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Demolition and Construction Waste Management Plan

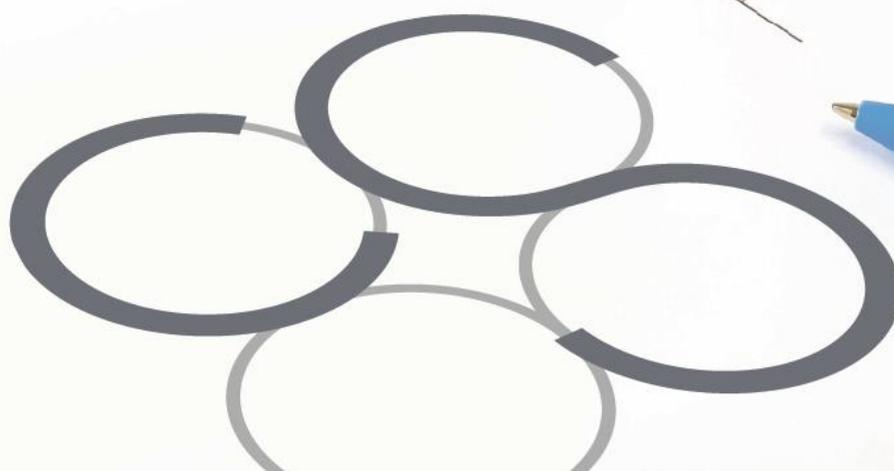
The Arboury

Belgard Road, Tallaght, Dublin 24

Client: Landmarque Belgard Development Company
Limited

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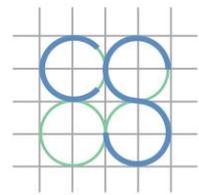


DEMOLITION AND CONSTRUCTION WASTE MANAGEMENT PLAN

THE ARBOURY, BELGARD ROAD, TALLAGHT, DUBLIN 24

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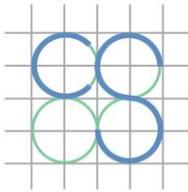
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1.0 INTRODUCTION

Cronin & Sutton Consulting Engineers (CS Consulting) have been commissioned by Landmarque Belgard Development Company Limited to prepare a Demolition and Construction Waste Management plan in support of a proposed residential development at the site of the Former ABB Site, Belgard Road, Tallaght, Dublin 24.

The purpose of this Waste Management Plan (WMP) is to ensure that waste generated during the demolition and construction phases of the development will be managed and disposed of in a way that ensures the provisions of the Waste Management Acts 1996 to 2013 and the Eastern-Midlands Region (EMR) Waste Management Plan 2015-2021 are complied with. It will also ensure that optimum levels of waste reduction, re-use and recycling are achieved.



2.0 GOVERNMENTAL POLICY

2.1 National Level

The publication, "Changing Our Ways", which identifies objectives for the prevention, minimization, reuse, recycling, recovery and disposal of waste in Ireland, was issued by the Government in September 1998. The target for Construction and Demolition waste in this Strategy was to recycle at least 50% of C&D waste by 2003, with an increase to at least 85% by 2013.

The Forum for the Construction Industry, which represents the waste sector of the industry, released a report titled "Recycling of Construction and Demolition Waste" concerning the development and implementation of a voluntary construction industry programme to meet the governments objectives for the recovery of construction and demolition waste. The National Construction and Demolition Waste Council (NCDWC) was launched in June 2002 and subsequently produced "Guidelines for the Preparation of Waste Management Plans for Construction and Demolition Projects" in July 2006. There are thresholds set out in the Guidelines to determine whether a C&D WMP is required. The development requires a C&D WMP for new residential developments of 10 houses or more and new developments, including institutional, educational, health and other public facilities, with an aggregate floor area exceeding 1,250m².

The Guidelines outline the issues that need to be addressed at the pre-planning stage of a development all the way through to its completion. The guidelines include the following:

- predicted demolition & construction wastes and procedures to prevent, minimise, recycle and reuse wastes;
- waste disposal/recycling of C&D wastes at the site;

- list of sequence of demolition operations to be followed;
- provision of training for waste manager and site crew;
- details of proposed record keeping system;
- details of waste audit procedures and plan;
- details of consultation with relevant bodies, i.e. waste recycling companies, South Dublin County Council, etc.

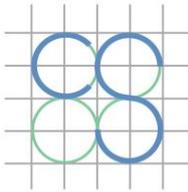
In 2002, the Construction Industry Federation (CIF) issued “Construction and Demolition Waste Management – a handbook for Contractors and Site Managers”.

Annually the Environmental Protection Agency (EPA) issue a “National Waste (Database) Reports” detailing C&D waste generation and the level of recycling, recovery and disposal of this material, domestic and municipal waste rates, etc.

2.2 Regional Level

A Waste Management Plan for the Dublin Region (comprising Dublin City Council, Fingal County Council, South Dublin County Council & Dun Laoghaire-Rathdown County Council) was in place from 2005-2015, with periodic revisions. This was superseded by the Eastern-Midlands Region (EMR) Waste Management Plan 2015-2021, which was launched in May 2015.

The Eastern-Midlands Region comprises Dublin City Council, Dún Laoghaire-Rathdown, Fingal, South Dublin, Kildare, Louth, Laois, Longford, Meath, Offaly, Westmeath and Wicklow County Councils. The Plan provides a framework for the prevention and management of waste in a sustainable manner in these 12 local authority areas.



The three overall performance targets of the Eastern-Midlands Region Waste Management Plan are as follows:

- 1% reduction per annum in the quantity of household waste generated per capita over the period of the plan.
- Achieve a recycling rate of 50% of managed municipal waste by 2020.
- Reduce to 0% the direct disposal of unprocessed municipal waste to landfill (from 2016 onwards) in favour of higher value pre-treatment processes and indigenous recovery practices.

The Plan's implementation is led by the Eastern-Midlands Regional Waste Office based in Dublin City Council.

Ireland achieved 68% recovery material recovery of non-hazardous, non-soil & stones C&D wastes in 2014. One of the primary objectives of the Plan is to achieve more sustainable waste management practices in the C&D sector. This requires the following actions:

- The development company must employ best practice at the design, planning and construction stage to ensure waste prevention and recycling opportunities are identified and implemented.
- Waste Collectors are required to introduce source-separation of recyclables and introduce graduated charges to incentivise better site practices.

Local Authorities will ensure the voluntary industry code is applied to development control, to regulate the collection and treatment of waste to meet the Plan objectives and will also work to develop markets for recycled materials.

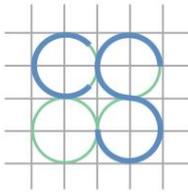
2.3 Legislative Requirements

One of the guiding principles of European waste legislation, which has in turn been incorporated into the Waste Management Act 1996 (as amended by the Waste Management (Amendment) Act 2001) 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 to its legal disposal (including its method of disposal). 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 collection and transport of waste).

Waste contractors are typically engaged to transport waste off-site. Each contractor must comply with the provisions of the Waste Management Act 1996 and associated Regulations. This includes the requirement that a contractor handle, transport and 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 the relevant 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 waste permit granted by the local authority under the Waste Management (Facility Permit & Registration) Regulations 2007 or a waste license granted by the EPA. The permit/license held will specify the type and quantity of waste able to be received, stored, sorted, recycled and/or disposed of at the specified site.

Should the initial assessment of the site indicate that material would have to be removed from site then the material will be classified in accordance with legislative requirements to determine if the material is classified as



hazardous or non-hazardous. All material deemed to be non-hazardous will then be assessed under Waste Acceptance Criteria requirements for disposal to a licence landfill facility in accordance with 2002 European Landfill Directive [2003/33/EC]. Only material deemed through independent laboratory analysis to be either inert or non-hazardous can be disposed of at landfill facilities in the Republic of Ireland at present, hazardous material having to be taken abroad for disposal.

The assessment and removal of such material will require the main contractor to employ a suitably qualified environmental specialist to develop a soil management and removal plan and ensure full compliance with statutory requirements.

3.0 SITE LOCATION AND PROPOSED DEVELOPMENT

3.1 Site Location

The site of c.0.898 ha is located at the former ABB Site, Belgard Road, Tallaght, Dublin 24, D24 KD78. The site is bound by Belgard Road (R113) to the east, Belgard Square North to the North and Belgard Square East to the west and Clarity House to the south.

The development is bound by the primary route of Belgard Road and the secondary routes of Belgard Square North & East with active frontage opening onto this route. The physical boundary to the south has a wall separating the site from an adjacent property along which the LAP seeks to introduce a Tertiary route.

The site is situated at the North East corner of the LAP town centre zoned land; therefore, it is a gateway site leading from Belgard Road and Belgard Road North into Tallaght centre.

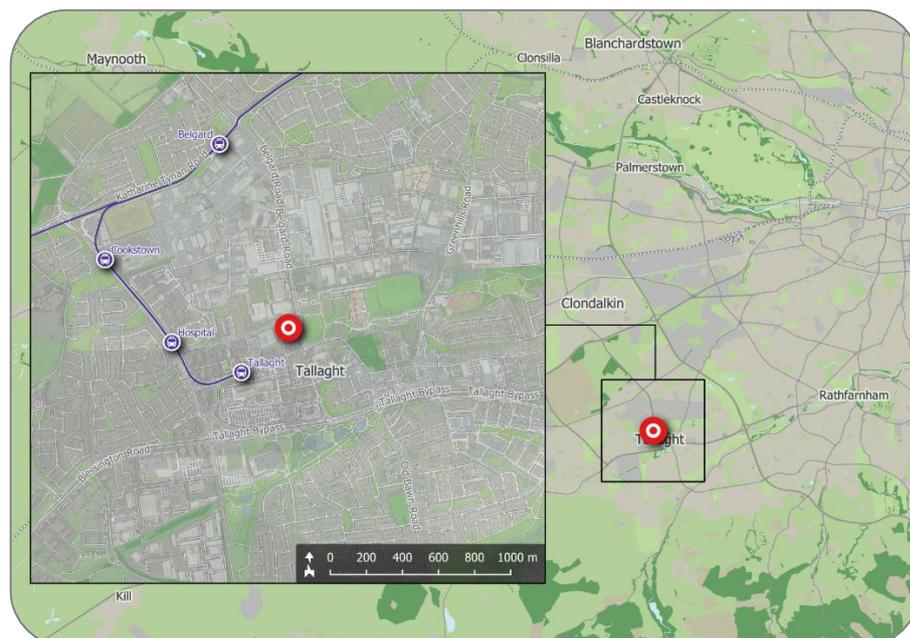
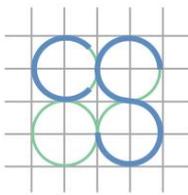


Figure 1 – Location of proposed development site
(map data: EPA, NTA, OSM Contributors)



The location of the proposed development site is shown in Figure 1 above; which also shows the indicative extents of the development site. The site is within walking distance to the Square shopping centre (250m), the Tallaght University Hospital (400m), TUD Tallaght Campus (50m) and the Luas stop in the town centre (500m)

The site is within 2.5 km of the M50 to the East. The surrounding road network is shown in more detail in figure 2 below.

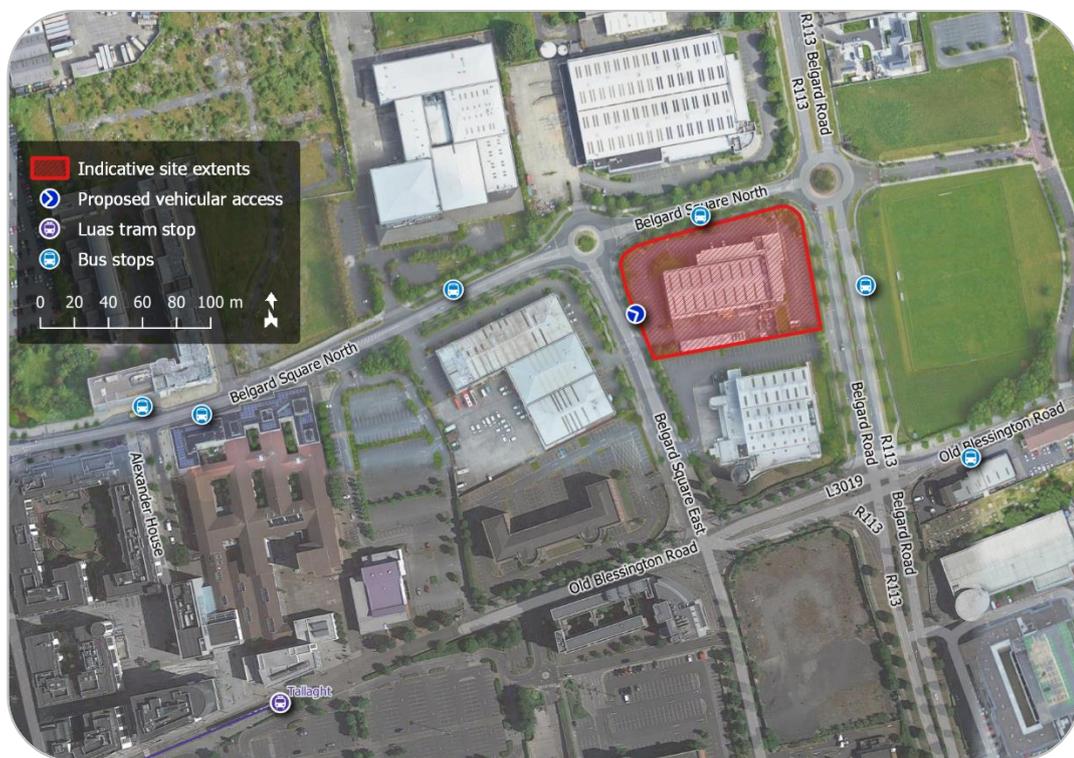


Figure 2 – Site extents and environs
(map data: EPA, NTA, OSM Contributors)

3.2 Existing Land use

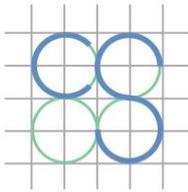
The site currently contains an industrial/office building which is occupied by ABB Limited. It also contains a storage yard with the remaining portion of the site used for carparking. The topography of the site is flat with only localized falls for drainage purposes and the site is hard standing throughout.

3.3 Project Description

The site of c.0.898 ha is located at the former ABB Site, Belgard Road, Tallaght, Dublin 24, D24 KD78. The site is bound by Belgard Road (R113) to the east, Belgard Square North to the North and Belgard Square East to the west and Clarity House to the south.

The proposed development will consist of:

1. Demolition of all existing structures on site (with a combined gross floor area of c. 3625 sqm)
2. The construction of a mixed-use residential development set out in 3 No. blocks including a podium over a basement, ranging in height from 2 to 13 storeys (with core access above to roof terrace), comprising:
 - 334 no. residential units of which 118 No. will be Build to Rent (BTR) residential units, with associated amenities and facilities across the development,
 - 4 No. retail/café/restaurant units and 3 no. commercial spaces associated with the 3 no. live-work units (723 sqm combined),
 - Childcare facility (144 sq.m.),



- 670 No. bicycle parking spaces including 186 visitor spaces; 117 car parking spaces (including 6 disabled spaces) are provided at ground floor and basement level.
- The overall development has a Gross Floor Area of 29,784 sq.m.
- Two (2) podium residential courtyards and three (3) public accessible pocket parks, two (2) to the North & one (1) to the South.
- Linear Park (as a provision of the Tallaght Town Centre LAP) providing safe public pedestrian and cycling access between Belgard Rd and Belgard Square East

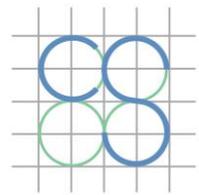
3. Of the total 334 residential units proposed, unit types comprise:

Block A (Build-to-Rent)

- 91 no. 1 bed units
- 1 no. 2 bed 3 person units
- 26 no. 2 bed 4 person units

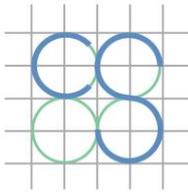
Blocks B & C

- 2 no. live-work studio units
- 102 no. 1-bed units
- 12 no. 2-bed 3 person units
- 88 no. 2-bed 4 person units including 5 no. duplex units
- 1 no. 2-bed 4 person live-work unit
- 11 no. 3-bed units



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4. All associated works, plant, services, utilities, PV panels and site hoarding during construction



4.0 WASTE MANAGEMENT ORGANISATION

4.1 Responsibility for Construction Phase Waste Management

A suitably competent and experienced representative of either the client or the lead contractor will be nominated as Construction & Demolition (C&D) Waste Manager for the project. The function of the C&D Waste Manager is to effectively communicate the aims and objectives of the Waste Management programme for the project to all relevant parties and contractors involved in the project, for the duration of demolition and construction works on site.

The C&D Waste Manager will be assisted in this role by the external Safety Consultant. Site Inspections will be carried out on a weekly basis and will incorporate inspection and monitoring of the requirements of the Waste Management Plan.

5.0 DEMOLITION WASTE GENERATED BY THE PROPOSED DEVELOPMENT

Demolition waste shall be generated during development. The management of spoil generated by demolition of the existing industrial building and excavation on site is described within the following section of this document.

The typical type of waste can be summarised as:

- Soil and stones;
- Concrete (including blocks);
- Timber;
- Glass;
- Mixed Metals;
- Gypsum based materials;
- Tiles / Ceramics;
- Insulation Materials (asbestos free);
- Waste electrical and electronic equipment;
- Fixtures and fittings etc

5.1 Estimated Waste Arisings

The EPA issued the European Waste Catalogue in January 2002 and this system was used to classify all wastes and hazardous wastes into a consistent waste classification system across the EU. The EWC for typical waste materials to be expected to be generated during the demolition of the existing buildings are as follows:

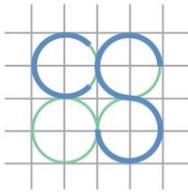


Table 1 - European Waste Catalogue

Waste Material	EWC Code
Non-Hazardous	
Concrete, bricks, tiles, ceramics	17 01
Wood, glass and plastic	17 02
Bituminous mixtures, coal tar and tarred products	17 03
Metals (including their alloys)	17 04
Soil, stones and dredged spoil	17 05
Gypsum-based construction material	17 08
Hazardous	
Electrical and Electronic Components	16 02
Batteries	16 06
Wood Preservatives	03 02
Liquid Fuels	13 07
Soil and stones containing dangerous substances	17 05 03
Insulation materials containing asbestos	17 06 01
Other insulation materials consisting of or containing dangerous substances	17 06 03
Construction materials containing asbestos	17 06 05
Construction and demolition waste containing mercury	17 09 01
Construction and demolition waste containing PCBs	17 09 02
Other construction and demolition wastes containing dangerous substances	17 09 03

5.2 Demolition Waste Estimates

The existing commercial buildings area in total is approximately 2524m² in floor space (Including outbuildings) and approximately 5076m² in hardstanding. The BRE Waste Benchmark Data as of June 2012 provides guidance on the demolition waste estimates based on the gross internal floor area.

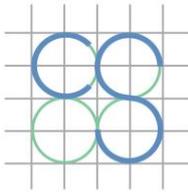
Project Type	Number of projects data relates to	Average Tonnes/100m ²	Number of projects data relates to	Average Tonnes/£100K
Residential	256	16.8	260	12.3
Public Buildings	23	22.4	24	11.2
Leisure	21	21.6	20	10.5
Industrial Buildings	23	12.6	24	5.7
Healthcare	22	12.0	22	9.9
Education	60	23.3	60	11.8
Commercial Other	4	7.0	2	3.6
Commercial Offices	14	23.8	11	6.3
Commercial Retail	48	27.5	47	11.6
Total number of projects	471		470	

Table 2: BRE Waste Benchmark

For an industrial building area to be demolished of 2524m² and an average of 12.6 tonnes per 100 m² of floor area, the demolition waste generated translates to 318 tonnes.

The breakdown of demolition waste produced on a typical construction site is classified as follows:

Waste Types	%
Glass	3
Concrete, Bricks, Tiles, Ceramics	64
Plasterboard	4
Asphalt, Tar and Tar products	6



Metals	2
Slate	8
Timber	13
Total Waste	100

Table 3: Breakdown of Demolition waste

5.3 Mitigation Measures

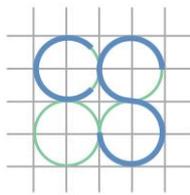
A site-specific Construction and Development Waste Management Plan (C&D WMP) for the demolition and construction of the development will be employed to ensure effective waste management and recycling of waste generated at the site.

Mitigation measures proposed are summarised below:

- On-site segregation of all waste materials into appropriate categories including:
 - made ground, soil, subsoil, bedrock
 - concrete, bricks, tiles, ceramics, plasterboard metals
 - dry recyclables e.g. cardboard, plastic, timber
- All waste materials will be stored in skips or other suitable receptacles in a designated area of the site.
- An asbestos survey has been completed in the demolished buildings.
- Wherever possible, left-over materials (e.g. timber off cuts) and any suitable demolition materials shall be re-used on-site.

- Any potentially contaminated soil to be removed from site will be tested to confirm its contamination status and subsequent management requirements.
- All waste leaving site will be recycled, recovered or reused where possible, with the exception of those waste streams where appropriate facilities are currently not available.
- All waste leaving the site will be transported by suitable permitted contractors and taken to suitably licensed or permitted facilities.
- All waste shall be tracked to its destination and a log be drawn up on left on site. The log shall include the haulier employed, the respective driver, receiving gate receipts for all waste (both demolition and excavation material) etc.

These mitigation measures will ensure the waste arising from the demolition and construction of the development is dealt with in compliance with the provisions of the Waste Management Act 1996 (as amended 2001), and associated Regulations, the Litter Act of 1997 and the Dublin Waste Management Plan (2005 - 2010), and achieve optimum levels of waste reduction, re-use and recycling.



6.0 CONSTRUCTION WASTE GENERATED BY THE PROPOSED DEVELOPMENT

6.1 Construction Waste Classification

Waste generated during construction at a typical site includes the following:

- Concrete, bricks, tiles, and cement
- Wood
- Glass
- Plastics
- Bituminous mixtures, coal tar, and tarred products
- Metals (including their alloys)
- Soil and stones
- Insulation materials (possibly including asbestos-containing materials)
- Gypsum-based construction material
- Materials containing mercury
- PCB-containing materials (e.g. sealants, resin-based floorings, capacitors, etc.)
- Waste electrical and electronic equipment
- Oil wastes and waste of liquid fuels
- Batteries and accumulators

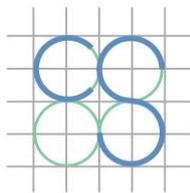
- Packaging (paper/cardboard, plastic, wood, metal, glass, textile, etc.)

Classification of wastes will follow table 1 previously provided in Section 5.

6.2 Waste Management and Mitigation Measures

The following measures are proposed to ensure effective management of construction waste at the development site, to maximise recycling of construction waste, and to minimise the environmental impact of construction waste.

- On-site segregation of all waste materials into appropriate categories, including:
 - top-soil, sub-soil, bedrock;
 - concrete, bricks, tiles, ceramics, plasterboard;
 - asphalt, tar, and tar products;
 - metals;
 - dry recyclables (e.g. cardboard, plastic, timber).
- All waste material will be stored in skips or other suitable receptacles in a designated waste storage area on the site.
- Wherever possible, left-over material (e.g. timber cut-offs) and any suitable demolition materials shall be reused on or off site.
- Uncontaminated excavated material (top-soil, sub-soil) will be reused on site in preference to the importation of clean fill, as soil to be reused or removed from site must be tested to confirm its contamination status and subsequent management requirements.



- All waste leaving the site will be transported by a suitably licensed/permitted contractor and taken to a licensed/permitted facility.
- All waste leaving the site will be recorded and copies of relevant documentation retained.

These measures are intended to ensure that the waste arising from construction of the proposed development is dealt with in compliance with the provisions of the Waste Management Acts 1996 to 2013, the Litter Act of 1997, and the Eastern-Midlands Region (EMR) Waste Management Plan 2015-2021, achieving optimum levels of waste reduction, re-use and recycling.

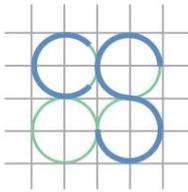
6.3 Predicted Impacts of the Proposed Development

Waste materials will be generated during the construction of the proposed development, including the initial site clearance and excavation. Careful management of these, including segregation at source, will help to ensure maximum recycling, reuse and recovery is achieved, in accordance with current local and national waste targets. It is expected, however, that a certain amount of waste will still need to be disposed of at landfill.

Given the provision of appropriate facilities, environmental impacts (e.g. litter, contamination of soil or water, etc.) arising from waste storage are expected to be minimal. Particular attention must be given to the appropriate management of any construction waste containing contaminated or hazardous materials. The use of suitably licensed waste contractors will ensure compliance with relevant legal requirements and appropriate off-site management of waste.

In summary, with a high level of due diligence carried out at the site, it is envisaged that the environmental impact of the construction phase of the

proposed development will be of small scale and short duration, with respect to waste management.



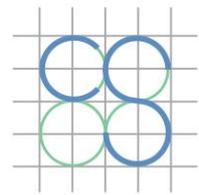
7.0 OPERATIONAL WASTE GENERATED BY THE PROPOSED DEVELOPMENT

Municipal waste comprises household waste as well as commercial and other waste that, because of its nature or composition, is similar to household waste. It excludes municipal sludges and effluents. In the context of this report, municipal waste consists of three main elements: household, commercial (including non-process industrial waste), and street-cleansing waste (street sweepings, street bins and municipal parks and cemeteries maintenance waste, electoral campaign material).

For details of the estimated operational waste arisings of the proposed development, as well as the operational waste storage and collection measures to be implemented, please refer to the Operational Waste Management Plan submitted under separate cover by others in support of this planning application.

8.0 CONCLUSION

This document outlines the principles and measures by which the waste generated during the demolition and construction phases of the proposed development will be managed and disposed of in compliance with the provisions of the Waste Management Acts 1996 to 2013 and the Eastern-Midlands Region (EMR) Waste Management Plan 2015-2021. It describes the measures by which optimum levels of waste reduction, re-use and recycling shall be achieved.



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