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Social Housing Bundle 4, Development at the Stanley Street Depot, Dublin 7
Resource Waste Management Plan (RWMP)

Dublin City Council

ENGINEERING A SUSTAINABLE FUTURE

ORS

Stanley Street, Stoneybatter, Dublin.
Resource Waste Management Plan (RWMP)

Document Control Sheet

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1 Introduction

This report is prepared in support of the planning application for a residential development on a site at Stanley Street Depot, Dublin 7.

The proposed development consists of the construction of 167 apartments and duplex units at a site c. 1.15 ha at the former Dublin City Fire Brigade Maintenance Depot and Dublin City Council Mechanical Division, Stanley Street, Grangegorman Lower, Dublin 7. Development at the site will consist of the following:

- The demolition and site clearance of the existing buildings, sheds, warehouses and garages.
- Retention and modification of the south and east elevation of an existing structure (facing onto Grangegorman Lower) to form part of apartment Block G at the southeast corner of the site.
- Construction of 167 no. apartment and duplex units across Blocks A-K (including frontage onto Grangegorman Lower).
  - Blocks A – C consist of 71 no. apartment units (43 no. 1 bed and 28 no. 2 bed units) and ranges from 5 to 6 storeys.
  - Blocks D-G consist of 84 no. apartment units (43 no. 1 bed units, 29 no. 2 bed units and 12 no. 3 bed units) and ranges from 4 to 5 storeys.
  - Blocks H-K consist of 12 no. duplex units (6 no. 1 bed and 6 no. 3 bed units) and are 3 storeys.
- Provision of 270 long-stay and 101 short-stay bicycle parking spaces, 19 no. car parking spaces and 1 no. motorcycle parking space.
- Construction of a 277.54 sqm creche.
- Provision of 552 sqm of community, cultural and arts space located at ground floor level across Blocks B, E, F and G.
- 0.113 ha of public open space and 1350 sqm of communal open space
- Vehicular access is proposed from Grangegorman Lower and vehicular egress onto Stanley Street.
- Boundary treatments, public lighting, site drainage works, internal road surfacing and footpaths, ESB meter rooms, ESB substations, stores, bin and cycle storage, plant rooms, landscaping; and
- All ancillary site services and development works above and below ground.

1.1 Background and Purpose

Waste created during Construction and Demolition (C&D) work is the largest waste stream in the EU, accounting for one third of all waste generated. It is therefore pertinent to outline proper management procedures for construction and demolition (C&D) waste and resources that are in line with policies that fit a circular economic model. Several steps can be taken regarding material and waste management to adhere to the circular economic model, such as:

- Reducing the use of virgin resources.
- Keeping materials in the economy as long as possible.
- Maintaining intrinsic value/quality as high as possible.

- Reducing hazardous substances in products and waste.

This Resource & Waste Management Plan (RWMP) for the proposed development will address the following points:

- Analysis of waste arisings / material surpluses, to be recorded in the Waste Register **(see Appendix A)**
- Methods proposed for prevention, reuse and recycling of waste materials
- Waste handling procedures
- Waste storage procedures
- Waste disposal procedures
- Waste auditing
- Record keeping

1.2 Supporting Documentation, Policies, and Legislation

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

- Environmental Protection Agency Act 1992
- Waste Management Acts 1996 to 2005
- Waste Management (Collection Permit) Regulations 2007 (SI No. 820 of 2007)
- Waste Management (Collection Permit) Amendment Regulations 2008 (SI No. 87 of 2008), as amended.
- The Waste Framework Directive (Directive 2008/98/EC)
- Department of the Environment, Heritage and Local Government – Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects – July 2006
- A Waste Action Plan for a Circular Economy 2020-2025
- Environmental Protection Agency Best Practice Guidelines for the Preparation of Resource & Waste Management Plans for Construction & Demolition Projects 2021
- Construction Environmental Management Plan (CEMP)
- Relevant Planning Conditions

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

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

1.3 Dublin City Development Management Standard

The development management standards for Dublin City are outlined in the Dublin City Development Plan 2022-2028. Of relevance to this report is **Chapter 9 – Sustainable Environmental Infrastructure and Flood Risk** which outlines policies in line with Dublin City

Council waste management objectives. The policies relevant to the proposed development include:

- **SI 27:** Sustainable Waste Management: To support opportunities in the circular resource efficient economy in accordance with the National Policy Statement on Bioeconomy (2018).
- **SI 28:** Sustainable Waste Management: To prevent and minimise waste generation and disposal, and to prioritise prevention, recycling, preparation for reuse and recovery in order to develop Dublin as a circular city and safeguard against environmental pollution.
- **SI 30:** Waste Management in Apartment Schemes: To require that the storage and collection of mixed dry recyclables, organic and residual waste materials within proposed apartment schemes have regard to the Sustainable Urban Housing: Design Standards for New Apartments Guidelines for Planning Authorities 2020 (or and any future updated versions of these guidelines produced during the lifetime of this plan).

Additionally, **Section 15.18.2 – Waste Management** outlines the overall approach of Dublin City Council with regards to waste generated during development. It states:

"*All planning applications in excess of 30 or more residential units and / or 1,000 sq. m. of commercial development shall be accompanied by both and Construction and Operational Waste Management Plan…The operational waste management plan shall set out the strategy for waste collection, storage and recycling. 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"*

1.4 RWMP Review

This RWMP report serves as a live document and will be reviewed regularly to assess whether waste management practices are being adhered to. Likewise, it will be continuously updated as appropriate. Following completion of the project the RWMP will be updated with the final waste levels generated by the project. It is proposed that a review of waste management practices will form part of regular site inspection audits to be carried out by the construction contractor. This information should be forwarded to the RWM to assist in determining the best methods for waste minimisation, reduction, re-use, recycling, and disposal as the works progress.

2 Project Description

2.1 Site Location

The proposed site is located just off Stanley Street and Grangegorman Lower in the inner-city district of north Dublin. The site is currently a depot for the Dublin fire brigade. The proposed development is located within land zoned as Z5 City Centre by the Dublin City Council. The site's current access point is through the site gate at the end of Stanley Street.

There are existing two storey houses with back gardens and apartments bordering the development on the northwest and northeast of the site. The western boundary is bordered by a mix of two storey housing/commercial units as well as Stanhope Street Primary School to the northwest. To the east of the site, opposite Grangegorman Lower, lies a recently developed 6-storey student accommodation building. Various apartment and commercial developments are located towards the south of the site.

An approximate outline of the subject site and its environs is provided in **Figure 2.1** below.

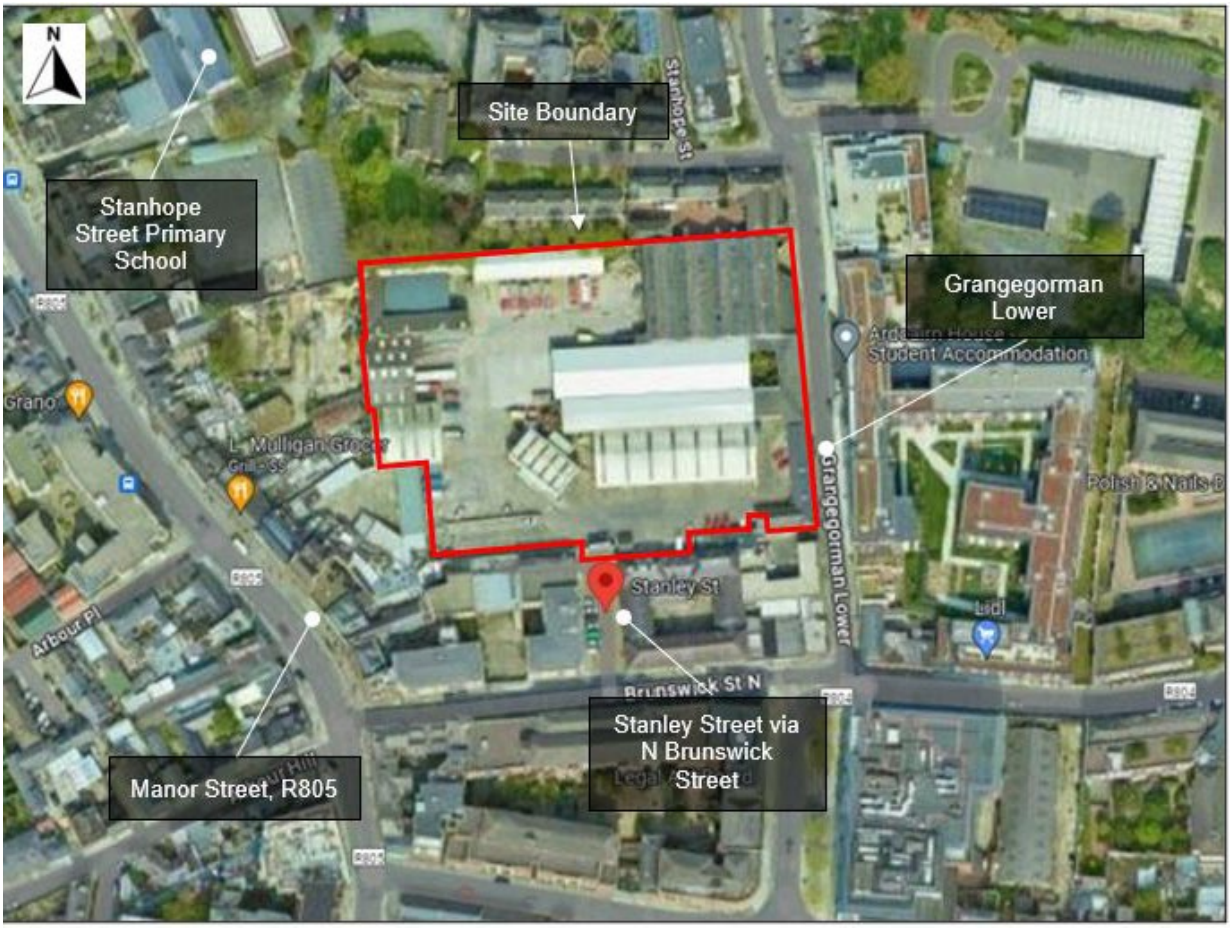


Figure 2.1: Site location and environs (Source: Google Maps)

2.2 Site Characteristics

2.2.1 Topography

The proposed development is to be constructed on a brownfield site following the demolition of existing structures. There is a slight downward gradient on site ranging from *ca.* 13.5m OD to the northeast to *ca.* 12.0m OD to the southwest.

2.2.2 Site Access

The site has two potential access points, one located on Stanley Street which is accessible via North Brunswick Road to the south of the site, and another proposed entry to the east along Grangegorman Lower. Using the N3 national road as the nearest major roadway in proximity to the site providing access to the M50, construction traffic will approach the site along Manor Street which connects Stoneybatter to the N3 *ca.* 6km N of the site. This will provide access to the southern entry point to the site.

- Access to Stanley Street will be provided initially in the short term until Building 01 is demolished. Following which, main access to the site will be via Grangegorman lower.
- It is noted that large vehicles currently access the Depot via Stanley Street hence the road surface is used to receiving loading of same and should be capable of supporting an infrequent amount of heavy vehicles in the short term.
- Measures will be provided within the site boundary such as a defined area for a wheel wash facility to avoid run off containing any debris/materials after exiting the site.

2.2.3 Historical Maps

The GeoHive Historic map viewer was consulted to assess the previous land uses or developments within or in the vicinity of the proposed site boundaries. According to the First Edition 6” maps developed between 1829-1841, the location of the proposed site previously consisted of urban fabric and community infrastructures. From black and white aerial survey maps generated in 1995, the structures of the dense residential areas surrounding the site can be seen, as well as the site of Stanhope Primary School. The surrounds of the proposed site have remained relatively unchanged since these 1995 aerial survey maps, with minor density increases in housing estates and residential areas.

2.3 Environmental Sensitivities

2.3.1 Geology, Hydrology & Hydrogeology

Maps generated by the Environmental Protection Agency (EPA) and featuring data from the EU Water Framework Directive (WFD) were consulted to assess the extent and quality of waterbodies present in the vicinity of the proposed development. The closest waterbody to the site consists of the River Liffey which is 475m south of the proposed site. The Poddle Stream and Camac River also outflow into the Liffey *ca.* 700m southeast and 900m southwest of the site, respectively.

Taking the scale and nature of the proposed development into consideration, only waterbodies within a 1.5km radius of the site were considered as potential receptors, and as such, only these waterbodies were included in this analysis. A summary of the nearest waterbodies can

be found in **Table 2.1** below.

Table 2.1: Waterbodies in Proximity to Proposed Site				
Waterbody	**WFD Sub-basin Name**	**Code**	**Distance from Site**	**Direction from Site**
Liffey Estuary Upper	TOLKA_060	IE_EA_090_0400	525m	South
Poddle Stream	Poddle_010	IE_EA_09P030800	723m	Southeast
Camac Stream	CAMAC_040	IE_EA_09C020500	900m	Southwest
River Liffey	LIFFEY_190	IE_EA_09L012360	2.3km	Southeast

The WFD runs in 6-year cycles with the most recent data being generated between 2016-2021. The Directive takes rivers, lakes, estuaries, groundwater and coastal waters into consideration and each waterbody can be awarded one of five statuses: High, Good, Moderate, Poor, and Bad. Additionally, waterbodies can be assigned a risk level ("At Risk", "Not At Risk", "Review") which represents the risk of the waterbody of failing its WFD objectives by 2027.

The WFD Status of the Liffey Estuary Upper is designated as "Good" and has been assigned a risk level of "Review." The Poddle Stream and Camac Stream have both been designated as "Poor" and assigned a risk level of "Review." The Liffey Estuary Upper is projected as "Review". The River Liffey is the primary inputting surface waterbody to the Liffey Estuary and is classified as "At Risk" due to urban run-off and urban wastewater treatment agglomerations (combined sewer overflows).

The River Liffey flows through the centre of Dublin to its mouth within Dublin Bay. Its major tributaries include the Poddle Stream and River Camac. The river supplies much of Dublin's potable water.

The proposed site is located within WFD catchment 09, Liffey and Dublin Bay, and is located within sub-catchment "Tolka_SC_020". The 3rd Cycle Draft Liffey and Dublin Bay Catchment Report (HA 09) published in 2021 provides a summary of the quality assessment outcomes of waterbodies within the catchment.

The site was cross-referenced with the Teagasc Soil Information System (SIS) soil profile map which states that the surface soil at the site location is classed as 'Urban'. Urban soils are formed from human construction and industrial activities along with fuel combustion, transport emissions and waste dumping and therefore contain manufactured materials and waste. The subsoil of the site is classed as "made". Subsoil classification within the confines of Dublin City is predominantly "made".

According to the Ground Investigation report provided by IGSL Ltd., the ground conditions of the site in stratigraphical order were comprised of made ground, possible alluvium / glaciolacustrine sediments, and glacial deposits.

2.3.2 Groundwater Vulnerability

According to the Geological Survey of Ireland map viewer, the site is underlain by a Locally Important Aquifer consisting of made ground bedrock which is moderate to poorly productive in local zones only. The groundwater vulnerability is classed as 'Low'. The subsoil permeability is classified as 'Moderate'.

The Ground Investigation Report supplied by IGSL Ltd. highlighted instances of groundwater strikes during trial pit excavation ranging from 1.70m and 2.50m.

2.3.3 Flood Risk

The OPW Floodinfo.ie website was consulted for high level information on any potential flood risk on or near the site. The closest flood events occurred along the River Liffey *ca*. 600m southeast of the proposed site. **Table 2.2** summarises the sources of the nearest floods and their proximity to site.

Table 2.2: Flood Events in Proximity to Proposed Site

Flood Event Code	Location	Date	Flood Source	Distance from Site
ID-13040	Croppies Acre, Dublin 7	January 2014	River	600m SE
ID-13093	Ballygall Crescent and Fairways Green, Finglas	February 2014	null	670m SE
ID-1168	Ashling Hotel, Parkgate Street, Dublin 8	October 2011	null	750m SE
ID-14077	Tolka and Finglas Rivers	August 1984	null	980m E

The proposed site itself is of sufficient distance from the projected flood risk area hence the fluvial flood risk is considered to be low. The site is not located within benefitting land associated with the Arterial Drainage or District Drainage Schemes. National Indicative Fluvial Mapping (NIFM) models the extent of land that might be flooded by rivers during a theoretical flood with an estimated probability of occurrence. The proposed site is not within the range of a Medium Probability flood event (1 in 100 years) according to NIFM mapping. Based on current data available it is not foreseen that the development will present any significant increase in flooding risk either within the site or downstream of the site.

2.3.4 Contaminated Land

Figure 2.2 provides a flowchart indicating the waste acceptance protocols for soil recovery facilities as per the "Guidance on waste acceptance criteria at authorised soil recovery facilities" published by the EPA in 2020.

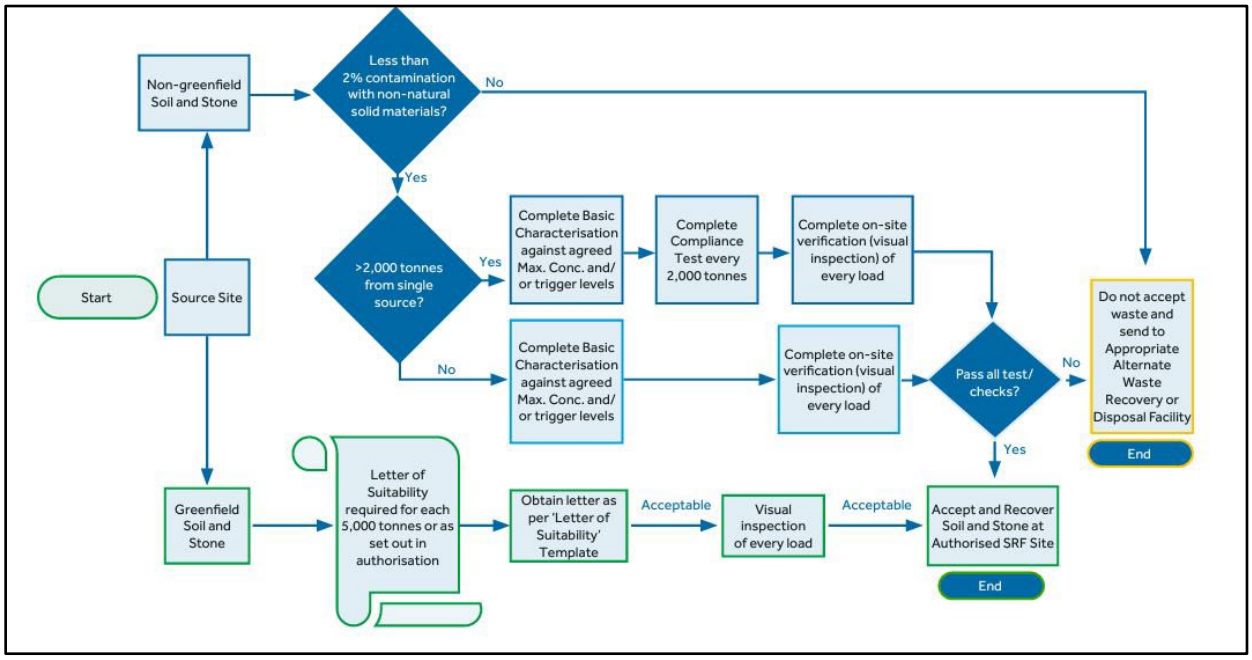


Figure 2.2: Waste acceptance criteria at soil recovery facilities. (Source: EPA)

IGSL Limited requested O'Callaghan Moran & Associates (OCM) to undertake a waste characterisation assessment of 56 no. samples of made and natural ground collected from the site. Samples were collected from 14 no. cable percussion boreholes, 10 no. trial pits, and 15 no. window sample boreholes. Significant hydrocarbon contamination was recorded in the north of the site with two additional discrete areas of contamination in the west and south of the site.

Tables 2.3 & 2.4 below outline the waste clasification of the sample material encountered during borehole and trial pit testing during Phase 1 & 2. As can be seen from the table, hazardous concentrations were encountered in 17 no. of the samples. As such, material removed from these locations can be classed as Soil and Stone containing hazardous substances (LoW Code 17 05 03). Asbestos was not encountered during Phase 1 or Phase 2.

Table 2.3: Waste Classification Phase 1 (Source: O'Callaghan Moran & Associates)

Sample No.	Depth	Classification	LoW Code	Sample No.	Depth	Classification	LoW Code
BH01	1.00	Non-Hazardous	17 05 04	WS1	1.00-2.00	Hazardous	17 05 03
BH02A	1.00	Non-Hazardous	17 05 04	WS1	2.00-3.50	Non-Hazardous	17 05 04
BH03	2.00	Non-Hazardous	17 05 04	WS2	0.00-1.00	Non-Hazardous	17 05 04
BH03	3.00	Non-Hazardous	17 05 04	WS2	2.00-3.00	Non-Hazardous	17 05 04
BH04	1.00	Non-Hazardous	17 05 04	WS3	0.00-2.00	Hazardous	17 05 03
BH05	2.00	Non-Hazardous	17 05 04	WS4	0.00-1.00	Hazardous	17 05 03
BH06	1.00	Non-Hazardous	17 05 04	WS4	1.00-2.90	Non-Hazardous	17 05 04
BH07	2.00	Non-Hazardous	17 05 04	WS5	0.00-2.00	Non-Hazardous	17 05 04
BH08	1.00	Non-Hazardous	17 05 04	WS5	2.50-3.50	Hazardous	17 05 03
BH09	1.00	Non-Hazardous	17 05 04	WS6	0.00-2.00	Non-Hazardous	17 05 04
BH10	2.00	Hazardous	17 05 03	WS6	2.00-4.00	Hazardous	17 05 03
BH11	1.00	Non-Hazardous	17 05 04	WS3	2.00-3.00	Hazardous	17 05 03
BH12	1.00	Non-Hazardous	17 05 04	WS7	0.00-1.00	Non-Hazardous	17 05 04
BH13	1.00	Non-Hazardous	17 05 04	WS7	2.00-4.00	Hazardous	17 05 03
BH14	1.00	Non-Hazardous	17 05 04	WS8	0.00-1.00	Hazardous	17 05 03
TP01	0.70	Non-Hazardous	17 05 04	WS9	0.00-1.50	Hazardous	17 05 03
TP01	1.50	Hazardous	17 05 03	WS9	1.50-2.50	Hazardous	17 05 03
TP01	2.30	Non-Hazardous	17 05 04	WS9	2.50-3.50	Non-Hazardous	17 05 04
TP02	0.70	Non-Hazardous	17 05 04	WS10	0.00-1.00	Non-Hazardous	17 05 04
TP03	0.50	Non-Hazardous	17 05 04	WS10	1.50-3.00	Hazardous	17 05 03
TP04	0.70	Non-Hazardous	17 05 04	WS11	0.00-1.50	Non-Hazardous	17 05 04
TP05	0.40	Hazardous	17 05 03	WS12	0.00-2.00	Non-Hazardous	17 05 04
TP05	1.60	Non-Hazardous	17 05 04	WS12	2.50-3.50	Non-Hazardous	17 05 04
TP06	1.80	Non-Hazardous	17 05 04	WS13	0.50-2.00	Non-Hazardous	17 05 04
TP07	0.60	Non-Hazardous	17 05 04	WS13	2.50-4.00	Non-Hazardous	17 05 04
TP08	1.40	Non-Hazardous	17 05 04	WS14	0.50-2.00	Non-Hazardous	17 05 04
TP10	1.60	Non-Hazardous	17 05 04	WS15	0.50-2.00	Non-Hazardous	17 05 04
TP11	1.30	Non-Hazardous	17 05 04	WS15	2.50-4.00	Non-Hazardous	17 05 04

Table 2.4: Waste Classification Phase 2 (Source: O'Callaghan Moran & Associates)

Sample No.	Depth	Classification	LoW Code
WS16	1.7	Non-Hazardous	17 05 04
WS16	2.7	Non-Hazardous	17 05 04
WS17	1.6	Non-Hazardous	17 05 04
WS17	2.1	Non-Hazardous	17 05 04
WS18	0.3	Non-Hazardous	17 05 04
WS19	1.3	Non-Hazardous	17 05 04
WS20	1.0	Non-Hazardous	17 05 04
WS20	1.8	Non-Hazardous	17 05 04
WS21	1.5	Non-Hazardous	17 05 04
WS21	2.5	Non-Hazardous	17 05 04
WS23	0.3	Non-Hazardous	17 05 04
WS24	0.5	Non-Hazardous	17 05 04
WS24	1.5	Hazardous	17 05 03
WS25	0.3	Non-Hazardous	17 05 04
WS25	1.5	Non-Hazardous	17 05 04
WS27	0.3	Non-Hazardous	17 05 04
WS27	1.0	Hazardous	17 05 03
WS28	0.3	Non-Hazardous	17 05 04
WS28	1.0	Hazardous	17 05 03

Appendix D includes maps of areas where trial pits and boreholes were dug and highlights the areas where WAC exceedances were recorded. Each borehole/trial pit location is colour-coded according to the classification provided by O'Callaghan Moran & Associates in the Waste Characterisation Assessment. The maps provide an overview as to how waste generated during excavation across the site should be segregated and treated. **Tables 2.5 & 2.6** below feature the categories of waste for removal as per the Waste Characterisation Assessment.

Table 2.5: Waste Management Options (Phase 1) (Source: O'Callaghan Moran & Associates)

Sample No.	Depth	LoW Code	Category	Sample No.	Depth	LoW Code	Category
BH01	1.00	17 05 04	B-2	WS1	1.00-2.00	17 05 03	D
BH02A	1.00	17 05 04	C	WS1	2.00-3.50	17 05 04	C
BH03	2.00	17 05 04	B-1	WS2	0.00-1.00	17 05 04	C
BH03	3.00	17 05 04	B-2	WS2	2.00-3.00	17 05 04	B-2
BH04	1.00	17 05 04	C	WS3	0.00-2.00	17 05 03	D
BH05	2.00	17 05 04	B-1	WS4	0.00-1.00	17 05 03	D
BH06	1.00	17 05 04	C	WS4	1.00-2.90	17 05 04	B-2
BH07	2.00	17 05 04	B-2	WS5	0.00-2.00	17 05 04	C
BH08	1.00	17 05 04	B-2	WS5	2.50-3.50	17 05 03	D
BH09	1.00	17 05 04	C	WS6	0.00-2.00	17 05 04	B-1
BH10	2.00	17 05 03	D	WS6	2.00-4.00	17 05 03	D
BH11	1.00	17 05 04	B-2	WS3	2.00-3.00	17 05 03	D
BH12	1.00	17 05 04	B-1	WS7	0.00-1.00	17 05 04	C
BH13	1.00	17 05 04	B-2	WS7	2.00-4.00	17 05 03	D
BH14	1.00	17 05 04	B-2	WS8	0.00-1.00	17 05 03	D
TP01	0.70	17 05 04	C	WS9	0.00-1.50	17 05 03	D
TP01	1.50	17 05 03	D	WS9	1.50-2.50	17 05 03	D
TP01	2.30	17 05 04	C	WS9	2.50-3.50	17 05 04	C
TP02	0.70	17 05 04	B-2	WS10	0.00-1.00	17 05 04	B-1
TP03	0.50	17 05 04	B-2	WS10	1.50-3.00	17 05 03	D
TP04	0.70	17 05 04	B-2	WS11	0.00-1.50	17 05 04	C
TP05	0.40	17 05 03	D	WS12	0.00-2.00	17 05 04	C
TP05	1.60	17 05 04	B-1	WS12	2.50-3.50	17 05 04	B-2
TP06	1.80	17 05 04	B-2	WS13	0.50-2.00	17 05 04	C
TP07	0.60	17 05 04	C	WS13	2.50-4.00	17 05 04	B-2
TP08	1.40	17 05 04	B-1	WS14	0.50-2.00	17 05 04	B-1
TP10	1.60	17 05 04	B-1	WS15	0.50-2.00	17 05 04	C
TP11	1.30	17 05 04	B-2	WS15	2.50-4.00	17 05 04	B-1

B-1	Suitable for disposal to Inert Landfill
B-2	Suitable for disposal to Inert Landfill with increased limits
C	Suitable for disposal to Non-Hazardous Landfill
D	Suitable for disposal to Hazardous Landfill

Table 2.6: Waste Management Options (Phase 2) (Source: O'Callaghan Moran & Associates)

Sample No.	Depth	Classification	LoW Code	Category
WS16	1.7	Non-Hazardous	17 05 04	B-2
WS16	2.7	Non-Hazardous	17 05 04	B-2
WS17	1.6	Non-Hazardous	17 05 04	B-2
WS17	2.1	Non-Hazardous	17 05 04	C
WS18	0.3	Non-Hazardous	17 05 04	B-2
WS19	1.3	Non-Hazardous	17 05 04	B-1
WS20	1.0	Non-Hazardous	17 05 04	B-1
WS20	1.8	Non-Hazardous	17 05 04	B-1
WS21	1.5	Non-Hazardous	17 05 04	B-2
WS21	2.5	Non-Hazardous	17 05 04	B-2
WS23	0.3	Non-Hazardous	17 05 04	C
WS24	0.5	Non-Hazardous	17 05 04	C
WS24	1.5	Hazardous	17 05 03	D
WS25	0.3	Non-Hazardous	17 05 04	C
WS25	1.5	Non-Hazardous	17 05 04	B-1
WS27	0.3	Non-Hazardous	17 05 04	B-2
WS27	1.0	Hazardous	17 05 03	D
WS28	0.3	Non-Hazardous	17 05 04	B-1
WS28	1.0	Hazardous	17 05 03	D

B-1	Suitable for disposal to Inert Landfill
B-2	Suitable for disposal to Inert Landfill with increased limits
C	Suitable for disposal to Non-Hazardous Landfill
D	Suitable for disposal to Hazardous Landfill

2.3.5 Archaeology

John Purcell Archaeological Consultancy carried out an Archaeological Impact Assessment of the site at Stanley Street. The report provided an overview of pre-development test excavations that were carried out in the vicinity of the site. A summary of the findings is provided below:

- Licence 22E0001 – Medieval garden soil was recorded during excavations of a site immediately west of the proposed development. The soil layer is considered to be associated with the back gardens of 18th century houses or as part of Grangegorman Manor. An earth-cut well was also discovered on site.

- Licence 10E0137 – Test excavations were carried out immediately north of the proposed development and indicated remnants of now demolished late 19th-century school structures. Post-medieval garden soil was also found in test trenches.

It is recommended that archaeological testing should take place to identify deposits and formulate a strategy for resolution to take place prior to development. There is potential for accidental damage to occur to the historic surfaces on Stanley Street during construction works at the site. All recommendations are subject to agreement with the Department of Housing, Heritage and Local Government.

Protective measures against potential impacts to the surfaces on Stanley Street are on pg. 20 of the Traffic Mobility Management Plan provided by Malone O'Regan Consulting Engineers. Protective measures are summarised as follows:

The typical damage incurred by heavy construction vehicles is chipping and settlement/displacement. The actions for protection should include:

1. Recording and Mapping before works commence,
2. Imposing a no work or set down within the cobbled area,
3. Take all measures to limit the extend of traffic movements through Stanley Street, and
4. Recording and Mapping on completion.

2.3.6 Ecological Receptors

According to the National Parks & Wildlife Service map viewer, the proposed site is located a sufficient distance (1.5km) from any designated sites such as Special Protection Areas (SPAs), Special Areas of Conservation (SACs) or Natural Heritage Areas (NHAs). The nearest designated sites consist of the Royal Canal proposed Natural Heritage Area (pNHA) located *ca.* 1.5km north of the proposed site. The next nearest designated site is the Grand Canal pNHA which is south across the River Liffey, *ca.* 2.3km south of the proposed site.

An Appropriate Assessment (AA) Screening Report was carried out by NM Ecology Ltd. on behalf of Dublin City Council and has determined that a Natura Impact Statement (Appropriate Assessment) is not required in respect of this proposed development.

A Preliminary Ecological Appraisal was also carried out by NM Ecology to assess whether any sensitive ecological receptors were present on site. Details of this report are summarised in the CEMP provided for this project.

Given the scale and nature of the proposed development, it is unlikely that any designated sites will be impacted as a result of the works.

2.4 Phasing of the Development

This Construction Environmental Management Plan (CEMP) will outline the intended sequence of works. A construction program of 12 - 18 months serves as an estimated timeline for the project. A layout plan of the development is detailed in **Figure 2.3** below.

Figure 2.3: Site Plan.

The proposed development includes the following sequence of works:

- The demolition and site clearance of the existing buildings, sheds, warehouses and garages.
- Retention and modification of the south and east elevation of an existing structure (facing onto Grangegorman Lower) to form part of apartment Block G at the southeast corner of the site.
- Construction of 167 no. apartment and duplex units across Blocks A-K (including frontage onto Grangegorman Lower).
  - Blocks A – C consist of 71 no. apartment units (43 no. 1 bed and 28 no. 2 bed units) and ranges from 5 to 6 storeys.
  - Blocks D-G consist of 84 no. apartment units (43 no. 1 bed units, 29 no. 2 bed units and 12 no. 3 bed units) and ranges from 4 to 5 storeys.
  - Blocks H-K consist of 12 no. duplex units (6 no. 1 bed and 6 no. 3 bed units) and are 3 storeys.
- Provision of 270 long-stay and 101 short-stay bicycle parking spaces, 19 no. car parking spaces and 1 no. motorcycle parking space.
- Construction of a 277.54 sqm creche.
- Provision of 552 sqm of community, cultural and arts space located at ground floor level across Blocks B, E, F and G.

- 0.113 ha of public open space and 1350 sqm of communal open space
- Vehicular access is proposed from Grangegorman Lower and vehicular egress onto Stanley Street.
- Boundary treatments, public lighting, site drainage works, internal road surfacing and footpaths, ESB meter rooms, ESB substations, stores, bin and cycle storage, plant rooms, landscaping; and
- All ancillary site services and development works above and below ground.

Figure 2.3 shows the proposed site plan.

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

Pre-Construction Phase – Site clearance and preliminary works

- Demolition of existing structures associated with the Fire Brigade Maintenance Depot
- Site set-up, temporary services, site hoarding/fencing, staff welfare facilities
- Ground works and landscaping.

Phase 1 – Construction

- Construction of 167 no. apartment and duplex units
- 277.54 sqm creche
- 552 sqm of community, cultural and arts space at ground floor level

Ancillary works – which will consist of:

- Sustainable Drainage System (SuDS)
- Surface water and foul sewer network and associated attenuation
- 270 no. long-stay and 101 no. short-stay bicycle parking spaces
- 19 no. car parking spaces and 1 no. motorcycle parking space
- Electrical and telecom services
- Mains water supply connections
- Wastewater drainage connections
- Pedestrian access routes
- Permeable paving and roads
- Vehicular entrance along Grangegorman Lower and exit at Stanley Street
- Landscaping of public and communal open areas

2.5 Pre-Construction Activities

The main contractor will conduct enabling works for the demolition of existing structures, establishing site setup, appropriate signing, hoarding, security fencing and welfare facilities.

2.5.1 Demolition of Existing Structures

The existing site consists of premises associated with a Fire Brigade Maintenance Depot, and as such features an agglomeration of office buildings and warehouse-style units. Demolition of these structures is required prior to construction of the proposed development. C&D waste

generated by the works will be transported offsite to licensed waste facilities by suitably permitted waste collectors. According to the ground investigation report and subsequent Waste Characterisation Assessment, instances of C&D waste containing hazardous substances were encountered during borehole and trial pit testing. **Section 2.3.4** above outlines the procedure for identifying contaminated areas. It will be the responsibility of the Contractor to liaise with waste facilities capable of accepting the designated waste categories.

2.5.2 Site Set-Up and Hoarding

Perimeter hoarding will be provided around the site to provide a barrier against unauthorized access from the public areas. Controlled access points to the site, in the form of gates or doors, will be kept locked at any time that these areas are not monitored (e.g., outside working hours).

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

A suitably secure site compound will be set up, wherever the restricted confines of the site will allow and will facilitate the efficient delivery of materials and personnel to the site. This compound is to include material storage, site office and meeting room, and staff welfare facilities.

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

2.6 Construction Sequence of New Structures

The exact construction specifications of the proposed residential units and associated infrastructure are yet to be finalised. This section of the RWMP will be updated once a main contractor is appointed and a definitive construction program is established, in advance of the commencement of the project.

A summary of operations for the construction phase is listed in **Table 2.5** below.

Table 2.7: Summary of Operations Expected

External envelope will or may require the following operations:	Internal work will or may require the following operations:
• Blockwork/Brickwork • Sand & cement rendering • Windows & doors • Roof Coverings – Concrete, Green/Blue Roofing • Flashing, Aprons and Tray – Leadwork/Powder coated metal	• Electrical installation • Mechanical installation • Fireproofing • Partitions and ceilings – use of gypsum based products • Painting • Plastering • Stairs • Joinery
Above ground external operations:	

• Landscaping • Installation of manholes • Lamp posts • Permeable paving and green roads • Signs • Car parking and mobility compliant car parking **Below ground operations:** • Foul sewer, surface water, rainwater, and potable water networks • Soakaway attenuation system and detention basin • Electrical ducting	• Tiling • Air Tightness sealing and testing • Metal Work • Sanitary-ware installation • Vanity units • Reinforcement works • Insulation • Plumbing • Concreting/ floor slab • Carpet installation • Green/Blue Roofing

2.7 Asbestos-Containing Materials

OHHS Safety Consultants carried out an asbestos survey for the purpose of identifying asbestos containing materials in the premises prior to demolition.

The survey found that asbestos containing materials were present in the following areas:

Asbestos Insulation Debris:

- Present on the walls, floor and edges in the main boiler house. Access should be restricted to the boiler room until all asbestos debris is removed.

Asbestos Insulation Board:

- Present on the ceilings of the toilets and locker room in the office block. This is encapsulated and in good condition.
- There was no access to the attic above the locker rooms and toilets, but the board will be visible here and presumed to be in bad condition. Access to the area should be restricted until the board can be safely removed.
- Present behind the old fuse box on the wall of the Civil Defence Store.

Asbestos Cement Products:

- Cement sheets present on the roof, walls and gables of the first aid and laundry buildings, vehicle store, Ladder Store, Civil Defence Store, First aid Store, Derelict Office Building.
- Cement gutters present in the Fleet Maintenance Building.
- As asbestos cement was used to roof all buildings at one stage it is strongly presumed asbestos cement off cuts and debris will be present below floor slabs of all buildings as would commonly be the case. Asbestos materials can also be used as cavity closers, around block works and rings beams. This will only be exposed once demolition techniques are applied. A process should be in place when demolition works begin to account for this.
- Asbestos slate used as a cavity closer on the roof gables of the security hut.

Stair Noising's:

- Present on the stairs of the office block.

Vinyl Floor Tiles and Bitumen:

- Present on the floors of the workshop and kitchenette, DFB & DCC canteens, ground floor corridor, within the Canteen and Office Block. Tiles and bitumen are strongly presumed in the Waste Management Offices as there was no access at the time of the survey.
- Where the tiles have been replaced by modern coverings and screed, these will now be contaminated by the bitumen and must be treated as asbestos containing materials.

Asbestos Gaskets:

- Loose gasket present on the floor of the end store within the derelict offices.
- Present on the pipe work in the boiler room and throughout all buildings.
- Gasket on the front flange of the blue boiler in the main boiler room.

Asbestos Rope:

- Present on the skylights of the vehicle store.
- Present within the old electrical panels in the Derelict Office Building.

As all buildings are to be demolished, asbestos containing materials should be removed by competent persons following HSA Guidelines.

2.8 Design Changes

This section shall be updated during the construction phase to reflect any changes in design or practice that have an impact on resource and waste management.

3 Roles and Responsibilities

The EPA Best Practice Guidelines for RWMP outline typical responsibilities involved in projects such as the one proposed at Stanley Street. This section outlines the responsibilities for stakeholders to ensure an effective RWMP is implement over the course of development.

3.1 Contractor (TBC)

The Main Contractor, once employed, will undertake construction operations and is responsible for the following:

- Implementing and reviewing the RWMP throughout the construction phase.
- Designating a suitably qualified Resource and Waste Manager (RWM) who will be responsible for implementing the RWMP.
- Identifying and coordinating with waste removal contractors responsible for removing
- resources and waste off site. Hauliers should be in possession of valid Waste Collection Permits.
- Identifying suitably licensed waste facilities capable of receiving waste from the proposed site.
- Compile full records of resources and wastes accrued over the course of development.

3.2 Communication

Information regarding resource and waste management will be communicated by the Main Contractor and RWM who will ensure that staff and subcontractors are operating with best practice waste management procedures in place.

4 Design Approach

4.1 Reuse and Recycling

The national waste policy of Ireland, titled 'A Waste Action Plan for A Circular Economy – Ireland's National Waste Policy 2020 – 2025,' aims to transition the country towards a circular economy model. This model emphasizes reducing waste disposal by promoting circularity and sustainability. The policy focuses on enhancing material value through improved design, durability, repair, and recycling practices. By prolonging the circulation of resources within the local economy, the policy anticipates both environmental and economic benefits. The implementation of the policy involves several strategies, including reusing excavated soils and stones on-site, purchasing construction materials as needed to prevent oversupply and potential damage, segregating construction waste streams for maximum reusability, minimizing waste volume through design and adopting take-back schemes for items like pallets and packaging.

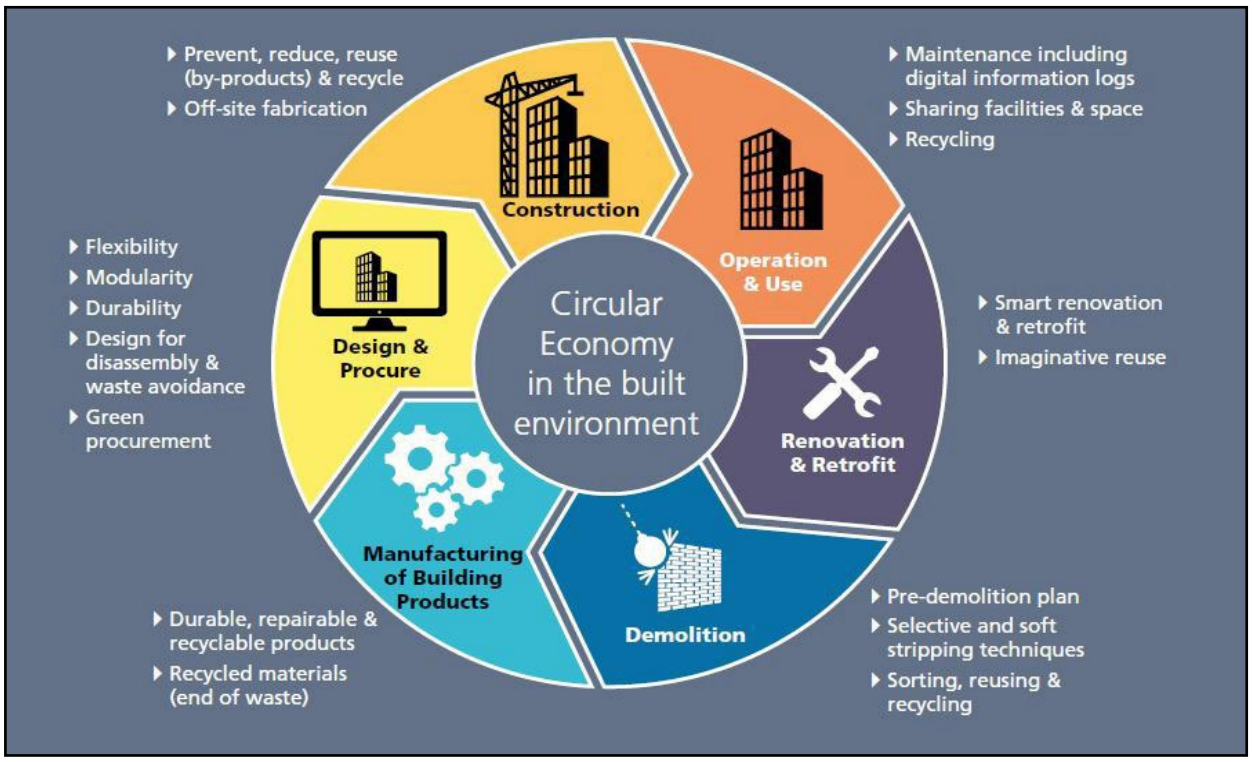


Figure 4.1: Circular Economic Model (Source: EPA Best Practice Guidelines)

4.2 Green Procurement

- The sourcing of goods and services should be conducted on an "as-needed" basis where possible which can reduce the need for packaging.
- Methods of waste prevention and minimisation shall be discussed with staff and subcontractors at an early stage of development, prior to procurement. Design solutions are to be agreed with an emphasis on sustainable practices.
- Project material specifications should consider allowing the use of reclaimed materials.

- Ordering procedures should be conducted with waste minimisation in mind, i.e., avoid over-ordering, identify take-back schemes for material surpluses and offcuts.

4.3 Off-Site Construction

- The use of precast materials (walls, concrete slabs, stairs, etc.) should be implemented where possible. The use of precast materials can have the following benefits:
  - Material quality and accuracy can be superior as factory fabrication is standardised and negative impacts from weather and site conditions are negated.
  - Over-ordering can be avoided as materials can be ordered from the factory and do not need to be produced on site.
  - The use of precast materials can lead to quicker construction times as floor levels can be established in short periods of time and facades can be closed in quickly, meaning internal works can be conducted earlier.
  - Precast materials reduce the production of waste.
  - Quality of precast materials is often better as fabrication occurs in a sheltered environment mitigating any potential environmental effects that may occur onsite.
  - Environmental contamination is reduced, particularly when precast concrete is used, as the chance of spillages is eliminated.

4.4 Materials Optimisation

- The optimisation of material use during construction will be established during the design phase. A rigorous project design will ensure that reworking and waste generation is reduced during construction.
- Effective communication between the Contractor, staff, and subcontractors will ensure that works are carried out efficiently and the use of material is optimised.
- The design of the proposed residential units is somewhat standardised, meaning the need for virgin resources is minimise.

4.5 Flexibility and Deconstruction

As the proposed development incorporates residential units, plans for deconstruction are not envisaged for the foreseeable future. As such, the flexibility of the proposed development is seen as sustainable as it will service long-to-medium term residents for years to come.

5 Key Materials and Quantities

Typical waste materials anticipated to be generated throughout the course of the project are classified under Section 17 – Construction and Demolition Wastes – of the List of Waste (LoW) as detailed in Table 5.1 below.

Table 5.1: Description of Waste

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

Paint, inks, adhesives and resins containing hazardous substances	20 01 27
WEEE	16 02
Batteries	16 06
Liquid Fuels	13 07

5.1 Waste Register

A Template has been developed for summarising the names and permit numbers of the waste collectors and waste facilities which will be utilised for off-site disposal of the various waste streams arising from the development. This document will also outline the projected weight of any waste that has to be transported off-site as well as any wight destined for reuse or recycling. This templated is included in **Appendix A**.

5.2 Waste Removal Contractors

Appendix B includes a list of licenced waste facilities in the Dublin region which are capable of hauling the primary C&D waste streams associated with the development. Coordinating with the licenced waste facilities will be the responsibility of the Main Contractor. Waste facilities shall confirm the acceptance of waste prior to the removal from site, ensuring that the facility is suitable and that it has sufficient capacity. This is not an exhaustive list, and liaison with other suitable waste facilities will be conducted by the Contractor as the need arises.

5.3 Estimated Construction Waste Generated

Table 5.2 below includes a breakdown of the estimated percentages of construction and demolition waste expected to be generated from a typical site such as this. Additionally, **Appendix C** outlines a list of estimated quantities of materials expected during the proposed construction works.

It should be noted final quantities of materials and construction methodologies have yet to be confirmed so it is therefore difficult to estimate the exact materials and quantities generated with a high degree of accuracy. These materials and quantities will most likely be subject to change during the construction process.

Table 5.2: Estimated Waste Generated (Based on Typical Irish Construction Site)

Waste Type	%
Soil & Stones	83
Concrete, Bricks, Tiles, Plastics, etc	13
Asphalt, Tar/Tar products	1
Metals	1
Other	2
Total Waste	**100**

Taking the above estimation into account, **Table 5.3** below outlines target values for waste management at the site. The tonnage / m^3 values for each waste type should be inputted by the contractor prior to starting on site once quantities are accurately measured.

Table 5.3: Estimated construction waste targets for the development							
Waste Types	Waste	Reuse/Recover		Recycle		Disposal	
	m^3	%	m^3	%	m^3	%	Tonnes
Soil & Stones	1589	20	317.8	0	0	80	1271.2
Concrete, Bricks, Tiles, Plastics, etc	247	0	0	80	197.6	20	49.4
Asphalt, Tar/Tar Products	19	0	0	20	3.8	80	15.2
Metals	19	5	0.95	90	17.1	5	0.95
Other	38	10	3.8	40	15.2	50	19
Total	1912	-	322.55	-	233.7	-	1355.75

5.4 Onsite Waste Reuse and Recycling Management

The national target for preparing for reuse, recovery, and recycling of C&D waste (excluding soil and stone) is 70%, and the waste industry in Ireland as of 2019 was achieving 84%. The proposed development should aim to exceed the national target of 70% regarding the reuse, recovery, and recycling of C&D waste (excluding soil and stone). The main contractor will be made aware of this target and will liaise with suitably permitted / licensed waste contractors that are able to commit to achieving, or exceeding, this target.

5.5 Material Removal and Excavations

It is understood that as part of the proposed development there will be an extensive demolition process to accommodate construction. Following demolition there will also be excavations to accommodate foundations, services, pavements and carparking and as such the material which may be excavated and removed from site needs to be assessed in terms of waste disposal outlets.

The asbestos survey conducted by *OHSS* outlines that The Safety health and Welfare at Work (Exposure to Asbestos) Regulations 2006-2010 requires a managed approach to asbestos containing materials in workplaces. The outcome of the risk assessment survey are as follows:

- **Environmental Clean:** Where there is debris from the installed ACM's in the surrounding area it may be recommended that this material is removed by environmentally cleaning the area around the materials. Following removal of the asbestos containing materials a site clearance for re-occupation certificate must be obtained from a competent independent analyst prior to demolition of the structure in accordance with Regulation 15 (10) of the

Safety Health and Welfare at Work (Exposure to Asbestos) Regulations 2006-2010.

- **Remove:** Prior to demolition of the building or structure asbestos containing materials must be removed and disposed of by a competent contractor. ACM removal will form part of a construction project and will require careful coordination to be carried out safely. Following removal of the asbestos containing materials a site clearance for reoccupation certificate must be obtained from a competent independent analyst prior to demolition of the structure in accordance with Regulation 15 (10) of the Safety Health and Welfare at Work (Exposure to Asbestos) Regulations 2006-2010.

As outlined above in **Section 2.3.4** the Waste Characterisation Assessment highlighted areas where hazardous material was encountered during trial pit and borehole sampling. A heatmap of the site will be generated by the project Resident Engineer to highlight areas where excavated waste material must be segregated. The Contractor will be responsible for liaising with suitably licensed waste removal contractors and facilities capable of transporting and receiving said waste material.

6 Site Management

6.1 Resource and Waste Manager

The Construction Project Manager will take on the role of RWM and shall take primary responsibility for the minimisation and prevention of waste generation. The following initiatives should be considered to assist in this task:

- Materials to be ordered on an “as needed” basis to prevent oversupply and material build up on site.
- Appropriate storage facilities should be provided to ensure materials are correctly handled and stored thus reducing damage to materials.
- Material ordering shall coincide with the program of works to reduce the need to store materials on site. However, given current industry issues with regards to labour and material shortages there may be incidents of materials needing to be stored on site to ensure continuate of materials and to streamline labour productivity.
- Sub-contractors will be responsible for the management of their wastes.
- Assess existing materials that will be recycled for use on site and estimate quantities, e.g., the use of roof tile and/or brick offcuts as a crushed rock sub-base under driveways.
- Specify materials with a lower environmental impact and specify new materials that contain a recommended percentage of recycled content, provided they meet functional, performance and regulatory requirements.
- Utilise the existing topography to minimise excavation and reuse any excavated materials on site where possible, e.g., rock for drainage layers, landscape fill, planting features or levelling spoil.
- Standardise design details and specified materials and reduce the number of materials specified where appropriate to facilitate process repeatability and minimise the number of variables and bespoke elements to enable manufacturing and installation efficiencies.
- Deliver training in relation to resource management, i.e., inductions and toolbox talks.
- Update the RWMP as required to reflect new resource streams, work practices, suppliers or resource management options.

Waste Auditing should be carried out at regular intervals by the Project Manager or Resident Engineer. This process will involve monitoring waste management practices and highlighting and correcting any instances of non-compliance.

6.2 Site Induction and Toolbox Talks

The Contractor will communicate with relevant stakeholders throughout the construction phase, as required. This may include:

- Communicating waste statistics to the Client, management team, and subcontractors to monitor targets and objectives.
- Engaging with the local authority on any site inspection or audits required on site. Reports of any corrective actions, if necessary, will be provided to the local authority.
- Engagement with other stakeholders (public, EPA, etc.) where appropriate on matters relating to resource and waste management.

- A post-project RWMP will be compiled at project completion summarising the resource management procedures adopted, reuse and recovery figures and final destination of resources taken off site.

6.3 Identifying Waste Collectors and Licensed Facilities

- As mentioned previously, the Main contractor is responsible for coordinating waste removal with suitable waste collectors and licensed waste facilities.
- Waste facilities must issue a letter of acceptance to the contractor indicating acceptance and sufficient capacity for waste arising.
- A list of authorised waste collectors can be found on the following website: https://www.nwcpo.ie/permitsearch.aspx
- Waste facility permits and Certificate of Registrations can be found on the following website: https://facilityregister.nwcpo.ie

6.4 Resource-Efficient Supply Chains

The Contractor will ensure that supply chain is organised in line with resource and waste best management practices. This will involve:

- Ensuring that contractors have sufficient resources to ensure supply chain competence (i.e., environmental policies and procedures, supervision, access to advice).
- Early collaboration with supply chain to avoid waste generation i.e., no over-ordering, implementing take-back schemes for pallets, packaging, etc.
- Implementing a 'continuous improvement' strategy on site by maintaining good communication with contractors in relation resource and waste management.

6.5 Record Keeping

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

- Contractors and subcontractors on Site every day.
- All visitors (including Health and Safety procedures) and any associated reports.
- Invoices showing standard of material installed adheres to specifications.
- Date of waste removal.
- List of Wastes and associated codes.
- Waste haulage details (name, address, permit no., vehicle registration).
- Waste Treatment contractor certificate of registration.
- Confirmation of waste removal.
- Final destination of waste.
- Safety statement and safety file.
- Site programme.

Much of the information outlined above will be included in the Waste Register **(Appendix A)** throughout development.

6.6 Communication with Local Authority/Stakeholders

The Contractor will communicate with relevant stakeholders throughout the construction phase, as required. This may include:

- Communicating waste statistics to the Client, management team, and subcontractors to monitor targets and objectives.
- Engaging with the local authority on any site inspection or audits required on site. Reports of any corrective actions, if necessary, will be provided to the local authority.
- Engagement with other stakeholders (public, EPA, etc.) where appropriate on matters relating to resource and waste management.
- A post-project RWMP will be compiled at project completion summarising the resource management procedures adopted, reuse and recovery figures and final destination of resources taken off site.

6.7 Inspections and Audits

- Daily checks shall be carried out by Contractor's management team to ensure compliance with the RWMP. This will involve checking waste storage areas, waste segregation measures, signage, subcontractor compliance, and review of waste documentation.
- Movement of waste transport vehicles will be monitored to ensure transfer note is signed and waste carrier is authorised.
- Formal EHS audits will be carried out by the Contractor on a regular basis.
- Findings from inspections and audits will be summarised in a monthly environmental report.

7 Site Infrastructure

7.1 Signage

It is the responsibility of the Contractor to ensure staff are aware of segregation by installing clear signage identifying waste collection areas and bins. Verbal instruction via training and toolbox talks will inform staff of proper housekeeping and waste management practices.

7.2 Resource Storage

A waste storage area will be established in the designated site compound (as detailed in the CEMP). The storage will provide adequate space for storage and handling of waste, with sign-posted bins/skips indicating where waste should be disposed of.

Non-Hazardous Waste

Dedicated bins/skips will be established, and potentially colour-coded, to provide storage of typical waste arising from construction including but not limited to:

- Mixed/General waste
- Bulky waste
- Metal
- Dry mixed waste
- Wood

Excavated soil material will be reused where possible. In the event of soil removal off site, the material shall be classified as inert, non-hazardous, or hazardous in accordance with the EPA's Waste Classification Guidance. It will then be transferred by an appropriately permitted waste collector and brought to a licensed waste facility for treatment or disposal. Burning or burial of waste will not be permitted on site.

Hazardous Waste

Hazardous materials may include:

- Fuel
- Oil
- WEEE
- Construction chemicals (cement, sealant, paints, etc.)
- Sewage
- Contaminated soil (resulting from fuel or oil spills)

Contaminated soil will be segregated and transported by suitably licensed waste removal contractors to waste facilities permitted to accept said waste. Chemicals will be stored in bunded areas well away from surface water sources or gullies/surface water drainage leading off site. Hazardous waste will be removed from site by a permitted waste collector.

ORS

Appendix A: Waste Register

Resource & Waste Management Register

Waste Details		Resource & Waste Management								Waste Transfer Details			
										Waste Collector		Waste Facility	
Description of Waste	LoW Code	Volume Generated (Tonnes)	Prevention (non-waste) (Tonnes)	Reused (non waste) (Tonnes)	Recycled (waste) (Tonnes)	Recovered (Waste) (Tonnes)	Disposed (Waste) (Tonnes)	Unit Cost Rate (€ /Tonne)	Total Cost (€)	Name	NWCP	Name	WFP/ WL No.
Concrete, Bricks, Tiles and Ceramics	**17 01**												
Concrete	17 01 01												
Bricks	17 01 02												
Tiles and Ceramics	17 01 03												
Mixtures of, or separate fractions of concrete, bricks, tiles and ceramics containing hazardous substances	17 01 06*												
Mixture of concrete, bricks tiles & ceramics	17 01 07												
Wood, Glass, and Plastic	**17 02**												
Wood	17 02 01												
Glass	17 02 02												
Plastic	17 02 03												
Glass, plastic and wood containing or contaminated with hazardous substances	17 02 04*												
Bituminous Mixtures, Coal Tar and Products	**17 03**												
Bituminous mixtures containing coal tar	17 03 01												
Bituminous mixtures containing other than those mentioned in 17 03 01	17 03 02												
Metals (including their Alloys)	**17 04**												
Copper, Bronze, Brass	17 04 01												
Aluminium	17 04 02												
Lead	17 04 03												
Zinc	17 04 04												
Iron and Steel	17 04 05												
Tin	17 04 06												
Mixed Metals	17 04 07												
Metal waste contaminated with hazardous substances	17 04 09*												
Cables	17 04 11												
Soil (including excavated soil from contaminated sites, stones and dredging spoil)	**17 05**												
Soil and Stones	17 05 04												
Soil and Stones containing hazardous substances	17 05 03*												
Insulation and Asbestos-Containing Construction Materials	**17 06**												
Insulation Material	17 06 04												
Construction Materials Containing Asbestos	17 06 05*												
Gypsum based Construction Materials	**17 08**												
Gypsum	17 08 02												
Other Construction and Demolition Materials	**17 09**												
Mixed Construction and Demolition Waste other than those mentioned in 17 09 01, 17 09 02, 17 09 03	17 09 04												
Wastes of Liquid Fuels	**13 07**												
Fuel Oil & Diesel	13 07 01*												
Petrol	13 07 02*												
Other Fuels	13 07 03*												
Wastes from the Manufacture, Formulation. Supply and Use of Coatings	**08 01**												
Waste Paint & Varinish containing Organic Solvents or other Hazardous Materials	08 01 11*												
Waste Paint & Varinish other than those mentioned in 18 01 11	08 01 12												
Waste from waste water treatment plants	**19 08**												
Sewage Screenings	19 08 01												
Municipal Wastes	**20 01**												
Paper and Cardboard	20 01 01												
Wood other than that mentioned in 20 01 37	20.01 38												
Paint, inks, adhesives, and resins containing hazardous substances	20 01 27												
Electrical and electronic components	20 01 35-36												
Batteries and accumulators	20 01 33-34												
Chemicals (solvents, pesticides, paints, adhesives, detergents etc.)	20 01 13/19/27-30												
Other Municipal Wastes	**20 03**												
Mixed Municipal Waste	20 03 01												

ORS

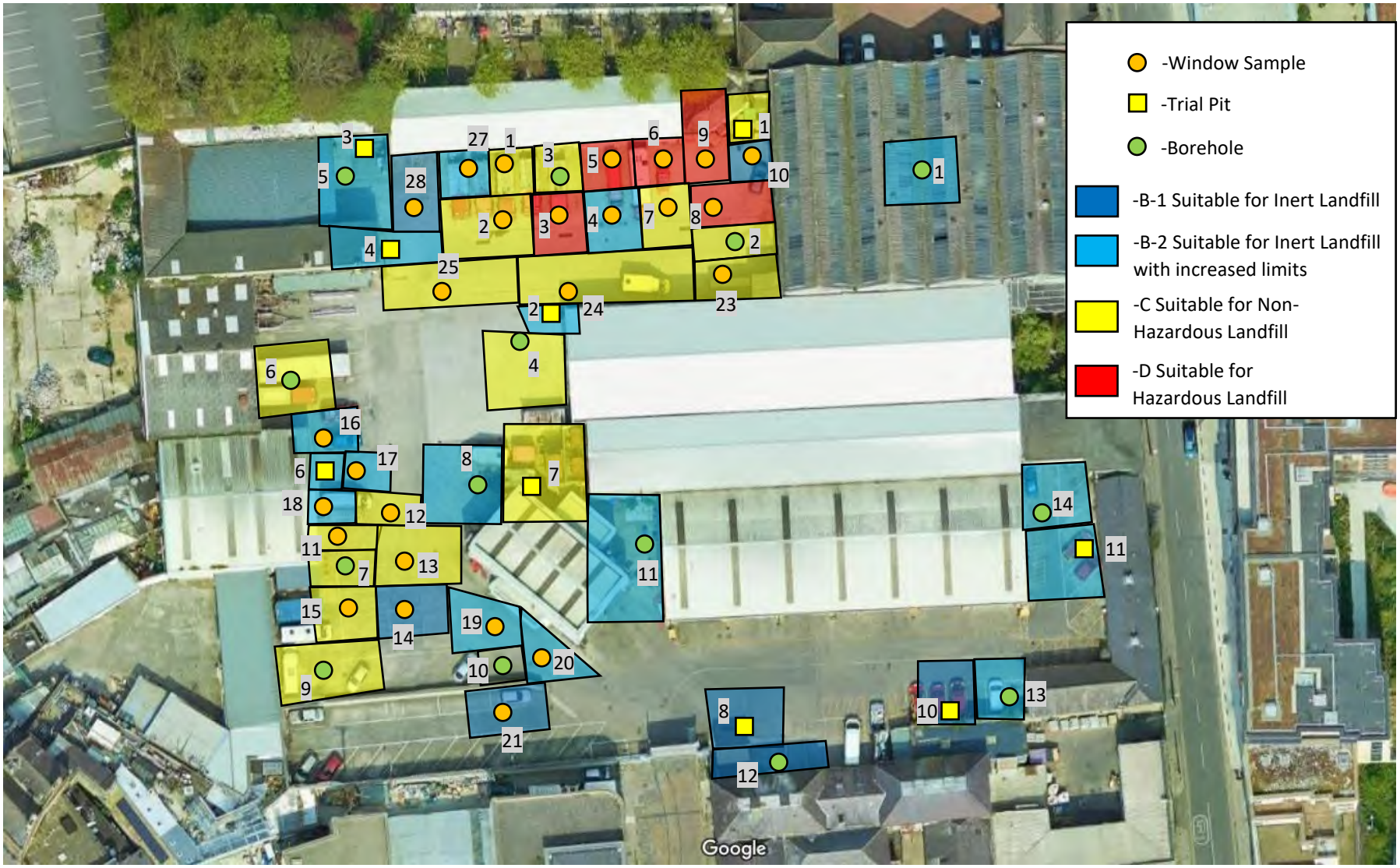
Appendix B: Licensed Waste Facilities

Licensed Waste Facilities				
Waste Type	**Waste Code**	**Licensed Waste Facility/Collector**	**Facility Code**	**Facility Address**
Soil & Stones	17 05 04	South Dublin Composting Company Limited	WFP-DS-19-0004-02	Tay Lane, Rathcoole Co Dublin D24 H954
		L Behan Aggregates and Recycling Ltd	COR-DS-23-0004-03	Windmill Hill Quarry Rathcoole Co. Dublin
		McIntyre Plant Hire (Dublin) Limited	WFP-DS-22-0004-01	Kilmactalway Newcastle Co. Dublin
Concrete	17 01 01	South Dublin Composting Company Limited	WFP-DS-19-0004-02	Tay Lane, Rathcoole Co Dublin D24 H954
		L Behan Aggregates and Recycling Ltd	COR-DS-23-0004-03	Windmill Hill Quarry Rathcoole Co. Dublin
		McIntyre Plant Hire (Dublin) Limited	WFP-DS-22-0004-01	Kilmactalway Newcastle Co. Dublin
Bricks	17 01 02	South Dublin Composting Company Limited	WFP-DS-19-0004-02	Tay Lane, Rathcoole Co Dublin D24 H954
		L Behan Aggregates and Recycling Ltd	COR-DS-23-0004-03	Windmill Hill Quarry Rathcoole Co. Dublin
		McIntyre Plant Hire (Dublin) Limited	WFP-DS-22-0004-01	Kilmactalway Newcastle Co. Dublin
Tiles and Ceramics	17 01 03	South Dublin Composting Company Limited	WFP-DS-19-0004-02	Tay Lane, Rathcoole Co Dublin D24 H954
		L Behan Aggregates and Recycling Ltd	COR-DS-23-0004-03	Windmill Hill Quarry Rathcoole Co. Dublin
		McIntyre Plant Hire (Dublin) Limited	WFP-DS-22-0004-01	Kilmactalway Newcastle Co. Dublin
Wood	17 02 01	South Dublin Composting Company Limited	WFP-DS-19-0004-02	Tay Lane, Rathcoole Co Dublin D24 H954
		Roadstone Limited	WFP-DS-11-0005-04	Belgard Quarry Fortunestown Tallaght Dublin 24 D24 PKK2
		JFK Environmental Limited	WFP-DS-11-0002-08	Unit 512B Greenogue Business Park Rathcoole Dublin 24
Glass	17 02 02	KN Network Services (IRE) Limited	WFP-DS-15-0003-06	3-4 Crag Avenue Clondalkin Industrial Estate Clondalkin Dublin 22
		JFK Environmental Limited	WFP-DS-11-0002-08	Unit 512B Greenogue Business Park Rathcoole Dublin 24
Plastic	17 02 03	KN Network Services (IRE) Limited	WFP-DS-15-0003-06	3-4 Crag Avenue Clondalkin Industrial Estate Clondalkin Dublin 22
		Roadstone Limited	WFP-DS-11-0005-04	Belgard Quarry Fortunestown Tallaght Dublin 24 D24 PKK2
		JFK Environmental Limited	WFP-DS-11-0002-08	Unit 512B Greenogue Business Park Rathcoole Dublin 24
Bituminous mixtures	17 03 02	SIAC Bituminous Products Ltd	WFP-DS-19-0002-01	Monastery Road Clondalkin Dublin 22
		KN Network Services (IRE) Limited	WFP-DS-15-0003-06	3-4 Crag Avenue Clondalkin Industrial Estate Clondalkin Dublin 22
		Roadstone Limited	WFP-DS-11-0005-04	Belgard Quarry Fortunestown Tallaght Dublin 24 D24 PKK2
Mixed Metals	17 04 07	KN Network Services (IRE) Limited	WFP-DS-15-0003-06	3-4 Crag Avenue Clondalkin Industrial Estate Clondalkin Dublin 22
		JFK Environmental Limited	WFP-DS-11-0002-08	Unit 512B Greenogue Business Park Rathcoole Dublin 24
		Evolution Metal Recycling	WFP-DS-10-0002-06	Colas Bitumen Emulsions (Dublin) Ltd. Bluebell Industrial Estate Bluebell Avenue Dublin 24
Mixed Construction and Demolition Wastes	17 09 04	Callan Recycling Limited	WFP-DS-16-0001-05	Unit 51 Fourth Avenue, Cookstown Industrial Estate, Tallaght, Dublin 24 D24 NY76
		JFK Environmental Limited	WFP-DS-11-0002-08	Unit 512B Greenogue Business Park Rathcoole Dublin 24
		Citius Limited	COR-DS-22-0001-01	Club Road Ballymount Dublin 22

Appendix C: Estimated Quantities

Apartment Block			
Stanley Street Dublin		Unit	
Substructure	Foundation Excavations and Disposal	m^3	1589
	Concrete in Foundations	m^3	477
	Blockwork in Foundations (215mm)	m^2	566
	Blockwork in Foundations (440mm)	m^2	377
	200mm Concrete Floor Slab	m^3	656
External Walls	100mm block outer leaf, 150mm cavity, 100mmblock inner leaf	m^2	8192
Internal Walls	215mm block	m^2	8089
	Lift and Stair Shaft Walls	m^2	927
Floor Slab	200mm Precast Hollowcore Unit with Screed over	m^2	11695
	Transfer Slab 600mm Concrete	m^2	0
Roof	200mm Precast Hollowcore Unit with Screed over to falls	m^2	3257
	150mm RC concrete	m^2	0

Appendix D: Excavation Plan (O'Callaghan Moran & Associates)



O'Callaghan Moran & Associates,
Unit 15 Melbourne Business Park,
Model Farm Road, Cork.
Tel. (021) 4345366
Email: info@ocallaghanmoran.com

Title:

Excavation Plan 0.00-1.00m

Legend

Client:

IGSL Limited

O'Callaghan Moran & Associates,
Unit 15 Melbourne Business Park,
Model Farm Road, Cork.
Tel. (021) 4345366
Email: info@ocallaghanmoran.com

Title:

Excavation Plan 1.00-2.00m

Legend

Client:

IGSL Limited

O'Callaghan Moran & Associates,
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Model Farm Road, Cork.
Tel. (021) 4345366
Email: info@ocallaghanmoran.com

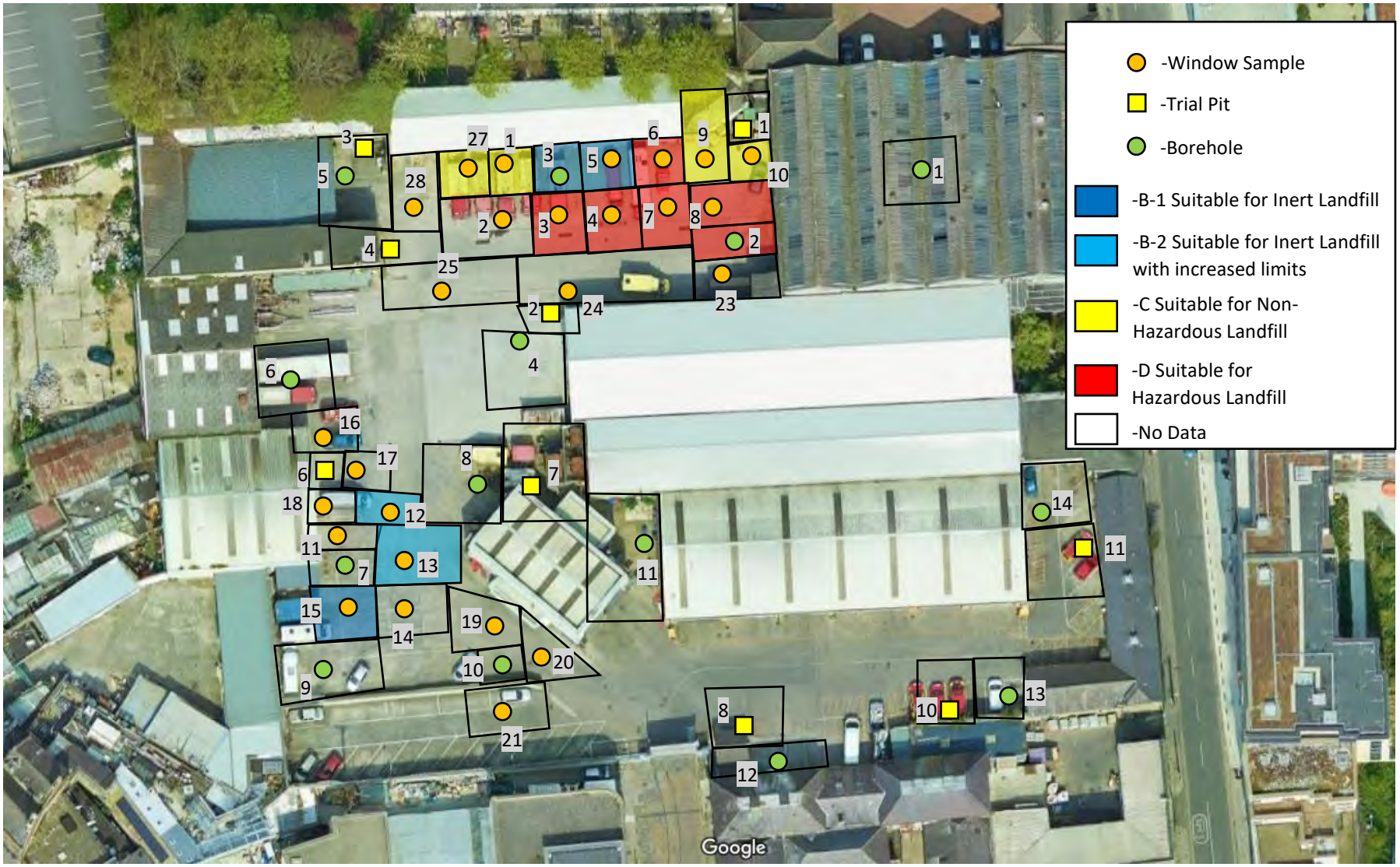
Title:

Excavation Plan 2.00-3.00m

Legend

Client:

IGSL Limited



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Model Farm Road, Cork.
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Email: info@ocallaghanmoran.com

Title:

Excavation Plan 3.00-4.00m

Legend

Client:

IGSL Limited

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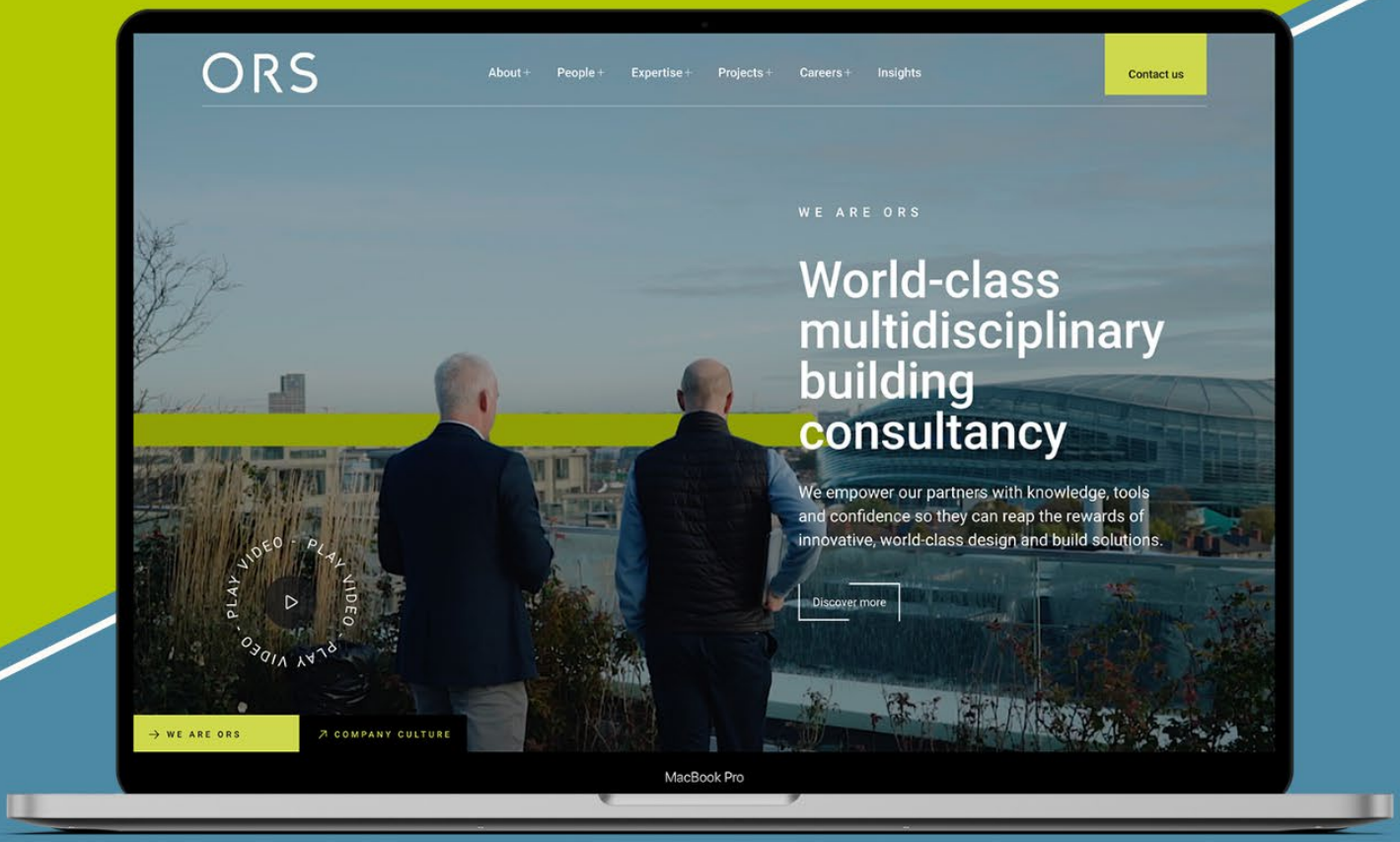

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