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OPERATIONAL WASTE MANAGEMENT PLAN FOR A PROPOSED LARGESCALE RESIDENTIAL DEVELOPMENT

AT

FORTFIELD ROAD, TERENURE, CO. DUBLIN

Report Prepared For

1 Celbridge West Land Ltd.

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CONTENTS

1.0 INTRODUCTION

AWN Consulting Ltd. (AWN) has prepared this Operational Waste Management Plan (OWMP) for 1 Celbridge West Land Ltd. The Proposed Residential Development will consist of 284 residential units, including 19 houses, a creche unit and an arts / cultural space at a site on Fortfield Road, Terenure, Co. Dublin.

This OWMP has been prepared to ensure that the management of waste during the operational phase of the proposed development is undertaken in accordance with the current legal and industry standards including, the Waste Management Act 1996 as amended and associated Regulations [1], Environmental Protection Agency Act 1992 as amended [2], Litter Pollution Act 1997 as amended [3], the *'Eastern-Midlands Region (EMR) Waste Management Plan 2015 – 2021'* [4] , *the* Draft National Waste Management Plan for a Circular Economy (NWMPCE) (2023) [5] and Dublin City Council (DCC) 'Dublin City Council (Storage, Presentation and Segregation of Household and Commercial Waste) Bye-Laws' 2018 [6]. In particular, this OWMP aims to provide a robust strategy for the storage, handling, collection and transport of the wastes generated at Site.

This OWMP aims to ensure maximum recycling, reuse and recovery of waste with diversion from landfill, wherever possible. The OWMP also seeks to provide guidance on the appropriate collection and transport of waste to prevent issues associated with litter or more serious environmental pollution (e.g. contamination of soil or water resources). The plan estimates the type and quantity of waste to be generated from the proposed development during the operational phase and provides a strategy for managing the different waste streams.

At present, there are no specific national guidelines in Ireland for the preparation of OWMPs. Therefore, in preparing this document, consideration has been given to the requirements of national and regional waste policy, legislation and other guidelines.

2.0 OVERVIEW OF WASTE MANAGEMENT IN IRELAND

2.1 National Level

The Irish Government issued a policy statement in September 1998 entitled *'Changing Our Ways'* [7], which identified objectives for the prevention, minimisation, reuse, recycling, recovery and disposal of waste in Ireland. A heavy emphasis was placed on reducing reliance on landfill and finding alternative methods for managing waste. Amongst other things, *Changing Our Ways* stated a target of at least 35% recycling of municipal (i.e. household, commercial and non-process industrial) waste.

A further policy document, *'Preventing and Recycling Waste – Delivering Change'* was published in 2002 [8]. This document proposed a number of programmes to increase recycling of waste and allow diversion from landfill. The need for waste minimisation at source was considered a priority.

This view was also supported by a review of sustainable development policy in Ireland and achievements to date, which was conducted in 2002, entitled *'Making Irelands Development Sustainable – Review, Assessment and Future Action'* [9]. This document also stressed the need to decouple economic growth and waste generation, again through waste minimisation and reuse of discarded material.

In order to establish the progress of the Government policy document *Changing Our Ways*, a review document was published in April 2004 entitled *'Taking Stock and Moving Forward'* [10]. Covering the period 1998 – 2003, the aim of this document was to assess progress to date with regard to waste management in Ireland, to consider developments since the policy framework and the local authority waste management

plans were put in place, and to identify measures that could be undertaken to further support progress towards the objectives outlined in *Changing Our Ways*.

In particular, *Taking Stock and Moving Forward* noted a significant increase in the amount of waste being brought to local authority landfills. The report noted that one of the significant challenges in the coming years was the extension of the dry recyclable collection services.

In September 2020, the Irish Government published a new policy document outlining a new action plan for Ireland to cover the period of 2020-2025. This plan *'A Waste Action Plan for a Circular Economy'* [11] (WAPCE), was prepared in response to the 'European Green Deal' which sets a roadmap for a transition to a new economy, where climate and environmental challenges are turned into opportunities, replacing the previous national waste management plan *"A Resource Opportunity"* (2012).

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

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

One of the first actions to be taken was the development of the Whole of Government Circular Economy Strategy 2022-2023 'Living More, Using Less' (2021) [12] to set a course for Ireland to transition across all sectors and at all levels of Government toward circularity and was issued in December 2021. It is anticipated that the Strategy will be updated in full every 18 months to 2 years.

The Circular Economy and Miscellaneous Provisions Act 2022 [13] was signed into law in July 2022. The Act underpins Ireland's shift from a "take-make-waste" linear model to a more sustainable pattern of production and consumption, that retains the value of resources in our economy for as long as possible and that will to significantly reduce our greenhouse gas emissions. The Act defines Circular Economy for the first time in Irish law, incentivises the use of recycled and reusable alternatives to wasteful, single-use disposable packaging, introduces a mandatory segregation and incentivised charging regime for commercial waste, streamlines the national processes for End-of-Waste and By-Products decisions, tackling the delays which can be encountered by industry, and supporting the availability of recycled secondary raw materials in the Irish market, and tackles illegal fly-tipping and littering.

Since 1998, the Environmental Protection Agency (EPA) has produced periodic *'National Waste (Database) Reports'* which as of 2023 have been renamed *Circular Economy and Waste Statistics Highlight Reports* [14] detailing, among other things, estimates for household and commercial (municipal) waste generation in Ireland and the level of recycling, recovery and disposal of these materials. The 2021 National Circular Economy and Waste Statistics web resource, which is the most recent study published, along with the national waste statistics web resource (November 2023) reported the following key statistics for 2020:

- **Generated** – Ireland produced 3,170,000 t of municipal waste in 2021. This is a 1% decrease since 2020. This means that the average person living in Ireland generated 630 kg of municipal waste in 2021.
- **Managed** – Waste collected and treated by the waste industry. In 2020, a total of 3,137,000 t of municipal waste was managed and treated.

- **Unmanaged** – An estimated 33,000 tonnes of this was unmanaged waste i.e., not disposed of in the correct manner in 2021.
- **Recovered** – The amount of waste recycled, used as a fuel in incinerators, or used to cover landfilled waste. In Ireland 42% of Municipal waste was treated by energy recovery through incineration in 2021.
- **Recycled** – Just over 1.3 million tonnes of municipal waste generated in Ireland was recycled in 2021, resulting in a recycling rate of 41 per cent. The recycling rate remains unchanged from 2020 and indicates that we face significant challenges to meet the upcoming EU recycling targets of 55% by 2025 and 65% by 2035.
- **Disposed** – The proportion of municipal waste sent to landfill also remains unchanged at 16% the same as 2020.
- **Reuse** – 54,800 tonnes of second-hand products we estimated by the EPA to have been reused in Ireland in 2021. The average annual Reuse rate per person in Ireland is 10.6 kg per person.

2.2 Regional Level

The proposed development is located in the Local Authority administrative area of Dublin City Council (DCC). The EMR Waste Management Plan 2015 – 2021 is the regional waste management plan for the DCC area which was published in May 2015. Currently the EMR and other regional waste management plans are under review and the Regional Waste Management Planning Offices have issued a Draft NWMPCE in June 2023.

The regional plan sets out the following strategic targets for waste management in the region that are relevant to the proposed development:

- A 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; and
- Reduce to 0% the direct disposal of unprocessed residual municipal waste to landfill (from 2016 onwards) in favour of higher value pre-treatment processes and indigenous recovery practices.

Municipal landfill charges in Ireland are based on the weight of waste disposed. In the Munster Region, charges are approximately €140-160 per tonne of waste which includes a €85 per tonne landfill levy introduced under the *Waste Management (Landfill Levy) (Amendment) Regulations 2015 (as amended).*

The Draft NWMPCE does not dissolve the three regional waste areas. The NWCPCE sets the ambition of the plan to have a 0% total waste growth per person over the life of the Plan with an emphasis on non-household wastes including waste from commercial activities and the construction and demolition sector.

The draft NWMPCE sets out the following strategic targets for waste management in the region that are relevant to the proposed development:

1a. (Residual Municipal Waste) 1% Reduction / person /year – Waste decline for landfill or recovery by thermal treatment.

2. (Contamination of Materials) 90% of Material in Compliance – Contamination of recycling and food waste with other materials

3a. (Reuse of Materials) 10kg Per person / year – Reuse of materials like cloths or furniture to prevent waste.

The *Dublin City Development Plan 2022 – 2028* [15] sets out a number of policies and objectives for Dublin City in line with the objectives of the National climate action policy and emphasises the need to take action to address climate action across all sectors of society and the economy. In the waste sector, policy on climate action is focused on a shift towards a 'circular economy' encompassing three core principles: designing out waste and pollution; keeping products and material in use; and regenerating natural systems. Further policies and objectives can be found within the draft development plan.

Policies:

- *CA7 F: minimising the generation of site and construction waste and maximising reuse or recycling.*
- *CA22: The Circular economy: To support the shift towards the circular economy approach as set out in 'a Waste Action Plan for a Circular Economy 2020 to 2025, Ireland's National Waste Policy, or as updated.*
- *CA23: To have regard to existing Best Practice Guidance on Waste Management Plans for Construction and Demolition Projects as well as any future updates to these guidelines in order to ensure the consistent application of planning requirements.*
- *SI27: Sustainable Waste Management: To support the principles of the circular economy, good waste management and the implementation of best practice in relation to waste management in order for Dublin City and the Region to become self-sufficient in terms of resource and waste management and to provide a waste management infrastructure that supports this objective.*
- *SI29: Segregated Storage and Collection of Waste Streams: To require new commercial and residential developments, to include adequate and easily accessible storage space that supports the separate collection of as many waste and recycling streams as possible, but at a minimum general domestic waste, dry recyclables and food waste as appropriate.*
- *SI30: 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 2018 (or and any future updated versions of these guidelines produced during the lifetime of this plan).*

Objectives:

- *SIO14 Local Recycling Infrastructure: To provide for a citywide network of municipal civic amenity facilities/ multi-material public recycling and reuse facilities in accessible locations throughout the city in line with the objectives of the circular economy and 15 minute city.*
- *SIO16 Eastern-Midlands Region Waste Management Plan: To support the implementation of the Eastern-Midlands Regional Waste Management Plan 2015–2021 and any subsequent plans in order to facilitate the transition from a waste management economy towards a circular economy.*

2.3 Legislative Requirements

The primary legislative instruments that govern waste management in Ireland and applicable to the proposed Development are:

- Waste Management Act 1996 as amended;
- Environmental Protection Agency Act 1992 as amended;
- Litter Pollution Act 1997 as amended;
- Planning and Development Act 2000 as amended [16];
- Circular Economy and Miscellaneous Provisions Act 2022.

These Acts and subordinate Regulations transpose the relevant European Union Policy and Directives into Irish law.

One of the guiding principles of European waste legislation, which has in turn been incorporated into the Waste Management Act 1996 as amended and subsequent Irish legislation, is the principle of "Duty of Care". This implies that the waste producer is responsible for waste from the time it is generated through until its legal disposal (including its method of disposal). As it is not practical in most cases for the waste producer to physically transfer all waste from where it is produced to the final disposal area, waste contractors will be employed to physically transport waste to the final waste disposal site.

It is, therefore, imperative that the residents, commercial tenants and the proposed facilities management company undertake on-site management of waste in accordance with all legal requirements and that the facilities management company employ suitably permitted / licenced contractors to undertake off-site management of their waste in accordance with all legal requirements. This includes the requirement that a waste contactor handle, transport and reuse / recover / recycle / dispose of waste in a manner that ensures that no adverse environmental impacts occur as a result of any of these activities.

A collection permit to transport waste must be held by each waste contractor which is issued by the National Waste Collection Permit Office (NWCPO). Waste receiving facilities must also be appropriately permitted or licensed. Operators of such facilities cannot receive any waste, unless in possession of a Certificate of Registration (COR) or waste permit granted by the relevant Local Authority under the Waste Management (Facility Permit & Registration) Regulations 2007, as amended, or a Waste Licence granted by the EPA. The COR / permit / licence held will specify the type and quantity of waste able to be received, stored, sorted, recycled, recovered and / or disposed of at the specified site.

2.3.1 Dublin City Council Waste Management Bye-Laws

The DCC "Dublin City Council (Storage, Presentation and Segregation of Household and Commercial Waste) Bye-Laws (2018)" were bought into force in May 2019. These bye-laws repeal the previous Bye-Laws for the Storage, Presentation and Collection of Household and Commercial Waste. The bye-laws set a number of enforceable requirements on waste holders with regard to storage, separation and presentation of waste within the DCC administrative area. Key requirements under these bye-laws of relevance to the operational phase of the proposed development include the following:

- Kerbside waste presented for collection shall not be presented for collection earlier than 5.00 pm on the day immediately preceding the designated waste collection day;
- All containers used for the presentation of kerbside waste and any uncollected waste shall be removed from any roadway, footway, footpath or any other public place no later than 10:00 am on the day following the designated waste collection day, unless an alternative arrangement has been approved in accordance with bye-law 2.3;
- Documentation, including receipts, is obtained and retained for a period of no less than one year to provide proof that any waste removed from the premises has been managed in a manner that conforms to these bye-laws, to the Waste Management Act and, where such legislation is applicable to that person, to the European Union (Household Food Waste and Bio-Waste) Regulations 2015; and
- Adequate access and egress onto and from the premises by waste collection vehicles is maintained.

The full text of the bye-laws is available from the DCC website.

2.4 Regional Waste Management Service Providers and Facilities

Various contractors offer waste collection services for the residential sector in the DCC region. Details of waste collection permits (granted, pending and withdrawn) for the region are available from the NWCPO.

As outlined in the regional waste management plan, there is a decreasing number of landfills available in the region. Only three municipal solid waste landfills remain operational, and all are operated by the private sector. There are a number of other licensed and permitted facilities in operation in the region including waste transfer stations, hazardous waste facilities and integrated waste management facilities. There are two existing thermal treatment facilities, one in Duleek, Co. Meath and a second in Poolbeg in Dublin.

Ballymount Waste Recycling Centre is located c. 5km west of the proposed development site, which can be utilised by the residents of the proposed development for other household waste streams while a bottle bank can be found at Sundrive Shopping Centre Carpark, located c. 1.9m north-east of the proposed development site which can accept clear, green, and brown glass, along with aluminium cans.

A copy of all CORs and waste permits issued by the Local Authorities are available from the NWCPO website and all Waste / Industrial Emissions Licenses issued are available from the EPA.

3.0 DESCRIPTION OF THE PROJECT

3.1 Location, Size and Scale of the Development

The development will comprise a Large-Scale Residential Development (LRD) on a site at Fortfield Road, Terenure of 284 no. units delivering 19 no. houses and 265 no. apartments made up of studios; 1 beds; 2 beds; 3 beds and 4 beds, a creche unit and arts / cultural space. Provision of car, cycle and motorbike parking will be provided throughout the development, including at basement and surface level. Vehicular/pedestrian/cyclist access from Fortfield Road. Proposed upgrade works to the surrounding road network is also included. All associated site development works, open space, services provision, ESB substations, plant areas, waste management areas, landscaping and boundary treatments.

3.2 Typical Waste Categories

The typical non-hazardous and hazardous wastes that will be generated at the proposed development will include the following:

- Dry Mixed Recyclables (DMR) - includes wastepaper (including newspapers, magazines, brochures, catalogues, leaflets), cardboard and plastic packaging, metal cans, plastic bottles, aluminium cans, tins and Tetra Pak cartons;
- Organic waste - food waste and green waste generated from internal plants/flowers;
- Glass; and
- Mixed Non-Recyclable (MNR)/General Waste.

In addition to the typical waste materials that will be generated at the proposed development on a daily basis, there will be some additional waste types generated in small quantities which will need to be managed separately including:

- Green/garden waste may be generated from internal plants/flowers and external landscaping;
- Batteries (both hazardous and non-hazardous);
- Waste electrical and electronic equipment (WEEE) (both hazardous and non-hazardous);
- Printer cartridges/toners;
- Chemicals (paints, adhesives, resins, detergents, etc.);
- Lightbulbs;
- Textiles (rags);
- Waste cooking oil (if any generated by residents or commercial tenants);
- Furniture (and from time to time other bulky wastes); and
- Abandoned bicycles.

Wastes should be segregated into the above waste types to ensure compliance with waste legislation and guidance while maximising the re-use, recycling and recovery of waste with diversion from landfill wherever possible.

3.3 List of Waste Codes

In 1994, the *European Waste Catalogue* [17] and *Hazardous Waste List* [18] were published by the European Commission. In 2002, the EPA published a document titled the *European Waste Catalogue and Hazardous Waste List* [19], which was a condensed version of the original two documents and their subsequent amendments. This document has recently been replaced by the EPA '*Waste Classification – List of Waste & Determining if Waste is Hazardous or Non-Hazardous'* [20] 2018. This waste classification system applies across the EU and is the basis for all national and international waste reporting, such as those associated with waste collection permits, COR's, permits and licences and EPA National Waste Database. Under the classification system, different types of wastes are fully defined by a code. The List of Waste (LoW) code for typical waste materials expected to be generated during the operation of the proposed development are provided in Table 3.1 below.

Table 3.1 Typical Waste Types Generated and LoW Codes

Waste Material	LoW Code
Paper and Cardboard	20 01 01
Plastics	20 01 39
Metals	20 01 40
Mixed Non-Recyclable Waste	20 03 01
Glass	20 01 02
Biodegradable Kitchen Waste	20 01 08
Oils and Fats	20 01 25
Textiles	20 01 11
Batteries and Accumulators*	20 01 33* - 34
Printer Toner/Cartridges*	20 01 27* - 28
Green Waste	20 02 01
WEEE*	20 01 35*-36
Chemicals (solvents, pesticides, paints & adhesives, detergents, etc.) *	20 01 13*/19*/27*/28/29*30
Fluorescent tubes and other mercury containing waste*	20 01 21*
Bulky Wastes	20 03 07

** Individual waste type may contain hazardous materials.*

4.0 ESTIMATED WASTE ARISINGS

A waste generation model (WGM) developed by AWN, has been used to predict waste types, weights and volumes arising from operations within the proposed development. The WGM incorporates building area and use and combines these with other data including Irish and US EPA waste generation rates.

The estimated quantum/volume of waste that will be generated from the residential units has been determined based on the predicted occupancy of the units and the commercial units determined based on floor area. The residential amenity space within the development has been included in the waste generation calculations for the residential units.

The estimated waste generation for the development for the main waste types is presented in Table 4.1 and Table 4.2.

Waste type	Waste Volume (m^3/week)			
	Apartment Block A	Apartment Block B	Apartment Block C	Apartment Block D
Organic Waste	0.92	1.05	1.08	0.94
DMR	6.26	7.18	7.41	6.90
Glass	0.18	0.20	0.21	0.18
MNR	3.64	4.17	4.31	3.28
Total	**11.00**	**12.60**	**13.01**	**11.30**

Table 4.1 Estimated waste generation for the proposed development for the main waste types

Waste type	Waste Volume (m^3/week)		
	4 bed house (individual)	Creche	Arts / Cultural Space
Organic Waste	0.02	0.01	0.12
DMR	0.17	0.37	0.90
Glass	<0.01	<0.01	0.02
MNR	0.09	0.20	1.18
Total	**0.29**	**0.59**	**2.22**

Table 4.2 Estimated waste generation for the proposed development for the main waste types

BS5906:2005 Waste Management in Buildings – Code of Practice [21] has been considered in the calculations of waste estimates. AWN's modelling methodology is based on recently published data and data from numerous other similar developments in Ireland and is based on AWN's experience, it provides a more representative estimate of the likely waste arisings from the proposed development.

5.0 WASTE STORAGE AND COLLECTION

This section provides information on how waste generated within the proposed development will be stored and collected. This has been prepared with due consideration of the proposed development layout as well as best practice standards, local and national waste management requirements, including those of DCC. In particular, consideration has been given to the following documents:

- BS 5906:2005 Waste Management in Buildings – Code of Practice,
- *EMR Waste Management Plan 2015 – 2021;*
- *The Draft NWMPCE (2023);*
- *Dublin City Council Development Plan 2016 – 2022 (Appendix 7);*
- DCC Dublin City Council (Storage, Presentation and Segregation of Household and Commercial Waste) Bye-Laws (2018); and

- *DoHLGH, Sustainable Urban Housing: Design Standards for New Apartments, Guidelines for Planning Authorities* (2023) [22].

Three (3 no.) in-ground BSAs have been allocated within the development design for the residents in the apartment blocks. The in-ground BSAs are located at ground floor level, adjacent to the road to the north of the apartment blocks and are capable of storing dry-mixed recycling, mixed non-recyclables (general waste), organics and glass. The location of the in-ground BSAs can viewed in Appendix A and on the drawings submitted with the planning application.

Residents in the houses will store their bins at the back of the house in their rear garden.

2 no. BSA has been allocated in the development design for the creche unit and arts / cultural space, respectively.

Further information on waste storage can be found in Sections 5.1 and 5.2 below.

Using the estimated waste generation volumes in Table 4.1 and Table 4.2 the waste receptacle requirements for MNR, DMR, organic waste and glass have been established for the developments BSAs. It has been assumed by the client that the in-ground waste receptacles will have a capacity of 3000L. These are presented in Table 5.1.

Area/Use	Bins Required			
	MNR*	DMR**	Organic	Glass
All Apartment Blocks Requirements	6 x 3000L	10 x 3000L	2 x 3000L -	1 x 3000L
4 bed house (individual) BSA	1 x 240L	1 x 240L	1 x 120L	Bring bank
Creche BSA	1 x 1100L	1 x 1100L	1 x 120L	1 x 120L
Arts / Cultural Space BSA	2 x 1100L	1 x 1100L	1 x 240L	1 x 120L

Note: ** = Mixed Non-Recyclables*
*** = Dry Mixed Recyclables*

Table 5.1 Waste storage requirements for the proposed development

The waste receptacle requirements have been established from distribution of the total weekly waste generation estimate into the holding capacity of each receptacle type.

Waste storage receptacles as per Table 5.1 above (or similar appropriate approved containers) will be provided by the developer in conjunction with the waste contractor in the residential in-ground BSAs.

As outlined in the current *Dublin City Development Plan*, it is preferable to use 1,100L wheelie bins for waste storage, where practical. This strategy will not be employed for this development, due to the usage of the in-ground waste receptacle system for DMR, MNR, organics and glass for the apartment blocks. See Section 5.3 for more details. All bins provided in the houses are 240 and 120L and will not incur any manual handling problems do to their relatively small size. 1100L bins will be utilised to manage DMR and MNR for the commercial units.

The types of bins used will vary in size, design and colour dependent on the appointed waste contractor. However, examples of typical receptacles to be provided in the BSAs are shown in Figure 5.1 and Figure 5.2. Where mobile waste receptacles are used, they will comply with the SIST EN 840-1:2020 and SIST EN 840-2:2020 standards for performance requirements.

Figure 5.1 Typical in-ground waste receptacles of varying size.

Figure 5.2 Typical mobile waste receptacles of varying size (120L and 240L)

Provision will be made in all apartment units and houses to accommodate 3 no. bin types to facilitate waste segregation at source. An example of a potential 3 bin storage system is provided in Figure 5.4 below.

Figure 5.3 Example three bin storage system to be provided within the unit design

This Plan will be provided to each residential unit from first occupation of the proposed development i.e. once the first residential and is occupied. This Plan will be supplemented, as required, by the facilities management company with any new information on waste segregation, storage, reuse and recycling initiatives that are subsequently introduced.

5.1 Waste Storage –Residential Apartment Units

Residents will be required to segregate waste into the following main waste streams:

- DMR;
- MNR;
- Organic waste; and
- Glass.

Provision will be made in the residential units to accommodate 3 no. bins to facilitate waste segregation at source. See Figure 5.3 above.

Residents will be required to take their segregated mixed dry recyclables, mixed non-recyclables (general waste) , organic and glass waste to their designated in-ground BSA and dispose of them in the appropriate bins. All in-ground BSAs are located adjacent to the road, north of the apartment blocks.

Locations of all BSAs can viewed on the drawings submitted with the planning application.

Each waste receptacle in the BSAs will be clearly labelled and colour coded to avoid cross contamination of the different waste streams. Signage will be posted above or on the waste receptacles to show exactly which waste types can be placed in each waste receptacle.

The use of the residential in-ground BSAs will be restricted to authorised residents, facilities management and the waste contractor by means of a key or electronic fob/card access.

Using the estimated figures in Table 4.1, DMR, MNR and organics will be collected on a weekly basis and glass will be collected as required.

Other waste materials such as textiles, batteries, printer toner/cartridges, textiles, lightbulbs, furniture / bulk items and WEEE may be generated infrequently by the residents. Residents will be required to identify suitable temporary storage areas for these waste items within their own units and dispose of them appropriately. Further details on additional waste types can be found in Section 5.5.

5.2 Waste Storage – Individual Houses

Residents in individual houses will be required to segregate their waste into the following waste categories within their own units:

- DMR;
- MNR;
- Glass; and
- Organic waste.

Provision will be made in the houses to accommodate 3 no. bins to facilitate waste segregation at source.

All residents in houses have external access to the rear of the property and will store waste in bins at this location. Residents will be required to place their segregated waste materials into these bins as necessary.

It is anticipated that DMR, MNR and organic waste will be collected on a weekly basis. Residents will be required to take glass to the nearest bring bank. Other waste materials such as textiles, batteries, printer toner/cartridges and WEEE may be generated infrequently by the residents. Residents will be required to identify suitable temporary storage areas for these waste items within their own units and dispose of them appropriately. Further details on additional waste types can be found in Section 5.5.

5.3 Waste Storage – Creche and Arts / Cultural Space

The commercial tenants will be required to segregate waste within their own unit into the following main waste types:

- Organic Waste;
- DMR;
- Glass; and
- MNR.

The commercial tenants will be required to take their segregated waste materials to their designated WSA and deposit their segregated waste into the appropriate bins. The location of the commercial WSAs are illustrated in the drawings submitted with the planning application under separate cover.

Suppliers for the commercial tenants should be requested by the tenants to make deliveries in reusable containers, minimize packaging or remove any packaging after delivery, where possible, to reduce waste generated by the proposed development.

If any kitchens are allocated in unit area, this will contribute a significant portion of the volume of waste generated on a daily basis, and as such it is important that adequate provision is made for the storage and transfer of waste from these areas to the WSAs.

If kitchens are required it is anticipated that waste will be generated in kitchens throughout the day, primarily at the following locations:

- Food Storage Areas (i.e. cold stores, dry store, freezer stores and stores for decanting of deliveries);
- Meat Preparation Area;
- Vegetable Preparation Area;
- Cooking Area;
- Dish-wash and Glass-wash Area; and
- Bar Area.

Small bins will be placed adjacent to each of these areas for temporary storage of waste generated during the day. Waste will then be transferred from each of these areas to the appropriate waste store within their unit.

All bins / containers in the commercial tenants' areas as well as in the commercial WSAs will be clearly labelled and colour coded to avoid cross contamination of the different waste streams. Signage will be posted above or on the bins to show exactly which wastes can be put in each.

Other waste materials such as textiles, batteries, lightbulbs, WEEE, cooking oil and printer toner / cartridges will be generated less frequently. The tenants will be required

to store these waste types within their own unit and arrange collection with an appropriately licensed waste contractor. Facilties management may arrange collection, depending on the agreement. Further details on additional waste types can be found in Section 5.5.

5.4 Waste Collection

There are numerous private contractors that provide waste collection services in the DCC area. All waste contractors servicing the proposed development must hold a valid waste collection permit for the specific waste types collected. All waste collected must be transported to registered/permitted/licensed facilities only.

For collection of the in-ground waste receptacles adjacent to the apartment blocks, upon arrival the waste collection vehicle pulls up alongside the underground units and will free the bins for extraction from the ground. This process may vary depending on the type of in-ground bin used. Once this is complete, the underground container is removed from the ground using a hook system mounted onto the end of the vehicles crane. The inner container is raised up to the waste vehicle and emptied through the bottom of the container using the hook system, much the same way that the bottle banks for glass are emptied.

When emptied the bottom of the container is closed and returned to the ground using the crane.

Residents in houses will be responsible for moving their bins to and from the curb for collection in line with *DCC Waste Bye-laws*.

For collection of the creche unit bins, the waste truck will stop adjacent to the creche unit and bins will be brought directly from the BSA to the truck. Following emptying bins will be promptly returned to the BSA.

For collection of the arts / cultural space bins, facilities management will be responsible for moving the bins from the BSA to a staging area along the internal to the north of the site. From this point the bins will be emptied. Following collection, the bins will be promptly returns to the BSA. The staging area can be found of the drawings submitted with planning and in Appendix B of this report.

The staging area will be used for a minimum amount of time and will be such as to not obstruct traffic or pedestrians, ensuring a 1.8 m passage is kept as per *Design Manual for Urban Road and Streets* (2019) [23].

It is recommended that waste receptacle collection times/days are staggered to reduce the number of bins required to be emptied at once and the time the waste vehicle is onsite. This will be determined during the process of appointment of a waste contractor.

5.5 Additional Waste Materials

In addition to the typical waste materials that are generated on a daily basis, there will be some additional waste types generated from time to time that will need to be managed separately. A non-exhaustive list is presented below.

Green Waste

Green waste may be generated from gardens, external landscaping and internal plants / flowers. Green waste generated from landscaping of external areas will be removed by landscape contractors. Green waste generated from gardens internal plants / flowers can be placed in the organic waste bins.

Batteries

A take-back service for waste batteries and accumulators (e.g. rechargeable batteries) is in place in order to comply with the S.I. No. 283/2014 - European Union (Batteries and Accumulators) Regulations 2014, as amended. In accordance with these regulations, consumers are able to bring their waste batteries to their local civic amenity centre or can return them free of charge to retailers which supply the equivalent type of battery, regardless of whether or not the batteries were purchased at the retail outlet and regardless of whether or not the person depositing the waste battery purchases any product or products from the retail outlet.

Waste Electrical and Electronic Equipment (WEEE)

The WEEE Directive (Directive 2002/96/EC) and associated Waste Management (WEEE) Regulations have been enacted to ensure a high level of recycling of electronic and electrical equipment. In accordance with the regulations, consumers can bring their waste electrical and electronic equipment to their local recycling centre. In addition, consumers can bring back WEEE within 15 days to retailers when they purchase new equipment on a like for like basis. Retailers are also obliged to collect WEEE within 15 days of delivery of a new item, provided the item is disconnected from all mains, does not pose a health and safety risk and is readily available for collection.

Printer Cartridge / Toners

Waste printer cartridge / toners generated by residents can usually be returned to the supplier free of charge or can be brought to a civic amenity centre.

Chemicals

Chemicals (such as solvents, paints, adhesives, resins, detergents, etc) are largely generated from building maintenance works. Such works are usually completed by external contractors who are responsible for the off-site removal and appropriate recovery / recycling / disposal of any waste materials generated.

Any waste cleaning products or waste packaging from cleaning products that are classed as hazardous (if they arise) generated by the residents should be brought to a civic amenity centre.

Light Bulbs

Light bulbs generated by residents should be taken to the nearest civic amenity centre for appropriate storage and recovery / disposal.

Textiles

Where possible, waste textiles should be recycled or donated to a charity organisation for reuse. Residents will be responsible for disposing of waste textiles appropriately.

Waste Cooking Oil

If the residents generate waste cooking oil, this can be brought to a civic amenity centre.

Furniture & Other Bulky Waste Items

If residents wish to dispose of furniture, this can be brought a civic amenity centre.

Abandoned Bicycles

Bicycle parking areas are planned for the development. As happens in other developments, residents sometimes abandon faulty or unused bicycles, and it can be difficult to determine their ownership. Abandoned bicycles should be donated to charity if they arise or Facilties management willmay arrange collection by a licensed waste contractor.

5.6 Bin Storage Area Design

The BSAs will be designed and fitted-out to meet the requirements of relevant design standards, including:

- Be easily accessible for people with limited mobility;
- Be restricted to access by nominated personnel only;
- Be supplied with hot or cold water for disinfection and washing of bins;
- Be fitted with suitable power supply for power washers;
- Have appropriate signage placed above and on bins indicating correct use;
- Have access for potential control of vermin, if required; and
- Be fitted with CCTV for monitoring.

The operator and their selected facilities management company will be required to maintain the bin storage areas in good condition as required by the DCC Waste Bye-Laws.

5.7 Facility Management Responsibilities

It shall be the responsibility of the Facilities Management Company to ensure that all domestic waste generated by residents and arts / cultural space is managed to ensure correct storage prior to collection by an appropriately permitted waste management company.

Facilities Management will provide the following items:

- Provision of a Waste Management Plan document, prepared by the Facilities Management Company to all residential units, which shall clearly state the methods of source waste segregation, storage, reuse and recycling initiatives that shall apply to the management of the development;
- Provision and maintenance of appropriate graphical signage to inform residents of their obligation to reduce waste, segregate waste and in the correct bin;
- Preparation of an annual waste management report for all residential units;
- Designation of access routes to common bin storage areas to ensure safe access from the apartment units by mobility impaired persons;
- Provision of an appropriately qualified and experienced staff member, who will be responsible for all aspects of waste management at the development;
- Daily inspection of bin storage areas and signing of a daily check list, which shall be displayed within the area; and
- Maintenance of a weekly register, detailing the quantities and breakdown of wastes collected from the development and provision of supporting documentation by the waste collector to allow tracking of waste recycling rates.

5.8 Pest Management

A pest control operator will be appointed as required to manage pests onsite during the operational phase of the proposed development. All waste generated within the proposed development will be stored in closed waste receptacles both within units and within the BSAs. Any waste receptacles will be carefully managed to prevent leaks, odours, and pest problems.

All BSAs will have access for potential control of vermin, if required, be supplied with hot or cold water, drainage point and will be regularly inspected by facilities management to deter pests.

6.0 CONCLUSIONS

In summary, this OWMP presents a waste strategy that addresses all legal requirements, waste policies and best practice guidelines and demonstrates that the required storage areas have been incorporated into the design of the proposed development.

Implementation of this OWMP will ensure a high level of recycling, reuse and recovery at the proposed development. All recyclable materials will be segregated at source to reduce waste contractor costs and ensure maximum diversion of materials from landfill, thus achieving the targets set out in the *EMR Waste Management Plan 2015 – 2021 and the draft NWMPCE.*

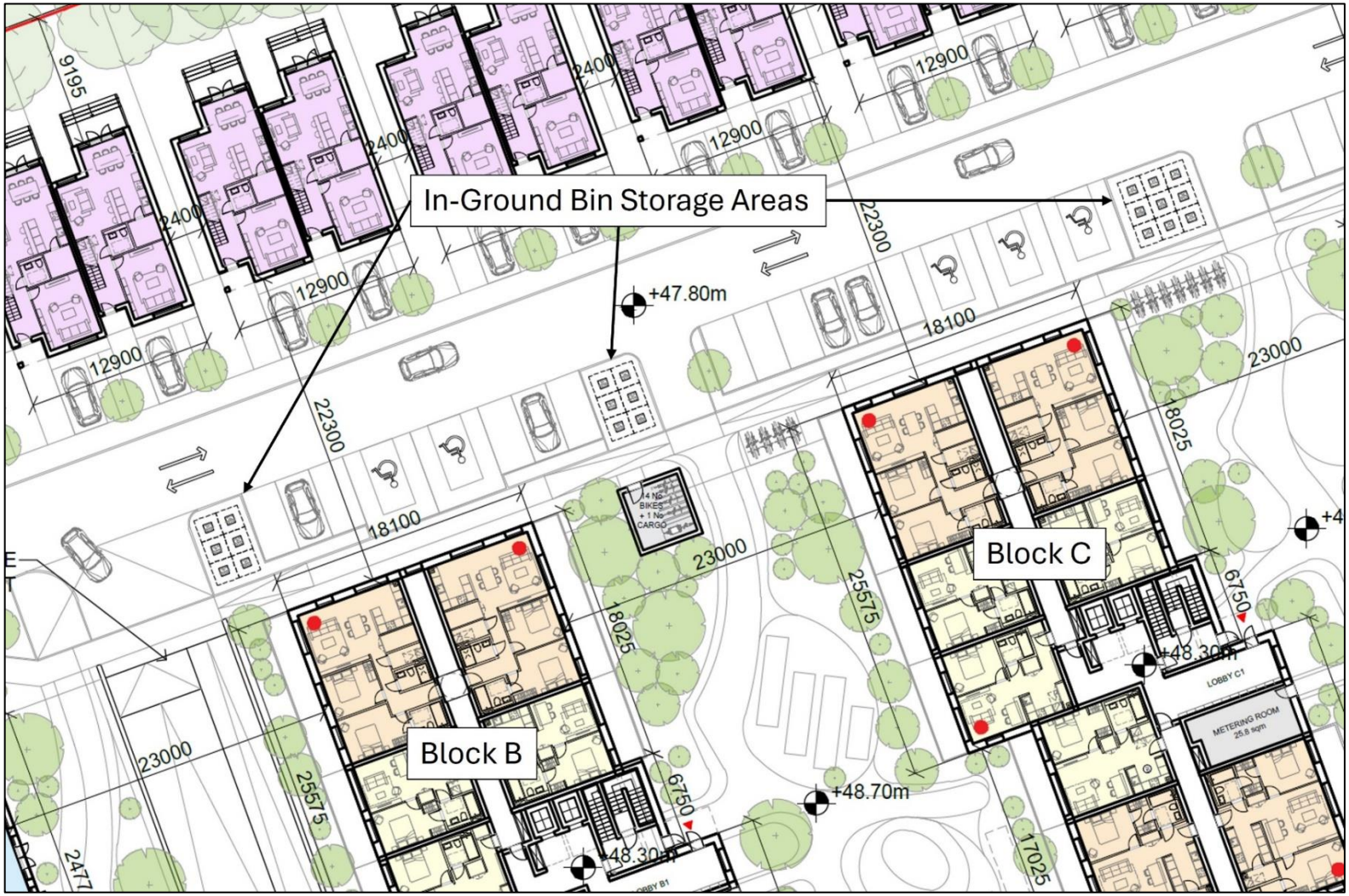
Adherence to this plan will also ensure that waste management at the development is carried out in accordance with the requirements of the *DCC Waste Bye-Laws.*

The waste strategy presented in this document will provide sufficient storage capacity for the estimated quantity of segregated waste. The designated area for waste storage will provide sufficient room for the required receptacles in accordance with the details of this strategy.

7.0 REFERENCES

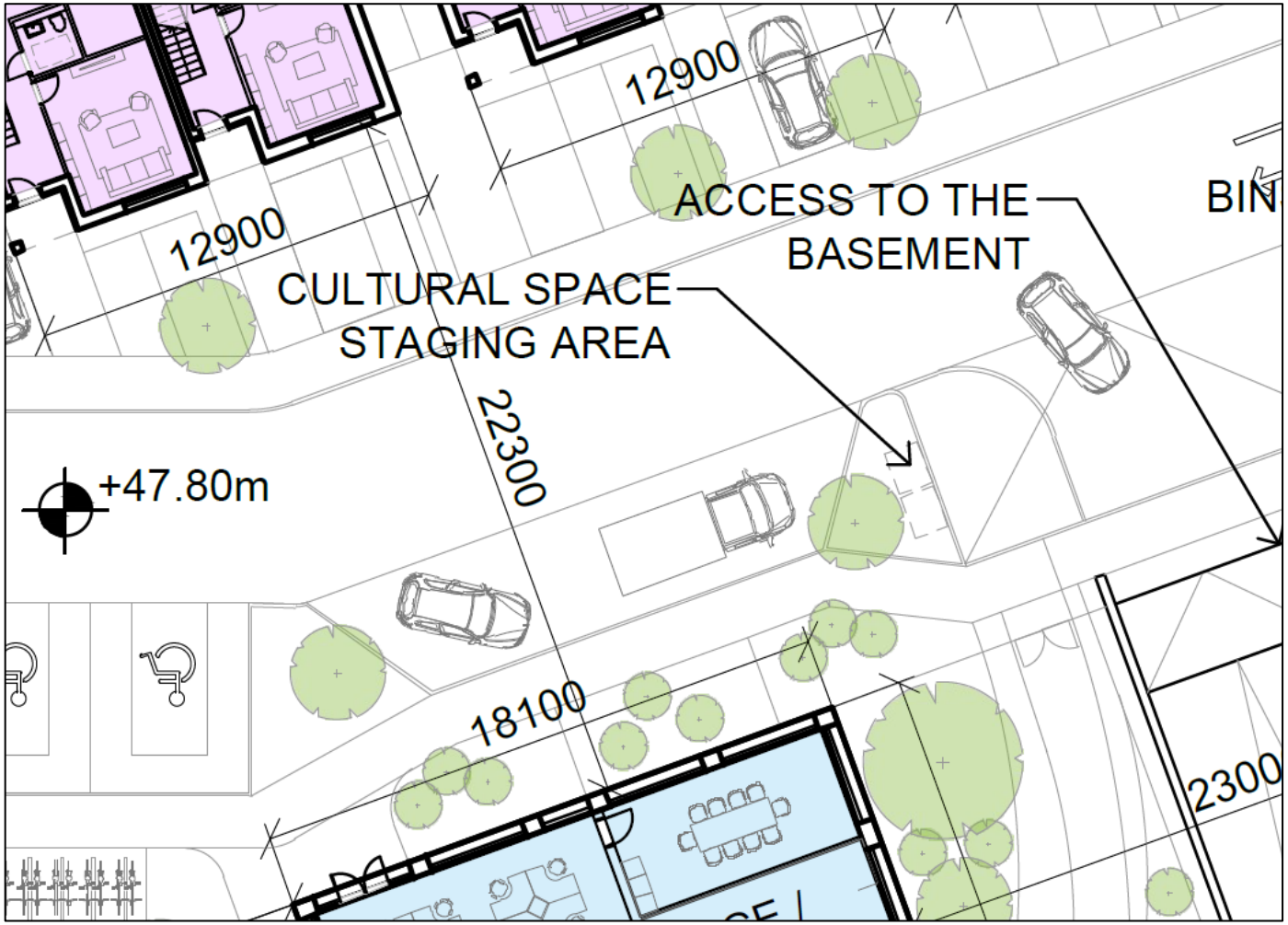
1. Waste Management Act 1996 as amended.
2. Environmental Protection Agency Act 1992 as amended.
3. Litter Pollution Act 1997 as amended;
4. Eastern-Midlands Waste Region, *Eastern-Midlands Region (EMR) Waste Management Plan 2015 – 2021* (2015)
5. Regional Waste Management Planning Offices, *Draft The National Waste Management Plan for a Circular Economy (June 2023).*
6. DCC *Dublin City Council (Storage, Presentation and Segregation of Household and Commercial Waste) Bye-Laws (2018*)
7. Department of Environment and Local Government (DoELG) *Waste Management – Changing Our Ways, A Policy Statement* (1998)
8. Department of Environment, Heritage and Local Government (DoEHLG) *Preventing and Recycling Waste - Delivering Change* (2002)
9. DoELG, *Making Ireland's Development Sustainable – Review, Assessment and Future Action (World Summit on Sustainable Development)* (2002)
10. DoEHLG, *Taking Stock and Moving Forward* (2004)
11. Department of Communications, Climate Action and Environment (DCCAE), *Waste Action Plan for the Circular Economy - Ireland's National Waste Policy 2020-2025* (2020).
12. DCCAE, *Whole of Government Circular Economy Strategy 2022-2023 'Living More, Using Less*' (2021).
13. Circular Economy and Miscellaneous Provisions Act 2022
14. Environmental Protection Agency (EPA), *National Waste Database Reports 1998 – 2020* and the *Circular Economy and National Waste Database Report 2021 -*
15. DCC*, Dublin City Development Plan 2022-2028 (2022).*
16. Planning and Development Act 2000 (S.I. No. 30 of 2000) as amended
17. European Waste Catalogue - Council Decision 94/3/EC (as per Council Directive 75/442/EC).
18. Hazardous Waste List - Council Decision 94/904/EC (as per Council Directive 91/689/EEC).
19. EPA, *European Waste Catalogue and Hazardous Waste List* (2002)
20. EPA, *Waste Classification – List of Waste & Determining if Waste is Hazardous or Non-Hazardous* (2018)
21. BS 5906:2005 Waste Management in Buildings – Code of Practice.
22. Department of Housing Local Government and Heritage *(*DoHLGH), *Sustainable Urban Housing: Design Standards for New Apartments, Guidelines for Planning Authorities* (2023).
23. DoHLGH, *Design Manual for Urban Roads and Streets* (2019)

APPENDIX A - IN-GROUND BIN STORAGE AREAS



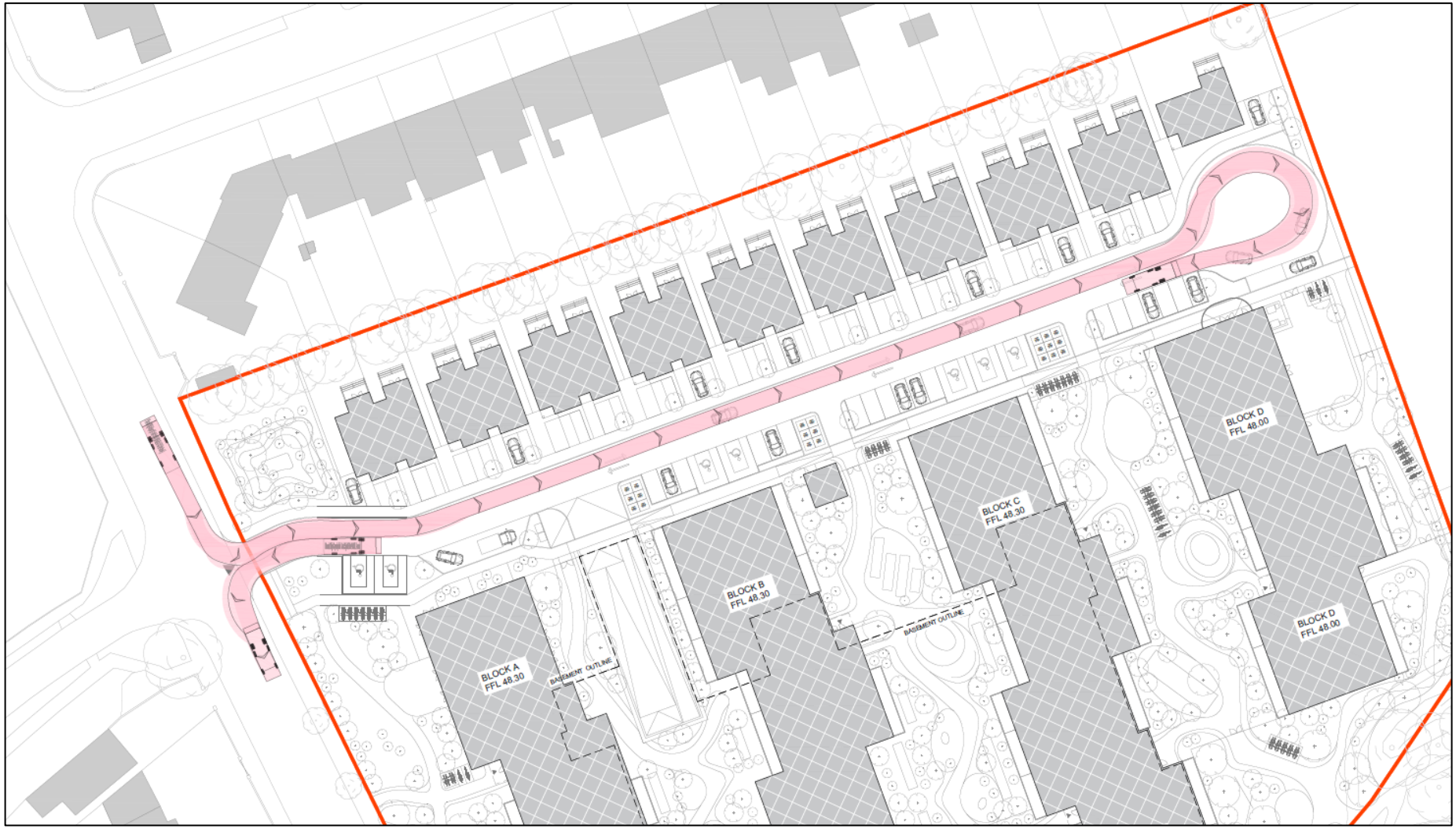
In-Ground Bin Storage (Source: Urban Agency, Drawing Ref: Proposed Site Plan – Ground Floor)

APPENDIX B – ARTS / CULTURAL SPACE BIN STAGING AREA



Bin Staging Area (Source: Urban Agency, Drawing Ref: Proposed Site Plan – Ground Floor)

APPENDIX C – WASTE TRUCK AUTOTRACKING



Waste truck auto tracking (Source: Punch Consulting Engineers, Drawing Ref. 222102-PUNCH-XX-XX-DR-C-0601)