

# **RESOURCE & CONSTRUCTION WASTE MANAGEMENT PLAN**

**FOR**

**CORNEL LIVING LIMITED  
RIVERSIDE ONE  
SIR JOHN ROGERSON'S QUAY  
DUBLIN 2**

**RELATING TO A PROPOSED**

**RESIDENTIAL DEVELOPMENT**

**AT**

**LANDS AT CORNELSCOURT VILLAGE, OLD BRAY ROAD, CORNELSCOURT,  
DUBLIN 18**

**20<sup>th</sup> November 2021**



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## 1.0 INTRODUCTION

This document presents the Resource & Construction Waste Management Plan for the control, management and monitoring of resources and construction waste associated with the development of a proposed residential development on lands at Cornelscourt Village, Dublin 18.

The proposed residential development comprises 412 no. apartment units (consisting of 294 no. one-bed apartments, 111 no. two-bed apartments, and 7 no. three-bed apartment units) and 7 no. three-bed houses. The proposed apartments are arranged in 5 no. Blocks which range in height from 4 no. storeys to 12 no. storeys over basement/podium level, a childcare facility and a café/retail unit on a site of c. 2.15ha.

The Construction and Demolition Waste Management Plan has been prepared to demonstrate how the Construction Phase will comply with the following relevant legislation, guidance and relevant Best Practice Guidelines:

- *Waste Management Acts 1996*
- *Waste Management (Collection Permit) Regulations 2007 (SI No. 820 of 2007)*
- *Waste Management (Collection Permit) Amendment Regulations 2008 (SI No. 87 of 2008)*
- *Department of the Environment, Heritage and Local Government – Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects – July 2006.*
- *The Eastern-Midlands Region Waste Management Plan 2015-2021.*
- *EPA “Guidance on Soil and Stone By-Products in the context of Article 27 of the European Communities (Waste Directive) Regulations – Version 3 June 2019*
- *EPA Draft Best Practice Guidelines for the preparation of resource management plans for construction and demolition projects, April 2021*

The Construction Phase Waste Management Plan has been prepared with regard to the strategy, policy and objectives contained in *Chapter 5.1.2-Waste Management* of the *Dun Laoghaire Rathdown County Development Plan 2016 – 2022* as follows:

*Dun Laoghaire-Rathdown County Council’s Guidance for Environmental Management of Construction Projects, November 2020.*

### **DLR Co Co- Waste Management Strategy**

To promote and facilitate best practice in prevention, re-use, recovery, recycling and disposal of all waste and environmental emissions produced in the County.

### **DLR Co Co- Waste Re-Use and Recycling**

It is the policy of the Council, to promote the increased re-use and the re-cycling of materials from all waste streams.

The **Objective of this Waste Management Plan** is to minimise the quantity of waste generated by construction activities, to maximise the use of materials in an efficient manner and to maximise the segregation of construction waste materials on-site to produce uncontaminated waste streams for off-site recycling.

The Waste Management Plan shall be implemented throughout the construction phase of the development to ensure the following:

- That all site activities are effectively managed to minimise the generation of waste and to maximise the opportunities for on-site reuse and recycling of waste materials.
- To ensure that all waste materials are segregated into different waste fractions and stored on-site in a managed and dedicated waste storage area.
- To ensure that all waste materials generated by site activities are removed from site by appropriately permitted waste haulage contractors and that all wastes are disposed of at approved waste licensed / permitted facilities in compliance with the *Waste Management Act 1996* and all associated Waste Management Regulations.

## 2.0 THE CIRCULAR ECONOMY

Ireland's national waste policy is '*A Waste Action Plan for A Circular Economy – Ireland's National Waste Policy 2020 – 2025*'. The policy, published September 2020, is intended to move Ireland toward a circular economy in which focus is shifted away from waste disposal, favouring circularity and sustainability by identifying and maximising the value of material through improved design, durability, repair and recycling. By extending the time resources are kept within the local economy, both environmental and economic benefits are foreseen.

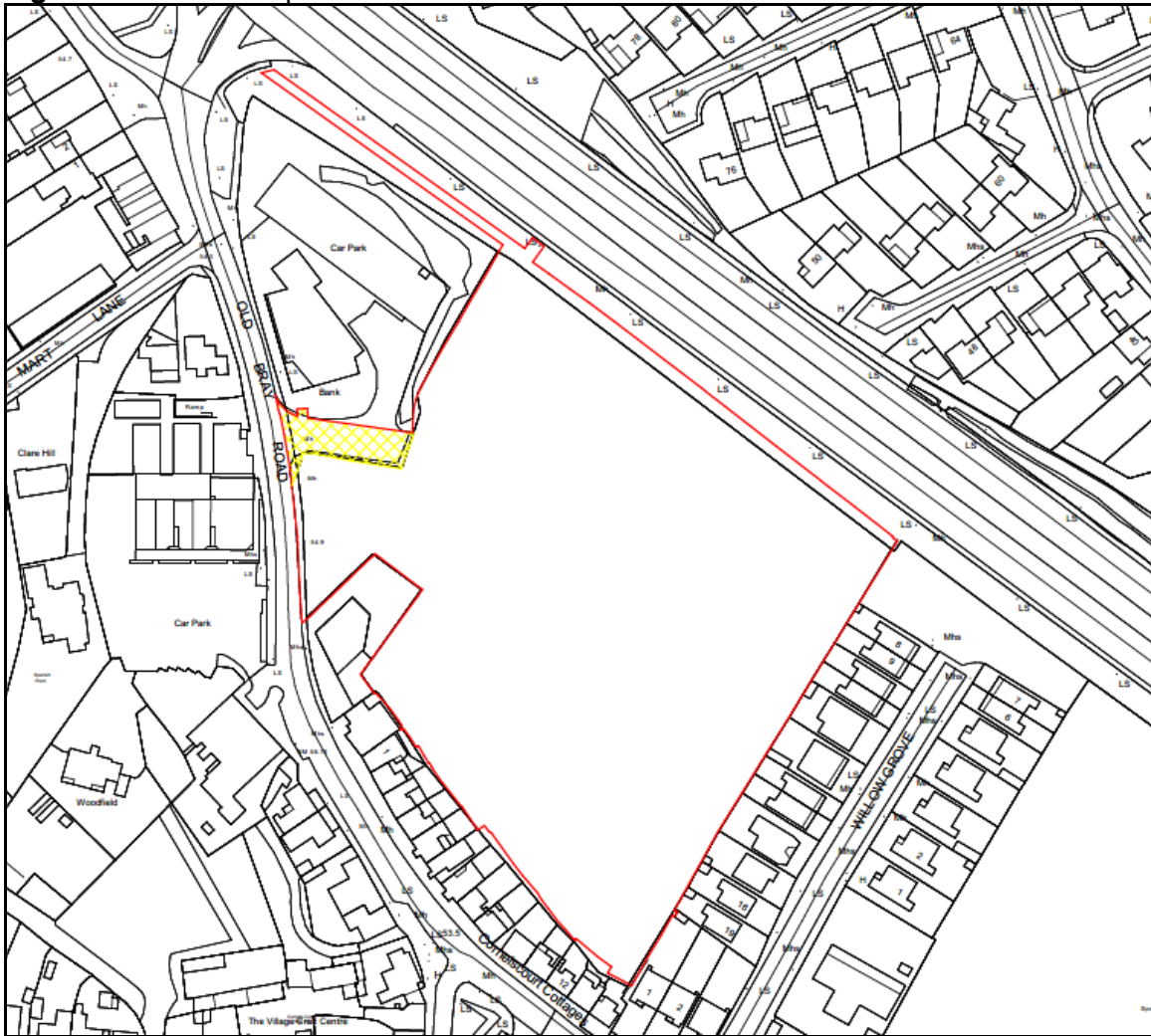
The proposed development will implement the above policy as follows:

- Re-Use as much as possible on-site of excavated soils and stones as fill material and as landscaping material.
- The purchase of construction materials as needed to prevent over supply and potential for damage whilst in storage.
- The segregation of construction waste streams into separate storage containers to maximise the potential for the re-use of the materials.
- The import of Article 27 soils instead of virgin soils where possible.

### 3.0 DEVELOPMENT LOCATION

The subject site extends to c. 2.15ha on vacant undeveloped lands bounded to the northeast by the N11 dual carriageway, to the southeast by Willow Grove housing, to the southwest by Cornelscourt Village and to the northwest by AIB lands as indicated in Figure 1 below.

**Figure 1** Development Site



#### **4.0 PRINCIPALS OF THE CONSTRUCTION WASTE MANAGEMENT PLAN (CWMP)**

Waste materials generated by construction phase activities will be managed according to the

Department of the Environment, Heritage and Local Government's 2006 Publication - *Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects*

*Dun Laoghaire-Rathdown County Council's Guidance for Environmental Management of Construction Projects, November 2020.*

*EPA Draft Best Practice Guidelines for the preparation of resource management plans for construction and demolition projects, April 2021*

The CWMP specifically addresses the following aspects:

- Analysis of waste arisings / material surpluses
- Waste Management Responsibilities and Training
- Specific Waste Management
- Objectives for the Project including the potential to re-use existing on-site materials for further use in the construction phase.
- Methods proposed for Prevention, Reuse and Recycling
- Waste Handling Procedures
- Hazardous Waste Handling Procedures
- Waste Storage Procedures
- Waste Disposal Procedures
- Waste Auditing
- Record Keeping

#### **5.0 DESCRIPTION OF SITE ACTIVITIES & WASTE ARISING**

The development of the subject site will require the the stripping of top and sub soils and the excavation of ground to basement level. The range of works required for the Construction Phase are summarised in Table 1. The expected construction and demolition waste that will be generated throughout the course of the development are described in Tables 2 - 4 below.

**Table 1** Sequence of Construction Works

Activity Sequence	General Description
Identification of Existing Utility Services	Set up bunting, mark location of live services, including E.S.B., Gas etc.
Removal of Vegetation	e.g. Trees and vegetation
Site Preparation	Soil stripping, stockpiling, export
Rock removal	Breaking of rock to basement level
Substructure	Basement excavation Rebar, Formwork
Superstructure	Rebar, Formwork and Pour
Roof	Rebar, Formwork and Pour and Waterproof
External Envelope	Place façade to superstructure
Internal Finishes	Mechanical & Electrical etc.
External Landscaping	Hard and soft landscaping

**Table 2** Typical Construction Waste Composition

Description of Waste	%
Mixed Construction & Demolition Waste	33
Wood	28
Gypsum Materials	10
Metals	8
Concrete	6
Mixed Other Wastes	15
Total	100

**Table 3** Typical Construction Waste Types

Description of Waste	Corresponding LoW Code
Concrete, Bricks, Tiles and Ceramics	17 01
Concrete	17 01 01
Bricks	17 01 02
Tiles and Ceramics	17 01 03
Mixture of concrete, bricks tiles & ceramics	17 01 07
Wood, Glass and Plastic	17 02
Wood	17 02 01
Glass	17 02 02
Plastic	17 02 03
Bituminous mixtures, coal tar and products	17 03 01*
Bituminous mixtures containing other than those mentioned in 17 03 01	17 03 02
Metals (including their alloys)	17 04
Copper, Bronze, Brass	17 04 01
Aluminium	17 04 02
Lead	17 04 03
Zinc	17 04 04
Iron and Steel	17 04 05
Tin	17 04 06
Mixed Metals	17 04 07
Insulation and Construction Materials	17 06 04
Construction materials containing Asbestos	17 06 05*
Gypsum based construction material	17 08 02
Mixed Construction and Demolition Waste other than those mentioned in 17 09 01, 17 09 02, 17 09 03	17 09 04
Sewage Screenings	19 08 01
Paper and Cardboard	20 01 01
Wood other than that mentioned in 20 01 37	20.01 38
Soil and Stones	20 02 02
Mixed Municipal Waste	20 03 01
Hydraulic oils	13 01 01*
Fuel oils and diesel	13 07 01*



**Table 4** Predicted Waste Generation

Waste Type	Predicted tonnage to be produced	Re-Use		Recyclable		Disposal	
		Tonnage	%	Tonnage	%	Tonnage	%
Mixed C&D	1250	125	10	1000	80	125	10
Timber	1000	400	40	550	55	50	5
Plasterboard	500	150	30	300	60	50	10
Metals	250	12.5	5	225	90	12.5	5
Concrete	200	60	30	130	65	10	5
Mixed waste	800	160	20	480	60	160	20
<b>Total</b>	<b>4000</b>	<b>907.5</b>		<b>2685</b>		<b>407.5</b>	
Top Soil	5000	2500	50			2500	50
Sub Soils	20000					20000	100
Contaminated Hazardous Soil	530					530	100
Contaminated Non-Hazardous Soils	320					320	100
<b>Total</b>	<b>25850</b>	<b>2500</b>					

All soil quantities are in m<sup>3</sup>

95m<sup>3</sup> of Hazardous contaminated soils and 530m<sup>3</sup> of contaminated non-hazardous soils arising from a filling station adjacent the western site boundary be excavated and exported to an appropriately licenced facility.

50% of top soils excavated at the site shall be re-used for landscaping.

## **6.0 WASTE & RESOURCE MANAGEMENT & RESPONSIBILITIES**

### **6.1 Roles and Responsibilities**

#### **Project Manager**

The Project Manager will be responsible for the overall implementation of the CWMP. The Project Manager will ensure that the reporting and recording requirements are met and all necessary resources are in place to support the implementation of the plan.

The name and contact details of the Project Manager shall be forwarded to the Waste Management Section of DLRCC on appointment.

#### **Nominated C&D Waste & Resource Manager**

The C&D Waste & Resource Manager will be responsible for:

- All aspects of waste and resource management and training throughout the construction phase.
- Assisting the Project Manager on the implementing of the aspects of the Circular Economy as detailed in Section 3 above.
- Recording the volumes and types of construction wastes generated.
- Communicating with DLRCC on waste related matters and issuing of waste records.
- Management of the waste storage compound to ensure that all construction waste streams are stored separately and that cross-contamination does not occur.
- Ensuring that all waste loads exiting the site are contained in a vehicle displaying a appropriate NWCPO Permit number.
- Maintaining a receipt of each waste load delivered to acceptance facilities.
- Identifying and reporting on damaged construction materials and identifying how damage to virgin materials shall be prevented.
- Preparation of monthly waste management report detailing waste volumes generated, re-use and recycling rates and details on damaged raw materials and how they can be returned for repair and future re-use.

The name and contact details of the C&D Waste & Resource Manager shall be forwarded to the Waste Management Section of DLRCC on appointment.

### **Site Personnel**

All personnel on site will be responsible for the effective implementation of the CWMP. All staff will receive Tool-Box training on waste prevention, segregation and best practice guidelines.

### **Staff Training**

Copies of the CWMP will be made available to all relevant personnel on site. The C&D Waste & Resource Manager shall inform all site personnel and sub-contractors regarding the objectives of the CWMP and materials management and their waste management responsibilities.

- Project programme and requirements
- Summary of the CWMP
- Materials to be segregated
- How materials are to be segregated in the waste storage compound
- Arrangement for the storage and handling of reusable materials and recyclables
- Document control requirements
- A zero tolerance policy for incorrect waste segregation
- Resource (construction materials care) management
- Signage shall be displayed in the waste storage compound clearly indicating what materials are to be placed in each vessel.

### **Gate Person**

Gate Person duties will include the inspect all vehicles exiting site with waste to ensure that they have a Waste Collection Permit Number displayed on the side of the vehicle. If the vehicle does not, the vehicle will be refused exit and the C&D Waste Manager will ensure that the waste load is returned to the site area from where it came.

## **7.0 CONSTRUCTION WASTE MANAGEMENT & DISPOSAL**

- It is proposed that from the outset of construction activities, a dedicated and secure compound containing bins, and/or skips, and storage areas, into which all waste materials generated by construction site activities, will be established within the active construction phase of the development site.
- Spill kits shall be located within the site compound with clearly labelled instructions on how they shall be used to clean up fuel/oil spills.
- All vehicle and plant oils and liquid construction materials shall be stored in impermeable storage units.
- All diesel-powered generators shall be inspected on at least a weekly basis by a delegate of the project manager to ensure it is not leaking diesel or oils.

- All empty containers containing residual quantities of oils, greases and hydrocarbon-based liquids shall be stored in a dedicated bunded receptacle.
- In order to ensure that the construction contractor correctly segregate waste materials, it is the responsibility of the C&D Waste & Resource Manager to ensure all staff are informed by means of clear signage and verbal instruction and made responsible for ensuring site housekeeping and the proper segregation of construction waste materials.
- It will be the responsibility of the C&D Waste & Resource Manager to ensure that a written record of all quantities and natures of wastes exported off-site are maintained on-site in a Waste File at the Project office.
- It is the responsibility of the C&D Waste & Resource Manager that all contracted waste haulage drivers hold an appropriate Waste Collection Permit for the transport of waste loads and that all waste materials are delivered to an appropriately licenced or permitted waste facility in compliance with the following relevant Regulations:

*Waste Management (Collection Permit) Regulations 2007 (SI No. 820 of 2007)*  
*Waste Management (Collection Permit) Amendment Regulations 2008 (SI No. 87 of 2008)*  
*Waste Management (Facility Permit and Registration) Regulations S.I.821 of 2007 and the Waste Facility Permit under the Waste Management (Facility Permit and Registration) Amendment Regulations S.I.86 of 2008.*

- Typical Waste materials that are to be generated or anticipated to be generated by construction works are classified as follows under *Section 17 Construction and Demolition Wastes* of the EPA's Classification of Hazardous Wastes as detailed in Table 1.
- It is proposed that waste materials will be collected and stored in separate clearly labelled skips in a predefined waste storage area in the site compound and that these materials will be collected by a Permitted Waste Contractor holding an appropriate Waste Collection permit in compliance with *Waste Management (Collection Permit) Regulations 2007 (SI No. 820 of 2007) and Waste Management (Collection Permit) Amendment Regulations 2008 (SI No. 87 of 2008)* and that they will be sent for disposal or further processing to appropriately Permitted / Licensed Waste Facilities in compliance with *Waste Management (Facility Permit and Registration) Regulations S.I. No. 821 of 2007 and the Waste Management (Facility Permit and Registration) Amendment Regulations S.I. No. 86 of 2008.*
- Prior to the commencement of the C&D Waste & Resource Manager shall identify a permitted Waste Contractor who shall be employed to collect and dispose of all inert and hazardous wastes arising from the project works. In addition, the C&D Waste & Resource Manager shall identify all waste licensed / permitted facilities that will accept all expected waste exported off-site and will maintain copies of all relevant Waste Permits / Licences as required.

- All waste soils prior to being exported off-site, shall be classified as inert, non-hazardous or hazardous in accordance with the *EPA's Waste Classification Guidance – List of Waste & Determining if Waste is Hazardous or Non-Hazardous* document dated 1<sup>st</sup> June 2015 to ensure that the waste material is transferred by an appropriately permitted waste collection permit holder and brought to an appropriately permitted or licensed waste facility.

**Figure 2** Waste segregation skips



**Figure 3** Spill Kit



**Figure 4** Bund for waste oil container storage



**Figure 5** Secure bunded container for waste oil storage



## **8.0 ON-SITE WASTE REDUCTION REUSE RECYCLING AND MANAGEMENT**

Waste will arise on the project mainly from bulk excavation and general construction activities relating to the roads and services. The site management team will order materials and arrange storage in order to minimise the potential for waste on site.

- Materials will be ordered on an “*as needed*” basis to prevent over supply
- Materials shall be correctly stored and handled to minimise the generation of damaged materials
- Materials shall be ordered in appropriate sequence to minimise materials stored on site
- All staff and Sub contractors shall be advised through tool box talks on how to dispose of their waste correctly on-site.
- Concrete blocks, engineering bricks and clay bricks that are surplus will be broken up and used for hardstanding areas.



- Excess wood will be segregated in separate skips and sent for recycling. The site management will police to make sure that the segregation of the wood skip is kept exclusively for wood.
- Plastic arising from general waste or packaging will be segregated and stored in separate skips. The C&D Waste and Resource Manager will ensure that there is no contamination of the segregated skips on site.
- Any excess metal generated on site from reinforcement steel and from the demolition element of the project will be kept in the one area and removed off site to a licenced metal recycling facility. C&D Waste and Resource Manager will keep certification of this on file on site.
- Top soil that is required for the soft landscaping will be measured and this quantity will be retained on site. The soil that will have to be removed off site will be removed to a licenced landfill facility. C&D Waste and Resource Manager will keep records of the removal and the certification on file on site.
- Any hazardous material discovered during the course of the construction shall be reported to the C&D Waste and Resource Manager. The relevant authorities will be informed and an agreed method for the removal of the hazardous material shall be defined.
- Construction waste material such as damaged or broken concrete slabs, blocks, bricks and tiles generated that is deemed by the Project Engineer to be suitable for reuse on the project site for ground-fill material will be processed if necessary, by on-site mobile crushing plant. This initiative shall provide a positive environmental impact to the construction phase as follows:
  - Reduction in the requirement for virgin aggregate materials from quarries
  - Reduction in energy required to extract, process and transport virgin aggregates
  - Reduced HGV movements associated with the delivery of imported aggregates to the site
  - Reduced noise levels associated with reduced HGV movements
  - Reduction in the amount of landfill space required to accept C&D waste

### **Waste Soils & Stones Export & Article 27 Declarations**

Top and subsoils have been previously classified as being inert, non-inert or hazardous in accordance with *Landfill Directive (2003/33/EC)* by conducting site investigations.

Excavated soils and stones shall be removed off-site throughout the development and exported by an appropriately permitted haulage contractor to an appropriately permitted/licenced waste acceptance facility.

The C&D Waste Manager shall inform Dun Laoghaire Rathdown County Council of the waste facilities to which inert and hazardous soils and the volumes of which shall be exported to.

Excavated excess soils that are required to be exported off-site shall be tested to determine their classification as hazardous or non-hazardous in accordance with EPA *Waste Classification – List of Waste & Determining if Waste is Hazardous or Non-Hazardous. Non-Hazardous soils may be suitable for re-use in other construction sites and may be declared as a by-product in accordance with Article 27 of the European Communities (Waste Directive) Regulations 2011*. Article 27 requires that the material classified not a waste but a by-product must meet specific criteria and that that a declaration of a material as a by-product is notified to the EPA. The EPA publication *“Guidance on Soil and Stone By-Products in the context of Article 27 of the European Communities (Waste Directive) Regulations – Version 3 June 2019* shall be considered in this regard. Appendix I presents the schematic process by which a material is determined as a waste or a by-product.

The records of all WAC tests shall be maintained in the site’s Waste File including the destination of the facility that contaminated soils are exported to and the details of the permitted haulier’s Waste Collection Permit.

### **Hazardous Wastes**

The management of all hazardous waste arisings if they occur, shall be coordinated by the C&D Waste and Resource Manager.

Hazardous wastes such as waste oils and construction liquids shall be stored in dedicated clearly labelled impermeable containers in the waste compound prior to removal off-site.

### **Contaminated Soil**

Where contaminated soils/materials are discovered or occur as a result of accidental spillages of oils or fuels during the construction phase, these areas of ground will be isolated and tested in accordance with the *2002 Landfill Directive (2003/33/EC)* for contamination, and pending the results of laboratory WAC testing, will be excavated and exported off-site by an appropriately Permitted Waste Contractor holding an appropriate Waste Collection permit and that this hazardous material will be sent for appropriate treatment / disposal to an appropriately Permitted / Licenced Waste Facility.

### **Invasive Species**

The eastern boundary of the site had previously in 2019 contained Japanese Knotweed, three-cornered Garlic *Allium triquetrum* and Spanish Bluebell *Hyacinthoides hispanica*. These species were treated and an Ecological survey conducted in 2021 did not identify the presence of these species at the site.



## **Burning of Waste**

The burning of waste on-site is prohibited. This will be communicated to all site personnel during site inductions.

## **9.0 WASTE RECORD KEEPING**

It is the responsibility of the C&D Waste & Resource Manager that a written record of all quantities and natures of all wastes reused / recycled and exported off-site during the project are maintained in a Waste File at the Project office.

The following information shall be recorded for each load of waste exported off-site:

- Waste Type LoW Code and description.
- Volume of waste collected.
- Waste collection contractor's Waste Collection Permit Number and collection receipt including vehicle registration number.
- Destination of waste load including Waste Permit / Licence number of facility.
- Description of how waste at facility shall be treated i.e. disposal / recovery / export

All waste records shall be recorded in electronic format and maintained on site at all times for inspection and shall be issued to DLRCC as requested.

All records shall be placed in excel format. This system will enable the Contractor to measure and record the quantity of waste generated, and identify possible savings on wastage. Thus, each consignment of C&D waste taken from site will be subject to documentation and recording. An indicative template is contained in Figure 6, to ensure that full traceability of materials to its final destination.

Verifiable and validated tracking and authorisation documentation will be maintained for all wastes destined for re-use, recovery, recycling or disposal. Justification will also be provided where a disposal option had been employed.

In addition, a record will be kept of all materials as they arrive on site detailing the assignment of specific uses within the works. This will enable the monitoring of the quantity and type of waste produced at various stages throughout the project.

## **10.0 CONSTRUCTION & RESOURCE WASTE MANAGEMENT AUDITING**

The effectiveness of the CWMP and its implementation, will be assessed by conducting routine audits by the C&D Waste & Resource Manager throughout the duration of the project.

The audits will focus on materials inputs to the project and the waste outputs for each operation identifying additional opportunities for waste reduction, re-use and recycling.

The audits will also investigate the operational factors and management policies that contribute to the generation of waste and identify appropriate corrective actions, where necessary.

Performance targets will be developed, of an 85% overall recycling target and successes and failures will be recorded and Action Plans will be developed to address any issue which arise.

Inspections of stored construction materials and damage/potential for damage and the operation of the waste storage area will be undertaken on a daily basis, issues relating to housekeeping, inappropriate storage and / or segregation will be actioned at the earliest practicable opportunity.

The C&D Waste & Resource Manager will record the findings of the audits, including waste types identified, quantities of waste arising, final treatments and cost, in a report to be available to DLRCC as required during the course of the works.

Details of the inputs of materials to the construction site and the outputs of waste arising from the project will be investigated and recorded in the Final Waste Audit, which will identify the amount, nature and composition of the waste generated on the site.

## **11.0 WASTE EXPORT PERMITS/LICENCES**

It is the responsibility of the C&D Waste & Resource Manager that a written record of all quantities and natures of all wastes reused / recycled and exported off-site during the project are maintained in a Waste File at the Project office.

Once a Main Contractor has been appointed, a full list of Waste Collection Permit NWCPO Numbers shall be sent to the Waste Management Section of DLRCC.

Once a Main Contractor has been appointed, a full list of the Authorised Facilities that all wastes shall be sent to the Waste Management Section of DLRCC.

Once a Main Contractor has been appointed, signed letters from the waste acceptance facility detailing the volumes of material to be accepted shall be sent to the Waste Management Section of DLRCC.

All vehicles leaving the site containing waste including rock and soils shall be inspected by the gate man to ensure that they display on the side of the vehicle a Waste Collection Permit#. Where a Waste Collection Permit# is not displayed the C&D Waste & Resource Manager shall be notified and the vehicle shall be instructed to return the waste load to the specific area on the site and will not be allowed exit the site with the waste load.

Copies of all relevant Waste Collection Permits and Waste Facility Permits / Waste Licences shall be maintained by the C&D Waste Manager and issued to The Waste Management Section of DLRCC prior to the commencement of site works.

All monthly waste logs shall include the gate receipt from the facility accepting the waste load. These receipts shall be traceable to each waste load removed from site

**Figure 6** Example of waste log

Waste Source	Waste Type	LoW Code	Haulier	Acceptance Facility Permit #	Tonnage	Date	Vehicle Reg NWCPO#
Coosan Athlone	Inert Soil & Stone	17 05 04	Premier Engineering	Bord na Mona W0131-02	20	10.10.21	07TS8297 NWCPO-14-11444-02

# Appendix I

## Decision tree for determining whether a material is a by-product

