

## **14 MATERIAL ASSETS (WASTE)**

### **14.1 Introduction**

This chapter identifies, describes and assess the likely significant impacts, if any, which the proposed development may have on Material Assets (related to waste management) as defined in the EIA Directive (Directive 2011/92/EU as amended by Directive 2014/52/EU) and the Environmental Protection Agency (EPA) Guidelines on the information to be contained in Environmental Impact Assessment Reports (2022).

A site-specific Resource Waste Management Plan (RWMP) has been prepared by AWN Consulting Ltd (ref LB/R247501.0051WMR01) to deal with waste generation during the excavation and construction stage of the proposed development and has been included as Appendix 14.1. The RWMP was prepared in accordance with the EPA document Best Practice Guidelines for the Preparation of Resource and Waste Management Plans for Construction & Demolition Projects (2021).

A separate Operational Waste Management Plan (OWMP) has also been prepared by AWN Consulting Ltd (ref LB/R247501.0051WMR02) for the operational stage of the proposed development and is included in Appendix 14.2 of this chapter.

The Chapter has been prepared in accordance with European Commission Guidelines, Guidance on the preparation of the Environmental Impact Assessment Report (2017), the EPA Guidelines on the Information to be contained in EIAR (2022) and the EU Commission Notice on changes and extensions to projects, 2021.

These documents will ensure the management of wastes arising at the development site in accordance with legislative requirements and best practice standards.

### **14.2 Assessment Methodology**

The assessment of the impacts of the proposed development, arising from the consumption of resources and the generation of waste materials, was carried out taking into account the methodology specified in relevant guidance documents, along with an extensive document review to assist in identifying current and future requirements for waste management; including national and regional waste policy, waste strategies, management plans, legislative requirements and relevant reports.

This Chapter is based on the proposed development, as described in Chapter 3 of this EIAR (Description of Proposed Development) and considers the following aspects:

- Legislative context;
- Construction stage (including site preparation and excavation works);
- Operational stage; and
- Reinstatement Stage.

A desktop study was carried out which included the following:

- Review of applicable policy and legislation which creates the legal framework for resource and waste management in Ireland;
- Description of the typical waste materials that will be generated during the Construction and Operational stages; and
- Identification of mitigation measures to prevent waste generation and promote management of waste in accordance with the waste hierarchy.

Estimates of waste generation during the construction and operational stages of the proposed development have been calculated and are included in section 14.4 of this Chapter. The waste types and estimated quantities are based on published data by the EPA in the National Waste Reports and National Waste Statistics and data recorded from similar previous developments.

Mitigation measures are proposed to minimise the effect of the proposed development on the environment during the construction and operational stages, to promote efficient waste segregation and to reduce the quantity of waste requiring disposal. This information is presented in Section 14.6

A detailed review of the existing ground conditions on a regional, local and site-specific scale is presented in Chapter 7 of this EIAR (Land, Soils and Geology).

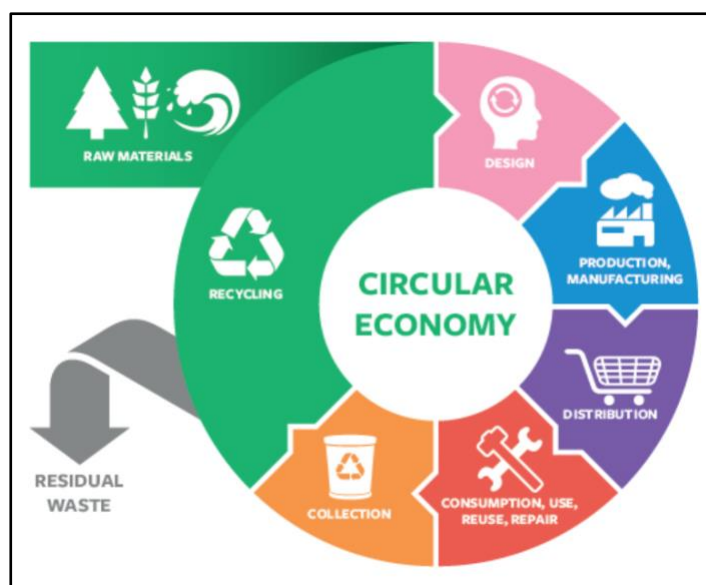
#### 14.2.1 Legislation and Guidance

Waste management in Ireland is subject to EU, national and regional waste legislation and control, which defines how waste materials must be managed, transported and treated. The overarching EU legislation is the Waste Framework Directive (2008/98/EC) as amended which is transposed into national legislation in Ireland. The cornerstone of Irish waste legislation is the Waste Management Act 1996 (as amended). European and national waste management policy is based on the concept of 'waste hierarchy', which sets out an order of preference for managing waste (prevention > preparing for reuse > recycling > recovery > disposal) (Figure 14.1).



**Figure 14.1:** Waste Hierarchy (Source: European Commission)

EU and Irish National waste policy also aims to contribute to the circular economy by extracting high-quality resources from waste as much as possible. Circular Economy (CE) is a sustainable alternative to the traditional linear (take-make-dispose) economic model, reducing waste to a minimum by reusing, repairing, refurbishing and recycling existing materials and products. (Figure 14.2).



**Figure 14.2:** Circular Economy (Source: Repak)

The Irish government issues policy documents which outline measures to improve waste management practices in Ireland and help the country to achieve EU targets in respect of recycling and disposal of waste. The most recent policy document, *Waste Action Plan for a Circular Economy – Waste Management Policy in Ireland*, was published in 2020 and shifts focus away from waste disposal and moves it back up the production chain. The move away from national waste targets is due to the Irish and international waste context changing in the years since the launch of the previous waste management plan, *A Resource Opportunity*, in 2012.

One of the first actions to be taken from the WAPCE was the development of the Whole of Government Circular Economy Strategy 2022-2023 '*Living More, Using Less*' (2021) 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.

The Circular Economy and Miscellaneous Provisions Act 2022 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 will 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, and streamlines the national processes for End-of-Waste and By-Products decisions.

The strategy for the management of waste from the construction stage is in line with the requirements of the EPA's '*Best Practice Guidelines for the Preparation of Resource and Waste Management Plans for Construction & Demolition Projects*' (2021). The guidance documents, *Best Practice Guidelines for the Preparation of Waste Management Plans for Construction and Demolition Projects (2006)* and *Construction and Demolition Waste Management: A Handbook for Contractors and Site Managers* (FÁS & Construction Industry Federation, 2002), were also consulted in the preparation of this assessment.

There are currently no Irish guidelines on the assessment of operational waste generation, and guidance is taken from industry guidelines, plans and reports including:

- The National Waste Management Plan for a Circular Economy 2024 – 2030 (NWMPC) (2024),
- BS 5906:2005 Waste Management in Buildings – Code of Practice,

- South Dublin County Council (SDCC) County of South Dublin (Segregation, Storage and Presentation of Household and Commercial Waste) Bye-laws (2018),
- EPA National Waste Database Reports 1998 – 2020,
- The Circular Economy and National Waste Database Report 2021 (2023) and the EPA National Waste Statistics Web Resource.

#### 14.2.2 Terminology

Note that the terminology used herein is consistent with the definitions set out in Article 3 of the Waste Framework Directive. Key terms are defined as follows:

**Waste** – Any substance or object which the holder discards or intends or is required to discard.

**Prevention** – Measures taken before a substance, material or product has become waste, that reduce:

- a) the quantity of waste, including through the re-use of products or the extension of the life span of products;
- b) the adverse impacts of the generated waste on the environment and human health; or
- c) the content of harmful substances in materials and products.

**Reuse** – Any operation by which products or components that are not waste are used again for the same purpose for which they were conceived.

**Preparing for Reuse** – Checking, cleaning or repairing recovery operations, by which products or components of products that have become waste are prepared so that they can be re-used without any other pre-processing.

**Treatment** – Recovery or disposal operations, including preparation prior to recovery or disposal.

**Recovery** – Any operation the principal result of which is waste serving a useful purpose by replacing other materials which would otherwise have been used to fulfil a particular function, or waste being prepared to fulfil that function, in the plant or in the wider economy. Annex II of the Waste Framework Directive sets out a non-exhaustive list of recovery operations.

**Recycling** – Any recovery operation by which waste materials are reprocessed into products, materials or substances whether for the original or other purposes. It includes the reprocessing of organic material but does not include energy recovery and the reprocessing into materials that are to be used as fuels or for backfilling operations.

**Disposal** – Any operation which is not recovery even where the operation has as a secondary consequence the reclamation of substances or energy. Annex I of the Waste Framework Directive sets out a non-exhaustive list of disposal operations.

### 14.3 Receiving Environment

In terms of waste management, the receiving environment is largely defined by SDCC as the local authority responsible for setting and administering waste management activities in the area. This is governed by the requirements set out in the NWMPCE 2024 – 2030 and the Waste Action Plan for a Circular Economy – Waste Management Policy in Ireland.

The waste management plans set out the following targets for waste management in the region:

- Achieve a recycling rate of 55% of managed municipal waste by 2025; 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.

The Regional Waste Management Planning Offices have issued a new Draft National Waste Management Plan for a Circular Economy (NWMPCE) in June 2023, which is set to replace the Eastern-

Midlands (EMR) Waste Management Plan and the two other regional waste management plans. The Draft NWMPCE does not however 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 South Dublin County Council Development Plan 2022– 2028 (2022) sets out the policies and objectives for the SDCC area which, reflect those sets out in the regional waste management plan and can be found in appendix 14.1 and 14.2.

In terms of physical waste infrastructure, SDCC no longer operates any municipal waste landfill in the area. There are a number of waste permitted and licensed facilities located in the EMR Waste Region for management of waste from the construction industry as well as municipal sources. These include soil recovery facilities, inert C&D waste facilities, municipal waste landfills, material recovery facilities and waste transfer stations.

However, these sites may not be available for use when required or may be limited by the waste contractor selected to service the development in the appropriate stage. In addition, there is potential for more suitably placed waste facilities or recovery facilities to become operational in the future which may be more beneficial from an environmental perspective.

The ultimate selection of waste contractors and waste facilities would be subject to appropriate selection criteria proximity, competency, capacity and serviceability.

A full description of the proposed Development can be found in Chapter 3 (Description of Proposed Development). The characteristics of the proposed development that are relevant in terms of waste management are summarised below.

## **14.4 Characteristics of the Proposed Development**

The proposed development will comprise primarily residential development of c.1,310 no. dwellings across three sites (KSG3, KSG4, and KSG5). These are to be of mixed type and tenure, divided between social, affordable, and affordable rental homes. Elements of non-residential floor area include existing or planned schools, and commercial uses where the sites encroach Kishoge Urban Centre (KSG3 and KSG5) and Grange local centre (KSG4). The proposed development also includes all associated site development infrastructure works, landscaping and boundary treatments.

The purpose of this section is to provide an overview of the key relevant details of the construction stage and operational stage of the proposed development. The information presented in this section is informed by the project design, but it is not a complete description of the proposed development. Therefore, it should be read in conjunction with the full development package.

For a more comprehensive understanding of the proposed development, please refer to Chapter 3 (Description of the Proposed Development) of the EIA Report. Chapter 3 provides a detailed overview of the lifecycle of the project, including reference to the architectural and civil engineering, drawings, plans, reports, and other relevant documents in order to describe the proposed development.

### **14.4.1 Proposed Development – Kishoge Site 3 – KSG3**

#### **14.4.1.1 Demolition Stage**

There will be no demolition associated with this stage of the proposed development.

#### **14.4.1.2 Construction Stage**

During the construction stage, waste will be produced from surplus materials such as broken or off-cuts of timber, plasterboard, concrete, tiles, bricks, etc. Waste from packaging (cardboard, plastic, timber) and oversupply of materials may also be generated. The appointed Contractor will be

contractually required to ensure that oversupply of materials is kept to a minimum and opportunities for reuse of suitable materials is maximised.

There will be soil, clay and made ground excavated to facilitate construction of new foundations and installation of underground services. The development engineers (DBFL Consulting Engineers) have estimated that c. 32,353 m<sup>3</sup> of material will need to be excavated to do so. It is currently envisaged that c. 16,284 m<sup>3</sup> of the excavated material will be able to be retained and reused onsite for landscaping and fill. The remaining material will need to be removed offsite due to the limited opportunities for reuse on site. This will be taken for appropriate offsite reuse, recovery, recycling and / or disposal.

If any material that requires removal from the site is deemed to be a waste, removal and reuse / recycling / recovery / disposal of the material will be carried out in accordance with the Waste Management Act 1996 (as amended), the Waste Management (Collection Permit) Regulations 2007 (as amended) and the Waste Management (Facility Permit & Registration) Regulations 2007 (as amended). The volume of waste requiring recovery / disposal will dictate whether a Certificate of Registration (COR), permit or licence is required for the receiving facility. Alternatively, the material may be classed as by-product under Regulation 27 (By-products), as amended, of S.I. No. 323/2020 – European Union (Waste Directive) Regulations 2011-2020 (previously Article 27 of the European Communities (Waste Directive) Regulations 2011). For more information in relation to the envisaged management of by-products, refer to the RWMP (Appendix 14.1).

In order to establish the appropriate reuse, recovery and / or disposal route for the soils and stones to be removed off-site, it will first need to be classified. Waste material will initially need to be classified as hazardous or non-hazardous in accordance with the EPA publication Waste Classification – List of Waste & Determining if Waste is Hazardous or Non-Hazardous (2018).

Waste will also be generated from construction stage workers e.g. organic / food waste, dry mixed recyclables (waste paper, newspaper, plastic bottles, packaging, aluminium cans, tins and Tetra Pak cartons), mixed non-recyclables and, potentially, sewage sludge from temporary welfare facilities provided on-site during the construction stage. Waste printer / toner cartridges, waste electrical and electronic equipment (WEEE) and waste batteries may also be generated in small volumes from site offices.

Further detail on the waste materials likely to be generated during the excavation and construction works are presented in the project-specific RWMP (Appendix 14.1). The RWMP provides an estimate (of the main waste types likely to be generated during the construction stage of the proposed development. These are summarised in Table 14.1.

Waste Type	Tonnes	Reuse		Recovery/Recycle		Disposal	
		%	Tonnes	%	Tonnes	%	Tonnes
Mixed C&D	1111.6	10	111.2	80	889.2	10	111.2
Timber	943.1	40	377.3	55	518.7	5	47.2
Plasterboard	336.8	30	101.1	60	202.1	10	33.7
Metals	269.5	5	13.5	90	242.5	5	13.5
Concrete	101.1	30	30.3	65	65.7	5	5.1
Mixed Waste	505.3	20	101.1	60	303.2	20	101.1
<b>Total</b>	<b>3267.3</b>		<b>734.3</b>		<b>2221.4</b>		<b>311.6</b>

**Table 14.1:** Estimated off-site reuse, recycle and disposal rates for demolition and construction waste

#### 14.4.1.3 Operational Stage

As noted in Section 14.1, an OWMP has been prepared for the development and is included as Appendix 14.2. The OWMP provides a strategy for segregation (at source), storage and collection of all wastes generated within the development during the operational stage, including dry mixed recyclables, organic waste, and mixed non-recyclable waste, as well as providing a strategy for

management of waste glass, batteries, WEEE, printer/toner cartridges, chemicals, textiles, waste cooking oil, and furniture.

The total estimated waste generation for the development for the main waste types based on the AWN waste generation model is presented in Table 14.2 below and is based on the uses and areas as advised by the project architects (O'Mahony Pike (OMP)). Further breakdowns can be found with in Appendix 14.2 OWMP.

Waste Type	m3/week	
	Residential Waste (Combined)	Commercial Waste (Creche Unit)
Organic Waste	9.72	0.05
DMR	68.91	1.89
Glass	1.88	0.01
MNR	36.24	1.03
<b>Total</b>	<b>116.76</b>	<b>2.99</b>

**Table 14.2** Estimated waste generation for the proposed development for the main waste types

The residents will be required to provide and maintain appropriate waste receptacles within their units to facilitate segregation at source of these waste types. As required, the residents will need to bring these segregated wastes from their units to their allocated Waste Storage Areas (WSAs). All WSAs can be viewed on the plans submitted with the application and in the OWMP (Appendix 14.2).

The OWMP seeks to ensure the development contributes to the targets outlined in the NWMPCE and the SDCC waste Bye-laws.

#### 14.4.2 Proposed Development – Kishoge Site 4 – KSG4

##### 14.4.2.1 Demolition Stage

There will be waste materials generated from the demolition of three buildings and demolition associated with the Grange House on site, as well as from the further excavation of the building foundations. Further detail on the waste materials likely to be generated during the demolition works are presented in the project-specific RWMP in Appendix 14.1. The RWMP provides an estimate of the main waste types likely to be generated during the C&D phase of the proposed development. The reuse, recycling / recovery and disposal rates have been estimated using the EPA National Waste Reports and these are summarised in Table 14.3.

Waste Type	Tonnes	Reuse		Recycle / Recovery		Disposal	
		%	Tonnes	%	Tonnes	%	Tonnes
Glass	11.7	0	0.0	85	9.9	15	1.7
Concrete, Bricks, Tiles, Ceramics	66.1	30	19.8	65	43.0	5	3.3
Plasterboard	5.2	30	1.6	60	3.1	10	0.5
Asphalts	1.3	0	0.0	75	1.0	25	0.3
Metals	19.4	5	1.0	80	15.6	15	2.9
Slate	10.4	0	0.0	85	8.8	15	1.6
Timber	15.6	10	1.6	60	9.3	30	4.7
Asbestos	0.5	0	0.0	0	0.0	100	0.5
<b>Total</b>	<b>130.1</b>		<b>23.9</b>		<b>90.7</b>		<b>15.5</b>

**Table 14.3** Estimated off-site reuse, recycle and disposal rates for demolition waste

#### 14.4.2.2 Construction Stage

During the construction stage, waste will be produced from surplus materials such as broken or off-cuts of timber, plasterboard, concrete, tiles, bricks, etc. Waste from packaging (cardboard, plastic, timber) and oversupply of materials may also be generated. The appointed Contractor will be contractually required to ensure that oversupply of materials is kept to a minimum and opportunities for reuse of suitable materials is maximised.

There will be soil, clay and made ground excavated to facilitate construction of new foundations and installation of underground services. The development engineers (CS Consulting) have estimated that c. 48,232 m<sup>3</sup> of topsoil and cut material will need to be excavated to do so. It is currently envisaged that 5,690 m<sup>3</sup> of the cut material will be able to be retained and reused onsite for landscaping and fill, the remaining material, will need to be removed offsite due to the limited opportunities for reuse on site. This will be taken for appropriate offsite reuse, recovery, recycling and / or disposal. Due to the site being previously used as a tree nursery and as such has been heavily populated with trees and vegetation, there is expected to be a large amount of root fibres in the topsoil. As a result, the amount of top soil which could be reused will be determined once the construction works commence on site.

For details regarding the removal of waste from site, and waste generated by construction stage workers, see paragraph 3-5 in section 14.4.1.2.

Waste will also be generated from construction stage workers e.g. organic / food waste, dry mixed recyclables (waste paper, newspaper, plastic bottles, packaging, aluminium cans, tins and Tetra Pak cartons), mixed non-recyclables and, potentially, sewage sludge from temporary welfare facilities provided on-site during the construction stage. Waste printer / toner cartridges, waste electrical and electronic equipment (WEEE) and waste batteries may also be generated in small volumes from site offices.

Further detail on the waste materials likely to be generated during the excavation and construction works are presented in the project-specific RWMP (Appendix 14.1). The RWMP provides an estimate (of the main waste types likely to be generated during the construction stage of the proposed development. These are summarised in Table 14.3.

Waste Type	Tonnes	Reuse		Recovery/Recycle		Disposal	
		%	Tonnes	%	Tonnes	%	Tonnes
Mixed C&D	1142.8	10	114.3	80	914.3	10	114.3
Timber	969.7	40	387.9	55	533.3	5	48.5
Plasterboard	346.3	30	103.9	60	207.8	10	34.6
Metals	277.1	5	13.9	90	249.3	5	13.9
Concrete	103.9	30	31.2	65	67.5	5	5.2
Mixed Waste	519.5	20	103.9	60	311.7	20	103.9
<b>Total</b>	<b>3359.2</b>		<b>755.0</b>		<b>2283.9</b>		<b>320.3</b>

**Table 14.3:** Estimated off-site reuse, recycle and disposal rates for construction waste

#### 14.4.2.3 Operational Stage

As noted in Section 14.1, an OWMP has been prepared for the development and is included as Appendix 14.2. The OWMP provides a strategy for segregation (at source), storage and collection of all wastes generated within the building during the operational stage including dry mixed recyclables, organic waste and mixed non-recyclable waste as well as providing a strategy for management of waste glass, batteries, WEEE, printer/toner cartridges, chemicals, textiles, waste cooking oil and furniture.

The total estimated waste generation for the development for the main waste types based on the AWN waste generation model is presented in Table 14.4 below and is based on the uses and areas as advised by the project architects (Derek Tynan Architects (DTA)). Further breakdowns can be found with in Appendix 14.2 OWMP.



Waste Type	m <sup>3</sup> per week	
	Residential Waste (Combined)	Commercial Waste (Combined)
Organic Waste	9.78	0.40
DMR	69.28	4.01
Glass	1.89	0.06
MNR	36.43	2.47
<b>Total</b>	<b>117.39</b>	<b>6.93</b>

**Table 14.4** Estimated waste generation for the proposed development for the main waste types

The residents will be required to provide and maintain appropriate waste receptacles within their units to facilitate segregation at source of these waste types. As required, the residents will need to bring these segregated wastes from their units to their allocated Waste Storage Areas (WSAs). All WSAs can be viewed on the plans submitted with the application and in the OWMP (Appendix 14.2).

The OWMP seeks to ensure the development contributes to the targets outlined in the NWMPCE and the SDCC waste Bye-laws.

#### 14.4.3 Proposed Development- Kishoge Site 5 – KSG5

##### 14.4.3.1 Demolition Stage

There will be no demolition associated with this stage of the proposed development.

##### 14.4.3.2 Construction Stage

During the construction stage, waste will be produced from surplus materials such as broken or off-cuts of timber, plasterboard, concrete, tiles, bricks, etc. Waste from packaging (cardboard, plastic, timber) and oversupply of materials may also be generated. The appointed Contractor will be contractually required to ensure that oversupply of materials is kept to a minimum and opportunities for reuse of suitable materials is maximised.

There will be soil, clay and made ground excavated to facilitate construction of new foundations and installation of underground services. The development engineers (RPS Consulting) have estimated that c. 70,000 m<sup>3</sup> of material will need to be excavated to do so. It is currently envisaged that all of the excavated material will need to be removed offsite due to the limited opportunities for reuse on site. This will be taken for appropriate offsite reuse, recovery, recycling and / or disposal.

For details regarding the removal of waste from site, and waste generated by construction stage workers, see paragraph 3-5 in section 14.4.1.2.

Further detail on the waste materials likely to be generated during the excavation and construction works are presented in the project-specific RWMP (Appendix 14.1). The RWMP provides an estimate (of the main waste types likely to be generated during the construction stage of the proposed development. These are summarised in Table 14.5.

Waste Type	Tonnes	Reuse		Recovery/Recycle		Disposal	
		%	Tonnes	%	Tonnes	%	Tonnes
Mixed C&D	443.2	10	44.3	80	354.6	10	44.3
Timber	376.1	40	150.4	55	206.8	5	18.8
Plasterboard	134.3	30	40.3	60	80.6	10	13.4
Metals	107.4	5	5.4	90	96.7	5	5.4
Concrete	40.3	30	12.1	65	26.2	5	2.0

Mixed Waste	201.5	20	40.3	60	120.9	20	40.3
<b>Total</b>	<b>1302.8</b>		<b>292.8</b>		<b>885.8</b>		<b>124.2</b>

**Table 14.5:** Estimated off-site reuse, recycle and disposal rates for construction waste

#### 14.4.3.3 Operational Stage

As noted in Section 14.1, an OWMP has been prepared for the development and is included as Appendix 14.2. The OWMP provides a strategy for segregation (at source), storage and collection of all wastes generated within the building during the operational stage including dry mixed recyclables, organic waste and mixed non-recyclable waste as well as providing a strategy for management of waste glass, batteries, WEEE, printer/toner cartridges, chemicals, textiles, waste cooking oil and furniture.

The total estimated waste generation for the development for the main waste types based on the AWN waste generation model is presented in Table 14.6 below and is based on the uses and areas as advised by the project architects (McCawley Daye O'Connell Architects (MDO)). Further breakdowns can be found with in Appendix 14.6 OWMP.

Waste Type	m <sup>3</sup> per week
	Residential Waste (Combined)
Organic Waste	3.99
DMR	28.25
Glass	0.77
MNR	14.86
<b>Total</b>	<b>47.87</b>

**Table 14.6** Estimated waste generation for the proposed development for the main waste types

The residents will be required to provide and maintain appropriate waste receptacles within their units to facilitate segregation at source of these waste types. As required, the residents will need to bring these segregated wastes from their units to their allocated Waste Storage Areas (WSAs). All WSA's can be viewed on the plans submitted with the application and in the OWMP (Appendix 14.2).

The OWMP seeks to ensure the development contributes to the targets outlined in the NWMPCE and the SDCC waste Bye-laws.

#### 14.4.4 Cumulative (Kishoge site 3, 4 & 5)

##### 14.4.4.1 Demolition Stage

There will be waste materials generated from the demolition of three buildings and demolition associated with the Grange House on site, as well as from the further excavation of the building foundations on KSG4. More details on the estimated generation of demolition waste can be found in Section 14.4.2.1 and in the RWMP in Appendix 14.1.

##### 14.4.4.2 Construction Stage

During the construction stage, waste will be produced from surplus materials such as broken or off-cuts of timber, plasterboard, concrete, tiles, bricks, etc. Waste from packaging (cardboard, plastic, timber) and oversupply of materials may also be generated. The appointed Contractor will be contractually required to ensure that oversupply of materials is kept to a minimum and opportunities for reuse of suitable materials is maximised.

There will be topsoil and subsoil excavated to facilitate construction of new foundations and the installation of underground services. The development engineers (RPS, CS Consulting, DBFL Consulting Engineers) have estimated that a total of approx. 144,895 m<sup>3</sup> of material will need to be excavated to do so. Details on the reuse and disposal of material from each of the sites can be found in Section 14.4.1.2, 14.4.2.2, and 14.4.3.2 above.

For details regarding the removal of waste from site, and waste generated by construction stage workers, see paragraph 3-5 in section 14.4.1.2.

Further detail on the waste materials likely to be generated during the excavation and construction works are presented in the project-specific RWMP (Appendix 14.1). The RWMP provides an estimate (of the main waste types likely to be generated during the construction stage of the proposed development. These are summarised in Table 14.7.

Waste Type	Tonnes	Reuse		Recovery/Recycle		Disposal	
		%	Tonnes	%	Tonnes	%	Tonnes
Mixed C&D	2697.6	10	269.8	80	2158.1	10	269.8
Timber	2288.9	40	915.6	55	1258.9	5	114.4
Plasterboard	817.5	30	245.2	60	490.5	10	81.7
Metals	654.0	5	32.7	90	588.6	5	32.7
Concrete	245.2	30	73.6	65	159.4	5	12.3
Mixed Waste	1226.2	20	245.2	60	735.7	20	245.2
<b>Total</b>	<b>7929.3</b>		<b>1782.1</b>		<b>5391.1</b>		<b>756.1</b>

**Table 14.7:** Estimated off-site reuse, recycle and disposal rates for construction waste

#### 14.4.4.3 Operational Stage

As noted in Section 14.1, an OWMP has been prepared for the development and is included as Appendix 14.2. The OWMP provides a strategy for segregation (at source), storage and collection of all wastes generated within the building during the operational stage including dry mixed recyclables, organic waste and mixed non-recyclable waste as well as providing a strategy for management of waste glass, batteries, WEEE, printer/toner cartridges, chemicals, textiles, waste cooking oil and furniture.

The total estimated waste generation for the development for the main waste types based on the AWN waste generation model is presented in Table 14.8 below and is based on the uses and areas as advised by the project architects (OMP, DTA & MDO). Further breakdowns can be found with in Appendix 14.2 OWMP.

Waste Type	m <sup>3</sup> per week	
	Residential Waste (Combined)	Commercial Waste (Combined)
Organic Waste	23.49	0.52
DMR	166.45	8.29
Glass	4.55	0.07
MNR	87.53	4.81
<b>Total</b>	<b>282.01</b>	<b>13.69</b>

**Table 14.8** Estimated waste generation for the proposed development for the main waste types

The residents will be required to provide and maintain appropriate waste receptacles within their units to facilitate segregation at source of these waste types. As required, the residents will need to

bring these segregated wastes from their units to their allocated Waste Storage Areas (WSAs). All WSA's can be viewed on the plans submitted with the application and in the OWMP (Appendix 14.2).

The OWMP seeks to ensure the development contributes to the targets outlined in the NWMPCE and the SDCC waste Bye-laws.

## 14.5 Potential Impact of the Proposed Development

### 14.5.1 Proposed Development – Kishoge 3 – KSG3

#### 14.5.1.1 Construction Stage

The proposed development will generate a range of non-hazardous and hazardous waste materials during site excavation and construction (see Appendix 14.1 for further detail). General housekeeping and packaging will also generate waste materials, as well as typical municipal wastes generated by construction employees, including food waste. Waste materials will be required to be temporarily stored in the construction site compound or adjacent to it, on-site pending collection by a waste contractor. If waste material is not managed and stored correctly, it is likely to lead to litter or pollution issues at the Development Site and in adjacent areas. The indirect effect of litter issues is the presence of vermin in areas affected. In the absence of mitigation, the effect on the local and regional environment is likely to be **indirect, short-term, significant and negative**.

The use of non-permitted waste contractors or unauthorised waste facilities could give rise to inappropriate management of waste, resulting in indirect negative environmental impacts, including pollution. It is essential that all waste materials are dealt with in accordance with regional and national legislation, as outlined previously, and that time and resources are dedicated to ensuring efficient waste management practices. In the absence of mitigation, the effect on the local and regional environment is likely to be **indirect long-term, significant and negative**.

Wastes arising will need to be taken to suitably registered / permitted / licensed waste facilities for processing and segregation, reuse, recycling, recovery, and / or disposal, as appropriate. There are numerous licensed waste facilities in the EMR which can accept hazardous and non-hazardous waste materials, and acceptance of waste from the Development Site would be in line with daily activities at these facilities. At present, there is sufficient capacity for the acceptance of the likely C&D waste arisings at facilities in the region. The majority of construction materials are either recyclable or recoverable. In the absence of mitigation, the effect on the local and regional environment is likely to be **indirect short-term, significant and negative**.

There is a quantity of topsoil and subsoil that will need to be excavated to facilitate the proposed development. A detailed review of the existing ground conditions on a regional, local site-specific scale is presented in Chapter 7. Excavated material that cannot be reused onsite will need to be removed off-site. Correct classification and segregation of the excavated material is required to ensure that any potentially contaminated materials are identified and handled in a way that will not impact negatively on workers as well as on water and soil environments, both on and off-site. In the absence of mitigation, the effect on the local and regional environment is likely to be **indirect short-term, significant and negative**.

#### 14.5.1.2 Operational Stage

The potential impacts on the environment of improper, or a lack of, waste management during the operational stage would be a diversion from the priorities of the waste hierarchy which would lead to small volumes of waste being sent unnecessarily to landfill. In the absence of mitigation, the effect on the local and regional environment is likely to be **indirect, long-term, significant and negative**.

The nature of the development means the generation of waste materials during the operational stage is unavoidable. Networks of waste collection, treatment, recovery and disposal infrastructure are in place in the region to manage waste efficiently from this type of development. Waste which is not suitable for recycling is typically sent for energy recovery. There are also facilities in the region for

segregation of municipal recyclables which is typically exported for conversion in recycled products (e.g. paper mills and glass recycling).

If waste material is not managed and stored correctly, it is likely to lead to litter or pollution issues at the development site and in adjacent areas. The knock-on effect of litter issues is the presence of vermin in affected areas. In the absence of mitigation, the effect on the local and regional environment is likely to be **Indirect, long-term, significant and negative**.

It is anticipated that Waste contractors will be required to service the proposed development on a scheduled basis to remove waste. The use of non-permitted waste contractors or unauthorised facilities could give rise to inappropriate management of waste and result in negative environmental impacts or pollution. It is essential that all waste materials are dealt with in accordance with regional and national legislation, as outlined previously, and that time and resources are dedicated to ensuring efficient waste management practices. In the absence of mitigation, the effect on the local and regional environment is likely to be **Indirect, long-term, significant and negative**.

#### 14.5.1.3 Do-Nothing Impact

If the proposed development were not to go ahead (i.e. in the Do-Nothing scenario) there would be no excavation or construction at this site. There would continue to be no operational waste generated from the proposed site. There would, therefore, be a **neutral effect** on the environment in terms of waste.

The site is zoned for development, and it is likely that in the absence of this proposal that development of a similar nature would be progressed on the site that accords with national and regional policies and therefore the likely significant effects would be similar to this proposal.

### 14.5.2 Proposed Development – Kishoge Site 4 – KSG4

#### 14.5.2.1 Construction Stage

The potential Construction Stage impacts are the same as 14.5.1.1.

#### 14.5.2.2 Operational Stage

The potential Operational Stage impacts are the same as 14.5.1.2.

#### 14.5.2.3 Do-Nothing Impact

The potential Do-Nothing Impacts are the same as 14.5.1.3.

### 14.5.3 Proposed Development – Kishoge Site 5 – KSG5

#### 14.5.3.1 Construction Stage

The potential Construction Stage impacts are the same as 14.5.1.1.

#### 14.5.3.2 Operational Stage

The potential Operational Stage impacts are the same as 14.5.1.2.

#### 14.5.3.3 Do-Nothing Impact

The potential Do-Nothing Impacts are the same as 14.5.1.3.

#### 14.5.4 Cumulative

There are existing residential and commercial developments close by, along with multiple permissions remaining in place in the area. Multiple developments in the area could potentially be developed concurrently or overlap in the construction stage.

##### 14.5.4.1 Construction Stage

Developments that potentially could overlap during the construction stage:

Reg. Ref.	Applicant	Description	Date of Grant	Status	No. Dwellings	Non-Resi (sqm)
SDZ24A/0032W	Department of Education	The retention and completion of revisions to a section of the northern site boundary comprising the omission of the pedestrian/cycle access off Thomas Omer Way	Granted 11-March-2025	At further information stage (requested 24.01.2025)	N/A	N/A
SDZ24A/0033W	Clonburris Infrastructure Limited	Stage 2 Roads- The construction of c. 2.3km of a new Link Street Clonburris Northern Link Street (CNLS) and approximately 800m of side streets. Provision/upgrade of 12 signalised junctions. Approximately 2 km of upgrade of existing streets. Provision of 2 main public parks centrally and drainage infrastructure works.	Granted 10-Feb- 2025	Awaiting decision	N/A	N/A
SDZ23A/0043	Cairn Homes Properties Limited	Kishoge Urban Centre- construction of a mixed-use development arranged in 11 no. blocks, ranging between 3 & 7 storeys, comprising: 495 no. residential units, including 449 no. apartments	17-Apr-2024	Grant Permission 17-Apr- 2024	495	2,502 sq.m of retail floorspace 483 sq.m creche
SDZ23A/0018	Cairn Homes Properties Limited	Clonburris SW- construction of 565 dwellings (mixture of apartments, duplex apartments and houses	11-Dec-23	Granted Permission	565	N/A
SDZ23A/0004	Clear Real Estate Holdings Limited	Adamstown Extension- 385 dwelling units (139 houses, 70 Build-to-Rent duplex / apartments, 72 duplex / apartments and 104 apartments), ranging	15-Dec-23	Granted Permission	385	N/A

		between two to six storeys in height. This permission was amended under SDZ24A/0018W.				
SDZ22A/0018	Cairn Homes Properties Ltd.	Clonburris UC & SW-mixed-use development comprising 594 apartments, office floorspace, 4 retail units, a creche and urban square. This permission was amended under SDZ24A/0019W.	31-Oct-23	Granted Permission	594	creche c. 609sq. m office use c. 4,516sq.m Block B retail: 1 unit (c.147.5sq. m) Block E retail: 3 units (c.106.2sq.m, c.141.6sq.m and c.492.2sq.m)
SDZ22A/0017	Cairn Homes Properties Ltd.	Clonburris SW- Construction of 157 dwellings	16-May-23	Granted Permission	157	N/A
SDZ22A/0011	Department of Education	Proposed 2-storey primary school comprising 16 no. classrooms with an additional 2 classroom Special Educational Needs Unit	16-Feb-23	Granted Permission	N/A	Primary School (3,355sqm)
SDZ22A/0010	Kelland Homes Ltd.	Clonburris UC & SE-construction of 294 no. dwellings, creche and retail / commercial unit. This permission was amended under SDZ24A/0030W.	02-May-23	Commenced August 2023	294	1 no. 2 storey creche (c.520.2m2) 1 no. 2 storey retail /commercial unit (c.152.1m2)
SD228/0003	SDCC	Kishogue SW- 263 residential units	11-Jul-22	Part 8 Approved by SDCC	263	N/A
SD228/0001	SDCC	Canal Extension- 118 residential units made up of houses, duplexes, triplexes, an apartment building	13-Jun-21	Part 8 Approved by SDCC	118	N/A
SDZ21A/0022	Cairn Homes Properties Ltd.	Clonburris SW- The construction of 569 dwellings, a creche, innovation hub and open space. This permission was amended under SDZ23A/0029 resulting in 2no. additional units. This permission was amended again under SDZ24A/0028W.	23-Aug-22	Commenced Jan-2023	569	innovation hub (626sq.m) creche (c. 547sq.m)

SDZ21A/0013	Department of Education	Kishoge Cross- A 3 storey, 1,000 pupil post primary school including a 4 classroom Special Educational Needs Unit with a gross floor area of 11,443sq.m including sports hall	21-Feb-22	Granted Permission	N/A	Post Primary School
SDZ20A/0021	Clonburris Infrastructure Ltd	Southern Link Street- construction of c. 4.0km of a new road, known as Clonburris Southern Link Street	12-Aug-21	10 year permission	N/A	Roads & Drainage Infrastructure

Other developments in the area will be required to manage waste in compliance with national and local legislation, policies and plans, which will mitigate against any potential cumulative effects associated with waste generation and waste management. As such the effect will be **short-term, not significant and neutral**.

#### 14.5.4.2 Operational Stage

There are existing residential and commercial developments close by, along with multiple permissions remaining in the area. All of the current and potential developments will generate similar waste types during their operational stages. Authorised waste contractors will be required to collect waste materials segregated, at a minimum, into recyclables, organic waste and non-recyclables. An increased density of development in the area is likely improve the efficiencies of waste collections in the area.

Other developments in the area will be required to manage waste in compliance with national and local legislation, policies and plans, which will minimise/mitigate any potential cumulative impacts associated with waste generation and waste management. As such the effect will be a **long-term, imperceptible and neutral**.

#### 14.5.4.3 Do-Nothing Impact

The potential Do-Nothing Impacts are the same as 14.5.1.3.

### 14.6 Mitigation Measures (Ameliorative, Remedial or Reductive Measures)

This section outlines the measures that will be employed in order to reduce the amount of waste produced, manage the wastes generated responsibly, and handle the waste in such a manner as to minimise the effects on the environment.

The concepts of the 'circular economy and 'waste hierarchy' are employed when considering all mitigation measures.

The CE is a sustainable alternative to the traditional linear (take-make-dispose) economic model, reducing waste to a minimum by reusing, repairing, refurbishing and recycling existing materials and products. The waste hierarchy states that the preferred option for waste management is prevention and minimisation of waste, followed by preparing for reuse and recycling / recovery, energy recovery (i.e. incineration) and, least favoured of all, disposal.

#### 14.6.1 Proposed Development – Kishoge Site 3 – KSG3

##### 14.6.1.1 Construction Stage

The following mitigation measures will be implemented during the construction stage of the proposed development:



**Waste Management (WM)\_1:**

As previously stated, a project specific RWMP has been prepared in line with the requirements of the requirements of the EPA 'Best Practice Guidelines for the Preparation of Resource and Waste Management Plans for Construction & Demolition Projects' (2021) and is included as 4.1. The mitigation measures outlined in the RWMP will be implemented in full and form part of the mitigation strategy for the site. The mitigation measures presented in this RWMP will ensure effective waste management and minimisation, reuse, recycling, recovery and disposal of waste material generated during the excavation and construction stages of the proposed development.

- Prior to commencement, the appointed Contractor(s) will be required to refine / update the RWMP (Appendix 14.1) in agreement with SDCC and in compliance with any planning conditions, or submit an addendum to the RWMP to SDCC, detailing specific measures to minimise waste generation and resource consumption, and provide details of the proposed waste contractors and destinations of each waste stream.
- The Contractor will implement the RWMP throughout the duration of the proposed excavation and construction stages.

**WM\_2:**

A quantity of topsoil and sub soil will need to be excavated to facilitate the proposed development. The Development Engineers have estimated that the majority excavated material will need to be removed off-site. Correct classification and segregation of the excavated material is required to ensure that any potentially contaminated materials are identified and handled in a way that will not impact negatively on workers as well as on water and soil environments, both on and off-site.

**WM\_3:**

- Building materials will be chosen to 'design out waste'.

**WM\_4:**

- On-site segregation of waste materials will be carried out to increase opportunities for off-site reuse, recycling and recovery. The following waste types, at a minimum, will be segregated:
  - Concrete rubble (including ceramics, tiles and bricks);
  - Soil and stones;
  - Concrete, bricks, tiles and ceramics;
  - Wood, glass and plastics;
  - Metals;
  - Gypsum-based construction material;
  - Paper and cardboard;
  - Mixed construction and demolition (C&D) waste;
  - Chemicals (solvents, paints, adhesives, detergents etc.).

**WM\_5:**

- Left over materials (e.g. timber off-cuts, broken concrete blocks / bricks) and any suitable construction materials shall be re-used on-site, where possible (alternatively, the waste will be sorted for recycling, recovery or disposal).

**WM\_6:**

- All waste materials will be stored in skips or other suitable receptacles in designated areas of the site.

**WM\_7:**

- Any hazardous wastes generated (such as chemicals, solvents, glues, fuels, oils) will also be segregated and will be stored in appropriate receptacles (in suitably bunded areas, where required).

**WM\_8:**

- A Resource Manager will be appointed by the main Contractor(s) to ensure effective management of waste during the excavation and construction works.

**WM\_9:**

- All construction staff will be provided with training regarding the waste management procedures.

**WM\_10:**

- All waste leaving site will be reused, recycled or recovered, where possible, to avoid material designated for disposal.

**WM\_11:**

- All waste leaving the site will be transported by suitably permitted contractors and taken to suitably registered, permitted or licenced facilities.

**WM\_12:**

- All waste leaving the site will be recorded and copies of relevant documentation maintained.

**WM\_13:**

Nearby sites requiring clean fill material will be contacted to investigate reuse opportunities for clean and inert material, if required. If any of the material is to be reused on another site as by-product (and not as a waste), this will be done in accordance with Regulation 27 (By-products), as amended, European Union (Waste Directive) Regulations 2011-2020. EPA approval will be obtained prior to moving material as a by-product.

These mitigation measures will ensure that the waste arising from the construction stage of the proposed development is dealt with in compliance with the provisions of the Waste Management Act 1996, as amended, associated Regulations and the Litter Pollution Act 1997 and the NWCP. It will also ensure optimum levels of waste reduction, reuse, recycling and recovery are achieved and will promote more sustainable consumption of resources.

#### 14.6.1.2 Operational Stage

The following mitigation measures will be implemented during the operational stage of the proposed development:

**WM\_14:**

All waste materials will be segregated into appropriate categories and will be temporarily stored in appropriate bins or other suitable receptacles in a designated, easily accessible areas of the site.

**WM\_15:**

As previously stated, a project specific OWMP has been prepared and is included as Appendix 14.2. The mitigation measures outlined in the OWMP will be implemented in full and form part of the mitigation strategy for the site. Implementation of this OWMP will ensure a high level of recycling, reuse and recovery at the development. All recyclable materials will be segregated at source to reduce waste contractor costs and ensure maximum diversion of materials from landfill, thus achieving the targets set out in the NWMPCE, Waste Action Plan for a Circular Economy – Waste Management Policy in Ireland and the SDCC waste bye-laws.

The Residents of the site during the operational stage will be responsible for ensuring the ongoing implementation of this OWMP and the abiding of SDCC waste bye-laws, ensuring a high level of recycling, reuse and recovery at the site of the proposed development.

**WM\_16:**

- On-site segregation of all waste materials into appropriate categories including (but not limited to):
  - Organic waste;
  - Dry Mixed Recyclables;
  - Mixed Non-Recyclable Waste;
  - Glass;
  - Waste electrical and electronic equipment (WEEE);
  - Batteries (non-hazardous and hazardous);
  - Cooking oil;
  - Light bulbs;
  - Cleaning chemicals (pesticides, paints, adhesives, resins, detergents, etc.);
  - Furniture (and from time to time other bulky waste); and
  - Abandoned bicycles.

**WM\_17:**

- The Residents will ensure that all waste materials will be stored in colour coded bins or other suitable receptacles in designated, easily accessible locations. Bins will be clearly identified with the approved waste type to ensure there is no cross contamination of waste materials.

**WM\_18:**

- The Residents will ensure that all waste collected from the site of the proposed development will be reused, recycled or recovered, where possible, with the exception of those waste streams where appropriate facilities are currently not available; and

**WM\_19:**

- The Residents will ensure that all waste leaving the site will be transported by suitable permitted contractors and taken to suitably registered, permitted or licensed facilities.

These mitigation measures will ensure the waste arising from the development is dealt with in compliance with the provisions of the *Waste Management Act 1996*, as amended, associated Regulations, the *Litter Pollution Act 1997*, *The NWMPCE* and the SDCC waste bye-laws. It will also ensure optimum levels of waste reduction, reuse, recycling and recovery are achieved.

**14.6.2 Proposed Development – Kishoge Site 4 – KSG4****14.6.2.1 Construction Stage**

The proposed construction stage mitigation measures are the same as 14.6.1.1.

**14.6.2.2 Operational Stage**

The proposed operational stage mitigation measures are the same as 14.6.1.2.

### 14.6.3 Proposed Development – Kishoge Site 5 – KSG5

#### 14.6.3.1 Construction Stage

The proposed construction stage mitigation measures are the same as 14.6.1.1.

#### 14.6.3.2 Operational Stage

The proposed operational stage mitigation measures are the same as 14.6.1.2.

### 14.6.4 Cumulative

#### 14.6.4.1 Construction Stage

The proposed construction stage mitigation measures are the same as 14.6.1.1.

#### 14.6.4.2 Operational Stage

The proposed operational stage mitigation measures are the same as 14.6.1.2.

## 14.7 Residual Impact of the Proposed Development

The implementation of the mitigation measures outlined in Section 14.6 will ensure that targeted rates of reuse, recovery and recycling are achieved at the site of the proposed development during the construction and operational stages. It will also ensure that European, National and Regional legislative waste requirements with regard to waste are met and that associated targets for the management of waste are achieved.

### 14.7.1 Proposed Development – Kishoge Site 3 – KSG3

#### 14.7.1.1 Construction Stage

A carefully planned approach to waste management as set out in Section 14.6.1 and adherence to the RWMP (which includes mitigation) (Appendix 14.1) during the construction stage will promote resource efficiency and waste minimisation. When the mitigation measures are implemented and a high rate of prevention reuse, recycling and recovery is achieved, the predicted impact of the construction stage on the environment will be **short-term, imperceptible** and **neutral**.

#### 14.7.1.2 Operational Stage

During the operational stage, a structured approach to waste management as set out in Section 14.6.2 and adherence to the OWMP (which includes mitigation) (Appendix 14.2) will promote resource efficiency and waste minimisation. When the mitigation measures are implemented and a high rate of reuse, recycling and recovery is achieved, the predicted impact of the operational stage on the environment will be **long-term, imperceptible** and **neutral**.

#### 14.7.1.3 Worst Case Impact

In a worst-case scenario, if no mitigation measures found in Section 14.6 or in Appendices 14.1 and 14.2 are followed, lack of waste prevention, poor onsite waste management, non-permitted waste contractors or unauthorised waste facilities could give rise to inappropriate management of waste offsite and result in negative environmental impacts or pollution as shown in Section 14.5.

**14.7.2 Proposed Development – Kishoge Site 4 – KSG4****14.7.2.1 Construction Stage**

The proposed construction stage residual impacts are the same as 14.7.1.1.

**14.7.2.2 Operational Stage**

The proposed operational stage residual impacts are the same as 14.7.1.2.

**14.7.2.3 Worst Case Impact**

The proposed worst case impacts are the same as 14.7.1.3.

**14.7.3 Proposed Development – Kishoge Site 5 – KSG5****14.7.3.1 Construction Stage**

The proposed construction stage residual impacts are the same as 14.7.1.1.

**14.7.3.2 Operational Stage**

The proposed operational stage residual impacts are the same as 14.7.1.2.

**14.7.3.3 Worst Case Impact**

The proposed worst case impacts are the same as 14.7.1.3.

**14.7.4 Cumulative****14.7.4.1 Construction Stage**

The proposed construction stage residual impacts are the same as 14.7.1.1.

**14.7.4.2 Operational Stage**

The proposed operational stage residual impacts are the same as 14.7.1.2.

**14.7.4.3 Worst Case Impact**

The proposed worst case impacts are the same as 14.7.1.3.

**14.8 Monitoring**

The management of waste during the construction stage will be monitored by the Contactor's appointed Resource Manager to ensure compliance with the above-listed mitigation measures, and relevant waste management legislation and local authority requirements, including maintenance of waste documentation.

The management of waste during the operational stage will be monitored by the residents to ensure effective implementation of the OWMP and SDCC waste bye-laws internally and by the nominated waste contractor(s).

**14.8.1 Proposed Development – Kishoge Site 3 – KSG3****14.8.1.1 Construction Stage**

The objective of setting targets for waste management is only achieved if the actual waste generation volumes are calculated and compared. This is particularly important during the excavation and construction works, where there is a potential for waste management objectives to become secondary to other objectives, i.e. progress and meeting construction schedule targets. The mitigation measures in the RWMP specify the need for a Resource Manager to be appointed, who will have responsibility for monitoring the actual waste volumes being generated and ensuring that contractors and sub-contractors are segregating waste as required. Where targets are not being met, the Resource Manager will identify the reasons for this and work to resolve any issues. Recording of waste generation during the construction stage of the proposed development will enable better management of waste contractor requirements and identify trends. The data should be maintained to advise on future developments.

**14.8.1.2 Operational Stage**

During the operational stage, waste generation volumes will be monitored by the residents against the predicted waste volumes outlined in the OWMP. There may be opportunities to reduce the number of bin collections and the size of the bins, where estimates have been too conservative. Reductions in bin collection and sizes will improve efficiency and may reduce waste contractor costs.

**14.8.2 Proposed Development – Kishoge Site 4 – KSG4****14.8.2.1 Construction Stage**

The proposed construction stage monitoring is the same as in 14.8.1.1.

**14.8.2.2 Operational Stage**

The proposed operational stage monitoring is the same as in 14.8.1.2.

**14.8.3 Proposed Development – Kishoge Site 5 – KSG5****14.8.3.1 Construction Stage**

The proposed construction stage monitoring is the same as in 14.8.1.1.

**14.8.3.2 Operational Stage**

The proposed operational stage monitoring is the same as in 14.8.1.2.

**14.8.4 Cumulative****14.8.4.1 Construction Stage**

The proposed construction stage monitoring is the same as in 14.8.1.1.

**14.8.4.2 Operational Stage**

The proposed operational stage monitoring is the same as in 14.8.1.2.

## **14.9 Reinstatement**

In the event that the proposed development is discontinued, there is not likely to be any significant impacts on waste management at the site.

The proposed development may be decommissioned at some stage in the future. At that time, a demolition or refurbishment plan will be formulated for the decommissioning stage of the proposed development to ensure no waste nuisance occurs at nearby sensitive receptors.

## **14.10 Difficulties Encountered**

Until final materials and detailed construction methodologies have been confirmed, it is difficult to predict with a high level of accuracy the construction waste that will be generated from the proposed works as the exact materials and quantities may be subject to some degree of change and variation during the construction process.

While it is possible to initially select a licensed waste facility for soil disposal, there is potential to encounter contaminated material or material with naturally occurring variations in minerals and chemicals that necessitates sending it to a different suitably licensed facility. The sampling and testing carried out in the Site Investigation process provides spot samples, and further testing is required during the excavation process, as the true condition of all excavated materials cannot be ascertained with certainty until this is undertaken.

There is a number of licensed, permitted and registered waste facilities in the SDCC region, in the surrounding counties, the eastern midlands waste region and in Ireland and Northern Ireland. However, these sites may not be available for use when required or may be limited by the waste contractor selected to service the development in the appropriate stage. In addition, there is potential for more suitably placed waste facilities or recovery facilities to become operational in the future which may be more beneficial from an environmental perspective.

Licensed waste facilities have annual limitations on material that they can import as part of their license agreements. Because of this it is not possible to commit to a singular specific receiving facility as it may not be available throughout the excavation stage. It would not be viable to cease a development and wait until a receiving facility's annual receiving quotas are reset. In a normal development, waste facilities would switch between facilities with available capacity.

The ultimate selection of waste contractors and waste facilities would be subject to appropriate selection criteria proximity, competency, capacity, serviceability, and cost