chloride Content

Chloride content was established for five samples with concentrations less than 0.010 g/l established. No issues arise as to protection of foundation concrete.

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RILTA Suite Environmental

Five sample of soil from the site were submitted for detailed environmental analysis to RILTA (WAC) parameters. Results are presented in fill detail in Appendix IVB. The data confirms that the soils can be classified as INERT. No elevated contamination levels were found. Excavated material can be safely used within the site boundary or disposed of to a suitably licensed landfill facility.

No asbestos traces were found during routine screening of the submitted samples.

Water Analysis

A sample of water from an existing water-course on the site was submitted for analysis on the instructions of MPA. Testing was carried out to EPA recommendations.

Samples were also taken from standpipes (BH02A and BH04) at two intervals (27/11/2019 and 13/01/2020) and were sent to Chemtest for analysis again to EPA guidelines. Data is enclosed in Appendix IVC.

IV. Discussion:

The new housing development is to be carried out on a mainly green-field site located off the Naul Road in Balbriggan County Dublin.

A geotechnical and environmental investigation has been carried out under the direction of MPA Consulting Engineers on behalf of Malincross Developments Ltd.

Stratification

The geotechnical data reflects the general stratification of the Balbriggan and North County Dublin area.

Typically topsoil / soft sandy clay (0.30 to 0.50 metres) overlies GLACIAL TILL or BOULDER CLAY. This brown sandy gravelly SILT/CLAY is initially firm in consistency increasing in strength with depth. Some zones of gravelly SAND have been identified.

Rig and excavator refusal in several boreholes and trial pits has indicated the presence of relatively shallow weathered Limestone bedrock. Rock horizon has been noted at average depths between 1.00 and 3.00 metres.

Ground water was encountered in only at BH03A and TP17. Standpipes were installed in each borehole to allow future monitoring to take place.

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Allowable Bearing Pressures

The glacial till or boulder clay noted in most locations below the surface topsoil has been described as firm to stiff consistency during trial excavations. The laboratory data confirms the classification and behavioural characteristics of the boulder clay. Standard penetration tests in the boreholes at 1.00 metre BGL would suggest an average value of N = 12. An average SPT value of N = 20 can be taken at 2.00 metres BGL.

The visual assessment of soil strength during excavation, the result of in-situ SPTs and extensive published data on the local glacial till would indicate an allowable bearing pressure of the order of 125 KPa at 1.00 metres BGL increasing to 200 KPa at 2.00 metres for the firm to stiff brown sandy gravelly CLAY/SILT.

Weathered limestone bedrock has been noted in both boreholes and trial pits. In approximately 10 locations the weathered rock horizon is within 1.50 metres of surface and will clearly become the founding medium for the new houses.

The weathered limestone can be treated as a dense gravel in assessing allowable bearing pressure. SPT values in the stratum are in excess of N = 50. An allowable bearing pressure of the order of 250 to 300 KPa can be taken for foundations placed on the weathered rock.

Foundations

The above data confirms that conventional reinforced strip of pad foundations will be appropriate for this site using a founding depths of about 1.00 metres, with a minimum allowable bearing pressure of 125 KPa. Allowable bearing pressures will increase with depth of penetration of the boulder clay and in the dense weathered limestone.

Settlement in the boulder clay under the above load will be of the order of 5 to 10 mm. Settlement should be uniform and differential movement is not expected. Settlement in the weathered limestone could be of the order of 15 mm but should be immediate.

Given the variations in soil composition noted in this report very careful visual inspection of excavated formation is advised to ensure uniformity and suitability of the founding medium. Any soft or suspect material and all made ground should be removed and replaced with low-grade concrete. In this regard the presence of FILL material at TP04 and TP11 should be noted.

Ideally foundations for individual houses or pairs of semis should be placed on a uniform founding medium to avoid any possibility of differential movement.

RECEIVED: 18/12/2025

Ground Water

Ground water was noted only at BH03A and TP17. No problems are anticipated with water ingress into shallow foundation excavations. Water levels have been measured in the installed standpipes and details are included in Appendix I with the borehole records.

The glacial till or boulder clay is sensitive to moisture content variation and care should be taken to protect exposed surfaces from rainwater by blinding.

Excavation

Trial Pitting has indicated that excavations should be stable in the short term. Statutory safety regulations should however be noted. These prohibit personnel entering unsupported trench excavations greater than 1.20 metres deep, irrespective of apparent stability.

Refusal of excavator in the limestone was recorded. Some penetration of the weathered zone was possible with refusal on harder limestone. If deep trench excavations in rock are envisaged then penetration of shallow massive limestone may require hydraulic breaking. Rotary core drilling would be required to provide accurate parameters for the underlying limestone.

Re-use of Soils

A programme of testing has been carried out to provide data on the sub soils and weathered rock relative to re-use as engineered fill. The tests comprised CBR and MCV tests with compaction tests to assess soil suitability. The variations in CBR (1 to 6%) and in MCV (1.3 to 10.2) and the general variation in soil composition, suggests that re-use will not be practical.

Roads and Pavements

CBR values were established for three samples taken at depths of 0.50 and 1.00 metre. Results of 0.6 , 2.0 and 6.5% were obtained with moisture contents of up to 20%. Sampling was carried out following very wet weather conditions and this may have adversely affected the results. We would suggest that additional testing (using plate bearing apparatus) is scheduled to determine design CBR values at construction stage on the road network.

Percolation (BRE Digest 365)

The Results from BRE Digest 365 percolation tests confirm that the soils are of low permeability and not considered suitable for storm water dispersion in standard soakaways. The results are typical of the low permeability regional glacial till or boulder clay. Consideration should therefore be given to disposal of storm / surface water to either a local available watercourse or to utilising the local authority drainage system for this purpose.

RECEIVED: 18/12/2025

Foundation Concrete

Sulphate, Chloride and pH testing has confirmed that no special precautions are required to protect below ground concrete.

Environmental

RILTA Suite tests confirm that the soils on site are INERT. Excavated material can safely be disposed of within the site or sent off site to a suitably accredited INERT landfill facility. No traces of asbestos were found.

Ground Water Sampling

A water sample, taken from an existing water-course was sent for analysis to CHEMTEST. Similarly water samples from borehole standpipes have been taken and also sent for analysis, all in accordance with MPA instructions.

Test data is enclosed in Appendix IVC.

Pyrite Testing of Rock

Five samples of weathered rock were sent for preliminary analysis to establish any possible Pyrite content. The results indicate a very low acid soluble sulphate content and very low total sulphur. These results indicate that the bedrock should be satisfactory for foundation construction.

IGSL/JC
October 2019

RECEIVED: 18/12/2025

Appendix I Boring Records

GEOTECHNICAL BORING RECORD

REPORT NUMBER 22009

RECEIVED 10/11/20025

CONTRACT	Balbriggan, Co. Dublin	**BOREHOLE NO.**	**BH01**
		SHEET	Sheet 1 of 1
CO-ORDINATES	718,057.25 E 764,215.70 N	**RIG TYPE**	Dando 2000
		BOREHOLE DIAMETER (mm)	200
GROUND LEVEL (mOD)	55.50	**BOREHOLE DEPTH (m)**	4.90
		DATE COMMENCED	28/08/2019
		DATE COMPLETED	28/08/2019
CLIENT	Mallincross Ltd	**SPT HAMMER REF. NO.**	
		BORED BY	P. Allan
ENGINEER	MPA	**ENERGY RATIO (%)**	
		PROCESSED BY	L. Daniels

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples: Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
0	TOPSOIL		55.00	0.50						
1	Firm brown slightly gravelly sandy CLAY				AA122746	B	0.50			
					AA122747	B	1.00		N = 6 (1, 1, 1, 2, 2, 3)	
2			53.20	2.30	AA122748	B	2.00		N = 14 (2, 2, 3, 3, 3, 5)	
3	Stiff to very stiff brown sandy gravelly CLAY with a medium cobble content				AA122749	B	3.00		N = 27 (5, 4, 7, 7, 6, 7)	
4					AA122750	B	4.00		N = 49 (6, 10, 12, 12, 11, 14)	
			50.60	4.90					N = 50/75 mm (25, 25, 50)	
5	Obstruction End of Borehole at 4.90 m									
6										
7										
8										
9										

HARD STRATA BORING/CHISELLING

From (m)	To (m)	Time (h)	Comments
3.70	3.90	1	
4.70	4.90	2	

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					No water strike

GROUNDWATER PROGRESS

Date	Hole Depth	Casing Depth	Depth to Water	Comments

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type
28-08-19	4.90	1.00	4.90	50mm SP

REMARKS CAT scanned location and hand dug inspection pit carried out .

Sample Legend

D - Small Disturbed (tub)
B - Bulk Disturbed
LB - Large Bulk Disturbed
Env - Environmental Sample (Jar + Vial + Tub)
UT - Undisturbed 100mm Diameter Sample
P - Undisturbed Piston Sample
W - Water Sample

IGSL BH LOG 22006.GPJ IGSL.GDT 30/1/20

GEOTECHNICAL BORING RECORD

REPORT NUMBER 22009

RECEIVED 14/11/2025

CONTRACT	Balbriggan, Co. Dublin	**BOREHOLE NO.**	**BH02**
		SHEET	Sheet 1 of 1
CO-ORDINATES	718,055.08 E 764,034.80 N	**RIG TYPE**	Dando 2000
		BOREHOLE DIAMETER (mm)	200
GROUND LEVEL (mOD)	56.20	**BOREHOLE DEPTH (m)**	1.60
		DATE COMMENCED	29/08/2019
		DATE COMPLETED	29/08/2019
CLIENT	Mallincross Ltd	**SPT HAMMER REF. NO.**	
ENGINEER	MPA	**ENERGY RATIO (%)**	
		BORED BY	P. Allan
		PROCESSED BY	L. Daniels

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Samples: Recovery	Field Test Results	Standpipe Details
0	TOPSOIL		55.80	0.40						
1	Firm brown sandy gravelly SILT/CLAY with occasional large cobbles/boulders				AA111709	B	1.00		N = 22 (2, 3, 4, 8, 5, 5)	
			54.60	1.60					N = 50/75 mm (25, 25, 50)	
2	Obstruction End of Borehole at 1.60 m									
3										
4										
5										
6										
7										
8										
9										

HARD STRATA BORING/CHISELLING

From (m)	To (m)	Time (h)	Comments
1.40	1.60	1	

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					No water strike

GROUNDWATER PROGRESS

Date	Hole Depth	Casing Depth	Depth to Water	Comments

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type

REMARKS CAT scanned location and hand dug inspection pit carried out . Obstruction encountered at 1.60m . Relocated to BH02A and attempted rebore.

Sample Legend

D - Small Disturbed (tub)
B - Bulk Disturbed
LB - Large Bulk Disturbed
Env - Environmental Sample (Jar + Vial + Tub)
UT - Undisturbed 100mm Diameter Sample
P - Undisturbed Piston Sample
W - Water Sample

IGSL BH LOG 22006.GPJ IGSL.GDT 30/1/20

GEOTECHNICAL BORING RECORD

REPORT NUMBER 22009

RECEIVED 16/1/2025

CONTRACT	Balbriggan, Co. Dublin	BOREHOLE NO.	BH02A
		SHEET	Sheet 1 of 1
CO-ORDINATES	718,186.10 E 764,068.70 N	RIG TYPE	Dando 2000
		BOREHOLE DIAMETER (mm)	200
GROUND LEVEL (mOD)	50.48	BOREHOLE DEPTH (m)	4.40
		DATE COMMENCED	29/08/2019
		DATE COMPLETED	29/08/2019
CLIENT	Mallincross Ltd	SPT HAMMER REF. NO.	
		BORED BY	P. Allan
ENGINEER	MPA	ENERGY RATIO (%)	
		PROCESSED BY	L. Daniels

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Samples: Recovery	Field Test Results	Standpipe Details
0	TOPSOIL		50.08	0.40						
1	Firm brown sandy SILT/CLAY with some gravel and occasional boulders				AA127702	B	0.50		N = 12 (1, 2, 3, 3, 2, 4)	
					AA127703	B	1.50			
			48.58	1.90						
2	Stiff to very stiff brown gravelly (occasionally very gravelly) SILT/CLAY with occasional cobbles								N = 29 (4, 4, 5, 7, 7, 10)	
					AA127704	B	2.50			
3									N = 38 (5, 8, 8, 12, 7, 11)	
					AA127705	B	3.50			
4									N = 50/75 mm (25, 25, 50)	
			46.08	4.40						
5	Obstruction End of Borehole at 4.40 m									
6										
7										
8										
9										

HARD STRATA BORING/CHISELLING

From (m)	To (m)	Time (h)	Comments
2.40	2.60	1	
4.20	4.40	1.5	

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					No water strike

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type
29-08-19	4.40	1.00	4.40	50mm SP

GROUNDWATER PROGRESS

Date	Hole Depth	Casing Depth	Depth to Water	Comments

REMARKS CAT scanned location and hand dug inspection pit carried out .

Sample Legend
D - Small Disturbed (tub)
B - Bulk Disturbed
LB - Large Bulk Disturbed
Env - Environmental Sample (Jar + Vial + Tub)
UT - Undisturbed 100mm Diameter Sample
P - Undisturbed Piston Sample
W - Water Sample

IGSL BH LOG 22006.GPJ IGSL.GDT 30/1/20

GEOTECHNICAL BORING RECORD

REPORT NUMBER 22009

RECEIVED 19/12/2025

CONTRACT	Balbriggan, Co. Dublin	**BOREHOLE NO.**	**BH03**
		SHEET	Sheet 1 of 1
CO-ORDINATES	718,203.00 E 763,834.10 N	**RIG TYPE**	Dando 2000
		BOREHOLE DIAMETER (mm)	200
GROUND LEVEL (mOD)	45.10	**BOREHOLE DEPTH (m)**	1.20
		DATE COMMENCED	28/08/2019
		DATE COMPLETED	28/08/2019
CLIENT	Mallincross Ltd	**SPT HAMMER REF. NO.**	
ENGINEER	MPA	**ENERGY RATIO (%)**	
		BORED BY	P. Allan
		PROCESSED BY	L. Daniels

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Samples: Recovery	Field Test Results	Standpipe Details
0	TOPSOIL		44.80	0.30						
	Firm brown sandy SILT/CLAY with occasional gravel and large cobbles				AA111710	B	0.50		N = 50/75 mm (25, 25, 50)	
1			43.90	1.20						
	Obstruction End of Borehole at 1.20 m									
2										
3										
4										
5										
6										
7										
8										
9										

HARD STRATA BORING/CHISELLING

From (m)	To (m)	Time (h)	Comments
1.00	1.20	1	

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					No water strike

GROUNDWATER PROGRESS

Date	Hole Depth	Casing Depth	Depth to Water	Comments

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type

REMARKS CAT scanned location and hand dug inspection pit carried out .Obstruction encountered at 1.20m.Relocated to BH03A and attempted rebore.

Sample Legend

D - Small Disturbed (tub)
B - Bulk Disturbed
LB - Large Bulk Disturbed
Env - Environmental Sample (Jar + Vial + Tub)
UT - Undisturbed 100mm Diameter Sample
P - Undisturbed Piston Sample
W - Water Sample

IGSL BH LOG 22006.GPJ IGSL.GDT 30/1/20

GEOTECHNICAL BORING RECORD

REPORT NUMBER 22009

RECEIVED 16/12/2025

CONTRACT	Balbriggan, Co. Dublin	BOREHOLE NO.	BH03A
		SHEET	Sheet 1 of 1
CO-ORDINATES	718,269.10 E 763,840.10 N	RIG TYPE	Dando 2000
		BOREHOLE DIAMETER (mm)	200
GROUND LEVEL (mOD)	43.11	BOREHOLE DEPTH (m)	3.30
		DATE COMMENCED	29/08/2019
		DATE COMPLETED	30/08/2019
CLIENT	Mallincross Ltd	SPT HAMMER REF. NO.	
		BORED BY	P. Allan
ENGINEER	MPA	ENERGY RATIO (%)	
		PROCESSED BY	L. Daniels

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Samples: Recovery	Field Test Results	Standpipe Details
0	TOPSOIL		42.91	0.20						
	Firm sandy SILT/CLAY with some gravel and occasional cobbles		42.21	0.90						
1	Very stiff brown very gravelly silty CLAY with some cobbles				AA127700	B	1.00		N = 27 (1, 2, 3, 6, 8, 10)	
2					AA127701	B	2.00		N = 50 (6, 8, 10, 13, 15, 12)	
3			39.81	3.30	AA127702	B	3.00		N = 30/75 mm (25, 25, 30)	
	Obstruction End of Borehole at 3.30 m									
4										
5										
6										
7										
8										
9										

HARD STRATA BORING/CHISELLING

From (m)	To (m)	Time (h)	Comments
2.40	2.60	1	
3.10	3.30	1.5	

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
1.50	1.50		1.00	20	Moderate

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type
30-08-19	3.30	1.00	3.30	50mm SP

GROUNDWATER PROGRESS

Date	Hole Depth	Casing Depth	Depth to Water	Comments

REMARKS CAT scanned location and hand dug inspection pit carried out .

Sample Legend
D - Small Disturbed (tub)
B - Bulk Disturbed
LB - Large Bulk Disturbed
Env - Environmental Sample (Jar + Vial + Tub)
UT - Undisturbed 100mm Diameter Sample
P - Undisturbed Piston Sample
W - Water Sample

IGSL BH LOG 22006.GPJ IGSL.GDT 30/1/20

GEOTECHNICAL BORING RECORD

REPORT NUMBER 22009

RECEIVED 19/12/2025

CONTRACT	Balbriggan, Co. Dublin	**BOREHOLE NO.**	**BH04**
		SHEET	Sheet 1 of 1
CO-ORDINATES	718,062.05 E 763,568.13 N	**RIG TYPE**	Dando 2000
		BOREHOLE DIAMETER (mm)	200
GROUND LEVEL (mOD)	58.02	**BOREHOLE DEPTH (m)**	2.20
		DATE COMMENCED	27/08/2019
		DATE COMPLETED	27/08/2019
CLIENT	Mallincross Ltd	**SPT HAMMER REF. NO.**	
ENGINEER	MPA	**ENERGY RATIO (%)**	
		BORED BY	P. Allan
		PROCESSED BY	L. Daniels

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Samples: Recovery	Field Test Results	Standpipe Details
0	TOPSOIL		57.82	0.20						
	Firm brown sandy SILT/CLAY with occasional gravel		57.12	0.90	AA122743	B	0.50			
1	Very stiff brown gravelly CLAY with occasional cobbles				AA122744	B	1.00		N = 32 (2, 3, 4, 8, 10, 10)	
2			55.82	2.20	AA122745	B	2.00		N = 50/150 mm (12, 15, 22, 28)	
	Obstruction End of Borehole at 2.20 m									
3										
4										
5										
6										
7										
8										
9										

HARD STRATA BORING/CHISELLING

From (m)	To (m)	Time (h)	Comments
0.80	0.90	0.5	
2.10	2.20	1.5	

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					No water strike

GROUNDWATER PROGRESS

Date	Hole Depth	Casing Depth	Depth to Water	Comments

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type

REMARKS CAT scanned location and hand dug inspection pit carried out . Obstruction encountered at 2.20m.Relocated to BH04A and attempted rebore.

Sample Legend
D - Small Disturbed (tub)
B - Bulk Disturbed
LB - Large Bulk Disturbed
Env - Environmental Sample (Jar + Vial + Tub)
UT - Undisturbed 100mm Diameter Sample
P - Undisturbed Piston Sample
W - Water Sample

IGSL BH LOG 22006.GPJ IGSL.GDT 30/1/20

GEOTECHNICAL BORING RECORD

REPORT NUMBER 22009

RECEIVED 13/01/2020025

CONTRACT	Balbriggan, Co. Dublin	**BOREHOLE NO.**	**BH04A**
		SHEET	Sheet 1 of 1
CO-ORDINATES		**RIG TYPE**	Dando 2000
		BOREHOLE DIAMETER (mm)	200
GROUND LEVEL (mOD)		**BOREHOLE DEPTH (m)**	2.50
		DATE COMMENCED	27/08/2019
		DATE COMPLETED	28/08/2019
CLIENT	Mallincross Ltd	**SPT HAMMER REF. NO.**	
ENGINEER	MPA	**ENERGY RATIO (%)**	
		BORED BY	P. Allan
		PROCESSED BY	L. Daniels

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Samples: Recovery	Field Test Results	Standpipe Details
0	TOPSOIL			0.20						
	Soft to firm brown SILT/CLAY			0.60						
1	Stiff to very stiff brown sandy gravelly CLAY with some cobbles			2.00	AA111711	B	1.00		N = 26 (2, 3, 5, 5, 7, 9)	
2	Brown slightly sandy very clayey fine to coarse angular GRAVEL with cobbles			2.50	AA111712	B	2.00		N = 35 (8, 10, 9, 9, 8, 9)	
	Obstruction End of Borehole at 2.50 m									
3										
4										
5										
6										
7										
8										
9										

HARD STRATA BORING/CHISELLING

From (m)	To (m)	Time (h)	Comments
1.10	1.30	1	
2.40	2.50	1.5	

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					No water strike

GROUNDWATER PROGRESS

Date	Hole Depth	Casing Depth	Depth to Water	Comments

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type
28-08-19	2.50	1.00	2.50	50mm SP

REMARKS CAT scanned location and hand dug inspection pit carried out .

Sample Legend
D - Small Disturbed (tub)
B - Bulk Disturbed
LB - Large Bulk Disturbed
Env - Environmental Sample (Jar + Vial + Tub)
UT - Undisturbed 100mm Diameter Sample
P - Undisturbed Piston Sample
W - Water Sample

IGSL BH LOG 22006.GPJ IGSL.GDT 30/1/20

Groundwater Monitoring

Site Location	**Balbriggan, Co. Dublin**
Project No.	**22009**
Engineer	**MPA**
	**** - BH03A location vandalised - cover damaged and stick lodged into well.*

	Date of Reading					
	04.09.2019	**20.09.2019**	**22.10.2019**	**27.11.2019**	**13.01.2020**	
BH01	Dry	Dry	Dry	Dry	Dry	
BH02A	Dry	Dry	Dry	2.20m	2.70m	
BH03A	***	***	***	***	***	
BH04	1.95m	Dry	Dry	1.05m	1.40m	
COMMENTS		Water Sample taken from watercourse to south of site.		Water Sample taken from BH02A, BH04.	Water Sample taken from BH02A, BH04.	

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Appendix II Trial Pit Records and Photographs

TRIAL PIT RECORD

REPORT NUMBER 22009

RECEIVED: 18/2/2025

CONTRACT	Balbriggan, Co. Dublin	TRIAL PIT NO.	TP01
		SHEET	Sheet 1 of 1
LOGGED BY	L. Daniels	CO-ORDINATES	718,384.23 E 764,267.56 N
		DATE STARTED	30/08/2019
		DATE COMPLETED	30/08/2019
CLIENT	Mallincross Ltd	GROUND LEVEL (m)	42.28
ENGINEER	MPA	EXCAVATION METHOD	5 Ton Excavator

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 TOPSOIL									
Firm brown slightly sandy slightly gravelly CLAY with a low cobble content		0.40	41.88		AA124219	B	0.50		
1.0									
					AA124220	B	1.50		
2.0									
OBSTRUCTION - Possible weathered head of rock recovered as brown slightly clayey medium to coarse angular GRAVEL with a high cobble content		2.30	39.98						
End of Trial Pit at 2.50m		2.50	39.78		AA124221	B	2.50		
3.0									
4.0									

Groundwater Conditions
Dry

Stability
Stable

General Remarks
CAT Scanned location for services.

TRIAL PIT RECORD

REPORT NUMBER 22009

RECEIVED: 18/12/2025

CONTRACT	Balbriggan, Co. Dublin	**TRIAL PIT NO.**	**TP02**
		SHEET	Sheet 1 of 1
LOGGED BY	L. Daniels	**CO-ORDINATES**	718,231.81 E 764,284.01 N
		DATE STARTED	28/08/2019
		DATE COMPLETED	28/08/2019
CLIENT	Mallincross Ltd	**GROUND LEVEL (m)**	46.41
ENGINEER	MPA	**EXCAVATION METHOD**	5 Ton Excavator

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 TOPSOIL									
Firm brown mottled grey slightly gravelly sandy CLAY with a low cobble content		0.40	46.01						
1.0 Firm brown gravelly sandy CLAY with a medium cobble content and a low boulder content (<250mm)		1.20	45.21	(Seepage)	AA124203	B	1.00		
					AA124204	B	1.80		
2.0 OBSTRUCTION - Possible weathered head of rock recovered as brown slightly clayey medium to coarse angular GRAVEL with a high cobble content		2.00	44.41						
End of Trial Pit at 2.20m		2.20	44.21						
3.0									
4.0									

Groundwater Conditions
Seepage at 1.20m

Stability
Stable

General Remarks
CAT Scanned location for services.

TRIAL PIT RECORD

REPORT NUMBER 22009

RECEIVED: 18/12/2025

CONTRACT	Balbriggan, Co. Dublin	TRIAL PIT NO.	TP03
		SHEET	Sheet 1 of 1
LOGGED BY	L. Daniels	CO-ORDINATES	718,055.52 E 764,280.24 N
		DATE STARTED	28/08/2019
		DATE COMPLETED	28/08/2019
CLIENT	Mallincross Ltd	GROUND LEVEL (m)	53.23
ENGINEER	MPA	EXCAVATION METHOD	5 Ton Excavator

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 TOPSOIL		0.40	52.83						
Firm brown slightly gravelly CLAY with a low cobble content		1.20	52.03		AA124205	B	1.00		
Firm brown gravelly sandy CLAY with a low cobble content		2.10	51.13		AA124206	B	2.00		
Firm brown gravelly very sandy CLAY with a low cobble content		3.50	49.73		AA124207	B	3.00		
End of Trial Pit at 3.50m									

Groundwater Conditions
Dry

Stability
Stable

General Remarks
CAT Scanned location for services.

IGSL TP LOG 22006.GPJ IGSL.GDT 30/1/20

TRIAL PIT RECORD

REPORT NUMBER 22009

RECEIVED: 18/12/2025

CONTRACT	Balbriggan, Co. Dublin	TRIAL PIT NO.	TP04
		SHEET	Sheet 1 of 1
LOGGED BY	L. Daniels	CO-ORDINATES	718,060.15 E 764,182.82 N
		DATE STARTED	28/08/2019
		DATE COMPLETED	28/08/2019
CLIENT	Mallincross Ltd	GROUND LEVEL (m)	56.24
		EXCAVATION METHOD	8 Ton Excavator
ENGINEER	MPA		

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 TOPSOIL									
Firm brown mottled gravelly sandy CLAY with a low cobble content (MADE GROUND)		0.40	55.84						
Firm brown gravelly very sandy CLAY with a low cobble content		0.80	55.44		AA124208	B	1.00		
1.0				1 (Seepage)					
2.0 Brown very gravelly clayey fine to coarse SAND		2.10	54.14		AA124209	B	2.20		
OBSTRUCTION - Possible weathered head of rock recovered as brown slightly clayey medium to coarse angular GRAVEL with a high cobble content		2.90	53.34						
3.0 End of Trial Pit at 3.00m		3.00	53.24						
4.0									

Groundwater Conditions
Dry

Stability
Stable

General Remarks
CAT Scanned location for services.

TRIAL PIT RECORD

REPORT NUMBER 22009

RECEIVED: 18/12/2025

CONTRACT	Balbriggan, Co. Dublin	TRIAL PIT NO.	TP05
		SHEET	Sheet 1 of 1
LOGGED BY	L. Daniels	CO-ORDINATES	718,067.36 E 764,106.72 N
		DATE STARTED	30/08/2019
		DATE COMPLETED	30/08/2019
CLIENT	Mallincross Ltd	GROUND LEVEL (m)	55.86
		EXCAVATION METHOD	8 Ton Excavator
ENGINEER	MPA		

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 TOPSOIL									
Firm brown gravelly sandy CLAY with a low cobble content		0.40	55.46		AA123912	B	0.50		
1.0									
Possible weathered head of rock recovered as brown moist very clayey very sandy fine to coarse angular GRAVEL with a medium cobble content		1.30	54.56		AA123913	B	1.50		
2.0									
					AA123914	B	2.50		
3.0									
End of Trial Pit at 3.50m		3.50	52.36						
4.0									

Groundwater Conditions
Seepage at 2.00m

Stability
Stable

General Remarks
CAT Scanned location for services.

TRIAL PIT RECORD

REPORT NUMBER 22009

RECEIVED: 18/12/2025

CONTRACT	Balbriggan, Co. Dublin	TRIAL PIT NO.	TP06
		SHEET	Sheet 1 of 1
LOGGED BY	L. Daniels	CO-ORDINATES	718,067.47 E 764,056.32 N
		DATE STARTED	28/08/2019
		DATE COMPLETED	28/08/2019
CLIENT	Mallincross Ltd	GROUND LEVEL (m)	55.75
ENGINEER	MPA	EXCAVATION METHOD	5 Ton Excavator

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 TOPSOIL									
Firm brown mottled grey slightly gravelly CLAY with a low cobble content		0.40	55.35						
1.0					AA124213	B	1.00		
OBSTRUCTION - Possible weathered head of rock recovered as brown slightly clayey medium to coarse angular GRAVEL with a high cobble content		1.30	54.45						
		1.50	54.25		AA124214	B	1.50		
End of Trial Pit at 1.50m									
2.0									
3.0									
4.0									

Groundwater Conditions
Dry

Stability
Stable

General Remarks
CAT Scanned location for services.

TRIAL PIT RECORD

REPORT NUMBER 22009

RECEIVED: 18/12/2025

CONTRACT	Balbriggan, Co. Dublin	TRIAL PIT NO.	TP07
		SHEET	Sheet 1 of 1
LOGGED BY	L. Daniels	CO-ORDINATES	718,172.52 E 764,098.34 N
		DATE STARTED	28/08/2019
		DATE COMPLETED	28/08/2019
CLIENT	Mallincross Ltd	GROUND LEVEL (m)	50.87
ENGINEER	MPA	EXCAVATION METHOD	3 Ton Excavator

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 TOPSOIL									
Firm brown mottled grey slightly gravelly sandy CLAY with a low cobble content		0.40	50.47						
1.0					AA124210	B	1.00		
Brown very gravelly clayey fine to coarse SAND with a medium cobble content		1.40	49.47						
2.0					AA124211	B	2.00		
3.0					AA124212	B	3.00		
End of Trial Pit at 3.50m		3.50	47.37						
4.0									

Groundwater Conditions
Dry

Stability
Stable

General Remarks
CAT Scanned location for services.

TRIAL PIT RECORD

REPORT NUMBER 22009

RECEIVED: 18/12/2025

CONTRACT	Balbriggan, Co. Dublin	TRIAL PIT NO.	TP08
		SHEET	Sheet 1 of 1
LOGGED BY	L. Daniels	CO-ORDINATES	718,097.20 E 763,989.00 N
		DATE STARTED	28/08/2019
		DATE COMPLETED	28/08/2019
CLIENT	Mallincross Ltd	GROUND LEVEL (m)	52.00
		EXCAVATION METHOD	3 Ton Excavator
ENGINEER	MPA		

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
TOPSOIL		0.40	51.60						
Firm brown mottled grey slightly gravelly CLAY with a low cobble content					AA124217	B	0.50		
OBSTRUCTION - Possible weathered head of rock recovered as brown slightly clayey medium to coarse angular GRAVEL with a high cobble content		0.80	51.20						
End of Trial Pit at 1.50m		1.50	50.50		AA124218	B	1.50		

Groundwater Conditions
Dry

Stability
Stable

General Remarks
CAT Scanned location for services.

IGSL TP LOG 22006.GPJ IGSL.GDT 30/1/20

TRIAL PIT RECORD

REPORT NUMBER 22009

RECEIVED: 18/12/2025

CONTRACT	Balbriggan, Co. Dublin	TRIAL PIT NO.	TP09
		SHEET	Sheet 1 of 1
LOGGED BY	L. Daniels	CO-ORDINATES	718,196.00 E 763,962.30 N
		DATE STARTED	29/08/2019
		DATE COMPLETED	29/08/2019
CLIENT	Mallincross Ltd	GROUND LEVEL (m)	46.88
ENGINEER	MPA	EXCAVATION METHOD	8 Ton Excavator

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 TOPSOIL									
Firm brown mottled grey slightly gravelly sandy CLAY with a low cobble content		0.40	46.48		AA124157	B	0.50		
1.0									
Brown very gravelly clayey fine to coarse SAND		1.50	45.38		AA124158	B	1.50		
2.0									
					AA124159	B	2.50		
3.0									
OBSTRUCTION - Possible weathered head of rock recovered as brown slightly clayey medium to coarse angular GRAVEL with a high cobble content		3.10	43.78						
End of Trial Pit at 3.20m		3.20	43.68						
4.0									

Groundwater Conditions
Dry

Stability
Stable

General Remarks
CAT Scanned location for services.

TRIAL PIT RECORD

REPORT NUMBER 22009

RECEIVED: 18/12/2025

CONTRACT	Balbriggan, Co. Dublin	TRIAL PIT NO.	TP10
		SHEET	Sheet 1 of 1
LOGGED BY	L. Daniels	CO-ORDINATES	718,092.00 E 763,901.00 N
		DATE STARTED	29/08/2019
		DATE COMPLETED	29/08/2019
CLIENT	Mallincross Ltd	GROUND LEVEL (m)	51.78
ENGINEER	MPA	EXCAVATION METHOD	8 Ton Excavator

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 TOPSOIL		0.40	51.38						
Firm brown slightly sandy slightly gravelly CLAY with a low cobble content					AA124155	B	0.50		
1.0									
OBSTRUCTION - Possible weathered head of rock recovered as brown slightly clayey medium to coarse angular GRAVEL with a high cobble content		1.20	50.58		AA124156	B	1.50		
2.0									
End of Trial Pit at 2.20m		2.20	49.58						
3.0									
4.0									

Groundwater Conditions
Dry

Stability
Stable

General Remarks
CAT Scanned location for services.

TRIAL PIT RECORD

REPORT NUMBER 22009

RECEIVED: 18/2/2025

CONTRACT	Balbriggan, Co. Dublin	TRIAL PIT NO.	TP11
		SHEET	Sheet 1 of 1
LOGGED BY	L. Daniels	CO-ORDINATES	718,121.00 E 763,816.00 N
		DATE STARTED	29/08/2019
		DATE COMPLETED	29/08/2019
CLIENT	Mallincross Ltd	GROUND LEVEL (m)	55.12
		EXCAVATION METHOD	8 Ton Excavator
ENGINEER	MPA		

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 TOPSOIL									
Soft to firm brown slightly sandy slightly gravelly CLAY with a low cobble content. Rare blue service warning tape (MADE GROUND)		0.40	54.72		AA124226	B	0.50		
Grey fine angular GRAVEL FILL (MADE GROUND). Pit ended due to probable presence of underground services		1.40	53.72		AA124227	B	1.40		
End of Trial Pit at 1.50m		1.50	53.62						

1.0
2.0
3.0
4.0

Groundwater Conditions
Dry

Stability
Stable

General Remarks
CAT Scanned location for services.

TRIAL PIT RECORD

REPORT NUMBER 22009

RECEIVED: 18/12/2025

CONTRACT	Balbriggan, Co. Dublin	TRIAL PIT NO.	TP12
		SHEET	Sheet 1 of 1
LOGGED BY	L. Daniels	CO-ORDINATES	718,136.00 E 763,851.20 N
		DATE STARTED	28/08/2019
		DATE COMPLETED	28/08/2019
CLIENT	Mallincross Ltd	GROUND LEVEL (m)	50.55
ENGINEER	MPA	EXCAVATION METHOD	5 Ton Excavator

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
TOPSOIL									
		0.40	50.15						
Firm brown mottled grey slightly gravelly CLAY with a low cobble content		0.60	49.95		AA124216	B	0.50		
OBSTRUCTION - Possible weathered head of rock recovered as brown slightly clayey medium to coarse angular GRAVEL with a high cobble content					AA124215	B	1.00		
		1.50	49.05						
End of Trial Pit at 1.50m									

0.0
1.0
2.0
3.0
4.0

Groundwater Conditions
Dry

Stability
Stable

General Remarks
CAT Scanned location for services.

IGSL TP LOG 22006.GPJ IGSL.GDT 30/1/20

TRIAL PIT RECORD

REPORT NUMBER 22009

RECEIVED: 18/2/2025

CONTRACT	Balbriggan, Co. Dublin	TRIAL PIT NO.	TP13
		SHEET	Sheet 1 of 1
LOGGED BY	L. Daniels	CO-ORDINATES	718,203.00 E 763,837.00 N
		DATE STARTED	29/08/2019
		DATE COMPLETED	29/08/2019
CLIENT	Mallincross Ltd	GROUND LEVEL (m)	45.29
		EXCAVATION METHOD	8 Ton Excavator
ENGINEER	MPA		

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 TOPSOIL									
Firm brown mottled grey slightly sandy slightly gravelly CLAY		0.50	44.79		AA124153	B	0.50		
1.0 OBSTRUCTION - Possible weathered head of rock recovered as brown slightly clayey medium to coarse angular GRAVEL with a high cobble content		1.00	44.29		AA124154	B	1.00		
End of Trial Pit at 1.50m		1.50	43.79						
2.0									
3.0									
4.0									

Groundwater Conditions
Dry

Stability
Stable

General Remarks
CAT Scanned location for services.

TRIAL PIT RECORD

REPORT NUMBER 22009

RECEIVED: 18/02/2025

CONTRACT	Balbriggan, Co. Dublin	**TRIAL PIT NO.**	**TP14**
		SHEET	Sheet 1 of 1
LOGGED BY	L. Daniels	**CO-ORDINATES**	718,148.10 E 763,768.00 N
		DATE STARTED	29/08/2019
		DATE COMPLETED	29/08/2019
CLIENT	Mallincross Ltd	**GROUND LEVEL (m)**	55.11
ENGINEER	MPA	**EXCAVATION METHOD**	5 Ton Excavator

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 TOPSOIL									
Firm brown mottled grey slightly sandy slightly gravelly CLAY		0.40	54.71		AA124224	B	0.50		
1.0					AA124225	B	1.00		
OBSTRUCTION - Possible weathered head of rock recovered as brown slightly clayey medium to coarse angular GRAVEL with a high cobble content		1.20	53.91						
End of Trial Pit at 1.50m		1.50	53.61						
2.0									
3.0									
4.0									

Groundwater Conditions
Dry

Stability
Stable

General Remarks
CAT Scanned location for services.

TRIAL PIT RECORD

REPORT NUMBER 22009

RECEIVED: 18/12/2025

CONTRACT	Balbriggan, Co. Dublin	TRIAL PIT NO.	TP15
		SHEET	Sheet 1 of 1
LOGGED BY	L. Daniels	CO-ORDINATES	718,071.69 E 763,664.96 N
		DATE STARTED	30/08/2019
		DATE COMPLETED	30/08/2019
CLIENT	Mallincross Ltd	GROUND LEVEL (m)	57.79
		EXCAVATION METHOD	8 Ton Excavator
ENGINEER	MPA		

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
TOPSOIL		0.40	57.39						
Firm brown gravelly CLAY with a low cobble content		0.80	56.99		AA123918	B	0.50		
OBSTRUCTION - Possible weathered head of rock recovered as brown slightly clayey medium to coarse angular GRAVEL with a high cobble content		1.20	56.59		AA123919	B	1.00		
End of Trial Pit at 1.20m									

0.0
1.0
2.0
3.0
4.0

Groundwater Conditions
Dry

Stability
Stable

General Remarks
CAT Scanned location for services.

IGSL TP LOG 22006.GPJ IGSL.GDT 30/1/20

TRIAL PIT RECORD

REPORT NUMBER 22009

RECEIVED: 18/12/2025

CONTRACT	Balbriggan, Co. Dublin	**TRIAL PIT NO.**	**TP16**
		SHEET	Sheet 1 of 1
LOGGED BY	L. Daniels	**CO-ORDINATES**	718,191.00 E 763,747.00 N
		DATE STARTED	29/08/2019
		DATE COMPLETED	29/08/2019
CLIENT	Mallincross Ltd	**GROUND LEVEL (m)**	50.50
		EXCAVATION METHOD	3 Ton Excavator
ENGINEER	MPA		

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 TOPSOIL									
Firm brown mottled grey slightly sandy slightly gravelly CLAY		0.40	50.10		AA124222	B	0.50		
1.0 OBSTRUCTION - Possible weathered head of rock recovered as brown slightly clayey medium to coarse angular GRAVEL with a high cobble content		1.00	49.50		AA124223	B	1.00		
End of Trial Pit at 1.20m		1.20	49.30						
2.0									
3.0									
4.0									

Groundwater Conditions
Dry

Stability
Stable

General Remarks
CAT Scanned location for services.

TRIAL PIT RECORD

REPORT NUMBER 22009

RECEIVED: 18/12/2025

CONTRACT	Balbriggan, Co. Dublin	**TRIAL PIT NO.**	TP17
		SHEET	Sheet 1 of 1
LOGGED BY	L. Daniels	**CO-ORDINATES**	718,110.97 E 763,512.94 N
		DATE STARTED	30/08/2019
		DATE COMPLETED	30/08/2019
CLIENT	Mallincross Ltd	**GROUND LEVEL (m)**	55.19
ENGINEER	MPA	**EXCAVATION METHOD**	8 Ton Excavator

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
TOPSOIL		0.0							
Firm brown mottled grey slightly gravelly sandy CLAY with a low cobble content		0.40	54.79		AA123915	B	0.50		
Brown gravelly very clayey fine to coarse SAND		0.80	54.39						
Possible weathered head of rock recovered as wet brown sandy very clayey medium to coarse angular GRAVEL with a high cobble content		1.50	53.69	(Seepage) (Moderate)	AA123916	B	1.50		
End of Trial Pit at 2.50m		2.50	52.69		AA123917	B	2.50		

1.0
2.0
3.0
4.0

Groundwater Conditions
Groundwater at 2.00m

Stability
Wall collapse from 0.80 to end of pit.

General Remarks
CAT Scanned location for services.

RECEIVED: 18/12/2025

Appendix III Percolation Tests (BRE Digest 365)

RECEIVED: 18/12/2025

Soakaway Design f -value from field test (F2C) IGSL

Contract: Balbriggan, Co. Dublin Contract No. 22009
Test No. SA01 (TP01)
Client MPA
Date: 30th August 2019

Summary of ground conditions

from	to	Description	Ground water
0.00	0.40	TOPSOIL	None observed
0.40	2.30	Brown sandy gravelly CLAY with cobbles	
2.30	2.50	Brown sandy very clayey angular GRAVEL with cobbles	

Notes: Two cycles completed with the final cycle noted below.

Field Data

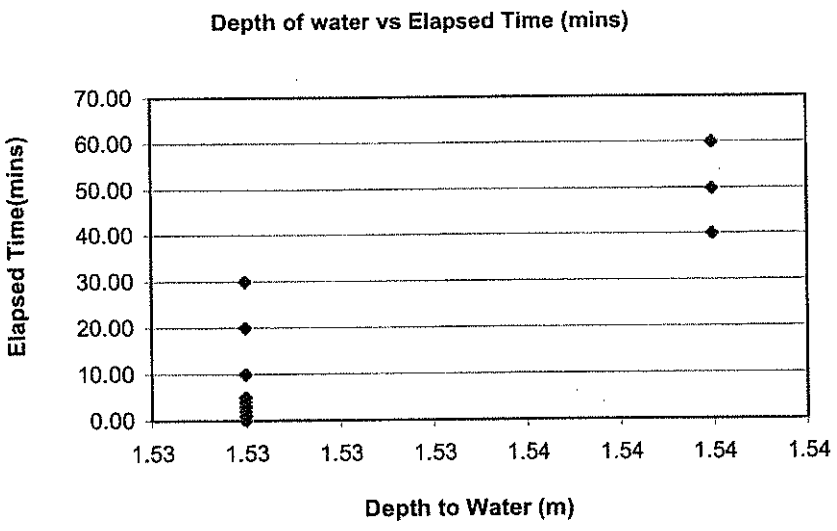
Depth to Water (m)	Elapsed Time (min)
1.53	0.00
1.53	1.00
1.53	2.00
1.53	3.00
1.53	4.00
1.53	5.00
1.53	10.00
1.53	20.00
1.53	30.00
1.54	40.00
1.54	50.00
1.54	60.00

Field Test

Depth of Pit (D)	2.50	m
Width of Pit (B)	0.50	m
Length of Pit (L)	1.70	m
Initial depth to Water =	1.53	m
Final depth to water =	1.54	m
Elapsed time (mins)=	60.00	
Top of permeable soil		m
Base of permeable soil		m
Base area=	0.85	m2
*Av. side area of permeable stratum over test p	4.246	m2
Total Exposed area =	5.096	m2

Infiltration rate (f) = Volume of water used/unit exposed area / unit time

f= 2.8E-05 m/min or 4.633E-07 m/sec



RECEIVED: 18/12/2025

Soakaway Design f -value from field test (F2C) IGSL

Contract: Balbriggan, Co. Dublin Contract No. 22009
Test No. SA02 (TP05)
Client MPA
Date: 30th August 2019

Summary of ground conditions

from	to	Description	Ground water
0.00	0.40	TOPSOIL	Moist from 1.30m
0.40	1.30	Brown sandy gravelly CLAY with cobbles	
1.30	2.00	Moist brown sandy clayey GRAVEL with cobbles	

Notes: Two cycles completed with the final cycle noted below.

Field Data

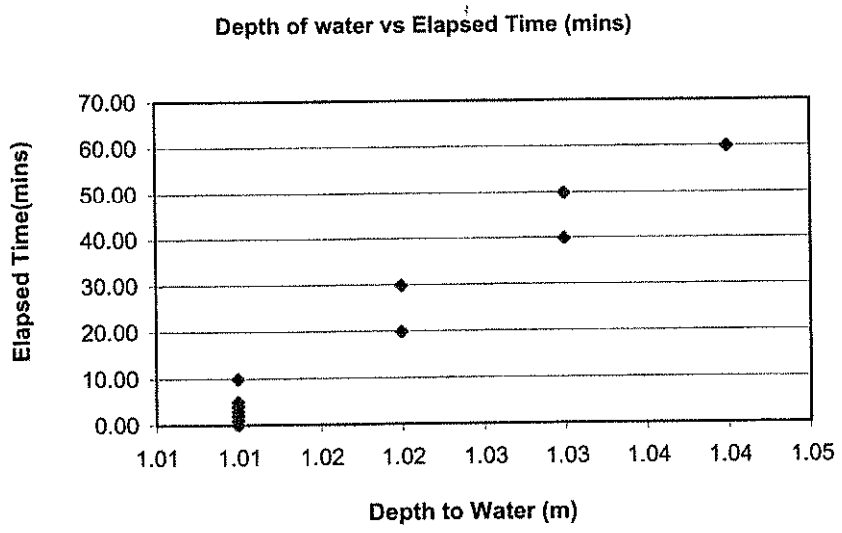
Depth to Water (m)	Elapsed Time (min)
1.01	0.00
1.01	1.00
1.01	2.00
1.01	3.00
1.01	4.00
1.01	5.00
1.01	10.00
1.02	20.00
1.02	30.00
1.03	40.00
1.03	50.00
1.04	60.00

Field Test

Depth of Pit (D)	2.00	m
Width of Pit (B)	0.50	m
Length of Pit (L)	2.00	m
Initial depth to Water =	1.01	m
Final depth to water =	1.04	m
Elapsed time (mins)=	60.00	
Top of permeable soil		m
Base of permeable soil		m
Base area=	1	m2
*Av. side area of permeable stratum over test p	4.875	m2
Total Exposed area =	5.875	m2

Infiltration rate (f) = Volume of water used/unit exposed area / unit time

f= 8.5E-05 m/min or 1.418E-06 m/sec



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Soakaway Design f -value from field test (F2C) IGSL

Contract: Balbriggan, Co. Dublin Contract No. 22009
Test No. SA03 (TP10)
Client MPA
Date: 29th August 2019

Summary of ground conditions

from	to	Description	Ground water
0.00	0.40	TOPSOIL	None observed
0.40	1.20	Brown slightly sandy gravelly CLAY with cobbles	
1.20	2.20	Brown very clayey fine to coarse angular GRAVEL	

Notes: Two cycles completed with the final cycle noted below.

Field Data

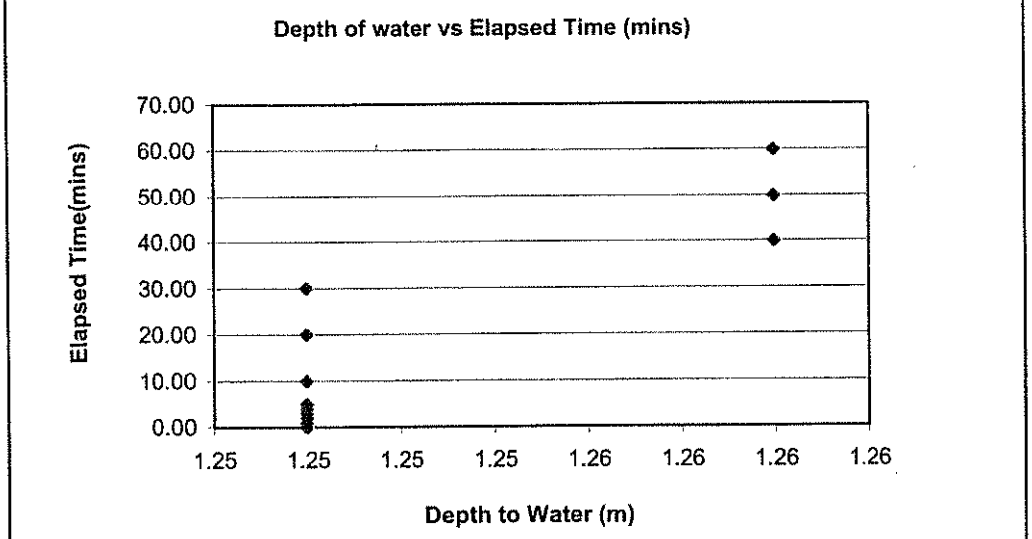
Depth to Water (m)	Elapsed Time (min)
1.25	0.00
1.25	1.00
1.25	2.00
1.25	3.00
1.25	4.00
1.25	5.00
1.25	10.00
1.25	20.00
1.25	30.00
1.26	40.00
1.26	50.00
1.26	60.00

Field Test

Depth of Pit (D)	2.20	m
Width of Pit (B)	0.50	m
Length of Pit (L)	1.80	m
Initial depth to Water =	1.25	m
Final depth to water =	1.26	m
Elapsed time (mins)=	60.00	
Top of permeable soil		m
Base of permeable soil		m
Base area=	0.9	m2
*Av. side area of permeable stratum over test p	4.347	m2
Total Exposed area =	5.247	m2

Infiltration rate (f) = Volume of water used/unit exposed area / unit time

f= 2.9E-05 m/min or 4.765E-07 m/sec



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Soakaway Design f -value from field test (F2C) IGSL

Contract: Balbriggan, Co. Dublin Contract No. 22009
Test No. SA04 (TP17)
Client MPA
Date: 30th August 2019

Summary of ground conditions

from	to	Description	Ground water
0.00	0.40	TOPSOIL	Observed at 2.00m in TP17
0.40	1.50	Brown gravelly sandy CLAY with cobbles	

Notes: Two cycles completed with the final cycle noted below.

Field Data

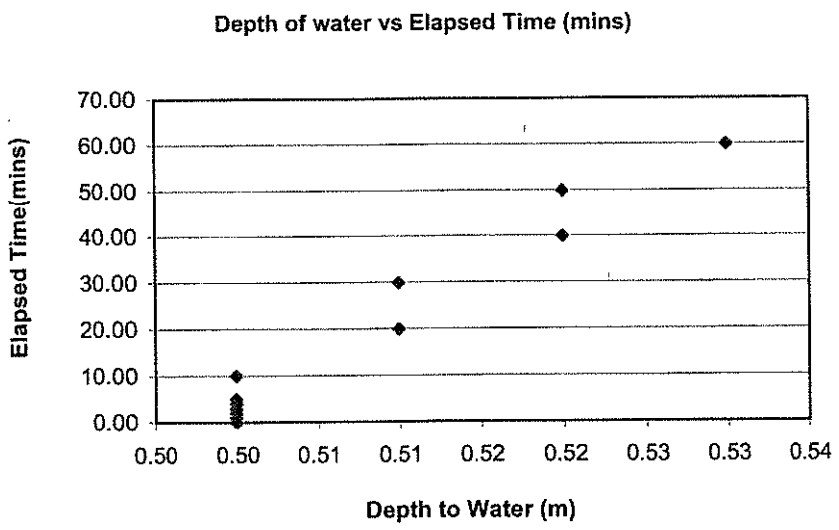
Depth to Water (m)	Elapsed Time (min)
0.50	0.00
0.50	1.00
0.50	2.00
0.50	3.00
0.50	4.00
0.50	5.00
0.50	10.00
0.51	20.00
0.51	30.00
0.52	40.00
0.52	50.00
0.53	60.00

Field Test

Depth of Pit (D)	1.50	m
Width of Pit (B)	0.50	m
Length of Pit (L)	1.50	m
Initial depth to Water =	0.50	m
Final depth to water =	0.53	m
Elapsed time (mins)=	60.00	
Top of permeable soil		m
Base of permeable soil		m
Base area=	0.75	m2
*Av. side area of permeable stratum over test p	3.94	m2
Total Exposed area =	4.69	m2

Infiltration rate (f) = Volume of water used/unit exposed area / unit time

f= 8E-05 m/min or 1.333E-06 m/sec



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Appendix IVA Laboratory

Geotechnical

a. Moisture Content and PI
b. Grading
c. CBR
d. MCV
e. Compaction

IGSL Ltd
Materials Laboratory
Unit J5, M7 Business Park
Newhall, Naas
Co. Kildare
045 846176

Test Report

Determination of Moisture Content, Liquid & Plastic Limits

Tested in accordance with BS1377:Part 2:1990, clauses 3.2*, 4.3, 4.4 & 5.3

Report No. **R105320** Contract No. 22009 Contract Name: Balbriggan , Co.Dublin

Customer MPA

Samples Received: 11/09/19 Date Tested: 30/9/19

BH/TP	Sample No.	Depth (m)	Lab. Ref	Sample Type	Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity Index	% <425µm	Preparation	Liquid Limit Clause	Classification (BS5930)	Description
BH01	AA122746	0.5	A19/4411	B	18	422	NP	NP	62	WS	4.4		Brown sandy gravelly SILT
BH01	AA122749	3.0	A19/4412	B	11	33	NP	NP	27	WS	4.4		Brown silty, very sandy, GRAVEL
BH02A	AA127703	1.0	A19/4413	B	20	37	NP	NP	71	WS	4.4		Brown sandy gravelly SILT
BH02A	AA127705	3.0	A19/4414	B	12	35	NP	NP	33	WS	4.4		Dark brown silty, very sandy, GRAVEL
BH03A	AA127701	1.0	A19/4415	B	21	38	19	19	76	WS	4.4	C I	Brown slightly sandy, slightly gravelly, CLAY
TP01	AA124219	0.5	A19/4417	B	14	33	NP	NP	43	WS	4.4		Brown sandy gravelly SILT
TP01	AA124220	1.5	A19/4418	B	9.8	35	NP	NP	32	WS	4.4		Dark brown slightly sandy, gravelly, SILT
TP02	AA124204	1.8	A19/4420	B	14	32	NP	NP	53	WS	4.4		Brown slightly sandy, gravelly, SILT
TP03	AA124205	1.0	A19/4421	B	20	39	21	18	61	WS	4.4	C I	Brown sandy gravelly CLAY
TP03	AA124207	3.0	A19/4422	B	11	23	NP	NP	42	WS	4.4		Brown silty, very sandy, GRAVEL
TP04	AA124208	1.0	A19/4423	B	19	34	NP	NP	38	WS	4.4		Brown sandy, gravelly, SILT
TP05	AA123912	0.5	A19/4425	B	15	42	19	23	33	WS	4.4	C I	Brown sandy gravelly CLAY
TP06	AA124213	1.0	A19/4427	B	19	38	18	20	69	WS	4.4	C I	Brown sandy gravelly CLAY
TP07	AA124210	1.0	A19/4428	B	20	41	19	22	69	WS	4.4	C I	Brown sandy gravelly CLAY
TP09	AA124157	0.5	A19/4432	B	23	46	22	24	57	WS	4.4	C I	Brown sandy gravelly CLAY

Notes:
Preparation: WS - Wet sieved; AR - As received; NP - Non plastic
Liquid Limit Clause: 4.3 Cone Penetrometer definitive method; 4.4 Cone Penetrometer one point method
Sample Type: B - Bulk Disturbed; U - Undisturbed

Remarks:
Results apply to the sample as received.
NOTE: *Clause 3.2 of BS1377 is a "withdrawn" standard due to publication of ISO17892-1:2014
Opinions and interpretations are outside the scope of accreditation.
The results relate to the specimens tested. Any remaining material will be retained for one month.

IGSL Ltd Materials Laboratory

Persons authorized to approve reports
H Byrne (Laboratory Manager)

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IGSL Ltd
Materials Laboratory
Unit J5, M7 Business Park
Newhall, Naas
Co. Kildare
045 846176

Test Report

Determination of Moisture Content, Liquid & Plastic Limits

Tested in accordance with BS1377:Part 2:1990, clauses 3.2*, 4.3, 4.4 & 5.3

Report No. **R105321** Contract No. 22009 Contract Name: Balbriggan , Co.Dublin

Customer MPA

Samples Received: 11/09/19 Date Tested: 30/9/19

BH/TP	Sample No.	Depth (m)	Lab. Ref	Sample Type	Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity Index	% <425µm	Preparation	Liquid Limit Clause	Classification (BS5930)	Description
TP10	AA124155	0.5	A19/4435	B	17	38	NP	NP	46	WS	4.4		Brown sandy gravelly SILT
TP13	AA124153	0.5	A19/4437	B	18	45	22	23	57	WS	4.4	C I	Brown slightly sandy, slightly gravelly, CLAY
TP16	AA124222	0.5	A19/4438	B	20	42	19	23	58	WS	4.4	C I	Brown sandy gravelly CLAY
TP17	AA123915	0.5	A19/4441	B	22	43	20	23	66	WS	4.4	C I	Brown sandy gravelly CLAY

Notes:
Preparation: WS - Wet sieved; AR - As received; NP - Non plastic
Liquid Limit Clause: 4.3 Cone Penetrometer definitive method; 4.4 Cone Penetrometer one point method
Sample Type: B - Bulk Disturbed; U - Undisturbed

Remarks:
Results apply to the sample as received.
NOTE: *Clause 3.2 of BS1377 is a "withdrawn" standard due to publication of ISO17892-1:2014
Opinions and interpretations are outside the scope of accreditation.
The results relate to the specimens tested. Any remaining material will be retained for one month.

IGSL Ltd Materials Laboratory

Persons authorized to approve reports
H Byrne (Laboratory Manager)

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TEST REPORT

Determination of Particle Size Distribution

Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5

(note: Sedimentation stage not accredited)

particle size	% passing	
75	100	COBBLES
63	100	
50	100	GRAVEL
37.5	98	
28	96	
20	90	
14	86	
10	81	
6.3	72	
5	67	
3.35	60	
2	52	
1.18	46	SAND
0.6	40	
0.425	37	
0.3	33	
0.15	26	
0.063	20	SILT/CLAY
0.037	18	
0.027	16	
0.017	14	
0.010	12	
0.007	10	
0.005	8	
0.002	6	

Contract No: 22009 Report No. R106012

Contract: Balbriggan , Co.Dublin

BH/TP : TP01

Sample No. AA124220 Lab. Sample No. A19/4418

Sample Type: B

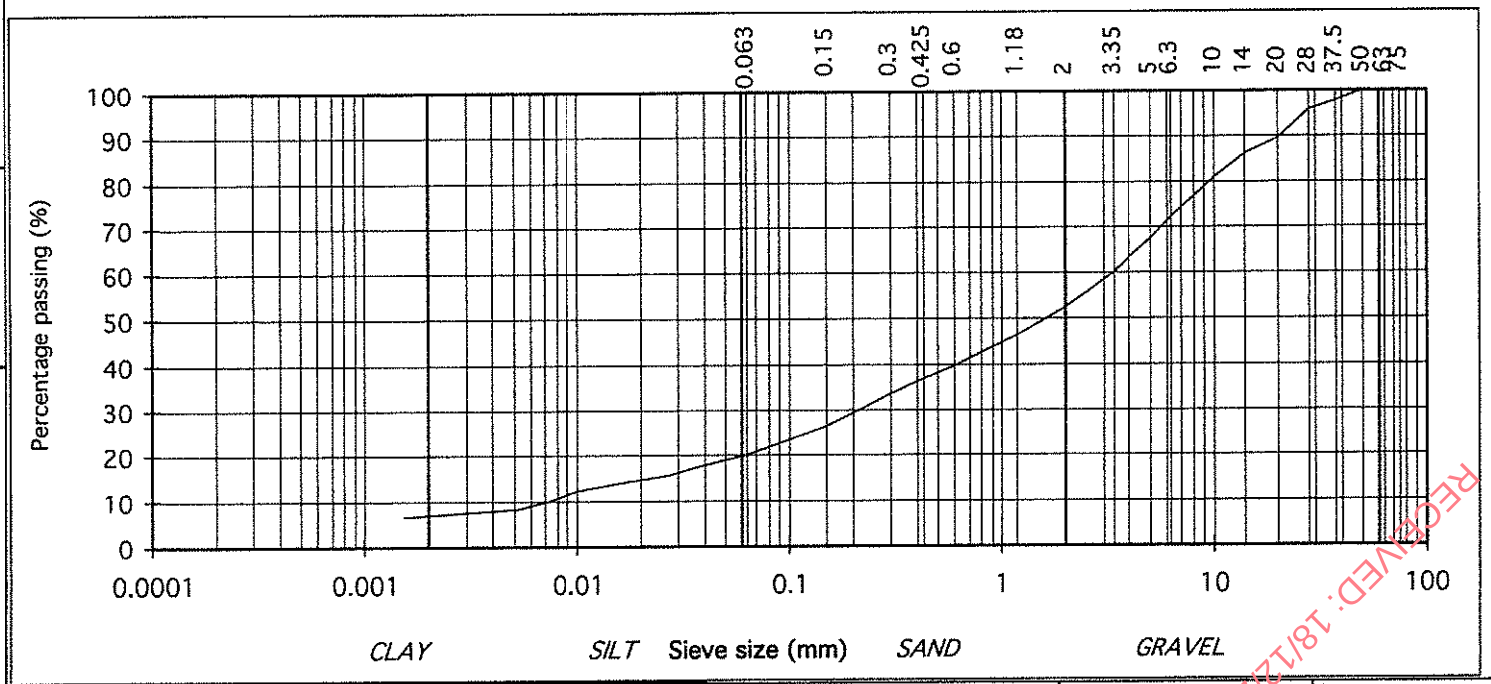
Depth (m) 1.50 Customer: MPA

Date Received 11/09/2019 Date Testing started 30/09/2019

Description: Dark brown slightly sandy, gravelly, SILT

Remarks

Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 . Results apply to sample as received.



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IGSL Ltd Materials Laboratory

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Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

TEST REPORT

Determination of Particle Size Distribution

Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5

(note: Sedimentation stage not accredited)

particle size	% passing	
75	93	COBBLES
63	81	
50	81	GRAVEL
37.5	79	
28	79	
20	73	
14	68	
10	62	
6.3	53	
5	49	
3.35	44	
2	37	
1.18	32	SAND
0.6	28	
0.425	26	
0.3	24	
0.15	19	
0.063	15	SILT/CLAY

Contract No: 22009 Report No. R106104

Contract: Balbriggan , Co.Dublin

BH/TP : TP01

Sample No. AA124221 Lab. Sample No. A19/4419

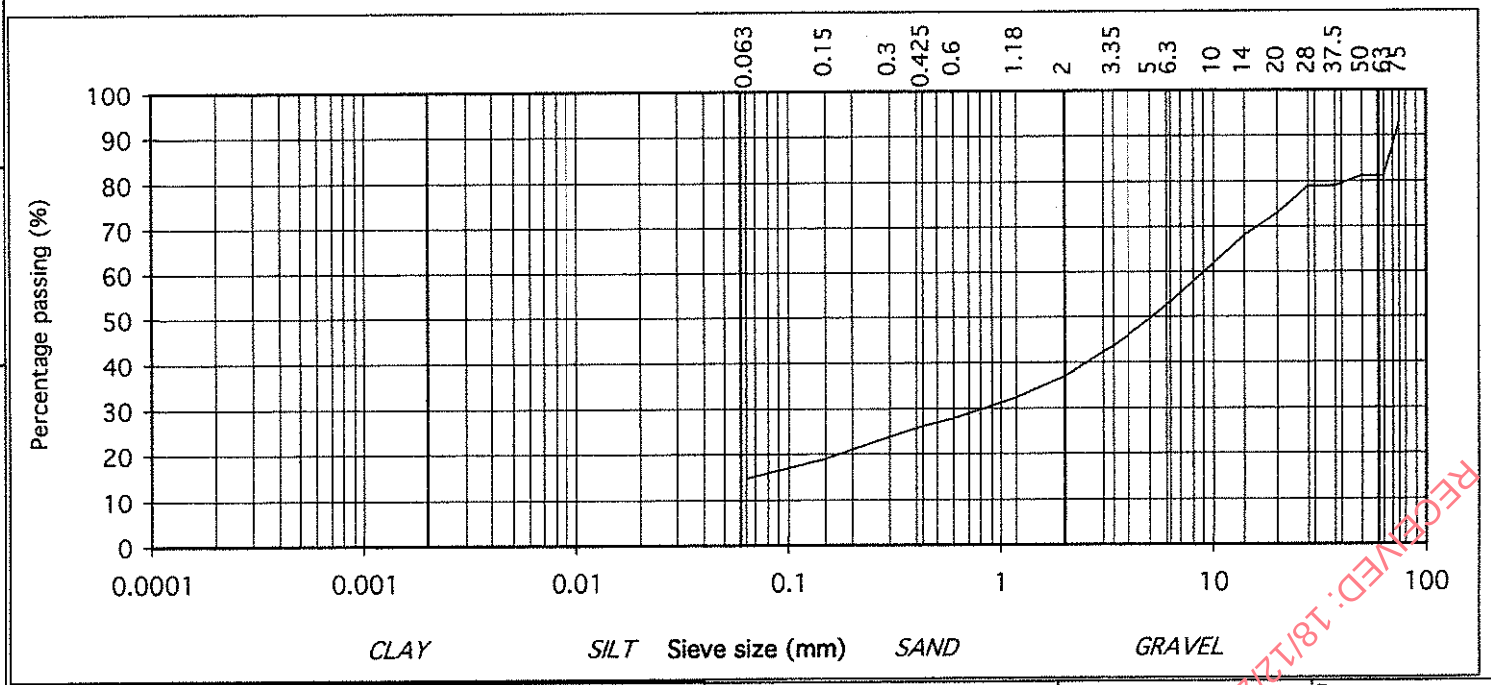
Sample Type: B

Depth (m) 2.50 Customer: MPA

Date Received 11/09/2019 Date Testing started 30/09/2019

Description: Brown clayey/silty, very sandy, GRAVEL with some cobbles

Remarks Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 . Results apply to sample as received.



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Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

TEST REPORT

Determination of Particle Size Distribution

Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5

(note: Sedimentation stage not accredited)

ISO 17025 INAB TESTING DETAILED IN SCOPE REG NO. 1337

Contract No: 22009 Report No. R106185

Contract: Balbriggan , Co.Dublin

BH/TP : TP02

Sample No. AA124204 Lab. Sample No. A19/4420

Sample Type: B

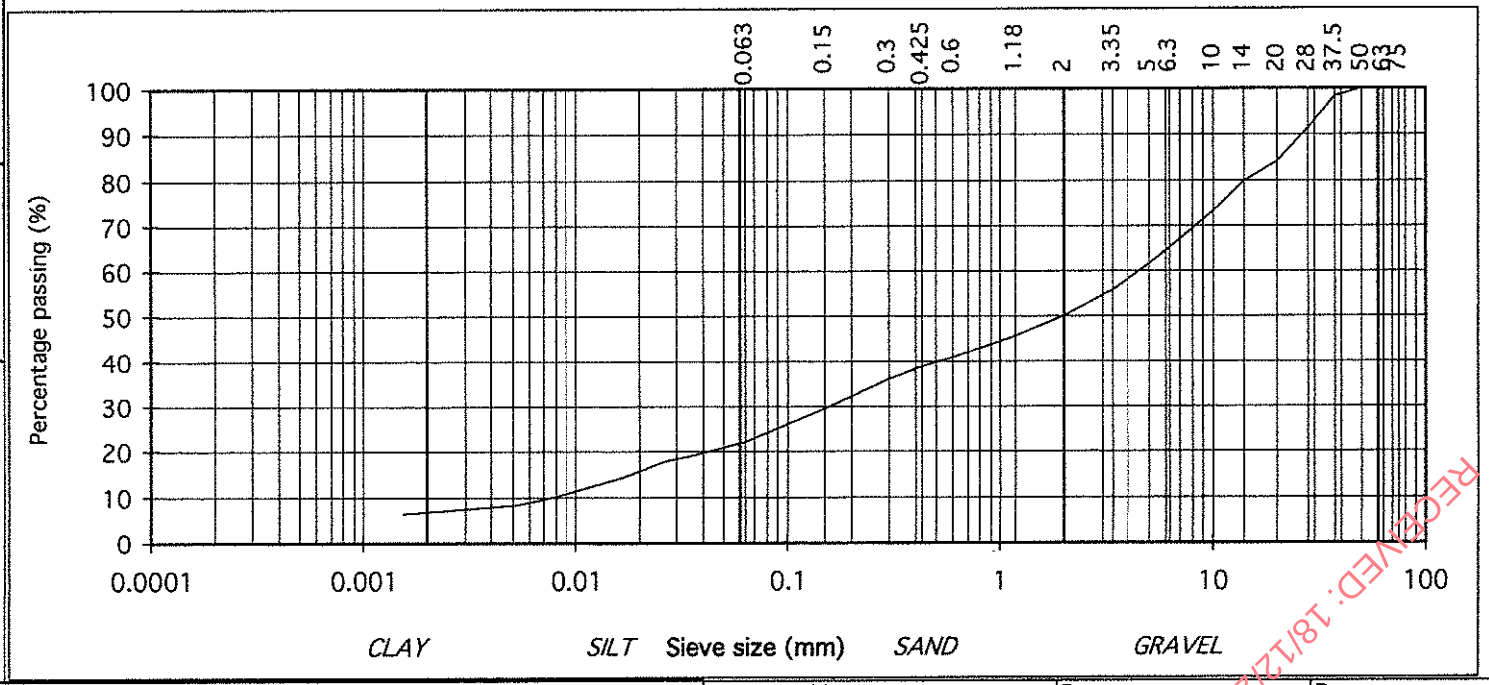
Depth (m) 1.80 Customer: MPA

Date Received 11/09/2019 Date Testing started 02/10/2019

Description: Brown slightly sandy, gravelly, SILT

Remarks Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 . Results apply to sample as received.

particle size	% passing	
75	100	COBBLES
63	100	
50	100	GRAVEL
37.5	98	
28	91	
20	84	
14	80	
10	73	
6.3	65	
5	61	
3.35	56	
2	50	
1.18	46	SAND
0.6	41	
0.425	39	
0.3	36	
0.15	30	
0.063	22	SILT/CLAY
0.037	19	
0.026	18	
0.017	14	
0.010	11	
0.007	10	
0.005	8	
0.002	6	



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Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

TEST REPORT

Determination of Particle Size Distribution

Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5

(note: Sedimentation stage not accredited)

particle size	% passing	
75	100	COBBLES
63	100	
50	100	GRAVEL
37.5	99	
28	94	
20	89	
14	85	
10	79	
6.3	71	
5	68	
3.35	63	
2	56	
1.18	49	SAND
0.6	41	
0.425	38	
0.3	34	
0.15	25	
0.063	18	SILT/CLAY

Contract No: 22009 Report No. R106487

Contract: Balbriggan , Co.Dublin

BH/TP : TP03

Sample No. AA124207 Lab. Sample No. A19/4422

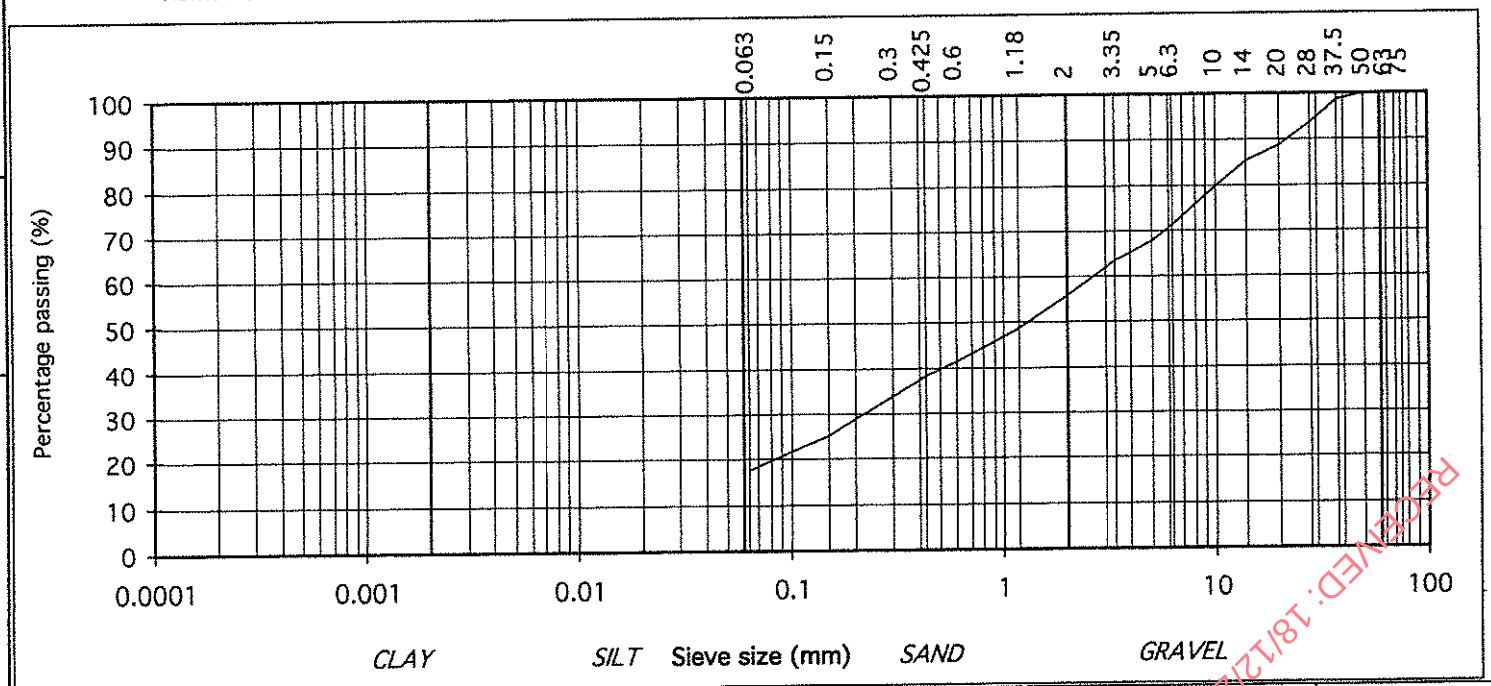
Sample Type: B

Depth (m) 3.00 Customer: MPA

Date Received 11/09/2019 Date Testing started 02/10/2019

Description: Brown silty, very sandy, GRAVEL

Remarks Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 . Results apply to sample as received.



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Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

TEST REPORT

Determination of Particle Size Distribution

Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5

(note: Sedimentation stage not accredited)

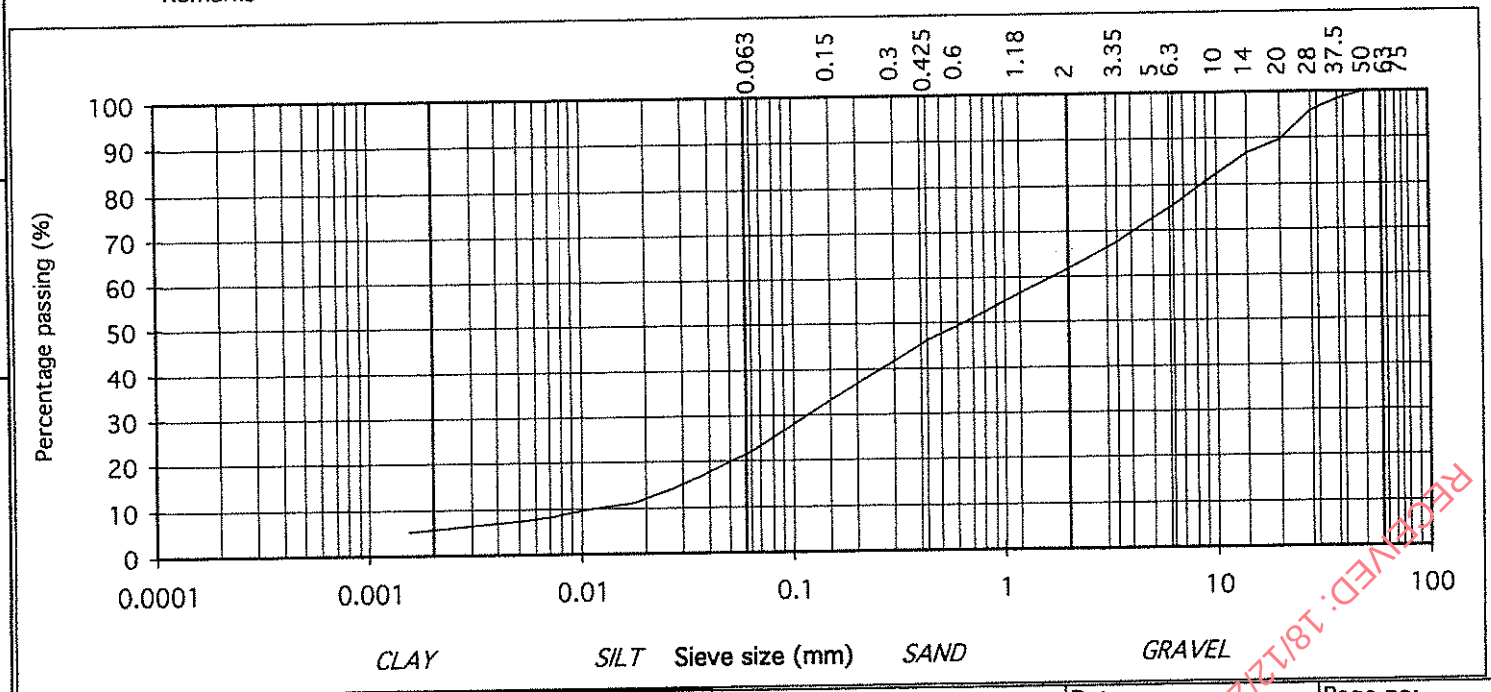
ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 133T

particle size	% passing	
75	100	COBBLES
63	100	
50	100	GRAVEL
37.5	98	
28	96	
20	90	
14	87	
10	82	
6.3	75	
5	72	
3.35	68	
2	62	
1.18	56	SAND
0.6	49	
0.425	46	
0.3	42	
0.15	33	
0.063	22	SILT/CLAY
0.037	17	
0.027	14	
0.018	11	
0.010	10	
0.007	8	
0.005	7	
0.002	5	

Contract No:	22009	Report No.	R106488
Contract:	Balbriggan , Co.Dublin		
BH/TP :	TP04		
Sample No.	AA124208	Lab. Sample No.	A19/4423
Sample Type:	B		
Depth (m)	1.00	Customer:	MPA
Date Received	11/09/2019	Date Testing started	02/10/2019
Description:	Brown sandy, gravelly, SILT		

Remarks

Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 . Results apply to sample as received.



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Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

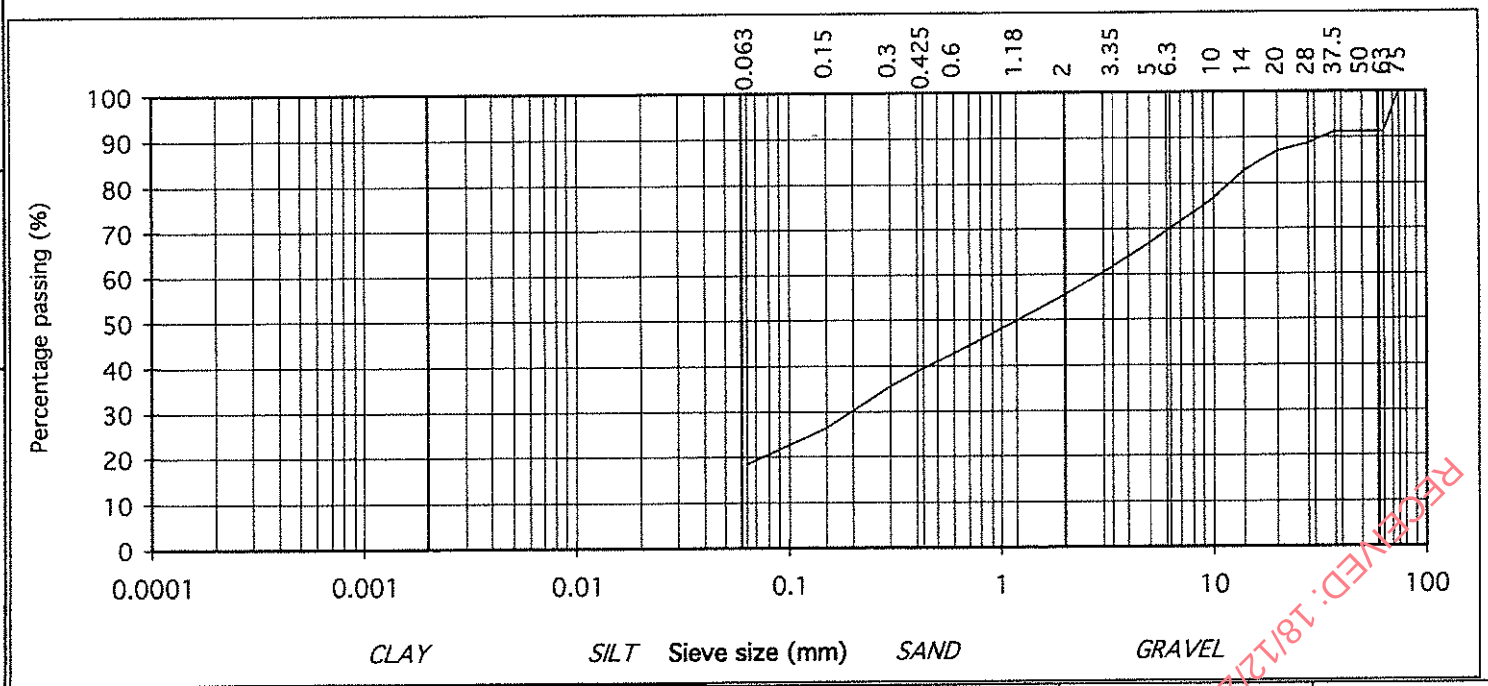
TEST REPORT
Determination of Particle Size Distribution

Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5
(note: Sedimentation stage not accredited)

particle size	% passing	
75	100	COBBLES
63	91	
50	91	GRAVEL
37.5	91	
28	89	
20	87	
14	83	
10	76	
6.3	70	
5	67	
3.35	62	
2	55	
1.18	50	SAND
0.6	43	
0.425	39	
0.3	35	
0.15	26	
0.063	19	SILT/CLAY

Contract No: 22009 Report No. R106489
Contract: Balbriggan , Co.Dublin
BH/TP : TP04
Sample No. AA124209 Lab. Sample No. A19/4424
Sample Type: B
Depth (m) 2.20 Customer: MPA
Date Received 11/09/2019 Date Testing started 02/10/2019
Description: Brown silty, very sandy, GRAVEL with some cobbles

Remarks Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 . Results apply to sample as received.



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Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

TEST REPORT

Determination of Particle Size Distribution

Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5

(note: Sedimentation stage not accredited)

particle size	% passing	
75	88	COBBLES
63	88	
50	88	GRAVEL
37.5	83	
28	78	
20	67	
14	60	
10	53	
6.3	42	
5	38	
3.35	32	
2	27	
1.18	24	SAND
0.6	20	
0.425	18	
0.3	16	
0.15	12	
0.063	8	SILT/CLAY

Contract No: 22009 Report No. R106105

Contract: Balbriggan , Co.Dublin

BH/TP : TP05

Sample No. AA123914 Lab. Sample No. A19/4426

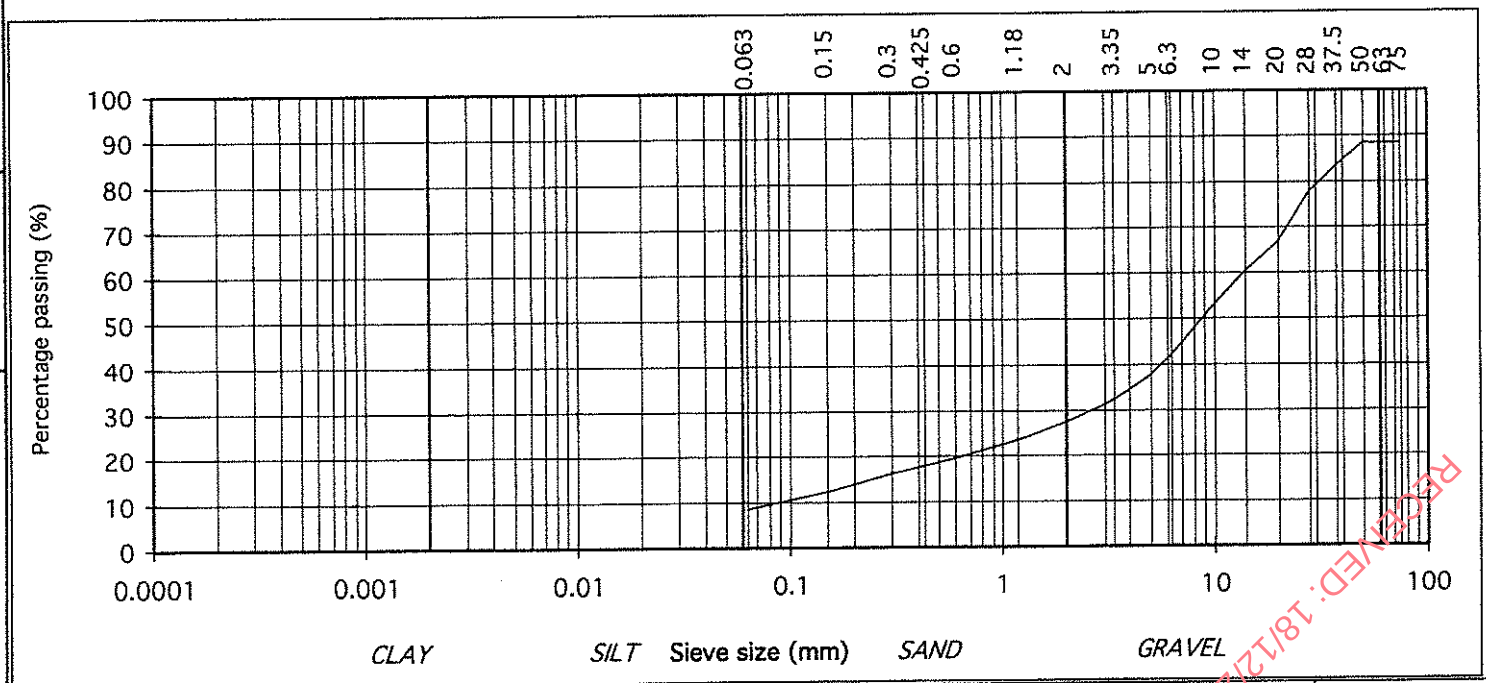
Sample Type: B

Depth (m) 2.50 Customer: MPA

Date Received 11/09/2019 Date Testing started 01/10/2019

Description: Brown clayey/silty, sandy, GRAVEL with some cobbles

Remarks Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 . Results apply to sample as received. Sample size did not meet the requirements of BS1377



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IGSL Ltd Materials Laboratory

Approved by:	Date:	Page no:
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Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

TEST REPORT

Determination of Particle Size Distribution

Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5

(note: Sedimentation stage not accredited)

particle size	% passing	
75	100	COBBLES
63	100	
50	100	GRAVEL
37.5	92	
28	89	
20	77	
14	72	
10	65	
6.3	57	
5	53	
3.35	46	
2	40	
1.18	35	SAND
0.6	30	
0.425	28	
0.3	25	
0.15	20	
0.063	13	SILT/CLAY

Contract No: 22009 Report No. R106106

Contract: Balbriggan , Co.Dublin

BH/TP : TP07

Sample No. AA124211 Lab. Sample No. A19/4429

Sample Type: B

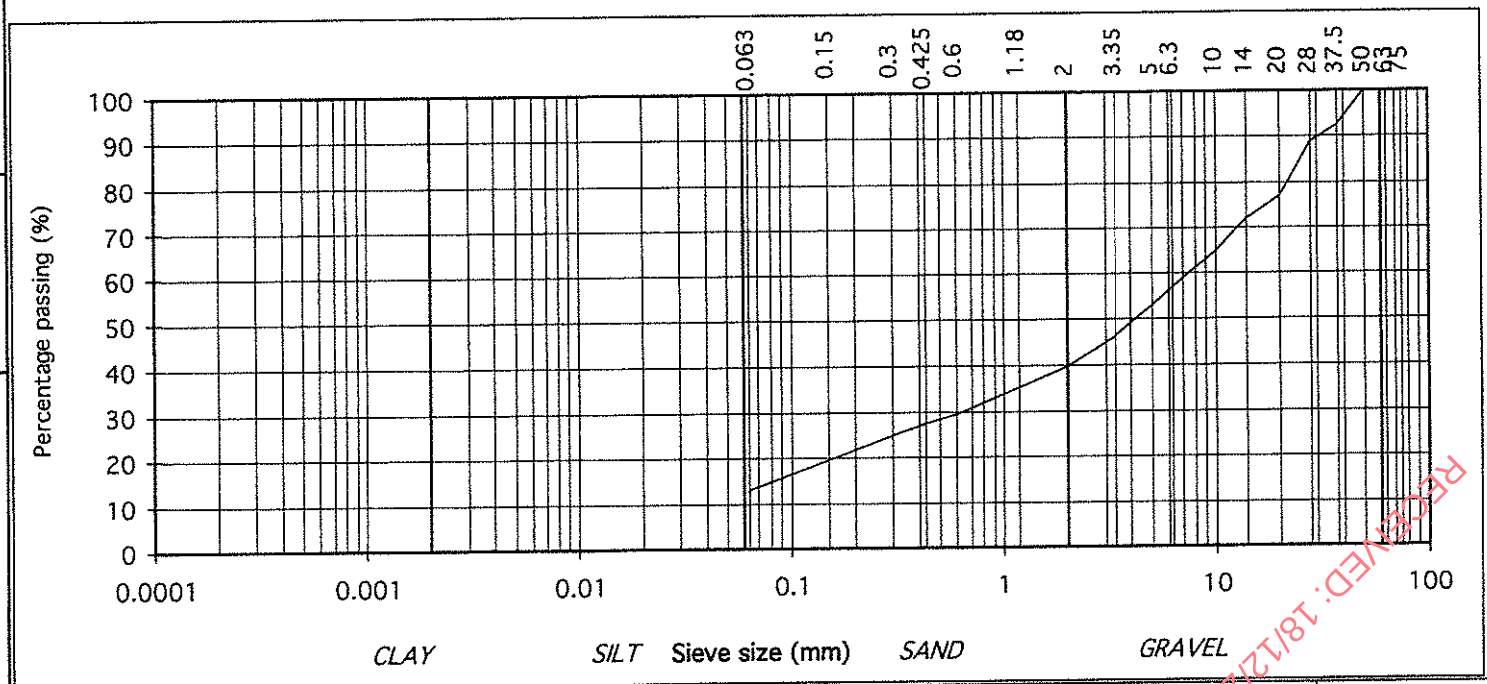
Depth (m) 2.00 Customer: MPA

Date Received 11/09/2019 Date Testing started 02/10/2019

Description: Brown clayey/silty, very sandy, GRAVEL

Remarks

Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 . Results apply to sample as received.



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Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

TEST REPORT

Determination of Particle Size Distribution

Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5

(note: Sedimentation stage not accredited)

particle size	% passing	
75	100	COBBLES
63	100	
50	97	GRAVEL
37.5	92	
28	83	
20	76	
14	71	
10	65	
6.3	57	
5	53	
3.35	49	
2	42	SAND
1.18	36	
0.6	29	
0.425	27	
0.3	24	
0.15	19	
0.063	13	SILT/CLAY

Contract No: 22009 Report No. R106490

Contract: Balbriggan , Co.Dublin

BH/TP : TP07

Sample No. AA124212 Lab. Sample No. A19/4430

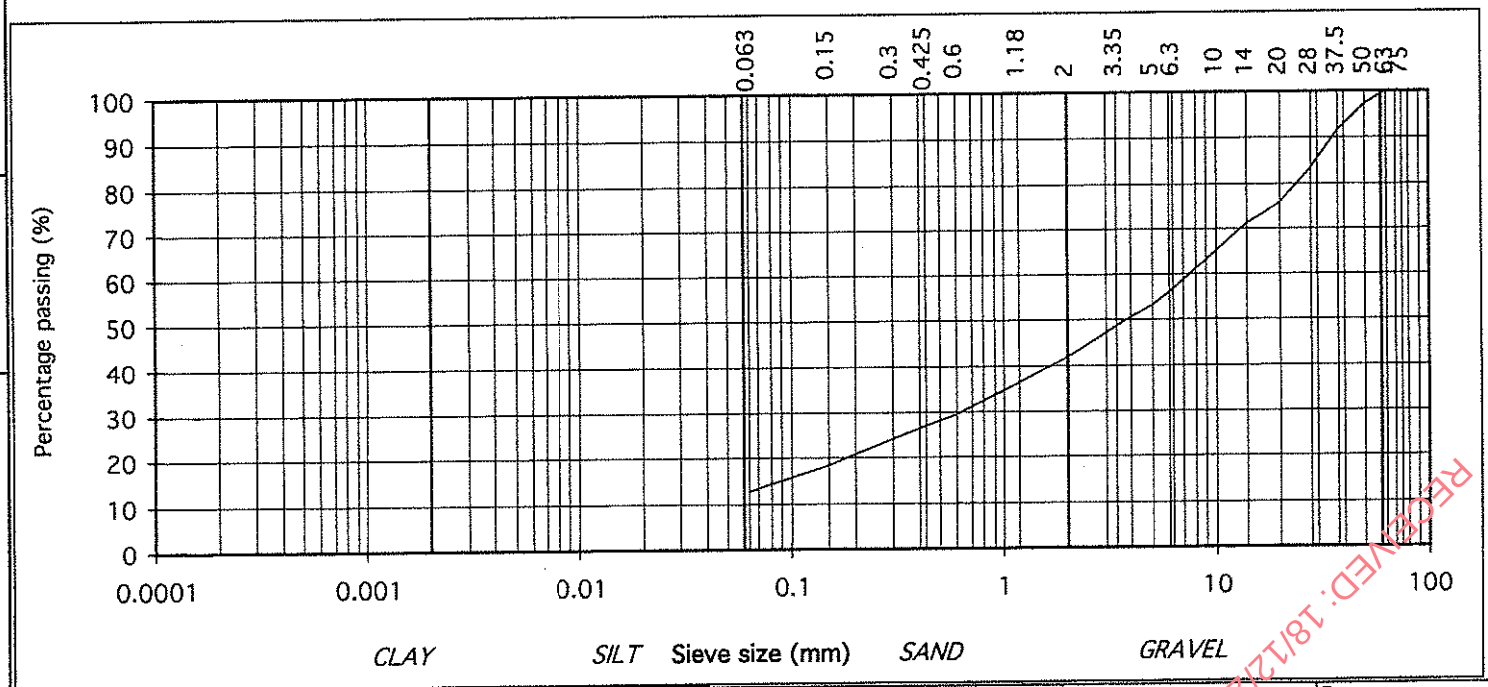
Sample Type: B

Depth (m) 3.00 Customer: MPA

Date Received 11/09/2019 Date Testing started 02/10/2019

Description: Brown clayey/silty, very sandy, GRAVEL

Remarks Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 . Results apply to sample as received.



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Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

TEST REPORT

Determination of Particle Size Distribution

Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5

(note: Sedimentation stage not accredited)

particle size	% passing	
75	100	COBBLES
63	100	
50	100	GRAVEL
37.5	94	
28	80	
20	61	
14	47	
10	39	
6.3	29	
5	25	
3.35	20	
2	14	
1.18	10	SAND
0.6	7	
0.425	7	
0.3	6	
0.15	5	
0.063	5	SILT/CLAY

Contract No: 22009 Report No. R106491

Contract: Balbriggan , Co.Dublin

BH/TP : TP08

Sample No. AA124218 Lab. Sample No. A19/4431

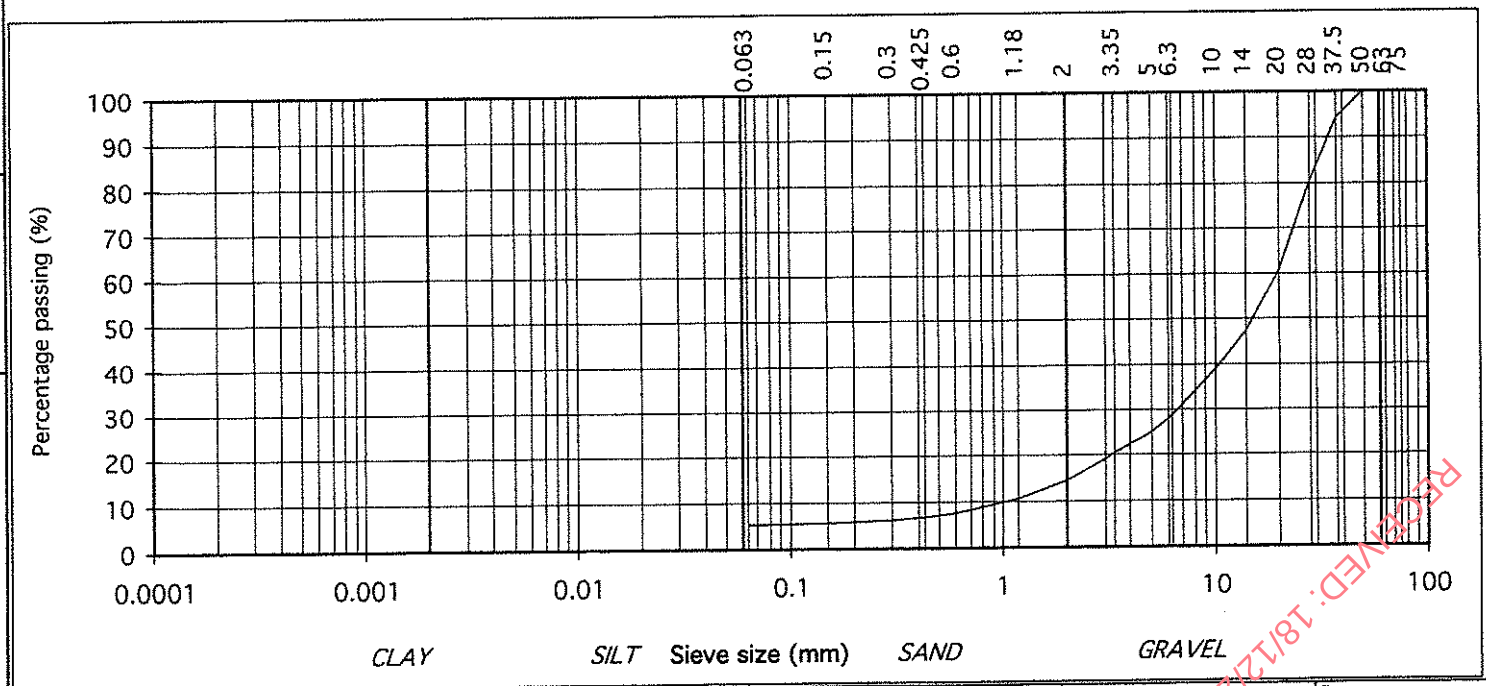
Sample Type: B

Depth (m) 1.50 Customer: MPA

Date Received 11/09/2019 Date Testing started 02/10/2019

Description: Brown clayey/silty, sandy, GRAVEL

Remarks Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 . Results apply to sample as received.



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Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

TEST REPORT

Determination of Particle Size Distribution

Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5

(note: Sedimentation stage not accredited)

ISO 17025 IVNAB ASSURED TESTING DETAILED IN SCOPE REG NO. 1331

Contract No: 22009 Report No. R106110

Contract: Balbriggan , Co.Dublin

BH/TP : TP09

Sample No. AA124158 Lab. Sample No. A19/4433

Sample Type: B

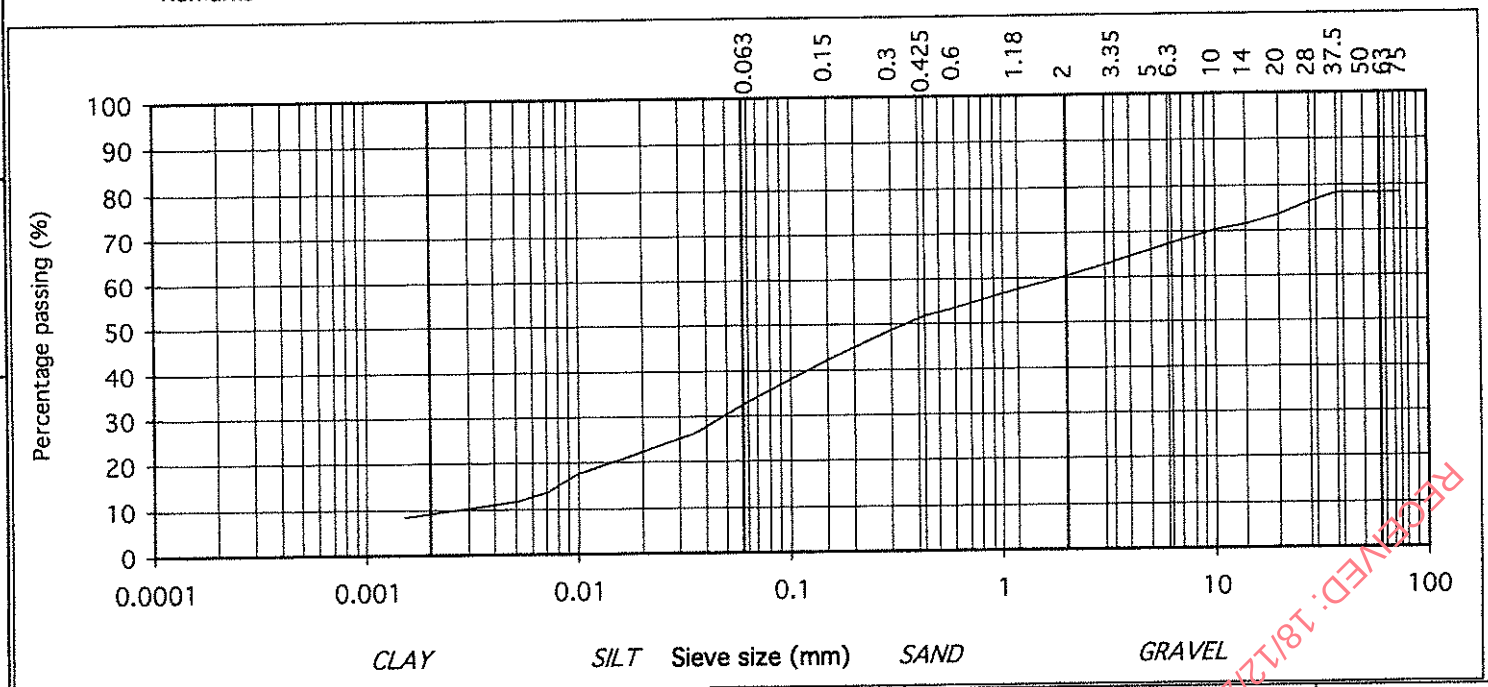
Depth (m) 1.50 Customer: MPA

Date Received 11/09/2019 Date Testing started 01/10/2019

Description: Brown slightly sandy, slightly gravelly, SILT/CLAY with many cobbles

Remarks Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 . Results apply to sample as received. Sample size did not meet the requirements of BS1377

particle size	% passing	
75	78	COBBLES
63	78	
50	78	GRAVEL
37.5	78	
28	76	
20	73	
14	72	
10	70	
6.3	68	
5	66	
3.35	63	
2	60	
1.18	57	SAND
0.6	54	
0.425	52	
0.3	49	
0.15	42	
0.063	33	SILT/CLAY
0.036	26	
0.026	24	
0.017	21	
0.010	18	
0.007	14	
0.005	12	
0.002	8	



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Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

TEST REPORT

Determination of Particle Size Distribution

Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5

(note: Sedimentation stage not accredited)

particle size	% passing	
75	100	COBBLES
63	100	
50	95	GRAVEL
37.5	90	
28	82	
20	73	
14	71	
10	68	
6.3	63	
5	60	
3.35	55	
2	51	
1.18	48	SAND
0.6	43	
0.425	41	
0.3	37	
0.15	26	
0.063	14	SILT/CLAY

Contract No: 22009 Report No. R106074

Contract: Balbriggan , Co.Dublin

BH/TP : TP09

Sample No. AA124159 Lab. Sample No. A19/4434

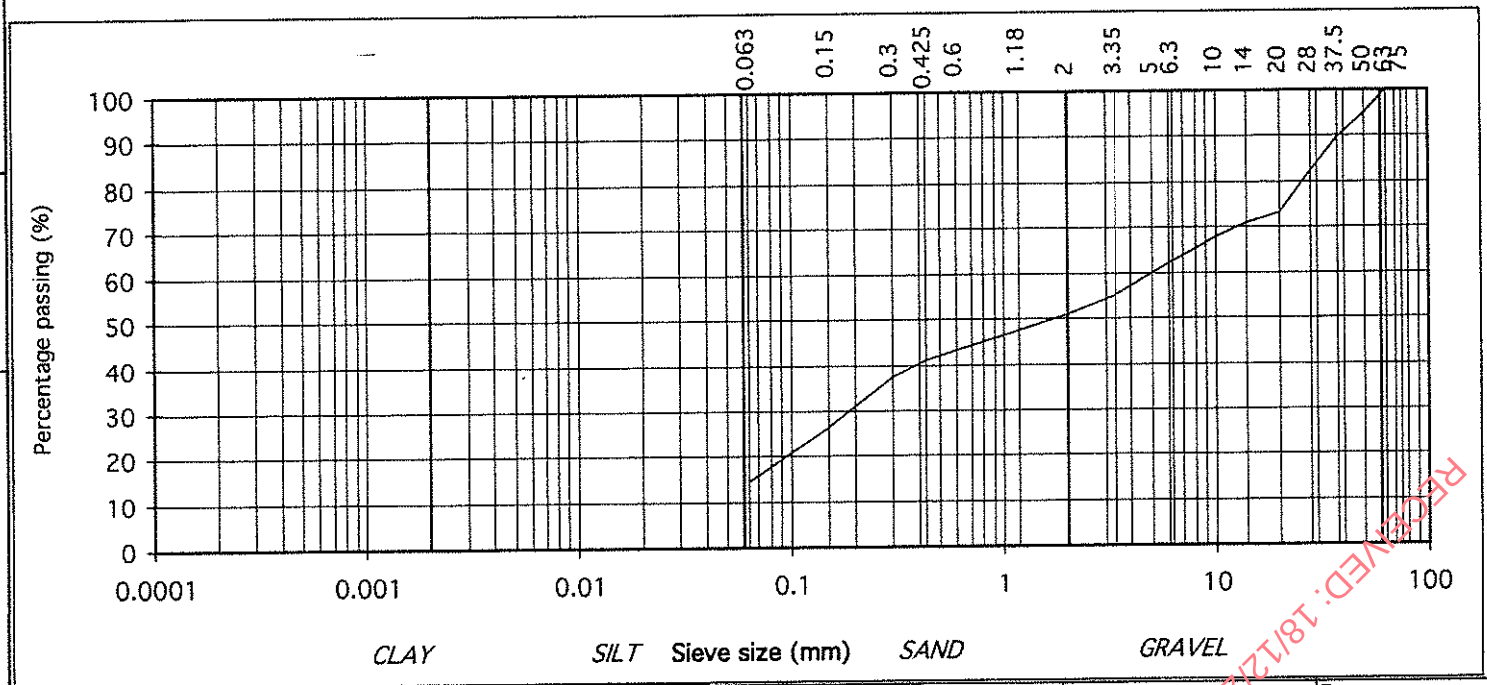
Sample Type: B

Depth (m) 2.50 Customer: MPA

Date Received 11/09/2019 Date Testing started 01/10/2019

Description: Dark brown clayey/silty, very sandy, GRAVEL

Remarks Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 . Results apply to sample as received.



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IGSL Ltd Materials Laboratory	Approved by:	Date:	Page no:
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Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

TEST REPORT

Determination of Particle Size Distribution

Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5

(note: Sedimentation stage not accredited)

particle size	% passing	
75	100	COBBLES
63	100	
50	88	GRAVEL
37.5	88	
28	88	
20	86	
14	86	
10	84	
6.3	80	
5	78	
3.35	75	
2	71	
1.18	68	SAND
0.6	64	
0.425	61	
0.3	59	
0.15	51	
0.063	42	SILT/CLAY
0.037	35	
0.027	31	
0.017	28	
0.010	24	
0.007	20	
0.005	17	
0.002	11	

Contract No: 22009 Report No. R106144

Contract: Balbriggan , Co.Dublin

BH/TP : TP13

Sample No. AA124153 Lab. Sample No. A19/4437

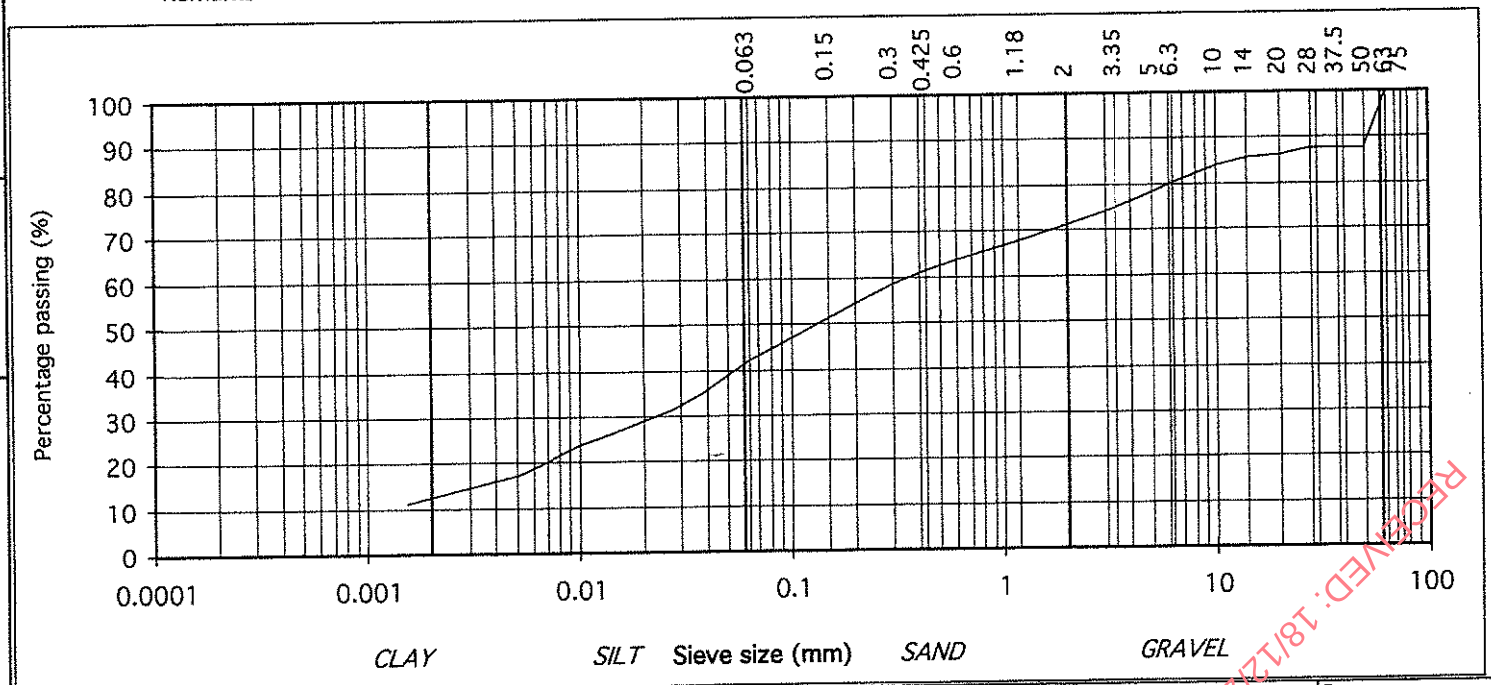
Sample Type: B

Depth (m) 0.50 Customer: MPA

Date Received 11/09/2019 Date Testing started 30/09/2019

Description: Brown slightly sandy, slightly gravelly, CLAY

Remarks Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 . Results apply to sample as received. Sample size did not meet the requirements of BS1377



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Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

TEST REPORT

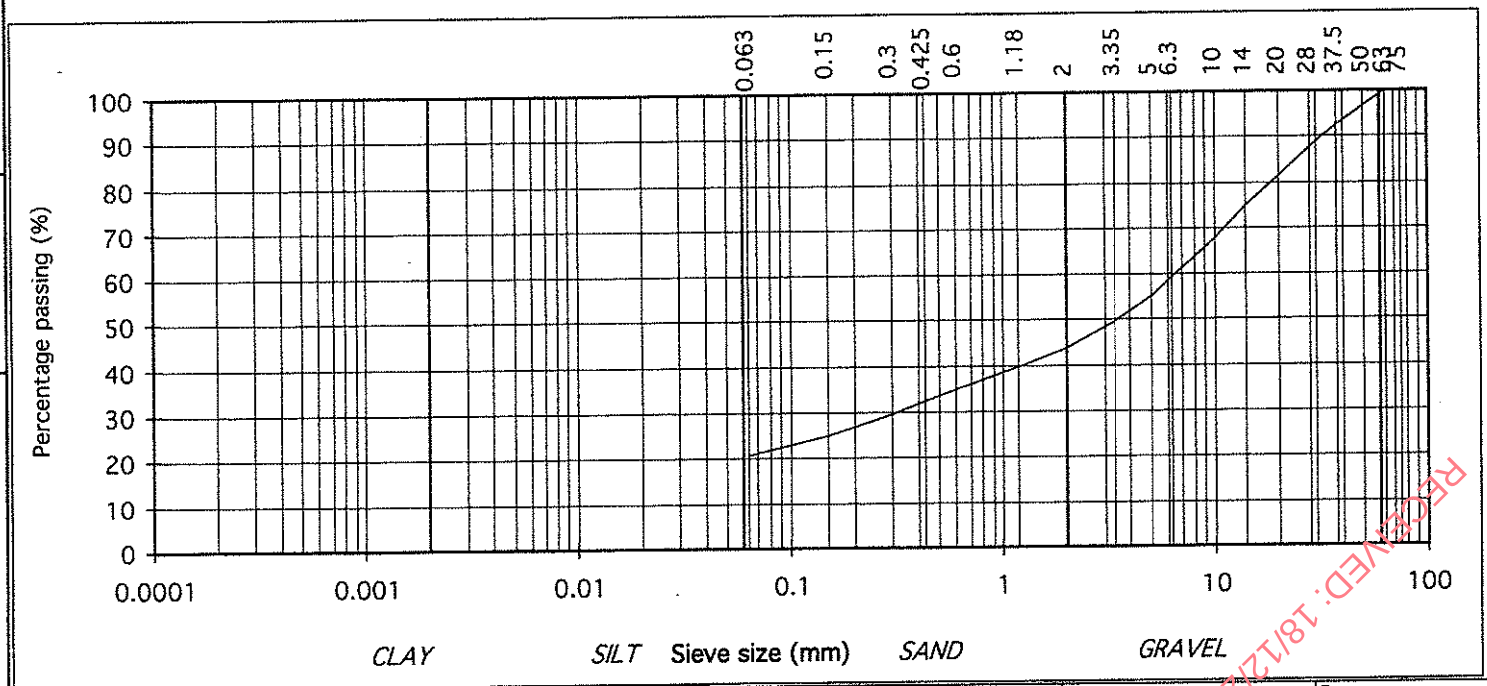
Determination of Particle Size Distribution

Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5
(note: Sedimentation stage not accredited)

particle size	% passing	
75	100	COBBLES
63	100	
50	97	GRAVEL
37.5	92	
28	87	
20	81	
14	75	
10	68	
6.3	59	
5	55	
3.35	50	
2	44	
1.18	40	SAND
0.6	35	
0.425	32	
0.3	29	
0.15	25	
0.063	21	SILT/CLAY

Contract No: 22009 Report No. R106016
Contract: Balbriggan , Co.Dublin
BH/TP : TP17
Sample No. AA123916 Lab. Sample No. A19/4440
Sample Type: B
Depth (m) 1.50 Customer: MPA
Date Received 11/09/2019 Date Testing started 30/09/2019
Description: Dark brown slightly sandy, gravelly, SILT/CLAY

Remarks Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 . Results apply to sample as received.



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Approved by:	Date:	Page no:
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Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

TEST REPORT

Determination of Particle Size Distribution

Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5

(note: Sedimentation stage not accredited)

particle size	% passing	
75	100	COBBLES
63	100	
50	90	GRAVEL
37.5	88	
28	83	
20	73	
14	64	
10	60	
6.3	53	
5	50	
3.35	47	
2	45	
1.18	43	SAND
0.6	41	
0.425	40	
0.3	38	
0.15	35	
0.063	33	SILT/CLAY

Contract No: 22009 Report No. R106075

Contract: Balbriggan , Co.Dublin

BH/TP : TP17

Sample No. AA123917 Lab. Sample No. A19/4441

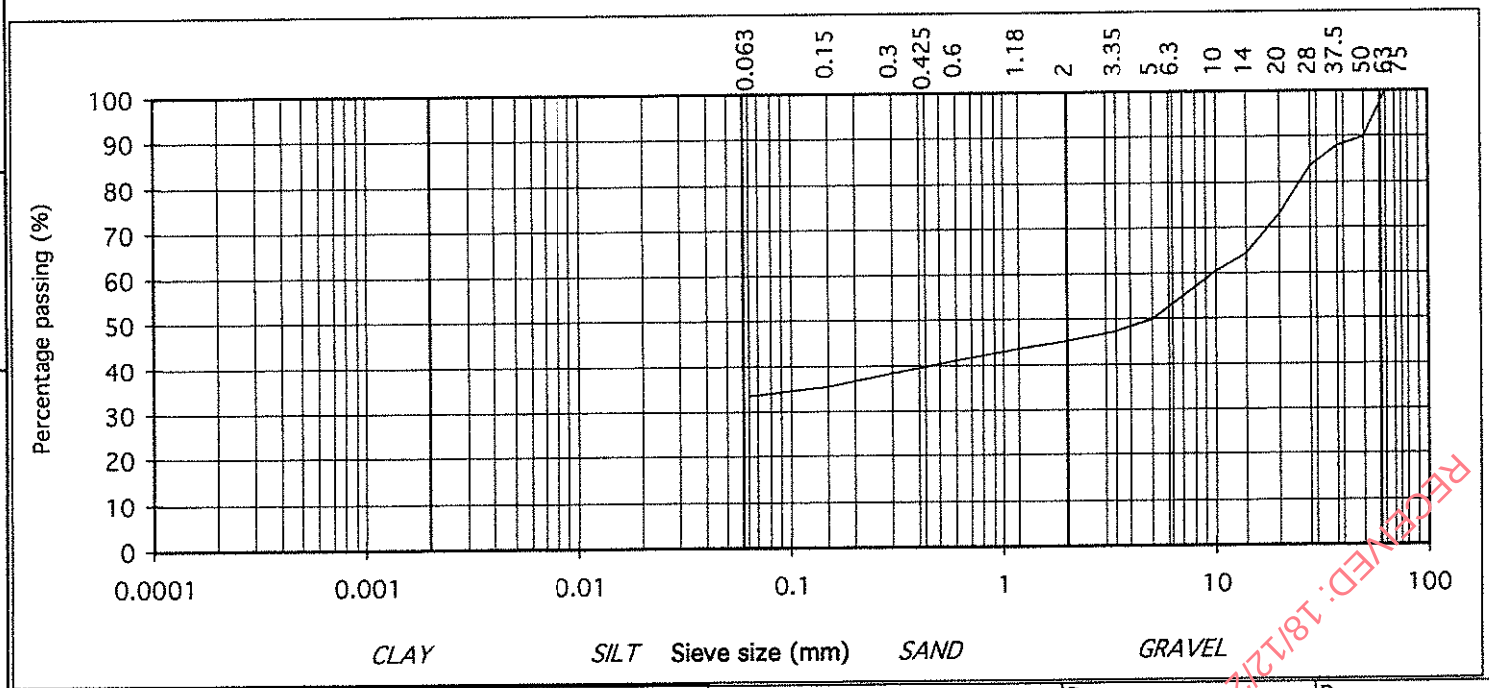
Sample Type: B

Depth (m) 2.50 Customer: MPA

Date Received 11/09/2019 Date Testing started 01/10/2019

Description: Brown slightly sandy, gravelly, SILT/CLAY

Remarks Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 . Results apply to sample as received.



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Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

TEST REPORT

Determination of Particle Size Distribution

Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5

(note: Sedimentation stage not accredited)

particle size	% passing	
75	100	COBBLES
63	100	
50	100	GRAVEL
37.5	100	
28	93	
20	88	
14	80	
10	71	
6.3	64	
5	60	
3.35	55	
2	49	
1.18	44	SAND
0.6	37	
0.425	34	
0.3	31	
0.15	24	
0.063	17	SILT/CLAY

Contract No: 22009 Report No. R106492

Contract: Balbriggan , Co.Dublin

BH/TP : BH01

Sample No. AA122749 Lab. Sample No. A19/4412

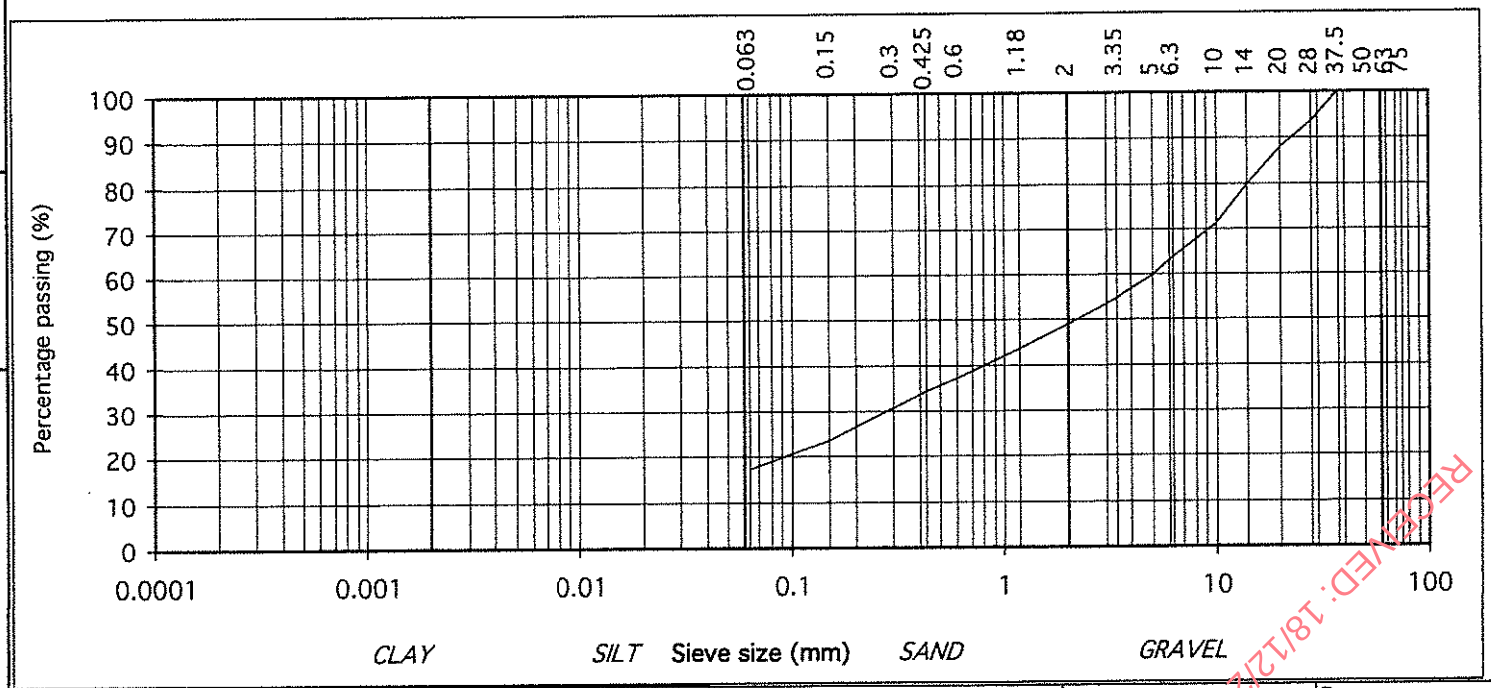
Sample Type: B

Depth (m) 3.00 Customer: MPA

Date Received 11/09/2019 Date Testing started 02/10/2019

Description: Brown silty, very sandy, GRAVEL

Remarks Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 . Results apply to sample as received.



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Approved by:	Date:	Page no:
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Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

TEST REPORT

Determination of Particle Size Distribution

Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5

(note: Sedimentation stage not accredited)

ISO 17025 IVNAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 133T

particle size	% passing	
75	100	COBBLES
63	100	
50	100	GRAVEL
37.5	98	
28	92	
20	87	
14	75	
10	69	
6.3	60	
5	57	
3.35	50	
2	45	
1.18	40	SAND
0.6	34	
0.425	32	
0.3	29	
0.15	23	
0.063	17	SILT/CLAY

Contract No: 22009 Report No. R106072

Contract: Balbriggan , Co.Dublin

BH/TP : BH02A

Sample No. AA127705 Lab. Sample No. A19/4414

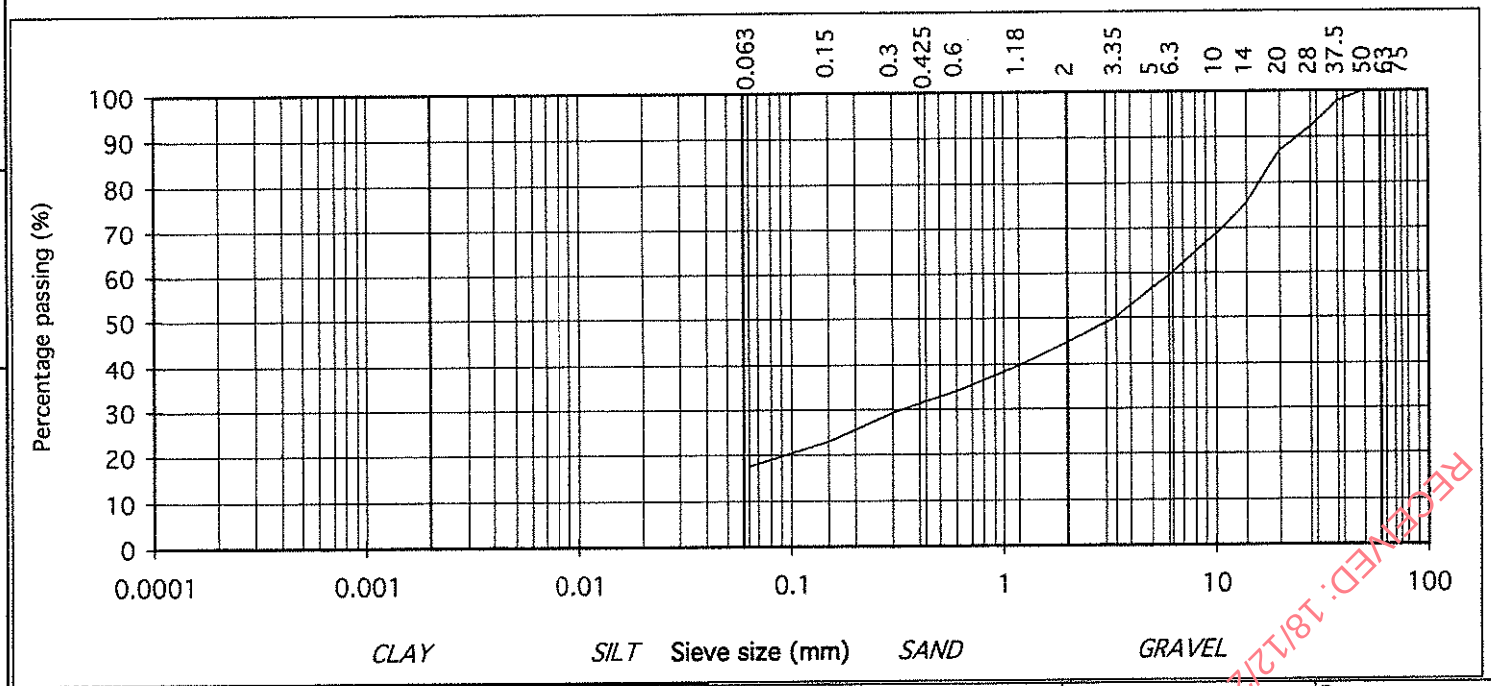
Sample Type: B

Depth (m) 3.00 Customer: MPA

Date Received 11/09/2019 Date Testing started 01/10/2019

Description: Dark brown silty, very sandy, GRAVEL

Remarks Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 . Results apply to sample as received.



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Approved by:	Date:	Page no:
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Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

TEST REPORT

Determination of Particle Size Distribution

Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5

(note: Sedimentation stage not accredited)

particle size	% passing	
75	100	COBBLES
63	100	
50	100	GRAVEL
37.5	100	
28	94	
20	93	
14	89	
10	86	
6.3	82	
5	80	
3.35	77	
2	74	
1.18	71	SAND
0.6	67	
0.425	65	
0.3	62	
0.15	54	
0.063	41	SILT/CLAY
0.038	33	
0.027	30	
0.018	23	
0.010	19	
0.007	17	
0.005	15	
0.002	12	

Contract No: 22009 Report No. R106103

Contract: Balbriggan , Co.Dublin

BH/TP : BH03A

Sample No. AA127701 Lab. Sample No. A19/4415

Sample Type: B

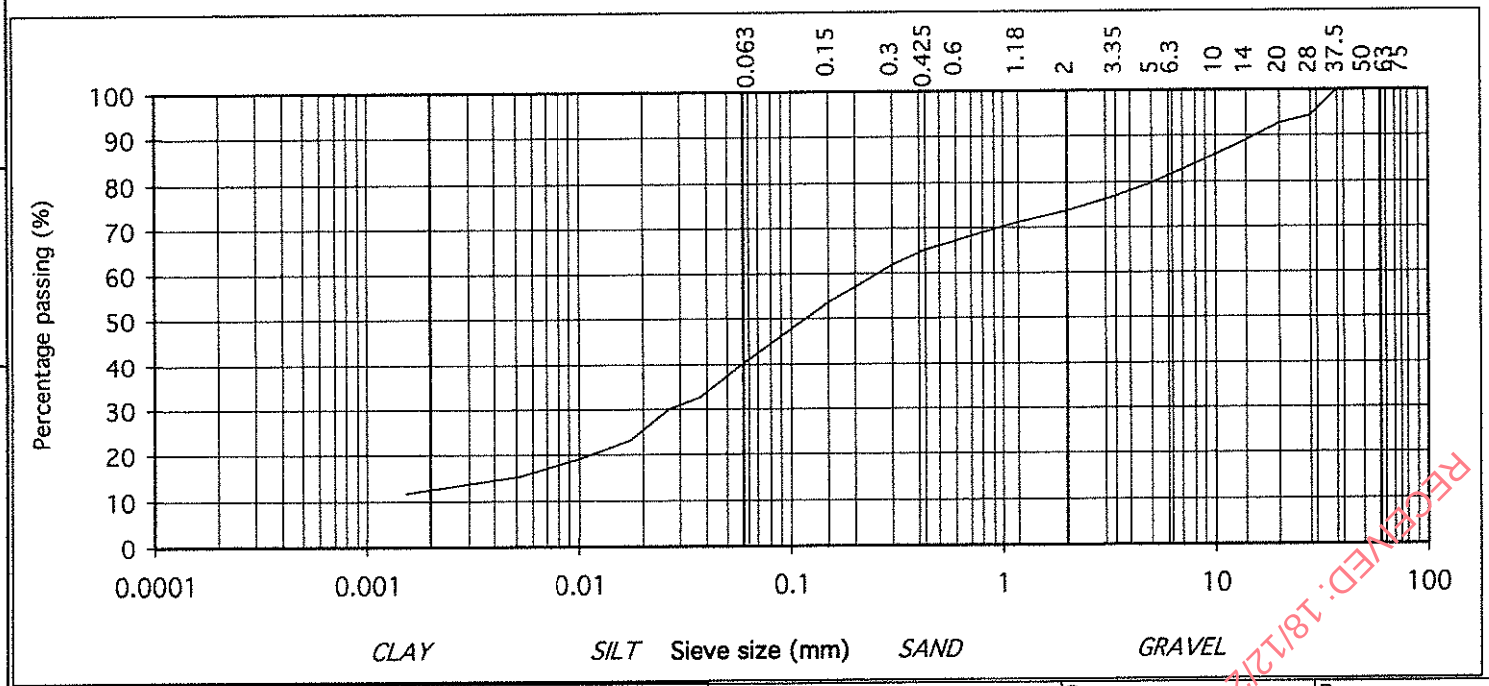
Depth (m) 1.00 Customer: MPA

Date Received 11/09/2019 Date Testing started 30/09/2019

Description: Brown slightly sandy, slightly gravelly, CLAY

Remarks

Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 . Results apply to sample as received.



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IGSL Ltd Materials Laboratory

Approved by:	Date:	Page no:
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Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

TEST REPORT

Determination of Particle Size Distribution

Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5

(note: Sedimentation stage not accredited)

particle size	% passing	
75	100	COBBLES
63	100	
50	100	GRAVEL
37.5	91	
28	76	
20	68	
14	54	
10	46	
6.3	35	
5	30	
3.35	21	
2	14	
1.18	9	SAND
0.6	6	
0.425	6	
0.3	5	
0.15	3	
0.063	1	SILT/CLAY

Contract No: 22009 Report No. R106073

Contract: Balbriggan , Co.Dublin

BH/TP : BH04A

Sample No. AA122745 Lab. Sample No. A19/4416

Sample Type: B

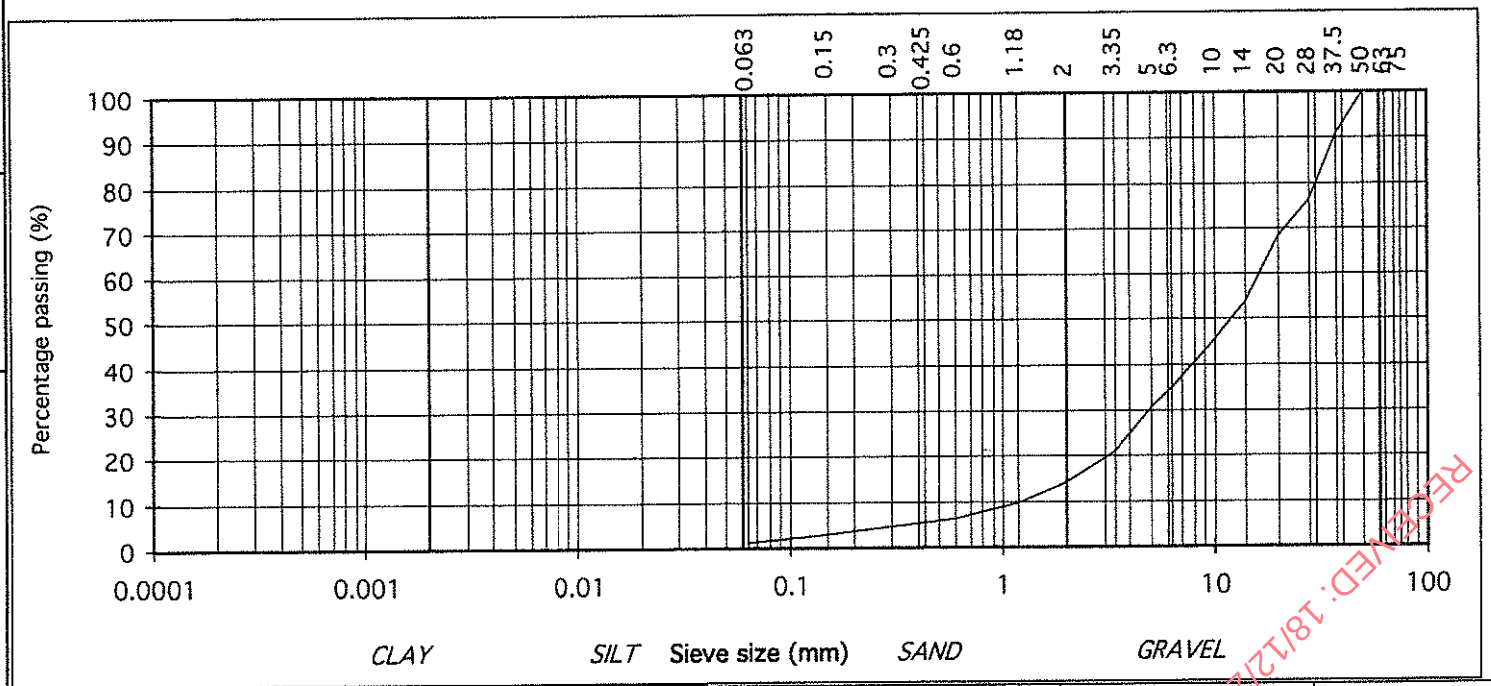
Depth (m) 2.00 Customer: MPA

Date Received 11/09/2019 Date Testing started 01/10/2019

Description: Dark brown slightly clayey/silty, sandy, GRAVEL

Remarks

Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 . Results apply to sample as received.



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Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

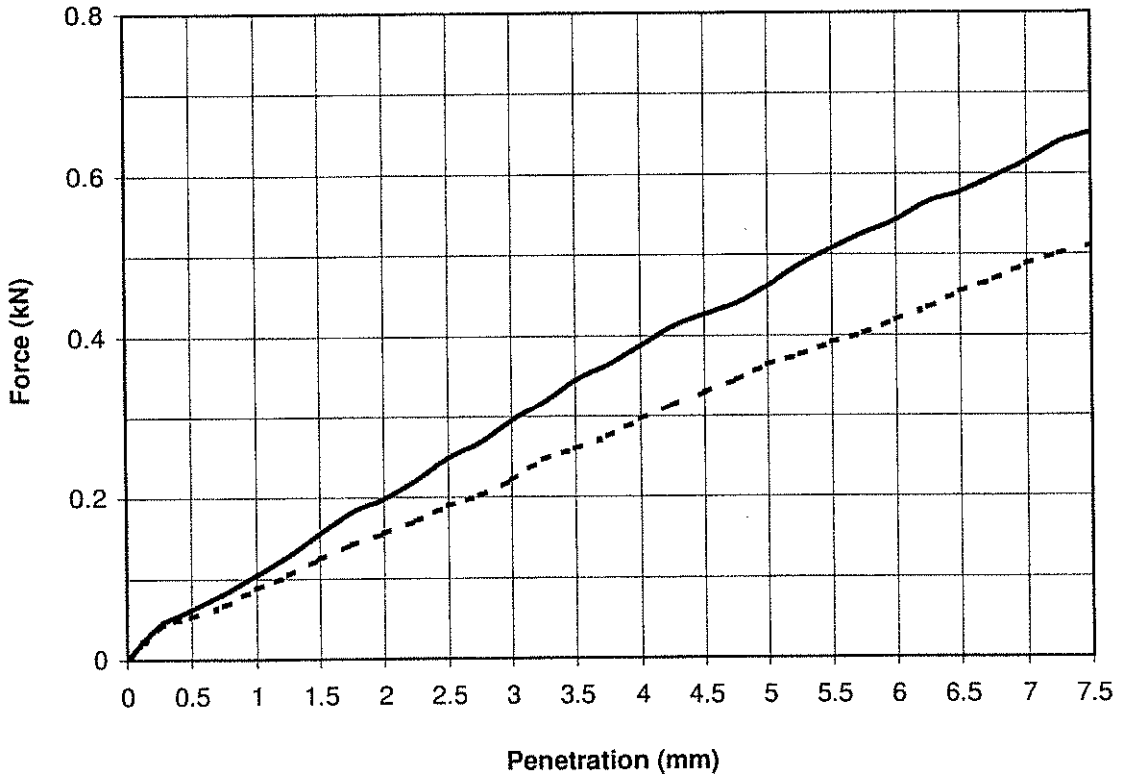
IGSL Ltd
Materials Laboratory
Unit J5,M7 Business Park
Naas Co.Kildare
045 899324

TEST REPORT
Determination of California Bearing Ratio (CBR)

Tested in accordance with BS1377:Part 4:1990, clause 7

RECEIVED: 18/12/2025

Report No.	R105947	Contract	Balbriggan , Co.Dublin
Contract No.	22009	Customer	MPA
Date received	11/09/19	Date Tested	02/10/19
BH/TP No.	TP03	Sample No.	AA124205 Type: B
Depth (m)	1.00	Lab sample No.	A19/4421



Key: ———— Top ---------- Base

Description:	Brown sandy gravelly CLAY		
Initial Condition:	Unsoaked		
Moisture Content (%):	20	Bulk Density (Mg/m^3):	2.08
Surcharge (kg):	4	Dry Density (Mg/m^3):	1.73
% Material >20mm:	6		
Method of compaction:	Static Compaction Method 2		

Test Result	Top	Base
CBR %	**2.3**	**1.8**
Moisture Content %	20	20

Results apply to sample as received.

Persons authorized to approve reports

J Barrett (Quality Manager)
H Byrne (Laboratory Manager)

IGSL Ltd Materials Laboratory

Approved by	Date	Page No.
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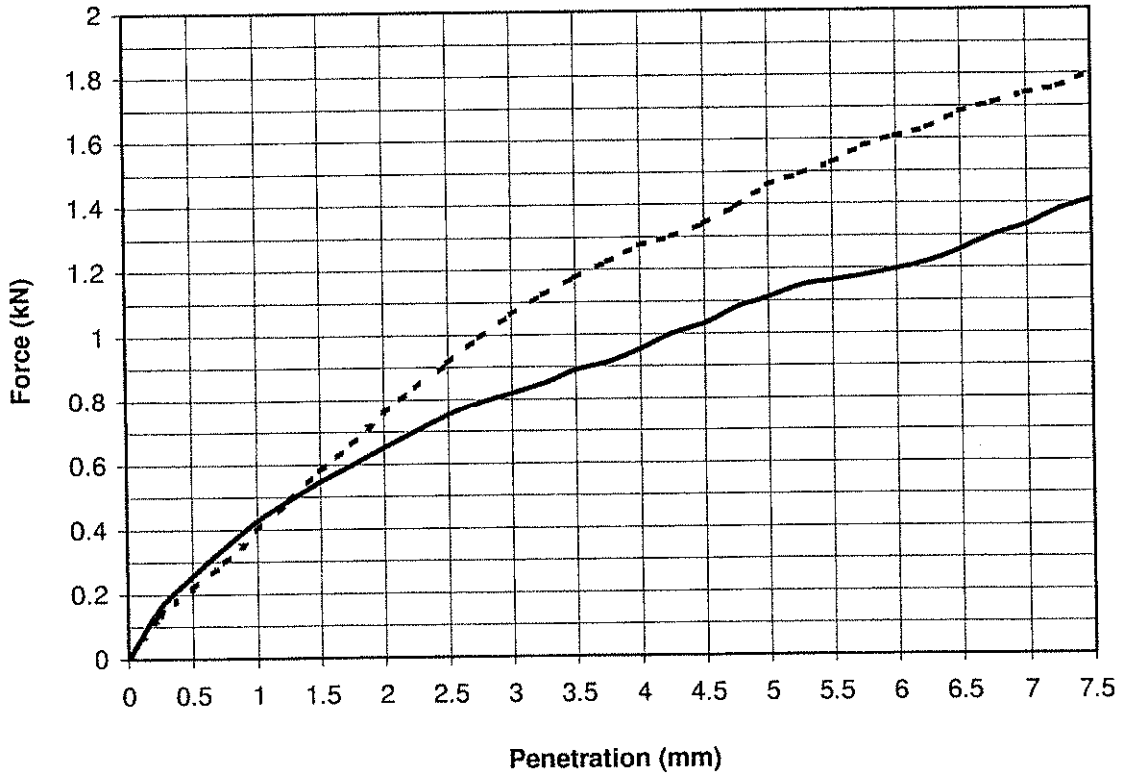
IGSL Ltd
Materials Laboratory
Unit J5,M7 Business Park
Naas Co.Kildare
045 899324

TEST REPORT
Determination of California Bearing Ratio (CBR)

Tested in accordance with BS1377:Part 4:1990, clause 7

RECEIVED: 18/12/2025

Report No.	R105948	Contract	Balbriggan , Co.Dublin
Contract No.	22009	Customer	MPA
Date received	11/09/19	Date Tested	02/10/19
BH/TP No.	TP07	Sample No.	AA124210 Type: B
Depth (m)	1.00	Lab sample No.	A19/4428



Key: ———— Top ---------- Base

Description:	Brown sandy gravelly CLAY		
Initial Condition:	Unsoaked		
Moisture Content (%):	17	Bulk Density (Mg/m^3):	2.07
Surcharge (kg):	4	Dry Density (Mg/m^3):	1.77
% Material >20mm:	5.3		
Method of compaction:	Static Compaction Method 2		

Test Result	Top	Base
CBR %	**5.7**	**7.3**
Moisture Content %	17	17

Results apply to sample as received.

Persons authorized to approve reports

J Barrett (Quality Manager)
H Byrne (Laboratory Manager)

IGSL Ltd Materials Laboratory

Approved by	Date	Page No.
H Byrne	14/10/19	1 of 1

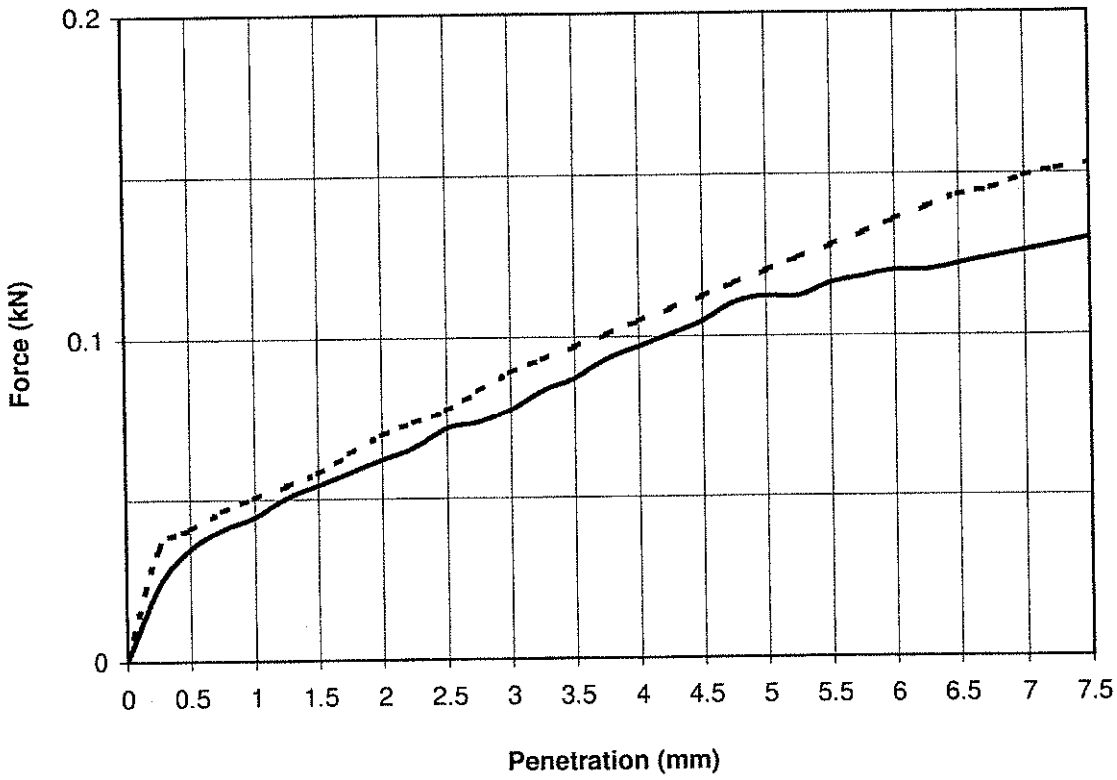
IGSL Ltd
Materials Laboratory
Unit J5,M7 Business Park
Naas Co.Kildare
045 899324

TEST REPORT
Determination of California Bearing Ratio (CBR)

Tested in accordance with BS1377:Part 4:1990, clause 7

RECEIVED: 18/12/2025

Report No.	R105949	Contract	Balbriggan , Co.Dublin
Contract No.	22009	Customer	MPA
Date received	11/09/19	Date Tested	01/10/19
BH/TP No.	TP13	Sample No.	AA124153 Type: B
Depth (m)	0.50	Lab sample No.	A19/4437



Key: ———— Top ---------- Base

Description: Brown slightly sandy, slightly gravelly, CLAY

Initial Condition:	Unsoaked		
Moisture Content (%):	20	Bulk Density (Mg/m^3):	2.05
Surcharge (kg):	4	Dry Density (Mg/m^3):	1.71
% Material >20mm:	44		
Method of compaction:	Static Compaction Method 2		

Test Result	Top	Base
CBR %	**0.6**	**0.6**
Moisture Content %	20	20

Results apply to sample as received.

Persons authorized to approve reports

J Barrett (Quality Manager)
H Byrne (Laboratory Manager)

IGSL Ltd Materials Laboratory

Approved by	Date	Page No.
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IGSL Ltd
Materials Laboratory
Unit J5,M7 Business Park
Naas
Co. Kildare
045 899324

Test Report

Determination of Moisture Condition Value at Natural Moisture Content

Tested in accordance with BS1377:Part 4:1990, clause 5.4

RECEIVED: 18/12/2025

Report No.	**R106007**
Contract No.	22009
Contract Name:	Balbriggan, Co.Dublin
Customer:	MPA
BH/TP	TP01
Sample No.	AA124219
Depth (m)	0.50
Sample Type:	B
Lab Sample No.	A19/4417
Source (if applicable)	unknown
Material Type (if applicable):	B
Sample Received:	11/09/19
Date Tested:	02/10/19
Sample Cert:	N/A
Moisture Content (%):	13
% Particles > 20mm (By dry mass):	8.8
MCV:	1.3
Interpretation of Plot:	Steepest Straight Line
Description of Soil:	Brown sandy gravelly SILT

The result applies to the sample as received.
Any remaining material will be retained for one month.
Sampling and opinions and interpretations are outside the scope of accreditation.

Persons authorised to approve reports
J Barrett (Quality Manager)
H Byrne (Laboratory Manager)

IGSL Ltd Materials Laboratory	Approved by	Date	Page
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Test Report

Determination of Moisture Condition Value at Natural Moisture Content

Tested in accordance with BS1377:Part 4:1990, clause 5.4

RECEIVED: 18/12/2025

Report No.	**R106008**
Contract No.	22009
Contract Name:	Balbriggan, Co.Dublin
Customer:	MPA
BH/TP	TP03
Sample No.	AA124205
Depth (m)	1.00
Sample Type:	B
Lab Sample No.	A19/4421
Source (if applicable)	unknown
Material Type (if applicable):	B
Sample Received:	11/09/19
Date Tested:	02/10/19
Sample Cert:	N/A
Moisture Content (%):	20
% Particles > 20mm (By dry mass):	7.1
MCV:	8
Interpretation of Plot:	Steepest Straight Line
Description of Soil:	Brown sandy gravelly CLAY

The result applies to the sample as received.
Any remaining material will be retained for one month.
Sampling and opinions and interpretations are outside the scope of accreditation.

Persons authorised to approve reports
J Barrett (Quality Manager)
H Byrne (Laboratory Manager)

IGSL Ltd Materials Laboratory	Approved by	Date	Page
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Co. Kildare
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Test Report

Determination of Moisture Condition Value at Natural Moisture Content

Tested in accordance with BS1377:Part 4:1990, clause 5.4

RECEIVED: 18/12/2025

Report No.	**R105950**
Contract No.	22009
Contract Name:	Balbriggan, Co.Dublin
Customer:	MPA
BH/TP	TTP05
Sample No.	AA123912
Depth (m)	0.50
Sample Type:	B
Lab Sample No.	A19/4425
Source (if applicable)	unknown
Material Type (if applicable):	B
Sample Received:	11/09/19
Date Tested:	02/10/19
Sample Cert:	N/A
Moisture Content (%):	15
% Particles > 20mm (By dry mass):	16
MCV:	2.2
Interpretation of Plot:	Steepest Straight Line
Description of Soil:	Brown sandy gravelly CLAY

The result applies to the sample as received.
Any remaining material will be retained for one month.
Sampling and opinions and interpretations are outside the scope of accreditation.

Persons authorised to approve reports
J Barrett (Quality Manager)
H Byrne (Laboratory Manager)

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Test Report

Determination of Moisture Condition Value at Natural Moisture Content

Tested in accordance with BS1377:Part 4:1990, clause 5.4

RECEIVED: 18/12/2025

Report No.	**R106009**
Contract No.	22009
Contract Name:	Balbriggan, Co.Dublin
Customer:	MPA
BH/TP	TP06
Sample No.	AA124213
Depth (m)	1.00
Sample Type:	B
Lab Sample No.	A19/4427
Source (if applicable)	unknown
Material Type (if applicable):	B
Sample Received:	11/09/19
Date Tested:	02/10/19
Sample Cert:	N/A
Moisture Content (%):	20
% Particles > 20mm (By dry mass):	0
MCV:	5.6
Interpretation of Plot:	Steepest Straight Line
Description of Soil:	Brown sandy gravelly CLAY

The result applies to the sample as received.
Any remaining material will be retained for one month.
Sampling and opinions and interpretations are outside the scope of accreditation.

Persons authorised to approve reports
J Barrett (Quality Manager)
H Byrne (Laboratory Manager)

IGSL Ltd Materials Laboratory	Approved by	Date	Page
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Materials Laboratory
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Test Report

Determination of Moisture Condition Value at Natural Moisture Content

Tested in accordance with BS1377:Part 4:1990, clause 5.4

RECEIVED: 18/12/2025

Report No.	**R106010**
Contract No.	22009
Contract Name:	Balbriggan, Co.Dublin
Customer:	MPA
BH/TP	TP07
Sample No.	AA124210
Depth (m)	1.00
Sample Type:	B
Lab Sample No.	A19/4428
Source (if applicable)	unknown
Material Type (if applicable):	B
Sample Received:	11/09/19
Date Tested:	02/10/19
Sample Cert:	N/A
Moisture Content (%):	17
% Particles > 20mm (By dry mass):	6.2
MCV:	12
Interpretation of Plot:	Steepest Straight Line
Description of Soil:	Brown sandy gravelly CLAY

The result applies to the sample as received.
Any remaining material will be retained for one month.
Sampling and opinions and interpretations are outside the scope of accreditation.

Persons authorised to approve reports
J Barrett (Quality Manager)
H Byrne (Laboratory Manager)

IGSL Ltd Materials Laboratory	Approved by	Date	Page
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IGSL Ltd
Materials Laboratory
Unit J5,M7 Business Park
Naas
Co. Kildare
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Test Report

Determination of Moisture Condition Value at Natural Moisture Content

Tested in accordance with BS1377:Part 4:1990, clause 5.4

RECEIVED: 18/12/2025

Report No.	**R105951**
Contract No.	22009
Contract Name:	Balbriggan, Co.Dublin
Customer:	MPA
BH/TP	TP10
Sample No.	AA124155
Depth (m)	0.50
Sample Type:	B
Lab Sample No.	A19/4435
Source (if applicable)	unknown
Material Type (if applicable):	B
Sample Received:	11/09/19
Date Tested:	01/10/19
Sample Cert:	N/A
Moisture Content (%):	15
% Particles > 20mm (By dry mass):	0
MCV:	10.2
Interpretation of Plot:	Steepest Straight Line
Description of Soil:	Brown sandy gravelly SILT

The result applies to the sample as received.
Any remaining material will be retained for one month.
Sampling and opinions and interpretations are outside the scope of accreditation.

Persons authorised to approve reports
J Barrett (Quality Manager)
H Byrne (Laboratory Manager)

IGSL Ltd Materials Laboratory	Approved by	Date	Page
	H Byrne	14/10/19	1 of 1

IGSL Ltd
Materials Laboratory
Unit J5,M7 Business Park
Naas
Co. Kildare
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Test Report

Determination of Moisture Condition Value at Natural Moisture Content

Tested in accordance with BS1377:Part 4:1990, clause 5.4

RECEIVED: 18/12/2025

Report No.	**R105952**
Contract No.	22009
Contract Name:	Balbriggan, Co.Dublin
Customer:	MPA
BH/TP	TP13
Sample No.	AA124153
Depth (m)	0.50
Sample Type:	B
Lab Sample No.	A19/4437
Source (if applicable)	unknown
Material Type (if applicable):	B
Sample Received:	11/09/19
Date Tested:	01/10/19
Sample Cert:	N/A
Moisture Content (%):	20
% Particles > 20mm (By dry mass):	44
MCV:	3.2
Interpretation of Plot:	Steepest Straight Line
Description of Soil:	Brown slightly sandy, slightly gravelly, CLAY

The result applies to the sample as received.
Any remaining material will be retained for one month.
Sampling and opinions and interpretations are outside the scope of accreditation.

Persons authorised to approve reports
J Barrett (Quality Manager)
H Byrne (Laboratory Manager)

IGSL Ltd Materials Laboratory	Approved by	Date	Page
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IGSL Ltd
Materials Laboratory
Unit J5,M7 Business Park
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Test Report

Determination of Moisture Condition Value at Natural Moisture Content

Tested in accordance with BS1377:Part 4:1990, clause 5.4

RECEIVED: 18/12/2025

Report No.	**R106011**
Contract No.	22009
Contract Name:	Balbriggan, Co.Dublin
Customer:	MPA
BH/TP	TP17
Sample No.	AA123913
Depth (m)	0.50
Sample Type:	B
Lab Sample No.	A19/4439
Source (if applicable)	unknown
Material Type (if applicable):	B
Sample Received:	11/09/19
Date Tested:	02/10/19
Sample Cert:	N/A
Moisture Content (%):	19
% Particles > 20mm (By dry mass):	0
MCV:	10
Interpretation of Plot:	Steepest Straight Line
Description of Soil:	Brown sandy gravelly CLAY

The result applies to the sample as received.
Any remaining material will be retained for one month.
Sampling and opinions and interpretations are outside the scope of accreditation.

Persons authorised to approve reports
J Barrett (Quality Manager)
H Byrne (Laboratory Manager)

IGSL Ltd Materials Laboratory	Approved by	Date	Page
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IGSL Ltd
Materials Laboratory
M7 Business Park
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Co. Kildare

Test Report

Dry Density/Moisture Content Relationship

Tested in accordance with BS1377:Part 4:1990

RECEIVED: 18/12/2025

Report No. R106076 Contract No. 22009

Contract Name: Balbriggan , Co.Dublin

Lab Contract No. 22009 Location: TP03

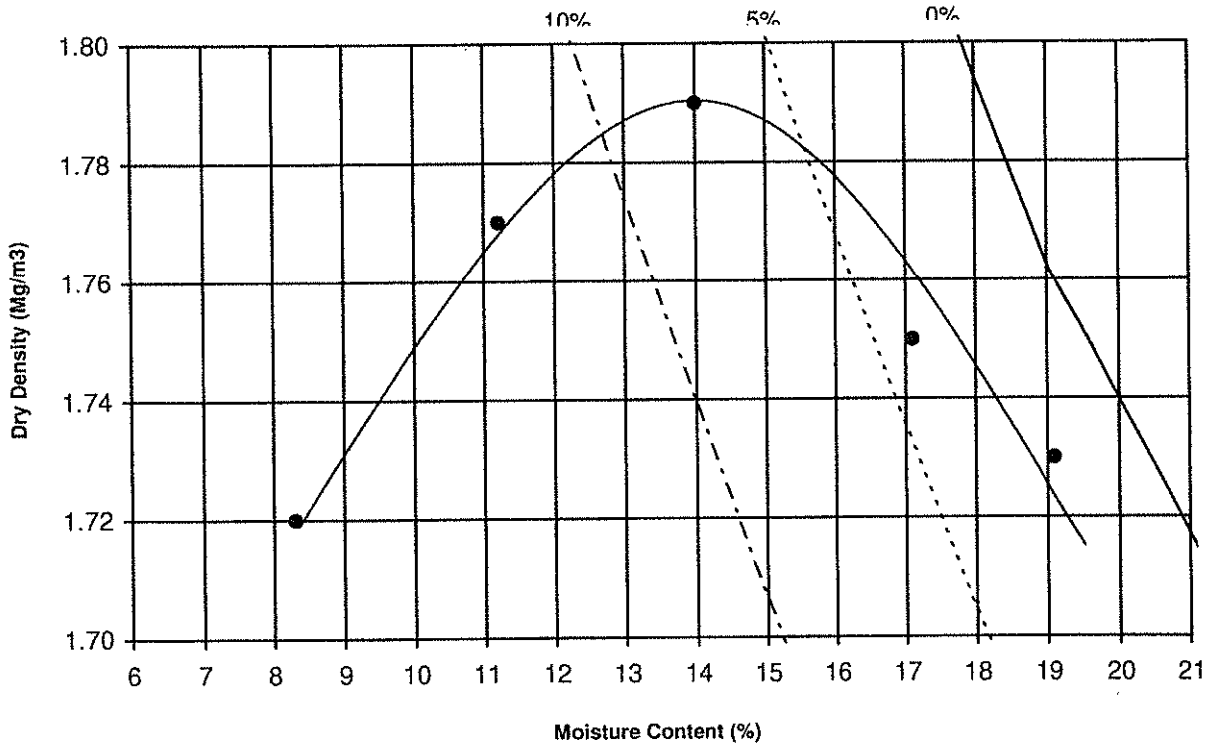
Sample No. AA124205 Depth (m) 1 Material Type B

Lab sample no. A19/4421 Customer: MPA

Date Received: 11/09/2019 Test Method: 2.5 KG Rammer

Date Tested: 02/10/2019 BS1377:Part 4:1990 3.3

Dry Density (Mg/m^3)	1.73	1.75	1.77	1.79	1.72	0.00	
Moisture Content (%)	19	17	11	14	8.3	0	



Maximum Dry Density (Mg/m^3): 1.79 Optimum Moisture Content (%): 14

Description: Brown sandy gravelly CLAY

Sample Preparation: Material passing 20mm ~~Single~~ / Separate samples used

Particle Density (Mg/m^3): 2.65 Particle Density: Assumed

% retained on 20/37.5mm sieve: 6

The result relates to the specimen tested.
Opinions and interpretations are outside the scope of accreditation

Persons authorised to approve reports
J Barrett (Quality Manager)
H Byrne (Laboratory Manager)

IGSL Materials Laboratory	Approved by	Date	Page
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IGSL Ltd
Materials Laboratory
M7 Business Park
Naas
Co. Kildare

Test Report

Dry Density/Moisture Content Relationship

Tested in accordance with BS1377:Part 4:1990

RECEIVED: 18/12/2025

Report No. R106077 Contract No. 22009

Contract Name: Balbriggan , Co.Dublin

Lab Contract No. 22009 Location: TP07

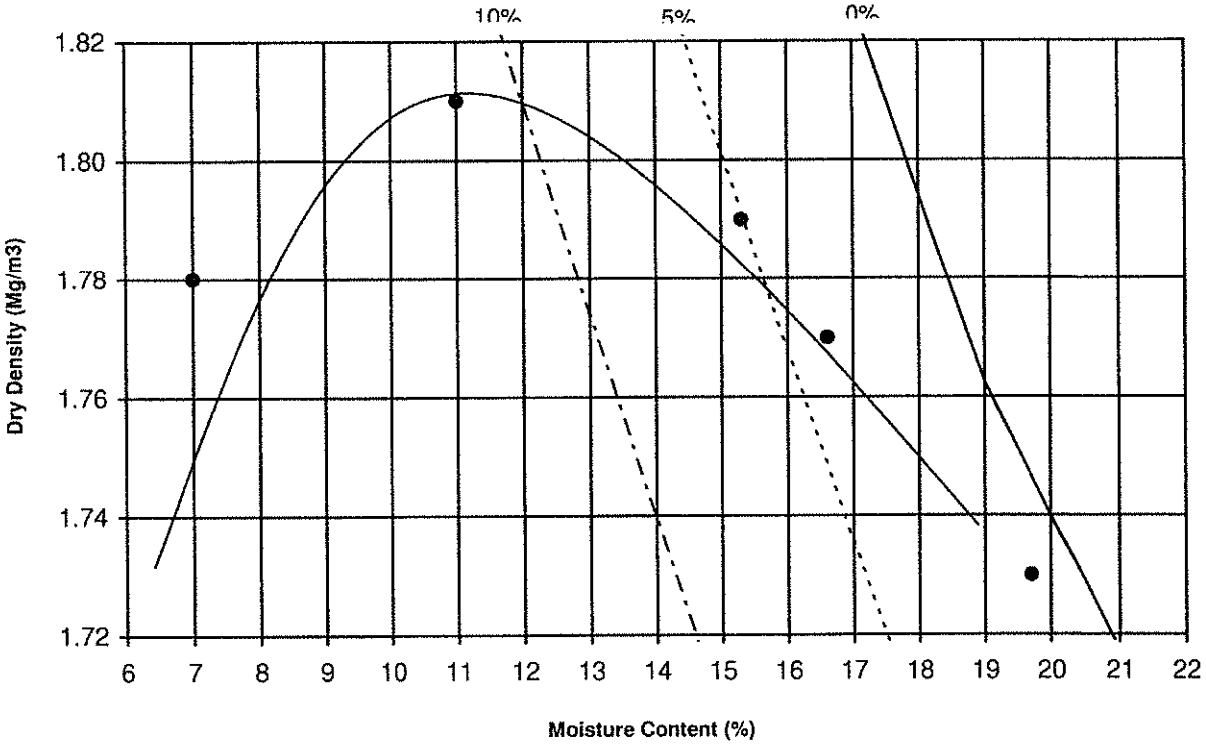
Sample No. AA124210 Depth (m) 1 Material Type B

Lab sample no. A19/4428 Customer: MPA

Date Received: 11/09/2019 Test Method: 2.5 KG Rammer

Date Tested: 02/10/2019 BS1377:Part 4:1990 3.3

Dry Density (Mg/m^3)	1.77	1.73	1.79	1.81	1.78	0.00	
Moisture Content (%)	17	20	15	11	7.0	0	



Maximum Dry Density (Mg/m^3): 1.81 Optimum Moisture Content (%): 11

Description: Brown sandy gravelly CLAY

Sample Preparation: Material passing 20mm ~~Single~~ / Separate samples used

Particle Density (Mg/m^3): 2.65 Particle Density: Assumed

% retained on 20/37.5mm sieve: 5.3

The result relates to the specimen tested.
Opinions and interpretations are outside the scope of accreditation

Persons authorised to approve reports
J Barrett (Quality Manager)
H Byrne (Laboratory Manager)

IGSL Ltd
Materials Laboratory
M7 Business Park
Naas
Co. Kildare

Test Report

Dry Density/Moisture Content Relationship

Tested in accordance with BS1377:Part 4:1990

RECEIVED: 18/12/2025

Report No. R106078 Contract No. 22009

Contract Name: Balbriggan , Co.Dublin

Lab Contract No. 22009 Location: TP13

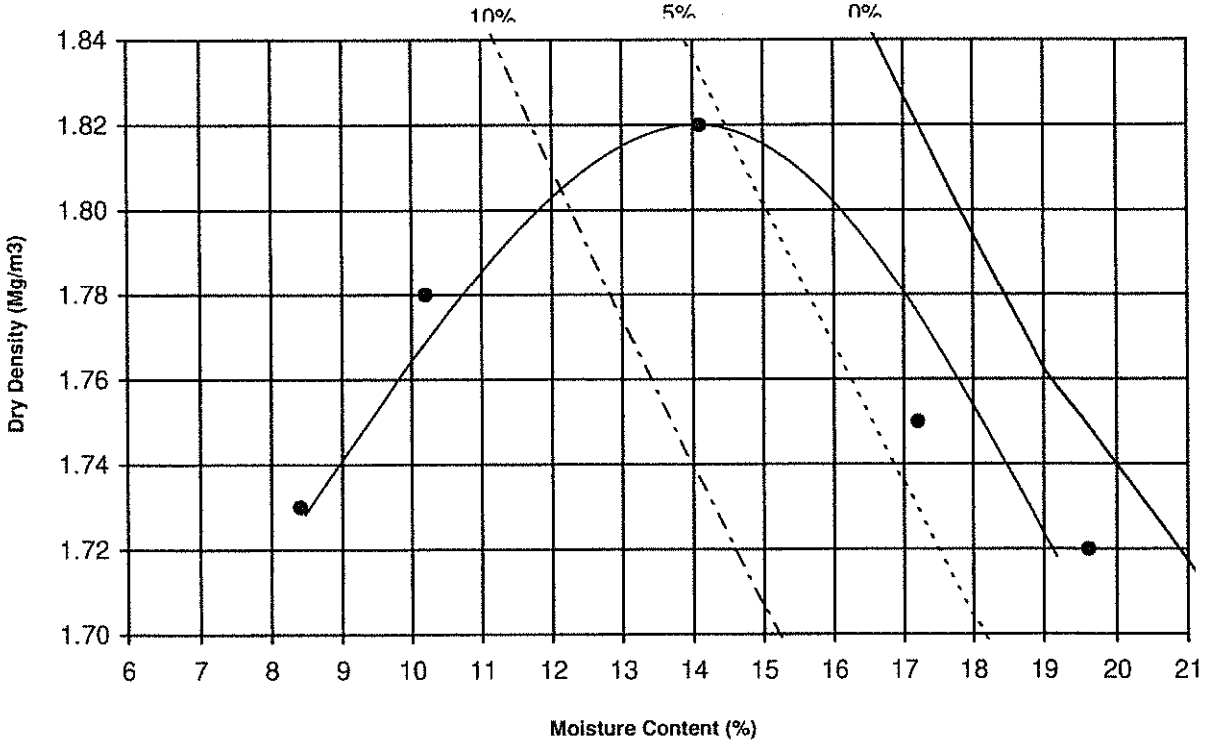
Sample No. AA124153 Depth (m) 0.5 Material Type B

Lab sample no. A19/4437 Customer: MPA

Date Received: 11/09/2019 Test Method: 2.5 KG Rammer

Date Tested: 01/10/2019 BS1377:Part 4:1990 3.3

Dry Density (Mg/m^3)	1.72	1.75	1.78	1.82	1.73	0.00	
Moisture Content (%)	20	17	10	14	8.4	0	



Maximum Dry Density (Mg/m^3): 1.82 Optimum Moisture Content (%): 14

Description: Brown slightly sandy, slightly gravelly, CLAY

Sample Preparation: Material passing 20mm ~~Single~~ / Separate samples used

Particle Density (Mg/m^3): 2.65 Particle Density: Assumed

% retained on 20/37.5mm sieve: 44

The result relates to the specimen tested.
Opinions and interpretations are outside the scope of accreditation

Persons authorised to approve reports
J Barrett (Quality Manager)
H Byrne (Laboratory Manager)

IGSL Materials Laboratory	Approved by	Date	Page
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RECEIVED: 18/12/2025

Appendix IVB Laboratory

Chemical and Environmental

a. Sulphate - Chloride – pH
b. RILTA Suite
c. Pyrite Suite

Chemtest
The right chemistry to deliver results
Chemtest Ltd.
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

RECEIVED: 18/12/2025

UKAS TESTING
2183

Final Report

Report No.:	19-33404-1
Initial Date of Issue:	15-Oct-2019
Client	IGSL
Client Address:	M7 Business Park Naas County Kildare Ireland
Contact(s):	Darren Keogh
Project	22009 Balbriggan

Quotation No.:		**Date Received:**	07-Oct-2019
Order No.:		**Date Instructed:**	07-Oct-2019
No. of Samples:	10		
Turnaround (Wkdays):	7	**Results Due:**	15-Oct-2019
Date Approved:	15-Oct-2019		

Approved By:

Details: Glynn Harvey, Laboratory Manager

Chemtest
The right chemistry to deliver results

Results - Soil

Project: 22009 Balbriggan

Client: IGSL														
Quotation No.:	Chemtest Job No.:				19-33404	19-33404	19-33404	19-33404	19-33404	19-33404	19-33404	19-33404	19-33404	19-33404
Order No.:	Chemtest Sample ID.:				900781	900782	900783	900784	900785	900787	900788	900789	900790	900791
	Client Sample Ref.:				AA124219	AA124220	AA124207	AA123912	AA123914	AA124153	AA123917	AA122746	AA122749	AA127701
	Sample Location:				TP1	TP1	TP3	TP5	TP5	TP13	TP17	BH1	BH1	BH3A
	Sample Type:				SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Top Depth (m):				0.50	1.50	3.00	0.50	2.50	0.50	2.50	0.50	3.00	1.00
	Bottom Depth (m):											1.00	3.50	
Determinand	**Accred.**	**SOP**	**Units**	**LOD**										
Moisture	N	2030	%	0.020	9.8	7.2	9.0	11	7.1	13	19	18	13	17
pH	U	2010		N/A	[A] 7.9	[A] 7.9	[A] 7.6	[A] 7.6	[A] 7.5	[A] 6.6	[A] 7.8	[A] 7.0	[A] 7.5	[A] 6.5
Magnesium (Water Soluble)	N	2120	g/l	0.010	< 0.010		< 0.010		< 0.010	< 0.010		< 0.010		< 0.010
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Total Sulphur	U	2175	%	0.010	[A] < 0.010		[A] 0.013		[A] < 0.010	[A] 0.014		[A] 0.017		[A] 0.016
Chloride (Water Soluble)	U	2220	g/l	0.010	[A] < 0.010		[A] < 0.010		[A] < 0.010	[A] < 0.010		[A] < 0.010		[A] < 0.010
Nitrate (Water Soluble)	N	2220	g/l	0.010	< 0.010		< 0.010		< 0.010	< 0.010		< 0.010		< 0.010
Ammonium (Water Soluble)	U	2120	g/l	0.01	0.10		0.02		0.02	0.06		0.16		0.04
Sulphate (Acid Soluble)	U	2430	%	0.010	[A] 0.010		[A] < 0.010		[A] 0.095	[A] 0.023		[A] 0.025		[A] 0.018

RECEIVED: 18/12/2025

Chemtest
The right chemistry to deliver results

RECEIVED 08/12/2025

Deviations

In accordance with UKAS Policy on Deviating Samples TPS 63. Chemtest have a procedure to ensure 'upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s)'. This policy and the respective holding times applied, can be supplied upon request.The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERTs accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
900781	AA124219		TP1		A	Plastic Tub 1000g
900782	AA124220		TP1		A	Amber Glass 60ml
900783	AA124207		TP3		A	Plastic Tub 1000g
900784	AA123912		TP5		A	Amber Glass 60ml
900785	AA123914		TP5		A	Plastic Tub 1000g
900787	AA124153		TP13		A	Plastic Tub 1000g
900788	AA123917		TP17		A	Amber Glass 60ml
900789	AA122746		BH1		A	Plastic Tub 1000g
900790	AA122749		BH1		A	Amber Glass 60ml
900791	AA127701		BH3A		A	Plastic Tub 1000g

Chemtest
The right chemistry to deliver results

Test Methods

RECEIVED: 18/12/2025

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2175	Total Sulphur in Soils	Total Sulphur	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2220	Water soluble Chloride in Soils	Chloride	Aqueous extraction and measuremernt by 'Aquakem 600' Discrete Analyser using ferric nitrate / mercuric thiocyanate.
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.

Chemtest
The right chemistry to deliver results

Report Information

RECEIVED: 18/12/2025

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
$	This information has been supplied by the client and can affect the integrity of test data.

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis
The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols
For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

Chemtest
The right chemistry to deliver results
Chemtest Ltd.
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

RECEIVED: 18/12/2025

UKAS TESTING
2183

Amended Report

Report No.:	19-30911-2		
Initial Date of Issue:	20-Sep-2019	**Date of Re-Issue:**	27-Sep-2019
Client	IGSL		
Client Address:	M7 Business Park Naas County Kildare Ireland		
Contact(s):	Darren Keogh		
Project	Balbriggan Co. Dublin (MPA)		
Quotation No.:		**Date Received:**	13-Sep-2019
Order No.:	22009	**Date Instructed:**	13-Sep-2019
No. of Samples:	5		
Turnaround (Wkdays):	10	**Results Due:**	26-Sep-2019
Date Approved:	27-Sep-2019		

Approved By:

Details:

Amy Parekh-Pross, Technical Projects Manager
Glynn Harvey, Laboratory Manager

Chemtest
The right chemistry to deliver results

Results - Leachate

Project: Balbriggan Co. Dublin (MPA)

Client: IGSL						Chemtest Job No.:	19-30911	19-30911	19-30911	19-30911	19-30911
Quotation No.:						Chemtest Sample ID.:	888549	888550	888551	888552	888553
Order No.: 22009						Client Sample Ref.:	AA124205	AA124213	AA124218	AA124226	AA123915
						Sample Location:	TP03	TP06	TP08	TP11	TP17
						Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL
						Top Depth (m):	1.00	1.00	1.50	0.50	0.50
						Bottom Depth (m):	1.00	1.00	1.50	0.50	0.50
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**						
pH	U	1010	10:1		N/A		5.9	6.3	9.4	6.5	6.7
Ammonium	U	1220	10:1	mg/l	0.050		0.16	0.13	0.48	0.19	0.15
Ammonium	N	1220	10:1	mg/kg	0.10		1.6	1.3	4.8	1.9	1.5
Boron (Dissolved)	U	1450	10:1	µg/l	20		< 20	< 20	25	< 20	< 20
Boron (Dissolved)	U	1450	10:1	mg/kg	0.20		< 0.20	< 0.20	0.25	< 0.20	< 0.20

RECEIVED: 18/12/2025

Chemtest
The right chemistry to deliver results

Results - Soil

Project: Balbriggan Co. Dublin (MPA)

Client: IGSL					Chemtest Job No.:	19-30911	19-30911	19-30911	19-30911	19-30911
Quotation No.:					Chemtest Sample ID.:	888549	888550	888551	888552	888553
Order No.: 22009					Client Sample Ref.:	AA124205	AA124213	AA124218	AA124226	AA123915
					Sample Location:	TP03	TP06	TP08	TP11	TP17
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	1.00	1.00	1.50	0.50	0.50
					Bottom Depth (m):	1.00	1.00	1.50	0.50	0.50
					Asbestos Lab:	COVENTRY	COVENTRY	DURHAM	COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**						
ACM Type	U	2192		N/A		-	-	-	-	-
Asbestos Identification	U	2192	%	0.001		No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
ACM Detection Stage	U	2192		N/A		-	-	-	-	-
Moisture	N	2030	%	0.020		16	17	14	15	16
Stones and Removed Materials	N	2030	%	0.020				0.053		
pH	U	2010		N/A				[A] 8.5		
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40		0.42	0.46	0.60	< 0.40	0.41
Magnesium (Water Soluble)	N	2120	g/l	0.010				< 0.010		
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010				0.051		
Total Sulphur	U	2175	%	0.010				[A] 0.010		
Sulphur (Elemental)	U	2180	mg/kg	1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Cyanide (Total)	U	2300	mg/kg	0.50		[A] < 0.50	[A] < 0.50	[A] < 0.50	[A] < 0.50	[A] < 0.50
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50		[A] 1.0	[A] 1.0	[A] 1.3	[A] 0.72	[A] 1.0
Sulphate (Acid Soluble)	U	2430	%	0.010		[A] 0.034	[A] 0.036	[A] 0.035	[A] < 0.010	[A] 0.016
Arsenic	U	2450	mg/kg	1.0		17	19	26	22	26
Barium	U	2450	mg/kg	10		63	61	120	100	120
Cadmium	U	2450	mg/kg	0.10		0.86	0.76	0.89	1.3	1.3
Chromium	U	2450	mg/kg	1.0		32	33	36	37	43
Molybdenum	U	2450	mg/kg	2.0		4.4	3.8	3.5	3.4	4.1
Antimony	N	2450	mg/kg	2.0		< 2.0	< 2.0	3.4	< 2.0	2.1
Copper	U	2450	mg/kg	0.50		23	25	43	41	47
Mercury	U	2450	mg/kg	0.10		< 0.10	< 0.10	0.14	< 0.10	0.10
Nickel	U	2450	mg/kg	0.50		40	34	49	54	58
Lead	U	2450	mg/kg	0.50		21	23	22	24	29
Selenium	U	2450	mg/kg	0.20		0.82	0.80	1.7	1.3	1.6
Zinc	U	2450	mg/kg	0.50		59	57	53	52	60
Chromium (Trivalent)	N	2490	mg/kg	1.0		32	33	36	37	43
Chromium (Hexavalent)	N	2490	mg/kg	0.50		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Total Organic Carbon	U	2625	%	0.20		[A] 0.97	[A] 0.88	[A] 0.50	[A] 0.37	[A] 0.51
Mineral Oil	N	2670	mg/kg	10		< 10	< 10	< 10	< 10	< 10
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0

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Results - Soil

Project: Balbriggan Co. Dublin (MPA)

Client: IGSL					**Chemtest Job No.:**	19-30911	19-30911	19-30911	19-30911	19-30911
Quotation No.:					**Chemtest Sample ID.:**	888549	888550	888551	888552	888553
Order No.: 22009					Client Sample Ref.:	AA124205	AA124213	AA124218	AA124226	AA123915
					Sample Location:	TP03	TP06	TP08	TP11	TP17
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	1.00	1.00	1.50	0.50	0.50
					Bottom Depth (m):	1.00	1.00	1.50	0.50	0.50
					Asbestos Lab:	COVENTRY	COVENTRY	DURHAM	COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**						
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0		[A] < 5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0		[A] < 5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0		[A] < 10	[A] < 10	[A] < 10	[A] < 10	[A] < 10
Benzene	U	2760	µg/kg	1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Toluene	U	2760	µg/kg	1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Ethylbenzene	U	2760	µg/kg	1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
m & p-Xylene	U	2760	µg/kg	1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
o-Xylene	U	2760	µg/kg	1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Methyl Tert-Butyl Ether	U	2760	µg/kg	1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Naphthalene	U	2800	mg/kg	0.10		< 0.10	< 0.10	0.66	< 0.10	< 0.10
Acenaphthylene	N	2800	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	U	2800	mg/kg	0.10		< 0.10	< 0.10	0.28	< 0.10	< 0.10
Fluorene	U	2800	mg/kg	0.10		< 0.10	< 0.10	0.30	< 0.10	< 0.10
Phenanthrene	U	2800	mg/kg	0.10		< 0.10	< 0.10	0.72	< 0.10	< 0.10
Benzo[j]fluoranthene	N	2800	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Anthracene	U	2800	mg/kg	0.10		< 0.10	< 0.10	0.12	< 0.10	< 0.10
Fluoranthene	U	2800	mg/kg	0.10		< 0.10	< 0.10	0.25	< 0.10	< 0.10
Pyrene	U	2800	mg/kg	0.10		< 0.10	< 0.10	0.15	< 0.10	< 0.10
Benzo[a]anthracene	U	2800	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	U	2800	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	U	2800	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	2800	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	2800	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	2800	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	2800	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Coronene	N	2800	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 17 PAH's	N	2800	mg/kg	2.0		< 2.0	< 2.0	2.5	< 2.0	< 2.0
PCB 28	U	2815	mg/kg	0.010		[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010

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Results - Soil

Project: Balbriggan Co. Dublin (MPA)

Client: IGSL					Chemtest Job No.:	19-30911	19-30911	19-30911	19-30911	19-30911
Quotation No.:					Chemtest Sample ID.:	888549	888550	888551	888552	888553
Order No.: 22009					Client Sample Ref.:	AA124205	AA124213	AA124218	AA124226	AA123915
					Sample Location:	TP03	TP06	TP08	TP11	TP17
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	1.00	1.00	1.50	0.50	0.50
					Bottom Depth (m):	1.00	1.00	1.50	0.50	0.50
					Asbestos Lab:	COVENTRY	COVENTRY	DURHAM	COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**						
PCB 52	U	2815	mg/kg	0.010		[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010
PCB 90+101	U	2815	mg/kg	0.010		[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010
PCB 118	U	2815	mg/kg	0.010		[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010
PCB 153	U	2815	mg/kg	0.010		[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010
PCB 138	U	2815	mg/kg	0.010		[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010
PCB 180	U	2815	mg/kg	0.010		[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010
Total PCBs (7 Congeners)	N	2815	mg/kg	0.10		[A] < 0.10	[A] < 0.10	[A] < 0.10	[A] < 0.10	[A] < 0.10
Total Phenols	U	2920	mg/kg	0.30		< 0.30	< 0.30	< 0.30	< 0.30	< 0.30

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Results - Single Stage WAC

Project: Balbriggan Co. Dublin (MPA)

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	19-30911						
Chemtest Sample ID:	888549						
Sample Ref:	AA124205						
Sample ID:							
Sample Location:	TP03						
Top Depth(m):	1.00						
Bottom Depth(m):	1.00						
Sampling Date ($):							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	[A] 0.97	3	5	6
Loss On Ignition	2610	U	%	3.7	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg	< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	[A] < 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0	100	--	--
pH	2010	U		7.1	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.017	--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	0.0013	< 0.050	0.5	2	25
Barium	1450	U	0.0031	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.050	0.5	10	70
Copper	1450	U	0.0016	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.0019	< 0.050	0.5	10	30
Nickel	1450	U	< 0.0010	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.010	0.5	10	50
Antimony	1450	U	< 0.0010	< 0.010	0.06	0.7	5
Selenium	1450	U	0.0022	0.022	0.1	0.5	7
Zinc	1450	U	< 0.0010	< 0.50	4	50	200
Chloride	1220	U	2.9	29	800	15000	25000
Fluoride	1220	U	0.35	3.5	10	150	500
Sulphate	1220	U	4.2	42	1000	20000	50000
Total Dissolved Solids	1020	N	52	520	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	9.4	94	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	16

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

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Results - Single Stage WAC

Project: Balbriggan Co. Dublin (MPA)

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	19-30911						
Chemtest Sample ID:	888550						
Sample Ref:	AA124213						
Sample ID:							
Sample Location:	TP06						
Top Depth(m):	1.00						
Bottom Depth(m):	1.00						
Sampling Date ($):							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	[A] 0.88	3	5	6
Loss On Ignition	2610	U	%	4.0	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg	< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	[A] < 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0	100	--	--
pH	2010	U		7.1	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	< 0.0020	--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	0.0013	< 0.050	0.5	2	25
Barium	1450	U	0.0036	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.050	0.5	10	70
Copper	1450	U	0.0018	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	< 0.0010	< 0.050	0.5	10	30
Nickel	1450	U	< 0.0010	< 0.050	0.4	10	40
Lead	1450	U	0.0012	0.012	0.5	10	50
Antimony	1450	U	< 0.0010	< 0.010	0.06	0.7	5
Selenium	1450	U	0.0012	0.012	0.1	0.5	7
Zinc	1450	U	< 0.0010	< 0.50	4	50	200
Chloride	1220	U	3.0	30	800	15000	25000
Fluoride	1220	U	0.30	3.0	10	150	500
Sulphate	1220	U	3.5	35	1000	20000	50000
Total Dissolved Solids	1020	N	23	230	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	8.1	81	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	17

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

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Results - Single Stage WAC

Project: Balbriggan Co. Dublin (MPA)

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	19-30911						
Chemtest Sample ID:	888551						
Sample Ref:	AA124218						
Sample ID:							
Sample Location:	TP08						
Top Depth(m):	1.50						
Bottom Depth(m):	1.50						
Sampling Date (S):					Inert Waste Landfill	Stable, Non-reactive hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill
Determinand	**SOP**	**Accred.**	**Units**				
Total Organic Carbon	2625	U	%	[A] 0.50	3	5	6
Loss On Ignition	2610	U	%	4.0	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg	< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	[A] < 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	2.5	100	--	--
pH	2010	U		8.5	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.063	--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	0.0036	< 0.050	0.5	2	25
Barium	1450	U	0.0063	< 0.50	20	100	300
Cadmium	1450	U	0.00012	< 0.010	0.04	1	5
Chromium	1450	U	0.0039	< 0.050	0.5	10	70
Copper	1450	U	0.0095	0.095	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.0026	< 0.050	0.5	10	30
Nickel	1450	U	< 0.0010	< 0.050	0.4	10	40
Lead	1450	U	0.0076	0.076	0.5	10	50
Antimony	1450	U	0.0015	0.015	0.06	0.7	5
Selenium	1450	U	0.0016	0.016	0.1	0.5	7
Zinc	1450	U	0.0063	< 0.50	4	50	200
Chloride	1220	U	13	130	800	15000	25000
Fluoride	1220	U	0.35	3.5	10	150	500
Sulphate	1220	U	110	1100	1000	20000	50000
Total Dissolved Solids	1020	N	78	780	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	32	320	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	14

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

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Results - Single Stage WAC

Project: Balbriggan Co. Dublin (MPA)

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	19-30911						
Chemtest Sample ID:	888552						
Sample Ref:	AA124226						
Sample ID:							
Sample Location:	TP11						
Top Depth(m):	0.50						
Bottom Depth(m):	0.50						
Sampling Date ($):							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	[A] 0.37	3	5	6
Loss On Ignition	2610	U	%	3.1	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg	< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	[A] < 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0	100	--	--
pH	2010	U		7.4	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	< 0.0020	--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	0.0015	< 0.050	0.5	2	25
Barium	1450	U	0.0039	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.050	0.5	10	70
Copper	1450	U	0.0014	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	< 0.0010	< 0.050	0.5	10	30
Nickel	1450	U	< 0.0010	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.010	0.5	10	50
Antimony	1450	U	< 0.0010	< 0.010	0.06	0.7	5
Selenium	1450	U	0.0013	0.013	0.1	0.5	7
Zinc	1450	U	< 0.0010	< 0.50	4	50	200
Chloride	1220	U	2.8	28	800	15000	25000
Fluoride	1220	U	0.32	3.2	10	150	500
Sulphate	1220	U	6.3	63	1000	20000	50000
Total Dissolved Solids	1020	N	22	210	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	8.4	84	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	15

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

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Results - Single Stage WAC

Project: Balbriggan Co. Dublin (MPA)

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	19-30911						
Chemtest Sample ID:	888553						
Sample Ref:	AA123915						
Sample ID:							
Sample Location:	TP17						
Top Depth(m):	0.50						
Bottom Depth(m):	0.50						
Sampling Date ($):							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	[A] 0.51	3	5	6
Loss On Ignition	2610	U	%	2.7	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg	< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	[A] < 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0	100	--	--
pH	2010	U		7.4	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.0020	--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	< 0.0010	< 0.050	0.5	2	25
Barium	1450	U	0.0073	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.050	0.5	10	70
Copper	1450	U	< 0.0010	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	< 0.0010	< 0.050	0.5	10	30
Nickel	1450	U	< 0.0010	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.010	0.5	10	50
Antimony	1450	U	< 0.0010	< 0.010	0.06	0.7	5
Selenium	1450	U	0.0035	0.035	0.1	0.5	7
Zinc	1450	U	< 0.0010	< 0.50	4	50	200
Chloride	1220	U	2.9	29	800	15000	25000
Fluoride	1220	U	0.37	3.7	10	150	500
Sulphate	1220	U	5.5	55	1000	20000	50000
Total Dissolved Solids	1020	N	28	280	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	9.5	95	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	16

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

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Deviations

In accordance with UKAS Policy on Deviating Samples TPS 63. Chemtest have a procedure to ensure 'upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s)'. This policy and the respective holding times applied, can be supplied upon request.The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERTs accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
888549	AA124205		TP03		A	Amber Glass 250ml
888549	AA124205		TP03		A	Amber Glass 60ml
888550	AA124213		TP06		A	Amber Glass 250ml
888550	AA124213		TP06		A	Amber Glass 60ml
888551	AA124218		TP08		A	Amber Glass 250ml
888551	AA124218		TP08		A	Amber Glass 60ml
888552	AA124226		TP11		A	Amber Glass 250ml
888552	AA124226		TP11		A	Amber Glass 60ml
888553	AA123915		TP17		A	Amber Glass 250ml
888553	AA123915		TP17		A	Amber Glass 60ml

Test Methods

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SOP	Title	Parameters included	Method summary
1010	pH Value of Waters	pH	pH Meter
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Conductivity Meter
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.
2010	pH Value of Soils	pH	pH Meter
2015	Acid Neutralisation Capacity	Acid Reserve	Titration
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2175	Total Sulphur in Soils	Total Sulphur	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2180	Sulphur (Elemental) in Soils by HPLC	Sulphur	Dichloromethane extraction / HPLC with UV detection
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Alkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2325	Sulphide in Soils	Sulphide	Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N–dimethyl-p-phenylenediamine.
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2610	Loss on Ignition	loss on ignition (LOI)	Determination of the proportion by mass that is lost from a soil by ignition at 550°C.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection

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Test Methods

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SOP	Title	Parameters included	Method summary
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS
2815	Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS	ICES7 PCB congeners	Acetone/Hexane extraction / GC-MS
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge

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Report Information

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Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
$	This information has been supplied by the client and can affect the integrity of test data.

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis
The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols
For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

NICHOLLS

Nicholls Colton Group
7 - 11 Harding Street
Leicester
LE1 4DH

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IGSL
Unit F
M7 Business Park
Nass

Analytical Test Report: L19/02356/IGS/001

Your Project Reference:	**Balbriggan**	Samples Received on:	08/10/2019
Your Order Number:	16576	Testing Instruction Received:	08/10/2019
Report Issue Number:	1	Sample Tested:	08/10 to 16/10/2019
Samples Analysed:	5 aggregate samples	Report issued:	16/10/2019

Signed

James Gane
Group Data Manager
Nicholls Colton Group

Notes:

General

Please refer to Methodologies tab for details pertaining to the analytical methods undertaken.

Samples will be retained for 14 days after issue of this report unless otherwise requested.

Samples were supplied by customer, results are representative of the material provided

Accreditation Key

UKAS = UKAS Accreditation, u = Unaccredited

Date of Issue 24.01.2017
Owned by Emily Bissett - Customer Services Supervisor
Authorised by James Gane - Commercial Manager
J:\Public\Projects\2019\L19\IGS\L19-2356-IGS\[L19-2356-IGS-001.xlsx]Cover Sheet

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Leicester
LE1 4DH

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L19/02356/IGS/001

Project Reference - Balbriggan

Analytical Test Results - Aggregate Testing

NC Reference			56234	56235	56236	56237
Client Sample Reference			A19/4419	A19/4441	A19/4431	A19/4416
Material			Aggregate	Aggregate	Aggregate	Aggregate
Source/Client Ref			TP01 @ 2.5m	TP17 @ 2.5m	TP08 @ 1.5m	BH04A @ 2.0m
Sample Description			Brown crushed rock	Brown crushed rock	Brown crushed rock	Brown crushed rock
EN 1744 Determinations	**Units**	**Accreditation**				
Total Sulphur content (as S)	(%)	UKAS	0.03	0.02	0.03	0.03
Acid soluble sulphate content (as SO_3)	(%)	UKAS	< 0.01	0.01	< 0.01	< 0.01
Acid soluble sulphate content (as SO_4)	(%)	u	< 0.01	0.01	< 0.01	< 0.01

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Project Reference - Balbriggan

Analytical Test Results - Aggregate Testing

NC Reference	**56238**
Client Sample Reference	A19/4426
Material	Aggregate
Source/Client Ref	TP05 @ 2.5m
Sample Description	Brown crushed rock

EN 1744 Determinations	**Units**	**Accreditation**	
Total Sulphur content (as S)	(%)	UKAS	0.03
Acid soluble sulphate content (as SO_3)	(%)	UKAS	< 0.01
Acid soluble sulphate content (as SO_4)	(%)	u	< 0.01

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L19/02356/IGS/001

Project Reference - Balbriggan

Analysis Methodologies and Notes

Determinant	Test method and notes
EN 1744 Total Sulphur	Testing was in accordance with BS EN 1744-1:2009 + A1:2012 clause 11.
EN 1744 Acid Soluble Sulphate	Testing was in accordance with BS EN 1744-1:2009 + A1:2012 clause 12.

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Appendix IVC Laboratory

Ground Water **Surface Sample**
Ground Water **Standpipes**

Chemtest
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Chemtest Ltd.
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

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Final Report

Report No.:	19-32959-1
Initial Date of Issue:	15-Oct-2019
Client	IGSL
Client Address:	M7 Business Park Naas County Kildare Ireland
Contact(s):	Darren Keogh
Project	Balbriggan

Quotation No.:		**Date Received:**	02-Oct-2019
Order No.:		**Date Instructed:**	04-Oct-2019
No. of Samples:	1		
Turnaround (Wkdays):	7	**Results Due:**	14-Oct-2019
Date Approved:	14-Oct-2019		

Approved By:

Details: Robert Monk, Technical Manager

Chemtest
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Results - Water

Project: Balbriggan

Client: IGSL			Chemtest Job No.:		19-32959
Quotation No.:			Chemtest Sample ID.:		898627
			Sample Location:		S01
			Sample Type:		WATER
Determinand	**Accred.**	**SOP**	**Units**	**LOD**	
pH	U	1010		N/A	[A] 7.7
Electrical Conductivity	U	1020	µS/cm	1.0	[A] 630
Suspended Solids At 105C	U	1030	mg/l	5.0	[A] 2000
Dissolved Oxygen	N	1150	mg O2/l	0.50	9.0
Ammoniacal Nitrogen	U	1220	mg/l	0.050	[A] 1.3
Arsenic (Dissolved)	U	1450	µg/l	1.0	[A] 1.7
Cadmium (Dissolved)	U	1450	µg/l	0.080	[A] < 0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	[A] < 1.0
Copper (Dissolved)	U	1450	µg/l	1.0	[A] < 1.0
Mercury (Dissolved)	U	1450	µg/l	0.50	[A] 0.90
Nickel (Dissolved)	U	1450	µg/l	1.0	[A] < 1.0
Lead (Dissolved)	U	1450	µg/l	1.0	[A] < 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	[A] 6.7
Zinc (Dissolved)	U	1450	µg/l	1.0	[A] < 1.0
Aliphatic TPH >C5-C6	N	1675	µg/l	0.10	[A] < 0.10
Aliphatic TPH >C6-C8	N	1675	µg/l	0.10	[A] < 0.10
Aliphatic TPH >C8-C10	N	1675	µg/l	0.10	[A] < 0.10
Aliphatic TPH >C10-C12	N	1675	µg/l	0.10	[A] < 0.10
Aliphatic TPH >C12-C16	N	1675	µg/l	0.10	[A] < 0.10
Aliphatic TPH >C16-C21	N	1675	µg/l	0.10	[A] < 0.10
Aliphatic TPH >C21-C35	N	1675	µg/l	0.10	[A] < 0.10
Aliphatic TPH >C35-C44	N	1675	µg/l	0.10	[A] < 0.10
Total Aliphatic Hydrocarbons	N	1675	µg/l	5.0	[A] < 5.0
Aromatic TPH >C5-C7	N	1675	µg/l	0.10	[A] < 0.10
Aromatic TPH >C7-C8	N	1675	µg/l	0.10	[A] < 0.10
Aromatic TPH >C8-C10	N	1675	µg/l	0.10	[A] < 0.10
Aromatic TPH >C10-C12	N	1675	µg/l	0.10	[A] < 0.10
Aromatic TPH >C12-C16	N	1675	µg/l	0.10	[A] < 0.10
Aromatic TPH >C16-C21	N	1675	µg/l	0.10	[A] < 0.10
Aromatic TPH >C21-C35	N	1675	µg/l	0.10	[A] < 0.10
Aromatic TPH >C35-C44	N	1675	µg/l	0.10	[A] < 0.10
Total Aromatic Hydrocarbons	N	1675	µg/l	5.0	[A] < 5.0
Total Petroleum Hydrocarbons	N	1675	µg/l	10	[A] < 10
Naphthalene	U	1700	µg/l	0.10	[A] < 0.10
Acenaphthylene	U	1700	µg/l	0.10	[A] < 0.10
Acenaphthene	U	1700	µg/l	0.10	[A] < 0.10
Fluorene	U	1700	µg/l	0.10	[A] < 0.10
Phenanthrene	U	1700	µg/l	0.10	[A] < 0.10
Anthracene	U	1700	µg/l	0.10	[A] < 0.10
Fluoranthene	U	1700	µg/l	0.10	[A] < 0.10
Pyrene	U	1700	µg/l	0.10	[A] < 0.10
Benzo[a]anthracene	U	1700	µg/l	0.10	[A] < 0.10

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Results - Water

Project: Balbriggan

Client: IGSL			Chemtest Job No.:		19-32959
Quotation No.:			Chemtest Sample ID.:		898627
			Sample Location:		S01
			Sample Type:		WATER
Determinand	**Accred.**	**SOP**	**Units**	**LOD**	
Chrysene	N	1700	µg/l	0.10	[A] < 0.10
Benzo[b]fluoranthene	U	1700	µg/l	0.10	[A] < 0.10
Benzo[k]fluoranthene	U	1700	µg/l	0.10	[A] < 0.10
Benzo[a]pyrene	U	1700	µg/l	0.10	[A] < 0.10
Indeno(1,2,3-c,d)Pyrene	U	1700	µg/l	0.10	[A] < 0.10
Dibenz(a,h)Anthracene	U	1700	µg/l	0.10	[A] < 0.10
Benzo[g,h,i]perylene	U	1700	µg/l	0.10	[A] < 0.10
Total Of 16 PAH's	N	1700	µg/l	2.0	[A] < 2.0
Benzene	U	1760	µg/l	1.0	[AC] < 1.0
Toluene	U	1760	µg/l	1.0	[AC] < 1.0
Ethylbenzene	U	1760	µg/l	1.0	[AC] < 1.0
m & p-Xylene	U	1760	µg/l	1.0	[AC] < 1.0
o-Xylene	U	1760	µg/l	1.0	[AC] < 1.0
Methyl Tert-Butyl Ether	N	1760	µg/l	1.0	[AC] < 1.0

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Deviations

In accordance with UKAS Policy on Deviating Samples TPS 63. Chemtest have a procedure to ensure 'upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s)'. This policy and the respective holding times applied, can be supplied upon request.The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERTs accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
898627			S01		AC	Coloured Winchester 1000ml

Chemtest
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Test Methods

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SOP	Title	Parameters included	Method summary
1010	pH Value of Waters	pH	pH Meter
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Conductivity Meter
1030	Total Suspended Solids	Total suspended solids	Filtration of a mixed sample through a standard glass fibre filter and determination of the mass of residue retained dried at 105°C.
1150	Dissolved Oxygen	Dissolved Oxygen (DO)	Electrometric determination (on site preferred), using oxygen sensitive membrane electrode.
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1675	TPH Aliphatic/Aromatic split in Waters by GC-FID(cf. Texas Method 1006 / TPH CWG)	Aliphatics: >C5–C6, >C6–C8, >C8– C10, >C10–C12, >C12–C16, >C16–C21, >C21– C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Pentane extraction / GCxGC FID detection
1700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Waters by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
1760	Volatile Organic Compounds (VOCs) in Waters by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics. (cf. USEPA Method 8260)	Automated headspace gas chromatographic (GC) analysis of water samples with mass spectrometric (MS) detection of volatile organic compounds.

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Report Information

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Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
$	This information has been supplied by the client and can affect the integrity of test data.

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis
The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols
For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

Certificate of Sampling

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Sampled in Accordance with BS EN 932-1: 1997.

Client	Mallincross Ltd. (Engineer: MPA)		
Contract	Balbriggan, Co. Dublin		
Date/Time	Wednesday 27 November 2019		
Client Ref (sample #)	BH02A, BH04		
Chainage/Depth/Layer	Taken from 50mm well installation		
Material	Water Sample		
Source (ie In Situ)	BH Well		
Testing Required	Environmental		
Ticket Number	N/A		
Reason for Sampling	Environmental		
Method of Sampling ie S/Pile	Glass bottles, water bailer		
Number of Sample Increments	N/A		
Approx. Size of sample	2.0L		
Type of Sample (Bulk)	2x 1.0L glass bottles		
Sampled with	Bottles, latex gloves, water bailer		
Weather Conditions	Damp		
Sampler (Initials + Signature)	Luke Daniels		
Remarks/Drawing		Sample sizes: PSD 50Kg, PI 5Kg, PDWA 4Kg, LA 50Kg / TFV 30 Kg not sieved, large shear/Perm 100Kg,Small shearbox 5Kg MSSV 15Kg	PSD smaller agg 63=50Kg 50=35Kg 37.5=15Kg 20=2Kg Conical Ratio 1:7:19 Prismatic 1:3:5 Full Shovel approx 4.5Kg Full Scoop approx 2Kg
IGSL Ltd, M7 Business Park, Naas, County Kildare.			

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Email: info@chemtest.com

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Amended Report

Report No.:	19-39995-2		
Initial Date of Issue:	11-Dec-2019	**Date of Re-Issue:**	13-Jan-2020
Client	IGSL		
Client Address:	M7 Business Park Naas County Kildare Ireland		
Contact(s):	Darren Keogh		
Project	22209 - Balbriggan, Co. Dublin		
Quotation No.:		**Date Received:**	28-Nov-2019
Order No.:		**Date Instructed:**	03-Dec-2019
No. of Samples:	2		
Turnaround (Wkdays):	7	**Results Due:**	11-Dec-2019
Date Approved:	11-Dec-2019		
Approved By:			
Details:	Amy Parekh-Pross, Technical Projects Manager		

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Results - Water

Project: 22209 - Balbriggan, Co. Dublin

Client: IGSL			Chemtest Job No.:		19-39995	19-39995
Quotation No.:			Chemtest Sample ID.:		934583	934584
			Sample Location:		BH02A	BH04
			Sample Type:		WATER	WATER
			Date Sampled:		27-Nov-2019	27-Nov-2019
Determinand	**Accred.**	**SOP**	**Units**	**LOD**		
pH	U	1010		N/A	8.6	8.3
Electrical Conductivity	U	1020	µS/cm	1.0	520	380
Suspended Solids At 105C	U	1030	mg/l	5.0	230	8100
Dissolved Oxygen	N	1150	mg O2/l	0.50	8.0	8.3
Calcium	U	1415	mg/l	5.0	93	48
Potassium	U	1415	mg/l	0.50	4.8	3.2
Magnesium	U	1415	mg/l	0.50	8.5	8.6
Sodium	U	1415	mg/l	0.50	17	23
Arsenic (Dissolved)	U	1450	µg/l	1.0	< 1.0	2.0
Boron (Dissolved)	U	1450	µg/l	20	31	37
Cadmium (Dissolved)	U	1450	µg/l	0.080	0.099	0.11
Copper (Dissolved)	U	1450	µg/l	1.0	2.8	2.3
Iron (Dissolved)	N	1450	µg/l	20	220	120
Mercury (Dissolved)	U	1450	µg/l	0.50	2.6	1.6
Manganese (Dissolved)	U	1450	µg/l	1.0	33	7600
Nickel (Dissolved)	U	1450	µg/l	1.0	4.7	2.3
Lead (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	1.3	1.2
Zinc (Dissolved)	U	1450	µg/l	1.0	14	2.5
Chromium (Total)	N	1450	µg/l	1.0	8.1	1.0
Total Organic Carbon	U	1610	mg/l	2.0	9.2	12
Aliphatic TPH >C5-C6	N	1675	µg/l	0.10	< 0.10	< 0.10
Aliphatic TPH >C6-C8	N	1675	µg/l	0.10	< 0.10	< 0.10
Aliphatic TPH >C8-C10	N	1675	µg/l	0.10	< 0.10	< 0.10
Aliphatic TPH >C10-C12	N	1675	µg/l	0.10	< 0.10	< 0.10
Aliphatic TPH >C12-C16	N	1675	µg/l	0.10	< 0.10	< 0.10
Aliphatic TPH >C16-C21	N	1675	µg/l	0.10	< 0.10	< 0.10
Aliphatic TPH >C21-C35	N	1675	µg/l	0.10	< 0.10	< 0.10
Aliphatic TPH >C35-C44	N	1675	µg/l	0.10	< 0.10	< 0.10
Total Aliphatic Hydrocarbons	N	1675	µg/l	5.0	< 5.0	< 5.0
Aromatic TPH >C5-C7	N	1675	µg/l	0.10	< 0.10	< 0.10
Aromatic TPH >C7-C8	N	1675	µg/l	0.10	< 0.10	< 0.10
Aromatic TPH >C8-C10	N	1675	µg/l	0.10	< 0.10	< 0.10
Aromatic TPH >C10-C12	N	1675	µg/l	0.10	< 0.10	< 0.10
Aromatic TPH >C12-C16	N	1675	µg/l	0.10	< 0.10	< 0.10
Aromatic TPH >C16-C21	N	1675	µg/l	0.10	< 0.10	< 0.10
Aromatic TPH >C21-C35	N	1675	µg/l	0.10	< 0.10	< 0.10
Aromatic TPH >C35-C44	N	1675	µg/l	0.10	< 0.10	< 0.10
Total Aromatic Hydrocarbons	N	1675	µg/l	5.0	< 5.0	< 5.0
Total Petroleum Hydrocarbons	N	1675	µg/l	10	< 10	< 10
Naphthalene	U	1700	µg/l	0.10	< 0.10	< 0.10

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Results - Water

Project: 22209 - Balbriggan, Co. Dublin

Client: IGSL			Chemtest Job No.:		19-39995	19-39995
Quotation No.:			Chemtest Sample ID.:		934583	934584
			Sample Location:		BH02A	BH04
			Sample Type:		WATER	WATER
			Date Sampled:		27-Nov-2019	27-Nov-2019
Determinand	**Accred.**	**SOP**	**Units**	**LOD**		
Acenaphthylene	U	1700	µg/l	0.10	< 0.10	< 0.10
Acenaphthene	U	1700	µg/l	0.10	< 0.10	< 0.10
Fluorene	U	1700	µg/l	0.10	< 0.10	< 0.10
Phenanthrene	U	1700	µg/l	0.10	< 0.10	< 0.10
Anthracene	U	1700	µg/l	0.10	< 0.10	< 0.10
Fluoranthene	U	1700	µg/l	0.10	< 0.10	< 0.10
Pyrene	U	1700	µg/l	0.10	< 0.10	< 0.10
Benzo[a]anthracene	U	1700	µg/l	0.10	< 0.10	< 0.10
Chrysene	N	1700	µg/l	0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	U	1700	µg/l	0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	1700	µg/l	0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	1700	µg/l	0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	1700	µg/l	0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	U	1700	µg/l	0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	1700	µg/l	0.10	< 0.10	< 0.10
Total Of 16 PAH's	N	1700	µg/l	2.0	< 2.0	< 2.0
Benzene	U	1760	µg/l	1.0	[C] < 1.0	[C] < 1.0
Toluene	U	1760	µg/l	1.0	[C] < 1.0	[C] < 1.0
Ethylbenzene	U	1760	µg/l	1.0	[C] < 1.0	[C] < 1.0
m & p-Xylene	U	1760	µg/l	1.0	[C] < 1.0	[C] < 1.0
o-Xylene	U	1760	µg/l	1.0	[C] < 1.0	[C] < 1.0
Methyl Tert-Butyl Ether	N	1760	µg/l	1.0	[C] < 1.0	[C] < 1.0

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Deviations

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In accordance with UKAS Policy on Deviating Samples TPS 63. Chemtest have a procedure to ensure 'upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s)'. This policy and the respective holding times applied, can be supplied upon request.The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERTs accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
934583			BH02A	27-Nov-2019	C	Coloured Winchester 1000ml
934584			BH04	27-Nov-2019	C	Coloured Winchester 1000ml

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Test Methods

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SOP	Title	Parameters included	Method summary
1010	pH Value of Waters	pH	pH Meter
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Conductivity Meter
1030	Total Suspended Solids	Total suspended solids	Filtration of a mixed sample through a standard glass fibre filter and determination of the mass of residue retained dried at 105°C.
1150	Dissolved Oxygen	Dissolved Oxygen (DO)	Electrometric determination (on site preferred), using oxygen sensitive membrane electrode.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation
1675	TPH Aliphatic/Aromatic split in Waters by GC-FID(cf. Texas Method 1006 / TPH CWG)	Aliphatics: >C5–C6, >C6–C8, >C8– C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Pentane extraction / GCxGC FID detection
1700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Waters by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
1760	Volatile Organic Compounds (VOCs) in Waters by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics. (cf. USEPA Method 8260)	Automated headspace gas chromatographic (GC) analysis of water samples with mass spectrometric (MS) detection of volatile organic compounds.

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Report Information

RECEIVED: 18/12/2025

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T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis
The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols
For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

Certificate of Sampling

RECEIVED: 18/12/2025

Sampled in Accordance with BS EN 932-1: 1997.

Client	Mallincross Ltd. (Engineer: MPA)
Contract	Balbriggan, Co. Dublin
Date/Time	13 January 2020
Client Ref (sample #)	BH02A, BH04
Chainage/Depth/Layer	Taken from 50mm well installation
Material	Water Sample
Source (ie In Situ)	BH Well
Testing Required	Environmental
Ticket Number	N/A
Reason for Sampling	Environmental
Method of Sampling ie S/Pile	Glass bottles, water bailer
Number of Sample Increments	N/A
Approx. Size of sample	2.0L
Type of Sample (Bulk)	2x 1.0L glass bottles
Sampled with	Bottles, latex gloves, water bailer
Weather Conditions	Damp
Sampler (Initials + Signature)	Luke Daniels
Remarks/Drawing	Sample sizes: PSD 50Kg, Pt 5Kg, PDWA 4Kg, LA 50Kg / TFV 30 Kg not sieved, large shear/Perm 100Kg,Small shearbox 5Kg MSSV 15Kg PSD smaller agg 63=50Kg 50=35Kg 37.5=15Kg 20=2Kg Conical Ratio 1:7:19 Prismatic 1:3:5 Full Shovel approx 4.5Kg

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Email: info@chemtest.com

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Final Report

Report No.:	20-01125-1
Initial Date of Issue:	22-Jan-2020
Client	IGSL
Client Address:	M7 Business Park Naas County Kildare Ireland
Contact(s):	Darren Keogh
Project	Balbriggan
Quotation No.:	
Order No.:	
No. of Samples:	2
Turnaround (Wkdays):	5
Date Approved:	22-Jan-2020
Approved By:	
Details:	Darrell Hall, Director

Date Received:	15-Jan-2020
Date Instructed:	15-Jan-2020
Results Due:	21-Jan-2020

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Results - Water

Project: Balbriggan

Client: IGSL			Chemtest Job No.:		20-01125	20-01125
Quotation No.:			Chemtest Sample ID.:		953446	953447
			Sample Location:		BH02	BH04
			Sample Type:		WATER	WATER
Determinand	**Accred.**	**SOP**	**Units**	**LOD**		
pH	U	1010		N/A	[A] 8.3	[A] 8.0
Electrical Conductivity	U	1020	µS/cm	1.0	[A] 560	[A] 570
Suspended Solids At 105C	U	1030	mg/l	5.0	[A] 180	[A] 6300
Dissolved Oxygen	N	1150	mg O2/l	0.50	8.9	8.9
Calcium	U	1415	mg/l	5.0	[A] 74	[A] 61
Potassium	U	1415	mg/l	0.50	[A] 0.97	[A] 2.7
Magnesium	U	1415	mg/l	0.50	[A] 6.4	[A] 12
Sodium	U	1415	mg/l	0.50	[A] 7.8	[A] 35
Arsenic (Dissolved)	U	1450	µg/l	1.0	[A] 1.0	[A] 3.5
Boron (Dissolved)	U	1450	µg/l	20	[A] 22	[A] 24
Cadmium (Dissolved)	U	1450	µg/l	0.080	[A] 0.15	[A] < 0.080
Copper (Dissolved)	U	1450	µg/l	1.0	[A] 1.5	[A] < 1.0
Iron (Dissolved)	N	1450	µg/l	20	95	83
Mercury (Dissolved)	U	1450	µg/l	0.50	[A] < 0.50	[A] < 0.50
Manganese (Dissolved)	U	1450	µg/l	1.0	[A] 54	[A] 19000
Nickel (Dissolved)	U	1450	µg/l	1.0	[A] 2.5	[A] 5.5
Lead (Dissolved)	U	1450	µg/l	1.0	[A] < 1.0	[A] < 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	[A] 2.1	[A] 2.0
Zinc (Dissolved)	U	1450	µg/l	1.0	[A] 4.0	[A] 3.5
Chromium (Total)	N	1450	µg/l	1.0	[A] 7.6	[A] 2.7
Total Organic Carbon	U	1610	mg/l	2.0	< 2.0	5.5
Aliphatic TPH >C5-C6	N	1675	µg/l	0.10	[A] < 0.10	[A] < 0.10
Aliphatic TPH >C6-C8	N	1675	µg/l	0.10	[A] < 0.10	[A] < 0.10
Aliphatic TPH >C8-C10	N	1675	µg/l	0.10	[A] < 0.10	[A] < 0.10
Aliphatic TPH >C10-C12	N	1675	µg/l	0.10	[A] < 0.10	[A] < 0.10
Aliphatic TPH >C12-C16	N	1675	µg/l	0.10	[A] < 0.10	[A] < 0.10
Aliphatic TPH >C16-C21	N	1675	µg/l	0.10	[A] < 0.10	[A] < 0.10
Aliphatic TPH >C21-C35	N	1675	µg/l	0.10	[A] < 0.10	[A] < 0.10
Aliphatic TPH >C35-C44	N	1675	µg/l	0.10	[A] < 0.10	[A] < 0.10
Total Aliphatic Hydrocarbons	N	1675	µg/l	5.0	[A] < 5.0	[A] < 5.0
Aromatic TPH >C5-C7	N	1675	µg/l	0.10	[A] < 0.10	[A] < 0.10
Aromatic TPH >C7-C8	N	1675	µg/l	0.10	[A] < 0.10	[A] < 0.10
Aromatic TPH >C8-C10	N	1675	µg/l	0.10	[A] < 0.10	[A] < 0.10
Aromatic TPH >C10-C12	N	1675	µg/l	0.10	[A] < 0.10	[A] < 0.10
Aromatic TPH >C12-C16	N	1675	µg/l	0.10	[A] < 0.10	[A] < 0.10
Aromatic TPH >C16-C21	N	1675	µg/l	0.10	[A] < 0.10	[A] < 0.10
Aromatic TPH >C21-C35	N	1675	µg/l	0.10	[A] < 0.10	[A] < 0.10
Aromatic TPH >C35-C44	N	1675	µg/l	0.10	[A] < 0.10	[A] < 0.10
Total Aromatic Hydrocarbons	N	1675	µg/l	5.0	[A] < 5.0	[A] < 5.0
Total Petroleum Hydrocarbons	N	1675	µg/l	10	[A] < 10	[A] < 10
Naphthalene	U	1700	µg/l	0.10	[A] < 0.10	[A] < 0.10
Acenaphthylene	U	1700	µg/l	0.10	[A] < 0.10	[A] < 0.10

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Results - Water

Project: Balbriggan

Client: IGSL			Chemtest Job No.:		20-01125	20-01125
Quotation No.:			Chemtest Sample ID.:		953446	953447
			Sample Location:		BH02	BH04
			Sample Type:		WATER	WATER
Determinand	**Accred.**	**SOP**	**Units**	**LOD**		
Acenaphthene	U	1700	µg/l	0.10	[A] < 0.10	[A] < 0.10
Fluorene	U	1700	µg/l	0.10	[A] < 0.10	[A] < 0.10
Phenanthrene	U	1700	µg/l	0.10	[A] < 0.10	[A] < 0.10
Anthracene	U	1700	µg/l	0.10	[A] < 0.10	[A] < 0.10
Fluoranthene	U	1700	µg/l	0.10	[A] < 0.10	[A] < 0.10
Pyrene	U	1700	µg/l	0.10	[A] < 0.10	[A] < 0.10
Benzo[a]anthracene	U	1700	µg/l	0.10	[A] < 0.10	[A] < 0.10
Chrysene	N	1700	µg/l	0.10	[A] < 0.10	[A] < 0.10
Benzo[b]fluoranthene	U	1700	µg/l	0.10	[A] < 0.10	[A] < 0.10
Benzo[k]fluoranthene	U	1700	µg/l	0.10	[A] < 0.10	[A] < 0.10
Benzo[a]pyrene	U	1700	µg/l	0.10	[A] < 0.10	[A] < 0.10
Indeno(1,2,3-c,d)Pyrene	U	1700	µg/l	0.10	[A] < 0.10	[A] < 0.10
Dibenz(a,h)Anthracene	U	1700	µg/l	0.10	[A] < 0.10	[A] < 0.10
Benzo[g,h,i]perylene	U	1700	µg/l	0.10	[A] < 0.10	[A] < 0.10
Total Of 16 PAH's	N	1700	µg/l	2.0	[A] < 2.0	[A] < 2.0
Benzene	U	1760	µg/l	1.0	[AC] < 1.0	[AC] < 1.0
Toluene	U	1760	µg/l	1.0	[AC] < 1.0	[AC] < 1.0
Ethylbenzene	U	1760	µg/l	1.0	[AC] < 1.0	[AC] < 1.0
m & p-Xylene	U	1760	µg/l	1.0	[AC] < 1.0	[AC] < 1.0
o-Xylene	U	1760	µg/l	1.0	[AC] < 1.0	[AC] < 1.0
Methyl Tert-Butyl Ether	N	1760	µg/l	1.0	[AC] < 1.0	[AC] < 1.0

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Deviations

In accordance with UKAS Policy on Deviating Samples TPS 63. Chemtest have a procedure to ensure 'upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s)'. This policy and the respective holding times applied, can be supplied upon request.The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERTs accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
953446			BH02		AC	Coloured Winchester 1000ml
953447			BH04		AC	Coloured Winchester 1000ml

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Test Methods

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SOP	Title	Parameters included	Method summary
1010	pH Value of Waters	pH	pH Meter
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Conductivity Meter
1030	Total Suspended Solids	Total suspended solids	Filtration of a mixed sample through a standard glass fibre filter and determination of the mass of residue retained dried at 105°C.
1150	Dissolved Oxygen	Dissolved Oxygen (DO)	Electrometric determination (on site preferred), using oxygen sensitive membrane electrode.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation
1675	TPH Aliphatic/Aromatic split in Waters by GC-FID(cf. Texas Method 1006 / TPH CWG)	Aliphatics: >C5–C6, >C6–C8, >C8– C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Pentane extraction / GCxGC FID detection
1700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Waters by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
1760	Volatile Organic Compounds (VOCs) in Waters by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics. (cf. USEPA Method 8260)	Automated headspace gas chromatographic (GC) analysis of water samples with mass spectrometric (MS) detection of volatile organic compounds.

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Report Information

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Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis
The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols
For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

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Appendix V Site Plan

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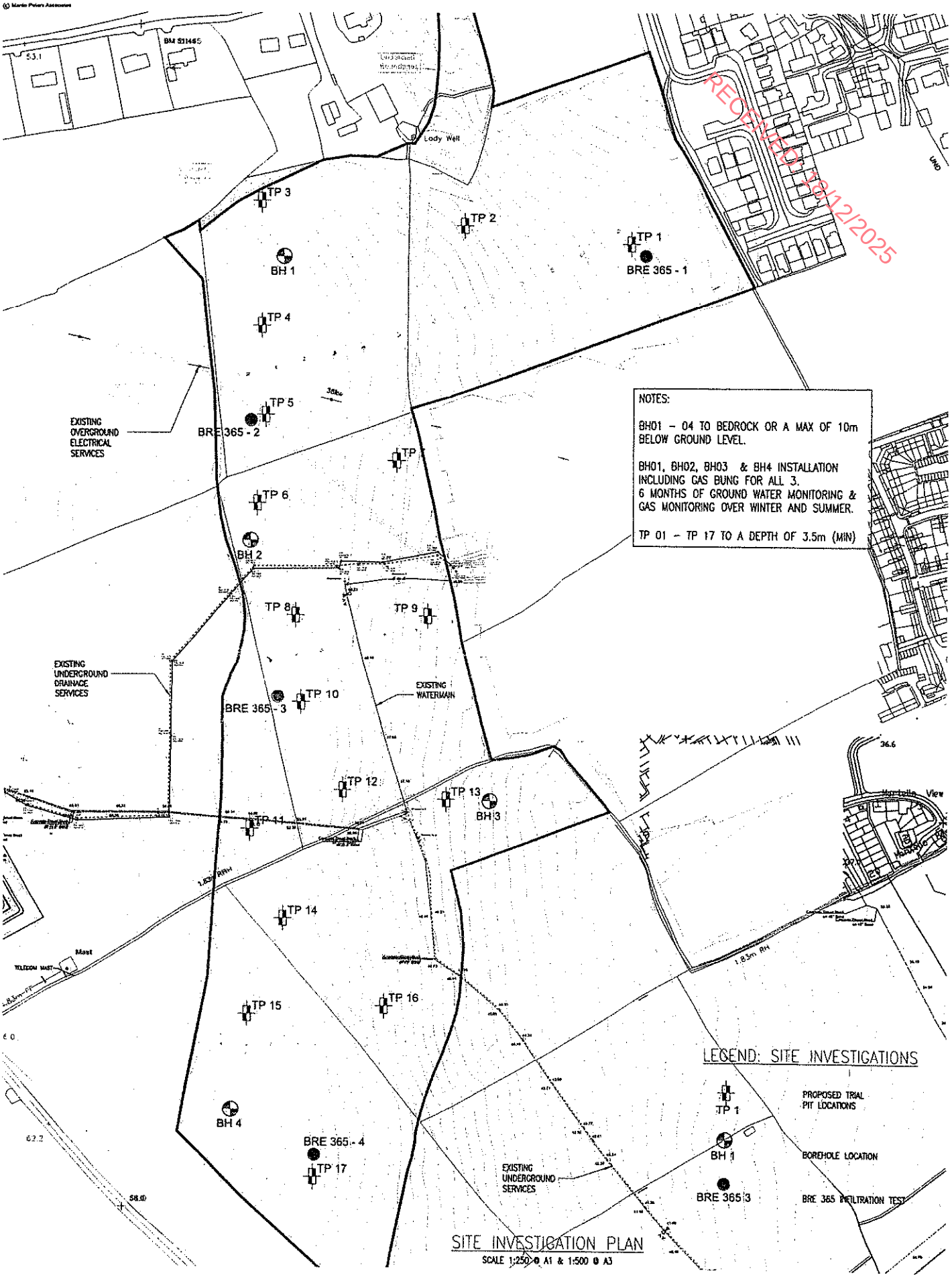

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SITE INVESTIGATION PLAN
SCALE 1:250 @ A1 & 1:500 @ A3

CLIENT: MALINCROSS LTD

PROJECT: PROPOSED RESIDENTIAL DEVELOPMENT, BALBRIGGAN, CO. DUBLIN

DRG. TITLE: SITE INVESTIGATIONS

DRG. No.: 191004-SK-009-REV 1 SCALE: A3 - 1: 25000 DATE: 03/05/19

mpa Martin Peters Associates
Consulting Engineers
Ormonde Road, Kilkenny| T: +353 56 7702751| F: +353 56 7760728| E: info@mpa.ie | W: www.mpa.ie

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Appendix 5.1- TII Criteria Rating Importance

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Box 4.1: CRITERIA FOR RATING SITE ATTRIBUTES - Estimation of Importance of Soil and Geology Attributes

Importance	Criteria	Typical Examples
Very High	Attribute has a high quality, significance or value on a regional or national scale Degree or extent of soil contamination is significant on a national or regional scale Volume of peat and/or soft organic soil underlying route is significant on a national or regional scale*	Geological feature rare on a regional or national scale (NHA) Large existing quarry or pit Proven economically extractable mineral resource
High	Attribute has a high quality, significance or value on a local scale Degree or extent of soil contamination is significant on a local scale Volume of peat and/or soft organic soil underlying route is significant on a local scale*	Contaminated soil on site with previous heavy industrial usage Large recent landfill site for mixed wastes Geological feature of high value on a local scale (County Geological Site) Well drained and/or highly fertility soils Moderately sized existing quarry or pit Marginally economic extractable mineral resource
Medium	Attribute has a medium quality, significance or value on a local scale Degree or extent of soil contamination is moderate on a local scale Volume of peat and/or soft organic soil underlying route is moderate on a local scale*	Contaminated soil on site with previous light industrial usage Small recent landfill site for mixed wastes Moderately drained and/or moderate fertility soils Small existing quarry or pit Sub-economic extractable mineral resource
Low	Attribute has a low quality, significance or value on a local scale Degree or extent of soil contamination is minor on a local scale Volume of peat and/or soft organic soil underlying route is small on a local scale*	Large historical and/or recent site for construction and demolition wastes Small historical and/or recent landfill site for construction and demolition wastes Poorly drained and/or low fertility soils Uneconomically extractable mineral resource

* *relative to the total volume of inert soil disposed of and/or recovered*

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Box 4.3: CRITERIA FOR RATING SITE ATTRIBUTES - Estimation of Importance of Hydrogeology Attributes

Importance	Criteria	Typical Examples
Extremely High	Attribute has a high quality or value on an international scale	Groundwater supports river, wetland or surface water body ecosystem protected by EU legislation e.g. SAC or SPA status
Very High	Attribute has a high quality or value on a regional or national scale	Regionally Important Aquifer with multiple wellfields Groundwater supports river, wetland or surface water body ecosystem protected by national legislation – NHA status Regionally important potable water source supplying >2500 homes Inner source protection area for regionally important water source
High	Attribute has a high quality or value on a local scale	Regionally Important Aquifer Groundwater provides large proportion of baseflow to local rivers Locally important potable water source supplying >1000 homes Outer source protection area for regionally important water source Inner source protection area for locally important water source
Medium	Attribute has a medium quality or value on a local scale	Locally Important Aquifer Potable water source supplying >50 homes Outer source protection area for locally important water source
Low	Attribute has a low quality or value on a local scale	Poor Bedrock Aquifer Potable water source supplying <50 homes

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Box 4.4: CRITERIA FOR RATING IMPACT SIGNIFICANCE AT ROUTE SELECTION STAGE - Rating of Significant Environmental Impacts at Route Selection Stage

Impact Level	Attribute Importance				
	Extremely High **	Very High	High	Medium	Low
Profound	Any permanent impact on attribute	Permanent impact on significant proportion of attribute			
Significant	Temporary impact on significant proportion of attribute	Permanent impact on small proportion of attribute	Permanent impact on significant proportion of attribute		
Moderate	Temporary impact on small proportion of attribute	Temporary impact on significant proportion of attribute	Permanent impact on small proportion of attribute	Permanent impact on significant proportion of attribute	
Slight		Temporary impact on small proportion of attribute	Temporary impact on significant proportion of attribute	Permanent impact on small proportion of attribute	Permanent impact on significant proportion of attribute
Imperceptible			Temporary impact on small proportion of attribute	Temporary impact on significant proportion of attribute	Permanent impact on small proportion of attribute

** ***In rating impacts on an 'European site' account must be taken of Article 6(3) and 6(4) of the Habitats Directive*** *(Council Directive 92/43/EEC). Also see guidance contained within Guidelines for Assessment of Ecological Impacts of National Road Schemes (Rev 2, National Roads Authority, 2008)*

Appendix 6.1- TII Criteria Rating Importance

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Box 4.2: CRITERIA FOR RATING SITE ATTRIBUTES - Estimation of Importance of Hydrology Attributes

Importance	Criteria	Typical Examples
Extremely High	Attribute has a high quality or value on an international scale	River, wetland or surface water body ecosystem protected by EU legislation e.g. 'European sites' designated under the Habitats Regulations or 'Salmonid waters' designated pursuant to the European Communities (Quality of Salmonid Waters) Regulations, 1988.
Very High	Attribute has a high quality or value on a regional or national scale	River, wetland or surface water body ecosystem protected by national legislation – NHA status Regionally important potable water source supplying >2500 homes Quality Class A (Biotic Index Q4, Q5) Flood plain protecting more than 50 residential or commercial properties from flooding Nationally important amenity site for wide range of leisure activities
High	Attribute has a high quality or value on a local scale	Salmon fishery Locally important potable water source supplying >1000 homes Quality Class B (Biotic Index Q3-4) Flood plain protecting between 5 and 50 residential or commercial properties from flooding Locally important amenity site for wide range of leisure activities
Medium	Attribute has a medium quality or value on a local scale	Coarse fishery Local potable water source supplying >50 homes Quality Class C (Biotic Index Q3, Q2-3) Flood plain protecting between 1 and 5 residential or commercial properties from flooding
Low	Attribute has a low quality or value on a local scale	Locally important amenity site for small range of leisure activities Local potable water source supplying <50 homes Quality Class D (Biotic Index Q2, Q1) Flood plain protecting 1 residential or commercial property from flooding Amenity site used by small numbers of local people

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Box 4.4: CRITERIA FOR RATING IMPACT SIGNIFICANCE AT ROUTE SELECTION STAGE - Rating of Significant Environmental Impacts at Route Selection Stage

Impact Level	Attribute Importance				
	Extremely High **	Very High	High	Medium	Low
Profound	Any permanent impact on attribute	Permanent impact on significant proportion of attribute			
Significant	Temporary impact on significant proportion of attribute	Permanent impact on small proportion of attribute	Permanent impact on significant proportion of attribute		
Moderate	Temporary impact on small proportion of attribute	Temporary impact on significant proportion of attribute	Permanent impact on small proportion of attribute	Permanent impact on significant proportion of attribute	
Slight		Temporary impact on small proportion of attribute	Temporary impact on significant proportion of attribute	Permanent impact on small proportion of attribute	Permanent impact on significant proportion of attribute
Imperceptible			Temporary impact on small proportion of attribute	Temporary impact on significant proportion of attribute	Permanent impact on small proportion of attribute

** ***In rating impacts on an 'European site' account must be taken of Article 6(3) and 6(4) of the Habitats Directive*** *(Council Directive 92/43/EEC). Also see guidance contained within Guidelines for Assessment of Ecological Impacts of National Road Schemes (Rev 2, National Roads Authority, 2008)*

APPENDIX D: CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN (CEMP)

Appendix D Paul McGrail Consulting Engineers CEMP

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PAUL Mc GRAIL
CONSULTING ENGINEERS LIMITED

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Proposed Residential Development at Flemington South LRD, Fingal County Council

Construction Environmental Management Plan

REGISTERED IN IRELAND AS PAUL MC GRAIL LTD
REG NO 468875

4 FAGAN'S LANE, 1ST FLOOR, MAYNOOTH, CO. KILDARE
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PROJECT NUMBER: 2024-122				**DOCUMENT REF: 2024-122**			
01	First Issue	TS	12-12-25	PMG	12-12-25	PMG	12-12-25
Revision	**Description & Rationale**	**Originated**	**Date**	**Checked**	**Date**	**Authorised**	**Date**
PMG Consulting Engineers							

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1 INTRODUCTION

Paul McGrail Consulting Engineers was engaged by Glenveagh Homes Limited to produce this Construction Environmental Management Plan (CEMP) to support this planning application in respect of Flemington South LRD, Balbriggan, Co Dublin.

The proposed development is located to the North of the Granted Section of Phase 4 Balbriggan, South of Flemington Lane and west of Taylor Hill Phase 2. Refer to Figure 1 for Site Location

The development will consist of the construction of 815 no. dwellings (610 no. houses, 194 apartments & 11 no. later living dwellings), a portion of the C-Ring Road, open space, community/retail floor space and 2 no. creches on an overall site area of 24.91 hectares

The purpose of the Construction and Environmental Management Plan (CEMP) is to outline the details in relation to the environmental measures to be implemented on site to prevent any adverse impacts on the surrounding environment. Accordingly, this CEMP identifies the main objectives for the managed procedures which are required to ensure the construction related activities on the proposed site are executed in a safe and controlled manner and to minimise disruption and impacts on the amenities in the area.

Post planning, the appointed contractor will take ownership of the Construction Environmental Management Plan (CEMP). Prior to any demolition, excavation or construction, the Construction Environmental Management Plan (CEMP) will be updated by the successful contractor. The Contractor's CEMP will implement the measures contained in the EIAR and this CEMP. The CEMP will set out the Contractor's overall management and administration of the construction project.

The objective of this CEMP is therefore to identify the potential issues which are relevant to the project, to address these issues and to provide solutions which are satisfactory to all concerned.

This CEMP describes the anticipated construction programme and the nature of the activities to be undertaken. It identifies the environmental considerations associated with these activities and outlines appropriate measures that might be implemented for their mitigation.

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This assessment has been made using the experience of the Applicant and their professional advisors based on the typical construction methods and strategies that can be reasonably anticipated at this stage of the process.

The subject site is located approximately 2.2km west of Balbriggan, Co. Fingal.

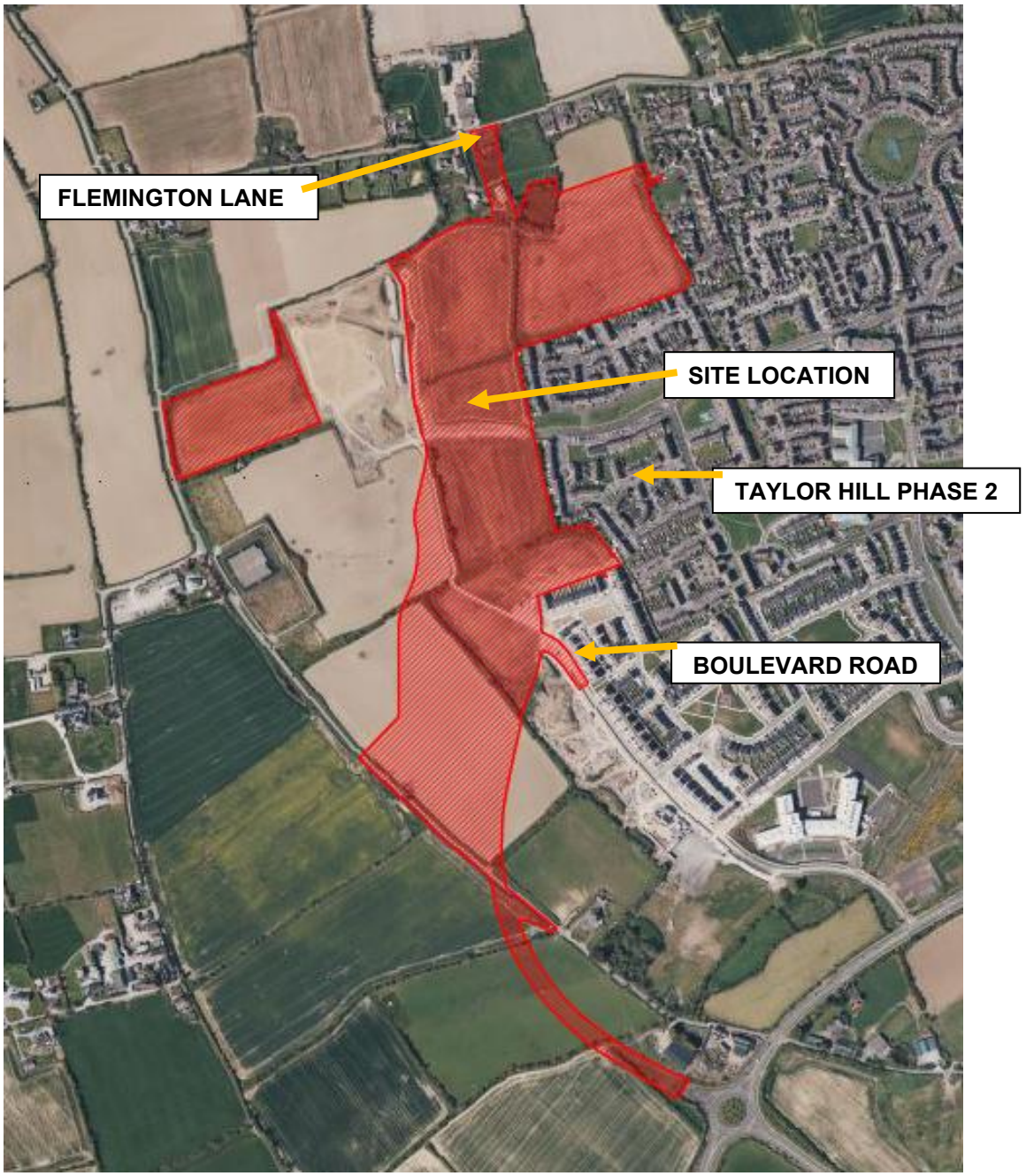

Figure 1 - Site Location (Google Earth)

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The issues that have been considered in this document are as follows:

- Construction programme and phasing:
- Enabling works.
- Infrastructure works.
- Description of works.
- Site logistics.
- Indicative construction methods.
- Safety, health and environmental provision.

2 CONSTRUCTION PROGRAMMING & PHASING

The assumed programme presented below is indicative of how the project will be constructed, at each stage of the Development some or all of the following activities will be required.

- Archaeological watching brief.
- Geotechnical Investigation.
- Ecology Prep e.g. for Bats.
- Site clearance and enabling works.
- Service infrastructure works.
- Sub-Structure works.
- Super-Structure works.
- External works and finishes.

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Figure 2 – Proposed Site Layout (Extracted from DCA Site Layout)

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3 SITE ENABLING WORKS

Site enabling works will include but will not be confined to the following:

- Securing of site boundary and erecting of fencing or hoarding as required.
- Service terminations and positive identification of any services on the site by the utility providers.
- Provision of temporary power, lighting and water services.
- Set up of site accommodation and welfare facilities.
- Identification of the trees that are required to be removed and the removal of these along with scrub and vegetation, in consultation with the appointed Arborist.

3.1 INDICATIVE WORKS METHODOLOGY

The methodology for the completion of the enabling works will be finalised during the tender and appointment stage. The outline of methodology is as follows:

Live services will be terminated and where possible will be removed off site, with the cooperation of the utility providers.

Temporary power and water services will be arranged for the site accommodation and welfare facilities. The site accommodation and welfare facilities will be set up in a location as not to be in the way of the construction, and at a point close to the site entrance.

Any protected trees will be secured, and the subsequent hard fencing will be placed to protect the trees and the root zone below the tree. This will be carried out in consultation with the appointed Arborist and Bat specialist. Following the fencing of any protected trees and the Ecological Mitigation, the remaining trees that are required to be removed will have to be identified and removed along with the scrub on site.

Noise levels will be controlled and works undertaken in such a way as to minimise the detrimental impact on adjoining property and local residents.

The site may require imports and/or exports of soil and/or stone which, where possible, we would utilise the provisions of Article 27.

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3.2 INFRASTRUCTURE WORKS

The site infrastructure works include the provision of a new entrance along the north of existing Boulevard Road, See Figure 3.

Utility Infrastructure

Provision of the permanent infrastructure to the site will be carried out as early as possible in the programmed works as to possibly incorporate the temporary site requirements with the permanent requirements.

Engagement with the service and utility providers will be entered into early in the design stage to allow for adequate planning of utility infrastructure.

It is the aspiration of the applicant to minimise disruption of existing services and public roads and pathways in the providing of services to the site, this will be done in consultation with the service providers and the Local Authority.

Prior to any works on site or on the boundaries to connect services a desktop study followed by a physical survey will be carried out to identify all existing services. As part of the physical survey, trial holes, slit trenching and CAT scans may be required.

Utilisation of single trenches for multiple services where possible will be encouraged.

Where possible services will be provided to ‘future-proof’ the development.

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4 CONSTRUCTION TRAFFIC AND SITE ACCESS

4.1 CONSTRUCTION ROUTE & SITE ACCESS

Access and egress to the site will be controlled by the developer. All construction traffic for phase 5 will access the site from the C-ring, as shown in Figure 3 and 3.1, unless otherwise required from the Boulevard Road

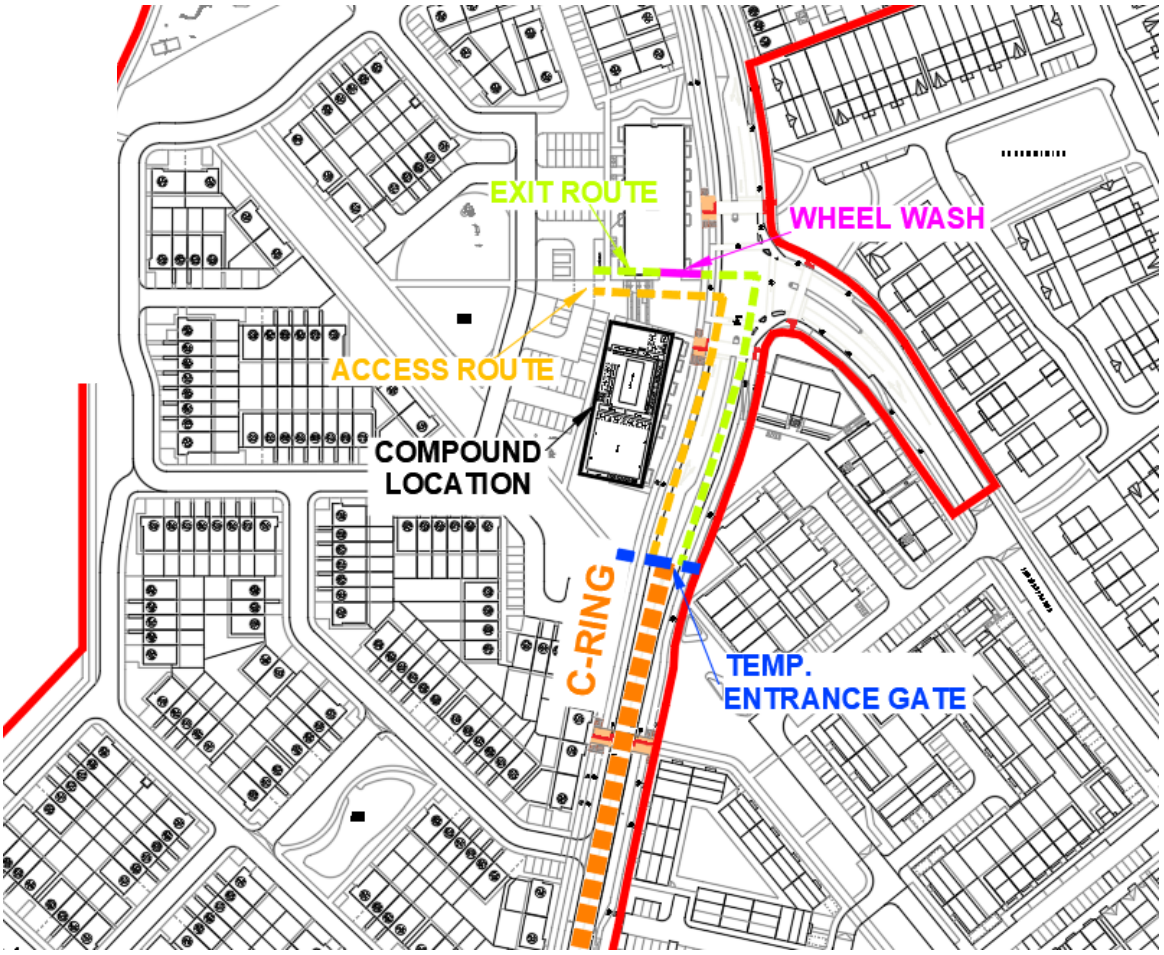

Figure 3 - Site Access (Phase 5)

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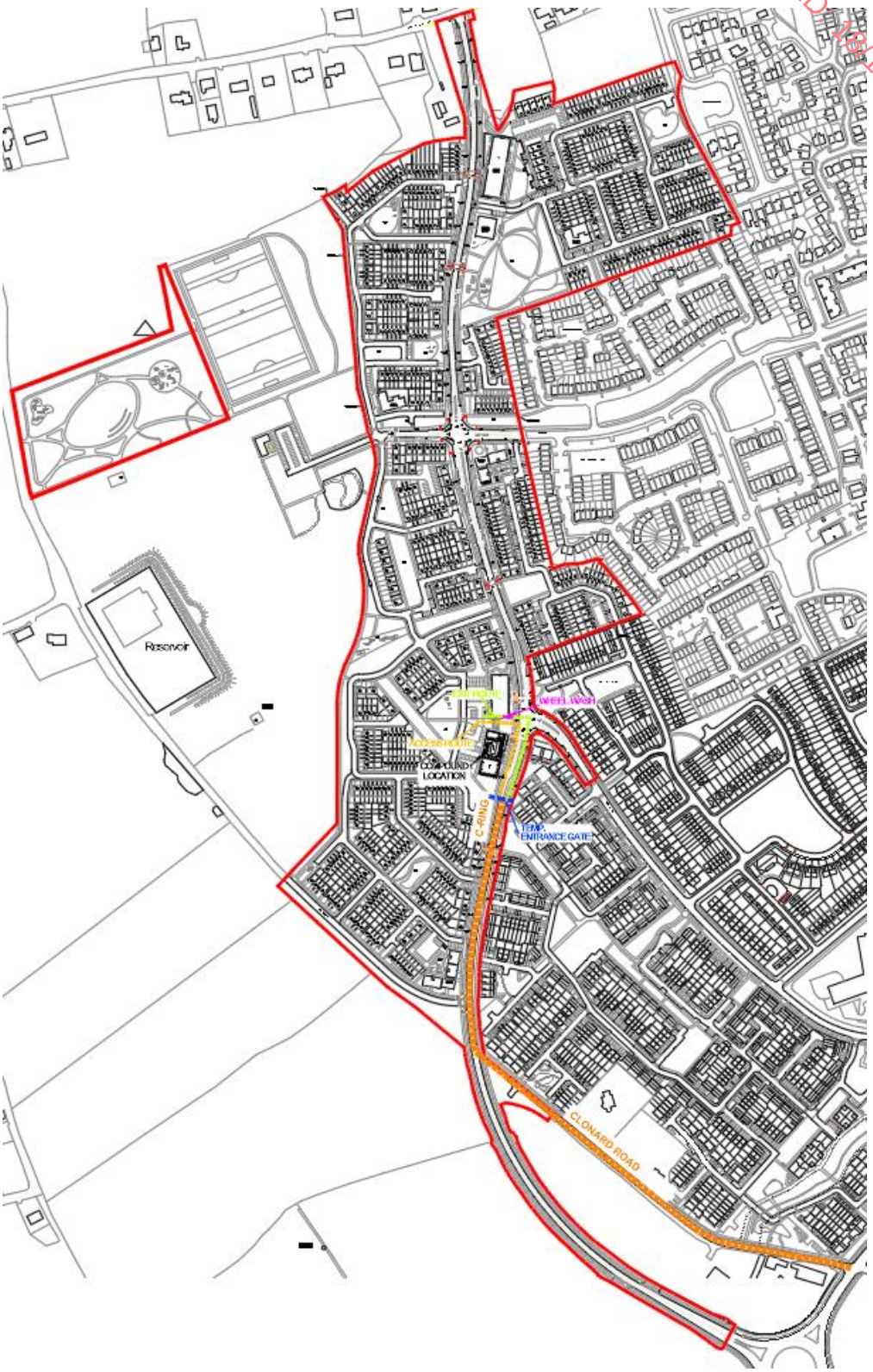

Figure 3.1 - Site Access (Master View)

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The developer will provide information on the requirements of the site traffic access rules, which will include the following:

- Access routes from the entrance to the compound.
- The site working hours are expected to be 7:00AM to 7:00PM on weekdays and 7:00AM to 2:00PM on Saturday. No works will be undertaken on Sundays or Bank Holidays, without the consent of Fingal County Council.
- No allowed parking on any access road to the site.
- No construction traffic permitted via any developed/occupied phases.
- No vehicle may park on or around any footpaths in the adjoining areas.
- Caution must be exercised entering and leaving the site.
- All vehicles must stop at the security barrier.
- All instructions from the developer or development staff must be obeyed.
- Vehicles leaving the site must do so only at an appropriate break in the traffic and must not force their way into traffic.
- Only vehicles with specific business on the site can enter the site, once permission has been granted by the developer and / or his staff.
- Heavy vehicle drivers must check their tyres for lodged stones and remove them prior to returning to the public roads.

It is proposed that construction vehicle movements would be restricted to the main arterial routes and not pass through predominantly residential areas.

Movements of large or abnormal loads will be addressed in advance with the relevant authorities. Certain trades will require parking on site for vehicles due to transportation of specialist equipment/plant requirements.

Provision of wheel cleaning facilities will be made available on-site where it is deemed necessary or if space constraints do not permit this, the provision of power washing facilities for lorry wheels prior to egress off the site onto the public road in order to maintain the road in a clean condition. A road sweeper will also be utilized as required on the public road at vehicular access / egress points.

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4.2 OFF LOADING AND STORAGE AREA

Vehicles will be directed to the delivery points for holding/off-loading/storage, these deliveries will be controlled by a dedicated person allocated to overseeing all deliveries and controlling the entrance. All deliveries will be notified to the site management team at least 24 hours in advance. No large deliveries will be allowed to the site during peak traffic times for the area.

4.3 PERSONNEL & VEHICLE SEGREGATION

All pedestrian routes will be adequately segregated from vehicular routes across the site. All vehicle crossing points will have appropriate signage to alert pedestrians of vehicle crossing points. All site operatives will be given a specific site induction, giving information on the pedestrian access routes.

4.4 CONSTRUCTION PARKING

Construction personnel parking will not be permitted on Boulevard Road, Clonard Road, Naul Road or any public or private road.

Construction car parking will be fully contained within the site. Parking for construction personnel and site visitors will be provided in line with expected personnel levels in accordance with CIF recommendations on travel to and from sites.
The quantum of parking available will be kept under review by site management throughout the construction phases and adjusted as required. Further details will be provided in the final version of the CTMP

4.5 TEMPORARY ROAD CLOSURE

Road closures are not anticipated, however if they are required for the delivery of large items of plant or materials then such temporary road closures will be planned and approved by the Local Authorities and relevant authorities will be sought.

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5 SITE LOGISTICS

5.1 PHASING OF DEVELOPMENT WITHIN PHASES

The Phasing included in the CEMP is indicative to allow for flexibility in terms of the development. In terms of the Delivery and Phasing of Development the following will be the key stages:

- **Phase 1a – Site Set Up**

This task will take up to c.3 months to complete with approximately up to 20 staff employed and will involve consultation to Arborist, Archaeologist and Ecologist/Batman, site clearance (given the lack of existing scrub/vegetation this will not be significant) set up site offices and contractors compound (at the Southern Boundary – as illustrated in Figure 3) and secure the construction site and erection of signage for site security purposes.

- **Phase 1b – Setting out of sites and provision of services**

Given the significant work involved in the provision of drainage services this stage will involve significant work and is estimated to take between 4-5 months and will run in tandem with phase 1d below and will involve up to 40 construction staff. This will involve the laying of sewers within the site, the installation of attenuation tanks, the provision of footpaths, lighting and roadways. As part of any works (i.e. provision of services) along the public areas/roads in the vicinity of the site, it will be ensured that the surface of the roads/areas will be re-instated to a high standard. Due to the catchment areas the site services associated with the phasing will be constructed as and when required to ensure that all surface water is attenuated prior to discharging to the existing surface water network.

- **Phases 1-5 – Construction of Residential Units**

The construction of the residential units will, to a certain degree respond to the demand/sale of the units involved, however our client has already had a significant number of enquiries from prospective purchasers, and it is anticipated that the construction progress will reflect this strong demand and will involve up to 150 no. construction staff (depending on the number of units being constructed at any one time). The Proposed Phase 5 will be developed in five phases, and it is expected to take up to five (5) years to complete (subject to planning and market demand). Refer to Figure 4.

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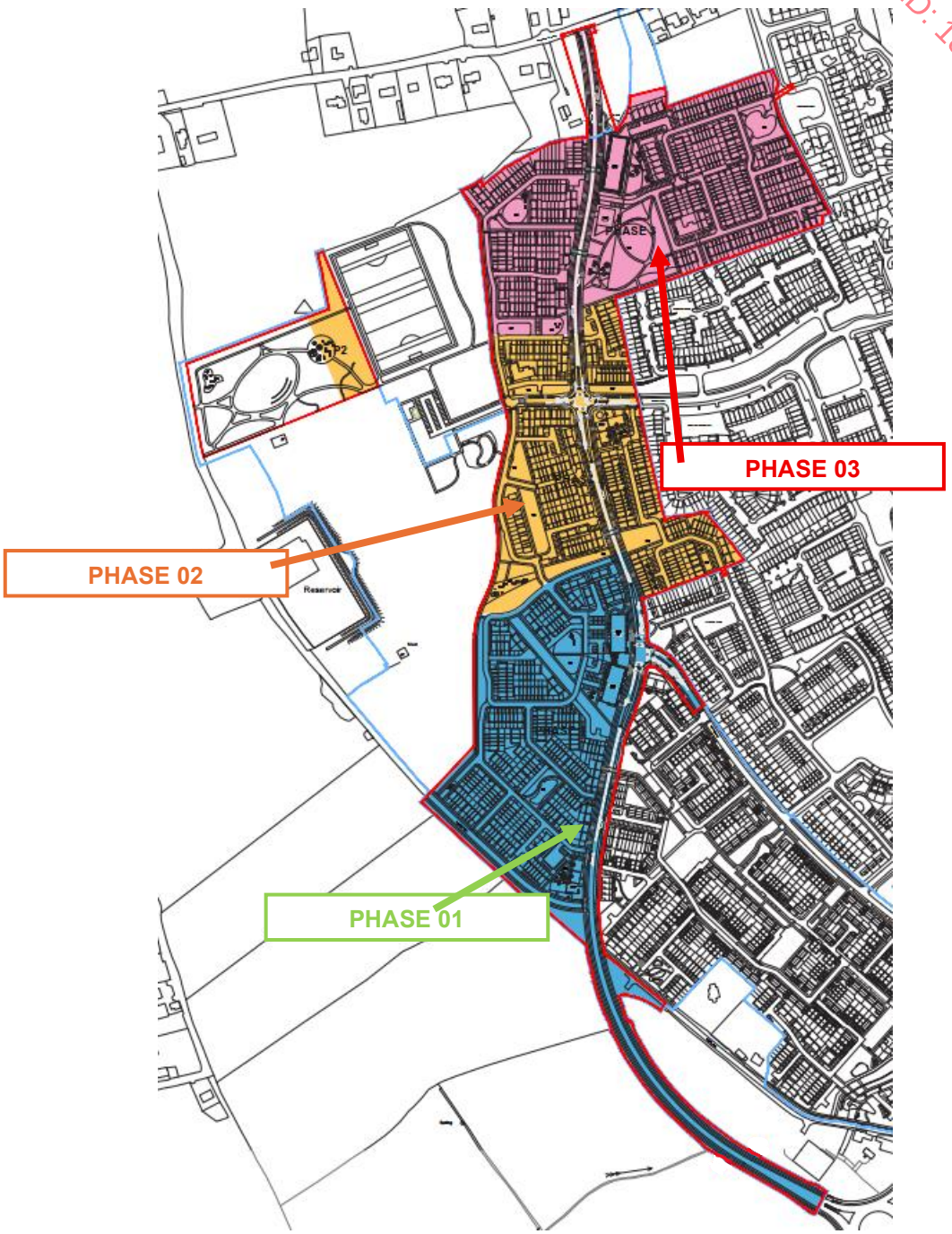

Figure 4 - Phasing Map

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5.2 SITE ESTABLISHMENT & SECURITY

- At site set up stage the site will be made secure, and the general public will be separated from the site by means of fencing and hoarding.
- All site facilities will be contained within the site area.
- The main entrance gate will be controlled by site personnel (gateman) for deliveries.
- Lighting and a camera security system may be used to secure the site in out of hour times.
- Site lighting will be set up with consideration and recommendations of the Ecologist for adjoining properties.

5.3 CONSENT & LICENSES

All statutory consents and licences required to commence an onsite activity will be obtained ahead of work commencing and giving the appropriate notice periods. These will include:

- Construction notices.
- Connections to existing utilities and main sewers.
- Licence to discharge from the site to public systems.

5.4 ACCESS & EGRESS

- The vehicular access road is proposed from the existing Boulevard Road
- Separate pedestrian accesses will be developed at the access points to the site in order to maintain vehicle and pedestrian segregation.
- Access will be strictly controlled via security personnel at the access points to the site.
- A wheel wash will be provided the entrance to the site for lorry wheels prior to egress off the site onto the public road in order to maintain the road in a clean condition.

5.5 MATERIAL STORAGE & HANDLING

- Glenveagh Homes will strive to maintain a tidy site and to operate a “just in time” policy for the delivery and the supply of materials for the works, particularly the final phase of the works when on site storage will be at a minimum.
- Materials will be stored on site as to minimise the risk of damage.

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- As per the construction methodology and legislative requirements all fuels stored on site will be bunded and all chemicals will be stored in an appropriate chemical storage tank. Appropriate settlement facilities will be provided on site for refuelling areas.
- A teleporter will be used for general unloading during the structural and envelope works. Unloading over the public roadway and path will be avoided.

5.6 CRANE OPERATIONS

- A mobile crane may be used for elements of the superstructure.
- Loading areas will be used to minimise storage on site, and “just in time” deliveries for each floor level will be used to load materials before the floor for the next level is placed.
- Detailed lifting plans and RAMS (Risk Assessment / Method Statements) will be compiled for all activities involving cranes.

5.7 SITE ACCOMODATION

- It is the intention to provide a main site accommodation and welfare facility on site. The location of these facilities has been determined and marked on site logistics map.
- The principal contractor will be responsible for providing canteen and welfare facilities for the on-site operatives.
- These facilities will be maintained by the main contractor.

5.8 VISITOR MANAGEMENT

- Visitors will only be allowed to enter the site via designated vehicular / pedestrian access gates and must report to the site security office to sign-in and for obtaining any additional PPE required.
- Visitors will be expected to attend a specific site safety briefing and be always accompanied by a member of the site team.

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6 DESCRIPTION OF WORKS AND INDICATIVE CONSTRUCTION METHODS

6.1 CONSTRUCTION SEQUENCE

The construction sequence is outlined below. Details may change subject to the detailed design development of the proposed construction.

6.2 ENABLING WORKS

- Secure site and set up contractor welfare facilities and site accommodation.
- Locate and terminate existing live services.
- Install tree protection and remove trees that are required to be felled.
- Excavate and remove material to the required formation. This will require a bulk excavation and removal from the site.
- Maintain existing entrances and incorporate new roads and hardstanding as required.
- Make good and install any finished boundary treatments that can be installed at this stage.

6.3 SUBSTRUCTURE

- Excavate foundations.
- Excavate, lay and test underground drainage.
- Coordinate and install all incoming services.

6.4 SUPERSTRUCTURE

- Foundations and Floor.
- Timber frame units.
- Blockwork.
- Roof work.

6.5 FIT OUT & FINISHES

- Fit out of the residential units will use traditional fit out techniques and finishing trades.
- Gardens and public open space areas will be landscaped and planted in accordance with the landscaping proposals for the scheme.

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7 SAFETY, HEALTH AND ENVIRONMENT

7.1 GENERAL HEALTH SAFETY AND ENVIRONMENTAL CONSIDERATIONS

Construction works will be carried out in such a way as to limit, as far as practicable, adverse environmental impact.

Works will be carried out in accordance with the following general provisions:

- Planning approvals from the Local Authority
- Requirements of the Local Authority

In accordance with the HAS requirements a Project Supervisor Construction Stage (PSCS) will be appointed for the construction.

As part of the Construction Method Statement, the process will ensure that construction techniques and materials used are a fundamental consideration of the design and intended long-term use, the aim below is achieved:

- Design for durability and low maintenance.
- Design for flexibility and adaptability.
- Use of materials from sustainable sources.
- Use of local materials where possible.

Safety, health and environmental issues on the Development are a primary consideration in the construction methods adopted. The construction team will develop detailed health and safety plans, specific environmental, fire and accident procedures to suit the construction sequence of the Development.

Contractors involved in the Development will ensure that all non-English speaking employees are provided with relevant Health and Safety information in their national language.

All contractors will be required to adopt the relevant skills certification required for that element of the works.

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A site-specific Safety Statement and a detailed Construction Stage Safety & Health Plan will be compiled prior to any works on site and will be in accordance with the Health & Safety Authority and Local Authority guidelines.

7.2 CONTROL SUBSTANCES TO HEALTH

The strategy for controlling all substances and all work processes that may generate hazardous substances will have to be addresses and control measures put in place.

Some of the control measures to be employed include the following:

- All fuel and chemicals to be stored in designated areas, with deliveries of hazardous materials supervised.
- Storage tanks and container facilities will be appropriately bunded.
- In the case of spills or discharges, remedial action will be taken as soon as possible in accordance with company procedures.
- Personal protective equipment (PPE) suitable to the pertaining conditions will be used by all site personnel.

7.3 ENVIRONMENTAL, EMERGENCY, FIRE AND ACCIDENT PROCEDURE

Measures will be carried out to avoid environmental incidents, however if these occur then the following types must be reported to the responsible person in the construction team as per the Marshall Yard Accident and Emergency Procedure (HSE_P-02-002).
The overall strategy in the event of a spillage will be to “Stop-Contain-Notify” in the event of:

- Spills or discharge to the atmosphere, water supplies, sewage systems, rivers and other watercourses, or to the ground:
    - Any chemical products
    - Oils or fuels
    - Effluent/fumes and gases
    - Waste or contaminated materials

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- Damage to existing:
    - Trees and wildlife
    - Flora and existing local habitats

- Any environmental incidents that could lead to:
    - Local Authority or regulatory enforcement
    - Public complaint

Emergency routes and procedures will be continuously adapted to suit the construction sequence and stage of the Development. An Emergency and Evacuation Plan will be prepared following the guidelines detailed below and updated on a regular basis during construction.

- Definition of the management organisation and responsibility for safety
- Definition of appropriate fire prevention measures, including good housekeeping of site, welfare facilities and offices.
- Adequate provision of fire extinguishers across the site.
- Use of non-flammable/fire retardant materials for protection of finished works.
- Safe use and safe storage of flammable materials of all categories, whether solid, liquid or gas.
- Appropriate waste management procedures.
- Monitoring the type and frequency of fire inspections/audits.
- Development of evacuation plans, to include escape routes, muster stations, means of sounding alarms and general emergency procedures.
- Site safety inductions and fire drills.
- The application of permit systems for Hot works, Confined Space Entry and Electrical Access Control.
- The provision of first aiders. Checking of emergency routes are available and unobstructed at all times.
- Liaison with the emergency services and occupants of the adjacent buildings.

First aid facilities will be established and at least one trained first aider will be present on-site at all times. In addition, trained Fire Wardens / Fire Marshalls will be in place on-site to address fire safety.

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7.4 PARTICULAR HEALTH, SAFETY & ENVIRONMENTAL CONSIDERATIONS

Work in Proximity to Trees

Contractors appointed for works in close proximity to trees and in consultation with the arboriculture and landscape consultants undertake specific tree protection measures and procedures for the execution of their works to protect the trees. Where trees are identified for retention construction will be undertaken in accordance with the relevant guidelines.

Retained trees will be adequately protected from damage throughout the demolition and construction works, tree protection measures will include some of the following:

- Assessment of location of the roots;
- The Root Protection Area (RPA) will be designated as a construction exclusion zone (CEZ) within which trees will be protected from activities that have a potential to cause damage. CEZ's will be appropriately protected e.g. fencing;
- Prepare detailed Arboriculture Method Statement for specific operations near trees;
- "No-dig design" around the Oak trees;
- Training (e.g. toolbox talks) in how to avoid tree damage;
- Facilitation pruning;
- Supervision of sensitive operations;
- Appropriate tree protection fencing and barriers;
- Appropriate Ground Protection measures;
- Contingency planning;

7.5 AIR QUALITY

General Provisions

Construction works will be carried out in such a way as to limit the emission to air of pollutants, employing best practices.

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- The site will be managed in accordance with the CEMP to minimise potential effects on air quality from construction.
- Air monitoring will be undertaken throughout the construction period as may be deemed necessary.
- The storage and handling of construction materials can be significant dust emission source. The appropriate dust control measures will greatly reduce dust emissions from these sources and ensure that the adverse effect will be reduced or eliminated. These include covering waste sips, scaffold netting, use of water to suppress dust, provision of hard stand access for truck and vehicles.
- Handling and storage areas will be sited as far away as is reasonably and practically possible from public/residential areas. Prolonged storage of materials will be avoided where possible. Transportation of materials that may be dusty will be sheeted down to prevent any escape of materials.
- The burning of materials is prohibited on all Marshall Yard' project sites.

7.6 CONSTRUCTION PLANT

Construction plant can be a significant source of emission although control measures can be implemented to minimise any adverse impacts. The following measures will be employed:

- Site plant and equipment will be serviced regularly and maintained in good condition and in accordance with the manufacture's specifications. Allowing for economic constraints, the plant will be selected on the basis of which has the least potential for dust and emissions.
- Plant will not be left running when not in use.
- Plant with dust suppression equipment will be used where practicable.

7.7 VEHICLE MOVEMENTS

Vehicle movement may result in dust emissions and exhaust emissions. However, a number of control measures can be adopted to eliminate or minimise such emissions:

- Damping down the site haul roads during prolonged dry periods.
- Regular cleaning of hard surfaces at the site entrance.

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- Ensuring that materials are transported appropriately (sheeting used over dusty materials)
- Confinement of plant and machinery to designated haul routes on site. Haul routes will be outside areas of high groundwater vulnerability.
- Speed restrictions on site will be enforced (15 km/h).
- Hoarding to site boundaries where practical which will aid in the reduction of windblown dust-off site.

7.8 DUST

Dust control will be best achieved at sources, and if possible, activities will be carried out in a manner as to preclude dust generation.

If dust is generated, steps will be taken to protect workers in the vicinity who shall, as a minimum, be issued with appropriate dust masks. Dust will, as far as is reasonably practicable, be contained in the area where it was generated. Dust suppression will be carried out to ensure that dust nuisance affecting neighbouring properties is minimised.

Dust emissions from construction will be controlled through careful pre-project planning and effective site management. The following control measure and good practices, will be employed:

- Burning of materials is prohibited on all Marshall Yard' Project sites.
- Loading and unloading will only be permitted in designated areas.
- Provision of water sprays in dust sensitive locations will be introduced, e.g. concrete cutting.

7.9 ECOLOGY

All construction works will be carefully controlled in terms of potential environmental effects through implementation of this CMP and consultation with the relent bodies. As part of the construction process, protective fencing will be provided to protected trees, which in turn will provide protection to the ecology.

Procedures to minimise risk of pollution potential incidents will be put in place.

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7.10 MEASURES TO REDUCE IMPACTS OF HABITAT LOSS

Care will be taken to ensure that trees and hedges being retained are incorporated into the development without being impacted upon. Protective fencing will be provided around trees and hedge vegetation being retained and this will enclose their Root Protection areas (RPAs). The fencing will be at least 2.3m high and constructed in accordance with figure 1 of BS 5837 2012 see fencing detail in Tree Protection Strategy Report' of the Arboriculture Assessment report. The fencing will be made up of Herras fencing panels.

Substantial native tree and hedgerow planting will be planted on the site. Three large areas of open space will be maintained on the site, and existing hedges which are to be retained will be reinforced with native planting. This will reduce the impact of the proposed development upon habitats in the area and there will be no significant operational impact upon habitats due to the provision of substantial native and pollinator friendly habitats proposed for the site.

7.11 MEASURES TO REDUCE IMPACTS ON BATS

Lighting proposals for the construction phase will adhere to the advice provided in *Bats and lighting – Guidance for Planners, Engineers, Architects and Developers* (Bat Conservation Ireland 2010), *Guidance Notes for the Reduction of Obtrusive Light GN01* (Institute of Lighting Professionals, 2011) and *Bats and Lighting in the UK – Bats and the Built Environment Series* (Bat Conservation Trust UK, January 2008). Construction stage lighting shall be reviewed by a qualified bat ecologist. If necessary, the bat ecologist shall recommend adjustments to directional lighting (e.g. through cowls, shields or louvres) to ensure minimum light spill onto vegetated areas, and above lighting columns (reducing light spill to vegetated areas to below 3 lux where possible).

7.12 MEASURES TO REDUCE IMPACTS ON BIRDS

To limit the potential impact of construction on breeding birds, vegetation removal will be restricted to the non-breeding season (September to February, inclusive). Where the construction program does not allow this, an ecologist will undertake a breeding bird check immediately prior to vegetation clearance. Where no breeding birds are present clearance may proceed without requiring a license. However, given that breeding birds and their nests of all bird species are protected under the Wildlife Acts, a license would be required from the NPWS to permit the

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destruction of nest sites and disturbance to breeding birds during the bird breeding season (1st March to the 31st August). Depending on the species in question licenses may or may not be granted and therefore avoidance of the breeding bird season is by far the best option in order to avoid delays during vegetation clearance.

7.13 NOISE MANAGEMENT

Noise arising from the construction phase will be limited principally to plant operations and traffic movements to and from the site. Worst-case construction noise levels will be within the required threshold limits included in British Standard 5228:2009 and the National Roads Authority Guidelines for the Treatment of Noise and Vibration (2004).

British Standard BS5228:2009 – Noise and vibration control on construction and open sites: Part 1 – Noise outlines a range of measures that can be used to reduce the impact of construction phase noise on the nearest noise sensitive receptors. These measures will be applied by the contractor where appropriate during the construction phase of the proposed development.

- Ensuring that mechanical plant and equipment used for the purpose of the works are fitted with effective exhaust silencers and are maintained in good working order.
- Careful selection of quiet plant and machinery to undertake the required work where available.
- Machines in intermittent use will be shut down in the intervening periods between work.
- Ancillary plant such as generators, compressors and pumps will be placed behind existing physical barriers, and the direction of noise emissions from plant including exhausts or engines will be placed away from sensitive locations, in order to cause minimum noise disturbance.
- Handling of all materials will take place in a manner which minimises noise emissions.
- A complaints procedure will continue to be operated by the contractor throughout the construction phase, and all efforts should be made to address any noise issues at the nearest noise sensitive properties.
- Where construction activity takes place in the vicinity of residential properties, it will be restricted to the stipulated hours of operation identified above.

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7.14 SOILS & CONTAMINATIONS

Strategy

The strategy for controlling and mitigating potential adverse environmental or health and safety effects during construction will be to adopt the procedures and methods set out within this CMP.

Operation Control

The strategy for controlling and mitigating potential adverse environmental or health and safety effects during construction will include the following, as appropriate:

- Identification and assessment of the potential for residual ground contamination to be presented prior to the start of any excavation works.
- Minimisation of potential risks to site workers as required by the Safety, Health and Welfare (Construction Regulations) 2013.
- Testing and sampling of excavated soils in order to assess the suitability of materials for re-use on site.
- Dust suppression from any contaminated soils by the regular use of water spray during any dry conditions, sheeting of haulage vehicle loads.
- Stockpiling of contaminated materials will be avoided where possible.
- Stockpiles will be treated to prevent windblown dust.
- Adequate drainage will be designed and installed during construction work to manage surface water runoff.
- The handling and storage of any potentially hazardous liquids on site, e.g. fuels and chemicals, will be controlled and best practice guidelines. Storage tanks/container facilities will have appropriate bunding within the designated area.
- If hazardous liquids escape, remedial action will be taken as soon as possible.
- Where unforeseen contamination is identified during the course of the work, specific investigations will be carried out in the areas in question and appropriate health and safety procedures will be implemented during the removal of the material.

A strategy will be prepared to identify, analyse, segregate and control existing contaminated materials on site.

Procedures will be drawn up to control all potentially contaminated materials brought to site.

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7.15 TRANSPORT

General Provisions

Refer to Construction Traffic Generation of the Construction Traffic Management Plan Report for the estimates of construction traffic generations for the construction phase.

The works will be carried out in such a way that inconvenience to the public arising from increase in traffic flows and disruptive effects of construction traffic on local and main roads is limited wherever practical.

The key principle of the traffic management plan is to ensure the safety of all personnel (drivers & pedestrians). This means a separate entrance for vehicles and pedestrians. The onsite traffic flow will change through the course of the Development. All site traffic will be subject to speed restrictions.

Vehicles and pedestrians will be segregated at the site entrance. Site operatives will be required to wear high-vis clothing on site. Plant and truck operators will be required to have valid qualifications for the plant/trucks that they are operating.

Specific material storage will be identified and will be managed for on-site movement by the mobile crane or the forklift.

For large, wide or abnormal loads, guidelines will be followed.

A Construction Traffic Management Plan Report has been developed for the project. It will be reviewed and updated in line with the construction programme and will typically include details of the following:

- Temporary Traffic Operations Supervisor (TTOS)
- Temporary traffic control measures.
- Temporary and permanent access to the works – vehicle and pedestrian.
- Off-loading and storage areas.
- Traffic management procedures for waste disposal vehicles.
- Personnel and vehicle segregation.
- Equipment e.g. road cones, temporary fencing and signage etc.

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- Ensuring all work is planned and method statements prepared and detailing safe systems of work.
- Ensuring that all sub-contractors make adequate provision for vehicle selection and supervision of drivers.
- Making vehicle safety an integral part of the development safety & health plan.
- Defining standards for driver competence, vehicle safety and maintenance.
- Ensuring the coordination and cooperation between contractors.
- Ensuring that all workers receive site induction training, detailing safe traffic routes and site rules for operating vehicles. Establish safety monitoring procedures for the use of vehicles on site.

7.16 WASTE MANAGEMENT PLAN

General Provision

All works carried out as part of these works will comply with all Statutory Legislation including the Waste Management Act & Local Government (Water Pollution) Acts, and the contractor will co-operate in full with the Environmental Section of the Local Authority.

The disposal of waste generated during construction, including bulk excavation, will be managed to maximise the environmental and development benefits from the use of surplus materials and to reduce any adverse effects of disposal. In general, the principle of waste management hierarchy, which favours waste minimisation, re-use material and recycle over disposal to landfill will be favoured.

Construction Waste

Methods for waste reduction will form the basic strategy for construction waste management from the start. Where possible materials will be re-used. Careful extraction of materials will be undertaken to ensure that the highest proportion of the materials can be re-used. This will reduce the level of new materials required for the proposed site. This in turn reduces the impact on new resources and carbon emissions associated with the extraction, manufacture and transportation of materials to the site. Undertaking the enabling works upfront ensures that more time can be spent on the careful recovery of materials on site. Where appropriate, excavated material from development sites should be reused on the subject site.

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Control during Construction

The contractor will ensure minimisation of waste arising on site and reuse where possible, either directly or by recycling, waste monitoring and setting of targets. Recyclable materials such as metal, timber, cardboard and office paper will be put in colour coded bins, ready for collection by the appropriate contactor.

Initiatives to reduce other waste streams include as far as practically possible:

- Minimising raw material waste through analysing design and construction techniques where possible.
- Liaison with suppliers to enable packaging materials to be sent back for reuse, the use of off-cuts where possible and the recycling of off-cut materials by suppliers.
- Engaging contractors in the process of maximising the use of recycled aggregates for hardcore.
- The entrance to the site will be kept clean as to minimise dust and pollution to the water course.

To ensure compliance with legislative requirements, only local authority licenced waste hauliers, waste contractors are permitted to collect and remove waste from site. All waste removed from site will be deposited at a licensed waste facility.
Waste delivery dockets must be completed and given to site management for recording purposes. Suitable protection measures will be incorporated in the design of the waste management area to prevent pollution, and regular inspections carried out to ensure that stored waste is covered by present accidental spillage and from being blown away.

7.17 SITE WASTE MANAGEMENT PLAN

At the outset a site waste management plan accompanies this planning application. This includes a waste forecast identifying options for reuse, recycling and avoidance of landfill and to record actual waste.

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8 WORK FORCE

8.1 EMPLOYMENT AND MANAGEMENT OF WORKFORCE

Working Hours

For the duration of the proposed infrastructure works the expected working hours shall be 7:00AM to 7:00PM on weekdays and 7:00AM to 2:00PM on Saturday. No works will be undertaken on Sundays or Bank Holidays, without the consent of Fingal County Council.

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

8.2 TEMPORARY SITE ACCOMODATION

Site accommodation will be contained within the site boundary. The principle welfare accommodation will comprise of site offices, toilets, canteen and drying rooms. These will be prefabricated where possible.

Preventative pest control measures will be put in place, and regular inspections will take place to ensure good housekeeping.

8.3 SITE SECURITY

Designated vehicular and pedestrian access will be established and all other potential access points to the site secure so far as is reasonably practicable.
It is proposed to use a “Monitored Security Camera” system on site.

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9 ENVIRONMENTAL MANAGEMENT

9.1 CONSTRUCTION PHASE MEASURES – POLLUTION PREVENTION

Works will follow best practice guidance as outlined in *Guidelines on the Protection of Fisheries during Construction Works in and Adjacent to Waters* (IFI, 2016), *CIRIA 2010 Environmental Good Practice on Site & CIRIA 2001 Control of Water Pollution from Construction Sites: Guidance for Consultants and Contractors.* Although the risk of any significant impact on water quality in any receiving water bodies is considered to be extremely low given the lack of running water features on the site. Best practice will be implemented at all times in relation to all construction activities to avoid any accidental pollution events occurring to the wet ditches in the area or polluting the ground water table.

This will include the following actions:

- SuDS will be constructed in line with manufacturer's guidelines / best practice methods.
- At this development consist attenuation system stormtech underground to cater for the 100-year return period and a detention basin to cater for the 1-100 year were designed for this site. The design of the attenuation is in accordance with CIRIA SuDS Manual C753 2015. Please refer to the accompanying drawings for further information.
- During construction, any surfaces which are intended to enable infiltration must be protected from compaction. This includes protecting from heavy traffic or storage materials.
- Water contaminated with silt will not be allowed to enter a watercourse or drain as it can cause pollution. All parts of the drainage system will be protected from construction runoff to prevent silt clogging the system and causing pollution downstream. Measures to prevent this include, early construction of sediment management basins, channelling run-off away from watercourses and surface water drains and erosion prevention measures. Following construction, subsoil that has been compacted during construction should be broken up prior to the re-application of topsoil to reinstate the natural infiltration performance of the ground.
- Pipe systems and orifices will be checked for blockages or partial blockages.
- Silt deposited during construction will be removed.
- Soils will be stabilised and protected from erosion whilst planting becomes established.

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- Hydrocarbons or any hazardous chemicals will be stored in specific bunded areas. Refuelling of plant and machinery will also be carried out in bunded areas to minimise risk of any potential pollutants being discharged from the site.
- Pollution control measures will be implemented to control run-off from the site and prevent run-off which is potentially contaminated with sediments or hazardous chemicals entering the drainage network.
- Pouring of cement-based materials for works will only be carried out in dry conditions. Pumped concrete will be monitored to ensure there is no accidental discharge. Mixer washings and excess concrete will not be discharged directly into the drainage network. Concrete washout areas will be created to avoid any accidental discharge from the proposed development site.
- Foul drainage from site offices and compound, where not directed to the existing wastewater network, will be contained and disposed of off-site in an appropriate manner and in accordance with the relevant statutory regulations to prevent the pollution of watercourses.
- A response procedure will be put in place to deal with any accidental pollution events and spillage kits will be available on site. Construction staff will be familiar with the emergency procedures and use of the equipment.

Report By
Tales Ayub Smargiassi

Paul Mc Grail
Chartered Engineer
BSc.Eng, Dip.Eng, C.Eng, MIEI, Dip Proj Mang., Dip Conservation,

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Appendix A. Schedule of Environmental Commitments (EIAR/NIS Mitigation and Monitoring)

The Final Schedule of Environmental Commitments (Chapter 18 of the EIAR and mitigation in the Natura Impact Statement) will be inserted into the final Contractors CEMP once statutory planning approval is received and will be carried forward into the Contractors CEMP.

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Appendix B. Statutory Planning Consent Including Any Additional Environmental Commitments

The Statutory Planning consent will be inserted into the final CEMP once statutory planning approval is received and will be carried forward into the Contractors CEMP.

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Appendix C – Construction Traffic Management Plan

The Contractor's CTMP will include mitigation measures contained in Chapter 18 of the EIAR and the Outline CTMP contained in the TTA prepared by Traffic Insights.

APPENDIX E: MATERIAL ASSETS – WASTE MANAGEMENT

Resource and Waste Management Plan (RWMP)

Operational Waste Management Plan (OWMP)

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RESOURCE AND WASTE MANAGEMENT PLAN (RWMP)

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REPORT

RECEIVED: 18/12/2025

Resource & Waste Management Plan

Project Title: Flemington South LRD

Appendix 12.1

CLIENT	DOCUMENT REFERENCE	DATE
Glenveagh Homes Limited	257501.5333WMR01	08/12/2025

AWN Consulting Ltd, The Tecpro Building, IDA Business & Technology Park, Clonshaugh, Dublin 17, D17 XD90

DOCUMENT CONTROL SHEET

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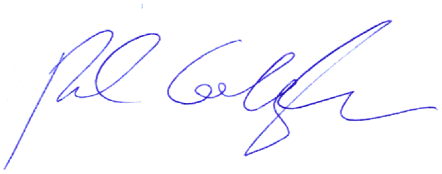
Document Control Sheet	
Our Reference	257501.5333WMR01
Original Issue Date	08/12/2025
Client:	Glenveagh Homes Limited

Revision	Revision Date	Description

Details	Written by	Approved by
Signature		
Name	Chonaill Bradley	Fergal Callaghan
Title	Associate (Environmental)	Director
Date	08/12/2025	08/12/2025

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1. INTRODUCTION

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AWN Consulting, a Trinity Consultants Company, has prepared this Construction and Demolition (C&D) Resource & Waste Management Plan (RWMP) on behalf of Glenveagh Homes Limited. The proposed located at a site off Flemington Lane, within the townlands of 'Clonard or Folkstown Great', and 'Flemingtown', Balbriggan, Co. Dublin. Will primarily consist of the construction of 815 no. dwellings (610 no. houses, 194 apartments & 11 no. later living dwellings), a portion of the C-Ring Road, open space, community building/retail floorspace and 2 no. creches on an overall site area of 24.91 hectares.

This plan provides information necessary to ensure that the management of C&D waste at the site is undertaken in accordance with the current legal and industry standards including the *Waste Management Act 1996* as amended and associated Regulations [1], *Environmental Protection Agency Act 1992* as amended [2], *Litter Pollution Act 1997* as amended [3],the National Waste Management Plan for a Circular Economy 2024 - 2030 (NWMPCE) (2024) [4]. In particular, this plan aims to ensure maximum recycling, reuse and recovery of waste with diversion from landfill, wherever possible. It also provides appropriate measures in relation to the collection and transport of waste from the site to prevent issues associated with litter or more serious environmental pollution (e.g. contamination of soil and/or water).

This RWMP includes information on the legal and policy framework for C&D waste management in Ireland, estimates of the type and quantity of waste to be generated by the proposed development and prescribes measures for the management of different waste streams. The RWMP should be viewed as a live document and will be regularly revisited throughout the project's lifecycle so that opportunities to maximise waste reduction / efficiencies are exploited throughout, and that data is collected on an ongoing basis so that it is as accurate as possible.

2. OVERVIEW OF WASTE MANAGEMENT IN IRELAND

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2.1 National level

The Irish Government issued a policy statement in September 1998, *Changing Our Ways* [5], which identified objectives for the prevention, minimisation, reuse, recycling, recovery and disposal of waste in Ireland. The target for C&D waste in this report was to recycle at least 50% of C&D waste within a five year period (by 2003), with a progressive increase to at least 85% over fifteen years (i.e. 2018).

In response to the *Changing Our Ways* report, a task force (Task Force B4) representing the waste sector of the already established Forum for the Construction Industry, released a report entitled '*Recycling of Construction and Demolition Waste'* [6] concerning the development and implementation of a voluntary construction industry programme to meet the Government's objectives for the recovery of C&D waste.

In September 2020, the Irish Government published a policy document outlining a new action plan for Ireland to cover the period of 2020-2025. This plan, *'A Waste Action Plan for a Circular Economy'* [7] (WAPCE), replaces the previous national waste management plan, *"A Resource Opportunity"* (2012), and was prepared in response to the 'European Green Deal' which sets a roadmap for a transition to an altered economical model, where climate and environmental challenges are turned into opportunities.

The WAPCE sets the direction for waste planning and management in Ireland up to 2025. This reorientates policy from a focus on managing waste to a much greater focus on creating circular patterns of production and consumption. Other policy statements of a number of public bodies already acknowledge the circular economy as a national policy priority.

The policy document contains over 200 measures across various waste areas including circular economy, municipal waste, consumer protection and citizen engagement, plastics and packaging, construction and demolition, textiles, green public procurement and waste enforcement.

One of the first actions to be taken was the development of the *Whole of Government Circular Economy Strategy 2022-2023 'Living More, Using Less'* (2021) [8] to set a course for Ireland to transition across all sectors and at all levels of Government toward circularity and was issued in December 2021. It is anticipated that the Strategy will be updated in full every 18 months to 2 years. There has not yet been an update released regarding a new interation.

The *Circular Economy and Miscellaneous Provisions Act 2022* [9] was signed into law in July 2022. The Act underpins Ireland's shift from a "take-make-waste" linear model to a more sustainable pattern of production and consumption, that retains the value of resources in our economy for as long as possible and that will work to significantly reduce our greenhouse gas emissions. The Act defines Circular Economy for the first time in Irish law, incentivises the use of recycled and reusable alternatives to wasteful, single-use disposable packaging, introduces a mandatory segregation and incentivised charging regime for commercial waste, streamlines the national processes for End-of-Waste and By-Products decisions, tackling the delays which can be encountered by industry, and supporting the availability of recycled secondary raw materials in the Irish market, and tackles illegal fly-tipping and littering.

The Environmental Protection Agency (EPA) of Ireland issued '*Best Practice Guidelines for the Preparation of Resource & Waste Management Plans for Construction & Demolition Projects' in November 2021* [10]. These guidelines replace the previous 2006 guidelines issued by *The National Construction and Demolition Waste Council (NCDWC)* and the Department of the Environment, Heritage and Local Government (DoEHLG) in 2006 [11]. The guidelines provide a practical approach which is informed by best practice in the prevention and management of C&D wastes and resources from design to construction of a project, including consideration of the deconstruction of a project. These guidelines have been followed in the preparation of this document and include the following elements:

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- *Predicted C&D wastes and procedures to prevent, minimise, recycle and reuse wastes;*
- *Design teams roles and approach;*
- *Relevant EU, national and local waste policy, legislation and guidelines;*
- *Waste disposal/recycling of C&D wastes at the site;*
- *Provision of training for Resource Waste Manager (RM) and site crew;*
- *Details of proposed record keeping system;*
- *Details of waste audit procedures and plan; and*
- *Details of consultation with relevant bodies i.e. waste recycling companies, Local Authority, etc.*

Section 3 of the Guidelines identifies thresholds above which there is a requirement for the preparation of a bespoke RWMP for developments. The new guidance classifies developments on a two-tiered system. Developments which do not exceed any of the following thresholds may be classed as Tier 1 development, which require a simplified RWMP:

- *New residential development of less than 10 dwellings.*
- *Retrofit of 20 dwellings or less.*
- *New commercial, industrial, infrastructural, institutional, educational, health and other developments with an aggregate floor area less than 1,250m^2.*
- *Retrofit of commercial, industrial, infrastructural, institutional, educational, health and other developments with an aggregate floor area less than 2,000m^2; and*
- *Demolition projects generating in total less than 100m^3 in volume of C&D waste.*

A development which exceeds one or more of these thresholds is classed as Tier-2 development.

This development requires a RWMP as a Tier 2 development as it is above following criterion:

- *Demolition projects generating in total less than 100m^3 in volume of C&D waste.*
- *New residential development of less than 10 dwellings.*

The Department of Housing, Local Government and Heritage authored *Sustainable Residential Development and Compact Settlements - Guidelines for Planning Authorities (2024)* [12], suggests the below thresholds at which the need for supplemental information such as the RWMP should be considered.

- 30 or more residential units.

Other guidelines followed in the preparation of this report include *'Construction and Demolition Waste Management – a handbook for Contractors and Site Managers'* [13], published by FÁS and the Construction Industry Federation in 2002 and the previous guidelines, `*Best Practice Guidelines for the Preparation of Waste Management Plans for Construction and Demolition Projects'* (2006).

These guidance documents are considered to define best practice for C&D projects in Ireland and describe how C&D projects are to be undertaken such that environmental impacts and risks are minimised and maximum levels of waste recycling are achieved.

2.2 Regional Level

The proposed development is located in the Local Authority area of Fingal County Council (FCC).

The Eastern Midlands Region (EMR) Waste Management Plan 2015 – 2021, which previously governed waste management policy in the FCC area, has been superseded as of March 2024 by the NWMPCE 2024 – 2030, the national waste management plan for Ireland.

The NWMPCE does not dissolve the three regional waste areas. The NWCPCE sets the ambition of the plan to have a 0% total waste growth per person over the life of the Plan with an emphasis on non-household wastes including waste from commercial activities and the construction and demolition sector. This Plan seeks to influence sustainable consumption and prevent the generation of waste, improve the capture of materials to optimise circularity and enable compliance with policy and legislation.

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The national plan sets out the following strategic targets for waste management in the country that are relevant to the development:

National Targets

1B. (Construction Materials) 12% Reduction in Construction & Demolition Waste Generated by 2030.

3B. (Reuse Facilities) Provide for reuse at 10 Civic Amenity Sites, minimum.

Municipal landfill charges in Ireland are based on the weight of waste disposed. In the Leinster Region, charges are approximately €140 - €160 per tonne of waste which includes an €85 per tonne landfill levy introduced under the *Waste Management (Landfill Levy) (Amendment) Regulations 2015 (as amended)* [14]*. The Circular Economy (Waste Recovery Levy) Regulations 2024* [15] will also incur a levy of €10 per tonne for waste accepted for recovery. This will include backfilling at authorised recovery sites and at municipal waste landfills.

The *Fingal Development Plan 2023 – 2029* [16] (2023) sets out a number of objectives for the Fingal region in line with the objectives of the national waste management plan, including the following:

- *Objective **DMSO241** - Construction and Demolition Waste Management Plan - Require that Construction Waste Management Plans be submitted as part of any planning application for projects in excess of any of the following thresholds:*

  - *New residential development of 10 units or more.*
  - *New developments other than above, including institutional, educational, health and other public facilities, with an aggregate floor area in excess of 1,250 sqm.*
  - *Renovation / refurbishment projects generating in excess of 100m^3 in volume of construction waste.*
  - *Civil engineering projects in excess of 500m^3 of waste materials used for development of works on the site.*

2.3 Legislative Requirements

The primary legislative instruments that govern waste management in Ireland and applicable to the development are:

- *Waste Management Act 1996 as amended;*
- *Environmental Protection Agency Act 1992 as amended;*
- *Litter Pollution Act 1997 as amended;*
- *Planning and Development Act 2000 as amended* [17]*;*
- *Circular Economy and Miscellaneous Provisions Act 2022.*

One of the guiding principles of European waste legislation, which has in turn been incorporated into the *Waste Management Act 1996* as amended and subsequent Irish legislation, is the principle of *"Duty of Care"*. This implies that the waste producer is responsible for waste from the time it is generated through until its legal recycling, recovery or disposal (including its method of disposal). As it is not practical in most cases for the waste producer to physically transfer all waste from where it is produced to the final destination, waste contractors will be employed to physically transport waste to the final destination.

Following on from this is the concept of *"Polluter Pays"* whereby the waste producer is liable to be prosecuted for pollution incidents, which may arise from the incorrect management of waste produced, including the actions of any contractors engaged (e.g. for transportation and disposal/recovery/recycling of waste).

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It is therefore imperative that the Developer ensures that the waste contractors engaged by demolition and construction contractors are legally compliant with respect to waste transportation, recycling, recovery and disposal. This includes the requirement that a contractor handle, transport and recycle/recover/dispose of waste in a manner that ensures that no adverse environmental impacts occur as a result of any of these activities.

A collection permit to transport waste must be held by each waste contractor which is issued by the National Waste Collection Permit Office (NWCPO). Waste receiving facilities must also be appropriately permitted or licensed. Operators of such facilities cannot receive any waste, unless in possession of a Certificate of Registration (COR) or waste permit granted by the relevant Local Authority under the *Waste Management (Facility Permit & Registration) Regulations 2007 as amended* or a Waste Licence granted by the EPA. The COR / permit / licence held will specify the type and quantity of waste able to be received, stored, sorted, recycled, recovered and/or disposed of at the specified site.

3. DESIGN APPROACH

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The client and the design team have integrated the *'Best Practice Guidelines for the Preparation of Resource & Waste Management Plans for Construction & Demolition Projects'* guidelines into the design workshops, to help review processes, identify and evaluate resource reduction measures and investigate the impact on cost, time, quality, buildability, second life and management post demolition and construction. Further details on these design principals can be found within the aforementioned guidance document.

The design team have undertaken the design process in line with the international best practice principles to firstly prevent wastes, reuse where possible and thereafter sustainably reduce and recover materials. The below sections have been the focal point of the design process and material selections and will continued to be analysed and investigated throughout the design process and when selecting material.

As noted in the EPA guidelines, the approaches presented are based on international principles of optimizing resources and reducing waste on demolition and construction projects through:

- *Prevention;*
- *Reuse;*
- *Recycling;*
- *Green Procurement Principles;*
- *Off-Site Construction;*
- *Materials Optimisation; and*
- *Flexibility and Deconstruction.*

3.1 Designing For Prevention, Reuse and Recycling

Undertaken at the outset and during project feasibility and evaluation the Client and Design Team considered:

- Establishing the potential for any reusable site assets (buildings, structures, equipment, materials, soils, etc.);
- The potential for refurbishment and refit of existing structures or buildings rather than demolition and new build;
- Assessing any existing buildings on the site that can be refurbished either in part or wholly to meet the Client requirements; and
- Enabling the optimum recovery of assets on site.

3.2 Designing for Green Procurement

Waste prevention and minimisation pre-procurement have been discussed and will be further discussed in this section. The Design Team will discuss proposed design solutions, encourage innovation in tenders and incentivise competitions to recognise sustainable approaches. They will also discuss options for packaging reduction with the main Contractor and subcontractors/suppliers using measures such as 'Just-in-Time' delivery and use ordering procedures that avoid excessive waste. The Green procurement extends from the planning stage into the detailed design and tender stage and will be an ongoing part of the long-term design and selection process for this development.

3.3 Designing for Off-Site Construction

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Use of off-site manufacturing has been shown to reduce residual wastes by up to 90% (volumetric building versus traditional). The decision to use offsite construction is typically cost led, but there are significant benefits for resource management. Some further considerations for procurement which are being investigated as part of the planning stage design process are listed as follows:

- Modular buildings as these can displace the use of concrete and the resource losses associated with concrete blocks such as broken blocks, mortars, etc.;
  - Modular buildings are typically pre-fitted with fixed plasterboard and installed insulation, eliminating these residual streams from site.
- Use of pre-cast structural concrete panels which can reduce the residual volumes of concrete blocks, mortars, plasters, etc.;
- The use of prefabricated composite panels for walls and roofing to reduce residual volumes of insulation and plasterboards;
- Using pre-cast hollow-core flooring instead of in-situ ready mix flooring or timber flooring to reduce the residual volumes of concrete/formwork and wood/packaging, respectively; and
- Designing for the preferential use of offsite modular units.

3.4 Designing for Materials Optimisation During Construction

To ensure manufacturers and construction companies adopt lean production models, including maximising the reuse of materials onsite as outlined in section 3.1, structures should be designed with the intent of designing out waste. This helps to reduce the environmental impacts associated with transportation of materials and from waste management activities. This includes investigating the use of standardised sizes for certain materials to help reduce the amount of offcuts produced on site, focusing on promotion and development of off-site manufacture.

3.5 Designing for Flexibility and Deconstruction

Design flexibility has and will be investigated throughout the design process to ensure that where possible products (including buildings) only contain materials that can be recycled and are designed to be easily disassembled. Material efficiency is being considered for the duration and end of life of a building project to produce; flexible, adaptable spaces that enable a resource-efficient, low-waste future change of use; durability of materials and how they can be recovered effectively when maintenance and refurbishment are undertaken and during disassembly/deconstruction.

4. DESCRIPTION OF THE DEVELOPMENT

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4.1 Location, Size and Scale of the Development

Glenveagh Homes Limited., intend to apply for a 10 year planning permission for development of a Large-Scale Residential Development (LRD) at this site to the south of Flemington Lane, within the townlands of 'Clonard or Folkstown Great', and 'Flemingtown', Balbriggan, Co. Dublin; bounded generally by the rear of dwellings along Flemington Lane to the north, the R122 roundabout and "Ladywell" Phases 3 and 4/"Taylors Hill" to the south, Breamore Pastures Drive/Park & Flemington Park to the east and local road L1130 to the west all on lands with an overall area of c. 24.91 hectares on 2 no. parcels of land.

The development will consist of the construction of 815 no. dwellings (610 no. houses, 194 apartments & 11 no. later living dwellings), a portion of the C-Ring Road, open space, community building/retail floorspace and 2 no. creches as follows:

- Demolition of existing single storey dwelling (c. 154 sq. m) and agricultural outbuilding (c. 366 sq. m) located to the south of Flemington Lane;
- Provision of portion of 'C-Ring Road' from Flemington Lane [to include junctions and ancillary footpaths, cycle paths, lighting, bus stops, boundary wall to adjoining owner, and tie in to existing roads/agricultural access points] to link into the existing R122 roundabout with vehicular access also from the Boulevard Road, Hamlet Lane, & Flemington Lane along with associated amendments to the layout of the Local Road L1130 (also known as the Clonard Road including the creation of a cul de sac arrangement to the south of the C-Ring Road); the provision of car parking spaces (1,037 no.), bicycle parking spaces (1,144 no.) and all internal roads and footpaths and bicycle and bin stores, & substations;
- Provision of a community pavilion (2 storeys) comprising community floorspace of c. 730 sq. m (with flexible internal spaces) along with a retail unit (c. 419 sq. m) at ground floor of apartment Block F as well as 2 no. 2 storey creches c. 530 sq. m each with ancillary parking and open space areas;
- 610 no. terraced, semi-detached & detached houses comprising 318 no. 2-bedroom houses (2 storey), 254 no. 3-bedroom houses (2 storey) and 38 no. 4-bedroom houses [house types B1/F4/F5 with variants] 3 storeys;
- 194 no. apartments in 5 no. apartment buildings (52 no. studio apartments, 87 no. 1 bedroom apartments, 51 no. 2 bedroom apartments and 4 no. 3 bedroom apartments - all apartments with terrace or balcony on elevations) as follows: Block A [4 storeys & 64 no. apartments] comprising 47 no. 1 bedroom apartments and 17 no. 2 bedroom apartments; Block C, [Part 3-4 storeys & 18 no. apartments] comprising 10 no. 1 bedroom apartments, 6 no. 2 bedroom apartments & 2 no. 3 bedroom apartments; Block F [Part 4-5 storeys & 48 no. apartments] comprising 36 no. 1 bedroom apartments and 12 no. 2 bedroom apartments; Block G [Part 3-4 storeys & 40 no. apartments]; comprising 30 no. 1 bedroom apartments and 10 no. 2 bedroom apartments; Block H [part 3-4 storeys & 24 no. apartments] comprising 16 no. 1 bedroom apartments, 6 no. 2 bedroom apartments & 2 no. 3 bedroom apartments;
- 11 no. single storey 2 bedroom later living houses with associated communal open space;
- 5.26 hectares of open space comprising Class 1 Open Space (c. 2.39 hectares in the western separate parcel of land), Public open space c.2.87 hectares, hard and soft landscaping (including public lighting & boundary treatment, ESB substations, bicycle and bin stores) and communal/semi-private open space for the proposed apartment units;
- Provision of surface water attenuation measures, connection to water supply, provision of foul drainage infrastructure (and Uisce Eireann diversion) to Uisce Eireann specifications and all ancillary site development, construction, and landscaping works including reprofiling of the site where required;
- The proposals will replace the previously permitted LRD under planning reg. ref. LRD0006/S3 & ACP Ref: 319343-24.

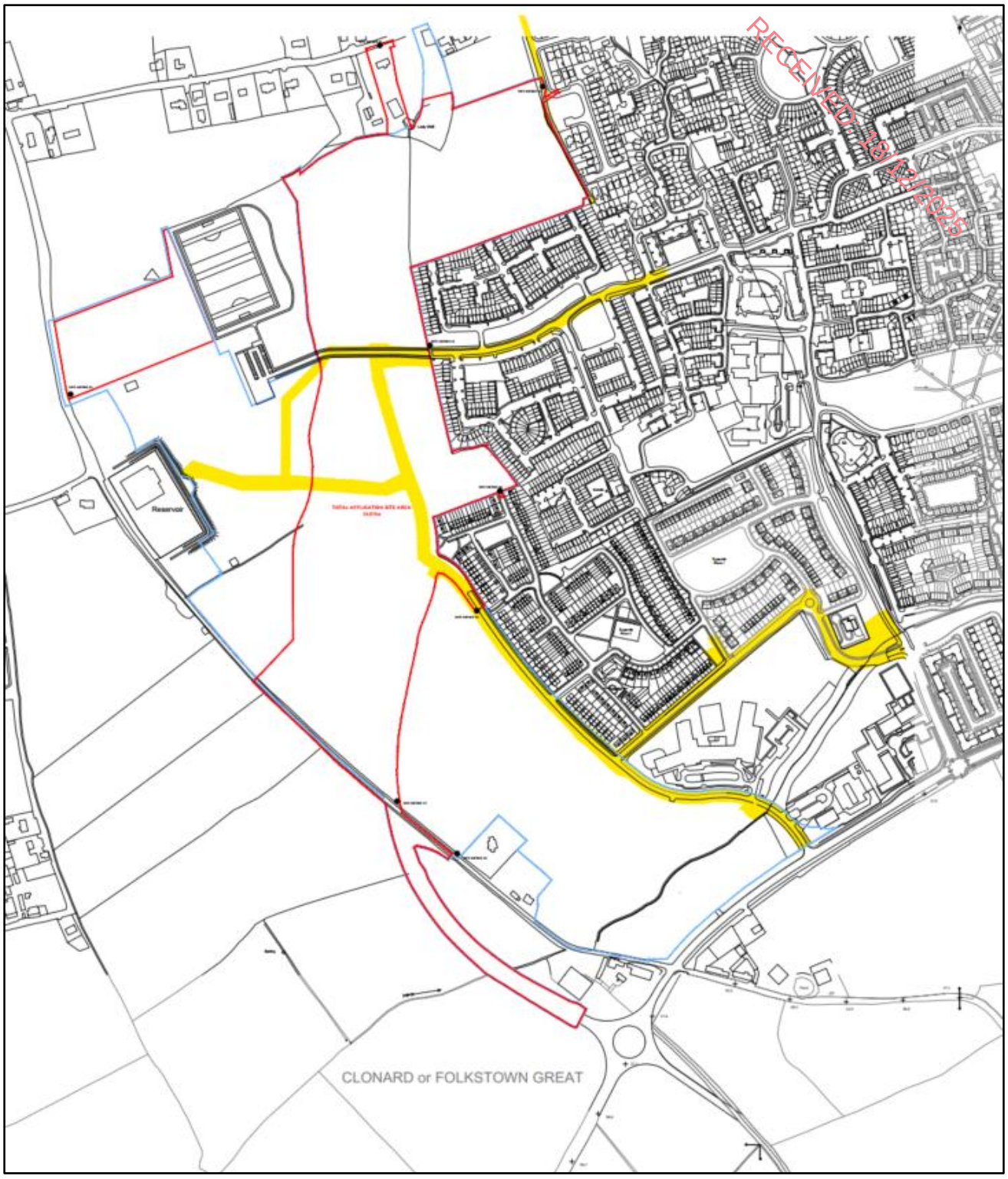

Figure 4.1 Proposed Development Site Location

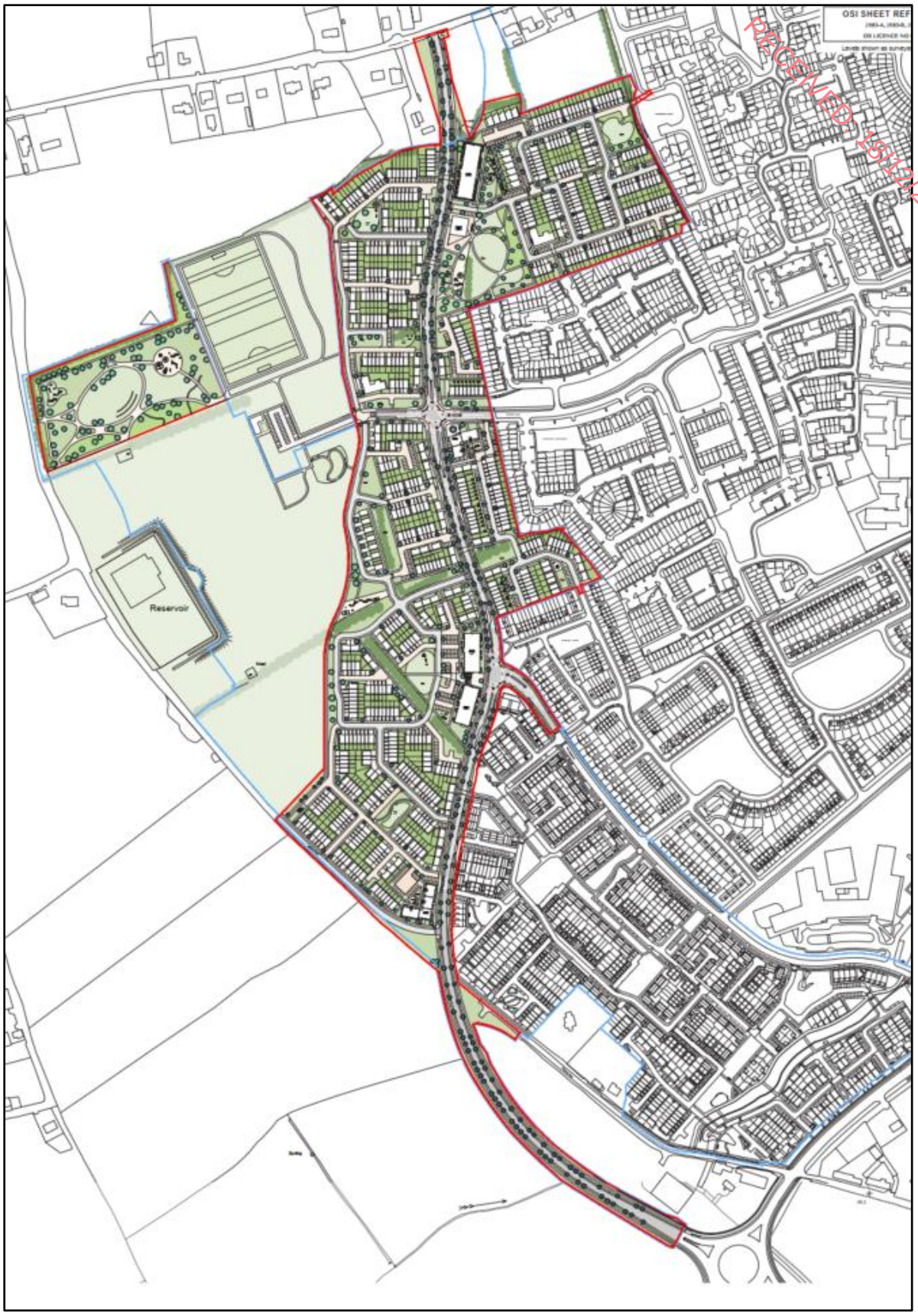

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Figure 4.2 Proposed Development Site Layout

4.2 Details of the Non-Hazardous Wastes to be Produced

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There will be waste materials generated from the demolition of the existing residential building and agricultural outbuilding on site, as well as from the further excavation of the building foundations. The volume of waste generated from demolition will be more difficult to segregate than waste generated from the construction phase, as many of the building materials will be bonded together or integrated i.e. plasterboard on timber ceiling joists, steel embedded in concrete, etc.

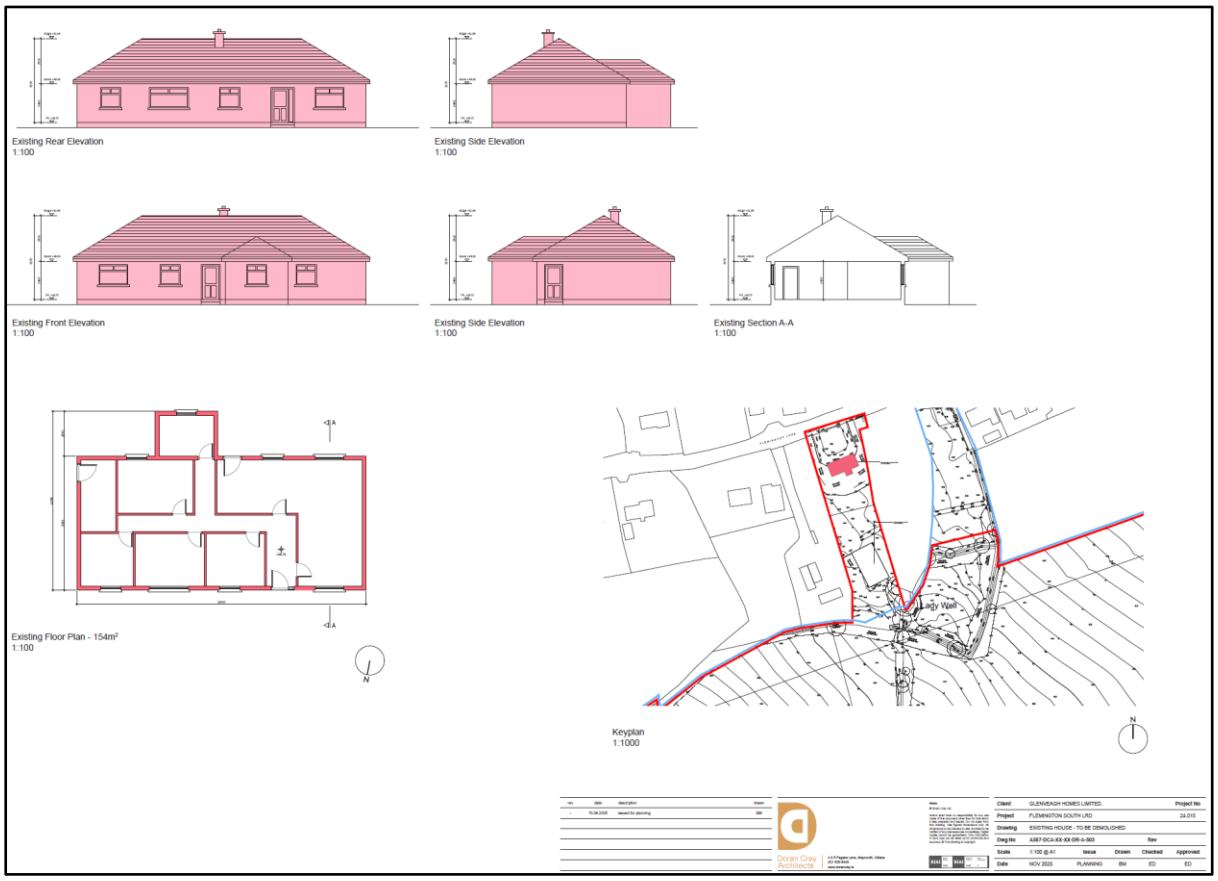

Figure 4.3 Proposed Demolition Layout

There will be soil, stones and clay excavated to facilitate construction of new foundations, underground services, and the installation of the proposed basements. The development engineers (Paul Mc Grail Civil & Structural Engineers) have estimated that c. 75,038m^3 of material will need to be excavated to do so. It is currently envisaged that c. 19,507m^3 excavated material will be able to be retained and reused onsite for landscaping and fill. The remaining c. 55,531m^3 of excavated material will need to be removed offsite for appropriate offsite reuse, recovery, recycling and / or disposal.

During the construction phase there may be a surplus of building materials, such as timber off-cuts, broken concrete blocks, cladding, plastics, metals and tiles generated. There may also be excess concrete during construction which will need to be disposed of. Plastic and cardboard waste from packaging and supply of materials will also be generated. The contractor will be required to ensure that oversupply of materials is kept to a minimum and opportunities for reuse of suitable materials is maximised.

Waste will also be generated from construction workers e.g. organic / food waste, dry mixed recyclables (waste paper, newspaper, plastic bottles, packaging, aluminium cans, tins and Tetra Pak cartons), mixed non-recyclables and potentially sewage sludge from temporary welfare facilities provided on site during

the construction phase. Waste printer / toner cartridges, waste electrical and electronic equipment (WEEE) and waste batteries may also be generated infrequently from site offices.

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4.3 Potential Hazardous Wastes Arising

4.3.1 Contaminated Soil

Initial site investigations and environmental soil testing were undertaken by Martin Peters Assoc Consulting Engineers in 2019.

Five samples of soil from the site were submitted for detailed environmental analysis to RILTA (WAC) parameters. Results are presented in the site investigations in Appendix IVB. The data confirms that the soil can be classified as INERT. No elevated contamination levels were found. Excavated material can safely be used within the site boundary or disposed of to a suitably licensed landfill facility.

If any potentially contaminated material is encountered, it will need to be segregated from clean / inert material, tested and classified as either non-hazardous or hazardous in accordance with the EPA publication entitled *'Waste Classification: List of Waste & Determining if Waste is Hazardous or Non-Hazardous'* [18] using the *HazWasteOnline* application (or similar approved classification method). The material will then need to be classified as clean, inert, non-hazardous or hazardous in accordance with the *EC Council Decision 2003/33/EC* [19], which establishes the criteria for the acceptance of waste at landfills.

In the event that Asbestos Containing Materials (ACMs) are found within the excavated material, the removal will only be carried out by a suitably permitted waste contractor, in accordance with *the Safety, Health and Welfare at Work (Exposure to Asbestos) Regulations 2006-2010* [20] *and the Best Practice Guidance for Handling Asbestos (2023)* [21]. All asbestos will be taken to a suitably licensed or permitted facility.

In the event that hazardous soil, or historically deposited waste is encountered during the demolition and construction phase, the contractor will notify FCC and provide a Hazardous / Contaminated Soil Management Plan, to include estimated tonnages, description of location, any relevant mitigation, destination for disposal / treatment, in addition to information on the authorised waste collector(s).

4.3.2 Fuel/Oils

Fuels and oils are classed as hazardous materials; any on-site storage of fuel / oil, and all storage tanks and all draw-off points will be bunded and located in a dedicated, secure area of the site. Provided that these requirements are adhered to and the site crew are trained in the appropriate refueling techniques, it is not expected that there will be any fuel / oil waste generated at the site.

4.3.3 Invasive Plant Species

Multiple site surveys were undertaken by (Altemer) between 2019 - 2025. This included a site walkover surveys of the entire site, and around part of the outside perimeter to search for any invasive species listed on the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended). No invasive plant species that could hinder removal of soil from the site during groundworks, such as Japanese knotweed, giant rhubarb, Himalayan balsam or giant hogweed were noted on site

4.3.4 Asbestos

An Asbestos refurbishment / demolition survey will be undertaken on the existing building prior to demolition. This work will be undertaken by a suitably qualified contractor.

If located onsite removal of asbestos or ACMs will be carried out by a suitably qualified contractor and ACMs will only be removed from site by a suitably permitted / licenced waste contractor, in accordance with the *Safety, Health and Welfare at Work (Exposure to Asbestos) Regulations 2006-2010 and the Best Practice Guidance for Handling Asbestos (2023).* All material will be taken to a suitably licensed or permitted facility.

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4.3.5 Other Known Hazardous Substances

Paints, glues, adhesives and other known hazardous substances will be stored in designated areas. They will generally be present in small volumes only and associated waste volumes generated will be kept to a minimum. Wastes will be stored in appropriate receptacles pending collection by an authorised waste contractor.

In addition, WEEE (containing hazardous components), printer toner / cartridges, batteries (Lead, Ni-Cd or Mercury) and / or fluorescent tubes and other mercury containing waste may be generated from during C&D activities or temporary site offices. These wastes, if generated, will be stored in appropriate receptacles in designated areas of the site pending collection by an authorised waste contractor.

5. ROLES AND RESPONSIBILITIES

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The *Best Practice Guidelines on the Preparation of Resource Waste Management Plans for Construction and Demolition Projects* promotes that a suitably qualified Resource Manager (RM) with expertise in waste and resource management to implement the RWMP should be appointed. The RM may be performed by number of different individuals over the life-cycle of the Project, however it is intended to be a reliable person chosen from within the Planning/Design/Contracting Team, who is technically competent and appropriately trained, who takes the responsibility to ensure that the objectives and measures within the Project RWMP are complied with. The RM is assigned the requisite authority to meet the objective and obligations of the RWMP. The role will include the important activities of conducting waste checks/audits and adopting construction and demolition methodology that is designed to facilitate maximum reuse and/or recycling of waste.

5.1 Role of the Client

The Client are the body establishing the aims and the performance targets for the project.

- The Client has commissioned the preparation and submission of this RWMP as part of the design and planning submission;
- The Client is to commission the preparation and submission of an updated RWMP as part of the demolition and construction tendering process;
- The Client will ensure that the RWMP is agreed on and submitted to the local authority and their agreement obtained prior to commencement of works on site;
- The Client will request the end-of-project RWMP from the Contractor.

5.2 Role of the Client Advisory Team

The Client Advisory Team or Design Team is formed of architects, consultants, quantity surveyors and engineers and is responsible for:

- Drafting and maintaining the RWMP through the design, planning and procurement phases of the project;
- Appointing a RM to track and document the design process, inform the Design Team and prepare the RWMP.
- Including details and estimated quantities of all projected waste streams with the support of environmental consultants/scientists. This will also include data on waste types (e.g. waste characterisation data, contaminated land assessments, site investigation information) and prevention mechanisms (such as by-products) to illustrate the positive circular economy principles applied by the Design Team;
- Managing and valuing the demolition work with the support of quantity surveyors;
- Handing over of the RWMP to the selected Contractor upon commencement of demolition and/or construction of the development, in a similar fashion to how the safety file is handed over to the Contractor;
- Working with the Contractor as required to meet the performance targets for the project.

5.3 Future Role of the Contractor

The future demolition and construction contractors have not yet been decided upon for this RWMP. However, once select they will have major roles to fulfil. They will be responsible for:

- Preparing, implementing and reviewing the (including the Pre-Demolition) RWMP throughout the demolition and construction phases (including the management of all suppliers and sub-contractors) as per the requirements of the EPA guidelines;

- Identifying a designated and suitably qualified RM who will be responsible for implementing the RWMP;
- Identifying all hauliers to be engaged to transport each of the resources / wastes off-site;
- Implementing waste management policies whereby waste materials generated on site are to be segregated as far as practicable;
- Renting and operating a mobile-crusher to crush concrete for temporary reuse onsite during demolition/construction and reduce the amount of HGV loads required to remove material from site;
- Applying for the appropriate waste permit to crush concrete onsite;
- Identifying all destinations for resources taken off-site. As above, any resource that is legally classified as a 'waste' must only be transported to an authorised waste facility;
- End-of-waste and by-product notifications addressed with the EPA where required;
- Clarification of any other statutory waste management obligations, which could include on-site processing;
- Full records of all resources (both wastes and other resources) will be maintained for the duration of the project; and
- Preparing a RWMP Implementation Review Report at project handover.

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6. KEY MATERIALS & QUANTITIES

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6.1 Project Resource Targets

Project specific resource and waste management targets for the site have not yet been set and this information will be updated for these targets once these targets have been confirmed by the client. However, it is expected for projects of this nature that a minimum of 70% of waste is fully re-used, recycled or recovered. Target setting will inform the setting of project-specific benchmarks to track target progress. Typical Key Performance Indicators (KPIs) that will be used to set targets include (as per guidelines):

- Weight (tonnes) or Volume (m^3) of waste generated per construction value;
- Weight (tonnes) or Volume (m^3) of waste generated per construction floor area (m^2);
- Fraction of resource reused on site;
- Fraction of resource notified as by-product;
- Fraction of waste segregated at source before being sent off-site for recycling/recovery; and
- Fraction of waste recovered, fraction of waste recycled, or fraction of waste disposed.

6.2 Main Construction and Demolition Waste Categories

The main non-hazardous and hazardous waste streams that could be generated by the demolition and construction activities at a typical site are shown in Table 6.1. The List of Waste (LoW) code (2018) for each waste stream is also shown.

Table 6.1 Typical waste types generated and LoW codes (individual waste types may contain hazardous substances)

Waste Material	LoW Code
Concrete, bricks, tiles, ceramics	17 01 01-03 & 07
Wood, glass and plastic	17 02 01-03
Treated wood, glass, plastic, containing hazardous substances	17-02-04*
Bituminous mixtures, coal tar and tarred products	17 03 01*, 02 & 03*
Metals (including their alloys) and cable	17 04 01-11
Soil and stones	17 05 03* & 04
Gypsum-based construction material	17 08 01* & 02
Paper and cardboard	20 01 01
Mixed C&D waste	17 09 04
Green waste	20 02 01
Electrical and electronic components	20 01 35 & 36
Batteries and accumulators	20 01 33 & 34
Liquid fuels	13 07 01-10
Chemicals (solvents, pesticides, paints, adhesives, detergents etc.)	20 01 13, 19, 27-30
Insulation materials	17 06 04
Organic (food) waste	20 01 08
Mixed Municipal Waste	20 03 01

* Individual waste type may contain hazardous substances

6.3 Demolition Waste Generation

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The demolition phase will involve the strip out and demolition of the existing residential building and agricultural outbuilding on site, as well as from the further excavation of the building foundations. The renovation areas are identified in the planning drawings provided with this application. The anticipated demolition waste and rates of reuse, recycling / recovery and disposal are shown in Table 6.1, below.

Table 6.2 Estimated off-site reuse, recycle and disposal rates for demolition waste

Waste Type	Tonnes	Reuse		Recycle / Recovery		Disposal	
		%	Tonnes	%	Tonnes	%	Tonnes
Glass	0.9	0	0.0	85	0.8	15	0.1
Concrete, Bricks, Tiles, Ceramics	47.1	85	40.1	5	2.4	10	4.7
Plasterboard	3.7	30	1.1	60	2.2	10	0.4
Asphalts	0.9	25	0.2	70	0.6	5	0.0
Metals	13.9	5	0.7	80	11.1	15	2.1
Slate	7.4	0	0.0	85	6.3	15	1.1
Timber	11.1	10	1.1	60	6.7	30	3.3
Total	**85.0**		**43.2**		**30.0**		**11.8**

6.4 Construction Waste Generation

Table 6.3 shows the breakdown of C&D waste types produced on a typical site based on data from the EPA *National Waste Reports* [22] *and the joint EPA & GMIT study* [23].

Table 6.3 Waste materials generated on a typical Irish construction site

Waste Types	%
Mixed C&D	33
Timber	28
Plasterboard	10
Metals	8
Concrete	6
Other	15
Total	100

Table 6.4, below, shows the estimated construction waste generation for the proposed Project based on the gross floor area of construction and other information available to date, along with indicative targets for management of the waste streams. The estimated amounts for the main waste types (with the exception of soils, stones and clay) are based on an average large-scale development waste generation rate per m^2, using the waste breakdown rates shown in Table 6.3. These have been calculated from the schedule of development areas provided by the architect.

Table 6.4 Predicted on and off-site reuse, recycle and disposal rates for construction waste

Waste Type	Tonnes	Reuse		Recycle / Recovery		Disposal	
		%	Tonnes	%	Tonnes	%	Tonnes
Mixed C&D	1290.6	10	129.1	80	1032.5	10	129.1
Timber	1095.0	40	438.0	55	602.3	5	54.8

Plasterboard	391.1	30	117.3	60	234.6	10	39.1
Metals	312.9	5	15.6	90	281.6	5	15.6
Concrete	117.3	30	35.2	65	76.3	5	5.9
Other	586.6	20	117.3	60	352.0	20	117.3
Total	**3793.5**		**852.6**		**2579.2**		**361.8**

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In addition to the waste streams in Table 6.4 There will be soil, stones and clay excavated to facilitate construction of new foundations, underground services, and the installation of the proposed basements. The development engineers (Paul Mc Grail Civil & Structural Engineers) have estimated that c. 75,038m^3 of material will need to be excavated to do so. It is currently envisaged that c. 19,507m^3 excavated material will be able to be retained and reused onsite for landscaping and fill. The remaining c. 55,531m^3 of excavated material will need to be removed offsite for appropriate offsite reuse, recovery, recycling and / or disposal.

It should be noted that until final materials and detailed construction methodologies have been confirmed, it is difficult to predict with a high level of accuracy the construction waste that will be generated from the proposed works as the exact materials and quantities may be subject to some degree of change and variation during the construction process.

6.5 Proposed Resource and Waste Management Options

Waste materials generated will be segregated on-site, where it is practical. Where the on-site segregation of certain wastes types is not practical, off-site segregation will be carried out. There will be skips and receptacles provided to facilitate segregation at source, where feasible. All waste receptacles leaving the site will be covered or enclosed. The appointed waste contractor will collect and transfer the wastes as receptacles are filled. There are numerous waste contractors in the Dublin region that provide this service.

All waste arisings will be handled by an approved waste contractor holding a current waste collection permit. All waste arisings requiring disposal off-site will be reused, recycled, recovered or disposed of at a facility holding the appropriate registration, permit or licence, as required.

National End-of-Waste Decision EoW-N001/2023 (Regulation 28) published by the EPA in September 2023, establishes criteria determining when recycled aggregate resulting from a recovery operation ceases to be waste. Material from this proposed development will be investigated to see if it can cease to be a waste under the requirements of the National End of Waste Criteria for Aggregates.

During demolition and construction, some of the sub-contractors on site will generate waste in relatively low quantities. The transportation of non-hazardous waste by persons who are not directly involved with the waste business, at weights less than or equal to 2 tonnes, and in vehicles not designed for the carriage of waste, are exempt from the requirement to have a waste collection permit (per Article 30 (1) (b) of the Waste Collection Permit Regulations 2007, as amended). Any sub-contractors engaged that do not generate more than 2 tonnes of waste at any one time can transport this waste off-site in their work vehicles (which are not designed for the carriage of waste). However, they are required to ensure that the receiving facility has the appropriate COR / permit / licence.

Written records will be maintained by the contractor(s), detailing the waste arising throughout the C&D phases, the classification of each waste type, waste collection permits for all waste contactors who collect waste from the site and COR / permit / licence for the receiving waste facility for all waste removed off-site for appropriate reuse, recycling, recovery and / or disposal.

Dedicated bunded storage containers will be provided for hazardous wastes which may arise, such as batteries, paints, oils, chemicals, if required.

The anticipated management of the main waste streams is outlined as follows:

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Soil, Stone and Clay

The waste hierarchy states that the preferred option for waste management is prevention and minimisation of waste, followed by preparing for reuse and recycling / recovery, energy recovery (i.e. incineration) and, least favoured of all, disposal. The excavations are required to facilitate construction works so the preferred option (prevention and minimisation) cannot be accommodated for the excavation phase.

When material is removed off-site it could be reused as a by-product (and not as a waste). If this is done, it will be done in accordance with Regulation 27 of the European Communities (Waste Directive) Regulations 2011, as amended, which requires that certain conditions are met and that by-product notifications are made to the EPA via their online notification form. Excavated material should not be removed from site until approval from the EPA has been received. The potential to reuse material as a by-product will be confirmed during the course of the excavation works, with the objective of eliminating any unnecessary disposal of material.

The next option (beneficial reuse) may be appropriate for the excavated material, pending environmental testing to classify the material as hazardous or non-hazardous in accordance with the EPA *Waste Classification – List of Waste & Determining if Waste is Hazardous or Non-Hazardous* publication. Clean inert material may be used as fill material in other construction projects or engineering fill for waste licensed sites. Beneficial reuse of surplus excavation material as engineering fill may be subject to further testing to determine if materials meet the specific engineering standards for their proposed end use.

Any nearby sites requiring clean fill/capping material will be contacted to investigate reuse opportunities for clean and inert material. If any of the material is to be reused on another site as a by-product (and not as a waste), this will be done in accordance with Regulation 27. Similarly, if any soils/stones are imported onto the site from another construction site as a by-product, this will also be done in accordance with Regulation 27. Regulation 27 will be investigated to see if the material can be imported onto this site for beneficial reuse instead of using virgin materials.

If the material is deemed to be a waste, then removal and reuse / recovery / disposal of the material will be carried out in accordance with the Waste Framework Directive (Directive 2008/98/EC), the *Waste Management Act 1996* as amended, the *Waste Management (Collection Permit) Regulations 2007* as amended and the *Waste Management (Facility Permit & Registration) Regulations 2007* as amended. Once all available beneficial reuse options have been exhausted, the options of recycling and recovery at waste permitted and licensed sites will be considered.

In the event that contaminated material is encountered and subsequently classified as hazardous, this material will be stored separately to any non-hazardous material. It will require off-site treatment at a suitable facility or disposal abroad via Transfrontier Shipment of Wastes (TFS).

Bedrock

While it is not envisaged that bedrock will be encountered, if bedrock is encountered, it is anticipated that it will not be crushed on site. Any excavated rock is expected to be removed off-site for appropriate reuse, recovery and / or disposal. If bedrock is to be crushed on-site, the appropriate mobile waste facility permit will be obtained from FCC.

Silt & Sludge

During the demolition and construction phase, silt and petrochemical interception will be carried out on run-off and pumped water from site works, where required. Sludge and silt will then be collected by a suitably licensed contractor and removed off-site.

Concrete Blocks, Bricks, Tiles & Ceramics

The majority of concrete blocks, bricks, tiles and ceramics generated as part of the demolition and construction works are expected to be clean, inert material and will be recycled, where possible. If concrete is to be crushed on-site, the appropriate mobile waste facility permit will be obtained from FCC.

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Hard Plastic

As hard plastic is a highly recyclable material, much of the plastic generated will be primarily from material off-cuts. All recyclable plastic will be segregated and recycled, where possible.

Timber

Timber that is uncontaminated, i.e. free from paints, preservatives, glues, etc., will be disposed of in a separate skip and recycled off-site.

Metal

Metals will be segregated, where practical, and stored in skips. Metal is highly recyclable and there are numerous companies that will accept these materials.

Plasterboard

There are currently a number of recycling services for plasterboard in Ireland. Plasterboard from the demolition and construction phases will be stored in a separate skip, pending collection for recycling. The site Manager will ensure that oversupply of new plasterboard is carefully monitored to minimise waste.

Glass

Glass materials will be segregated for recycling, where possible.

Waste Electrical & Electronic Equipment (WEEE)

Any WEEE will be stored in dedicated covered cages / receptacles / pallets pending collection for recycling.

Other Recyclables

Where any other recyclable wastes, such as cardboard and soft plastic, are generated, these will be segregated at source into dedicated skips and removed off-site.

Non-Recyclable Waste

C&D waste which is not suitable for reuse or recovery, such as polystyrene, some plastics and some cardboards, will be placed in separate skips or other receptacles. Prior to removal from site, the non-recyclable waste skip / receptacle will be examined by a member of the waste team (see Section 9.0) to determine if recyclable materials have been placed in there by mistake. If this is the case, efforts will be made to determine the cause of the waste not being segregated correctly and recyclable waste will be removed and placed into the appropriate receptacle.

Asbestos Containing Materials

Any asbestos or ACM found on-site will be removed by a suitably competent contractor and disposed of as asbestos waste before the demolition works begin. All asbestos removal work or encapsulation work must be carried out in accordance with the *Safety, Health and Welfare at Work (Exposure to Asbestos) Regulations 2006-2010.*

Other Hazardous Wastes

On-site storage of any hazardous wastes produced (i.e. contaminated soil if encountered and / or waste fuels) will be kept to a minimum, with removal off-site organised on a regular basis. Storage of all hazardous wastes on-site will be undertaken so as to minimise exposure to on-site personnel and the public and to also minimise potential for environmental impacts. Hazardous waste will be recovered, wherever possible, and failing this, disposed of appropriately.

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On-Site Crushing

It is currently not envisaged that the crushing of waste materials will occur on-site. However, if the crushing of material is to be undertaken, a mobile waste facility permit will first be obtained from FCC and the destination of the accepting waste facility or if an application under regulation 28 will be made using National End-of-Waste Decision EoW-N001/2023, will be supplied to the FCC waste unit.

It should be noted that until a demolition and construction contractors are appointed it is not possible to provide information on the specific destinations of each construction waste stream. Prior to commencement of construction and removal of any waste offsite, details of the proposed destination of each waste stream will be provided to FCC by the project team.

6.6 Tracking and Documentation Procedures for Off-Site Waste

All waste will be documented prior to leaving the site. Waste will be weighed by the contractor, either by a weighing mechanism on the truck or at the receiving facility. These waste records will be maintained on site by the nominated project RM (see Section 9.0).

All movement of waste and the use of waste contractors will be undertaken in accordance with the Waste Framework Directive (Directive 2008/98/EC), the *Waste Management Act 1996* as amended, *Waste Management (Collection Permit) Regulations 2007* as amended and *Waste Management (Facility Permit & Registration) Regulations 2007* and amended. This includes the requirement for all waste contractors to have a waste collection permit issued by the NWCPO. The nominated project RM (see Section 9.0) will maintain a copy of all waste collection permits on-site.

If the waste is being transported to another site, a copy of the Local Authority waste COR / permit or EPA Waste Licence for that site will be provided to the nominated project Waste Manager (see Section 9.0). If the waste is being shipped abroad, a copy of the Transfrontier Shipping (TFS) notification document will be obtained from DCC (as the relevant authority on behalf of all Local Authorities in Ireland) and kept on-site along with details of the final destination (COR, permits, licences, etc.). A receipt from the final destination of the material will be kept as part of the on-site waste management records.

All information will be entered in a waste management recording system to be maintained on-site.

7. ESTIMATED COST OF WASTE MANAGEMENT

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An outline of the costs associated with different aspects of waste management is outlined below. The total cost of C&D waste management will be measured and will take into account handling costs, storage costs, transportation costs, revenue from rebates and disposal costs.

7.1 Reuse

By reusing materials on site, there will be a reduction in the transport and recycle / recovery / disposal costs associated with the requirement for a waste contractor to take the material off-site. Clean and inert soils, gravel, stones, etc., which cannot be reused on-site may be used as access roads or capping material for landfill sites, etc. This material is often taken free of charge or at a reduced fee for such purposes, reducing final waste disposal costs.

7.2 Recycling

Salvageable metals will earn a rebate, which can be offset against the costs of collection and transportation of the skips.

Clean, uncontaminated cardboard and certain hard plastics can also be recycled. Waste contractors will charge considerably less to take segregated wastes, such as recyclable waste, from a site than mixed waste.

Timber can be recycled as chipboard. Again, waste contractors will charge considerably less to take segregated wastes, such as timber, from a site than mixed waste.

7.3 Disposal

Municipal landfill charges in Ireland are based on the weight of waste disposed. In the Leinster Region, charges are approximately €140 - €160 per tonne of waste which includes an €85 per tonne landfill levy introduced under the Waste Management (Landfill Levy) (Amendment) Regulations. The Circular Economy (Waste Recovery Levy) will also incur a levy of €10 per tonne for waste accepted for recovery. This will include backfilling at authorised recovery sites and at municipal waste landfills.

Collection of segregated C&D waste usually costs less than municipal waste. Specific C&D waste contractors take the waste off-site to a licensed or permitted facility and, where possible, remove salvageable items from the waste stream before disposing of the remainder to landfill. Clean soil, rubble, etc., is also used as fill / capping material, wherever possible.

8. DEMOLITION PROCEDURES

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The demolition stage will involve the demolition of the existing residential building and agricultural outbuilding on site, as well as from the further excavation of the building foundations. The demolition plans are identified in the planning drawings submitted as part of this application and in figure 4.3. A formal plan including safety procedures will be prepared by the demolition contractor. However, in general, the following sequence of works should be followed during the demolition stage:

Waste Reduction Assessment

- Preparation of a pre-demolition audit detailing resource recovery best practice, i.e. deconstruction and disassembly where feasible and practicable. The demolition audit will be informed by the *EU Guidelines for the waste audits before demolition and renovation works of buildings* (May 2018) [24].
- Investigate the reduction and recycling potential of deconstructed components, elements and materials within the new build if it will be compliance with functionality, regulatory and performance requirements. The reuse and recycling of deconstructed components, elements and materials will be carried out in compliance with relevant requirements relating to by-product, end-of-waste and waste data reporting.
- Reuse and recycle deconstructed components, elements and materials from other projects off-site if in compliance with functionality, regulatory and performance requirements. The reuse and recycling of deconstructed components, elements and materials must be carried out in compliance with relevant requirements relating to by-product, end-of-waste and waste data reporting.
- A specific audit for potentially hazardous material (asbestos, polychlorinated biphenyls (PCBs), persistent organic pollutants (POPs), etc.) and document procedures for removal of same prior to main demolition works will be undertaken.

Check for Hazards

Prior to commencing works, buildings and structures to be demolished will be checked for any likely hazards including asbestos, ACMs, electrical power lines or cables, gas reticulation systems, telecommunications, unsafe structures and fire / explosion hazards, e.g. combustible dust, chemical hazards, oil, fuels and contamination.

Removal of Components

All hazardous materials will be removed first. All components from within the buildings that can be salvaged will be removed next. This will primarily be comprised of metal; however, may also include timbers, doors, windows, wiring and metal ducting, etc.

Removal of Roofing

Steel roof supports, beams, etc., will be dismantled and taken away for recycling / salvage.

Excavation of Services, Demolition of Walls and Concrete

Services will be removed from the ground and the breakdown of walls will be carried out once all salvageable or reusable materials have been taken from the buildings. Finally, any existing foundations and hard standing areas will be excavated.

9. TRAINING PROVISIONS

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A member of the demolition and construction team will be appointed as the RM to ensure commitment, operational efficiency and accountability in relation to waste management during the C&D phases of development.

9.1 Resource Manager Training and Responsibilities

The nominated RM will be given responsibility and authority to select a waste team if required, i.e. members of the site crew that will aid them in the organisation, operation and recording of the waste management system implemented on site.

The RM will have overall responsibility to oversee, record and provide feedback to the client on everyday waste management at the site. Authority will be given to the Waste Manager to delegate responsibility to sub-contractors, where necessary, and to coordinate with suppliers, service providers and sub-contractors to prioritise waste prevention and material salvage.

The RM will be trained in how to set up and maintain a record keeping system, how to perform an audit and how to establish targets for waste management on site. The RM will also be trained in the best methods for segregation and storage of recyclable materials, have information on the materials that can be reused on site and be knowledgeable in how to implement this RWMP.

9.2 Site Crew Training

Training of site crew in relation to waste is the responsibility of the RM and, as such, a waste training program will be organised. A basic awareness course will be held for all site crew to outline the RWMP and to detail the segregation of waste materials at source. This may be incorporated with other site training needs such as general site induction, health and safety awareness and manual handling.

This basic course will describe the materials to be segregated, the storage methods and the location of the Waste Storage Areas (WSAs). A sub-section on hazardous wastes will be incorporated into the training program and the particular dangers of each hazardous waste will be explained.

10. TRACKING AND TRACING / RECORD KEEPING

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Records will be kept for all waste material which leaves the site, either for reuse on another site, recycling or disposal. A recording system will be put in place to record the waste arisings on site.

A waste tracking log will be used to track each waste movement from the site. On exit from the site, the waste collection vehicle driver will stop at the site office and sign out as a visitor and provide the security personnel or RM with a waste docket (or Waste Transfer Form (WTF) for hazardous waste) for the waste load collected. At this time, the security personnel will complete and sign the Waste Tracking Register with the following information:

- Date
- Time
- Waste Contractor
- Company waste contractor appointed by, e.g. Contractor or subcontractor name
- Collection Permit No.
- Vehicle Reg.
- Driver Name
- Docket No.
- Waste Type
- LoW
- Weight/Quantity
- Receiving waste facility details

The waste vehicle will be checked by security personal or the RM to ensure it has the waste collection permit no. displayed and a copy of the waste collection permit in the vehicle before they are allowed to remove the waste from the site.

The waste transfer dockets will be transferred to the RM on a weekly basis and can be placed in the Waste Tracking Log file. This information will be forwarded onto the FCC Waste Regulation Unit when requested.

Each subcontractor that has engaged their own waste contractor will be required to maintain a similar waste tracking log with the waste dockets / WTF maintained on file and available for inspection on site by the main contractor as required. These subcontractor logs will be merged with the main waste log.

Waste receipts from the receiving waste facility will also be obtained by the site contractor(s) and retained. A copy of the Waste Collection Permits, CORs, Waste Facility Permits and Waste Licences will be maintained on site at all times and will be periodically reviewed by the RM. Subcontractors who have engaged their own waste contractors, will provide the main contractor with a copy of the waste collection permits and COR / permit / licence for the receiving waste facilities and maintain a copy on file, available for inspection on site as required.

11. OUTLINE WASTE AUDIT PROCEDURE

RECEIVED: 18/12/2025

11.1 Responsibility for Waste Audit

The appointed RM will be responsible for conducting a waste audit at the site during the C&D phase of the proposed Project. Contact details for the nominated RM will be provided to the FCC Waste Regulation Unit after the main contractor is appointed and prior to any material being removed from site.

11.2 Review of Records and Identification of Corrective Actions

A review of all waste management costs and the records for the waste generated and transported off-site will be undertaken mid-way through the demolition and construction phase of the proposed Project.

If waste movements are not accounted for, the reasons for this will be established in order to see if and why the record keeping system has not been maintained. The waste records will be compared with the established recovery / reuse / recycling targets for the site. Each material type will be examined, in order to see where the largest percentage waste generation is occurring. The waste management methods for each material type will be reviewed in order to highlight how the targets can be achieved.

Upon completion of the C&D phase, a final report will be prepared, summarising the outcomes of waste management processes adopted and the total recycling / reuse / recovery figures for the development.

11.3 Pest Management

A pest control operator will be appointed as required to manage pest onsite during the demolition and construction phases of the project. Organic and food wastes generated by staff will not be stored in open skips, but in closed waste receptacles. Any waste receptacles will be carefully managed to prevent leaks, odours and pest problems.

12. CONSULTATION WITH RELEVANT BODIES

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12.1 Local Authority

Once demolition and construction contractors have been appointed and have appointed waste contractors, and prior to removal of any C&D waste materials off-site, details of the proposed destination of each waste stream will be provided to the FCC Waste Regulation Unit.

FCC will also be consulted, as required, throughout the demolition and construction phases in order to ensure that all available waste reduction, reuse and recycling opportunities are identified and utilised and that compliant waste management practices are carried out.

12.2 Recycling / Salvage Companies

The appointed waste contractor for the main waste streams managed by the demolition and construction contractors will be audited in order to ensure that relevant and up-to-date waste collection permits and facility registrations / permits / licences are held. In addition, information will be obtained regarding the feasibility of recycling each material, the costs of recycling / reclamation, the means by which the wastes will be collected and transported off-site, and the recycling / reclamation process each material will undergo off-site.

13. SUMMARY AND CONCLUSION

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Adherence to this plan will also ensure that waste management during the demolition and construction phase at the proposed development is carried out in accordance with the requirements of the EPA's Best Practice Guidelines for the Preparation of Resource & Waste Management Plans for Construction & Demolition Projects and the FCC Waste Bye-Laws and the NWMPCE.

14. REFERENCES

RECEIVED: 18/12/2025

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2. Environmental Protection Agency Act 1992 as amended.
3. Litter Pollution Act 1997 (S.I. No. 12 of 1997) as amended
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5. Department of Environment and Local Government (DoELG) *Waste Management – Changing Our Ways, A Policy Statement* (1998).
6. Forum for the Construction Industry – *Recycling of Construction and Demolition Waste.*
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8. DCCAE, *Whole of Government Circular Economy Strategy 2022-2023 'Living More, Using Less'* (2021)
9. Circular Economy and Miscellaneous Provisions Act 2022.
10. Environmental Protection Agency (EPA) *'Best Practice Guidelines for the Preparation of Resource and Waste Management Plans for Construction & Demolition Projects' (2021)*
11. Department of Environment, Heritage and Local Government, *Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects* (2006).
12. Department of Housing, Local Government and Heritage authored *Sustainable Residential Development and Compact Settlements - Guidelines for Planning Authorities (2024)*
13. FÁS and the Construction Industry Federation (CIF), *Construction and Demolition Waste Management – a handbook for Contractors and site Managers* (2002).
14. Waste Management (Landfill Levy) Regulations 2015 (as amended)
15. Circular Economy (Waste Recovery Levy) Regulations 2024
16. Fingal County Council (FCC)*, Fingal County Development Plan 2023 – 2029* (2023).
17. Planning and Development Act 2000 (S.I. No. 30 of 2000) as amended
18. EPA, *Waste Classification – List of Waste & Determining if Waste is Hazardous or Non-Hazardous* (2018)
19. Council Decision 2003/33/EC, establishing criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 of and Annex II to Directive 1999/31/EC.
20. Local Government Ireland, *Best practice guidance for handling asbestos (2023)*
21. Environmental Protection Agency (EPA), National Waste Database Reports 1998 – 2020 and the Circular Economy and National Waste Database Report 2021 – 2022 (2024)
22. EPA and Galway-Mayo Institute of Technology (GMIT), *EPA Research Report 146 – A Review of Design and Construction Waste Management Practices in Selected Case Studies – Lessons Learned* (2015).
23. European Commission, *Guidelines for the waste audits before demolition and renovation works of buildings* (May 2018).

APPENDIX A. WASTE FACILITIES IN THE DUBLIN AREA

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A full list of currently licensed waste facilities that can potentially be used for this development can be found on the National Waste Collection Permit Office Website - https://facilityregister.nwcpo.ie/.

Authorisation Reference	Name	Trading As	Address
WFP-DC-20-0054-01	Shanowen Plant Hire Ltd - Mobile Plant		Various Sites Various Sites Various Sites
WFP-DC-20-0053-01	Loftus Demolition & Recycling Ltd - Mobile PLant		Various Sites Various Sites Various Sites Various Sites
WFP-DC-20-0055-01	Padraig Thornton Waste Disposal Ltd	Thornton's Recycling	Unit S3A Henry Road Park West Business Park Dublin 12
WFP-DC-09-0015-03	Chevron Environmental Ltd	Electronic Recycling	Unit 20 Jamestown Business Park Jamestown Road Finglas D11 X2HN
WFP-DC-11-0023-03	Padraig Thornton Waste Disposal Ltd (PTWDL)	Thornton's Recycling	Unit 6 S3B Henry Road Park West Business Park D12 KT91
COR-DC-21-0010-01	Fridge Spares Wholesale Ltd		Unit 15, Blackwater Road Dublin Industrial Estate Glasnevin Dublin 11 D11 YK26
WFP-DC-11-0022-03	Dawnlane Limited	Mullen Scrap	31 & 32 Upper Clanbrassil Street Dublin 8 D08 XY92
WFP-DC-11-0025-03	Rehab Enterprises Limited	Rehab Recycle	The Rehab Building Kylemore Road Ballyfermot Dublin 10 D10 Y443
WFP-DC-11-0027-03	Tom Murphy Recovery & Towing Services Ltd		Block 4, Unit 24 Port Tunnel Business Park Clonshaugh Industrial Estate Dublin 17
WFP-DC-22-0059-01	Derek Beahan Limited	Derek Beahan Recovery	Unit 7 Concorde Industrial Estate Naas Road Dublin 12 D12 YD30
COR-DC-22-0011-01	Soaktech Limited		Unit 16, Butterly Business Park Kilmore Road Artane Dublin 5, D05 X079
WFP-DC-22-0060-01	Edward O'Reilly	E.O'Reilly Recycling	92E Fairview Strand Ballybough Dublin 3
WFP-DC-10-0021-04	Padraig Thornton Waste Disposal Ltd	Thornton's Recycling	Unit 51 Henry Road Park West Business Park Dublin 12 D12 FH68
WFP-DC-11-0028-03	Mitchell Taylor (Exports) Limited	MT oils	The Old Brewery Newmarket Dublin 8 D08 FPF6
WFP-DC-18-0045-02	J. Ryan Haulage Limited - Mobile Plant		Former Bailey Gibson Site 326-328 South Circular Road Dublin 8 D08 N8X6

Authorisation Reference	Name	Trading As	Address
WFP-DC-10-0018-03	Summerhill Spares Limited		Unit 3 Newtown Industrial Estate Malahide Road Coolock Dublin 17 D17 VY80
WFP-DC-10-0020-03	Everyday Waste & Skiphire	All Away Recycling	84E Pigeon House Road Ringsend Dublin 4 D04 R7N0
WFP-DC-23-0061-01	Wills Bros Limited		Terminal 4 North Lands, Dublin Port (bounded by Bond Road, Tolka Quay Road & Promenade Road) Dublin 1
WFP-DC-24-0062-01	Tinnelly Group	John Tinnelly & Sons Ireland Limited	Unit 5B, Unit 5H Fingal Bay Business Park Co. Dublin K32 NY57
WFP-DC-24-0063-01	Micks Recycling Limited	Micks Skips	Unit 3a Ballyboggan Business Centre Glasnevin Dublin 11
WFP-DC-19-0048-02	Sunflower Recycling Company (Limited by Guarantee)		Shamrock Terrace Five Lamps, North Strand Dublin 1 D01 DX67
WFP-DC-08-0002-04	G & T McGoverns Ltd		2-4, 9 & 12 Prices Lane Rear 31 Ranelagh Road Ranelagh Dublin 6
WFP-DC-22-0056-01 (T)	Dembachel Ltd.		Kylemore Business Park 2 Kylemore Way Inchicore Dublin 8
WFP-DC-25-0064-01	Martin Services (Industrial) Ltd		Unit 10/11 Bluebell Business Park Bluebell, Old Naas Road Dublin 12 D12 W995

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OPERATIONAL Waste Management Plan (OWMP)

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REPORT

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Operational Waste Management Plan

Project Title: Flemington South LRD

Appendix 12.2

CLIENT	DOCUMENT REFERENCE	DATE
Glenveagh Homes Limited	257501.5333WMR01	08/12/2025

AWN Consulting Ltd, The Tecpro Building, IDA Business & Technology Park, Clonshaugh, Dublin 17, D17 XD90

DOCUMENT CONTROL SHEET

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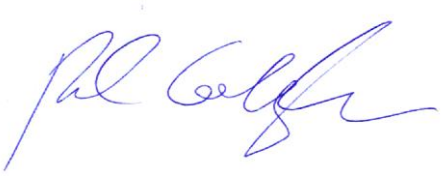
Document Control Sheet	
Our Reference	257501.5333WMR01
Original Issue Date	8/12/2025
Client:	Glenveagh Homes Limited
Client Address:	Block C, Maynooth Business Campus, Maynooth, Co. Kildare

Revision	Revision Date	Description

Details	Written by	Approved by
Signature		
Name	Chonaill Bradley	Fergal Callaghan
Title	Associate	Director
Date	20/11/2025	20/11/2025

Disclaimer
This report considers the specific instructions and requirements of our client. It is not intended for third-party use or reliance, and no responsibility is accepted for any third party. The provisions in this report apply solely to this project and should not be assumed applicable to other developments without review and modification.

ENVIRONMENT
I.S. EN ISO 14001:2015
NSAI Certified

HEALTH & SAFETY
I.S. ISO 45001:2018
NSAI Certified

QUALITY
I.S. EN ISO 9001:2015
NSAI Certified

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1. INTRODUCTION

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AWN Consulting, a Trinity Consultants Company, has prepared this Operational Waste Management Plan (OWMP) on behalf of Glenveagh Homes Limited. The proposed development located at a site off Flemington Lane, within the townlands of 'Clonard or Folkstown Great', and 'Flemingtown', Balbriggan, Co. Dublin. Will primarily consist of the construction of 815 no. dwellings (610 no. houses, 194 apartments & 11 no. later living dwellings), a portion of the C-Ring Road, open space, community building/retail floorspace and 2 no. creches on an overall site area of 24.91 hectares.

This OWMP has been prepared to ensure that the management of waste during the operational phase of the proposed Development is undertaken in accordance with the current legal and industry standards including, the *Waste Management Act 1996 as amended* and associated Regulations [1], *Environmental Protection Agency Act 1992 as amended* [2], *Litter Pollution Act 1997 as amended* [3], the *National Waste Management Plan for a Circular Economy 2024 - 2030* (NWMPCE) (2024) [4] and *Fingal County Council Segregation Storage, Presentation and of Household and Commercial Waste* (2020) [5]. In particular, this OWMP aims to provide a robust strategy for the storage, handling, collection and transport of the wastes generated at site.

This OWMP aims to ensure maximum recycling, reuse and recovery of waste with diversion from landfill, wherever possible. The OWMP also seeks to provide guidance on the appropriate collection and transport of waste to prevent issues associated with litter or more serious environmental pollution (e.g. contamination of soil or water resources). The plan estimates the type and quantity of waste to be generated from the proposed development during the operational phase and provides a strategy for managing the different waste streams.

At present, there are no specific national guidelines in Ireland for the preparation of OWMPs. Therefore, in preparing this document, consideration has been given to the requirements of national and regional waste policy, legislation and other guidelines.

2. OVERVIEW OF WASTE MANAGEMENT IN IRELAND

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2.1 National level

The Irish Government issued a policy statement in September 1998 entitled *'Changing Our Ways'* [6], which identified objectives for the prevention, minimisation, reuse, recycling, recovery and disposal of waste in Ireland. A heavy emphasis was placed on reducing reliance on landfill and finding alternative methods for managing waste. Amongst other things, Changing Our Ways stated a target of at least 35% recycling of municipal (i.e. household, commercial and non-process industrial) waste.

A further policy document, '*Preventing and Recycling Waste – Delivering Change'* [7] was published in 2002. This document proposed a number of programmes to increase recycling of waste and allow diversion from landfill. The need for waste minimisation at source was considered a priority.

This view was also supported by a review of sustainable development policy in Ireland and achievements to date, which was conducted in 2002, entitled 'Making Irelands Development Sustainable – Review, Assessment and Future Action' [8]. This document also stressed the need to decouple economic growth and waste generation, again through waste minimisation and reuse of discarded material.

In order to establish the progress of the Government policy document Changing Our Ways, a review document was published in April 2004 entitled '*Taking Stock and Moving Forward'* [9]. Covering the period 1998 – 2003, the aim of this document was to assess progress to date with regard to waste management in Ireland, to consider developments since the policy framework and the local authority waste management plans were put in place, and to identify measures that could be undertaken to further support progress towards the objectives outlined in *Changing Our Ways*.

In particular, *Taking Stock and Moving Forward* noted a significant increase in the amount of waste being brought to local authority landfills. The report noted that one of the significant challenges in the coming years was the extension of the dry recyclable collection services.

In September 2020, the Irish Government published a new policy document outlining a new action plan for Ireland to cover the period of 2020-2025. This plan *'A Waste Action Plan for a Circular Economy'* [10] (WAPCE), was prepared in response to the 'European Green Deal' which sets a roadmap for a transition to a new economy, where climate and environmental challenges are turned into opportunities, replacing the previous national waste management plan *"A Resource Opportunity"* (2012).

The WAPCE sets the direction for waste planning and management in Ireland up to 2025. This reorientates policy from a focus on managing waste to a much greater focus on creating circular patterns of production and consumption. Other policy statements of a number of public bodies already acknowledge the circular economy as a national policy priority.

The policy document contains over 200 measures across various waste areas including circular economy, municipal waste, consumer protection and citizen engagement, plastics and packaging, construction and demolition, textiles, green public procurement and waste enforcement.

One of the first actions to be taken was the development of the Whole of Government Circular Economy Strategy 2022-2023 '*Living More, Using Less'* (2021) [11] to set a course for Ireland to transition across all sectors and at all levels of Government toward circularity and was issued in December 2021. It is anticipated that the Strategy will be updated in full every 18 months to 2 years.

The Circular Economy and Miscellaneous Provisions Act 2022 [12] was signed into law in July 2022. The Act underpins Ireland's shift from a "take-make-waste" linear model to a more sustainable pattern of production and consumption, that retains the value of resources in our economy for as long as possible and that will to significantly reduce our greenhouse gas emissions. The Act defines Circular Economy for

the first time in Irish law, incentivises the use of recycled and reusable alternatives to wasteful, single-use disposable packaging, introduces a mandatory segregation and incentivised charging regime for commercial waste, streamlines the national processes for End-of-Waste and By-Products decisions, tackling the delays which can be encountered by industry, and supporting the availability of recycled secondary raw materials in the Irish market, and tackles illegal fly-tipping and littering.

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The Department of Housing, Local Government and Heritage authored *Sustainable Residential Development and Compact Settlements - Guidelines for Planning Authorities* (2024) [13], suggests the below thresholds at which the need for the supplemental information such as the OWMP should be considered.

- *30 or more residential units*

Since 1998, the Environmental Protection Agency (EPA) has produced periodic '*National Waste (Database) Reports*' which as of 2023 have been renamed *Circular Economy and Waste Statistics Highlight Reports*[14] detailing, among other things, estimates for household and commercial (municipal) waste generation in Ireland and the level of recycling, recovery and disposal of these materials. The 2024 National Circular Economy and Waste Statistics web resource, which is the most recent study published, along with the national waste statistics web resource (2024) reported the following key statistics for 2022:

- ***Generated*** *– Ireland produced 3,190,000 t of municipal waste in 2022. This is a slight increase since 2021. Of this, 55% came from households and 45% came from commercial and public service sources.*
- ***Managed*** *–In 2022, a total of 1.76 million Household waste collected and treated by the waste industry.*
- ***Unmanaged*** *– An estimated 36,970 tonnes of household waste was unmanaged waste i.e., not disposed of in the correct manner in 2022.*
- ***Recovered*** *– A rounded 1.3 million tonnes of Ireland's municipal waste went for incineration with energy recovery in 2022. This tonnage is 43% of municipal waste managed and a marginal increase on the 42% achieved in 2021.*
- ***Recycled*** *–Some 1.3 million tonnes of municipal waste generated in Ireland was recycled in 2022, resulting in a recycling rate of 41% . This indicates that we face significant challenges to meet the upcoming EU recycling targets for 2025 to 2035*
- *Of the municipal waste recycled in 2022, over 825,000 tonnes went for material recycling (approximately the same as 2021) and over 480,000 tonnes were treated by composting/anaerobic digestion (approximately the same as 2021 but up 37% on 2020). The large increase of composted/anaerobically digested biowaste from 2020 is mainly due to a change in our way of estimating home composting.*
- ***Disposed*** *– Ireland's landfill rate for municipal waste managed was 15% in 2022. This is a 1% decrease from 2021's rate of 16%.*
- ***Reuse*** *– 54,800 tonnes of second-hand products we estimated by the EPA to have been reused in Ireland in 2021. The average annual Reuse rate per person in Ireland is 10.6 kg per person.*

2.2 Regional Level

The proposed Development is located in the Local Authority administrative area of Fingal County Council (FCC).

The Eastern Midlands Region (EMR) Waste Management Plan 2015 – 2021, which previously governed waste management policy in the DLRCC area, has been superseded as of March 2024 by the NWMPCE 2024 – 2030, the new national waste management plan for Ireland.

The NWMPCE does not dissolve the three regional waste areas. The NWCPCE sets the ambition of the plan to have a 0% total waste growth per person over the life of the Plan with an emphasis on non-household wastes including waste from commercial activities and the construction and demolition sector. This Plan seeks to influence sustainable consumption and prevent the generation of waste, improve the capture of materials to optimise circularity and enable compliance with policy and legislation.

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This Plan seeks to influence sustainable consumption and prevent the generation of waste, improve the capture of materials to optimise circularity and enable compliance with policy and legislation.

The national plan sets out the following strategic targets for waste management in the country that are relevant to the development:

National Targets

1A. (Residual Municipal Waste) 6% Reduction in Residual Municipal Waste per person by 2030

2A. (Contamination of Materials) 90% of Material in Compliance in the Dry Recycling Bin

2B. (Material Compliance Residual) 10% per annum increase in Material Compliance in the residual bin. (90% by the end of 2030)

3A. (Reuse of Materials) 20kg Per person / year – Reuse of materials like cloths or furniture to prevent waste.

Municipal landfill charges in Ireland are based on the weight of waste disposed. In the Leinster Region, charges are approximately €140-160 per tonne of waste, which includes a €85 per tonne landfill levy introduced under the Waste Management (Landfill Levy) (Amendment) Regulations 2015. *The Circular Economy (Waste Recovery Levy) Regulations 2024* [15] will also incur a levy of €10 per tonne for waste accepted for recovery. This will include backfilling at authorised recovery sites and at municipal waste landfills.

The *Fingal Development Plan 2023 – 2029* [16] (2023) sets out a number of policies and objectives for the Fingal region in line with the objectives of the regional waste management plan, including the following:

- *Objective **IUO34** – Waste Management in New Developments - Require the provision of appropriate, well designed, accessible space to support the storage, separation and collection of as many waste and recycling streams as possible in all new commercial and residential developments within the County.*

- *Objective **DMSO234 –** Provision of Public Bring Banks - Ensure the provision of public bring banks in all large retail developments, unless there are existing facilities within a 1 km radius. Bring bank facilities will generally be required at appropriate locations in the following development types:*

  - *In conjunction with significant new commercial developments, or extensions to existing developments.*
  - *In conjunction with new waste infrastructure facilities, proposals should include bring facilities for the acceptance of non-hazardous and hazardous wastes from members of the public and small businesses.*
  - *In conjunction with medium and large scale residential and mixed-use developments providing in excess of 10 residential units, proposals should provide recycling and bring bank facilities to serve residents and in some appropriate locations, the wider community.*

- *In conjunction with all large retail developments provide space for reverse vending machines to promote the circular economy.*

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- *Objective **DMSO235** – Communal Refuse Storage Provision - In the case of communal refuse storage provision, the collection point for refuse should be accessible both to the external collector and to the resident and be secured against illegal dumping by non-residents. In the case of individual houses, the applicant shall clearly show within a planning application the proposed location and design of bin storage to serve each dwelling, and having regard to the number of individual bins required to serve each dwelling at the time of the application and any possible future requirements for refuse storage/collection. The following criteria will be considered in the assessment of the design and siting of waste facilities and bring facilities:*

  - *The location and design of any refuse storage or recycling facility should ensure that it is easily accessible both for residents and/or public and for bin collection, be insect and vermin proofed, will not present an odour problem, and will not significantly detract from the residential amenities of adjacent property or future occupants.*
  - *Provision for the storage and collection of waste materials shall be in accordance with the guidelines for waste storage facilities in the relevant Regional Waste Management Plan and the design considerations contained in Section 4.8 and 4.9 of the Sustainable Urban Housing: Design Standards for New Apartments Guidelines for Planning Authorities, DHLGH (2020).*
  - *Refuse storage for houses should be externally located, concealed / covered and adequate to cater for the size and number of bins normally allocated to a household. For terraced houses, the most appropriate area for bins to be stored is to the front of the house, which should be located in well-designed enclosures that do not to detract from visual amenity.*
  - *All applications shall clearly identify the waste storage and collection points and detail the anticipated waste collection schedule having regard to the impact on road users both within the development and the surrounding area.*
  - *Access to private waste storage in residential schemes should be restricted to residents only.*

- *Objective DMSO236 – Segregation and Collection of Waste - Ensure all new large-scale residential and mixed-use developments include appropriate facilities for source segregation and collection of waste.*

- *Objective DMSO237 – Distance from Front Door to Communal Bin Area - Ensure all new residential schemes include appropriate design measures for refuse storage areas, details of which should be clearly shown at pre-planning and planning application stage. Ensure refuse storage areas are not situated immediately adjacent to the front door or ground floor window, unless adequate screened alcoves or other such mitigation measures are provided.*

- *Objective DMSO239 – Refuse storage areas - Ensure all new residential schemes include appropriate design measures for refuse storage areas, details of which should be clearly shown at pre-planning and planning application stage. Ensure refuse storage areas are not situated immediately adjacent to the front door or ground floor window, unless adequate screened or other such mitigation measures are provided.*

- *Objective DMSO240 – Distance to Communal Bin Areas - Ensure the maximum distance between the front door to a communal bin area does not exceed 50 metres.*

2.3 Legislative Requirements

The primary legislative instruments that govern waste management in Ireland and applicable to the proposed Development are:

- *Waste Management Act 1996 as amended;*
- *Environmental Protection Agency Act 1992 as amended;*
- *Litter Pollution Act 1997 as amended;*
- *Planning and Development Act 2000 as amended* [17]*;* and
- *Circular Economy and Miscellaneous Provisions Act 2022.*

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These Acts and subordinate Regulations transpose the relevant European Union Policy and Directives into Irish law.

One of the guiding principles of European waste legislation, which has in turn been incorporated into the Waste Management Act 1996 as amended and subsequent Irish legislation, is the principle of "Duty of Care". This implies that the waste producer is responsible for waste from the time it is generated through until its legal disposal (including its method of disposal). As it is not practical in most cases for the waste producer to physically transfer all waste from where it is produced to the final disposal area, waste contractors will be employed to physically transport waste to the final waste disposal site.

It is, therefore, imperative that the residents, commercial unit tenants and the proposed facilities management company undertake on-site management of waste in accordance with all legal requirements and that the facilities management company employ suitably permitted / licenced contractors to undertake off-site management of their waste in accordance with all legal requirements. This includes the requirement that a waste contactor handle, transport and reuse / recover / recycle / dispose of waste in a manner that ensures that no adverse environmental impacts occur as a result of any of these activities.

A collection permit to transport waste must be held by each waste contractor which is issued by the National Waste Collection Permit Office (NWCPO). Waste receiving facilities must also be appropriately permitted or licensed. Operators of such facilities cannot receive any waste, unless in possession of a Certificate of Registration (COR) or waste permit granted by the relevant Local Authority under the Waste Management (Facility Permit & Registration) Regulations 2007, as amended, or a Waste Licence granted by the EPA. The COR / permit / licence held will specify the type and quantity of waste able to be received, stored, sorted, recycled, recovered and / or disposed of at the specified site.

2.3.1 Fingal County Council Waste Management Bye-Laws

The FCC "Fingal County Council (Segregation Storage, Presentation and of Household and Commercial Waste) Bye-Laws (2020)" came into use on the 1st of April 2020. These bye-laws repeal the previous 'Fingal County Council *Bye-Laws for the Storage, Presentation and Collection of Household Waste (2006)'.* The Bye-Laws set a number of enforceable requirements on waste holders with regard to storage, separation and presentation of waste within the FCC functional area. Key requirements under these Bye-Laws of relevance to the development include the following

- *Kerbside waste presented for collection shall not be presented for collection earlier than 6.00 pm on the day immediately preceding the designated waste collection day;*
- *All containers used for the presentation of kerbside waste and any uncollected waste shall be removed from any roadway, footway, footpath or any other public place no later than 9:00am on the day following the designated waste collection day, unless an alternative arrangement has been approved in accordance with bye-law 4;*
- *Documentation, including receipts, is obtained and retained for a period of no less than one year to provide proof that any waste removed from the premises has been managed in a manner that conforms to these bye-laws, to the Waste Management Act and, where such legislation is applicable to that person, to the European Union (Household Food Waste and Bio-Waste) Regulations 2015; and*
- *Adequate access and egress onto and from the premises by waste collection vehicles is maintained.*

The full text of the Waste Bye-Laws is available from the FCC website.

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2.4 Regional Waste Management Service Providers and Facilities

Various contractors offer waste collection services for the residential sector in the FCC region. Details of waste collection permits (granted, pending and withdrawn) for the region are available from the NWCPO.

As outlined in the regional waste management plan, there is a decreasing number of landfills available in the region. Only three municipal solid waste landfills remain operational and all are operated by the private sector. There are a number of other licensed and permitted facilities in operation in the region including waste transfer stations, hazardous waste facilities and integrated waste management facilities. There are two existing thermal treatment facilities, one in Duleek, Co. Meath and a second in Poolbeg in Dublin.

The Estuary Recycling Centre at Seatown Park, Swords, Dublin, K67V003, located c. 18.3 km to the south of the development site, which can be utilised by the residents of the proposed development for other household waste streams while a bottle bank can be found c. 1.8 km to the south east at the Millfield Shopping Centre, Naul Rd, Tankardstown, Balbriggan, Co. Dublin.

A copy of all CORs and waste permits issued by the Local Authorities are available from the NWCPO website and all Waste Licenses issued are available from the EPA.

3. DESCRIPTION OF THE DEVELOPMENT

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3.1 Location, Size and Scale of the Development

Glenveagh Homes Limited., intend to apply for a 10 year planning permission for development of a Large-Scale Residential Development (LRD) at this site to the south of Flemington Lane, within the townlands of 'Clonard or Folkstown Great', and 'Flemingtown', Balbriggan, Co. Dublin; bounded generally by the rear of dwellings along Flemington Lane to the north, the R122 roundabout and "Ladywell" Phases 3 and 4/"Taylors Hill" to the south, Breamore Pastures Drive/Park & Flemington Park to the east and local road L1130 to the west all on lands with an overall area of c. 24.91 hectares on 2 no. parcels of land.

The development will consist of the construction of 815 no. dwellings (610 no. houses, 194 apartments & 11 no. later living dwellings), a portion of the C-Ring Road, open space, community building/retail floorspace and 2 no. creches as follows:

- Demolition of existing single storey dwelling (c. 154 sq. m) and agricultural outbuilding (c. 366 sq. m) located to the south of Flemington Lane;
- Provision of portion of 'C-Ring Road' from Flemington Lane [to include junctions and ancillary footpaths, cycle paths, lighting, bus stops, boundary wall to adjoining owner, and tie in to existing roads/agricultural access points] to link into the existing R122 roundabout with vehicular access also from the Boulevard Road, Hamlet Lane, & Flemington Lane along with associated amendments to the layout of the Local Road L1130 (also known as the Clonard Road including the creation of a cul de sac arrangement to the south of the C-Ring Road); the provision of car parking spaces (1,037 no.), bicycle parking spaces (1,144 no.) and all internal roads and footpaths and bicycle and bin stores, & substations;
- Provision of a community pavilion (2 storeys) comprising community floorspace of c. 730 sq. m (with flexible internal spaces) along with a retail unit (c. 419 sq. m) at ground floor of apartment Block F as well as 2 no. 2 storey creches c. 530 sq. m each with ancillary parking and open space areas;
- 610 no. terraced, semi-detached & detached houses comprising 318 no. 2-bedroom houses (2 storey), 254 no. 3-bedroom houses (2 storey) and 38 no. 4-bedroom houses [house types B1/F4/F5 with variants] 3 storeys;
- 194 no. apartments in 5 no. apartment buildings (52 no. studio apartments, 87 no. 1 bedroom apartments, 51 no. 2 bedroom apartments and 4 no. 3 bedroom apartments - all apartments with terrace or balcony on elevations) as follows: Block A [4 storeys & 64 no. apartments] comprising 47 no. 1 bedroom apartments and 17 no. 2 bedroom apartments; Block C, [Part 3-4 storeys & 18 no. apartments] comprising 10 no. 1 bedroom apartments, 6 no. 2 bedroom apartments & 2 no. 3 bedroom apartments; Block F [Part 4-5 storeys & 48 no. apartments] comprising 36 no. 1 bedroom apartments and 12 no. 2 bedroom apartments; Block G [Part 3-4 storeys & 40 no. apartments]; comprising 30 no. 1 bedroom apartments and 10 no. 2 bedroom apartments; Block H [part 3-4 storeys & 24 no. apartments] comprising 16 no. 1 bedroom apartments, 6 no. 2 bedroom apartments & 2 no. 3 bedroom apartments;
- 11 no. single storey 2 bedroom later living houses with associated communal open space;
- 5.26 hectares of open space comprising Class 1 Open Space (c. 2.39 hectares in the western separate parcel of land), Public open space c.2.87 hectares, hard and soft landscaping (including public lighting & boundary treatment, ESB substations, bicycle and bin stores) and communal/semi-private open space for the proposed apartment units;
- Provision of surface water attenuation measures, connection to water supply, provision of foul drainage infrastructure (and Uisce Eireann diversion) to Uisce Eireann specifications and all ancillary site development, construction, and landscaping works including reprofiling of the site where required;
- The proposals will replace the previously permitted LRD under planning reg. ref. LRD0006/S3 & ACP Ref: 319343-24.

3.2 Typical Waste Categories

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The typical non-hazardous and hazardous wastes that will be generated at the proposed development will include the following:

- Dry Mixed Recyclables (DMR) - includes waste paper (including newspapers, magazines, brochures, catalogues, leaflets), cardboard and plastic packaging, metal cans, plastic bottles, aluminium cans, tins and Tetra Pak cartons;
- Organic waste – food waste and green waste generated from internal plants / flowers;
- Glass; and
- Mixed Non-Recyclable (MNR) / General Waste.

In addition to the typical waste materials that will be generated at the development on a daily basis, there will be some additional waste types generated less frequently / in smaller quantities which will need to be managed separately including:

- Drink Cans and Bottles (Deposit Return Scheme)
- Green / garden waste may be generated from external landscaping;
- Batteries (both hazardous and non-hazardous);
- Waste electrical and electronic equipment (WEEE) (both hazardous and non-hazardous);
- Printer cartridges / toners;
- Chemicals (paints, adhesives, resins, detergents, etc.);
- Light bulbs;
- Textiles;
- Waste cooking oil (if any generated by the residents or commercial tenants;
- Furniture (and, from time to time, other bulky wastes); and
- Abandoned bicycles.

Wastes should be segregated into the above waste types to ensure compliance with waste legislation and guidance while maximising the re-use, recycling and recovery of waste with diversion from landfill wherever possible.

3.3 List of Waste Codes

In 1994, the *European Waste Catalogue* [17] and *Hazardous Waste List* [18] were published by the European Commission. In 2002, the EPA published a document titled the *European Waste Catalogue and Hazardous Waste List* [19], which was a condensed version of the original two documents and their subsequent amendments. This document has recently been replaced by the EPA '*Waste Classification – List of Waste & Determining if Waste is Hazardous or Non-Hazardous*' [20] 2018. This waste classification system applies across the EU and is the basis for all national and international waste reporting, such as those associated with waste collection permits, COR's, permits and licences and EPA National Waste Database. Under the classification system, different types of wastes are fully defined by a code. The List of Waste (LoW) code for typical waste materials expected to be generated during the operation of the proposed development are provided in Table 3.1 below.

Table 3.1 Typical Waste Types Generated and LoW Codes

Waste Material	LoW Code
Paper and Cardboard	20 01 01
Plastics	20 01 39
Metals	20 01 40
Mixed Non-Recyclable Waste	20 03 01

Glass	20 01 02
Biodegradable Kitchen Waste	20 01 08
Oils and Fats	20 01 25
Textiles	20 01 11
Batteries and Accumulators*	20 01 33* - 34
Printer Toner/Cartridges*	20 01 27* - 28
Green Waste	20 02 01
WEEE*	20 01 35*-36
Chemicals (solvents, pesticides, paints & adhesives, detergents, etc.) *	20 01 13*/19*/27*/28/29*30
Fluorescent tubes and other mercury containing waste*	20 01 21*
Bulky Wastes	20 03 07

* Individual waste type may contain hazardous materials

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4. ESTIMATED WASTE ARISING

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A waste generation model (WGM) developed by AWN has been used to predict waste types, weights and volumes expected to arise from operations within the proposed development. The WGM incorporates building area and use and combines these with other data, including Irish and US EPA waste generation rates.

The estimated quantum / volume of waste that will be generated from the proposed residential units is based on the predicted occupancy of the units. While the floor area usage (m^2) has been used to estimate the waste arising from commercial units (crèche, community & retail units). The estimated waste generation for the proposed development for the main waste types is presented in Table 4.1 - 4.3, below.

Table 4.1 Estimated Waste Generation for the Proposed Development.

Waste Type	Waste Volume (m^3 / week)			
	Residential Apartment Block A (Shared)	Residential Apartment Block F (Shared)	Residential Apartment Block G (Shared)	Residential Walk-Up Apartment Block C (Shared)
Organic Waste	0.84	0.65	0.52	0.26
DMR	5.97	4.58	3.71	1.82
Glass	0.16	0.13	0.10	0.05
MNR	3.14	2.41	1.95	0.96
Total	**10.11**	**7.76**	**6.28**	**3.09**

Table 4.2 Estimated Waste Generation for the Proposed Development.

Waste Type	Waste Volume (m^3 / week)			
	Residential Walk-Up Apartment Block H (Shared)	2-Bed Houses (Individual)	3-Bed Houses (Individual)	4-Bed Houses (Individual)
Organic Waste	0.33	0.02	0.02	0.02
DMR	2.33	0.12	0.14	0.17
Glass	0.06	0.01	0.01	0.01
MNR	1.22	0.06	0.07	0.09
Total	**3.94**	**0.20**	**0.24**	**0.30**

Table 4.3 Estimated Waste Generation for the Proposed Development.

Waste Type	Waste Volume (m^3 / week)			
	Crèche Unit 1 (Individual)	Crèche Unit 2 (Individual)	Community Unit (Individual)	Retail Unit (Individual)
Organic Waste	0.02	0.02	0.02	0.02
DMR	0.12	0.12	0.14	0.17
Glass	0.01	0.01	0.01	0.01
MNR	0.06	0.06	0.07	0.09
Total	**0.20**	**0.20**	**0.24**	**0.30**

BS5906:2005 Waste Management in Buildings – Code of Practice [21] has been considered in the calculations of waste estimates. AWN's modelling methodology is based on recently published data and data from numerous other similar developments in Ireland and is based on AWN's experience, it provides a more representative estimate of the likely waste arisings from the proposed development.

5. WASTE STORAGE AND COLLECTION

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This section provides information on how waste generated within the Site will be stored and collected. This has been prepared with due consideration of the proposed Site layout as well as best practice standards, local and national waste management requirements, including those of FCC. In particular, consideration has been given to the following documents:

- *BS 5906:2005 Waste Management in Buildings – Code of Practice,*
- *The NWMPCE (2024);*
- *Fingal Development Plan 2023 – 2029 (2023);*
- *Fingal County Council Segregation Storage, Presentation and of Household and Commercial Waste (2020);* and
- *DoHLGH, Sustainable Urban Housing: Design Standards for New Apartments, Guidelines for Planning Authorities (2025)* [22].

Waste Storage Areas – Units with Individual WSAs
Residents of the above units will store their own bins in their back gardens, where externally accessible. Residents who do not have external access to their back gardens will have a shielded bin store located to the front of their house.

Waste Storage Areas – Apartment Block A Residential
One (1 no.) shared WSA has been allocated in the design of the proposed development for Block A. This has been strategically located on the ground floor level, in close proximity to the stair and lift cores.

Waste Storage Areas – Block C Walk Up Apartment Block
One (1 no.) shared WSA has been allocated in the design of the proposed development for the Walk Up Apartment Block. This has been externally located in close proximity to the entrance of the Walk up Apartment Block C.

Waste Storage Areas – Apartment Block F Residential
One (1 no.) shared WSA has been allocated in the design of the proposed development for Block F. This has been strategically located on the ground floor level, in close proximity to the stair and lift cores.

Waste Storage Areas – Apartment Block G Residential
One (1 no.) shared WSA has been allocated in the design of the proposed development for Block G. This has been strategically located on the upper ground floor level, in close proximity to the stair and lift cores.

Waste Storage Areas – Block H Walk Up Apartment Block
One (1 no.) shared WSA has been allocated in the design of the proposed development for the Walk Up Apartment Block. This has been externally located in close proximity to the entrance of the Walk Up Apartment Block H.

Waste Storage Areas – Crèche Units
Two (1 no.) WSAs have been allocated within the proposed development design for the crèche units. These has been strategically located on the ground floor level, in close proximity to the stair and lift cores, in each unit.

Waste Storage Areas – Community Unit
One (1 no.) WSA has been allocated within the proposed development design for the community unit. This has been strategically located on the ground floor level, in close proximity to the stair and lift cores.

Waste Storage Areas – Retail Unit

One (1 no.) WSA has been allocated within the proposed development design for the commercial/retail unit. This has been strategically located on the upper ground floor level of Block F, in close proximity to the stair and lift cores.

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Using the estimated waste generation volumes in Tables 3.1 - 3.3 above, the waste receptacle requirements for MNR, DMR, organic waste and glass have been established for the WSAs. It is envisaged that all waste will be collected on a weekly basis. Estimated waste storage requirements for the operational phase of the proposed development are detailed in Table 4.1, below.

Table 5.1. Waste Storage Requirements for the Proposed Development

Area / Use	Bins Required			
	MNR[1]	DMR[2]	Glass	Organic
Houses (Individual WSAs)	1 x 240L	1 x 240L	Bottle Bank	1 x 240L
Residential Apartment Block A (Shared WSA)	3 x 1100L	6 x 1100L	1 x 240L	4 x 120L
Residential Apartment Block F (Shared WSA)	2 x 1100L 1 x 240L	4 x 1100L 1 x 240L	1 x 240L	3 x 240L
Residential Apartment Block G (Shared WSA)	2 x 1100L	4 x 1100L	1 x 120L	3 x 240L
Residential Walk Up Apartment Block C (Shared WSA)	1 x 1100L	2 x 1100L	1 x 120L	1 x 240L
Residential Walk Up Apartment Block H (Shared WSA)	1 x 1100L 1 x 240L	2 x 1100L 1 x 240L	1 x 120L	2 x 240L
Crèche Unit (Individual) (Per Unit)	1 x 1100L	2 x 1100L	1 x 120L	1 x 120L
Community Unit (Individual)	1 x 1100L	1 x 1100L 1 x 240L	1 x 120L	1 x 240L
Retail Unit (Individual)	1 x 1100L	3 x 1100L	1 x 120L	1 x 240L

Note: 1 = Mixed Non-Recyclables
2 = Dry Mixed Recyclables

The waste receptacle requirements have been established from distribution of the total weekly waste generation estimate into the holding capacity of each receptacle type.

Waste storage receptacles as per Table 5.1 above (or similar appropriate approved containers) will be provided by the facilities management company in the WSAs.

The types of bins used will vary in size, design and colour dependent on the appointed waste contractor. However, examples of typical receptacles to be provided in the WSAs are shown in Figure 5.1. All waste

receptacles used will comply with the *SIST EN 840-1:2020* and *SIST EN 840-2:2020* as the standards for performance requirements of mobile waste containers, where appropriate.

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Figure 5.1 Typical waste receptacles of varying size (240L and 1100L)

Receptacles for organic, mixed dry recyclable, and mixed non-recyclable waste will be provided in the shared WSAs prior to first occupation of the development i.e. prior to the first residential or commercial unit being occupied.

This Plan will be provided to each resident from first occupation of the development i.e. once the first residential or commercial unit is occupied. This Plan will be supplemented, as required, by the property management company with any new information on waste segregation, storage, reuse and recycling initiatives that are subsequently introduced.

5.1 Operational Phase Waste Storage – Individual Houses

Residents will be required to segregate waste into the following main waste streams:

- DMR;
- MNR;
- Glass; and
- Organic waste.

Provision will be made in all residential units to accommodate 3 no. bin types to facilitate waste segregation at source. An example of a potential 3 bin storage system is provided in Figure 5.1 below.

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Figure 5.2 Example three bin storage system to be provided within the unit design

It is anticipated that residents with external access to the rear of their property will store waste in bins at the back of the units. For units with no external access to the rear, a dedicated shielded area for storage of 3 no. 240l litre wheelie bins have been allocated at the front or side of the property.

Other waste materials such as textiles, batteries, printer toner/cartridges and WEEE may be generated infrequently by the residents. Residents will be required to identify suitable temporary storage areas for these waste items within their own units and dispose of them appropriately.

5.2 Operational Phase Waste Storage – Residential Apartment Blocks and Walk Up Apartments

Residents will be required to segregate waste into the following main waste streams:

- DMR;
- MNR;
- Glass; and
- Organic waste.

Residents will be required to take their segregated waste materials to their designated WSA and deposit their segregated waste into the appropriate bins.

Provision will be made in all residential units to accommodate 3 no. bin types to facilitate waste segregation at source. An example of a potential 3 bin storage system is provided in Figure 4.1 above.

Each bin / container in the WSA will be clearly labelled and colour coded to avoid cross contamination of the different waste streams. Signage will be posted above or on the bins to show exactly which waste types can be placed in each bin.

Access to the shared WSAs will be restricted to authorised residents, facilities management and waste contractors by means of a key or electronic fob access.

Other waste materials such as textiles, batteries, printer toner / cartridges, light bulbs and WEEE may be generated infrequently by the residents. Residents will be required to identify suitable temporary storage areas for these waste items within their own units and dispose of them appropriately.

5.3 Operational Phase Waste Storage –Crèche, Community and Retail Units

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The commercial tenants will be required to segregate waste within their own unit into the following main waste types:

- DMR;
- MNR;
- Glass; and
- Organic waste.

The commercial tenants will be required to take their segregated waste materials to their designated WSA and deposit their segregated waste into the appropriate bins.

Suppliers for the units should be requested by the commercial tenants to make deliveries in reusable containers, minimize packaging or remove any packaging after delivery, where possible, to reduce waste generated by the proposed development.

If any kitchens are allocated in unit area, this will contribute a significant portion of the volume of waste generated on a daily basis, and as such it is important that adequate provision is made for the storage and transfer of waste from these areas to their WSA. If kitchens are required, it is anticipated that waste will be generated in kitchens throughout the day, primarily at the following locations:

- Food Storage Areas (i.e. cold stores, dry store, freezer stores and stores for decanting of deliveries);
- Meat Preparation Area;
- Vegetable Preparation Area;
- Cooking Area;
- Dish-wash and Glass-wash Area.

Small bins will be placed adjacent to each of these areas for temporary storage of waste generated during the day. Waste will then be transferred from each of these areas to the appropriate waste store within their unit.

All bins / containers in the commercial tenants' areas as well as in their WSA will be clearly labelled and colour coded to avoid cross contamination of the different waste streams. Signage will be posted above or on the bins to show exactly which wastes can be put in each.

Other waste materials such as textiles, batteries, lightbulbs, WEEE, cooking oil and printer toner / cartridges will be generated less frequently. The commercial and crèche tenants will be required to store these waste types within their own units and arrange collection with an appropriately licensed waste contractor. Facilties management may arrange collection, depending on the agreement.

5.4 Waste Collection

There are numerous private contractors that provide waste collection services in the FCC area. All waste contractors servicing the proposed development must hold a valid waste collection permit for the specific waste types collected. All waste collected must be transported to registered / permitted / licensed facilities only.

Residents with their own individual WSAs will be responsible for moving their waste receptacles to and from the curb before and after waste collection.

Bins from the proposed shared residential and commercial WSAs will be brought to staging areas by the facilities management or waste contractor depending on agreement, immediately prior to collection. The staging areas are such that it will not obstruct traffic or pedestrians (allowing a footway path of at least 1.8m, the space needed for two wheelchairs to pass each other) as is recommended in the Design Manual for Urban Roads and Streets (2019).

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Suitable access and egress has been provided to enable the bins to be moved easily from the temporary staging area to the waste collection vehicles on the appropriate days. Waste will be collected at agreed days and times by the nominated waste contractors. The auto track for a waste truck can be viewed in the drawings submitted with the planning application under separate cover and in Appendix B of this plan.

All waste receptacles should be clearly identified as required by waste legislation and the requirements of the FCC *Waste Bye-Laws*. Waste will be presented for collection in a manner that will not endanger health, create a risk to traffic, harm the environment or create a nuisance through odours or litter.

It is recommended that bin collection times are staggered to reduce the number of bins required to be emptied at once and the time the waste vehicle is on-site. This will be determined during the process of appointment of a waste contractor.

5.5 Additional Waste Materials

In addition to the typical waste materials that are generated on a daily basis, there will be some additional waste types generated from time to time that will need to be managed separately. A non-exhaustive list is presented below.

Deposit Return Scheme
Most drinks containers can be recycled via the deposit return scheme, such as bottles, cans and tins made from plastic, aluminium or steel can be returned once they are between 150ml and 3 litres in size and have the Re-turn logo on them.

At the shops you can either return the containers:

- Using a Reverse Vending Machine (RVM)
- Manually in the shop

If a shop does not have a RVM but they sell containers with the Re-turn logo, the shop may allow you to manually return containers in store, unless they have a take back exemption.

Locations of RVM machines can be found via the Re-turn website (www.re-turn.ie)

Green Waste
Green waste may be generated from gardens, external landscaping and internal plants / flowers. Green waste generated from landscaping of external areas will be removed by external landscape contractors. Green waste generated from gardens internal plants / flowers can be placed in the organic waste bins.

Batteries
A take-back service for waste batteries and accumulators (e.g. rechargeable batteries) is in place in order to comply with the S.I. No. 283/2014 - European Union (Batteries and Accumulators) Regulations 2014, as amended. In accordance with these regulations, consumers are able to bring their waste batteries to their local civic amenity centre or can return them free of charge to retailers which supply the equivalent type of battery, regardless of whether or not the batteries were purchased at the retail outlet and

regardless of whether or not the person depositing the waste battery purchases any product or products from the retail outlet.

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The commercial tenants cannot use the civic amenity centre. They must segregate their waste batteries and either avail of the take-back service provided by retailers or arrange for recycling / recovery of their waste batteries by a suitably permited / licenced contractor. Facilties management may arrange collection, depending on the agreement.

Waste Electrical and Electronic Equipment (WEEE)

The WEEE Directive (Directive 2002/96/EC) and associated Waste Management (WEEE) Regulations have been enacted to ensure a high level of recycling of electronic and electrical equipment. In accordance with the regulations, consumers can bring their waste electrical and electronic equipment to their local recycling centre. In addition, consumers can bring back WEEE within 15 days to retailers when they purchase new equipment on a like for like basis. Retailers are also obliged to collect WEEE within 15 days of delivery of a new item, provided the item is disconnected from all mains, does not pose a health and safety risk and is readily available for collection.

As noted above, the commercial tenants cannot use the civic amenity centre. They must segregate their WEEE and either avail of the take-back / collection service provided by retailers or arrange for recycling / recovery of their WEEE by a suitably permited / licenced contractor. Facilties management may arrange collection, depending on the agreement.

Printer Cartridge / Toners

It is recommended that a printer cartridge / toner bin is provided in the commercial unit, where appropriate. The commercial tenant will be required to store this waste within their unit and arrange for return to retailers or collection by an authorised waste contractor, as required.

Waste printer cartridge / toners generated by residents can usually be returned to the supplier free of charge or can be brought to a civic amenity centre.

Chemicals

Chemicals (such as solvents, paints, adhesives, resins, detergents, etc) are largely generated from building maintenance works. Such works are usually completed by external contractors who are responsible for the off-site removal and appropriate recovery / recycling / disposal of any waste materials generated.

Any waste cleaning products or waste packaging from cleaning products generated in the commercial units that is classed as hazardous (if they arise) will be appropriately stored within the tenants' own space. Facilties management may arrange collection, depending on the agreement.

Any waste cleaning products or waste packaging from cleaning products that are classed as hazardous (if they arise) generated by the residents should be brought to a civic amenity centre.

Light Bulbs

Waste light bulbs (fluorescent, incandescent and LED) may be generated by lighting at the commercial units. It is anticipated that commercial tenants will be responsible for the off-site removal and appropriate recovery / disposal of these wastes. Facilties management may arrange collection, depending on the agreement.

Light bulbs generated by residents should be taken to the nearest civic amenity centre for appropriate storage and recovery / disposal.

Textiles

Where possible, waste textiles should be recycled or donated to a charity organisation for reuse. Commercial and residential tenants will be responsible for disposing of waste textiles appropriately.

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Waste Cooking Oil

If the commerial tenants use cooking oil, waste cooking oil will need to be stored within the unit on a bunded area or spill pallet and regular collections by a dedicated waste contractor will need to be organised as required. Under sink grease traps will be installed in any cooking space.

If the residents generate waste cooking oil, this can be brought to a civic amenity centre.

Furniture & Other Bulky Waste Items

Furniture and other bulky waste items (such as carpet, etc.) may occasionally be generated by the commercial tenant. The collection of bulky waste will be arranged, as required by the tenant. If residents wish to dispose of furniture, this can be brought a civic amenity centre.

Abandoned Bicycles

Bicycle parking areas are planned for the development. As happens in other developments, residents sometimes abandon faulty or unused bicycles, and it can be difficult to determine their ownership. Abandoned bicycles should be donated to charity if they arise or Facilties management willmay arrange collection by a licensed waste contractor.

5.6 Waste Storage Area Design

The shared and commercial WSAs will be designed and fitted-out to meet the requirements of relevant design Standards, including:

- Be fitted with a non-slip floor surface;
- Provide ventilation to reduce the potential for generation of odours with a recommended 6-10 air changes per hour for a mechanical system for internal WSAs;
- Provide suitable lighting – a minimum Lux rating of 400 is recommended;
- Be easily accessible for people with limited mobility;
- Be restricted to access by nominated personnel only;
- Be supplied with hot or cold water for disinfection and washing of bins;
- Be fitted with suitable power supply for power washers;
- Have a sloped floor to a central foul drain for bins washing run-off;
- Have appropriate signage placed above and on bins indicating correct use;
- Have access for potential control of vermin, if required; and
- Be fitted with CCTV for monitoring.

The resident bins, commercial tenants and facilities management company will be required to maintain the waste storage areas in good condition as required by the FCC Waste Bye-Laws.

5.7 Facility Management Responsibilities

It shall be the responsibility of the facilities management company, commercial tenants and residents to ensure that all domestic and commercial waste generated by residents and commercial tenants is managed to ensure correct storage prior to collection by an appropriately permitted waste management company. Facilities Management will provide the following items:

- Provision of a Waste Management Plan document, prepared by the facilities management company to all residential units and commercial tenants with shared or commercial WSAs, which shall clearly

state the methods of source waste segregation, storage, reuse and recycling initiatives that shall apply to the management of the development;

- Provision and maintenance of appropriate graphical signage to inform residents and tenants of their obligation to reduce waste, segregate waste and in the correct bin;
- Preparation of an annual waste management report for all residential and commercial units using shared WSAs;
- Designation of access routes to shared WSAs to ensure safe access from the residential units by mobility impaired persons;
- Provision of an appropriately qualified and experienced staff member, who will be responsible for all aspects of waste management for the shared WSAs at the development;
- Frequent inspection of shared waste storage areas and signing of a check list, which shall be displayed within the area; and
- Maintenance of a register, detailing the quantities and breakdown of wastes collected from the shared WSAs in the development and provision of supporting documentation by the waste collector to allow tracking of waste recycling rates.

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5.8 Pest Management

A pest control operator will be appointed as required to manage pests onsite during the operational phase of this development. All waste generated within the development will be stored in closed waste receptacles both within units and within the WSAs. Any waste receptacles will be carefully managed to prevent leaks, odours and pest problems. All shared WSAs will have access for potential control of vermin, if required, be supplied with hot or cold water, drainage point and will be regularly inspected by facilities management to deter pests.

6. SUMMARY AND CONCLUSION

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In summary, this OWMP presents a waste strategy that addresses all legal requirements, waste policies and best practice guidelines and demonstrates that the required storage areas have been incorporated into the design of the proposed development.

Implementation of this OWMP will ensure a high level of recycling, reuse and recovery at the development. All recyclable materials will be segregated at source to reduce waste contractor costs and ensure maximum diversion of materials from landfill, thus contributing to the targets set out in *the NWMPCE*.

Adherence to this plan will also ensure that waste management at the development is carried out in accordance with the requirements of the *FCC Waste Bye-Laws.*

The waste strategy presented in this document will provide sufficient storage capacity for the estimated quantity of segregated waste. The designated areas for waste storage will provide sufficient room for the required receptacles in accordance with the details of this strategy.

7. REFERENCES

RECEIVED: 18/12/2025

1. Waste Management Act 1996 as amended.
2. Environmental Protection Agency Act 1992 as amended.
3. Litter Pollution Act 1997 as amended;
4. Regional Waste Management Planning Offices, *The National Waste Management Plan for a Circular Economy 2024 - 2030 (2024).*
5. Fingal County Council, Segregation Storage, Presentation and of Household and Commercial Waste (2020)
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8. DoELG, *Making Ireland's Development Sustainable – Review, Assessment and Future Action (World Summit on Sustainable Development)* (2002)
9. DoEHLG, *Taking Stock and Moving Forward* (2004)
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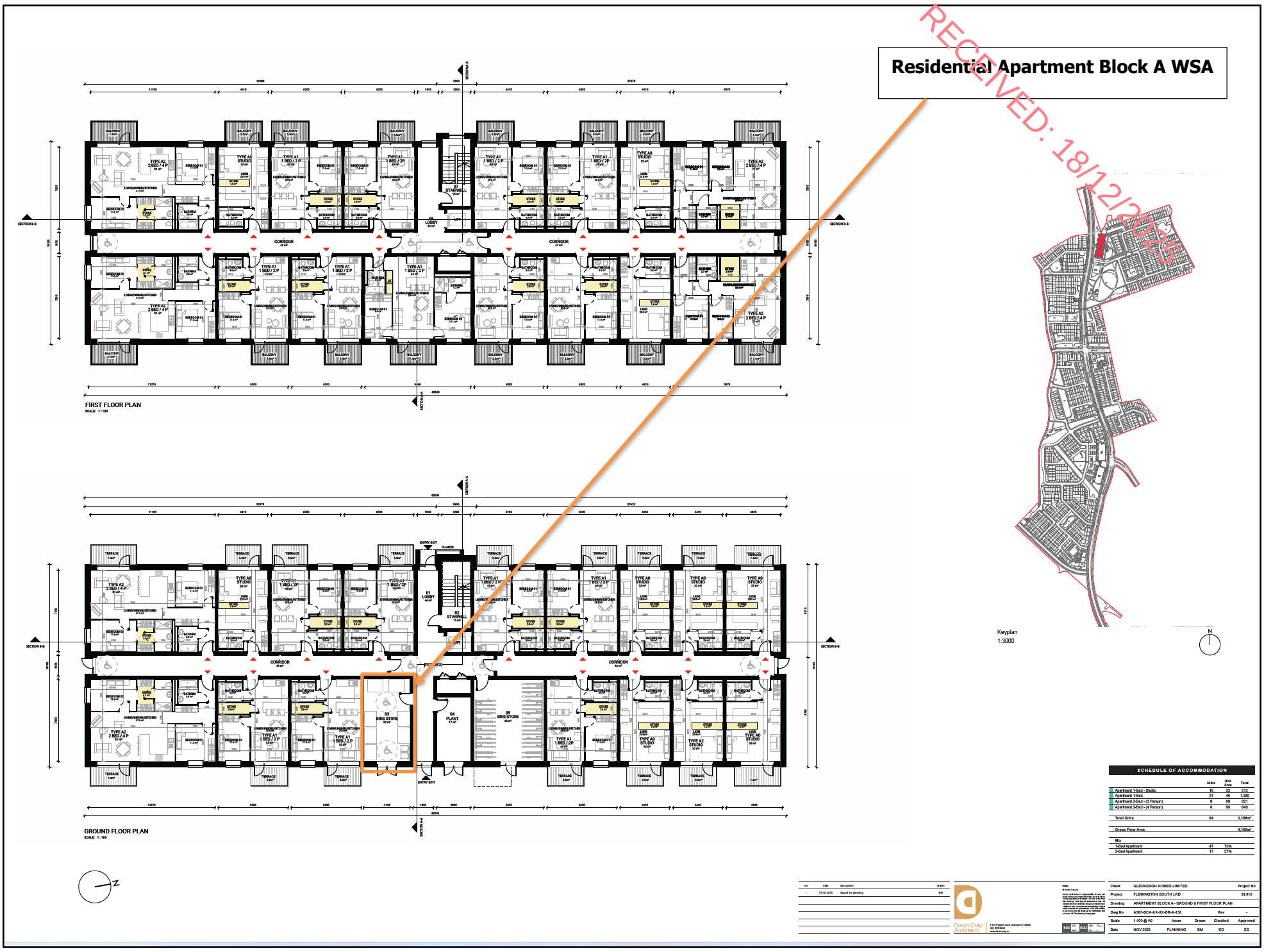
11. DCCAE, *Whole of Government Circular Economy Strategy 2022-2023 'Living More, Using Less'* (2021).
12. Circular Economy and Miscellaneous Provisions Act 2022
13. Department of Housing, Local Government and Heritage authored *Sustainable Residential Development and Compact Settlements - Guidelines for Planning Authorities (2024)*
14. Environmental Protection Agency (EPA), *National Waste Database Reports 1998 – 2020* and the *Circular Economy and National Waste Database Report 2021 – 2022 (2024)*
15. FCC*, Fingal County Development Plan 2023 – 2029* (2023).
16. Planning and Development Act 2000 (S.I. No. 30 of 2000) as amended
17. European Waste Catalogue - Council Decision 94/3/EC (as per Council Directive 75/442/EC).
18. Hazardous Waste List - Council Decision 94/904/EC (as per Council Directive 91/689/EEC).
19. EPA, *European Waste Catalogue and Hazardous Waste List* (2002)
20. EPA, *Waste Classification – List of Waste & Determining if Waste is Hazardous or Non-Hazardous* (2018)
21. BS 5906:2005 Waste Management in Buildings – Code of Practice.
22. Department of Housing Local Government and Heritage (DoHLGH), *Sustainable Urban Housing: Design Standards for New Apartments, Guidelines for Planning Authorities* (2025).

APPENDIX A. WASTE STORAGE AREA LOCATIONS



Residential Apartment Block F WSA

Retail Unit Block F WSA

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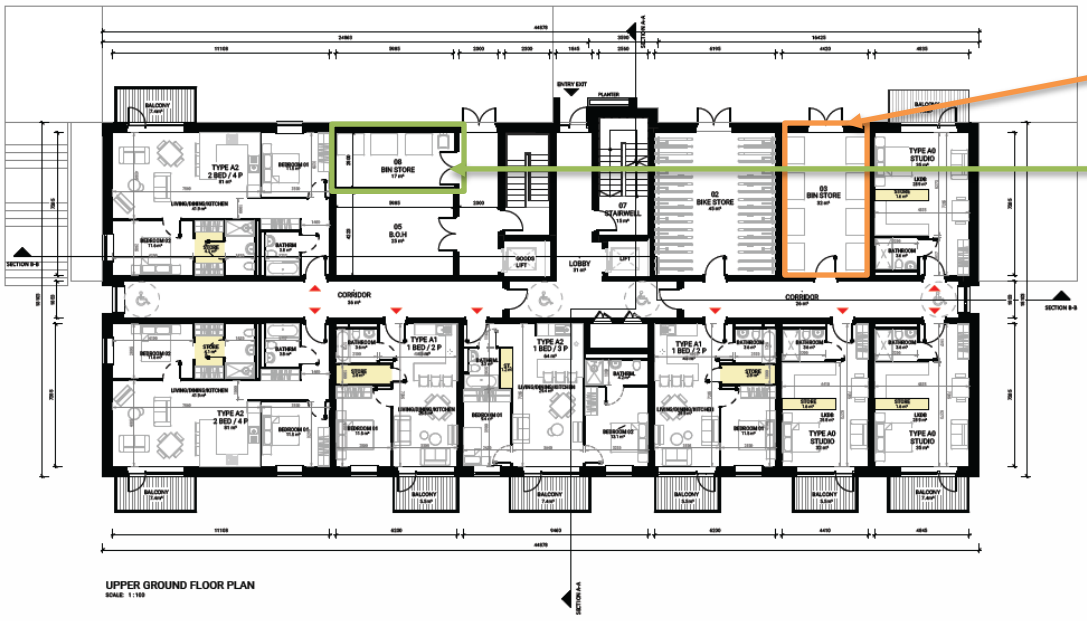

Keyplan
1:3000

SCHEDULE OF ACCOMMODATION

	Units	Unit Area	Total
Apartment 1-Bed - Studio	20	32	640
Apartment 1-Bed	16	45	720
Apartment 2-Bed - (3 Person)	4	64	256
Apartment 2-Bed - (4 Person)	8	81	648
Total Units	48		2,264m²
Retail Space	1	300	300m²
Gross Floor Area			2,980m²
Mix			
1-Bed Apartment	36	67%	
2-Bed Apartment	12	33%	

rev	date	description	drawn
-	15.08.2025	Issued for planning	BM

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Client	GLENVEAGH HOMES LIMITED.				Project No
Project	FLEMINGTON SOUTH LRD				24.015
Drawing	APARTMENT BLOCK F - LOWER & UPPER GROUND FLOOR PLAN				
Dwg No	A567-DCA-XX-XX-DR-A-147			Rev	-
Scale	1:100 @ A0	Issue	Drawn	Checked	Approved
Date	NOV 2025	PLANNING	BM	ED	ED

Residential Apartment Block G WSA

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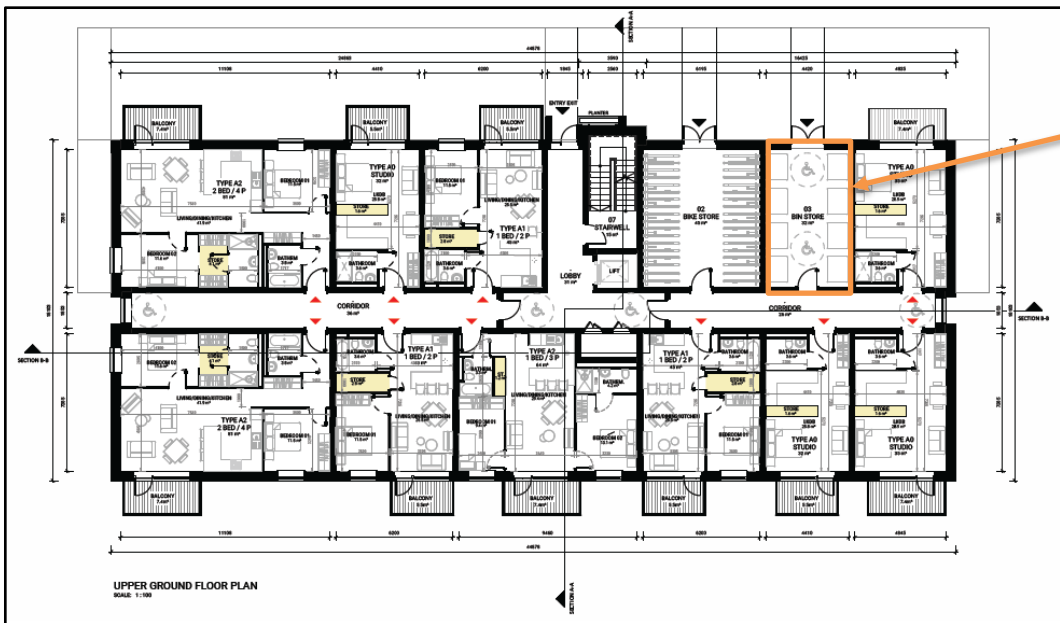

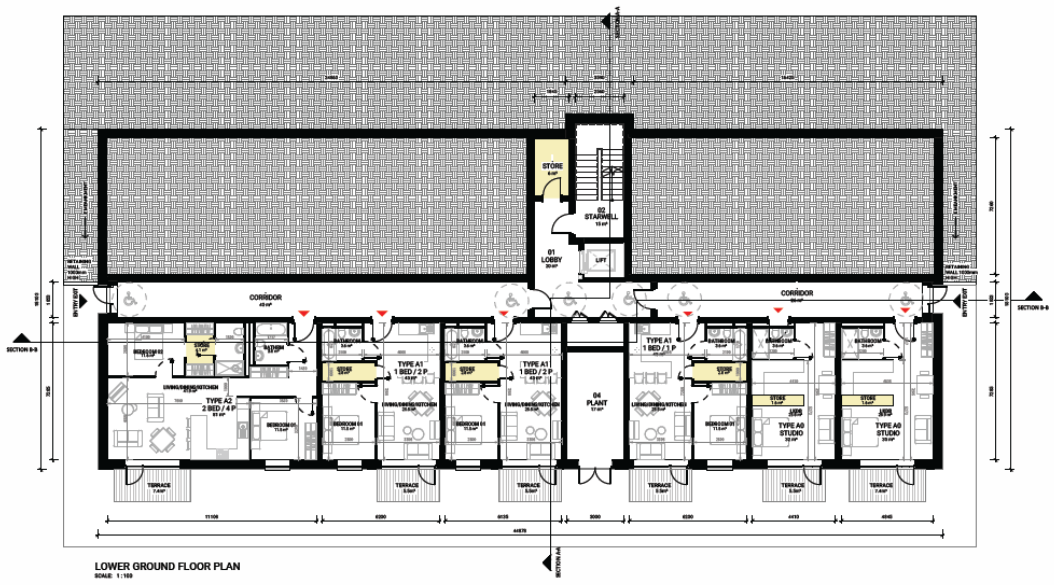

SCHEDULE OF ACCOMMODATION

	Units	Unit Area	Total
Apartment 1-Bed - Studio	16	32	512
Apartment 1-Bed	14	45	630
Apartment 2-Bed - (3 Person)	3	64	192
Apartment 2-Bed - (4 Person)	7	81	567
Total Units	40		1,901m²
Gross Floor Area			2,894m²
Mix			
1-Bed Apartment	30	75%	
2-Bed Apartment	10	25%	

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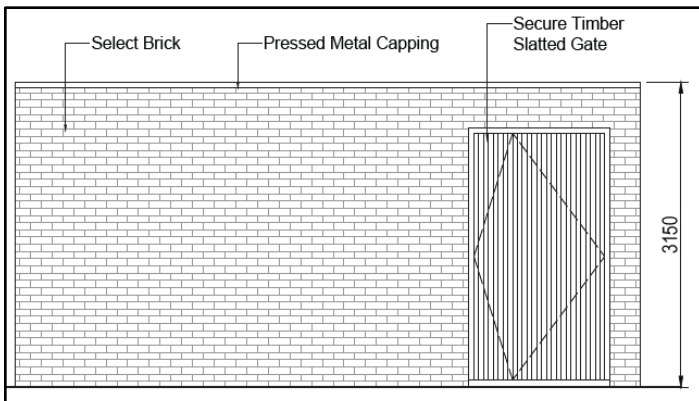
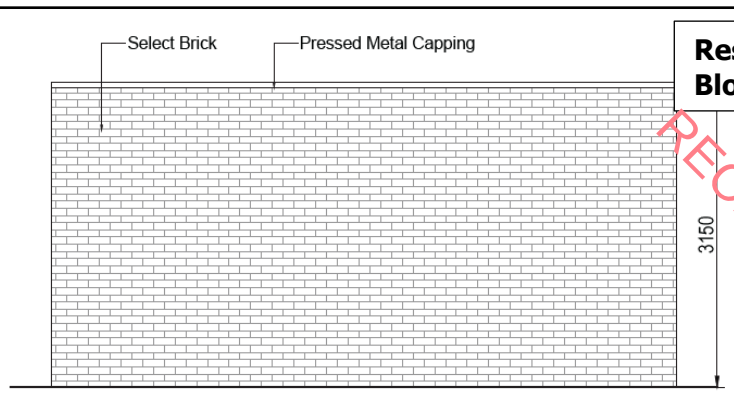
Client	GLENVEAGH HOMES LIMITED.				Project No
Project	FLEMINGTON SOUTH LRD				24.015
Drawing	APARTMENT BLOCK G - LOWER & UPPER GROUND FLOOR PLAN				
Dwg No	A167-DCA-XX-XX-DR-A-101			Rev	-
Scale	1:100 @ A0	Issue	Drawn	Checked	Approved
Date	NOV 2025	PLANNING	BM	ED	ED

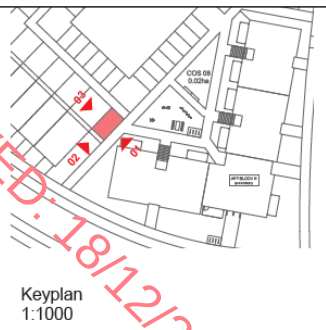
Residential Walk Up Apartment Blocks C & H



01 Front Elevation
1:50



03 Rear Elevation
1:50



Keyplan
1:1000

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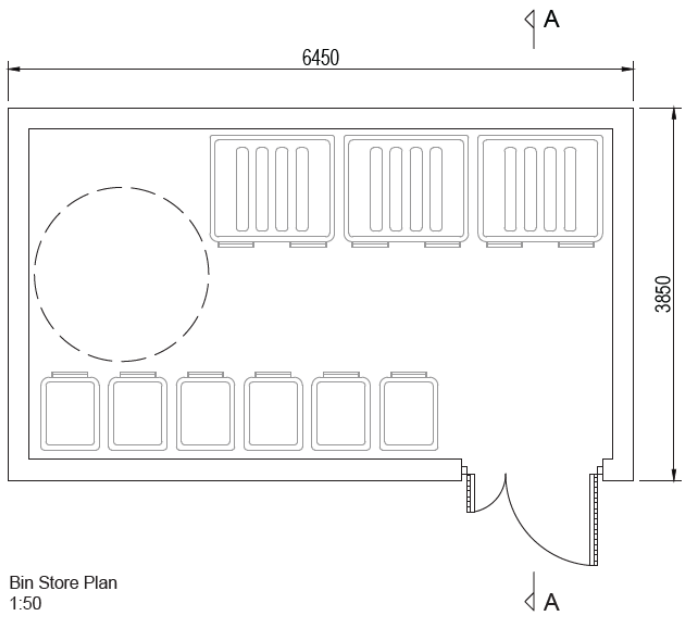
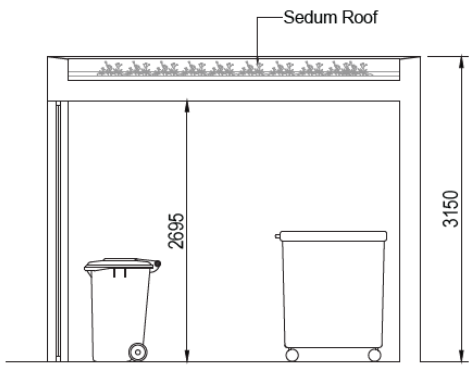
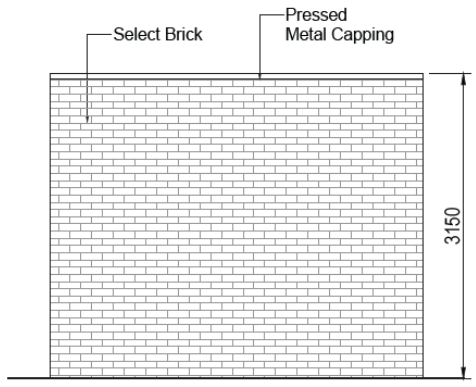


Bin Store Plan
1:50



Section AA
1:50



02 Side Elevation
1:50

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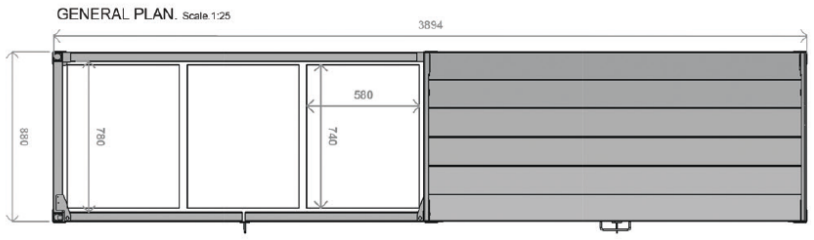
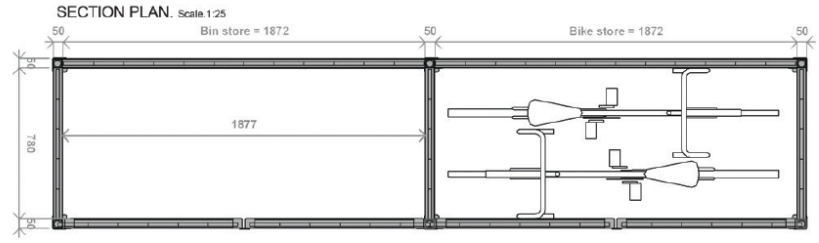
Client	GLENVEAGH HOMES LIMITED.				Project No
Project	FLEMINGTON SOUTH LRD				24.015
Drawing	APARTMENT BLOCK H - PROPOSED COMMUNAL BIN STORE				
Dwg No	A507-DCA-XX-XX-DR-A-403			Rev	-
Scale	1: 50 @ A3	Issue	Drawn	Checked	Approved
Date	NOV 2025	PLANNING	BM	BM	ED

Residential Houses (Individual)

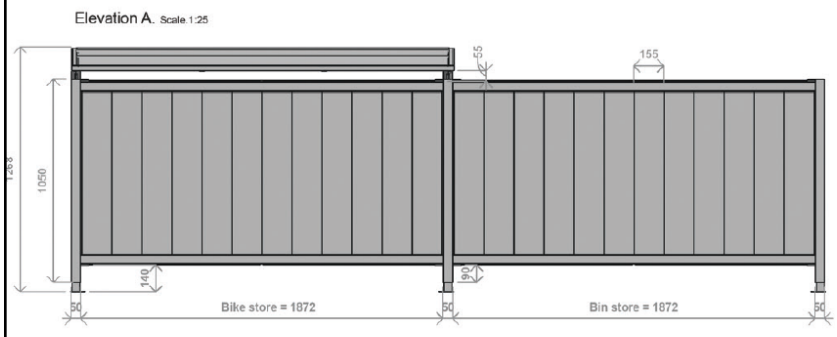
GENERAL PLAN. Scale.1:25



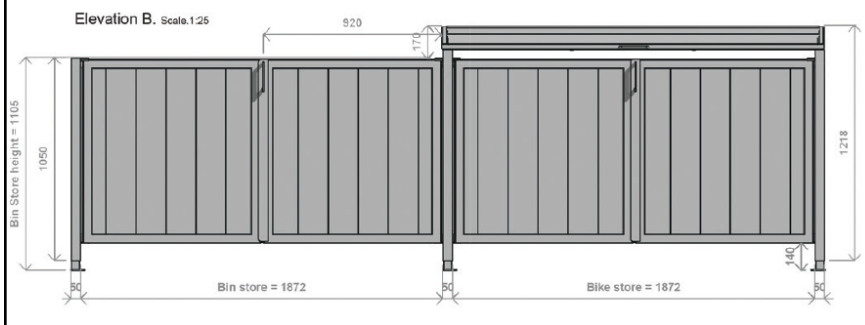
SECTION PLAN. Scale.1:25



Elevation A. Scale.1:25



Elevation B. Scale.1:25



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Client	GLENVEAGH HOMES LIMITED.				Project No
Project	FLEMINGTON SOUTH LRD				24.015
Drawing	TERRACED HOUSES - PROPOSED BIKE & BIN STORE				
Dwg No	A507-DCA-XX-XX-DR-A-401			Rev	-
Scale	1:25 @ A3	Issue	Drawn	Checked	Approved
Date	NOV 2025	PLANNING	BM	BM	ED

Crèche Unit WSAs (Individual)

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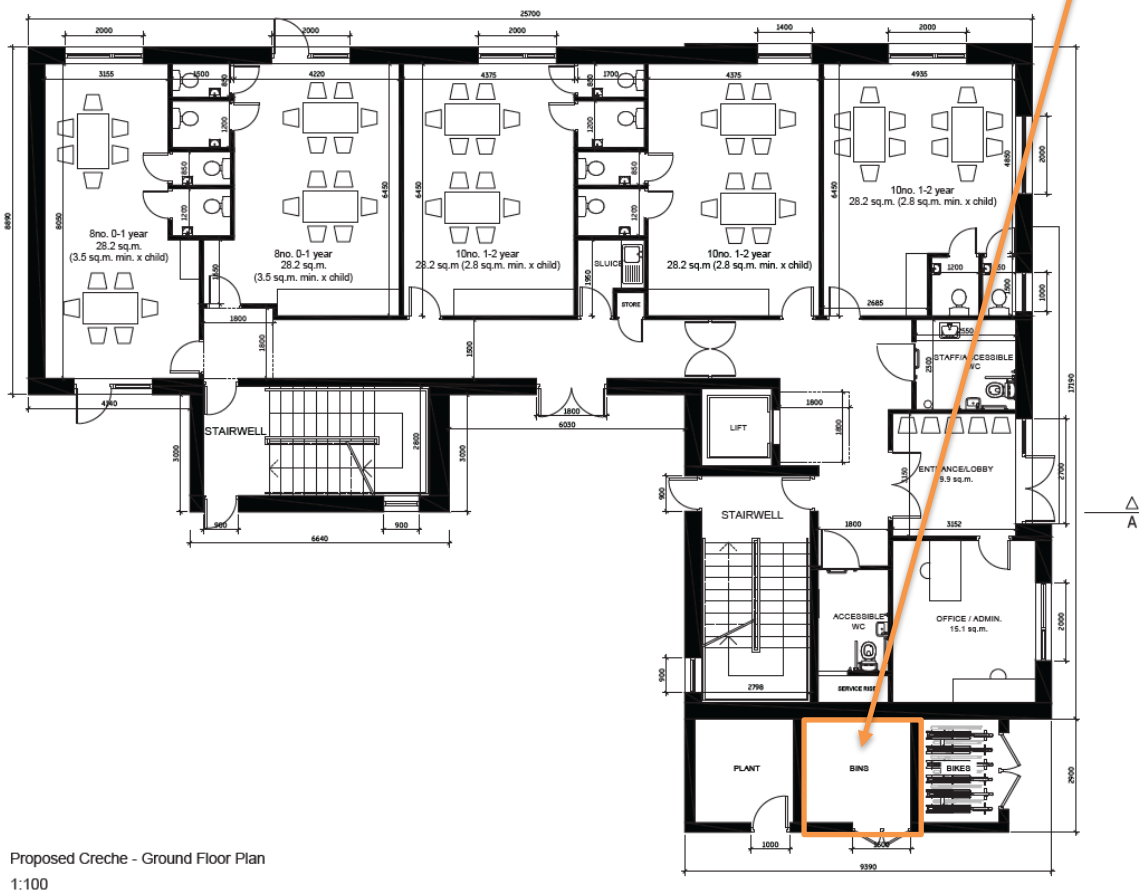

Proposed Creche - Ground Floor Plan
1:100

Keyplan
1:6000

N

refer to site layout for unit orientation and levels

N

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AREA SCHEDULE

Creche	Area
Ground Floor Plan	265
First Floor Plan	265
Total Area	**530**

Childare Spaces	
0-1 Year	16
1-2 Year	30
2-3 Year	36
3-6 Year	24
Total Childcare Spaces	**106**

Client	GLENVEAGH HOMES LIMITED.				**Project No**
Project	FLEMINGTON SOUTH LRD				24.015
Drawing	PROPOSED CRECHE - GROUND FLOOR PLAN				
Dwg No	**A507-DCA-XX-XX-DR-A-155**		**Rev**		
Scale	1:100 @ A2	**Issue**	**Drawn**	**Checked**	**Approved**
Date	NOV 2025	PLANNING	BM	ED	ED

Community Unit WSA (Individual)

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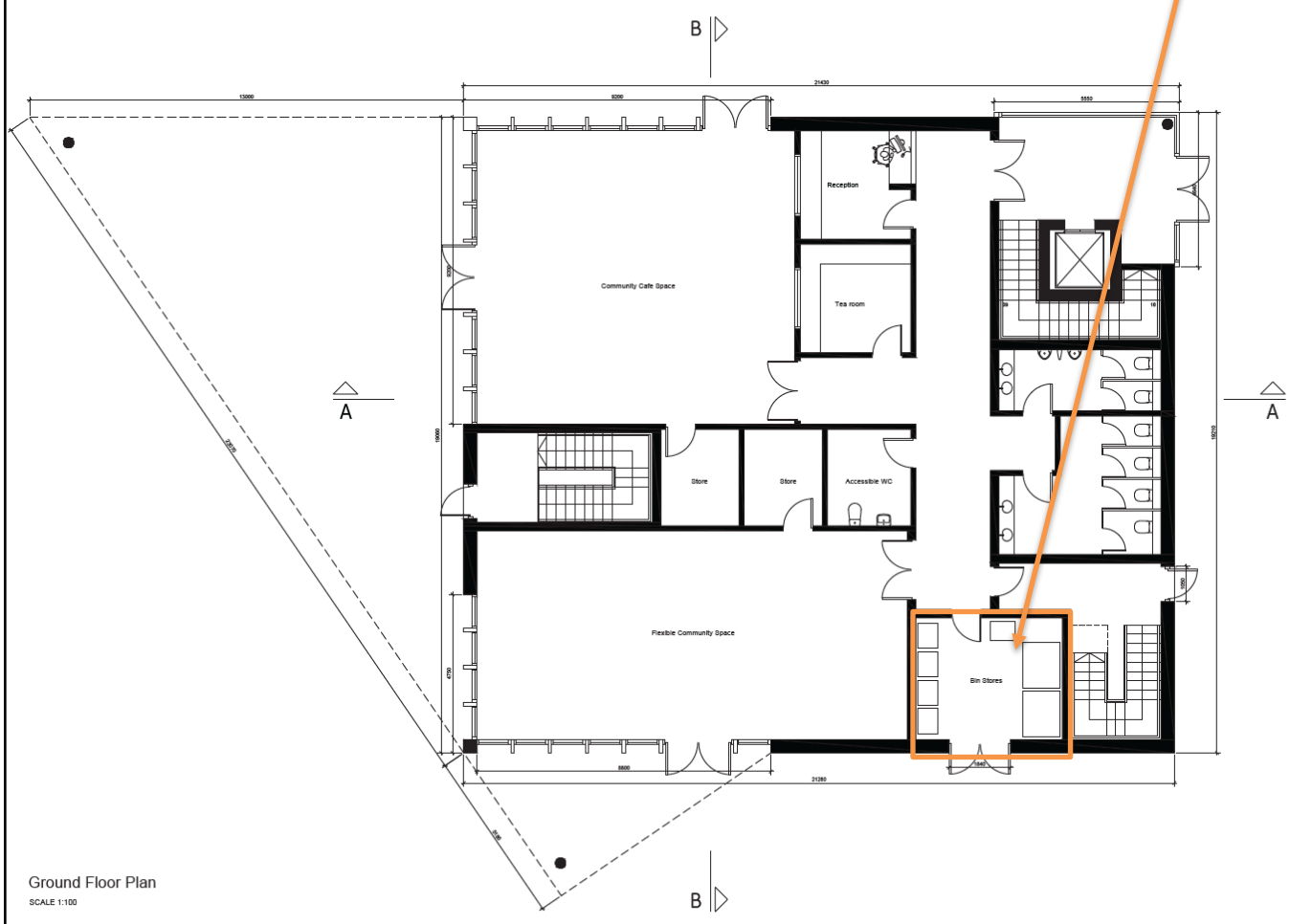

Ground Floor Plan

SCALE 1:100

Keyplan

1:6000

N

AREA SCHEDULE

	Area
Ground Floor	365
First Floor	365
Total Area	**730**

refer to site layout for unit orientation and levels

N

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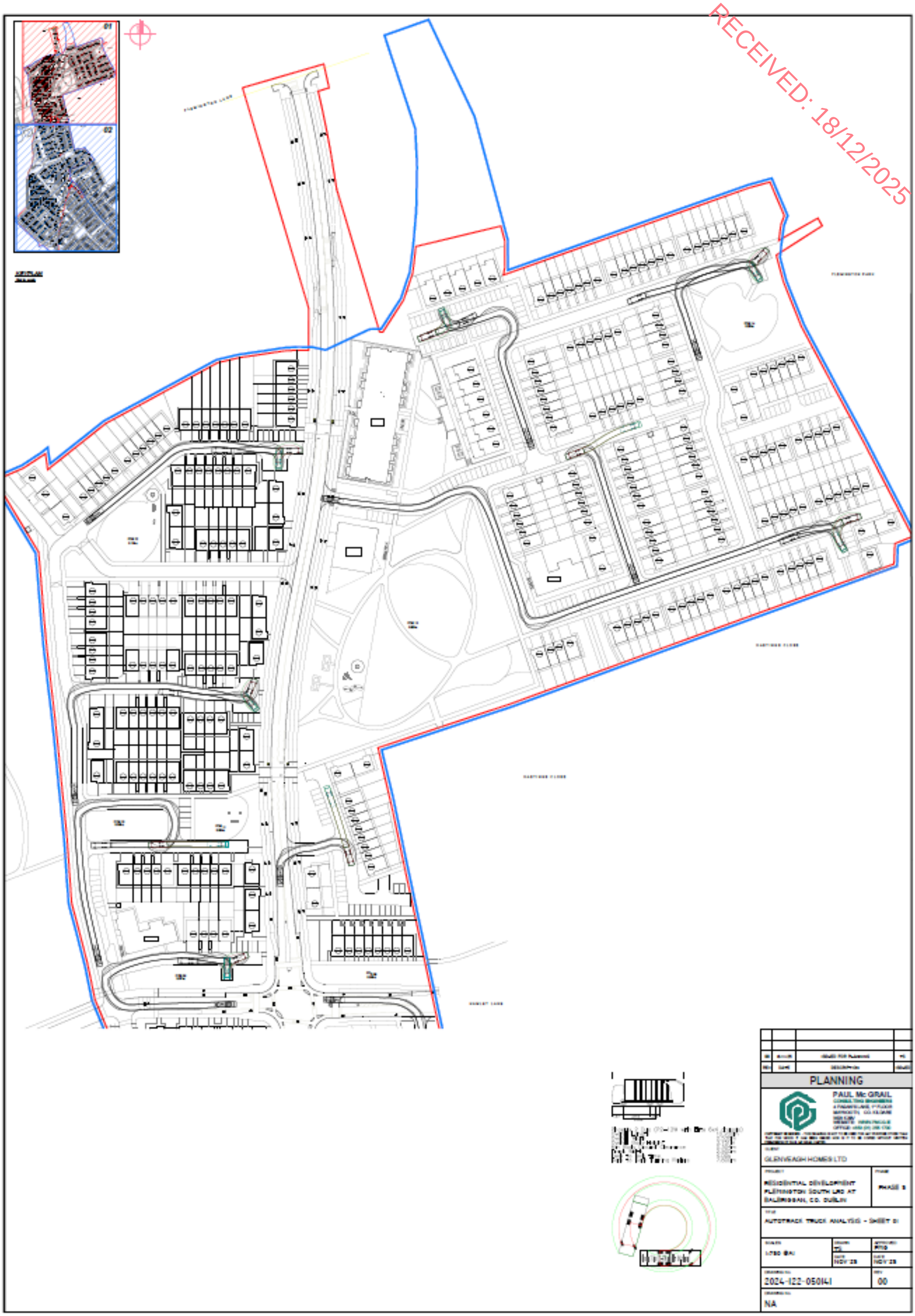
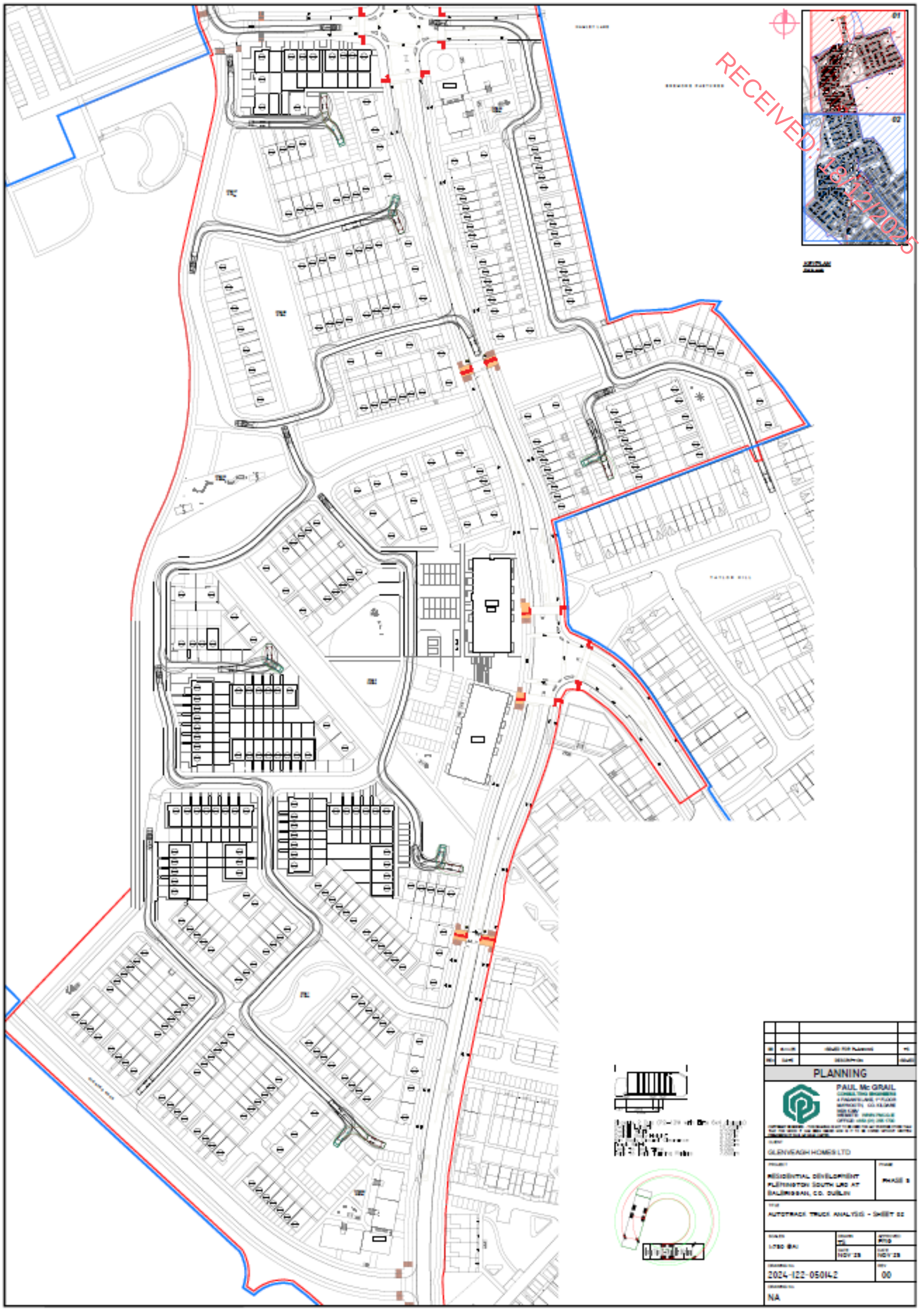
Project	FLEMINGTON SOUTH LRD				24.015
Drawing	PROPOSED COMMUNITY PAVILION - GROUND FLOOR PLAN				
Dwg No	**A507-DCA-XX-XX-DR-A-164**			**Rev**	
Scale	1:100 @ A2	**Issue**	**Drawn**	**Checked**	**Approved**
Date	NOV 2025	PLANNING	BM	ED	ED

APPENDIX B. ROAD SWEEP ANALYSIS FOR REFUSE TRUCK

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AUTOTRACK TRUCK ANALYSIS - SHEET 02
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