DOSA
DENIS O'SULLIVAN & ASSOCIATES
CONSULTING ENGINEERS

RESIDENTIAL DEVELOPMENT AT KILNAP, OLD WHITECHURCH ROAD, PHASE 1

PRELIMINARY OPERATIONAL WASTE MANAGEMENT PLAN

DATE 25/06/2024

REVISION 2

JOB NO. 6254

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DOCUMENT CONTROL

PROJECT NAME: Residential Development At Kilnap, Old Whitechurch Road, Phase 1

PROJECT NUMBER: 6254

REVISION	DATE	FILE NAME: Residential Development At Kilnap, Old Whitechurch Road, Phase 1			
2	25.06.2024	DESCRIPTION: Preliminary Operational Waste Management Plan			
			PREPARED	CHECKED	APPROVED
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		DATE	25.06.2024	25.06.2024	25.06.2024
#	Insert Date	FILE NAME: Residential Development At Kilnap, Old Whitechurch Road, Phase 1			
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Contents

1 Introduction

Waste Management is an integral requirement essential in the promotion of sustainable development, enhancing good public health and the protection of environment. The following outlines the waste management strategy for the development.

The proposed development will give rise to a variety of waste streams. Given the scale of the development and the volumes of waste that will be generated during the operation of the development, it is imperative to ensure that waste management at the site is tightly controlled and has the least possible impact on the surrounding environment.

The purpose of this Waste Management Strategy is to ensure that waste arising within the development will be managed and disposed of in a way that ensures optimum levels of waste recycling.

The Operational Waste Management Plan will also ensure that waste storage and movement within the development takes place in a manner which complies with relevant legislation and has a minimal impact on the occupants of the development, and nearby existing commercial and residential areas.

It is intended that this plan will be used to ensure efficient and legally compliant waste management for the site. The implementation of this strategy will ensure that the development as a whole operates in a more economically and environmentally sustainable manner, thereby enhancing the environment of the development and the local community.

2 Trends in Waste Management

2.1 Waste Management Trends at a National Level

The Environmental Protection Agency (EPA) produce reports and update estimates for waste generation and the level of recycling, recovery and disposal of materials for households and commercial developments in Ireland, on which this report is largely based.

Figures from these reports are only considered to be estimates, due to low response levels from companies and contractors, and also due to inadequate records kept by producers of commercial waste in Ireland. However, there was a marked increase in data collection and response levels.

The EPA have published A Resource Opportunity, Waste Management Policy in Ireland[1], which promotes not just the environmental but also the economic benefits of better waste management. Ireland's waste policy is influenced by a range of EU Directives[2] most notably The Waste Framework Directive which sets out the management regime applicable to waste in the territory of the community and is enshrined in Irish law by the Waste management act 1996 and the European Communities (Waste Directive) regulations 2011.

Ireland has been compliant with all statutory packaging recovery targets set since 2001[3]. A recovery rate of 91 per cent was reported for packaging waste in 2015, exceeding the EU target of 60 per cent. Given the young demographic of the expected Build To Rent sector, is it expected that that this type of development will at least match the national figures for recycling and responsible waste disposal and in fact exceed.

Figure 1 The graph above shows the recovery of Packaging Waste figures obtained from EPA

[1] A Resource Opportunity, Waste Management Policy in Ireland, Department of the Environment, Community and Local Government, July 2012

[2] Packaging Directive (94/62/ec); Waste electrical and electronic equipment (Weee) Directive (2002/96/ec); restriction of hazardous substances in Weee Directive (2002/95/ec); end of life vehicles (elv) Directive (2000/53/ec); batteries Directive (2006/66/ec); landfill Directive (1999/31/ec) and Waste Framework Directive (2008/98/ec)

[3] www.epa.ie information last obtained 12/12/2018

In times of economic recession, the production of household waste generally decreases. The latest household data figures available show this trend with a sharp decline between the years of 2007 and 2013. In this same period, there has been a greater awareness of environmental issues in Ireland which will lead to more responsible waste consumption per capita, this should somewhat offset the economic recovery we are now experiencing.

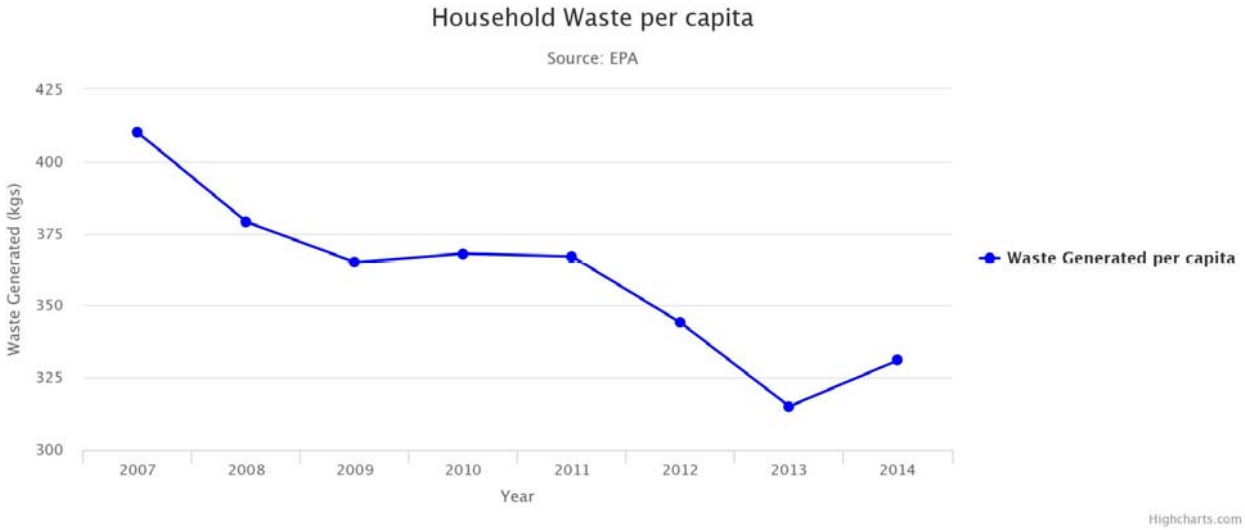


Figure 2 The above graph shows the latest figures available from the EPA in relation to household waste generation per capita.

2.2 Waste Management Local Level Policy

A comprehensive set of policies are set are included in Kerry County Development Plan 2022- 2028 to achieve these targets.

Cork City Council is part of the Southern Waste Region. The Southern Region Waste Management Plan 2015-2021 establishes regional policy in relation to the management of non-hazardous waste across the Southern Region.

The strategic vision of the Southern Region Waste Management Plan 2015- 2021 and its forthcoming replacement, is to rethink our approach to managing waste, by considering waste streams as valuable material resources, leading to a healthier environment and creating sustainable commercial opportunities for our economy. The Waste Management Plan, provides the framework for the prevention and management of waste in a safe and sustainable manner and includes the promotion of resource efficiency and the concept of the circular economy as one of its strategic objectives.

3 *Waste Management Legislation & Obligations*

One of the guiding principles of European Waste Legislation, which has in turn been incorporated into the Waste Management Act and subsequent Irish legislation, is the principle of "Duty of Care".

This implies that the waste producer is responsible for waste from the time waste is generated until it is disposed of legally and this includes its method of disposal. The commercial units in the neighbourhood centre will provide adequate waste storage relative to their use.

As it is not practical in most cases for a commercial or residential waste producer to physically transfer all waste from the area where it is produced to the final disposal area, waste contractors are employed to physically transport waste to the final waste disposal site.

The Act also incorporates the "polluter pays" principal, whereby the waste producer is liable to be prosecuted for pollution incidents, which may arise from the incorrect transport of waste produced by the waste producer.

It is therefore imperative that the waste producer ensures that each waste contractor is legally compliant with respect to waste transport and disposal.

In general, each waste contractor must comply with the provisions of the Waste Management Acts of 1996 and 2003 and associated regulations, which require 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 permit to transport waste must be held by the relevant contractor and this permit shall be verified with the Permitting Authority (usually the Local Authority although the EPA may also have had a role in issuing the permit).

A contractor shall not be permitted to receive any waste at their site, unless in possession of a waste permit granted by a local authority under the Waste Management (Permit) Regulations, 1998 or a waste licence granted by the EPA. The permit will specify the types of waste a contractor is licensed to receive, store, sort and recycle on their site.

The Waste Storage Area is to comply with the 'Sustainable Urban Housing: Design Standards for New Apartments, Guidelines for Planning Authorities, 2015. In terms of Refuse Storage, the following criteria are followed:

- Sufficient communal storage area to satisfy a three-bin system;
- Bins that comply with EN 840-4 2004 must be used, ideally 1,100 litre bins for apartments (1.23m long x 1.1m wide and 1.3m high).
- Bins that comply with Bins that comply with EN 840-1 2004 must be used, 140 or 240 litre bins for dwelling houses.
- Sufficient space must be provided to accommodate the collection of dry recyclables and organic waste.
- Bin storage areas should be designed so that each bin within the storage area is accessible to occupants/employees of the development (including people with disabilities) and these bins must be able to be moved easily from the storage area to an appropriate collection point on the public street nearby (with no steps and a minimal incline ramp).

- Waste storage areas should not present any safety risks to users and should be well lit.
- Provision of adequate ventilation of waste storage areas so as to minimise odours and potential nuisance from vermin/flies.
- A waste collection contract must be signed with Cork City Council or a private waste collector who is the holder of a Waste Collection Permit, prior to the commencement of the collection of waste.

4 Development Overview

The Council's vision is for the Site to be fully developed to provide a mixed tenure residential sustainable development Phase One of the proposed development is for the development of approximately 95 residential units.

Figure 4.1 – Proposed Phase 1 & Masterplan

SCHEDULE OF UNITS				
HOUSE TYPE	NO. OF BEDS	AREA (sq m)	AREA (sq ft)	NO. OF UNITS
A1 - DETACHED	4 BEDS	139.7 sq m	1504 sq ft	1
B1/B1(m) - SEMI-DETACHED	3 BEDS	115.5 sq m	1243 sq ft	66
B2/B2(m) - SEMI-CORNER	3 BEDS	121.8 sq m	1311 sq ft	6
C1/C1(m) - TOWNHOUSE	3 BEDS	110.2 sq m	1186 sq ft	8
D1/D1(m) - TOWNHOUSE	2 BEDS	88.2 sq m	949 sq ft	6
E1/E1(m) - GF APARTMENT	1 BEDS	54.9 sq m	591 sq ft	2
F1/F1(m) - DUPLEX APARTMENT	3 BEDS	112.4 sq m	1209 sq ft	2
E2/E2(m) - GF APARTMENT	1 BEDS	54.9 sq m	591 sq ft	2
F2/F2(m) - DUPLEX APARTMENT	3 BEDS	112.4 sq m	1209 sq ft	2
			TOTAL UNITS	95

Figure 4.2 – Schedule Breakdown

5 Waste Generation Figures

The National Waste Prevention Programme (NWPP) is playing an important enabling role in that necessary transformational change by supporting businesses, households and the public sector to be more resource efficient.

The BS5906:2005 Waste Management in Buildings – Code of Practice was considered in the calculations of waste estimates.

Extract from 2013 'EPA Publication, National Waste Prevention Programme' The typical wastes generated at a residential development are as follows:

- Dry Mixed Recycling;
- Mixed Non-Recycling;
- Organic Material.

In addition to the common waste type outlined above, a residential development generally also generates the following wastes in small quantities:

- Glass;
- Electrical Waste: Electronic Equipment such as televisions, printers, radios, mobile phones and batteries;
- Chemicals: Paints, glues, resins, detergents;
- Textiles;
- Furniture.

Green garden waste from trimmings and cuttings will be dealt with by the landscaping contractor.

5.1 Duplexes/ Apartments

The occupancy rates for Duplexes/apartments blocks have been predicated and are displayed on the schedule of Accommodation in Tables 5.1

Apartment Type	No. of Beds	Persons Equivalent	No. of Units
Duplex Unit			
3 Bed Units	3	4	4
1 Bed Units	1	2	4

Table 5.1 - Schedule of accommodation - Apartments

Overall volumes of Waste generated are highlighted in Table 5.2

Waste Type	m^3 per week			
	Baseline Waste	3 Bed Unit	1 Bed Unit	Total Per Duplex Block
Organic Waste	0.02	0.08	0.04	**0.24**
DMR	0.14	0.56	0.28	**1.68**
Glass	0.003	0.012	0.006	**0.036**
MNR	0.07	0.28	0.14	**0.84**
				2.8

Table 5.2 – Estimated Waste Generation

5.2 *Housing Units*

The occupancy rates for Duplexes/apartments blocks have been predicated and are displayed on the schedule of Accommodation in Tables 5.3

Dwelling Type	No. of Beds	Persons Equivalent	No. of Units
4 Bed Unit	4	4	1
3 Bed Unit	3	3	80
2 Bed Unit	2	2	6

Table 5.3 - Schedule of accommodation

Overall volumes of Waste generated are highlighted in Table 5.4

Waste Type	m^3 per week			
	Baseline Waste	4 Bed Unit	3 Bed Unit	2 Bed Unit
Organic Waste	0.02	0.10	0.08	0.06
DMR	0.14	0.70	0.56	0.42
Glass	0.003	0.015	0.012	0.009
MNR	0.07	0.35	0.28	0.21
Total		**1.165**	**0.932**	**0.699**

Table 5.4 – Estimated Waste Generation

6 Waste Management & Waste Management Facilities

Each residential unit will be required to sort their waste into the following segregation categories:

- Dry Mixed Recycling (DMR)
- Mixed Non-Recycling (MNR)
- Organic – Food & Waste

Each resident will be required to segregate their own waste at source. Each residential will be provided with a chart explaining exactly how waste materials should be segregated.

The residents will then be required to bring the suitable waste streams from their units to the labelled bin storage areas. The different bin types will be clearly colour coded and labelled in Waste Storage Area

In addition to the above waste streams, the chart given to each residential unit will encourage the reuse of the products below. Failing the resident finding a reuse for the products, they will be encouraged to segregate and appropriately disposal of:

- Glass (segregated into clear, brown and green);
- Electrical goods (WEEE);
- Batteries;
- Chemicals (paints, adhesives, resins, detergents);
- Waste cooking oil;
- Textiles;
- Furniture.

6.1 Waste Management Facilities within the Development

All housing units will be provided with grey, green and brown waste bin facilities. The crèche shall have designated commercial waste bins which are contained within the building with external access. The retail units and coffee shop with gallery shall have designated commercial waste bins..

6.2 Waste Storage Area

Storage of waste generated by the occupants of the development will be stored in a Waste Storage Area (WSA). The WSA is proposed to be located adjacent each apartment block with appropriate drainage and ventilation. Access to the WSA will be restricted to the residents and building management company personnel.

Waste from the development will be segregated into:

- Dry recyclables (cardboard, paper and plastic);
- Organic waste;
- Mixed non-recyclable waste (Municipal) (textiles and others).

6.2.1 Waste Storage Area for Duplex Units

It is proposed that three wheelie bins will be provided for each dwelling unit with a maximum capacity 240 ltr. The rear yard is of adequate size to easily facilitate three bins for the ground floor

units which will have a plan area of approximately 1.8m x 0.75m. The footpaths servicing the back gardens are of adequate width (when considering waste pipes) to allow for the bins to be stored in the yard and move to the front for collection. Figure 6 below indicates the location for the bins associated with the upper floor units (First & Second floor units without private garden/yard)

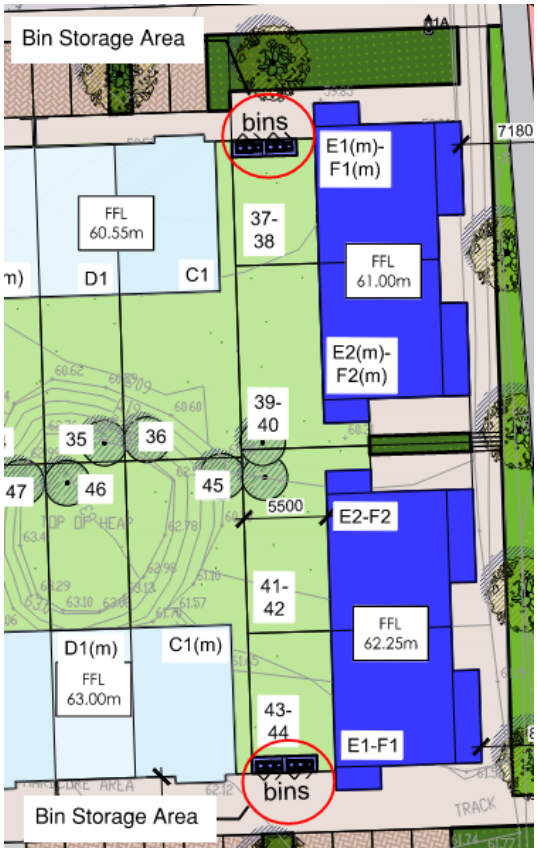


Figure 6 – Typical Bin Store Facility – Duplex Unit

Tables 6.1 below show a breakdown of the number and type of bins required for the development based on 1 No. collections per week for the Duplex Units. Each unit will be provided with a dedicated 3 bins in a secure location as per Fig 6 above.

Waste Type	Bins Required
Organic Waste	1 x 240L
DMR	1 x 240L
MNR	1 x 240L

Table 6.1 – Estimate of Bin Requirements

6.2.2 Waste Storage Area for Residential Units

It is proposed that three wheelie bins will be provided for each dwelling unit with a maximum capacity 240 ltr. The typical dimensions of the bins are given in the figure below. The rear garden is of adequate size to easily facilitate three bins which will have a plan area of approximately 1.8m x 0.75m. The footpaths servicing the back gardens are of adequate width (when considering waste pipes) to allow for the bins to be stored in the garden and move to the front for collection.

Units that have no direct access to the rear will have a dedicated secure) area to the front. Refer to Figure 6.1 for a typical arrangement of both scenarios

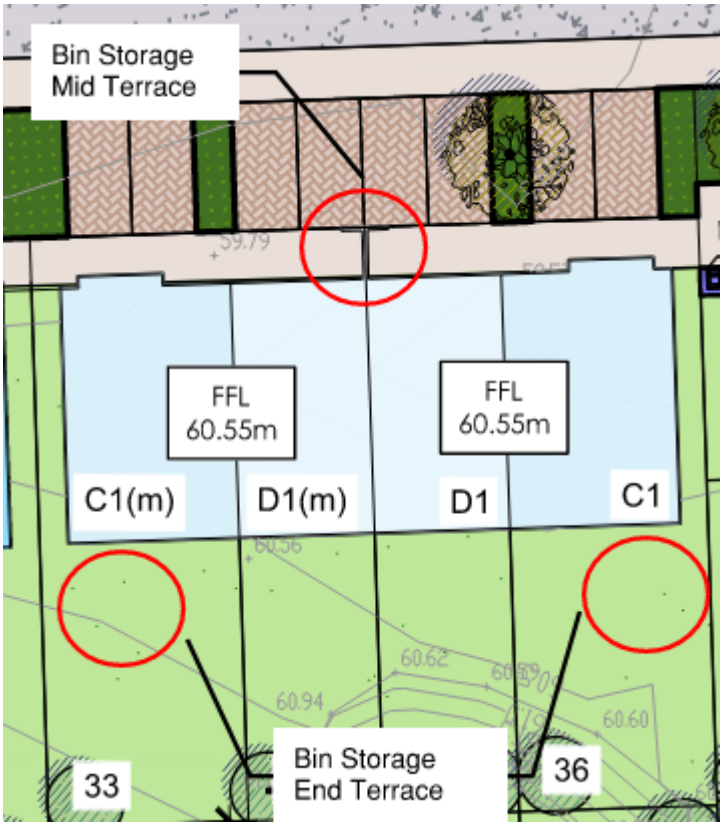


Figure 6.1 – Typical Bin Store Facility – Residential Unit

Tables 6.2 below show a breakdown of the number and type of bins required for the development based on 1 No. collections per week for the Residential Units. Each unit will be provided with a dedicated 3 bins in a secure location as per Fig 6 above.

Waste Type	Bins Required
Organic Waste	1 x 240L
DMR	1 x 240L
MNR	1 x 240L

Table 6.2 – Estimate of Bin Requirements

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

Waste storage receptacles as per Table 6.1 above (or similar approved containers) will be provided by the facility management company.

The type of bins used may vary in size, design and colour dependant on the appointed waste contractor. However, examples of typical receptacles to be provided in the WSAs are shown in Figure 6.2. All waste receptacles used will comply with the SIST EN 840-1:2020 and SIST EN 840-

2:2020 standards for the performance requirements of mobile waste containers, where appropriate.

Figure 6.2 – Typical Waste Bins

6.2.3 Waste Storage Area within Units

Residents will be required to segregate their waste into the following main waste categories within their units (prior to disposing to the dedicted block WSA).

- Organic Waste
- DMR
- MNR
- Glass

Provision may be made in units to accommodate various bin types to facilitate waste segregation at source. Sample shown in figure 6.3 below

Figure 6.3 – Typical Waste Segregation at Source

6.3 WSA Waste Collection

Only companies who are approved and hold waste collection permits from Cork City Council will be considered for the collection of the wastes stored in the WSA. This will ensure the wastes are collected and disposed of at an approved facility.

Non-recyclable waste and organic waste will be collected bi-weekly, as there may be odour risks if the waste is left for longer periods before being collected. The dry recycling waste will also be collected weekly and it is acknowledged that it is subject to seasonal spikes such as the post-Christmas and Easter periods. All waste storage bins will be presented for collection in a manner that will not create a hazard to traffic. The movement will be closely co-ordinated to ensure bins are presented for a short period only as not create an excessive odour nuisance or generate litter.

Records of the collections will be maintained by the facilities management company for the development.

6.4 Recycling Facilities

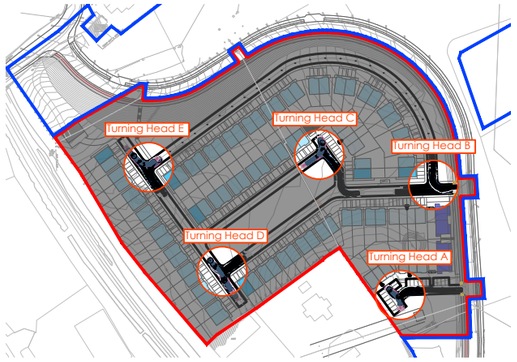
Cork City Council have an existing network of recycling facilities, bottle banks and bring centres.

7 Conclusions on Waste Management Plan

This plan aims to ensure minimise waste generation while promoting maximum recycling, reuse and recovery. The plan estimates the amount of waste generated and the storage, handling and collection of dry recyclables, mixed non-recyclables and organic wastes.

Fully implementing the above waste management plan will promote a high level of recycling, reuse and recovery by first promoting segregation at source. This Waste Management Plan is to be incorporated into a larger Operational Estate Management Programme by the building management company to ensure its full implementation. The waste segregation facilities that will be provided for the development will ensure that waste generated at the site will be managed correctly and in compliance with all current waste management legislation.

Appendix A – Refuse Truck Tracking Analysis



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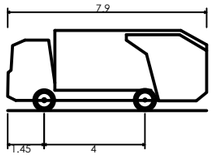
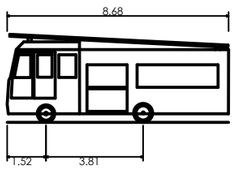


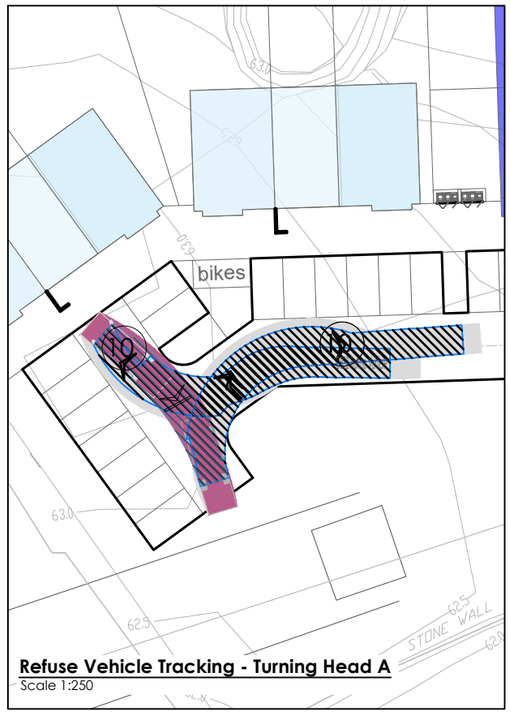
DB32 Refuse Vehicle	
Overall Length	7.900m
Overall Width	2.400m
Overall Body Height	3.183m
Min Body Ground Clearance	0.388m
Max Track Width	2.400m
Lock to lock time	6.00s
Kerb to Kerb Turning Radius	9.625m

Refuse Vehicle Details



DB32 Fire Appliance	
Overall Length	8.680m
Overall Width	2.180m
Overall Body Height	3.452m
Min Body Ground Clearance	0.337m
Max Track Width	2.121m
Lock to lock time	6.00s
Kerb to Kerb Turning Radius	7.910m

Fire Appliance Vehicle Details



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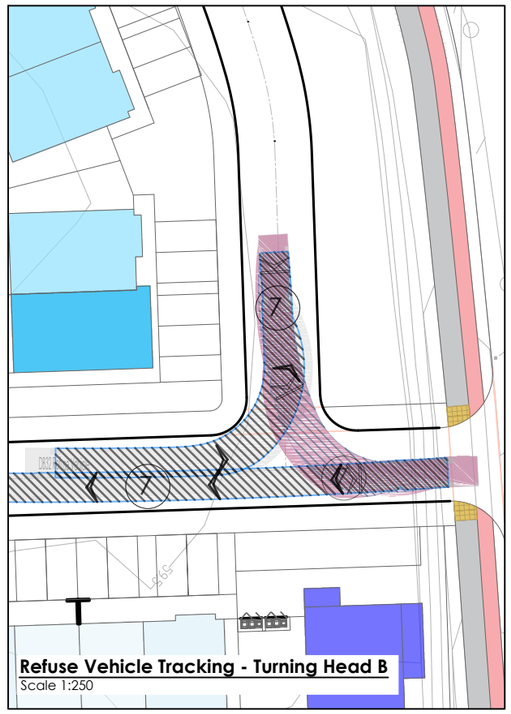

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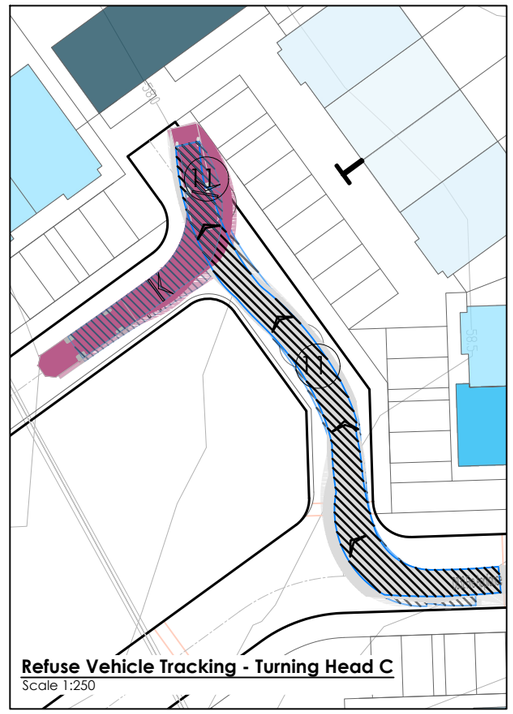

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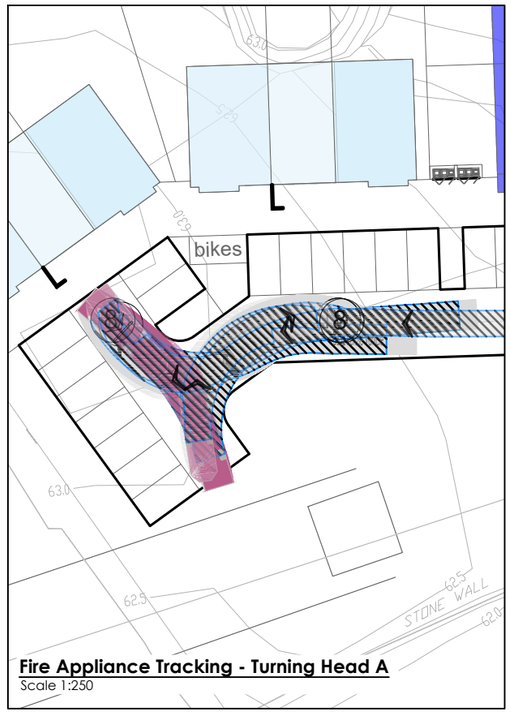

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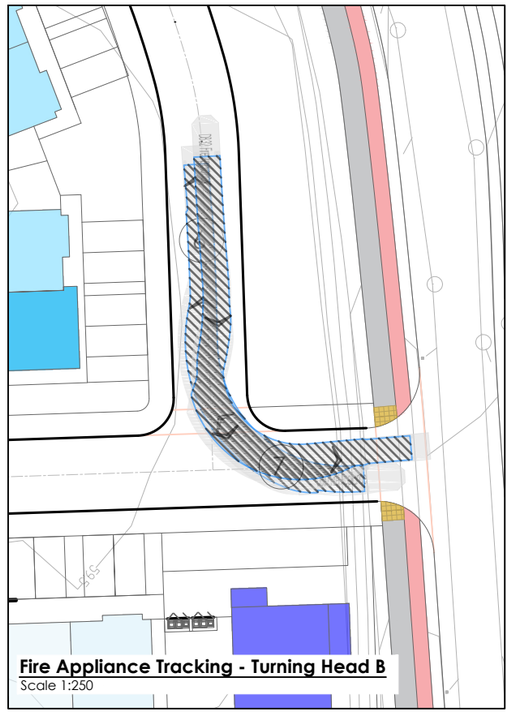

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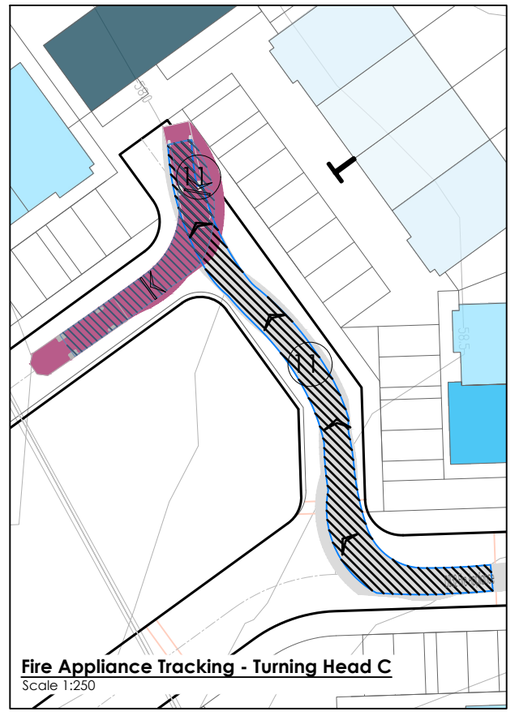

Fire Appliance Tracking - Turning Head C
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C	K.M.	L.O'T.	L.O'T.	25.07.'24	Issued for Planning

CLIENT

PROJECT: Residential Development at Kilnap, Old Whitechurch road

DRAWING TITLE: Vehicle Tracking - Refuse Truck & Fire Tender (01 of 02)

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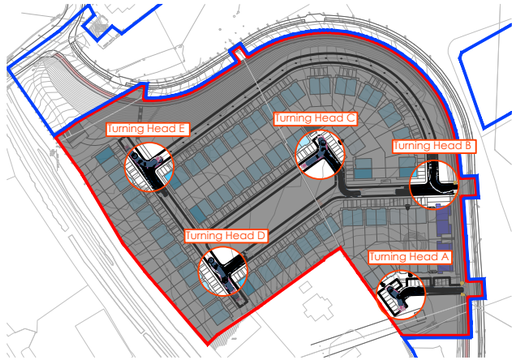
PROJECT NO. 6254 _ DRAWING NO. 0014 _ STATUS/ISSUE C



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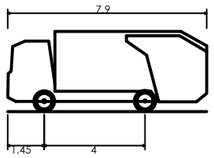

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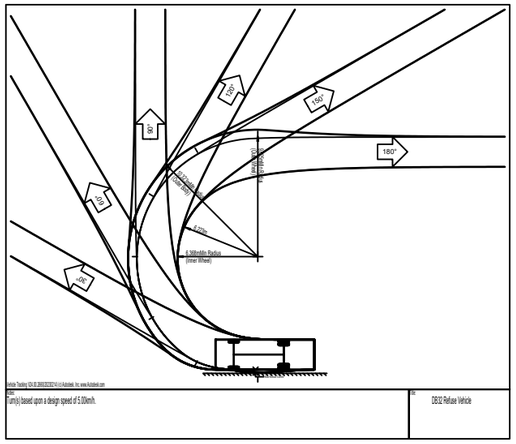
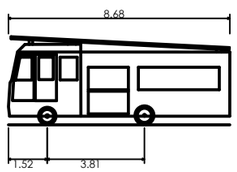


Refuse Vehicle Movement Design



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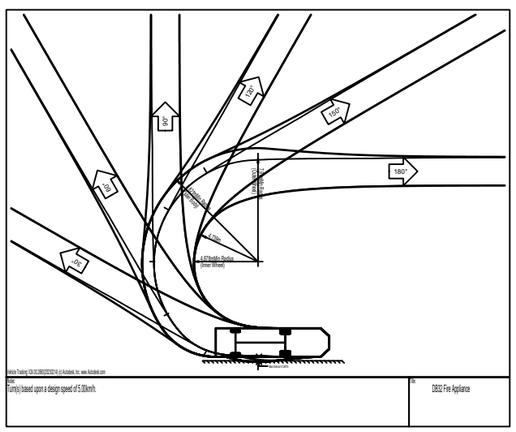

Fire Appiance Movement Design

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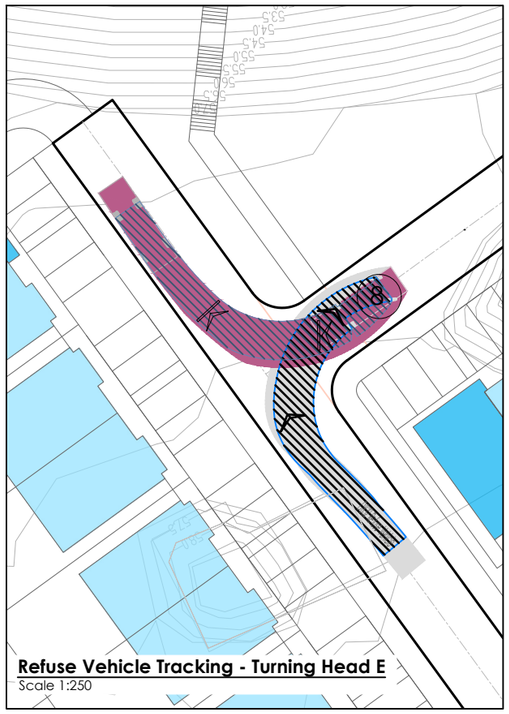
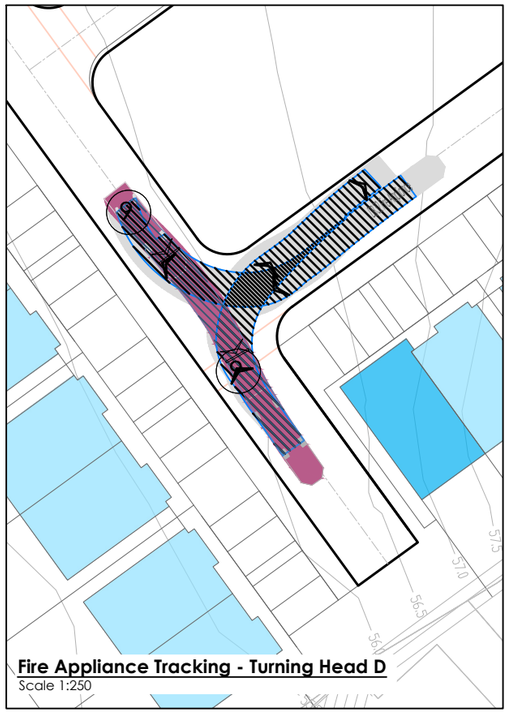


Refuse Vehicle Tracking - Turning Head E
Scale 1:250



Fire Appliance Tracking - Turning Head D
Scale 1:250

Fire Appliance Tracking - Turning Head E
Scale 1:250

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REV.	DRAWN	CHKD	APPRVD	DATE	DETAILS
C	K.M.	L.O'T.	L.O'T.	25.07.'24	Issued for Planning

CLIENT

PROJECT
Residential Development at Kilnap, Old Whitechurch road

DRAWING TITLE
Vehicle Tracking - Refuse Truck & Fire Tender (02 of 02)

SHEET
A1

SCALE
1:500

PROJECT NO. 6254 _ DRAWING NO. 0015 _ STATUS/ISSUE C