

SOCIAL HOUSING DEVELOPMENT EAST WALL, DUBLIN

Outline Construction and Demolition Waste Management Plan

SHB3-EAW-CS-RPS-RP-008
Outline Construction and Demolition
Waste Management Plan
P02
03rd March 2022

OUTLINE CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT PLAN

Document status

Version	Purpose of document	Authored by	Reviewed by	Approved by	Review date
D01	Draft Issue for Review	MK	PJ	DK	13/12/2021
P01	Issue for Review	MK	PJ	DK	04/02/2022
P02	Issue for Part 8 Planning	MK	PJ	DK	03/03/2022

Approval for issue

DK

3 March 2022

© Copyright RPS Group Limited. All rights reserved.

The report has been prepared for the exclusive use of our client and unless otherwise agreed in writing by RPS Group Limited no other party may use, make use of or rely on the contents of this report.

The report has been compiled using the resources agreed with the client and in accordance with the scope of work agreed with the client. No liability is accepted by RPS Group Limited for any use of this report, other than the purpose for which it was prepared.

RPS Group Limited accepts no responsibility for any documents or information supplied to RPS Group Limited by others and no legal liability arising from the use by others of opinions or data contained in this report. It is expressly stated that no independent verification of any documents or information supplied by others has been made.

RPS Group Limited has used reasonable skill, care and diligence in compiling this report and no warranty is provided as to the report's accuracy.

No part of this report may be copied or reproduced, by any means, without the written permission of RPS Group Limited.

Prepared by:

RPS

Prepared for:

Dublin City Council

Dublin | Cork | Galway | Sligo
rpsgroup.com

RPS Group Limited, registered in Ireland No. 91911
 RPS Consulting Engineers Limited, registered in Ireland No. 161581
 RPS Planning & Environment Limited, registered in Ireland No. 160191
 RPS Engineering Services Limited, registered in Ireland No. 99795
 The Registered office of each of the above companies is West Pier
 Business Campus, Dun Laoghaire, Co. Dublin, A96 N6T7



Contents

1	INTRODUCTION	1
1.1	Proposed Development.....	1
1.2	Definitions.....	1
1.2.1	Construction.....	1
1.2.2	Waste.....	1
1.2.3	Construction and Demolition Waste	2
1.3	Purpose of the Outline Construction and Demolition Waste Management Plan	2
1.4	Objectives of the Outline CDWMP	3
1.5	Legislation and Policy	3
1.6	Resource Targets.....	4
1.7	Complimentary Documents.....	4
2	PROJECT DESCRIPTION	5
2.1	Site Location.....	5
2.2	Site Description	5
2.3	Environmental Sensitivity	5
2.3.1	Human Presence	5
2.3.2	Protected Areas	5
2.3.3	Bedrock Aquifers	5
2.3.4	Surface Waterbodies	6
2.4	Site History	6
2.5	Proposed Demolition.....	6
2.6	Site Clearance.....	6
2.7	Construction Elements	6
2.8	Material Balance	7
2.9	Project Programme and Phasing	7
2.10	Contamination	7
2.11	Asbestos.....	8
2.12	Waste Acceptance Criteria Analysis	9
3	ROLES AND RESPONSIBILITIES	10
4	DESIGN APPROACH	11
4.1	The Production of Waste.....	11
4.2	The Nature of Any Demolition / Construction Works	12
4.2.1	Compound Waste	12
4.2.2	Hazardous Waste	12
4.2.3	Asbestos Containing Material Waste.....	12
4.3	Sustainable Management of Excavated Materials.....	13
4.3.1	Material Storage.....	14
4.3.2	Hazardous Waste	14
4.3.3	Invasive Species.....	14
4.3.4	Reuse of Concrete.....	14
4.3.5	Disposal	14
5	WASTE HIERARCHY	15
6	KEY MATERIALS QUANTITIES AND COST	16
6.1	Waste Arisings	16
6.2	Cost of Removal.....	16
6.2.1	Concrete	17
6.2.2	Fill Material.....	17
7	SITE MANAGEMENT	18
7.1	Waste Management Plan Awareness and Training.....	18

OUTLINE CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT PLAN

7.2	Record Keeping, Waste Audits	18
7.2.1	Record Keeping	18
7.2.2	Waste Audits	18
8	SITE INFRASTRUCTURE	20
8.1	Site Layout and Appearance	20
8.2	Site Awareness Management	20
8.3	Material Storage	20
8.4	Export of Material	21

Tables

Table 2.1 – OHSS Asbestos Summary	8
Table 3.1 – Construction Stage Waste Management – Key Responsibilities	10
Table 4.1 – Anticipated Waste Streams	12
Table 6.1 – Waste Categories and Costs	17
Table 7.1 – Details to be Included within Transportation Dockets	18

Figures

Figure 5.1 – EU Waste Hierarchy	15
---------------------------------------	----

Appendices

- Appendix A Site Layout Map
- Appendix B EPA Guidance on Soil and Stone By-Products
- Appendix C End of Waste (EoW) Directive

1 INTRODUCTION

This Outline Construction and Demolition Waste Management Plan (Hereby referred to as 'Outline CDWMP') identifies an indicative sequence of the works from the initial demolition and enabling works through to construction to support the planning application for the social housing development.

This plan outlines the strategy for minimising waste, introducing segregation at source and maximising reuse and recycling opportunities. It will detail the responsibilities of the site team, the subcontractors and waste management contractor.

It is noted that this can only be considered an outline plan and the final Construction and Demolition Waste Management Plan (CDWMP) would be agreed with Dublin City Council and then by the appointed Contractor prior to construction commencing.

The Plan identifies and forecasts the different types of waste that will be produced by the project and notes any changes in the design and materials specification that seek to minimise this waste; consider how to re-use, recycle or recover the different wastes produced by the project; demonstrate compliance with the duty of care regime and record quantities of waste produced. The plan presented herein is outline in nature as it has been prepared at a stage when exact quantities and volumes of waste material have not yet been determined.

1.1 Proposed Development

The Development occupies a 0.53Ha brownfield site and is located circa 1.5km north of Dublin City Centre. The proposed development includes demolition of existing industrial-type structures (approximately 382m²) and the construction of 60 apartments and 8 duplex units in 2 blocks as follows:

- One block ranging between 3 to 6 storey high and fronts East Wall Road. This block includes 60 units (13 no. 1-bed; 28 no. 2-bed and 19 no. 3-bed); and,
- One duplex terrace block 3 storey high and located to the west of the site. It includes 8 duplex units (4 no. 1-bed and 4 no. 3 bed).

The proposed development also includes surface car parking (34 spaces), communal open space, boundary treatments, public lighting, site drainage works, internal road surfacing and footpath, ESB substation, bin and bicycle storage, landscaping, play area and all ancillary site services and development works above and below ground.

1.2 Definitions

1.2.1 Construction

'Construction' is considered to include all site preparation, enabling works, demolition, materials delivery, materials and waste removal, construction activities to include temporary offices, temporary welfare facilities, temporary staff parking, temporary laydown areas and associated engineering works.

1.2.2 Waste

'Waste' is defined as a substance or object the holder discards, intends to discard or is required to discard under the Waste Framework Directive (European Directive 2006/12/EC as amended by Directive 2008/98/EC). Materials become wastes when deemed surplus to the needs of a development project and are about to be discarded. Once a substance has become waste it will remain waste until it has been fully recovered and no longer poses a potential risk to the environment or human health. From that moment onwards, the material ceases to be waste.

This applies to waste used as aggregate or construction material in civil engineering applications and to excess top soils and sub-soils which need to be moved off-site.

Waste recovery can be achieved when such waste is incorporated into a road, building or other infrastructure works, or in the case of inert waste, after processing if such a process is conducted following the criteria

specified in the relevant quality protocols. All wastes must be handled by permitted collectors and brought to authorised facilities.

All wastes are either inert, non-hazardous or hazardous. Laboratory testing of representative samples is required to characterise waste materials. The waste acceptance criteria test is established and reliable, the results providing certainty of treatment. The ultimate classification of material dictates the destination facility where waste materials can be sent.

1.2.3 Construction and Demolition Waste

'Construction and demolition (C&D) waste' is defined as waste which arises from construction, renovation and demolition activities, together with all waste categories mentioned in Chapter 17 of the List of Waste (LoW). Also included within the definition are surplus and damaged products and materials arising during construction work or used temporarily during the course of on-site activities.

1.3 Purpose of the Outline Construction and Demolition Waste Management Plan

This Outline Construction and Demolition Waste Management Plan (CDWMP) provides an assessment of the potential impacts arising from the generation of waste materials during the construction of the social housing development in East Wall and measures for ensuring that all construction wastes associated with the Project are managed and controlled.

The Outline CDWMP will be finalised in the event that development consent is obtained, in order to incorporate additional requirements pursuant to conditions attached to statutory consents, and methods and plant in use by the appointed Contractor.

The Outline CDWMP aims to give practical guidance to clients, designers, and contractors on how they can comply with all aspects of the applicable Environmental Legislation. It will identify the current construction environmental risks within and around the environs of the proposed development and outline the associated controls to be adopted during constructions works. It will provide site specific recommendations and refer to general best practice procedures to comply with when working on a construction project element at the site in East Wall.

A Construction & Demolition Waste Management Plan (CDWMP) is required for any project that is likely to exceed the thresholds set out in the DoEHLG (2006) publication 'Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects', which are set out as follows:

1. New residential development of 10 houses or more;
2. New developments other than (1) above, including institutional, educational, health and other public facilities, with an aggregate floor area in excess of 1,250m²;
3. Demolition / renovation / refurbishment projects generating in excess of 100m³ in volume of C&D waste; and,
4. Civil Engineering projects producing in excess of 500m³ of waste, excluding waste materials used for development works on the site.

This project exceeds the DoEHLG thresholds under Item 1 above and thus requires a CDWMP.

This plan has therefore been prepared with reference to, and taking account of, the following legislation, plans and waste management guidance documents:

- The Waste Management Act 1996 – 2008, Amendments & Associated Regulations;
- CIRIA document 133 Waste Minimisation in Construction;
- The Litter Pollution Act 1997;
- Eastern Midlands Region Waste Management Plan 2015 – 2021;
- Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects (DoEHLG), June 2006; and,

- Environmental Protection Agency (Draft 2021) – Draft Best Practice Guidelines for the Preparation of Resource Management Plans for Construction and Demolition Projects.

1.4 Objectives of the Outline CDWMP

The objectives of this Outline CDWMP are as follows:

- Promote an integrated approach to waste management throughout the project construction stage and to set out appropriate responsibilities;
- Promote sustainable waste management in-line with waste management hierarchy;
- Provide an outline for the management of wastes arising from construction works for the project in accordance with the relevant Irish and EU waste management legislation; and,
- Provide a framework for the Designers and the Principal Contractor to appropriately manage waste generated during the course of the project. Both the Designers and the Principal Contractor will be responsible for implementing the findings and recommendations of the CDWMP in their Site Waste Management Plan (SWMP).

The CDWMP outlines methods to achieve waste prevention, maximum recycling and recovery of waste and provides recommendations for the management of the various anticipated waste streams.

The CDWMP describes the applicable legal and policy framework for C&D waste management in Ireland (both nationally and regionally).

1.5 Legislation and Policy

The modernisation of waste management practices in Ireland has been directly influenced by EU legislation, policies and strategies, especially through the implementation of the Waste Management Act, 1996 (DoEHLG, 1996). Subsequent legislation, policy actions and guidance documents have set targets, improved regulation and infrastructure, promoted a preventative approach and outlined waste management best practice. This evolution towards a more resource efficient and sustainable materials management approach has been endorsed with the transposition of the revised 2011 EU Waste Framework Directive (S.I. 126 of 2011) (EC, 2008) into Irish law. This means that for the first time, the waste hierarchy is legally established in a national statute and should therefore apply as a priority.

The requirements for best practice and adherence to the following relevant Irish policies, strategies, legislation, and guidelines, or recognised international guidelines where Irish guidelines are not available will be required:

National and Regional Policies and Strategies

- Changing Our Ways; A Policy Statement on Waste Management, Department of Environment, Heritage and Local Government, 1998;
- Preventing and Recycling Waste - Delivering Change, Department of Environment, Heritage and Local Government, 2002;
- Taking Stock and Moving Forward, Department of Environment, Heritage and Local Government, 2004;
- National Strategy on Biodegradable Waste, Department of Environment, Heritage and Local Government, 2006;
- A Resource Opportunity - Waste Management Policy in Ireland, Department of the Environment, Community and Local Government (DECLG), 2012;
- National Hazardous Waste Management Plan 2014 - 2020, EPA, 2014; and,
- The Eastern-Midlands Region Waste Management Plan 2015-2021, Twelve Local Authorities including Dublin City Council., 2015.

National and European Legislation

- Waste Framework Directive (2008/98/EC);
- Waste Management Act 1996 (as amended);

- Waste Management (Facility Permit and Registration) Regulations, S.I. No. 821 of 2007 (as amended);
- Waste Management (Collection Permit) Regulations (as amended) 2008 (S.I. No 87 of 2008);
- Waste Management (Packaging) Regulations 2003 (as amended) (S.I. No. 61 of 2003);
- Waste Management (Planning) Regulations 1997 (S.I. 137 of 1997);
- Waste Management (Hazardous Waste) Regulations 1998 (S.I. 163 of 1998);
- Waste Management (Landfill Levy) Regulations 2011 (S.I. No. 434 of 2011) as amended 2012 (S.I. No. 221 of 2012);
- European Communities (Waste Electrical Electronic Equipment) Regulations 2011;
- Waste Management (Food Waste) Regulations 2009 (S.I. No. 508 of 2009);
- Local Government Act 1994 (and Amendments) and Regulations (S.I. No. 8 of 1994);
- Litter Pollution Act 1997 (S.I. No. 12 of 1997);
- Protection of the Environment Act 2003 (No. 27 of 2003);
- Industrial Emissions Directive (2010/75/EU); and,
- European Communities (Waste Directive) Regulations, 2011.

1.6 Resource Targets

The EU Waste Framework Directive Construction and Demolition recovery target is designed for national statistics and is not an appropriate target for individual projects. However, the proposed development aims to minimise the amount of material classed as a waste and disposed at a landfill facility. The demolition works associated with the proposed development is limited as much of the development is on Made Ground. Waste arisings from the potential excavation/demolition works may be reused depending on the suitability of the demolition material.

If low levels of contamination are encountered during the construction works, soil testing and a risk assessment of material may be undertaken to assess its potential for use. In the event that disposal off-site is required, the material shall be tested for disposal at an appropriate permitted or licensed waste management facility in accordance with the Waste Management Act 1996, as amended.

1.7 Complimentary Documents

The final Construction and Demolition Waste Management Plan should be included as an Appendix to the final Construction Management Plan (CMP). The final CMP should be read in conjunction with the CDWMP. The CMP details relevant documents relating to site management, site compounds, site clearance and demolition, waste management, dust management, noise and vibration control, pre-commencement condition surveys, groundwater protection measures and traffic control.

2 PROJECT DESCRIPTION

2.1 Site Location

The Development occupies a 0.53Ha brownfield site and is located circa 1.5 km north east of Dublin City Centre. The North Strand Fire Station abuts the site to the west. The sites principal frontage is to its north on East Wall Road and faces the Tolka River. The east and south of the site are bounded by the rear gardens of 1 and 2 storey housing to Hope Avenue and Leinster Avenue respectively. There is an existing entrance via East Wall Road. The principal frontage of the site is north facing. The area is highly urbanised.

2.2 Site Description

The site is currently a brownfield site situated in East Wall, Dublin 3. The existing topography on-site is relatively flat ranging between 3 and 4mAOD. There are shallower areas in the south west of the site between 2 and 3mAOD, there is a small ramp leading down to this area.

The site is not currently in operation. The site boundary is currently locked with metal gates and wooden hoarding. The site boundary lines are defined by a mix of existing masonry and concrete pier walls along with palisade fencing. Note that the boundary walls are of low quality and in poor condition at several locations. The north eastern boundary of this site includes a row of trees obstructing the view to the site from East Wall Road (R131).

The brownfield site contains an existing 2-storey building, an ESB substation, various raised concrete yard slabs, various low level masonry walls & structures, an oil tank and a pile of rubble, all of which will be demolished and cleared as part of the development works.

The site layout map is displayed in **Appendix A**.

2.3 Environmental Sensitivity

The environmental receptors considered relevant to the Outline CDWMP presented in this section.

2.3.1 Human Presence

The scope of the term human occupation/presence refers to residential dwellings, commercial and leisure facilities. This includes the residential dwellings proposed in the north of the site (68 No. units), the public open space in the centre of the site which can be used for leisure activities and the car park in the south of the site.

2.3.2 Protected Areas

Designated sites refer to National Heritage Areas (NHAs) and proposed National Heritage Areas (pNHA) that are deemed to be of national ecological importance and are afforded protection under the Wildlife (Amendment) Act 2000. European sites include Special Areas of Conservation (SACs) and Special Protection Areas (SPAs).

The North Dublin Bay pNHA (Site Code: 000206) is located approximately 300m to the east of the site. The South Dublin Bay and River Tolka Estuary SPA (Site Code: 004024) is located approximately 350m east of the site.

2.3.3 Bedrock Aquifers

The site is expected to be underlain by limestone (Lucan Formation). The Lucan Formation that underlies the site is a Locally Important Bedrock Aquifers (LI). Locally Important aquifers are of Medium importance as the attribute has a medium quality, significance or value on a local scale.

2.3.4 Surface Waterbodies

The site is located approximately 30m south of the Tolka Estuary Transitional Waterbody which flows towards the east and joins the Liffey Estuary and subsequently Dublin Bay Coastal Waterbody. The Tolka Estuary Transitional Waterbody is currently classed as 'Moderate' status and is 'At Risk' of not meeting WFD objectives.

2.4 Site History

There was limited data regarding the history of the site in East Wall, however, a few observations could be made from some Ordinance Survey Ireland (OSI) historic maps available on the OSI website (GeoHive, 2021):

- Historic map 6-inch colour (1837-1842) indicates that site and additional sites to the south were vacant with residential dwellings located to the west of the site;
- Historic map 25 inch (1888-1913) by OSI shows that the site is vacant, however, additional residential dwellings are present to the west and to the south of the site;
- Aerial imagery from 1995 shows that the site is covered by hardstanding with additional buildings located on-site and residential dwellings are located to the west, south and east of the site; and,
- The most recent aerial photographs of the site from 2021 show that buildings on-site have largely been cleared, leaving a hardstanding area across the site. The site has since been boarded up and locked with trees on the northern boundary, obstructing the view of the site from the R131 regional road. The North Strand Fire Station is located directly west of the site.

Through reviewing the historical maps available on GeoHive, it can be concluded that the past operation of the site was a readymix concrete batching site as far back as 1995.

2.5 Proposed Demolition

There are several existing structures on the site which are listed below:

- ESB Substation;
- Building in the north east corner;
- Oil tank;
- Existing pile of rubble;
- High concrete walls; and,
- Concrete ground slabs, ramps and plinths.

All structures above ground level will have to be demolished and removed off-site.

2.6 Site Clearance

The site is a brownfield site containing an existing 2-storey building, an ESB substation, various concrete yard slabs, low level walls and structures, an oil tank and a pile of rubble.

The proposed site clearance includes the removal of the concrete ground slabs, ramps and plinths currently located on-site. Following the removal of the concrete hardstanding, the underlying soils and subsoil will be cleared, this includes Made Ground and alluvium sediments.

The total quantity of concrete and subsoils to be cleared are discussed in **Chapter 6**.

2.7 Construction Elements

The sequence of construction would be determined by the future Contractor, but for the purposes of this Outline CDWMP, it has been assumed that construction work on all key parts of the proposed development would commence at a similar time, subject to seasonal constraints and mitigation.

Equipment used for the construction of the development would be determined by the future Contractor. For the purposes of this Outline CDWMP it has been assumed that construction equipment could include:

- Bulldozers;
- Cranes;
- Concrete wagons;
- Cutting and burning sets;
- Dump trucks;
- Excavators;
- Gas heaters;
- Hand operated compacting plant;
- Hydraulic breakers;
- Lorries;
- Mechanical saws;
- Motor graders;
- Pavement laying plant;
- Pneumatic tools and other portable electric and hand tools;
- Rubber-tyred motorised scrapers and crawler tractors with scrapers;
- Rock crushers;
- Road wagons;
- Smooth or vibrating rollers;
- Sprayers; and,
- Tracked vehicles.

2.8 Material Balance

The material balance indicates the cut/fill requirements for the proposed development and estimates material imports. The expected waste arisings for excavation and removal from the site are discussed in detail in **Section 6.1**. The final cut/fill balance and import volume will be confirmed in the final CMP.

2.9 Project Programme and Phasing

The project will be constructed in one phase as shown in the site map in **Appendix A**.

2.10 Contamination

A Contaminated Land Assessment Report was produced by RPS to assess the land and soil quality at the site. The assessment utilised information gathered from an environmental desk study and a review of a site investigation undertaken by IGSL Ltd. to assess the extent of potential contamination.

The Contaminated Land Assessment divided the site into three zones, residential (north), public open space (centre) and commercial (car parking in the south of the site).

The assessment found that in the residential zone, concentrations of Total Petroleum Hydrocarbons (TPHs) and Polycyclic Aromatic Hydrocarbons (PAHs) were above the Suitable for Use Levels (S4ULs) for human health produced by Land Quality Management (LQM)/Chartered Institute of Environmental Health (CIEH).

Within the public open space section and car park section, the assessment found that concentrations of PAHs were above the S4ULs for human health.

An on-site survey found that an ESB Substation was located on-site, therefore, soil samples were analysed for Polychlorinated Biphenyls (PCBs). Where analysed, PCB concentrations were below the laboratory limit of detection.

As part of the Proposed Development, all existing site buildings, foundations, walls, low-level structures and oil tank are to be demolished and cleared as a part of the works. Further soil investigations should be undertaken following the removal of the oil tank in areas of soil directly beneath the oil tank and associated transportation pipes.

The full Contaminated Land Assessment Report is included with this planning application.

Regarding remediation, due to the relatively small site size (0.53 Hectares) it is recommended that a total of 1.20m of material will be excavated in commercial areas (as this will be hardstanding) and a total of 4.00m will be excavated in residential and public open space areas. Through removing the soil with elevated levels of TPHs and PAHs it removes the pathway to human receptors (dermal contact, ingestion and inhalation) thus breaking the potential pollutant linkage.

2.11 Asbestos

An asbestos survey was carried out by OHSS on the 16th September 2021, for the purpose of identifying any asbestos containing materials within the areas of the site where planned demolition works are to occur. The survey found asbestos present in a number of forms within the site, these are detailed in **Table 2.1**.

Table 2.1 – OHSS Asbestos Summary

Asbestos Type	Description
Asbestos Cement Slates	Asbestos was found to be present in the form of cement slate debris present within the external yard area.
Asbestos Bitumen Products	Asbestos was found to be present in the form of a bitumen sink pad located on the underside of the kitchen sink unit.
Asbestos Textiles and Gaskets	Asbestos was found to be present in the form of asbestos rope present on the generator exhaust pipe in the boiler house. Asbestos rope was also found to be present to the sectional seals on the AHU ducting in the plant room, this rope is presumed to be present on all the AHU ducting throughout the building. Asbestos paper gaskets were found to be present to the pipework in the boiler house. These gaskets are presumed to be present on all the pipework throughout the building.
Asbestos Putty / Mastic	Asbestos putty / mastic was found to be present to the AHU ducting, this putty / mastic is presumed to be present on all the AHU ducting throughout the building.

Asbestos was detected within two soil samples as part of the IGSL site investigation. Asbestos was detected within TP07 between 0.50 and 1.00mbgl and in TP11 between 1.50 and 2.00mbgl. In both instances, the asbestos detected was chrysotile in the form of fibres/clumps.

Asbestos Containing Materials (ACM) were widely used in the building and construction industry up until 1999. Where asbestos is found, suitable mitigation measures must be taken.

The following standards and guidance are in place for asbestos in Ireland:

- Chemicals [Asbestos Articles] Regulations 2011 [S.I. No. 248 of 2011];
- The Safety, Health and Safety and Welfare at Work [Exposure to Asbestos] [Amended] Regulations, 2010 [S.I. 589 of 2010];
- The Safety, Health and Safety and Welfare at Work [Exposure to Asbestos] Regulations, 2006 [S.I. No. 386 of 2006];
- The Safety, Health and Safety and Welfare at Work [Construction] Regulations, 2013 [S.I. No/ 291 of 2013];

- European Communities [Carriage of Dangerous Goods by Road and Use of Transportable Pressure Equipment] Regulations, 2011 [S.I. No. 349 of 2011]; and,
- Air Pollution Act, 1989.

2.12 Waste Acceptance Criteria Analysis

Waste Acceptance Criteria (WAC) analysis was undertaken as part of the IGSL site investigation. A total of 21 No. soil samples were assessed for WAC analysis by an accredited laboratory.

All samples were classified, as a minimum, as Stable, Non-Reactive Hazardous Waste in Non-Hazardous Landfill waste. TP07 (0.50-1.00mbgl) and TP08 (3.50-4.00mbgl) were classified as Hazardous Landfill waste. A common exceedance across the WAC analysis was the pH value of the soil above the >6 pH unit threshold for stable non-reactive hazardous waste in a non-hazardous landfill. pH values across most samples range between 9 and 12 units which indicates more alkaline soils. Another common exceedance of the inert landfill limit (3%) is Total Organic Carbon. In most cases, the WAC values exceed the inert waste limit but fall below the stable non-reactive limit (5%).

The full WAC analysis is presented in the Contaminated Land Assessment Report which is included with this planning application.

3 ROLES AND RESPONSIBILITIES

All parties involved in the Project will have responsibility for waste management. Responsibility will vary at different stages of the project lifecycle. Key responsibilities are set out in **Table 3.1**.

Some responsibility assignments indicated in **Table 3.1** may change, depending on the agreed project contractual arrangements and project design requirements.

The appointed Principal Contractor will be responsible for refining and implementing the findings of the CDWMP within their own over-arching SWMP.

Table 3.1 – Construction Stage Waste Management – Key Responsibilities

Responsible Party	Responsibility	Project Stage
Client	Appointment of competent Principal Contractor and Design Team	Project Initiation and subsequent tendering phases
	Responsibility of waste management from 'cradle to grave', including documentation of same	All Project Stages
Principal Contractor	Construction and Demolition Waste Management Plan (CDWMP) implementation	Construction Stage
	Refinement and implementation of the CDWMP within their own over-arching Site Waste Management Plan (SWMP)	Construction Stage
	Appoint competent and authorised waste management contractor(s)	Construction Stage
	Appoint trained, competent Waste Manager	Construction Stage
Waste Manager	SWMP implementation	Construction Stage
	Ensure the objectives of both the CDWMP and the contractors SWMP are put in place	Construction Stage
	Waste characterisation. Selection of techniques and design to minimise waste and to maximise recovery and recycling of waste during the project	Construction Stage
	Maintenance of Waste Documentation for 3 years	Construction & Handover Stage
	Completion of Final Waste Management Report	Handover Stage
	Educate colleagues, site staff, external contractors and suppliers about alternatives to conventional construction waste disposal	Construction Stage
Design Team	Identification of Key Waste Streams	Project Design Stage
	Design to minimise waste generation in lifecycle of completed construction	Project Design Stage
	Design of Soil Excavation Plan	Project Design Stage
	Adequately provide for waste management in tender documents and declare all relevant information & data	Project Procurement Stage
Subcontractors	Comply with the CDWMP and Contractors SWMP, where relevant	Construction Stage

Formal responsibilities are necessary to ensure that key procedures are executed during construction of the project. Specific responsibilities of the Client Team and Construction Team during the construction phase will be defined following contract award and detailed in the final CDWMP.

4 DESIGN APPROACH

There are five key principles that design teams will use during the design process to reduce waste:

- Design for Waste Efficient Procurement;
- Design for Materials Optimisation;
- Design for Off-Site Construction;
- Design for Reuse and Recycling; and,
- Design for Deconstruction.

4.1 The Production of Waste

The control of waste in the construction phase will be through best practice methods for disposal and adherence to the Construction Environmental Management Plan (CMP), to be developed in the latter stages of the project. A suitable document plan for the handling, storage and ultimate disposal of all waste will be developed.

In relation to waste and materials reuse management, only approved waste collection permit holders will be contracted for the collection of waste from the site during the construction phase of the social housing development in East Wall.

Materials used to build the social housing development will be sourced from operators with the appropriate permissions / licences. Exact quantities of material required have not been determined at this point. In addition, the detailed CMP will include waste minimisation measures to be adopted including reducing waste or surplus materials on site by avoiding over-estimation of purchasing requirements, establishing a 'take back' system with suppliers, etc.

A quantity of material will require excavation for the infrastructure. Any suitable excavated material will be reused on site for backfilling, regrading and landscape purposes, where possible. Waste arisings from the potential demolition works may be reused. If low levels of contamination are encountered during the construction works, soil testing and a risk assessment of material shall be undertaken to assess its potential for use.

In order to encourage the prevention of waste including the lawful and beneficial use of excess uncontaminated soil and stone resulting from excavation works, any uncontaminated soil and stone material resulting from excavation works that cannot be re-used on site may be taken off-site in the form of Article 27 of the European Communities (Waste Directive) Regulations 2011 subject to the correct consent process by the Environmental Protection Agency (EPA).

In relation to waste and materials reuse management, only approved waste collection permit holders will be contracted for the collection of waste from the site during the construction phase of the social housing development.

Any material requiring disposal off-site will be disposed of at an appropriate permitted or licensed facility based on Waste Management Acts 1996, as amended. In the event that disposal off-site is required, the material shall be tested for disposal at an appropriate waste management facility in accordance with the Waste management Act 1996, as amended. Therefore, it is considered that there will be no significant impact on soils.

During construction, Dublin City Council and / or any Contractor appointed, must ensure that:

- Excavated material shall be temporarily stored at a site compound, or preferably removed off-site to a facility licenced to accept such waste;
- Waste materials shall be stored in designated areas that are isolated from drainage systems;
- Skips will be closed or covered to prevent materials being blown or washed away and to reduce the likelihood of contaminated water leakage;
- Waste oils and hydraulic fluids will be collected in leak-proof containers and removed from the site for disposal or re-cycling; and,
- Any contaminated soil will be removed from the site and properly suitably disposed.

4.2 The Nature of Any Demolition / Construction Works

The demolition works associated with the proposed development is limited, as much of the development is on Made Ground. A detailed Construction Management Plan (CMP) will be developed in the latter stages of the project.

Quantities of excavated waste will be generated during the project works. Waste streams that are typically generated from the construction works are identified in **Table 4.1**. The waste stream and the quantities of wastes will be confirmed at detailed design stage.

Table 4.1 – Anticipated Waste Streams

EWC Code	Waste Stream	Management Approach
17 05 04	Soil and Stone	This material can be recycled as existing building structure and cladding can be sold and erected elsewhere
17 01 01	Concrete	This material can be recycled at a licenced facility
17 01 01	Wood	This material can be recycled at a licenced facility
17 01 02	Glass	This material can be recycled at a licenced facility
17 01 23	Plastic	This material can be recycled at a licenced facility
17 04 11	Electrical Cable	This material can be recycled at a licenced facility.

Waste arising from the construction works may be reused depending on the suitability of the material. If low levels of contamination are encountered during the construction works, soil testing and a risk assessment of material may be undertaken to assess its potential for use.

In the event that disposal off-site is required, the material shall be tested for disposal at an appropriate permitted or licensed waste management facility in accordance with the Waste Management Act 1996, as amended.

4.2.1 Compound Waste

Office and packaging waste will be generated from the site compound. This waste will be sorted into separate residual, food wastes and dry recyclables. This is estimated to be 0.5 tonnes per month.

4.2.2 Hazardous Waste

Fuels, lubricants, oils and hydraulic fluids will be used in machinery during demolition and construction and in very small quantities during operation and maintenance. Solvents, adhesives, sealants, oils, and paints will be used during construction. While estimated waste volumes are unclear at this stage, the contractor will be required to manage wastage in accordance with the relevant legislation. The use of spill kits will be a requirement on site.

4.2.3 Asbestos Containing Material Waste

Section 2.3.3 of the Council Decision, 2003/33/EC assesses the disposal of waste containing asbestos. The requirements of the Council Decision are displayed below:

<p>2.3.3 <i>Asbestos waste</i> <i>Construction materials containing asbestos and other suitable asbestos waste may be landfilled at landfills for non-hazardous waste in accordance with Article 6(c)(iii) of the Landfill Directive without testing. For landfills receiving construction materials containing asbestos and other suitable asbestos waste the following requirements must be fulfilled:</i></p> <ul style="list-style-type: none"> - <i>the waste contains no other hazardous substances than bound asbestos, including fibers bound by a binding agent or packed in plastic,</i>
--

- *the landfill accepts only construction material containing asbestos and other suitable asbestos waste. These wastes may also be landfilled in a separate cell of a landfill for non-hazardous waste, if the cell is sufficiently self-contained,*
- *in order to avoid dispersion of fibres, the zone of deposit is covered daily and before each compacting operation with appropriate material and, if the waste is not packed, it is regularly sprinkled,*
- *a final top cover is put on the landfill/cell in order to avoid the dispersion of fibres,*
- *no works are carried out on the landfill/cell that could lead to a release of fibres (e.g. drilling of holes),*
- *after closure a plan is kept of the location of the landfill/cell indicating that asbestos wastes have been deposited,*
- *appropriate measures are taken to limit the possible uses of the land after closure of the landfill in order to avoid human contact with the waste.*

For landfills receiving only construction material containing asbestos, the requirements set out in Annex I, point 3.2 and 3.3 of the Landfill Directive can be reduced, if the above requirements are fulfilled.

Following the demolition of on-site structures, it is recommended that specialised personnel are contracted to sample the regions where the presence of asbestos is likely. Furthermore, it is recommended that samples are analysed by a specialist laboratory (i.e. IOM) to delineate and verify soil samples which may result in the reduction of asbestos concentrations unless there is a defined source.

4.3 Sustainable Management of Excavated Materials

This section describes the sustainable management of generic construction and demolition waste. The soil quality on-site is discussed in detail within the Contaminated Land Assessment Report.

Clean Excavation Material

The project works will involve break up and removal of the concrete hardstanding and excavation of Made-Ground and subsoil material. Clean material will be stored on-site and potential reuse as fill. If there is no suitable application, this material will be removed off-site for recovery at an authorised waste facility.

Uncontaminated soil and stone resulting from excavation works that cannot be re-used on site may be taken off-site in the form of Article 27 of the European Communities (Waste Directive) Regulations 2011 subject to the correct consent process by the Environmental Protection Agency (EPA).

Contaminated / Made-Ground

Excavated waste material suspected to be contaminated will be segregated from other materials and stored at a dedicated area at the site. Samples of materials will be taken and removed for testing at an approved laboratory. The material will be tested for a suite of parameters including heavy metals and organics. The turnaround time for such a test is usually 5-10 days, depending on the required level of urgency. Based on the results from the laboratory this material may be removed off-site for disposal at an authorised waste facility which can accept the materials.

If the material is unsuitable for landfill disposal, a competent contractor will be employed to remove and transport the material to a specialist treatment facility, as required. Made Ground is solid ground that has been formed by filling and compaction of hardcore and general fill material. It may contain any type of general fill materials including brick, rock, ceramic, clay, gravel or concrete. It is likely Made Ground materials will be encountered during the construction of the proposed development. There may be a need for general fill material for the subsequent construction works and if so, the material will be stored on-site for reuse.

Possible options on-site for these reusable fractions of material include:

- General groundworks;
- General fill material for construction of site roads, hardstanding and plant areas; and,
- Soil and stone materials may be taken off-site in the form of Article 27 subject to the correct consent process by the Environmental Protection Agency (EPA)

Refer to **Appendix C** for the EPA Guidance on Soil and Stone By-Products, and **Appendix D** for the End of Waste (EoW) Directive from the Eastern Midlands Waste Region.

4.3.1 Material Storage

Throughout the process it is important materials are stored separately to avoid contamination and to maximise their potential reuse and recovery potential off-site.

4.3.2 Hazardous Waste

Special attention will be paid to anticipated hazardous waste arisings and the manner in which such materials will be identified, assessed, handled, stored, treated and removed.

Fuels, lubricants, oils and hydraulic fluids, solvents, tars, adhesives, sealants, oils, and paints etc. will be stored in sealed containers on-site. These materials will be carefully handled prior to and during use to avoid spillage, properly secured against unauthorised access or vandalism, and provided with spill containment according to codes of practice. Any spillages will be immediately contained, and the contaminated soil collected and stored for removal from the site by an authorised contractor for suitable disposal. The containers for these materials will be appropriately handled.

Hazardous waste generated, will be identified, collected appropriately in leak-proof or other appropriate containers, stored separately separate from other waste materials in order to avoid contamination and the details recorded by the contractor. Arrangements will be made for the safe removal by an authorised collector and for subsequent recycling/recovery/disposal at a remote facility.

4.3.3 Invasive Species

An Ecological Impact Assessment was undertaken by NM Ecology Ltd. The assessment found that no protected plants or problematic invasive species (e.g. Japanese knotweed) were recorded during the survey.

Two other invasive non-native species were recorded during the site inspection; winter heliotrope and butterfly-bush. These species are not listed on the European Communities (Birds and Natural Habitats) Regulations 2011, and thus do not have legal restrictions. They will be removed during site clearance works and will not pose any significant problems to the proposed development, so they are not considered to be Important Ecological Features.

4.3.4 Reuse of Concrete

Following the final quantification of concrete on-site, further investigations into the reuse of the concrete on-site will be undertaken. There will be an opportunity to crush the concrete and reuse the crushed material on-site for generic fill or in roadways.

4.3.5 Disposal

The disposal of excess materials generated on the project to an authorised waste management facility will only be considered when all other options to reuse or recover material off-site have been exhausted.

It is expected that a minimum quantity of material will be sent to landfill for disposal. Only material found to be unsuitable for reuse or recovery purposes will be sent for disposal.

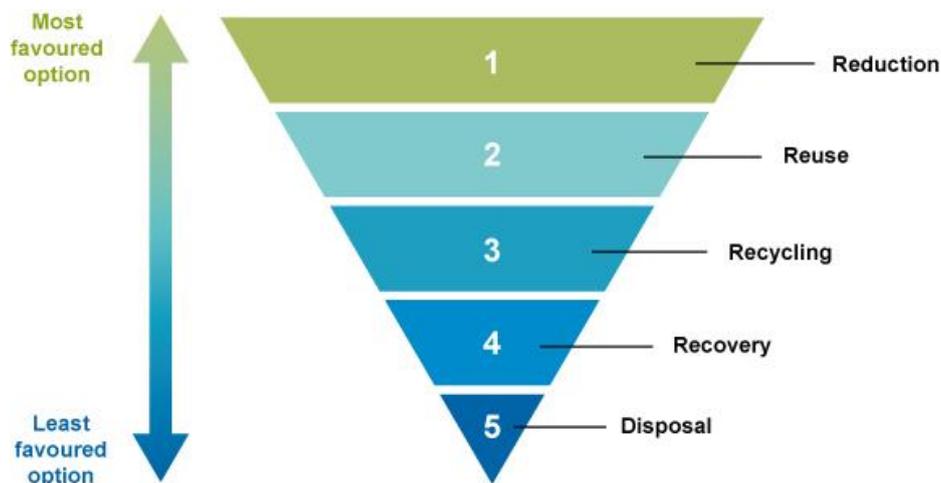
5 WASTE HIERARCHY

In line with the objectives of the Waste Framework directive (WFD) (2008/98/EC) of 19 November 2008, this document prescribes a proactive approach to the management of construction and demolition waste during the social housing development project in East Wall. The document promotes sustainable development, environmental protection and optimum use of resources. The Outline CDWMP is based on the fundamental waste management prioritisation principles (prevent, reduce, reuse, recycle).

Besides the requirements that the off-site handling of waste generated by this project are subject to the required statutory authorisations under the Waste Management Act, there is also a necessity that it conforms to the Waste Hierarchy (**Figure 5.1**). This hierarchy outlines that waste prevention and minimisation are the first priority in managing wastes, followed by waste reuse and recycling with disposal being considered as a last resort.

The EU Waste Directive (2008/98/EC) also mandates that hazardous waste generation should be avoided or at least minimised.

Figure 5.1 – EU Waste Hierarchy



Definitions defined in the Waste Framework Directive of key terms are (in order of priority):

- **Prevention / Reduction** includes measures taken before a substance, material or product has become waste, that reduce;
 - a. The quantity of waste, including through the reuse of products or the extension of the lifespan 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.
- **Re-Use** is defined as any operation by which products or components that are not waste are used again for the same purpose for which they were conceived;
- **Recycling** is any recovery operation by which waste materials are processed 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; and,
- **Recovery** is defined as 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.

The Waste Hierarchy only applies to material that is defined as ‘waste’, so does not apply to the proportion of the spoil that is handled on-site in conformity with the statutory exclusions.

The Waste Management Hierarchy will be activated for any material which does not satisfy the exclusions; in this regard the contract documents for the detailed design / construction project will clearly set out the staged approach which the contractor will be required to adhere to through the use of the Waste Hierarchy.

6 KEY MATERIALS QUANTITIES AND COST

The anticipated waste streams predicted are discussed in **Section 4.2** and **Table 4.1**.

6.1 Waste Arisings

The site has been separated into three zones for proposed use based on the soil Generic Assessment Criteria for human health risk assessment land-use categories. The three zones include a, residential (without the use of homegrown produce), public open space (residential) and commercial zone (car parking).

The total area of the site is approximately 0.53Ha or 5,300m².

The excavation volumes have been estimated using 20x20m grids where the borehole/trial pit is located at the centre of the grid. The assumptions for this section are as follows:

- A total of 1.20m (0.5m concrete and 0.7m fill) will be excavated in commercial areas (as this will be hardstanding), a total of 4.00m (0.5m concrete and 3.5m fill) will be excavated in residential and public open space areas;
- It is assumed that the site is underlain by approximately 0.50m of concrete followed by approximately 3.70m of Made Ground;
- The conversion factor for uncrushed concrete is assumed to be 2.41tonnes/m³ and the conversion factor for crushed concrete is assumed to be 1.24tonnes/m³; and,
- The conversion factor for soil and stone is assumed to be 1.25tonnes/m³.

Approximately 2,650m³ (5,300m²x0.50m) of concrete is currently on-site which may require removal from site. If the concrete is uncrushed it would result in approximately 6,387 tonnes or approximately 3,286 tonnes of crushed concrete.

Approximately 3,800m² of the proposed site is associated with residential and public open space land, this will require a further 3.50m of excavations following the removal of the concrete hardstanding resulting in 13,300m³ of material requiring potential disposal to a suitable waste facility. This equates to approximately 16,625 tonnes of soil and stone.

Approximately 1,500m² of the proposed site is associated with the proposed car park which will be hardstanding; therefore, this will require a further 0.70m of excavations following the removal of the concrete hardstanding resulting in 1,050m³ of material requiring disposal to a suitable waste facility. This equates to approximately 1,313 tonnes of soil and stone.

The approximate tonnes of material to removed following groundworks at the site include:

- Concrete hardstanding – 6,387 tonnes of uncrushed concrete or 3,286 tonnes of crushed concrete; and,
- Soil and stone/Made-Ground – 17,938 tonnes of soil and stone with elevated levels of TPHs and PAHs which are considered harmful to human health.

Following the site investigation and environmental sampling undertaken by IGSL, large quantities of the subsoil on-site have elevated concentrations of TPHs and PAHs which are hazardous to human health and therefore cannot be reused on-site and will require off-site disposal. Opportunities to recycle the concrete currently situated on-site will be considered in the final CDWMP.

Following the final quantification of concrete on-site, further investigations into the reuse of the concrete on-site will be undertaken. However, in Section 6.2, it is assumed that all concrete will be disposed to landfill.

6.2 Cost of Removal

The cost of removal includes multiple variables including market prices, facilities availability, opportunity for reuse and licencing requirements at the relevant facilities. It should be noted that the costs in this section should only be used as an estimation and final prices will be made available upon confirmation of the final volume of waste that will be taken to the selected facility or facilities.

If the soil on-site is to be treated as a waste, then the client should liaise directly with the waste facility. The facility operator at the destination site will dictate if the results available are sufficient to accept the waste at

OUTLINE CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT PLAN

the facility. The facility operator may request further sampling or a visit to the site to inspect the material. This will be determined once excavation works commence on-site.

RPS previously engaged in a market sounding exercise to determine the options for managing the different materials identified and to establish current market rates for the different options.

Treatment and recovery specialists for contaminated soil in Ireland were contacted regarding the price of removal and disposal. The costings have been requested based on the asbestos concentrations and these will be provided when RPS are in receipt of these. The category type and cost to dispose of soil and stone waste are outlined in **Table 6.1**.

Table 6.1 – Waste Categories and Costs

Waste Category	Classification Criteria	Cost per Tonne
A	Uncontaminated soil and stone free from anthropogenic contamination (e.g physical contaminants brick, concrete etc <2%. Free from PAHs, Hydrocarbons etc). To be defined in the EPA Soil Trigger Level/Article 27 Guidance. Individual licenced sites can agree specific limits with the EPA (ref EPA Update Note, Feb 2019).	€13 to €15
B1	Reported concentrations within inert waste limits, which are set out by the adopted EU Council Decision 2003/33/EC establishing criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 and Annex II of Directive 1999/31/EC (2002). Results also found to be non-hazardous using the HWOL application.	€23 to €25
B2	Reported concentrations greater than Category B criteria but less than expected landfill acceptance criteria. Results also found to be non-hazardous using the HWOL application.	€46 to €48
C1	Reported concentrations greater than Category B1 criteria but within non-haz landfill waste acceptance limits set out by the adopted EU Council Decision 2003/33/EC establishing criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 and Annex II of Directive 1999/31/EC (2002). Results also found to be non-hazardous using the HWOL application.	€56 to €58
C2	See above with the addition of a trace of asbestos.	Approx. €110
D	Results found to be hazardous using HWOL application.	Approx. €110

NOTE: These costs are only estimates and subject to change.

6.2.1 Concrete

As the asbestos survey conducted by OHSS found that asbestos cement (in the form of chrysotile and amosite) has been used in the yard floor, it is assumed that the cement hardstanding to be removed from the site contains ACM. Therefore, the 6,387 tonnes of uncrushed concrete would have to be treated as a C2 waste unless further sampling of the concrete hardstanding suggests otherwise. The cost of removing the uncrushed concrete to the correct treatment facility is approximately €702,570 (or €361,460 if crushed).

The asbestos removal contractor can be tasked with the removal of all asbestos across the slabs, with follow up testing, to reduce the classification on the concrete. There is an opportunity to reuse the existing concrete on-site if the material is suitable and then crushed and used for fill material or roadways, this will be documented in the final CDWMP.

6.2.2 Fill Material

The fill material underlying the concrete hardstanding to be excavated weighs approximately 17,938 tonnes. Due to the elevated concentrations of TPHs and PAHs across the site, it is likely that this material will be treated as a Category C1 waste, this equates to a cost of €1,040,404 (using the conservative €58/tonne figure).

7 SITE MANAGEMENT

7.1 Waste Management Plan Awareness and Training

Copies of the CDWMP and the Principal Contractor’s Site Waste Management Plan will be made available to all personnel on site. The CDWMP will be included in the site induction training which will be compulsory for all personnel undertaking construction activities at the site.

All site personnel and sub-contractors will be instructed about the objectives of these plans and informed of the responsibilities which fall upon them as a consequence of its provisions. Where source segregation and selective material reuse techniques apply, each member of staff will be given instructions on how to comply with the CDWMP.

Posters and signs will be designed to reinforce the key messages within the CDWMP and will be displayed prominently for the benefit of site staff. Tool box talks are also recommended on-site to address key messages within the CDWMP. Specialist training as may be required (e.g. asbestos containing materials handling) will be assessed or provided as required.

7.2 Record Keeping, Waste Audits

7.2.1 Record Keeping

The Waste Manager will record details of waste materials arising, movements and off-site treatment during the works. Each consignment of waste taken from the site will be subject to documentation. A sample of the type of documentation and information to be recorded is presented in **Table 7.1**. The appointed contractor will be required to have in place a traceable document management system to track all movements of waste from the site. This will ensure full traceability of the material to its final destination.

Table 7.1 – Details to be Included within Transportation Dockets

Detail	Particulars
Name of Project of Origin	e.g. Social Housing Development – East Wall
Waste being Transported	e.g. Soil, Concrete, Crushed Asphalt etc.
Quantity of Material	e.g. 20.50 tonnes
Date of Material Movement	e.g. 01/01/2022
Name of Carrier	e.g. Authorised Carriers Ltd.
Waste collection permit	e.g. All waste collection permits which are held by subcontractors involved in moving waste away from the project
Destination	e.g. Enva, Portlaoise
Proposed Use	e.g. Restoration material
Destination authorisation	e.g. Waste licences, waste permits, waste facility permits and registration certificates
Exemptions	e.g. Details of any exemption from the above requirements claimed by any organisation employed to handle wastes

The contractor will be required to store these documents.

7.2.2 Waste Audits

Details of the inputs of materials to the project site and the outputs of wastage arising from the Project will be investigated and recorded in a Waste Audit undertaken by the Principal Contractor.

OUTLINE CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT PLAN

This audit will identify the amount, nature and composition of the waste generated on the site. The Waste Audit will examine the manner in which the waste is produced and will provide a commentary highlighting how management policies and practices may inherently contribute to the production of demolition waste.

The Principal Contractor will be responsible for undertaking regular waste auditing. The Design team may review the findings of the waste audits during the course of the construction stage.

8 SITE INFRASTRUCTURE

This section details the infrastructure requirements that must be adopted by the Contractor at the construction stage of the proposed development.

8.1 Site Layout and Appearance

The layout, appearance and operation of the construction site, site offices and compounds will be detailed and provided prior to construction commencing. The requirements are to be detailed in the CDWMP. In general, the layout, appearance and operation of the construction site, site offices and compounds will be managed as follows:

- All working areas will be kept in a clean and tidy condition;
- All necessary measures will be taken to minimise the risk of fire;
- Appropriate measures, such as use of enclosed containers, will be employed to store waste susceptible to spreading by wind or liable to cause litter;
- Fencing and other means of enclosure will be inspected daily, repaired and repainted as necessary;
- Adequate welfare facilities will be provided for all construction staff. All toilets will be serviced and kept clean;
- Site accesses, accesses to site compounds and roads in the vicinity of site access points will be maintained and kept clean; and,
- Appropriate security fencing and lighting will be deployed on site to meet best practice and current health and safety regulations.

8.2 Site Awareness Management

Posters and signs will be designed to reinforce the key messages within the CDWMP and will be displayed prominently for the benefit of site staff. Tool box talks are also recommended on-site to address key messages within the CDWMP. Specialist training as may be required will be assessed or provided as required.

8.3 Material Storage

Construction materials will be stockpiled within the contractor's compound in a safe manner, to be monitored on an on-going basis throughout the works by the Main Contractor's Health and Safety co-ordinator and the client agent PSDP.

The contractor is to consider the direction of workflow and sequencing of construction for the development which will allow to maximise the space available and ease of storage of materials throughout the project.

Under Article 5 'Stockpiles' of EU Regulation (EU) 2019/1021 on persistent organic pollutants, there are specific requirements on stockpiling more than 50kg of certain persistent organic pollutants (from a construction perspective these may include chlorinated hydrocarbon contaminants in ground contamination or PCBs).

The following waste minimisation measures will be implemented during the course of the construction works:

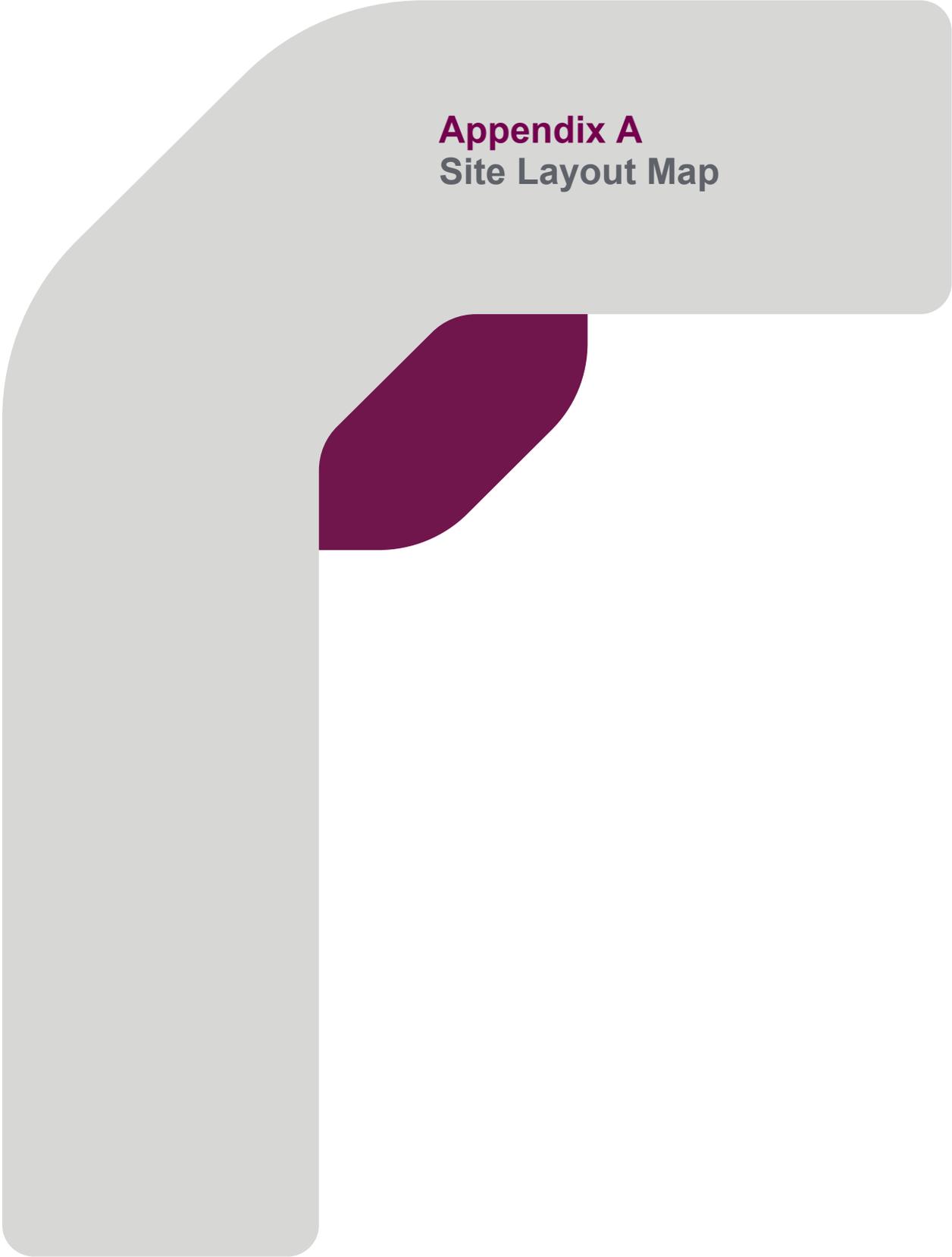
- Facilitate recycling and appropriate disposal by on site segregation of all waste materials generated during construction into appropriate categories, including:
 - Top-soil, subsoil, gravel hard-core;
 - Concrete, bricks, tile, ceramics, plasterboard;
 - Asphalt, tar and tar products;
 - Metals; and,
 - Dry Recyclables e.g. cardboard, plastic, timber.

- All waste assessed by the Waste Manager as 'not suitable for reuse' will be stored in skips or other suitable receptacles in a designated area of the site, to prevent cross contamination between waste streams;
- Wherever possible, leftover materials (e.g. timber off cuts) and any suitable demolition materials will be reused on-site;
- Uncontaminated excavated material (top-soil, sub soil, etc.) will be segregated, stockpiled and re-used on site in preference to importation of clean fill, where possible; and,
- Where possible, the Waste Manager will ensure that all waste leaving site will be recycled or recovered.

8.4 Export of Material

Material to be exported off-site will be undertaken by a competent licenced contractor who will be employed to remove and transport the material to its destination, as required.

A Construction Traffic Management Plan will be developed as part of the CMP which will detail best practice measures associated with the export of material stored on-site, including the transport of material to waste facilities and to alternative sites.

The graphic consists of a large, light gray rounded shape on the left side of the page. A smaller, dark purple rounded shape is positioned to the right of the gray shape, partially overlapping its right edge. The text 'Appendix A' and 'Site Layout Map' is centered within the gray shape.

Appendix A
Site Layout Map



ITEMS IN GREY WERE NOT COMPLETED

ITM GRID REFERENCE
X = 717270 Y = 735833

- LEGEND**
- TRIAL PIT
 - TRIAL PIT (INFILTRATION TEST)
 - CABLE PERCUSSION BOREHOLE
 - CABLE PERCUSSION BOREHOLE WITH FOLLOW ON ROTARY CORING IN ROCK AS REQUIRED
 - TEST HOLE WITH STAND PIPE
 - SLIT TRENCHING

Name	Easting	Northing
TP01	717255.943	735885.843
TP02	717286.097	735859.357
TP03	717316.365	735833.041
TP04	717261.416	735859.715
TP05	717293.492	735835.816
TP06	717268.435	735835.652
TP07	717300.498	735811.745
TP08	717243.591	735835.658
TP09	717275.567	735811.759
TP10	717218.551	735835.658
TP11	717250.511	735811.595
TP12	717282.574	735787.688

Name	Easting	Northing
BH01	717270.991	735872.558
BH02	717301.202	735846.156
BH03	717245.321	735871.579
BH04	717277.397	735847.68
BH05	717236.359	735859.55
BH06	717252.397	735847.601
BH07	717284.472	735823.702
BH08	717259.473	735823.623
BH09	717291.548	735799.725
BH10	717234.261	735823.702
BH11	717266.548	735799.646

General Notes:
 (i) Hard copies, dwf and pdf will form a controlled issue of the drawing. All other formats (dwg etc.) are deemed to be an uncontrolled issue and any work carried out based on these files is at the recipient's own risk. RPS will not accept any responsibility for any errors from the use of these files, either by human error by the recipient, listing of the un-dimensioned measurements, compatibility with the recipient's software, and any errors arising when these files are used to aid the recipient's drawing production, or setting out on site.
 (ii) DO NOT SCALE, use figured dimensions only.
 (iii) This drawing is the property of RPS, it is a project confidential classified document. It must not be copied used or its contents divulged without prior written consent. The needs and expectations of client and RPS must be considered when working with this drawing.
 (iv) Information including topographical survey, geotechnical investigation and utility detail used in the design have been provided by others.
 (v) All Levels refer to Ordnance Survey Datum, Malin Head.

P01	03/11/21	PMCB	ISSUE FOR INFORMATION	DL
Rev	Date	Dim	Amendment / Issue	App
Client				
 Comhairle Cathrach Bhaile Átha Cliath Dublin City Council				

rps MAKING COMPLEX EASY

Lyrr 2, IDA Business & Technology Park, Mervue, Galway
 T +353 91 400200
 W www.rpsgroup.com/ireland
 E ireland@rpsgroup.com

Project: SHB 3 EAST WALL, CO. DUBLIN

Title: SITE INVESTIGATION LAYOUT AND PROPOSED SITE PLAN

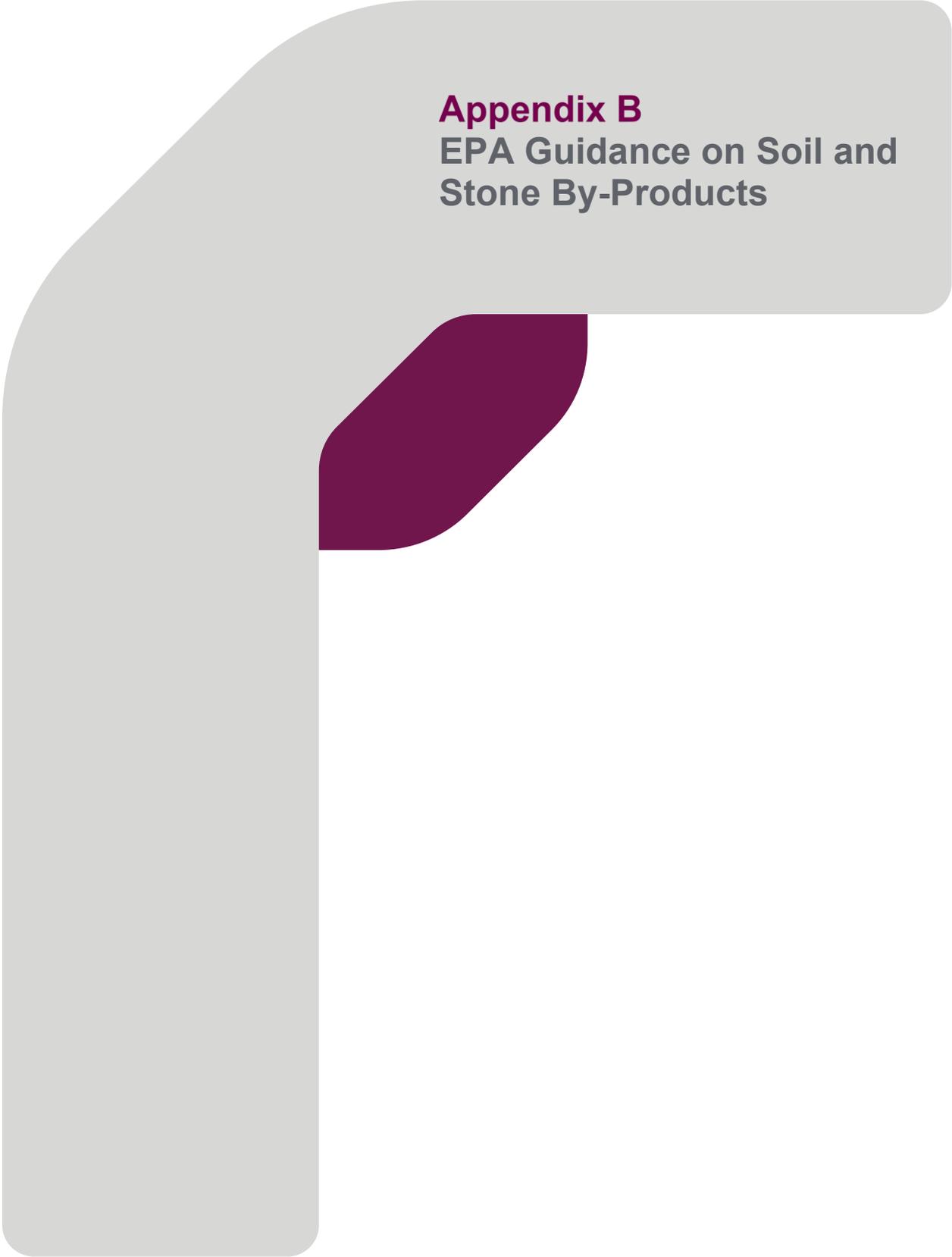
Model File Identifier: SHB3-EAW-CS-RPS-DR-SK003

File Identifier: SHB3-EAW-CS-RPS-DR-SK003-01

Created on: November 2021 | Sheets: 01 OF 01

Scale: 1:200 @ A1 | Status: S2 | Rev: P01

S:\MGC0712 - NDFA SHB3\MGC0712-07 - East Wall\0 Drawings\SK\SHB-EAW-CS-RPS-DR-SK003 - SI grid and site layout.dwg



Appendix B
EPA Guidance on Soil and
Stone By-Products



Guidance on Soil and Stone By-products

**in the context of
article 27
of the
European Communities (Waste Directive) Regulations 2011**

Version 3; June 2019

Introduction

<i>Purpose</i>	<ul style="list-style-type: none">• To encourage the prevention of waste including the lawful and beneficial use of excess uncontaminated soil and stone.• To set out the Environmental Protection Agency's regulatory approach to determining notifications on soil and stone by-products and to provide guidance to interested parties. <p>Note, this guidance does not address any other materials that may be notified to the EPA as by-product.</p>
<i>Addressed to</i>	Local authorities, developers, the construction sector, the waste management sector and consultants.
<i>Environmental objective</i>	By making certain that excess uncontaminated soil and stone is beneficially used with no overall adverse impacts on the environment or human health, a material producer will ensure that the material is regarded as a by-product rather than a waste.

The EPA will have regard to this guidance when determining, on a case-by-case basis, if a soil and stone material meets the criteria to be considered a by-product. This guidance addresses excess uncontaminated soil and stone material only and is not applicable to other materials that may be notified as by-products.

Legislative Background

The regulatory regime for by-products is enshrined in Article 5 of the Waste Framework Directive and is transposed into Irish legislation by Article 27 of the European Communities (Waste Directive) Regulations 2011 (hereafter referred to as the Waste Directive Regulations). The Waste Framework Directive provides for uncontaminated excavated soil and other naturally occurring materials (used on sites other than the one from which they were excavated) to be considered in accordance with the definition of waste and the provisions on by-products and on end-of-waste status under the Waste Framework Directive (*Recital 11*).

The Court of Justice of the European Union has held that there are a wide variety of relevant factors involved in defining waste, not all of which will be applicable to every case. Decisions must be made on a case-by-case approach.

It is important to note the following: Certain wastes are excluded from the scope of the Waste Framework Directive (Article 2), as reflected in Article 4 of the Waste Directive Regulations. i.e. items which would fulfil the definition of waste yet for various reasons should not be subject to the provisions of the Waste Framework Directive. Further guidance on scope is provided on pp 40-43 of the *Guidance on the interpretation of key provisions of Directive 2008/98/EC on waste*, hereafter referred to as the Commission guidance¹.

In the case of excess uncontaminated soil and stone, the following descriptions differentiate between material which must be regulated as waste and that which is not required to be regulated as waste.

<i>Not regulated as waste</i>	<p>Uncontaminated soil and stone that is certain to be used in construction at the same project site from where it was excavated is not regulated as waste. For example:</p> <ul style="list-style-type: none"> • Soil that is excavated from one part of a road project and used as fill in another part of the same road project, all within the same site; or • Soil excavated to enable construction but stored for use later at the same site for landscaping works.
<i>Regulated as waste</i>	<p>Excess uncontaminated soil and stone produced during construction projects may be a waste if it is discarded, is intended to be discarded or is required to be discarded.</p>

Definitions and terms

The definitions and terms which are relevant to this guidance are described in the Waste Framework Directive and the Commission guidance and set out below.

¹ <http://ec.europa.eu/environment/waste/framework/guidance.htm>

Term	Definition/interpretation	Source
<i>Waste</i>	Means any substance or object which the holder discards or intends or is required to discard.	Waste Framework Directive
<i>Recovery</i>	Means 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 sets out a non-exhaustive list of recovery operations.	Waste Framework Directive
<i>Disposal</i>	Means any operation which is not recovery even where the operation has as a secondary consequence the reclamation of substances or energy. Annex I sets out a non-exhaustive list of disposal operations.	Waste Framework Directive
<i>Treatment</i>	Means recovery or disposal operations, including preparation prior to recovery or disposal.	Waste Framework Directive
<i>Product</i>	All material that is deliberately created in a production process. In many cases it is possible to identify one (or more) 'primary' products, this or these being the principal material(s) produced.	Commission Guidance
<i>Production residue</i>	A material that is not deliberately produced in a production process but may or may not be waste.	Commission Guidance
<i>Uncontaminated soil</i>	Essentially relates to virgin soil or soil that is equivalent to virgin soil.	Commission Guidance

Policy Context

1. EU and national policy on resource efficiency seeks to decouple the link between economic growth and environmental impact. Recognising the need for a high standard of environmental protection, and the need to promote sustainable and environmentally sound development, the EPA encourages resource efficiency and the sustainable use of resources in Ireland.
2. Prevention is top of the waste hierarchy established by Article 4 of the Waste Framework Directive. Ireland's Waste Policy (['A Resource Opportunity – Waste Management Policy in Ireland'](#)) puts prevention as a national priority and focuses the National Waste Prevention Programme on resource efficiency, prevention and reuse.
3. The EPA balances the need for precaution and the need to protect the environment (and the cost of such protection) with the need for infrastructural, economic and social progress and development.
4. By ensuring that excess uncontaminated soil and stone is beneficially and lawfully used as a by-product, the use of virgin soil and stone is minimised, and waste is prevented.

Regulatory Position on Soil and Stone By-products

- The EPA encourages the prevention of waste including the lawful and beneficial use of excess uncontaminated soil and stone.
- Determining whether a material is a 'by-product' or a 'waste' must be considered on a case-by-case basis, taking into account the specific factual circumstances involved. A decision tree for determining whether a material is a by-product is included in Figure 1.
- The actions of, and measures taken by, the material producer are key to informing the determination as to whether the material is a by-product or a waste. If the intent or requirement of the material producer is to discard, the material is waste. This is so, regardless of whether anyone else has a use for it.
- The EPA will produce guidance to advise and assist planning authorities and An Bord Pleanála in the granting of planning permissions related to sites using soil and stone by-products, as provided for under Section 56 of the EPA Act, as amended.

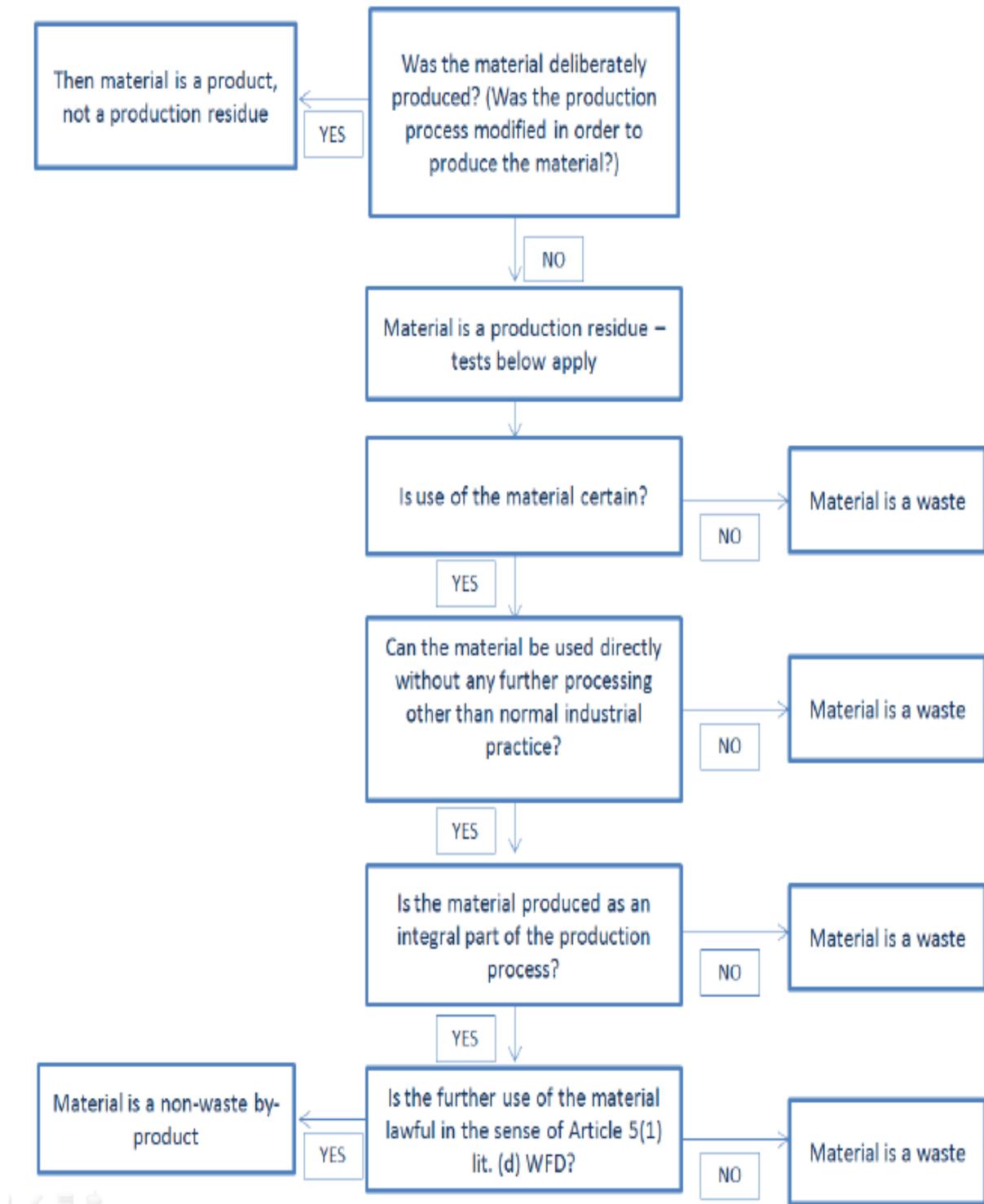


Figure 1 Decision tree for determining whether a material is a by-product (Source: Commission guidance)

Guidance on understanding the by-product Conditions

Excess uncontaminated soil and stone resulting from excavation works (the primary aim of which is not the production of soil and stone²) is a production residue and is regarded as a by-product only if all four by-product conditions are met³:

- a) further use of the soil and stone is certain;
- b) the soil and stone can be used directly without any further processing other than normal industrial practice;
- c) the soil and stone is produced as an integral part of a production process; *and*
- d) further use is lawful in that the soil and stone fulfils all relevant product, environmental and health protection requirements for the specific use and will not lead to overall adverse environmental or human health impacts.

<p>a. certainty of further use</p>	<p>If beneficial use(s) are identified for the entirety of the excavated soil from a project, prior to its production, with that use taking place within a definite timeframe, then use will generally be regarded as certain. It is acknowledged that in certain circumstances it may not be possible to use the entirety of the excavated material for the intended use; in such circumstances the notified quantity should reflect the quantity that will be beneficially used, while the balance of the excess material will be regarded as waste, given that certainty of use has not been established for that balance. Certainty of further use may be indicated through a financial gain for the material producer and the existence of contracts between the material producer and the subsequent user. Further guidance is provided in relation to the 'certainty of further use' in the Commission guidance (pp 16 and 17).</p> <p>Storage or stockpiling of excess materials off-site without certainty of use elsewhere is not excluded from waste regulation and is considered a waste activity.</p>
------------------------------------	--

² The material in question should not have been deliberately produced; i.e. the production process must not have been modified in order to produce the material.

³ As set out in Article 5 of the 2008 Waste Framework Directive and Article 27 of the Waste Directive Regulations 2011

<p>b. ...other than normal industrial practice</p>	<p>In the context of soil and stone, normal industrial practice is taken to mean physical steps such as modification of size or shape by mechanical treatment. It may also be considered to include steps such as filtering, washing and drying or adding materials necessary for further use, or carrying out quality control. However, it excludes treatment techniques that address typical waste-related characteristics such as dealing with contamination via soil treatment. Whether normal industrial practice includes the removal of physical contaminants will depend on the particular circumstances of the case. The Commission guidance includes a narrative on the interpretation of 'normal industrial practice' (pp 17 and 18).</p> <p>Where excess soil and stone undergoes a recovery operation, this is an indicator that it is waste. Examples include soil cleaning, for the purpose of removing contamination, resulting in recovery of the soil; recycling of inorganic construction materials; and including recovery operations listed in Annex II of the Waste Framework Directive 2008/98/EC, as amended.</p>
<p>c. ...produced as integral part of a production process</p>	<p>The intent of the material producer will be a key determinant in the EPA's consideration of the notification against the by-product conditions. Evidence provided must clearly demonstrate that the <u>material producer has decided</u> that the material to be notified is a by-product. For this reason, it is essential that the notifier of the material is either the material producer, or makes the notification with the express (written) consent of the material producer, and that evidence is provided to demonstrate this consent. For the purpose of this guidance, the economic operator is considered to be the notifier. The Commission guidance provides further narrative on the meaning of 'produced as an integral part of the production process' (pp 18 and 19).</p> <p>The by-product notification is a notification of the material producer's decision that the material to be produced as an integral part of a production process is a by-product. The notified material must be demonstrated to be a production residue of a production</p>

	<p>process. Therefore, as above, it is essential that evidence is provided to demonstrate that the <u>material producer</u> has decided that the material is a by-product of a production process.</p>
<p>d. further use is lawful...</p>	<p>The re-use of soil and stone must meet all legal requirements, including, but not limited to, planning permission (or exemption criteria) and all associated applicable environmental impact assessment and appropriate assessment, as required by law. The material producer will need to satisfy itself of this prior to making the notification, and will need to provide relevant evidence to support this conclusion. The notifier shall include evidence of appropriate planning permission being in place or a written declaration that the use is specifically exempted from planning permission, in accordance with Section 5 of the Planning and Development Acts, as amended. The Commission guidance provides further narrative on the meaning of 'further use is lawful' (pp 19 and 20).</p> <p>The soil and stone must be uncontaminated. The use of inert landfill waste acceptance criteria is not acceptable as demonstration of uncontaminated status of soil and stone material notified as by-product. The Commission guidance includes a narrative on the interpretation of the terms 'contaminated' and 'uncontaminated' (pp 41 and 42). A rigorous scientific approach is being developed by Geological Survey Ireland in collaboration with the EPA to identify geochemically appropriate levels (soil trigger values) for deposit of soil and stone in licensed soil recovery facilities, on the basis that when the baseline geochemical character of a soil recovery facility is established, then soil and stone material of a similar geochemical nature can be deposited with minimal risk to receptors. This work is being done in support of the 'Waste Acceptance Criteria and Development of Soil Trigger Values for Soil Recovery Facilities' Guidance. While that work has a discrete scope, it may be possible to apply geochemically appropriate soil levels on a case-by-case basis for the deposit of notified soil and stone by-product at certain</p>

	other locations, if available information so indicates. If the necessary information is not available to take this approach, notifiers will have to demonstrate that the notified soil and stone is uncontaminated, in that it is, essentially, virgin soil or soil that is equivalent to virgin soil. It is important to note that the work undertaken by Geological Survey Ireland in collaboration with EPA may, upon completion, result in this guidance document being revised.
--	--

Nothing in this guidance excludes or exempts destination sites from the need to be fully compliant with all applicable regulatory requirements under waste, planning and other laws.

What the EPA expects

- The management of excess uncontaminated soil and stone, as a by-product **or** as a waste, will be prearranged by the material producer at the earliest opportunity:
 - 1) at the planning stage of the development; or at the latest,
 - 2) prior to commencement of the development

(referring to the development from which the material arises, in both instances).
- Where Construction Waste Management Plans are prepared, they should take into account any by-product to be produced and, as such, the Plan should be more accurately described as a "Construction Waste and By-product Management Plan". This will be reflected in the guidance for planning authorities and An Bord Pleanála referred to above.
- Prior to works (i.e. prior to commencement of the development), an economic operator (being either the material producer, or with the express written consent of the material producer) notifies the EPA of the by-product decision. A register of by-product notifications will be maintained and will be available for public inspection online to include details of origin and destination sites for soil and stone by-product.
- Notifications should be accompanied by the full complement of necessary documentation to demonstrate compliance with the four by-product conditions. A

quality notification will allow the EPA to make a determination in the earliest possible time.

What the Notifier can expect

- The EPA will take a risk-based approach to making determinations and will endeavour to make determinations in all cases.
- A determination may be:
 - 1) That the EPA agrees with the economic operator's decision, as notified; or,
 - 2) That the notified material is a waste.
- The EPA advises waiting at least ten weeks prior to moving the material as a by-product. If, within that time, the Agency decides that a detailed consideration of the notified decision is warranted, it will inform the economic operator of this and will initiate a consultation process. In that case the economic operator is advised not to move the material until the Agency has made a determination.
- Where consultation is undertaken, this will be at least a two-step process as follows:
 - 1) The first consultation step will involve a consultation notice issuing to the following parties, where relevant, depending on the circumstances of the notification:
 - the material producer (the source site owner, or developer),
 - the end user (destination site owner, or operator/developer),
 - any relevant local authority and/or local authority representatives (Waste Enforcement Regional Lead Authorities),
 - An Bord Pleanála, where relevant, and
 - any member of the public who has expressed an interest in participating in the consultation process.

A period of three weeks is ordinarily given for receipt of submissions.

- 2) Where submissions are received in response to the first consultation, these will be circulated to the relevant parties for further comment in relation to existing issues. A period of three weeks is ordinarily given for receipt of further submissions.

There may be more than one round of circulation of submissions for further comment.

- Compliance with the four by-product conditions, and demonstration of such compliance, remains the responsibility of the material producer. Absence of full compliance with the four by-product conditions may result in the notified material being determined as waste rather than by-product.
- Waste enforcement action by the relevant local authorities and/or the EPA may result in instances where unauthorised waste activity has taken or is taking place.

Case Studies

The three case studies presented below are examples of real situations; however, they are greatly summarised for the purpose of demonstrating how the by-product conditions are met.

Case Study 1

55,000 tonnes of stone, from the deepening of the north channel of Dingle Fishery Harbour.

- a. Use is certain in the N86 Tralee to An Daingean Road Project
- b. Used directly, equivalent to quarried stone
- c. Produced as an integral part of harbour works
- d. Use is lawful and meets engineering specifications for use in the N86 Project

This summary example illustrates that all the by-product conditions were met.

Case Study 2

230,000 m³ of soil and stone excavated in the preparation of an industrial development site. The excavated soil and stone was to be used in the restoration of a quarry.

- Use is certain, planning consent for the destination site requires restoration, the void space capacity is far in excess of the volume of by-product notified.
- No processing of the notified material is required, the notified material is uncontaminated soil and stone.
- The notified material is produced as an integral part of the development works.
- Use is lawful:
 - Planning consent at the destination site requires restoration, contains environmental controls and has specifically addressed the use of by-product in the restoration,
 - Environmental Impact Assessment and Appropriate Assessment has been completed by the planning authority for the use of by-product at the destination site.
 - The notified material is suitable for use in the restoration of the quarry.

This summary example illustrates that all the by-product conditions were met.

Case Study 3

5,000 tonnes of soil and stone excavated in the preparation of a housing development site. The excavated soil and stone was to be used in the construction of a roadway.

- Use is certain, the plans for the destination site identified a specific need for imported soil and stone.
- No processing of the notified material is required, the notified material is uncontaminated soil and stone.
- The notified material is produced as an integral part of the development works.
- Use is lawful:
 - Plans associated with the destination site identified the need to import soil & stone,
 - Environmental Impact Assessment (EIA) and Appropriate Assessment (AA) has been completed by the planning consenting authority for the use of by-product at the destination site. The volume of notified material is within the volume considered in the EIA.
 - The notified material is suitable for the intended use and meets the engineering specification for use in the construction of the roadway.

This summary example illustrates that all the by-product conditions were met.

Environmental Protection Agency 2019

Disclaimer

Although all reasonable efforts have been made to ensure the accuracy of the material contained in this publication, complete accuracy cannot be guaranteed. Neither the Environmental Protection Agency nor the author(s) accept any responsibility whatsoever for loss or damage occasioned or claimed to have been occasioned, in part or in full, as a consequence of any person acting, or refraining from acting, as a result of a matter contained in this publication.

Any interpretation contained in this guidance note simply constitutes what is intended to be a helpful summary. This note is not, and is not intended in any way, to be a substitute for legal advice.



Appendix D
End of Waste (EoW)
Directive

End-of-Waste — Guidance Document

Part 1: Introducing End-of-Waste



ENVIRONMENTAL PROTECTION AGENCY

The Environmental Protection Agency (EPA) is responsible for protecting and improving the environment as a valuable asset for the people of Ireland. We are committed to protecting people and the environment from the harmful effects of radiation and pollution.

The work of the EPA can be divided into three main areas:

Regulation: *We implement effective regulation and environmental compliance systems to deliver good environmental outcomes and target those who don't comply.*

Knowledge: *We provide high quality, targeted and timely environmental data, information and assessment to inform decision making at all levels.*

Advocacy: *We work with others to advocate for a clean, productive and well protected environment and for sustainable environmental behaviour.*

Our Responsibilities

Licensing

We regulate the following activities so that they do not endanger human health or harm the environment:

- waste facilities (e.g. landfills, incinerators, waste transfer stations);
- large scale industrial activities (e.g. pharmaceutical, cement manufacturing, power plants);
- intensive agriculture (e.g. pigs, poultry);
- the contained use and controlled release of Genetically Modified Organisms (GMOs);
- sources of ionising radiation (e.g. x-ray and radiotherapy equipment, industrial sources);
- large petrol storage facilities;
- waste water discharges;
- dumping at sea activities.

National Environmental Enforcement

- Conducting an annual programme of audits and inspections of EPA licensed facilities.
- Overseeing local authorities' environmental protection responsibilities.
- Supervising the supply of drinking water by public water suppliers.
- Working with local authorities and other agencies to tackle environmental crime by coordinating a national enforcement network, targeting offenders and overseeing remediation.
- Enforcing Regulations such as Waste Electrical and Electronic Equipment (WEEE), Restriction of Hazardous Substances (RoHS) and substances that deplete the ozone layer.
- Prosecuting those who flout environmental law and damage the environment.

Water Management

- Monitoring and reporting on the quality of rivers, lakes, transitional and coastal waters of Ireland and groundwaters; measuring water levels and river flows.
- National coordination and oversight of the Water Framework Directive.
- Monitoring and reporting on Bathing Water Quality.

Monitoring, Analysing and Reporting on the Environment

- Monitoring air quality and implementing the EU Clean Air for Europe (CAFE) Directive.
- Independent reporting to inform decision making by national and local government (e.g. *periodic reporting on the State of Ireland's Environment and Indicator Reports*).

Regulating Ireland's Greenhouse Gas Emissions

- Preparing Ireland's greenhouse gas inventories and projections.
- Implementing the Emissions Trading Directive, for over 100 of the largest producers of carbon dioxide in Ireland.

Environmental Research and Development

- Funding environmental research to identify pressures, inform policy and provide solutions in the areas of climate, water and sustainability.

Strategic Environmental Assessment

- Assessing the impact of proposed plans and programmes on the Irish environment (e.g. *major development plans*).

Radiological Protection

- Monitoring radiation levels, assessing exposure of people in Ireland to ionising radiation.
- Assisting in developing national plans for emergencies arising from nuclear accidents.
- Monitoring developments abroad relating to nuclear installations and radiological safety.
- Providing, or overseeing the provision of, specialist radiation protection services.

Guidance, Accessible Information and Education

- Providing advice and guidance to industry and the public on environmental and radiological protection topics.
- Providing timely and easily accessible environmental information to encourage public participation in environmental decision-making (e.g. *My Local Environment, Radon Maps*).
- Advising Government on matters relating to radiological safety and emergency response.
- Developing a National Hazardous Waste Management Plan to prevent and manage hazardous waste.

Awareness Raising and Behavioural Change

- Generating greater environmental awareness and influencing positive behavioural change by supporting businesses, communities and householders to become more resource efficient.
- Promoting radon testing in homes and workplaces and encouraging remediation where necessary.

Management and Structure of the EPA

The EPA is managed by a full time Board, consisting of a Director General and five Directors. The work is carried out across five Offices:

- Office of Environmental Sustainability
- Office of Environmental Enforcement
- Office of Evidence and Assessment
- Office of Radiation Protection and Environmental Monitoring
- Office of Communications and Corporate Services

The EPA is assisted by an Advisory Committee of twelve members who meet regularly to discuss issues of concern and provide advice to the Board.



End-of-Waste
Guidance Document
Part 1: Introducing End-of-Waste

Environmental Protection Agency

Published May 2020

© Environmental Protection Agency 2020

Disclaimer

Although every effort has been made to ensure the accuracy of the material contained in this publication, complete accuracy cannot be guaranteed. Neither the Environmental Protection Agency nor the author accepts any responsibility whatsoever for loss or damage occasioned or claimed to have been occasioned, in part or in full, as a consequence of any person acting, or refraining from acting, as a result of a matter contained in this publication. All or part of this publication may be reproduced without further permission, provided the source is acknowledged.

Acknowledgements

This guidance was prepared by Ricardo Energy and Environment, Kate Clark (EPA) and Caitríona Collins (EPA), with the assistance of Caroline Murphy (EPA) and Fiona Berry (EPA)

ISBN 978-1-84095-902-4

Table of Contents

PART 1: Introducing End-of-Waste	1
1. Introduction to this Guidance Document	1
1.1 Structure	1
1.2 Purpose	1
1.3 Policy and Strategy Context	2
1.3.1 Ireland's Waste Management Policy	2
1.3.2 European Waste and Resource Strategy	2
1.4 Useful References	3
2. Introduction to End-of-Waste	5
2.1 The Concept of End-of-Waste	5
2.1.1 Definition of Waste	6
2.2 Potential Benefits of Achieving End-of-Waste Status	6
2.3 The Agency's Decision-Making Process and Scrutiny	7
2.3.1 The Importance of Scrutiny	7
2.3.2 The Decision-Making Process	7
3. The End-of-Waste Test in Law	8
3.1 The Overall End-of-Waste Test	8
3.2 Summary of Relevant Law	8
3.2.1 Introduction	8
3.2.2 European Article 6 of the Waste Framework Directive – End-of-Waste Status	9
3.2.4 Amendments to the Waste Framework Directive	10
3.3 Approaches to Establishing End-of-Waste Criteria	10
3.3.1 Community Level Criteria	10
3.3.2 Member State Level Criteria	11
3.3.3 Case-specific Criteria	12
4. Introducing the 'Pillars' of the End-of-Waste Test	13
4.1 Introduction	13
4.2 The Material is Commonly Used for a Specific Purpose	13
4.3 A Market or Demand Exists for the Material	14
4.4 The Material Fulfils the Technical Requirements for the Specific Purpose	14
4.5 The Material can be Used Without Causing Overall Adverse Environmental or Human Health Impacts	15
Appendix 1: Article 28 (S.I. No. 126 of 2011)	17

DRAFT

PART 1: Introducing End-of-Waste

1. Introduction to this Guidance Document

1.1 Structure

Part 1: Introducing End-of-Waste: Describing the context and benefits and introducing the end-of-waste test to potential applicants ([this document](#)).

Part 2: Preparing an End-of-Waste Application: Providing guidance for applicants on how to address the requirements of the end-of-waste test ([separate document](#)).

Should you need to contact the Agency in relation to end-of-waste, your queries should be directed via email to article28@epa.ie.

1.2 Purpose

Uncertainty over the point at which waste has been 'fully recovered', and ceases to be classified as waste, has inhibited the development and marketing of waste-derived materials that could be used beneficially without damaging human health and the environment. This can in turn inhibit the recovery and recycling of waste and its diversion from landfill and other disposal routes. National legislation (please refer to section 3.2.3) sets out the requirements on how to achieve end-of-waste status, supporting the beneficial use of waste derived materials, consistent with the concept of a circular economy (please refer to section 1.3).

This document provides guidance on the law and what to consider when deciding whether to apply for end-of-waste status (Part 1). If you decide that it is appropriate to apply for end-of-waste status, this guide (along with Part 2) will support you to make a good quality application that will enable the Agency to make a decision on end-of-waste status.

Good quality applications are critical. Your application is the basis of an important regulatory decision that requires detailed scrutiny. Above all, the Agency must ensure that by making a decision to grant end-of-waste status this will not lead to adverse impacts on human health and the environment. To enable this, you must provide the Agency with a comprehensive understanding of your material, its intended use and sufficient evidence that no overall adverse impacts to human health or pollution will occur.

The guidance represents a commitment from the Agency to provide clarity to applicants on the requirements for case-by-case and national end-of-waste decisions in Ireland, to reduce iterations of applications and to speed up the process. This guidance is intended to support:

- ▲ Applications by individual companies relating to a waste material that they generate and/or accumulate for subsequent recovery and sale or use as a 'product'. Any resulting end-of-waste decision will be for the benefit of the applicant company only; and
- ▲ Applications by industry organisations and/or groups of companies for a national end-of-waste position relating to a waste material that arises from various sources and is subsequently recovered for sale or use as a 'product'. Any resulting end-of-waste decision is for the benefit of the industry as a whole.

Further details on these types of end-of-waste applications are provided in section 3.3.

In general terms, a substance, material or object that is not classified as a waste (or ceases to be classified as a waste) is classified as a 'product'. The term 'product' is used in this document to describe something that has ceased to be classified as a waste. Legislation and guidance may refer to other terms for materials that have ceased to be waste such as 'secondary' products or materials. These terms should be considered to have the same meaning in this document.

The guidance provides advice that is relevant to any applicant and any material. It is not tailored to any specific material types or industry sectors.

The Agency anticipates that applicants will submit end-of-waste applications for individual, distinct waste materials. This will help to facilitate the assessment of applications by the Agency. It is possible that applicants will consider making a single combined end-of-waste application for more than one waste type that it considers are closely related. The Agency would urge caution in this approach, however in any such case the application must clearly establish the similarities and differences between the waste types with clear evidence that sets out the validity of a combined approach. Early engagement with the Agency is recommended in this situation. This guidance document focuses on applications for individual waste types and it will also help applicants to consider the suitability of combined applications for closely related waste types.

1.3 Policy and Strategy Context

The opportunity to define the point at which a waste ceases to be classified as waste, thereby facilitating its recovery and recycling, is consistent with the national waste policy and the European waste and resources strategy. The following summarises the content of relevant policy and strategy documents to establish the context for end-of-waste.

1.3.1 Ireland's Waste Management Policy

Ireland's current policy "*A Resource Opportunity – Waste management policy in Ireland*", was published by the Department of the Environment, Community and Local Government in July 2012¹. The Agency anticipates that a revised policy will be published in 2020. Please refer to the website of the Department of Communications, Climate Action and Environment² for updates and, in due course, for a revised policy.

The 2012 policy sets out a roadmap, predicated on the EU waste hierarchy, on how Ireland will move away from an over dependence on landfill and become a recycling society. This includes maximising the resources that can be recovered from waste. The policy recognises the role of the legal framework for end-of-waste to facilitate recycling and recovery activities in the transition to a recycling society.

<https://www.epa.ie/waste/policy/>

1 https://www.epa.ie/pubs/reports/waste/plans/Resource_Opportunity2012.pdf

2 www.dccae.gov.ie

1.3.2 European Waste and Resource Strategy

- ▲ The European Commission's "*Thematic Strategy on the Prevention and Recycling of Waste*" set a long-term goal for the EU to become a recycling society that seeks to avoid waste and uses waste that is generated as a resource.
<https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52011DC0013&from=EN>
- ▲ "*Closing the loop - An EU action plan for the Circular Economy*" (2015), seeks to boost the market for secondary raw materials by committing to developing EU-wide secondary raw material standards and clarifying rules on end-of-waste.
<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52015DC0614>
- ▲ The European Commission's 2019 report "on the implementation of the Circular Economy Action Plan", sets out actions to support end-of-waste, including a new Fertilising Products regulation with criteria for fertilisers manufactured from bio-waste.
<https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1551871195772&uri=CELEX:52019DC0190>
- ▲ The European Commission's 2019 report "A Circular Economy for Plastics", includes a policy recommendation to establish end-of-waste criteria for plastics.
<https://op.europa.eu/en/publication-detail/-/publication/33251cf9-3b0b-11e9-8d04-01aa75ed71a1/language-en/format-PDF/source-87705298>

1.4 Useful References

A number of general reference sources on end-of-waste are provided below. Further reference sources that are relevant to the issues described in more detail within this document are provided within the text.

European Commission website, Directive 2008/98/EC on waste (Waste Framework Directive).

<https://ec.europa.eu/environment/waste/framework/>

European Commission website, Waste Framework Directive, end-of-waste criteria.

https://ec.europa.eu/environment/waste/framework/end_of_waste.htm

"Guidance on the interpretation of key provisions of Directive 2008/98/EC on waste", European Commission Directorate-General Environment, June 2012 (not legally binding).

https://ec.europa.eu/environment/waste/framework/pdf/guidance_doc.pdf

"End-of-Waste Criteria", Final Report, European Commission Joint Research Centre Institute for Prospective Technological Studies, 2009 ("JRC report").

<https://publications.jrc.ec.europa.eu/repository/bitstream/JRC53238/jrc53238.pdf>

"Guidance on the legal definition of waste and its application", Department for Environment, Food and Rural Affairs (Defra), August 2012.

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69590/pb13813-waste-legal-def-guide.pdf

"Study on the selection of waste streams for End of Waste assessment", Final Report, European Commission Joint Research Centre Institute for Prospective Technological Studies, 2009.

https://susproc.jrc.ec.europa.eu/documents/SelectionofwastestreamsforEoW-FinalReport13_02_2009.pdf

2. INTRODUCTION TO END-OF-WASTE

2.1 The Concept of End-of-Waste

The concept of end-of-waste was established in the European Waste Framework Directive 2008/98/EC³ (Waste Framework Directive). The legal framework is designed to:

- ▲ improve the environmental performance of recycled products by encouraging businesses to produce recycled products that conform to defined environmental criteria; and
- ▲ reduce unnecessary burdens, including the regulatory burden, for low-risk recycling activities.

End-of-waste gives the opportunity for waste holders to demonstrate, with an appropriate level of rigour, that:

- ▲ they can ‘fully recover’ a waste material so that it no longer needs to be defined as waste because it has been processed to the point that it has intrinsic value and is unlikely to be discarded;
- ▲ that the waste can therefore be used as a ‘secondary’ resource in place of, and fulfilling the same role as, a non-waste derived or virgin ‘primary’ resource; and
- ▲ the fully recovered material can be used without causing overall adverse impacts to the environment or human health.

What does ‘fully recovered’ mean?

‘Fully recovered’ is a term used in this document to emphasise the appropriate level of processing to support an end-of-waste application. ‘Fully’ recovered helps to define the point at which a waste can potentially be considered to have ceased to be waste, when no further treatment or quality/verification testing is necessary prior to its use.

Recovery is defined in the Waste Framework Directive as (Article 3(15)):

“Recovery’ means 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 (‘R’) operations. These include, for example, R 12 and R 13, which in general terms relate to the storage and pre-processing of waste before *another* recovery operation takes place. Such ‘preliminary’ operations support recovery but do not represent an appropriate level of waste treatment in the context of end-of-waste. Separately, R 10 and R 11 refer to the use of waste, which is not relevant to an end-of-waste application, the purpose of which is to bring forward the point at which a material ceases to be waste from its point of use.

Therefore, the separate term ‘fully recovered’ is used to describe a suitable point at which:

- ▲ the waste has been completely recovered, having undergone its ‘ultimate’ recovery operation and does not need any further treatment before it is ready for use; and,
- ▲ the recovery operation has generated a substance that can be placed back on the market for commercial use.

3 <https://ec.europa.eu/environment/waste/framework/>

The overall intended benefit of end-of-waste is to facilitate the recovery of waste thereby diverting waste from disposal. End-of-waste moves the management of waste up the EU waste hierarchy of options in terms of environmental sustainability and retains the materials in use as a resource, in-line with the concept of a circular economy.

It is important to recognise that waste regulation plays an important role to protect people and the environment from harm and to safeguard natural resources. End-of-waste is consistent with the principles of good regulation and it is predicated on achieving the same safeguards. End-of-waste criteria specify all of the requirements that have to be fulfilled by a material derived from waste to ensure that its use will not be detrimental to human health or the environment and that it is of sufficient quality to realise an economic benefit, supporting a sustainable market.

2.1.1 Definition of Waste

Relevant to defining the point at which material ceases to be waste is understanding the point at which materials are first defined as becoming a waste. Waste has been defined by legislation for over 30 years and is embedded in the Waste Framework Directive as (Article 3(1)):

“Waste’ means any substance or object which the holder discards or intends or is required to discard”.

Once a substance or object becomes waste, something usually needs to be done to it in order for it to cease to be waste. This may occur if the waste has been ‘fully recovered’ by undertaking treatment to remove waste-related risks.

2.2 Potential Benefits of Achieving End-of-Waste Status

Significant benefits may be realised by industry, society and the regulator from achieving end-of-waste status. On the other hand, if waste material is used inappropriately, it can potentially cause an adverse effect on the environment or human health. Robust end-of-waste decisions help Ireland to deliver on its waste management policy commitments and support environmental sustainability objectives by encouraging greater recovery and recycling of waste for beneficial use, thereby benefitting the environment and society as a whole.

The use of waste-derived materials reduces the need to exploit primary resources. This can reduce local environmental impacts, such as amenity impacts arising from quarrying and refining, and global environmental impacts, including greenhouse gas emissions.

Industry can equally benefit through reduced administrative burdens of managing waste and can benefit commercially whilst helping to remove quality waste materials from the scope of waste legislation:

- ▲ End-of-waste status creates positive perceptions of recovered materials by removing the waste ‘stigma’ that can deter potential customers. This in turn creates the environment to develop and market materials produced from waste that can be used beneficially without damaging human health and the environment.
- ▲ Positive perceptions support the development of sustainable secondary markets for, and confidence in, recovered secondary materials. This supports their economic value, allowing industry to further innovate in new products derived from waste and therefore further increasing the beneficial use of waste.

Importantly, demonstrating that a material has been fully recovered and meets the specified end-of-waste criteria allows it to be marketed for use as a product on an equal footing to non-waste derived products.

2.3 The Agency’s Decision-Making Process and Scrutiny

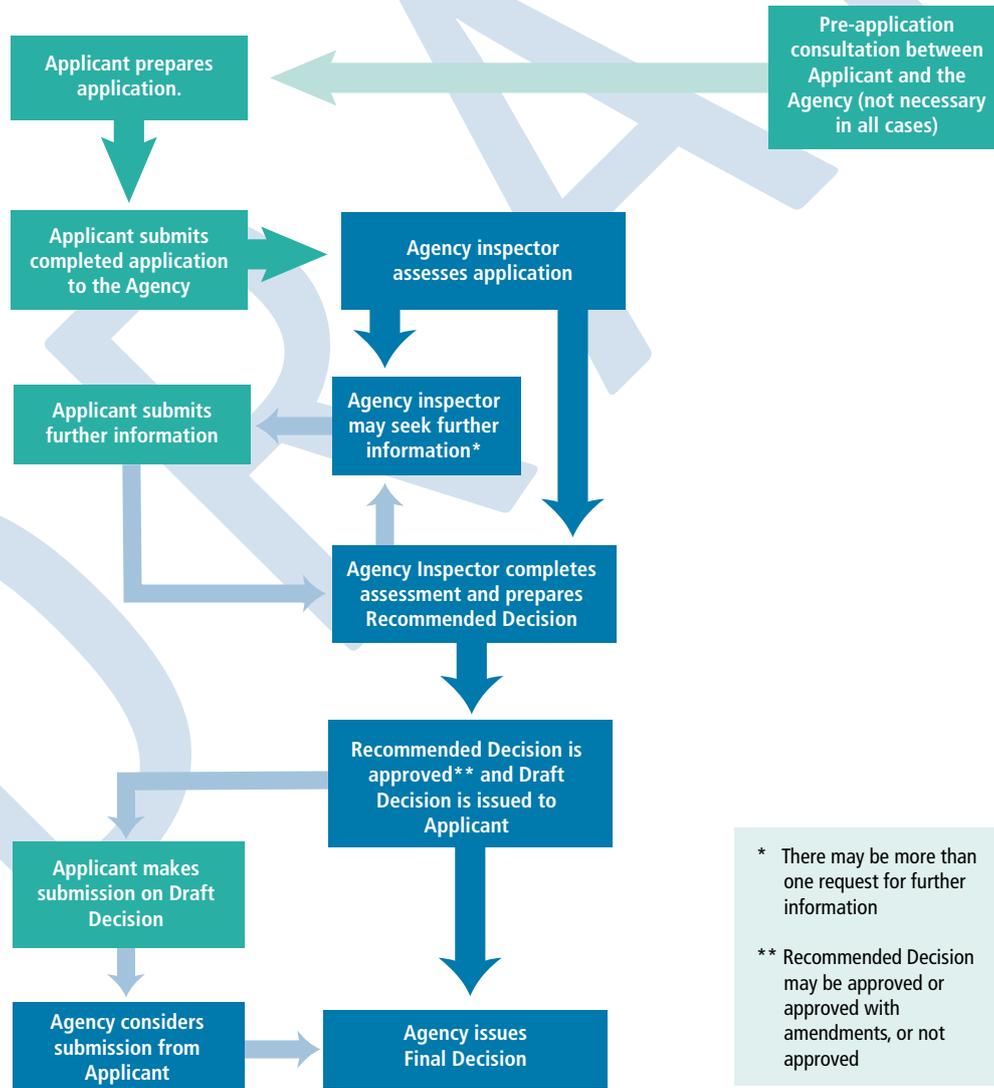
2.3.1 The Importance of Scrutiny

It is important to note that the end-of-waste test represents a high bar. This is necessary as an end-of-waste decision, by definition, results in a waste falling outside of waste regulatory control. It is therefore essential that the Agency is presented with a robust case that allows it to fully understand the risks and mitigations and gives it confidence to make a decision.

The Agency’s decision-making process ensures that human health and the environment are protected, as well as ensuring a level playing field for operators. A wrong decision that results in the use of material as a product, but which causes an overall adverse impact on human health and the environment, can damage the reputation of the wider industry and the Agency, and can severely impact confidence in secondary materials. Building market confidence in secondary markets takes time, destroying that confidence can happen rapidly and have long-lasting consequences.

2.3.2 The Decision-Making Process

The Agency will assess an application for an end-of-waste decision taking a risk-based approach, which is an iterative process.



3. THE END-OF-WASTE TEST IN LAW

3.1 The Overall End-of-Waste Test

The holder of a waste must satisfy the Agency that it has converted the waste material into a distinct, marketable product, which can be used in the same way as the non-waste material that it replaces, and with no overall adverse environmental or human health effects.

The waste holder must make a comprehensive, evidence-based application to the Agency to enable it to fully understand:

- ▲ what the waste is;
- ▲ how it arises;
- ▲ how it is treated;
- ▲ how it can be defined as ‘fully recovered’, including stating what standards⁴, technical specifications⁵ and non-waste regulations are applicable to the end product;
- ▲ how it is used; and
- ▲ how it is proven that such use can occur without any overall adverse environmental or human health effects.

3.2 Summary of Relevant Law

3.2.1 Introduction

The starting point for an end-of-waste test must be a material that is defined as a waste. If a material is defined as a waste, it cannot cease to be classified as a waste until it is fully recovered and meets the requirements of the end-of-waste test.

On the other hand, a by-product is not classified as waste in the first place and has a different legal definition. Therefore, an end-of-waste test is neither appropriate nor required. Article 27 of the European Communities (Waste Directive) Regulations 2011, S.I. No. 126 of 2011 (implementing Article 5 of the Waste Framework Directive) sets out the main conditions which must be met for a substance or object to be classified as a by-product. The Agency has published separate guidance on by-products that you should refer to if you think that your material could be a by-product⁶.

3.2.2 European Article 6 of the Waste Framework Directive – End-of-Waste Status

Article 6 of the Waste Framework Directive specifies a provision by which certain specified waste shall cease to be waste, that is, that it can be given non-waste status and fall outside the scope of waste legislation, when it:

- 4 *"A technical specification approved by a recognised [international, European or national] standardisation body for repeated or continuous application, with which compliance is not compulsory".* (Reference Directive 98/34/EC of the European Parliament and of the Council of 22 June 1998). <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CONSLEG:1998L0034:20070101:EN:PDF>.
- 5 *A specification contained in a document which lays down the characteristics required of a product such as levels of quality, performance, safety or dimensions, including the requirements applicable to the product as regards the name under which the product is sold, terminology, symbols, testing and test methods, packaging, marking or labelling and conformity assessment procedures."* (Reference Directive 98/34/EC of the European Parliament and of the Council of 22 June 1998). <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CONSLEG:1998L0034:20070101:EN:PDF>.
- 6 <https://www.epa.ie/waste/wastereg/byprod/>

- ▲ “has undergone a recovery, including recycling, operation and”
- ▲ “complies with specific [end-of-waste] criteria to be developed in accordance with the following conditions:
 - “the substance or object is commonly used for specific purposes”; and
 - “a market or demand exists for such a substance or object”; and
 - “the substance or object fulfils the technical requirements for the specific purposes and meets the existing legislation and standards applicable to products”; and
 - “the use of the substance or object will not lead to overall adverse environmental or human health impacts.”⁷

The completion of a recovery operation (reaching the point at which waste has been ‘fully recovered’) may therefore be considered as the moment that a useful input for further processing or direct use, which does not pose any waste-specific risks to human health and the environment, is available. This is the end-of-waste point. The concept of end-of-waste is therefore closely linked to the point at which a recovery process is completed (please also refer to section 2.1) and the two occur simultaneously.

Article 3(15) of the Waste Framework Directive defines a recovery operation or process as one where “the principal result” is: a material is serving a useful purpose by substituting another material(s) (paraphrased); and may be considered to be a situation where a waste material is being prepared in such a way that it no longer involves waste-related risks and is ready to be used as a raw material in other processes.

Annex II of the Waste Framework Directive provides a non-exhaustive list of recovery operations. For the avoidance of doubt, recovery includes the sub-categories preparing for re-use and recycling (refer also to the explanation of ‘fully recovered’ in section 2.1).

3.2.3 The Law on End-of-Waste in Ireland

European Communities (Waste Directive) Regulations 2011, S.I. No. 126 of 2011⁸ Article 28 End-of-waste status (“Article 28”) (refer to Appendix 1) adopts Article 6 of the Waste Framework Directive into national legislation. From this point forward, this document focuses solely on Article 28.

Article 28(1)(a) sets out four conditions, all of which must be met to achieve end-of-waste status. These are the ‘pillars’ of the end-of-waste test. These directly transpose the conditions set out in Article 6 of the Waste Framework Directive (explained above) and are described in more detail later in this document (section 4).

3.2.4 Amendments to the Waste Framework Directive

Directive (EU) 2018/851⁹ amends the Waste Framework Directive, which is due to be transposed into Irish Law in mid-2020. Although the principles and concepts of end-of-waste are not altered in the amending Directive, applicants should be aware of potential future changes to the law on end-of-waste in Ireland once the amending Directive has been transposed into Irish law.

⁷ Quoted as per Article 6 of *Directive 2008/98/EC*. Note Article 6 has been amended under *Directive (EU) 2018/851* and shall be transposed into Irish law in due course.

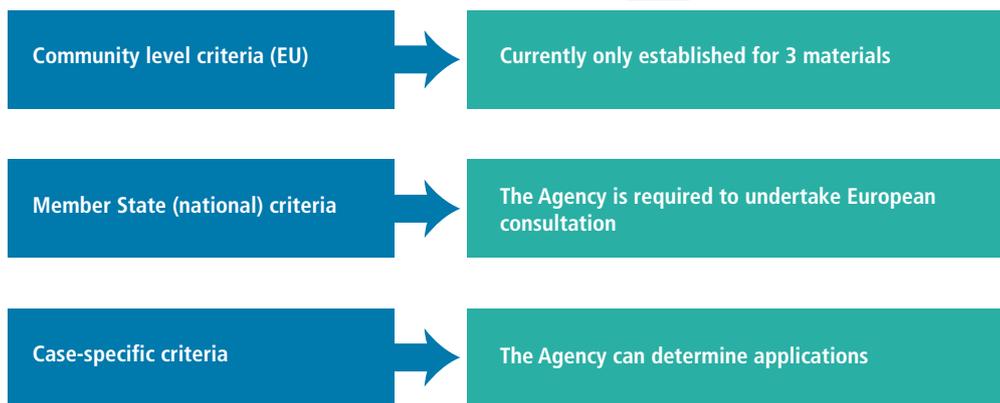
⁸ <https://www.epa.ie/pubs/legislation/waste/licpermit/europeancommunitieswastedirectiveregulations2011.html>

⁹ <http://www.legislation.gov.uk/eudr/2018/851>

3.3 Approaches to Establishing End-of-Waste Criteria

End-of-waste criteria are material specific, as each material will have different characteristics, risks and intended uses. Criteria also need to be defined for each intended use as the risks may be different.

If you intend to market your fully recovered material (product) outside Ireland, you need to understand the rules that apply in the countries that represent your market. If you are meeting the requirements of Community Level Criteria, this provides certainty that you can market your fully recovered material as a non-waste product in other Member States and that waste regulations do not apply in any Member State.



However, if you are meeting the requirements of Member State level criteria or case-specific criteria agreed by the Agency, although your material may have ceased to be waste in Ireland, the country of destination may take a different view. If the competent authority in the country of destination considers the material to be waste, the shipment will be subject to the controls set out in the Waste Shipments Regulation (EC No. 1013/2006). Before exporting such material, it is therefore prudent to check with the competent authority for the country of destination. A list of the competent authorities in the European Union is available¹⁰.

3.3.1 Community Level Criteria

For certain specified waste streams (for example, glass and metal), end-of-waste criteria can be set at EU level. Once set, the criteria apply throughout the European Community and are binding for Member States. Member States cannot apply different end-of-waste provisions for the same scope of the criteria, unless they are more stringent. In this context, ‘more stringent’ should be interpreted as offering a greater level of protection to human health or the environment.

European Commission end-of-waste criteria have currently been established for the following three materials, for which EU Regulations setting out the criteria have been established.

- ▲ glass cullet¹¹

¹⁰ "List of Competent Authorities", 4 December 2017, European Commission Directorate-General for Environment. https://ec.europa.eu/environment/waste/shipments/pdf/list_competent_authorities.pdf

¹¹ "Commission Regulation (EU) No 1179/2012 of 10 December 2012 establishing criteria determining when glass cullet ceases to be waste under Directive 2008/98/EC of the European Parliament and of the Council". <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2012:337:0031:0036:EN:PDF>

- ▲ copper scrap¹²; and
- ▲ iron, steel and aluminium scrap¹³.

Community level end-of-waste criteria for biodegradable waste subjected to biological treatment (compost & anaerobic digestate) have been proposed for some time. At the present time, applicants seeking end-of-waste classification for fertilisers in Ireland must submit an application to the Agency. Consideration of the Fertilising Product Regulation¹⁴ may be useful to inform any such applications. The Regulation sets out criteria covering safety, quality and labelling that all fertiliser products must meet so that they can be freely traded throughout the EU. The Regulation sets out criteria for fertilising products (compost and digestate) derived from bio-waste. The Regulation also defines quality requirements for specific materials for the production of fertilisers, soil improvers and growing media.

3.3.2 Member State Level Criteria

Where no Community level end-of-waste criteria have been set, Member States may decide at a national level whether certain waste has ceased to be waste when used in designated markets, taking into account applicable case law. Such 'generic' end-of-waste criteria apply within one Member State only. This type of approach may arise in Ireland in either of the following circumstances:

- ▲ An industry organisation and/or a group of companies, potentially working with relevant stakeholders, applies for an end-of-waste decision for specific uses of a waste material, or more than one closely related waste-derived materials, for an entire sector and for the benefit of all parties operating within it. The Agency encourages this approach, which it considers can efficiently deliver the objectives of a circular economy (please refer to section 1.3). The guidance provided in this document is relevant for this type of end-of-waste application as well as applications for case-specific criteria.
- ▲ The Agency leads on establishing end-of-waste criteria for specific uses of a waste material, or more than one closely related waste-derived materials, for an entire sector and for the benefit of all parties operating within that sector. The Agency would collaborate with the industry and other relevant stakeholders. The Agency does not currently have plans to lead on establishing any 'generic' end-of-waste criteria.

Please refer to section 3.3.3 for a description of case-specific end-of-waste criteria that are developed by individual companies exclusively for their own benefit.

In either of the above circumstances, the Agency is required to notify the Minister and relevant standardisation bodies in Ireland (National Standards Authority of Ireland, NSAI) and Europe (European Committee for Standardisation, CEN) and undergo a consultation process.

12 "Commission Regulation (EU) No 715/2013 of 25 July 2013 establishing criteria determining when copper scrap ceases to be waste under Directive 2008/98/EC of the European Parliament and of the Council".

<https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:201:0014:0020:EN:PDF>

13 "Council Regulation (EU) No 333/2011 of 31 March 2011 establishing criteria determining when certain types of scrap metal cease to be waste under Directive 2008/98/EC of the European Parliament and of the Council". <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32011R0333&from=EN>

14 "Regulation (EU) 2019/1009 of the European Parliament and of the Council of 5 June 2019 laying down rules on the making available on the market of EU fertilising products and amending Regulations (EC) No 1069/2009 and (EC) No 1107/2009 and repealing Regulation (EC) No 2003/2003". <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:L:2019:170:FULL&from=EN>

European law also requires Member States to notify the Commission so that it can check that the proposed end-of-waste criteria do not impact on the functioning of the European Internal Market. It is important to note that the consultation process can be lengthy.

3.3.2.1 Member State Level Criteria in the United Kingdom

In Northern Ireland, England and Wales, a number of end-of-waste Quality Protocols (“QPs”) apply, setting out generic end-of-waste criteria for a range of wastes in specific end uses¹⁵. QPs are ‘frameworks’ that set out industry-wide end-of-waste criteria for specific materials in designated (risk assessed) markets and end uses.

The QPs do not apply in Ireland and applicants cannot claim to have met the requirements of the end-of-waste test by stating that they meet the requirements of a QP. This includes, for example, that the underpinning risk and market assessments would not account for the specific circumstances in Ireland. However, companies in Ireland may find the QPs informative as ‘case studies’ where they have been published for materials and end uses of interest (for example to refer to the end uses and applied product standards). Applicants choosing to refer to QPs should note they are subject to periodic review and may be amended or potentially withdrawn.

3.3.3 Case-specific Criteria

Where no Community or Member State level end-of-waste criteria have been set, case-specific criteria can be defined that apply to the applicant’s position only. Applications can be submitted to the Agency, which will then decide on whether end-of-waste status has been demonstrated.

Such end-of-waste decisions are for the benefit of the applicant company only and applicants can be assured that the Agency will not ‘adopt’ such end-of-waste criteria into national decisions for the benefit of others. Applicants can decide to develop a case-specific application with another company, however in view of the level of detail required in an application, the Agency does not foresee that combined applications will be frequent.

Individual applicants must make a case-specific end-of-waste assessment and propose their own end-of-waste criteria relating to a specific waste type of defined origin, undergoing a specific recovery process and achieving the requirements of target material specifications, technical standards and legislation, for a specified end use(s) that has been risk assessed.

The Agency is not required to notify Irish or European standardisation bodies, nor is it required to undergo a consultation process in relation to case-by-case end-of-waste decisions. Further, European law does not require single-case decisions to be notified to the Commission to check any impact on the functioning of the European Internal Market, even if they have been based on general administrative provisions at a Member State level.

15 <https://www.gov.uk/government/collections/quality-protocols-end-of-waste-frameworks-for-waste-derived-products>

4. INTRODUCING THE 'PILLARS' OF THE END-OF-WASTE TEST

4.1 Introduction

In order to achieve end-of-waste status, all four 'pillars' of the end-of-waste test (representing the conditions in Article 28 para (1)(a)) must be met:

- ▲ the substance or object is commonly **used for specific purposes**; and
- ▲ a **market or demand exists** for such a substance or object; and
- ▲ the substance or object **fulfils the technical requirements for the specific purposes** and meets the existing legislation and standards applicable to products; and
- ▲ the use of the substance or object **will not lead to overall adverse environmental or human health impacts**.

An overriding requirement is that the material must have undergone a recovery operation. Evidence referring to the recovery process must therefore be provided, as well as evidence of meeting the 'pillars' of the test.

Underpinning all four 'pillars' are the following criteria that applicants need to refer to when providing evidence of meeting each 'pillar' (reference Article 28 (1) (b)):

- ▲ include limit values for pollutants where necessary; and
- ▲ take into account any possible adverse environmental effects of the substance or object.

The following briefly summarises what is required by each pillar of the end-of-waste test. If you chose to proceed with an end-of-waste application, detailed guidance to help you demonstrate how you meet the requirements of each pillar of the test is provided in Part 2.

4.2 The Material is Commonly Used for a Specific Purpose

Article 28 (1) (a) (i). Refer to Part 2, section 3 for detailed guidance.

This pillar relates to a precondition that the fully recovered material is already used for a specific purpose. To address this, you need to outline what the product is, its intended use(s) and specification(s). This pillar specifically seeks to ascertain the actual use(s) of the recovered material and establish its potential to substitute alternative primary materials in such applications.

Details of the quality of the material and assessment of the market is addressed in other pillars of the test. Analysis of potential uses is required to help assess the market or demand (section 4.3), identify the relevant technical specifications (section 4.4) and consider potential risks to human health and the environment from the specific use (exposure) scenarios (section 4.5). Therefore, it is important to explain the use(s) in some detail to set the context of the overall end-of-waste application.

In terms of potential human health and environmental risks, details of the use(s) are crucial. For example, if the material is returned to a manufacturing process (e.g. glass cullet) or applied directly in the environment (e.g. as a fertiliser) its use is likely to be regulated by other legislation, including non-waste legislation. This legislation may already provide human health and environmental protection, which may help the end-of-waste case.

It would be helpful at this stage to quantify the amounts of the alternative primary materials that are used for the same purpose (e.g. kg per year) to clearly evidence 'common use'.

If the recovered material is not yet used for a specific purpose, you may still be able to prepare an end-of-waste application. In this case you should instead set out the potential (intended) use(s) of the recovered material. You should still identify what primary material(s) is in common use in the intended application(s) and will be replaced, as well as relevant product specification(s) to support its use.

4.3 A Market or Demand Exists for the Material

Article 28 (1) (a) (ii). Refer to Part 2, section 4 for detailed guidance.

You need to provide evidence to address the legal test that a market or demand exists for the substance or object, i.e. there are firmly established market conditions. To do this you must demonstrate that the material has been **converted into a distinct and marketable product(s)** (linked to section 4.4) that **has a sustainable market(s)**. This pillar of the test is made up of these two distinct but closely related elements. The pillar allows you to demonstrate that you have processed the waste to the point that it is 'fully recovered' and no longer needs to be defined as waste because:

- ▲ it has intrinsic value and is unlikely to be discarded; and
- ▲ is distinctly different to the waste such that the waste-related risks have been removed.

Demonstrating conversion into a distinct and marketable product(s) requires a full understanding of:

- ▲ the waste before the recovery process;
- ▲ the recovery process itself, including any emissions and process waste streams; and
- ▲ the fully recovered material.

Demonstrating that a sustainable market exists requires an analysis of the market for the identified uses over a relevant timeframe (including future demand and supply projections and market risks) and consideration of why the market is secure and sustainable.

4.4 The Material Fulfils the Technical Requirements for the Specific Purpose

Article 28 (1) (a) (iii). Refer to Part 2, section 5 for detailed guidance.

This pillar represents part of the end-of-waste test relating to product quality. The other part is set out in section 4.5 and the relationship between them is shown in Figure 1.

You need to provide evidence to address the legal test that the fully recovered substance or object:

- ▲ fulfils the technical requirements for the specified use(s), which should relate to existing, published standards that are applicable to products; and
- ▲ meets the existing legislation and standard(s) applicable to products.

If you have more than one intended use for the recovered material, you need to provide details of them all, including the technical requirements (hereafter the term is used to convey all relevant standards, specifications and legislation) that relate to each use. You can also present relevant customer specifications that your material is required to meet.

This should allow you to demonstrate that the material meets some form of quality standard meaning that it can be **used in the same way as the non-waste material it replaces**. This links closely to demonstrating the size of the market (section 4.3), that is, evidence that a sustainable market exists is also a good indicator that the material is fulfilling the technical requirements and meeting customer expectations.

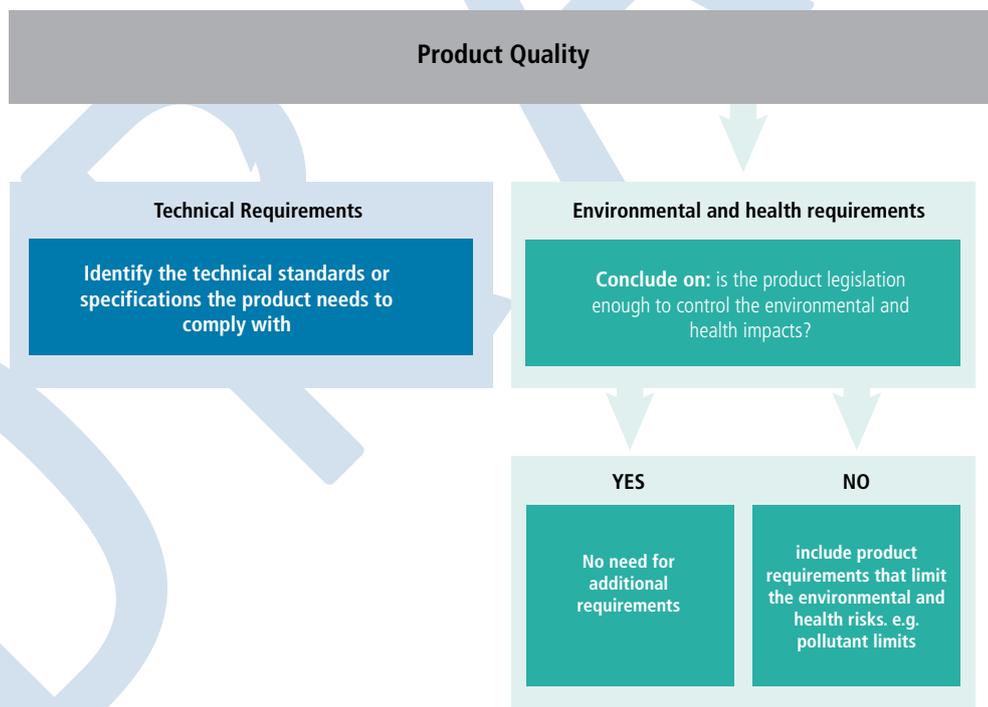
4.5 The Material can be Used Without Causing Overall Adverse Environmental or Human Health Impacts

Article 28 (1) (a) (iv). Refer to Part 2, section 6 for detailed guidance.

This pillar represents part of the end-of-waste test relating to product quality. The other part is set out in section 4.4 and the relationship between them is shown in Figure 1.

You need to provide evidence to address the legal test that the use of the substance or object will not lead to overall adverse environmental or human health impacts. You should consider this pillar as ‘the acid test’; a key element of the whole methodology is to avoid proposals for end-of-waste criteria with overall adverse human health and environmental impacts and preferably to reduce the impacts compared to using alternative primary materials.

Figure 1: The product quality pillars of the end-of-waste test (source: JRC report, 2009)



Your assessment should consider impacts that are both:

- ▲ **Direct** – caused by the direct interaction of a substance with the environment, e.g. leaching of a pollutant from a substance (e.g. aggregate or fertiliser) into soil, groundwater or surface water within which it is in contact; and

- ▲ **Indirect** – ‘secondary’ or ‘tertiary’ impacts that may arise via a complex pathway or chain of events, e.g. a human health impact caused by the ingestion of milk that is contaminated by a substance that leached into the soil and was taken up by plants and subsequently ingested by grazing animals.

Direct and indirect human health and environmental impacts arising from the use of a substance in a certain application can be influenced, for example, by introducing pollutant (concentration) limits for components in the material composition (referred to in Figure 1). Concentration limits may change, for example, as a result of a change in the regulatory controls that apply to a material after it achieves end-of-waste status, by switching from waste to non-waste (‘product’) related controls. If such limits are not available, or are assessed as being inadequate, a risk assessment can also be used to define appropriate concentration limits for components in a material in a defined application. These limits can be translated into end-of-waste criteria (please refer to Part 2, section 7). Risk assessments are described in more detail in Part 2, section 6.2.

A good approach is to risk assess all impacts and compare an ‘end-of-waste scenario’ with a ‘do nothing’ scenario. Detailed guidance is provided in Part 2, section 6, but in general terms you can gather evidence that the use of the fully recovered waste-derived material will not cause overall adverse impacts by:

- ▲ Providing evidence that the product legislation (applicable if end-of-waste is achieved) provides at least equivalent human health and environmental protection to the waste legislation that otherwise applies;
- ▲ Providing evidence that using the waste-derived material will not lead to greater environmental or human health impacts compared to the non-waste derived material it replaces (the ‘comparator’); and
- ▲ Undertaking a human health and environmental risk assessment. A good practice approach is to apply a source-pathway-receptor approach based on a conceptual model of each use scenario.

If the material will be stored before use to facilitate such use (e.g. temporary stockpiling prior to a large construction project or awaiting a suitable time for land spreading) provide evidence that the material will not cause overall adverse environmental or human health impacts during such storage.

Appendix 1: Article 28 (S.I. No. 126 of 2011)

End-of-waste status

28. (1) (a) Certain specified waste shall cease to be waste when it has undergone a recovery, including recycling, operation and complies with specific criteria to be developed in accordance with the following conditions:
- (i) the substance or object is commonly used for specific purposes;
 - (ii) a market or demand exists for such a substance or object;
 - (iii) the substance or object fulfils the technical requirements for the specific purposes and meets the existing legislation and standards applicable to products; and
 - (iv) the use of the substance or object will not lead to overall adverse environmental or human health impacts.
- (b) The criteria referred to in subparagraph (a) shall—
- (i) include limit values for pollutants where necessary, and
 - (ii) take into account any possible adverse environmental effects of the substance or object.
- (2) Waste which ceases to be waste in accordance with subparagraph (1) shall by virtue of that cesser also cease to be waste for the purpose of the recovery and recycling targets set out in—
- (a) Directive 94/62/EC, Directive 2000/53/EC of the European Parliament and of the Council of 18 September 2000¹² on end-of-life vehicles, Directive 2002/96/EC of the European Parliament and of the Council of 27 January 2003¹³ on waste electrical and electronic equipment (WEEE) and Directive 2006/66/EC of the European Parliament and of the Council of 6 September 2006¹⁴ on batteries and accumulators and waste batteries and accumulators and repealing Directive 91/157/EEC, and
- (b) other relevant Community acts when the recycling or recovery requirements of those acts are satisfied.
- (3) (a) Where criteria have not been set at Community level as referred to in paragraphs 1 and 2 of Article 6 of the Waste Directive, the Agency may decide case by case whether certain waste has ceased to be waste in accordance with the criteria set out in paragraph (1) taking into account the applicable case law.
- (b) The Agency shall notify the Minister and the standardisation bodies referred to in Directive 98/34/EC of the European Parliament and of the Council of 22 June 1998¹⁵ laying down a procedure for the provision of information in the field of technical standards and regulations and of rules on Information Society services, of any such decision where so required by that Directive, who shall notify the Commission.

AN GHNÍOMHAIREACTH UM CHAOMHNÚ COMHSHAOIL

Tá an Gníomhaireacht um Chaomhnú Comhshaoil (GCC) freagrach as an gcomhshaoil a chaomhnú agus a fheabhsú mar shócmhainn luachmhar do mhuintir na hÉireann. Táimid tiomanta do dhaoine agus don chomhshaoil a chosaint ar thionchar díobhálach na radaíochta agus an truaillithe.

Is féidir obair na Gníomhaireachta a roinnt ina trí phríomhréimse:

Rialáil: Déanaimid córais éifeachtacha rialaithe agus comhlíonta comhshaoil a chur i bhfeidhm chun torthaí maíthe comhshaoil a sholáthar agus chun déileáil leo siúd nach gcloíonn leis na córais sin.

Eolas: Soláthraimid sonraí, faisnéis agus measúnú comhshaoil atá ar ardchaighdeán, spriocdhírthe agus tráthúil chun bonn eolais a chur faoin gcinnteoireacht ar gach leibhéal.

Abhcóideacht: Bímid ag saothrú i gcomhar le grúpaí eile chun tacú le comhshaoil atá glan, táirgiúil agus cosanta go maith, agus le hiompar a chuirfidh le comhshaoil inbhuanaithe.

Ár bhFreagrachtaí

Ceadúnú

Déanaimid na gníomhaíochtaí seo a leanas a rialú ionas nach ndéanann siad dochar do shláinte an phobail ná don chomhshaoil:

- saoráidí dramhaíola (*m.sh. láithreáin líonta talún, loisceoirí, stáisiúin aistrithe dramhaíola*);
- gníomhaíochtaí tionsclaíocha ar scála mór (*m.sh. déantúsaíocht cógaisíochta, déantúsaíocht stroighne, stáisiúin chumhachta*);
- an diantalmhaíocht (*m.sh. muca, éanlaith*);
- úsáid ghlanscartha agus scaoileadh rialaithe Orgánach Géinmhodhnaithe (*OGManna*);
- foinsí radaíochta ianúcháin (*m.sh. trealamh x-gha agus radaiteiripe, foinsí tionsclaíocha*);
- áiseanna móra stórála peitрил;
- doirtí fuíolluisce;
- gníomhaíochtaí dumpála ar farraige.

Forfheidhmiú Náisiúnta i leith Cúrsaí Comhshaoil

- Clár náisiúnta iniúchtaí agus cigireachtaí a dhéanamh gach bliain ar shaoráidí a bhfuil ceadúnas ón nGníomhaireacht acu.
- Maoirseacht a dhéanamh ar fhreagrachtaí cosanta comhshaoil na n-údarás áitiúil.
- Caighdeán an uisce óil, arna sholáthar ag soláthraithe uisce phoiblí, a mhaoirsiú.
- Obair le húdarais áitiúla agus gníomhaireachtaí eile chun dul i ngleic le coireacht chomhshaoil trí chomhordú a dhéanamh ar líonra forfheidhmiúcháin náisiúnta, díriú ar chiontóirí, agus maoirsiú a dhéanamh ar fheabhsúcháin.
- Rialacháin maidir le Dramhthrealamh Leictreach agus Leictreonach (WEEE), le Srian ar Shubstaintí Guaiseacha (RoHS) agus ar shubstaintí ídionn an císeal ózóin.
- An dlí a chur orthu siúd a bhreiseann dlí an chomhshaoil agus a dhéanann dochar don chomhshaoil.

Bainistíocht Uisce

- Monatóireacht agus tuairisciú a dhéanamh ar cháilíocht aibhneacha, lochanna, uisce idirchreasa agus cósta na hÉireann, agus screamhuiscí; leibhéal uisce agus sruthanna aibhneacha a thomhas.
- Comhordú náisiúnta agus maoirsiú a dhéanamh ar an gCreat-Treoir Uisce.
- Monatóireacht agus tuairisciú a dhéanamh ar Cháilíocht an Uisce Snámha.

Monatóireacht, Anailís agus Tuairisciú ar an gComhshaoil

- Monatóireacht a dhéanamh ar cháilíocht an aeir agus Treoir an AE maidir le hAer Glan don Eoraip (CAFÉ) a chur chun feidhme.
- Tuairisciú neamhspleách le cabhrú le cinnteoireacht an rialtais náisiúnta agus áitiúil (*m.sh. tuairisciú tréimhsiúil ar Staid Chomhshaoil na hÉireann agus Tuarascálacha ar Tháscairí*).

Rialú Astaíochtaí na nGás Ceaptha Teasa in Éirinn

- Fardail agus réamh-mheastacháin na hÉireann maidir le gás ceaptha teasa a ullmhú.
- An Treoir maidir le Trádáil Astaíochtaí a chur chun feidhme i gcomhair breis agus 100 de na táirgeoirí dé-ocsaíde carbóin is mó in Éirinn.

Taighde agus Forbairt Comhshaoil

- Taighde comhshaoil a chistiú chun brúnna a shainaithint, bonn eolais a chur faoi bheartais, agus réitigh a sholáthar i réimsí na haeráide, an uisce agus na hinbhuanaitheachta.

Measúntachtaí Straitéisí Comhshaoil

- Measúnacht a dhéanamh ar thionchar pleananna agus clár beartaithe ar an gcomhshaoil in Éirinn (*m.sh. mórfheananna forbartha*).

Cosaint Raideolaíoch

- Monatóireacht a dhéanamh ar leibhéal radaíochta, agus measúnacht a dhéanamh ar an oiread is atá muintir na hÉireann gan chosaint ar an radaíocht ianúcháin.
- Cabhrú le pleananna náisiúnta a fhorbairt le haghaidh éigeandálaí ag eascairt as taimí núicléacha.
- Monatóireacht a dhéanamh ar fhorbairtí thar lear a bhaineann le saoráidí núicléacha agus leis an tsábháilteacht raideolaíochta.
- Sainseirbhísí cosanta ar an radaíocht a sholáthar, nó maoirsiú a dhéanamh ar sholáthar na seirbhísí sin.

Treoir, Faisnéis Inrochtana agus Oideachas

- Comhairle agus treoir a chur ar fáil d'earnáil na tionsclaíochta agus don phobal maidir le hábhair a bhaineann le caomhnú an chomhshaoil agus leis an gcosaint raideolaíoch.
- Eolas tráthúil agus inrochtana faoin gcomhshaoil a chur ar fáil chun an pobal a spreagadh páirt a ghlacadh i gcinnteoireacht chomhshaoil (*m.sh. Mo Thimpeallacht Áitiúil, Léarscáileanna Radóin*).
- Comhairle a chur ar fáil don Rialtas maidir le hábhair a bhaineann leis an tsábháilteacht raideolaíoch agus le cúrsaí práinnfhreagartha.
- Plean Náisiúnta Bainistíochta Dramhaíola Guaisí a fhorbairt chun dramhaíl ghuaiseach a chosc agus a bhainistiú.

Múscailt Feasachta agus Athrú Iompraíochta

- Feasacht chomhshaoil níos fearr a ghiniúint agus dul i bhfeidhm ar athrú iompraíochta dearfach trí thacú le gnóthais, le pobail agus le teaghlaigh a bheith níos éifeachtúla ar acmhainní.
- Tástáil le haghaidh radóin a chur chun cinn i dtithe agus in ionaid oibre, agus gníomhartha leasúcháin a spreagadh nuair is gá.

Bainistíocht agus Struchtúr GCC

Tá an gníomhaireacht á bainistiú ag Bord lánaimseartha, ar a bhfuil Ard-Stiúrthóir agus cúigear Stiúrthóirí. Déantar an obair ar fud cúig cinn d'Oifigí:

- An Oifig um Inbhuanaitheacht Comhshaoil
- An Oifig Forfheidhmithe i leith Cúrsaí Comhshaoil
- An Oifig um Fhianaise agus Measúnú
- An Oifig um Chosaint Radaíochta agus Monatóireacht Chomhshaoil
- An Oifig Cumarsáide agus Seirbhísí Corparáideacha

Tá Coiste Comhairleach ag an nGníomhaireacht le cabhrú léi. Tá dáréag comhaltaí air agus tagann siad le chéile go rialta le plé a dhéanamh ar ábhair inní agus le comhairle a chur ar an mBord.



Headquarters

**PO Box 3000,
Johnstown Castle Estate
County Wexford, Ireland**

**T: +353 53 916 0600
F: +353 53 916 0699
E: info@epa.ie
W: www.epa.ie
LoCall: 1890 33 55 99**

Regional Inspectorate

McCumiskey House,
Richview, Clonskeagh Road,
Dublin 14, Ireland

**T: +353 1 268 0100
F: +353 1 268 0199**

Regional Inspectorate

Inniscarra, County Cork,
Ireland

**T: +353 21 487 5540
F: +353 21 487 5545**

Regional Inspectorate

Seville Lodge, Callan Road,
Kilkenny, Ireland

**T +353 56 779 6700
F +353 56 779 6798**

Regional Inspectorate

John Moore Road, Castlebar
County Mayo, Ireland

**T +353 94 904 8400
F +353 94 902 1934**

Regional Inspectorate

The Glen, Monaghan, Ireland

**T +353 47 77600
F +353 47 84987**

Regional Offices

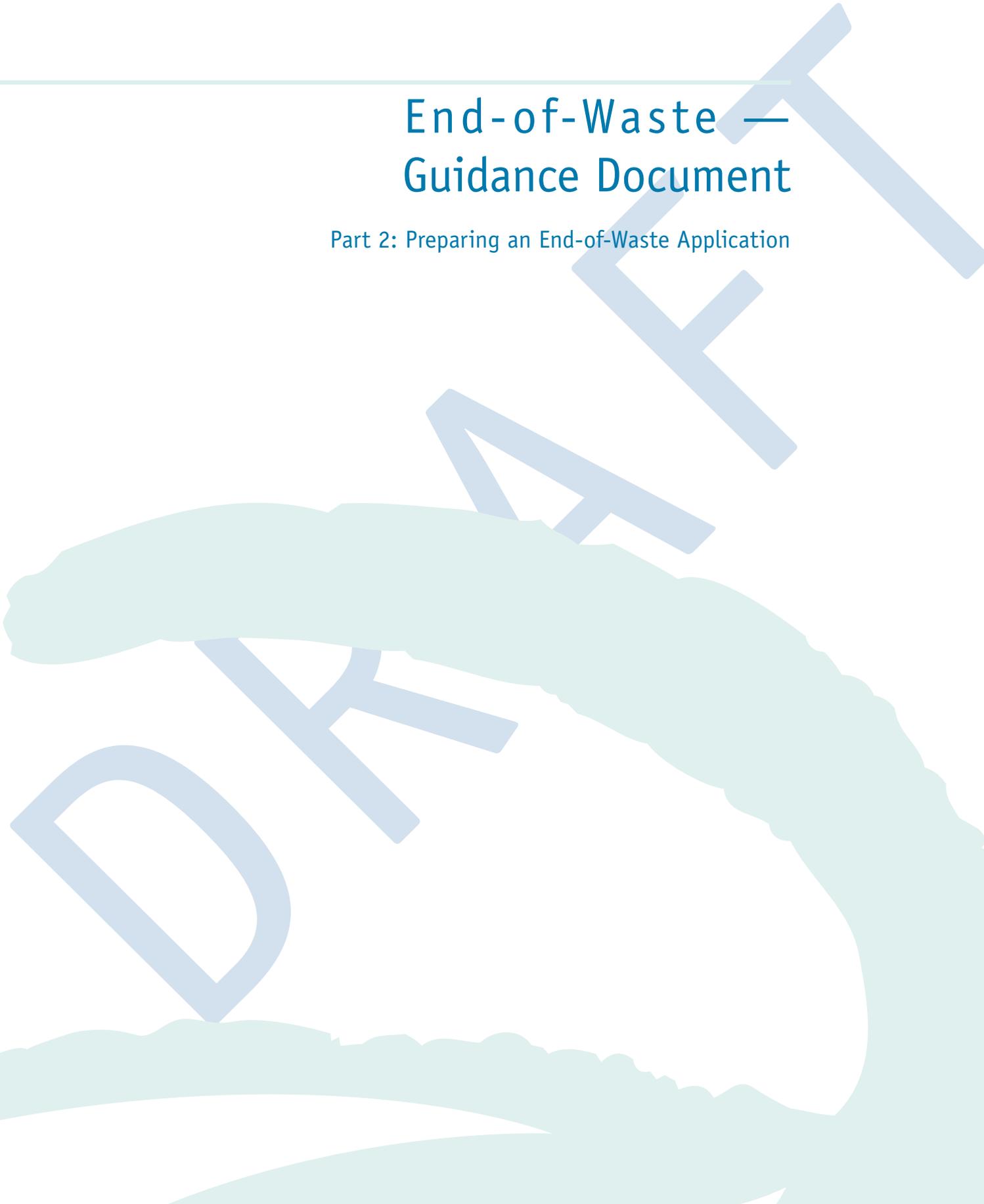
The Civic Centre
Church St., Athlone
Co. Westmeath, Ireland
T +353 906 475722

Room 3, Raheen Conference Centre,
Pearse House, Pearse Road
Raheen Business Park, Limerick,
Ireland
T +353 61 224764



End-of-Waste — Guidance Document

Part 2: Preparing an End-of-Waste Application



ENVIRONMENTAL PROTECTION AGENCY

The Environmental Protection Agency (EPA) is responsible for protecting and improving the environment as a valuable asset for the people of Ireland. We are committed to protecting people and the environment from the harmful effects of radiation and pollution.

The work of the EPA can be divided into three main areas:

Regulation: *We implement effective regulation and environmental compliance systems to deliver good environmental outcomes and target those who don't comply.*

Knowledge: *We provide high quality, targeted and timely environmental data, information and assessment to inform decision making at all levels.*

Advocacy: *We work with others to advocate for a clean, productive and well protected environment and for sustainable environmental behaviour.*

Our Responsibilities

Licensing

We regulate the following activities so that they do not endanger human health or harm the environment:

- waste facilities (e.g. landfills, incinerators, waste transfer stations);
- large scale industrial activities (e.g. pharmaceutical, cement manufacturing, power plants);
- intensive agriculture (e.g. pigs, poultry);
- the contained use and controlled release of Genetically Modified Organisms (GMOs);
- sources of ionising radiation (e.g. x-ray and radiotherapy equipment, industrial sources);
- large petrol storage facilities;
- waste water discharges;
- dumping at sea activities.

National Environmental Enforcement

- Conducting an annual programme of audits and inspections of EPA licensed facilities.
- Overseeing local authorities' environmental protection responsibilities.
- Supervising the supply of drinking water by public water suppliers.
- Working with local authorities and other agencies to tackle environmental crime by coordinating a national enforcement network, targeting offenders and overseeing remediation.
- Enforcing Regulations such as Waste Electrical and Electronic Equipment (WEEE), Restriction of Hazardous Substances (RoHS) and substances that deplete the ozone layer.
- Prosecuting those who flout environmental law and damage the environment.

Water Management

- Monitoring and reporting on the quality of rivers, lakes, transitional and coastal waters of Ireland and groundwaters; measuring water levels and river flows.
- National coordination and oversight of the Water Framework Directive.
- Monitoring and reporting on Bathing Water Quality.

Monitoring, Analysing and Reporting on the Environment

- Monitoring air quality and implementing the EU Clean Air for Europe (CAFE) Directive.
- Independent reporting to inform decision making by national and local government (e.g. *periodic reporting on the State of Ireland's Environment and Indicator Reports*).

Regulating Ireland's Greenhouse Gas Emissions

- Preparing Ireland's greenhouse gas inventories and projections.
- Implementing the Emissions Trading Directive, for over 100 of the largest producers of carbon dioxide in Ireland.

Environmental Research and Development

- Funding environmental research to identify pressures, inform policy and provide solutions in the areas of climate, water and sustainability.

Strategic Environmental Assessment

- Assessing the impact of proposed plans and programmes on the Irish environment (e.g. *major development plans*).

Radiological Protection

- Monitoring radiation levels, assessing exposure of people in Ireland to ionising radiation.
- Assisting in developing national plans for emergencies arising from nuclear accidents.
- Monitoring developments abroad relating to nuclear installations and radiological safety.
- Providing, or overseeing the provision of, specialist radiation protection services.

Guidance, Accessible Information and Education

- Providing advice and guidance to industry and the public on environmental and radiological protection topics.
- Providing timely and easily accessible environmental information to encourage public participation in environmental decision-making (e.g. *My Local Environment, Radon Maps*).
- Advising Government on matters relating to radiological safety and emergency response.
- Developing a National Hazardous Waste Management Plan to prevent and manage hazardous waste.

Awareness Raising and Behavioural Change

- Generating greater environmental awareness and influencing positive behavioural change by supporting businesses, communities and householders to become more resource efficient.
- Promoting radon testing in homes and workplaces and encouraging remediation where necessary.

Management and Structure of the EPA

The EPA is managed by a full time Board, consisting of a Director General and five Directors. The work is carried out across five Offices:

- Office of Environmental Sustainability
- Office of Environmental Enforcement
- Office of Evidence and Assessment
- Office of Radiation Protection and Environmental Monitoring
- Office of Communications and Corporate Services

The EPA is assisted by an Advisory Committee of twelve members who meet regularly to discuss issues of concern and provide advice to the Board.

A large, light gray graphic element on the left side of the page, resembling a stylized letter 'C' or a bracket. It has rounded corners and a vertical stem. A smaller, dark purple graphic element is attached to the right side of the vertical stem, pointing towards the text.

Appendix C
End of Waste (EoW)
Directive



End-of-Waste

Guidance Document

Part 2 - Preparing an End-of-Waste Application

Environmental Protection Agency

Published May 2020

© Environmental Protection Agency 2020

Disclaimer

Although every effort has been made to ensure the accuracy of the material contained in this publication, complete accuracy cannot be guaranteed. Neither the Environmental Protection Agency nor the author accepts any responsibility whatsoever for loss or damage occasioned or claimed to have been occasioned, in part or in full, as a consequence of any person acting, or refraining from acting, as a result of a matter contained in this publication. All or part of this publication may be reproduced without further permission, provided the source is acknowledged.

Acknowledgements

This guidance was prepared by Ricardo Energy and Environment, Kate Clark (EPA) and Caitríona Collins (EPA), with the assistance of Caroline Murphy (EPA) and Fiona Berry (EPA).

ISBN 978-1-84095-904-8

Table of Contents

PART 2: Preparing an End-of-Waste Application	1
1. Introduction to this Guidance Document	1
1.1 Structure	1
2. Background Information	2
3. Demonstrating Common Use for a Specific Purpose	3
3.1 Storing Fully Recovered Material	3
4. Demonstrating that a Market or Demand Exists	5
4.1 Part 1: Waste is Converted into a Distinct and Marketable Product	5
4.2 Part 2: Fully Recovered Waste has a Sustainable Market	8
5. Demonstrating Material Fulfils Technical Requirements	10
5.1 Introduction	10
5.2 Selecting Relevant Technical Requirements	11
5.3 Developing Bespoke Technical Requirements	11
5.4 Providing Evidence of Compliance with Technical Requirements	12
6. Demonstrating no Overall Adverse Impacts During Use	13
6.1 Introduction	13
6.2 Undertaking an Environmental and Human Health Risk Assessment	15
7. Proposing End-of-Waste Criteria	22
8. Demonstrating Ongoing Compliance	23
8.1 Monitoring Compliance	23
8.2 Product Regulations	23
9. Other Useful Information	25
9.1 Identifying and Protecting Confidential Information	25
9.2 Common Mistakes	26
9.3 Things to Remember	27

DRAFT

PART 2: Preparing an End-of-Waste Application

1. Introduction to this Guidance Document

1.1 Structure

Part 1: Introducing End-of-Waste: Describing the context and benefits and introducing the end-of-waste test to potential applicants ([separate document](#)).

Part 2: Preparing an End-of-Waste Application: Providing guidance for applicants on how to address the requirements of the end-of-waste test ([this document](#)).

Please refer to Part 1 in parallel. Part 1 provides an explanation of the overall purpose of this guidance, together with an introduction to end-of-waste and review of the strategy and policy context; explanation of the end-of-waste test in law; description of approaches to establishing end-of-waste criteria; review of the decision making process; and an introduction to the 'pillars' of the end-of-waste test, which are described in further detail in this Part 2.

This Part 2 seeks to help you to compile your application in order to demonstrate that you meet the four pillars of the end-of-waste test in turn. The evidence required to prove that you meet each pillar is likely to overlap. If you have evidence that supports your application for more than one pillar of the test you can present this as a separate appendix and cross-reference this as appropriate to limit duplication. Please note that this Part 2 should be considered together with the [end-of-waste application form](#) and is intended to help you complete it.

To make an application to the Agency for a decision on end-of-waste status submit a completed application form and any supporting information to the Agency via email to article28@epa.ie.

2. BACKGROUND INFORMATION

It is first necessary to capture some general details about the applicant's business. This information will allow the Agency to understand the nature of your business, your rationale for seeking an end-of-waste decision and the overall activities undertaken from which the fully recovered material is derived. This provides a valuable context for the Agency to assess your overall application.

Your application should include background information on the material, including:

- ▲ Details of your business. Including:
 - company name and registered address;
 - address(es) of the premises at which the recovery process will take place (if different to the registered address);
 - lead contact name for the end-of-waste application;
 - summary of business activities; and
 - source(s) of the waste being treated (e.g. imported from another site(s) within or outside of the Republic of Ireland or arising at the same premises).
- ▲ Details of the relevant waste licence(s) or waste facility permit(s) or Certificates of Registration (CoRs) relating to the location(s) at which the material will be fully recovered. Note that the material will always be managed and regulated as a waste up to the point that it has been fully recovered (assuming that it has also at that point satisfied all the requirements of the end-of-waste test). Please remember to explain:
 - in relation to your site(s) at which the waste is recovered:
 - your waste acceptance criteria (including those within the waste licence(s), waste facility permit(s) or CoRs and any criteria that are additional);
 - whether the waste licence(s), waste facility permit(s) or CoRs have been subject to any variations and whether you intend to apply for any such variations; and
 - compliance history, i.e. whether the activities have been or are subject to any investigation or enforcement activities by the Agency;
 - if the waste is generated elsewhere, in relation to those sites:
 - if the waste arises at 3 or fewer locations, provide details for those sites; or
 - if the waste arises at more than 3 locations, or the locations vary (e.g. are not consistent month-to-month), describe how you select facilities from which you source waste.
- ▲ Please provide a summary of the benefits that you hope to gain from an end-of-waste decision.

3. DEMONSTRATING COMMON USE FOR A SPECIFIC PURPOSE

The first of the four 'pillars' of the end-of-waste test requires you to demonstrate that the material, once fully recovered, is commonly used for a specific purpose(s).

Your application should outline details of the 'product' that you will generate from the fully recovered waste. It should detail its current and/or intended use(s) and specification(s) that it will meet (further details required are explained in section 4).

You firstly need to explain if your fully recovered material will become a final product to be placed on the market for direct application (e.g. a secondary aggregate or fuel), or if it will be supplied as a raw material for another manufacturing process(es). This will help the Agency to consider the risks associated with the use of the material (please refer also to section 6). If the fully recovered material will be a raw material, you need to explain what that later manufacturing process(es) involves, for example your application should summarise the later manufacturing process and the ultimate market for the product(s) that is derived from the raw material that you supply.

If you have numerous or complicated use scenarios, you can describe these in your risk assessment (refer to section 6) and should cross-reference them.

Whether or not your fully recovered material will be a raw material or destined for direct application, at this stage you need to explain either:

- ▲ how the fully recovered material is already being used for the intended use(s), for example:
 - that specifications or standards are already in place and what these are;
 - the quantity of alternative primary materials that are used for the same purpose (e.g. kg per year);
 - whether you are being paid a verifiable market price for the material and how this price relates to the current market price for primary material for the same use (noting that this suggested information refers to relative price points not absolute material pricing; this is addressed further in section 4);
 - letters of support referring to the suitability of, and demand for, the material from customers or potentially a third party that has undertaken market analysis;

or

- ▲ in cases where the market does not already exist because your intended application is new, how do you intend that the fully recovered material will be used; in this case, you will need to justify your response, for example summarising outcomes of the product development process.

3.1 Storing Fully Recovered Material

The Agency cannot regulate, and does not seek to regulate, the use of a material that has ceased to be a waste. Therefore, applicants need to give the Agency absolute confidence that the material has a market and will be used. Therefore, the material will not be stockpiled with a risk of eventually reverting to being classified as a waste, with the liabilities that this entails.

The applicant should set out any requirements and controls relating to storage of the fully recovered material. Storage is acceptable only if it is necessary to facilitate the stated end use, for example in a market governed by large-scale projects (e.g. construction sector) or with cyclical or seasonal demand (e.g. agriculture).

If storage is required over and above that which the Agency considers is necessary or justifiable to facilitate the intended application, the Agency may interpret this to mean a common usage has not yet been established. If you consider that your storage requirements require further explanation, please provide further details.

DRAFT

4. DEMONSTRATING THAT A MARKET OR DEMAND EXISTS

If a market does not exist, or if this cannot be established with confidence, there is a risk that the material might either still be classified as waste or that it could later revert to being classified as a waste if it becomes necessary to discard the material. Avoiding this risk is important to protect human health and the environment. This guidance aims to help you to demonstrate that a market exists and is sub-divided into the following distinct but closely related elements:

- ▲ the material has been **converted into a distinct and marketable product(s)**, being distinctly different to the waste such that the waste-related risks have been removed (section 4.1); and
- ▲ the material **has a sustainable market(s)**, demonstrating its value as a product (section 4.2).

4.1 Part 1: Waste is Converted into a Distinct and Marketable Product

Understanding your waste before and after treatment and recovery is important to give the Agency confidence in your application. This enables the Agency to understand how you have converted the original waste into a distinctly different and valuable product without its original waste characteristics and risks.

Therefore, your application should include details of your untreated waste, as well as the fully recovered material, and the process that you use to treat the waste. Providing a copy of your quality control procedures describing operations at your facility can help your application. If your application is successful, it would be good practice to establish these controls in your management systems to confirm that you will continue to fulfil the end-of-waste quality requirements. Whilst quality assurance schemes cannot guarantee the quality of an end product, they can assure consistency of the applied processes throughout the production chain. This will help to give the Agency confidence that you will continue to produce a consistent, distinct and marketable product.

The sources of the waste, and any processing that the waste has undergone previously, should be described as these may affect its composition and consistency. Providing detailed information on waste sources may help to reduce the need to submit further information later in the application process. For example, if you can demonstrate that you apply procedures to control the quality and variability of waste before it even reaches your site you may be able to justify reduced testing of the fully recovered material.

Ensuring that the material meets some sort of quality standard can demonstrate that it can access a specific market. All established standards for the product need to be identified and recorded. It is likely that the product will need to be tested to demonstrate compliance with the applicable quality standard. In each case the legal and geographical basis for the standard should be noted, for example, internationally agreed standards and specifications may vary by country and affect the available markets.

Data will be required to cover the following aspects. As every circumstance is different, this list is intended as a guide and you may want to supplement this information with further evidence specific to your case.

4.1.1 About the Untreated Waste

- ▲ Describe how the waste arises, including the waste source(s) or production process(es) generating the waste.
- ▲ Describe the waste and its List of Waste (European Waste Classification (EWC)) code(s)¹.
- ▲ Describe potential contamination in the input waste and whether this can impact on the output material. This is important to identify any potential hazards within the input material and whether these can be adequately controlled in some way during processing operations to ensure the required product quality.
- ▲ If you generate the waste on your premises, describe the process that generates the waste. This can include diagrams and photos to help in your explanation:
 - Raw material inputs;
 - Process flow; and
 - Waste analysis.
- ▲ If you receive waste at your premises that is imported from third parties, describe your quality control measures:
 - Your Waste Acceptance Criteria (WAC).
 - Your management systems, incoming waste inspection, rejection and testing procedures.
 - Confirmation of the source(s) of the waste, such as:
 - Where has the waste come from?;
 - What is it derived from?;
 - How does it arise?; and
 - Will you use any non-waste materials in your process as well? If so, what and how much?
 - Do you accept the waste from any potential source or only from defined or pre-determined (e.g. contracted) sources? If the latter, this can provide greater confidence in the consistency of process inputs and your level of control over them. Other details to provide include:
 - Details of the source and your waste supply chain;
 - Details of your waste supply contracts and how you enforce them;
 - You should visit the supplier site(s) and ensure you know what you are getting; and,
 - Whether you periodically audit companies in your waste supply chain e.g.:
 - their licences, permits and CoRs, including WAC (if relevant);
 - their regulatory compliance history (if relevant);
 - their management systems; and
 - details of your auditing procedures (including outcomes, frequency, responses to non-compliances).

¹ "Waste Classification. List of Waste & Determining if Waste is Hazardous or Non-hazardous. Valid from 1st June 2015", 2015, ISBN: 978-1-84095-601-6, Environmental Protection Agency. https://www.epa.ie/pubs/reports/waste/stats/wasteclassification/EPA_Waste_Classification_2015_Web.pdf

If you require analysis of the incoming waste to be undertaken by the supplier(s), or if you undertake this yourself, you can use this to provide evidence of its consistency. You might find this useful, for example if it helps you to explain how you control the treatment process or if this reduces the need for you to analyse the fully recovered material. In this case, you should provide details of the testing undertaken and evidence that it can be relied on. More details of how you can do this are provided in section 4.1.3.

4.1.2 About your Recovery Process

Following waste being accepted at your site, you then need to provide details of the waste treatment (recovery) process. The operations undertaken to fully recover the waste (please refer to Part 1, section 2.1) should be detailed and how these remove the waste-related risks. This could be a simple one step process, for example applying cleaning or separation techniques, or simply checking (e.g. testing) waste to verify that it fulfils the end-of-waste criteria (reference Waste Framework Directive Recital 22) or it could be an extensive processing operation. Regardless of the operations, the following details should be provided:

- ▲ Process flow, including identifying the point at which you consider the material ceases to be a waste. This is where you believe that the waste is 'fully recovered';
- ▲ Description of the equipment used to process the waste and its role in the recovery process;
- ▲ Details of any non-waste products and process additives into the recovery process;
- ▲ A simple mass balance; how much waste is required to generate the product?; and
- ▲ The target output material (product) specification.

4.1.3 About the Fully Recovered Waste

A detailed analysis of the fully recovered waste ('product') is vital and should include its composition, range and variability. A sampling plan must be developed to confirm the analysis suite and its derivation. This is important so that you can demonstrate that the product can comply with the relevant product specification(s) or end user (customer) specification(s). Analysis should cover the following:

- ▲ Technical product requirements (e.g. strength, particle size distribution); and
- ▲ Composition requirements (e.g. maximum concentration of a chemical constituent).

Depending on your material, you will not only need solid and/or liquid samples but also leachate samples e.g. for aggregate use. The tests must be appropriate to the intended use of the material (e.g. with aggregate, whether the intended application is bound or unbound; refer to section 6).

To ensure that representative samples are taken, they should conform to a recognised standard, such as the relevant waste or product sampling procedures, for example:

- ▲ EN 14899:2005 (Waste materials; and supporting technical guidance CEN/TR 15310);
- ▲ EN 932-1:1997 (Aggregates);
- ▲ EN 15442:2011 (Solid recovered fuels); or
- ▲ EN 14778:2011 (Solid biofuels).

The details of the analytical laboratory should also be provided, such as its name, address and quality certification (e.g. Irish National Accreditation Board (INAB), United Kingdom Accreditation Service (UKAS), ISO/IEC 17025:2005). The analytical data should:

- ▲ Cover an appropriate timeframe of waste production (e.g. taking into account any potential variability over time);
- ▲ Include test methods and limits of detection; and
- ▲ Include statistical analysis (e.g. to describe variability) and comparison against the relevant product specification, including clear and detailed interpretation of your assessment.

Overall you should assess the data to confirm why you believe that the product is distinctly different to the waste, e.g. in terms of its properties and risks, including that it complies with the relevant product specification, such that the waste-related risks have been removed.

4.2 Part 2: Fully Recovered Waste has a Sustainable Market

The market assessment is an important aspect of the application; if there is no market and the material cannot be used beneficially then it will remain a waste. Your application must give the Agency confidence that the material will not be produced only to be stored indefinitely after the material has ceased to be regulated as a waste. You must give the Agency confidence that there will be no loss of control causing the material to ultimately revert back to a waste, requiring the storage site to be remediated.

The market assessment should be as specific as possible. You will need to know the exact use to both assess the market and to enable the risk to be assessed later in the application process (refer to section 6). If there is more than one intended market/use, you will need to provide details for each one for which you are seeking end-of-waste status.

If you intend to use the product yourself, e.g. as a raw material in a further manufacturing process, you will need to provide the details, including describing in relative terms the benefits of using the waste-derived material (e.g. the savings you will make by not using primary raw materials or how it will help generate profit, if applicable).

To show that there is a sustainable market, analysis of the intended market(s) should be provided in your application. This should include:

- ▲ Who will use the material? (Note that regulation of the recovery and use of secondary materials can vary by country, therefore the trade of certain materials between different countries may be prevented by different regulatory approaches. This should be factored into your market assessment.);
- ▲ Verify that the market exists, through providing a market analysis over a relevant timeframe (e.g. quantities of materials used and price point of materials). Consider, for example, if the market is still developing and detail likely future market trends. The Agency acknowledges that applicants are likely to consider absolute price information to be confidential and sensitive. Therefore, applicants can provide relative price information if required to demonstrate that a market exists. That is, applicants can refer to the approximate proportion of the market price that their fully recovered waste achieves (or they anticipate may achieve in future) compared to the equivalent non-waste derived materials;
- ▲ State why the market is considered to be secure and sustainable; and

- ▲ Assess factors that have affected, or that you can foresee will affect, the market. This may include:
 - market risks, such as if the market is currently temporarily incentivised; and
 - positive market indicators (with justification and sources of information referred to) for anticipated growth that will lead to increased demand for your fully recovered material, for example due to:
 - incentivised market growth;
 - an anticipated future shortage of virgin products;
 - changes to policy drivers or regulations;
 - developments in material processing technology allowing increased use of waste derived materials; and
 - changing perceptions of users.

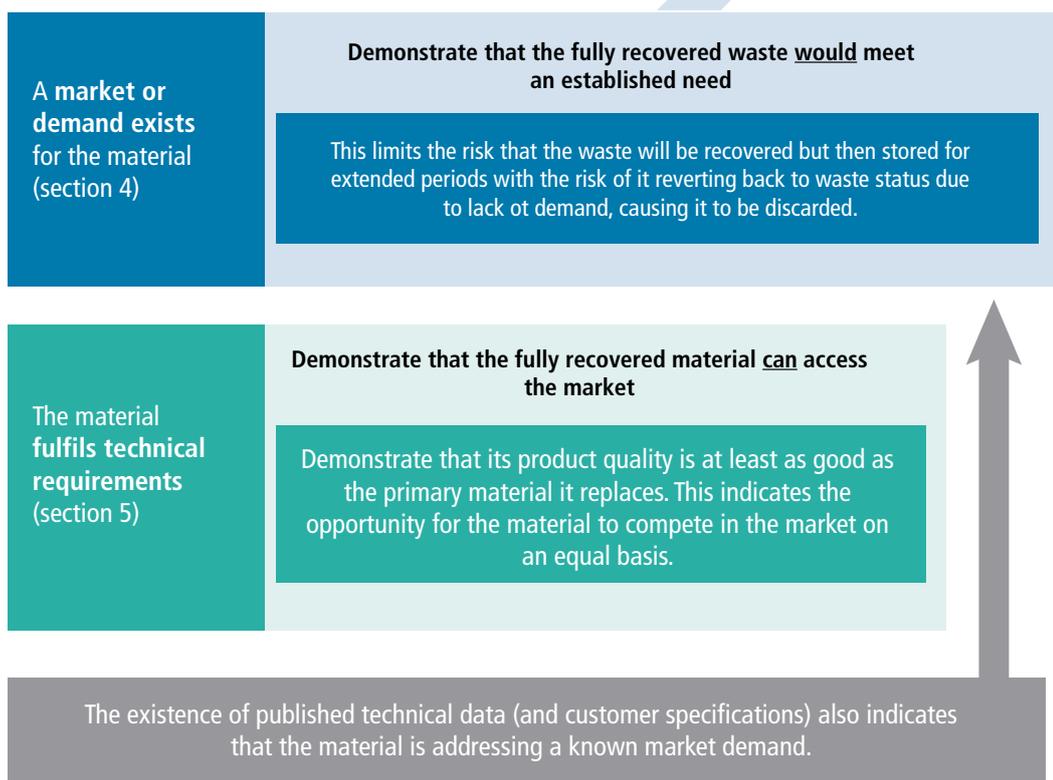
The application should also provide evidence of demand in the relevant market that you are seeking to sell into, such as:

- ▲ The amounts of competing materials used for the same purpose and the potential for substituting virgin (primary) materials;
- ▲ Evidence of sales history in the intended market, such as sale price over time and how this compares to the primary materials substituted (refer to information above concerning relative price information); and
- ▲ Customer testimonials or letters of support/intent or evidence of contracts for supply.

5. DEMONSTRATING MATERIAL FULFILS TECHNICAL REQUIREMENTS

5.1 Introduction

This pillar of the end-of-waste test links closely with the need to demonstrate that a market or demand exists (refer to section 4). By providing evidence that the fully recovered waste meets the established technical requirements relating to its intended use, you will provide a clear indication that the material can then in fact access the available market. These are two distinctive, but closely related, pillars of the end-of-waste test and fit together in the following way.



Overall, you are seeking to demonstrate that the material meets some form of appropriate quality standard meaning that it can be used in the same way as the non-waste material it replaces. To do this, you need to provide evidence that the fully recovered substance or object:

- ▲ fulfils the technical requirements for the specified use(s), which should relate to existing, published standards that are applicable to products (whether derived from virgin materials or waste) that are used for the same purpose; and
- ▲ meets the existing legislation and standard(s) applicable to products.

If you have more than one intended use for the recovered material, you need to provide details of them all, including the technical requirements (this term is used to convey all relevant standards, specifications and legislation) that relate to each use. You can also present relevant customer specifications that your material is required to meet, again for each intended use, if relevant.

The evidence that you present should establish that the material is ready for final use and that no additional waste treatment steps are needed. This helps to confirm the overriding requirement that the waste has been fully recovered.

5.2 Selecting Relevant Technical Requirements

Firstly, confirm the non-waste derived product(s) that is being replaced to guide you to select the appropriate technical requirements. Is it:

- ▲ a whole product?;
- ▲ a component of a new product?; or
- ▲ a new material and therefore not replacing anything?

Secondly, based on the product(s) being replaced, confirm the relevant product specification(s). This should be linked to the non-waste derived product being replaced where relevant. It is possible that you have developed a new product that therefore does not have any existing product specifications. This does not mean that you cannot make an end-of-waste application. In this case, you will need to demonstrate the customer specification(s) that exists and confirm there are applicable national or international technical requirement to control product quality (refer to section 5.3).

Preferably, you should identify a national or international published standard, for example an ISO standard(s) or Publicly Available Specifications (PAS) and applicable legislation that sets out the technical product requirements. These may for example include requirements relating to the composition of the material (e.g. concentration ranges for specified elements) and/or physical or engineering requirements (e.g. moisture content or strength). You will need to comply with all the requirements of the selected standard or specification and you cannot pick and choose elements.

Whether or not a published standard, specification and/or legislation is relevant, each potential application of the material is likely to have specific customer requirements defining the material characteristics. Any end-of-waste criteria must be consistent with such user requirements to ensure that the market is sustainable. Any such customer requirements cannot replace or 'water down' requirements in a published standard, specification and/or legislation and would be expected to be additional or more stringent.

You need to refer to your proposed geographical market to assess and confirm the relevance of the technical requirements to that market, that is, you need to confirm that the selected standard, specification and/or legislation is applicable to all jurisdictions that you intend to trade in. If it is not, you may want to consider reassessing what jurisdictions you trade with.

5.3 Developing Bespoke Technical Requirements

Customer specifications are bespoke technical requirements. If you seek to rely wholly or partly on customer specifications, the Agency would scrutinise these to assess whether they are sufficiently robust to ensure good product quality and control over risks to human health and the environment (linking to section 6). Good indications to the Agency that the customer specifications are robust include:

- ▲ the status of the company, companies or industry body that has developed the customer specification;

- ▲ the status of the parties that have been consulted with to develop the specification; and
- ▲ the methodology used to develop the specification, e.g. whether it is based in part on a PAS(s) and/or primary research carried out by respected organisations.

If neither a published standard, specification, legislation, nor customer specification exists with the relevant scope, for example because you have developed a new material and/or use, it may be possible for you to develop your own bespoke technical requirements. These will be based on the risks associated with the storage, transport, processing and use of your material. In this case, you need to carry out a risk assessment (section 6) in parallel with the development of your technical requirements.

The risk assessment will enable you to consider technical requirements such as the composition of the product, maximum content of impurities (concentration limits), etc., which you may then incorporate into the end-of-waste criteria to ensure the risks are sufficiently reduced or eliminated.

5.4 Providing Evidence of Compliance with Technical Requirements

You must provide evidence to demonstrate that the fully recovered waste meets the product standard, legislative requirement or specification, and any other specification comprising your technical requirements, and any differences. Differences between the technical requirements and the quantified composition or performance of your fully recovered waste can be negative (e.g. the risk of a specific contaminants being present in the waste-derived material that are not commonly found in non-waste material in which it replaces) but may also be positive (e.g. a physical characteristic of the waste derived material, such as the particle size or strength of an aggregate, is preferable to the commonly used non-waste material). Positive differences may help you to provide evidence of the benefits that using the waste-derived material will provide in comparison to primary materials.

Many published standards will define the tests that are required to demonstrate conformity and may even define the sampling requirements. In that case, you need to provide evidence, as per tests set out in the standard, that demonstrates that the material fulfils the technical requirements for the specific purpose.

Good practice for undertaking testing is described in section 4.

6. DEMONSTRATING NO OVERALL ADVERSE IMPACTS DURING USE

6.1 Introduction

Ensuring that there will not be any overall adverse impacts on human health and the environment is fundamental to any regulatory decision to grant end-of-waste status. Overall, applicants and the Agency need to consider if the product legislation, which would apply if end-of-waste status is granted, is sufficient to adequately minimise the environmental or human health impacts.

To enable a decision, it is necessary for applicants to demonstrate that the waste has been treated to remove all waste-related risks and will not cause overall adverse impacts. The Waste Framework Directive clearly establishes how the Agency needs to decide on this:

“Releasing recovered materials from the scope of waste legislation should not, in any event, weaken environmental or health protection.”

As such, Article 28 requires that the use of the substance or object will not lead to *“overall adverse environmental or human health impacts.”* Article 28 also specifies that the criteria for end-of-waste shall:

- ▲ include limit values for pollutants where necessary; and
- ▲ take into account any possible adverse environmental effects of the substance or object.

Importantly, the criteria of the end-of-waste test in European law and in some Member States diverges:

- ▲ Under the Waste Framework Directive (and under Article 28): no overall adverse impacts; and
- ▲ In England: no greater impact than the non-waste origin material that it will replace (the ‘comparator’).

The test ‘no overall adverse impacts’ applies in Ireland. Nonetheless, it may be helpful to consider using a comparator where published datasets are available to support your assessment. Datasets for a number of comparators (referring to materials applied to land, fuels, construction materials and animal bedding) and a ‘Waste Comparator Tool’ have been prepared by the Environment Agency that might be useful to support you². Further information on using comparators is provided below.

6.1.1 Using a comparator

The approach set out in Article 28 allows a fully recovered waste-derived material, which can be used without causing harm to human health or the environment, to achieve non-waste status without having to substitute or be compared to a virgin ‘comparator’ material, i.e. there is no specific need to demonstrate that releasing the material from the waste regime would not lead to higher environmental or human health risks than the comparator material.

² <https://www.gov.uk/government/publications/defining-product-comparators-to-use-when-applying-waste-derived-materials-to-land>

The Agency recognises that end-of-waste applications may benefit from consideration of a virgin, or non-waste origin, 'comparator' material. This approach may support an appropriate risk assessment and enables applicants to refer to published data for comparator materials to support their application.

Using the comparator approach allows your material to be benchmarked against existing products and market uses, which may be helpful in demonstrating no overall adverse environmental or human health impacts. A comparator can also help ascertain whether further analysis or processing of your material is required.

If a comparator is to be used, there must be an appropriate comparator material for the same end use. It is also important to be able to demonstrate that the correct comparator material has been chosen for the assessment. Factors to consider when choosing the right comparator material include:

- ▲ Is there a comparator material with the same end use, or are you supplying or using the waste derived product in a unique market?
- ▲ What material specifically are you replacing? Comparator material sub-types should be considered, for example:
 - In the case of fuels, it is not sufficient to say 'coal', rather it is necessary to look at the particular coal blend.
 - In the case of land spreading materials, it is not enough to say 'fertiliser', you need to specify what fertiliser e.g. Triple Super Phosphate.
- ▲ There should be sufficient evidence to support a comparison exercise, based on the evaluation of composition and physical characteristics of the comparator material against your waste derived material.
- ▲ You should select the comparator material with the most similar composition and physical characteristics, including relevant physical and chemical parameters which may include:
 - physical properties, such as bulk density and particle size distribution;
 - compositional analysis;
 - calorific value;
 - composition (moisture content etc.);
 - elemental analysis;
 - metals;
 - organic contaminants; and
 - others.

Once a suitable comparator material has been identified, a parallel comparison of the relevant parameters for both materials should be undertaken to highlight any differences between their physical and chemical characteristics. This comparison should refer to the relevant technical requirements, which should be common for both materials. This 'side-by-side' assessment should consider the potential impacts on the environment and human health from the end use of both materials to explain why the properties of your waste derived material will not lead to an unacceptable risk.

6.2 Undertaking an Environmental and Human Health Risk Assessment

You can complete a risk assessment to support your assessment, including when:

- ▲ There is no suitable non-waste comparator (e.g. the material will be sold into a unique market or application);
- ▲ You have multiple comparators; or
- ▲ There are potentially additional risks from your material (versus a comparator).

You may wish to use a suitably qualified advisor to support you in the development of the risk assessment. Undertaking a risk assessment can be a complicated process requiring expert knowledge and experience. This document seeks to guide you in what is required in a risk assessment; however, it should be noted that because the material types for which the Agency may receive end-of-waste applications are not limited, it is only possible to give generic guidance in this document.

A tiered assessment approach is typically used. This allows non-risks to be screened out early to prevent unnecessary further evaluation at the later stages.

- ▲ **Tier 1 – Risk screening:** Develop an outline conceptual model, identifying the source-pathway-receptor model and the presence any pollution linkages (the purpose of tier 1 is to establish whether there is any potential for unacceptable risks).
- ▲ **Tier 2 – Generic quantitative risk assessment:** Use the conceptual model and generic assessment criteria applicable to a range of scenarios, if available, to identify potentially unacceptable risks.
- ▲ **Tier 3 – Detailed quantitative risk assessment:** Requires more complex risk modelling tools and the generation of more detailed data to characterise the scenario, material and receptors under consideration.

For many end-of-waste assessments, the initial risk screening (tier 1) and generic quantitative risk assessment (tier 2) is likely to be sufficient. It will however be necessary to progress to a tier 3 assessment in more complex situations where it cannot be established in the tier 1 and tier 2 assessments that there is no significant risk. In a tiered approach, the characterisation of risk is an iterative process, which becomes more complex as conservatism and uncertainty decrease and you progress up the tiers of assessment if this is determined to be necessary. The intensity of effort in performing the assessment is therefore relative to the complexity and the likelihood of the identification of risks.

Potential risks to the environment and human health may result from the physical, chemical and biological properties of your material and its use in a specific way. Therefore, your risk assessment must consider both the application scenarios (intended end uses of the material) as well as its material characteristics.

This guidance seeks to enable you to understand and interpret the risk assessment process and results if you choose to appoint a suitably qualified advisor to undertake a risk assessment on your behalf. The information includes guidance to help you undertake a tiered risk assessment.

Other useful sources which may help you to develop your risk assessment include:

- ▲ EPA 2013 *Guidance On The Management Of Contaminated Land And Groundwater At EPA Licensed Sites* (<https://www.epa.ie/pubs/advice/waste/contaminatedland/contaminatedland/>);

- ▲ EPA 2007 *Code of Practice: Environmental Risk Assessment for Unregulated Waste Disposal Sites* (<https://www.epa.ie/pubs/advice/waste/waste/codeofpracticeenvironmentalriskassessmentforunregulatedwastedisposalsites.html>);
- ▲ Environment Agency (UK) guidance on Land Contamination: Risk Management (<https://www.gov.uk/guidance/land-contamination-how-to-manage-the-risks/stage-1-risk-assessment>); and
- ▲ CL:AIRE Water and Land Library (<https://www.claire.co.uk/information-centre/water-and-land-library-wall>).

6.2.1 Tier 1: Risk Screening

Risk screening is a process that will determine whether use of your material represents or potentially represents a risk(s) to receptors. It also identifies possible source-pathway-receptor linkages through the development of a conceptual model. It provides a preliminary or qualitative risk assessment of your material under end use scenario(s). It includes an assessment of the likelihood and magnitude of any effects of each pollutant linkage.

The **source-pathway-receptor** approach to risk assessment is recommended as a universally accepted methodology for the assessment of risks to the environment and human health and can typically be completed as a desk study. Without all three components – source-pathway-receptor – there is no pollutant linkage and therefore there can be no risk.

The following provides guidance in 4 steps to help you to undertake a tier 1 risk assessment.

- ▲ **Step 1:** Identify the potential hazards in your material
- ▲ **Step 2:** Identify your application scenarios (intended end uses of the material)
- ▲ **Step 3:** Develop a conceptual model
- ▲ **Step 4:** Summarise risks to the environment and human health to determine any likely adverse impacts

6.2.1.1 Step 1: Identify the potential hazards in your material

This step will involve **data gathering** to support your risk assessment. This is a key initial step which can be time consuming. However, this information may enable you to screen out risks, so should be undertaken at an early stage in the process to avoid completing further tiers unnecessarily.

You should gather data or information about the physical and chemical composition of your material and its hazard profile, as well as the physicochemical and biological (if applicable) properties of the material under consideration, with secondary reference to the likely use. This should include consideration of the following:

- ▲ Broad literature review;
- ▲ Previous risk assessments;
- ▲ Manufacturers / producers; and
- ▲ Use of your composition analysis to identify potential risks, since not all components may be found in literature.

The outputs from the hazard screening exercise can be presented as a table identifying the chemicals and the potential hazards they present in reference to a specific use, along with full references. This should also include an audit trail, for example providing search criteria and dates on which you accessed documents.

6.2.1.2 Step 2: Identify your application scenarios (intended end uses of the material)

Your end use scenarios will be relatively specific (for example, application to agricultural land as a fertiliser). You should take care to **define the characteristics of each end use** in a way that adheres to the principles of the tiered assessment, specifically that they are generic and represent a realistic or 'reasonable worst-case' conditions.

You should first detail how the material is used in the application scenario, for example:

- ▲ Indoors or outdoors;
- ▲ Bound or unbound (e.g. secondary aggregates);
- ▲ Exposed to the elements or covered (if so, with what? Is the cover material permeable or impermeable to liquids and/or gas?);
- ▲ Is the material used at 100% concentration or blended with other materials (if so, what are they? Each blend may represent a separate use scenario);
- ▲ If applied to land is it above or below the water table (in the saturated zone or not)?; and
- ▲ The standard(s)/ specifications that apply to the application.

Are there any other possible uses other than those that you propose for the material? These could pose a risk and so should also be considered. **Identify every separate scenario.** Each intended use scenario needs to be assessed in order to be included in your end-of-waste application. You should also clearly state if your product is not suitable for certain use scenarios and specify the reasons for this.

Once an end use scenario is identified, it should then be possible to assess the likelihood of potential risks for the hazards identified. For example, a chemical might have been identified as presenting a potential hazard in the material, but if the chemical is readily degradable under the conditions of the end use scenario, then the source to receptor pathway may not be present (if there is no source, pathway or receptor, there is no risk).

6.2.1.3 Step 3: Develop a conceptual model

You need to **develop a conceptual model for each use scenario**. This means, placing the use of your material in the context of its environment to identify pollutant linkages between the sources (the hazards identified in step 1), pathways and receptors. Because the conceptual model will be generic for each end use scenario, rather than being a site-specific assessment, it should be represented by realistic or 'reasonable worst-case' conditions.

This is an essential step to help you (and the Agency, as the assessor) to understand the risks associated with your proposals by helping you to **identify pollutant linkages** between the sources, pathways and receptors. It can help identify risks which may not have been considered, and crucially, it can also help you to rule things out.

You are seeking to identify routes (pathways) via which any component of the material, within its use scenario, can reach any receptor. If there is no pathway there is no risk and hence no need for further assessment.

Your conceptual model should apply lifecycle thinking to identify all potential direct and indirect human health and environmental impacts on all receptors (environmental media), namely:

- ▲ Air (including indoor, workplace and outdoor air);
- ▲ Water (ground water and surface water, including runoff, drainage and sewer effluent);
- ▲ Soil (including sediments, fill material and other geologic material); and
- ▲ Living organisms (people, animals and plants).

Impact on human health should include consideration of potential food chain pathways as well as other direct and indirect exposure by consumers or workers from use or handling (e.g. via an ingestion, inhalation or dermal contact pathway) of the product. This could include exposure to a toy or to buildings constructed from recovered materials, or occupational exposure using the material in the factory to manufacture a final product.

Assessors may not be familiar with your processes and end use, so a visual aid is helpful in the form of:

- ▲ diagrams;
- ▲ tables;
- ▲ matrices; and/or
- ▲ written descriptions.

It should be noted that the conceptual model should be refined as you progress through the further tiers and stages. It will form the basis of your assessment and will help you evaluate the risks correctly.

6.2.1.4 Step 4: Summarise risk to environment and human health to determine any likely adverse impacts

The overall purpose of a tier 1 assessment is to screen out hazards where the possibility of an overall adverse effect on the environment or human health is so low that it can be ruled out as a possibility. Further assessment is therefore not required. A hazard may be ruled out at the tier 1 stage because it has been determined (step 3) that there is no pollutant linkage. For example, the receptor is not vulnerable to the hazard or there is no pathway.

Step 4 should include a summary of the findings of your tier 1 risk assessment, qualitatively assessing the risks to **decide whether there is a likelihood of harm or pollution**. This should include conclusions on whether pollutant linkages exist, the likelihood of harm or pollution associated with those pollutant linkages and whether further risk assessment is required in order to quantify potential adverse impacts to human health and the environment.

6.2.2 Tier 2: Generic Quantitative Risk Assessment

Generic quantitative risk assessment is typically undertaken by comparing the hazard component (concentrations) against published generic assessment criteria (GAC) (or generic screening levels).

GAC criteria are derived using generic assumptions about the characteristics and behaviour of contaminants (sources), pathways and receptors. These assumptions will be protective in a range of defined conditions and represent concentrations below which impact on receptors (human health, water-dependent ecosystems, etc.) is very unlikely. GAC criteria are useful for

screening and quantification purposes. For example, leachate concentrations that are found to exceed groundwater GAC are an indication of potential risk to receptors and therefore this requires a detailed quantitative risk assessment (tier 3) to be undertaken.

When applying a generic quantitative risk assessment, the risk should be assessed for each pollutant linkage. The assessment should include simple assessments of the predicted impact of the hazard on all the receptors. The GAC must be:

- ▲ Authoritative and scientifically based;
- ▲ Relevant and appropriate for the site;
- ▲ Conservative and protective (assuming a worse-case scenario); and
- ▲ Not site specific.

For each hazard, the starting point for estimating its impact on the environment or human health is a sound understanding of the chemical levels in the material and the end use scenario. Where **there is published evidence** of the outcome of the application of these materials in a relevant end use scenario, this evidence can be used to make a comparison with the screening assessment criteria recognised for each identified receptor. If **there is no such published evidence**, the emission of chemicals into the environment and the resulting chemical concentrations in different environmental media will need to be estimated or modelled and compared against relevant assessment criteria for each identified receptor to determine whether there will be adverse impact under a tier 3 assessment.

Under European and national environmental legislation, the Republic of Ireland is required to implement the measures necessary to prevent hazardous substances from entering soil, water (including groundwater and surface water) and air. Relevant assessment criteria for impacts on the environment can be identified with reference to such environmental legislation. Values for screening of the impact may come from several sources, including the European Communities Groundwater Threshold Values (GTVs)³, the EPA's GTVs⁴, the EPA's Interim Guideline Values (IGVs)⁵ when considering a groundwater receptor, or relevant Environmental Quality Standards (EQS)⁶ when considering a surface water receptor, or Drinking Water Standards (DWS)⁷ when considering drinking water as a pathway for receptors. The EPA Guidance on the Authorisation of Discharges to Groundwater⁸ should also be considered when assessing impact or potential impacts on groundwater resources.

GAC allow the magnitude of reported contamination to be put in context and help screen out concentrations that are not elevated from those that are presented in the GAC. This provides a short list of contaminants/chemicals of potential concern, that will be required to be taken forward for detailed quantitative risk assessment (tier 3). Useful links to detailed technical

3 European Communities Environmental Objectives (Groundwater) Regulations 2010 (S.I. no. 9 of 2010), as amended.

4 Methodology for Establishing Groundwater Threshold Values, the Assessment of Chemical and Quantitative Status for Groundwater and Groundwater Trends (EPA, 2010) (<https://www.epa.ie/pubs/reports/water/ground/groundwaterthresholdvaluesandassessmentofchemicalandquantitativestatus.html>)

5 Towards Setting Guideline Values For The Protection Of Groundwater In Ireland – Interim Report (EPA, 2003) (<https://www.epa.ie/pubs/advice/water/ground/towardssettingguidelinevaluesfortheProtectionofgroundwaterinireland.html>)

6 European Communities Environmental Objectives (Surface Waters) Regulations, 2009 (S.I. No. 272 of 2009), as amended.

7 European Communities (Drinking Water) Regulations 2014 (S.I. 122 of 2014) , as amended.

8 Guidance on the Authorisation of Discharges to Groundwater (EPA, 2011) (<https://www.epa.ie/pubs/reports/water/ground/dischgw/>)

guidance on assessing risks to specific receptors (e.g. human health, water environment, ecosystems, buildings and structures, risks from gases and vapours, etc.) are available on the CL:AIRE Water and Land Library⁹.

If a **screening assessment criterion is not available** for a combination of a chemical and a receptor, it is potentially possible to derive an informal value for the specific assessment, however this often requires expert knowledge and may be costly. You should also consider whether the absence of an assessment criterion may indicate that a pathway is unlikely or that the hazard to a specific receptor is low e.g. aquatic guidelines may not have been established for chemicals that are insoluble in water as they are unnecessary.

To assess whether there will be an adverse impact on human health, concentrations in the materials should be compared against Health Criteria Values (HCVs)¹⁰. Risk can be characterised by comparing exposure defined by estimated chemical intakes by adults and children with HCVs that define acceptable or tolerable intakes derived from toxicological studies.

If the representative hazard concentrations are all below the GAC/ HCVs then the risk is deemed to be acceptable and no further action is required, so long as the appropriate assessment criteria were correctly applied in the first instance. If the representative hazard concentrations are greater than the GAC then the risk may be unacceptable, and it may be necessary to carry out detailed quantitative risk assessment (tier 3).

An exceedance of a screening criterion identifies the need for further assessment (tier 3) but it does not necessarily imply that there is an unacceptable level of risk. For example, a tier 2 assessment is considering the potential for an overall adverse effect to arise from leachable chemicals that are present in a material reaching a surface water receptor. This could involve comparing the results from a standard leach test (for example, the 90th percentile at a liquid to solid ratio of 0.1 or 0.2) with the respective assessment criterion. If any chemicals show an exceedance in tier 2, it is necessary to assess them further in a tier 3 assessment. In tier 3, the same leach test results could be used, adjusted for 'realistic worst-case' dilution of the leachable chemicals in the receiving watercourse. This applies a lower level of conservatism but requires the dilution to be modelled.

The conclusion of your generic quantitative risk assessment should include a summary of the findings of your tier 2 risk assessment including whether pollutant linkages exist, the likelihood of harm or pollution associated with those pollutant linkages and whether further risk assessment is required in order to quantify potential adverse impacts to human health and the environment. In addition, the conceptual site model developed under tier 1 should be refined.

6.2.3 Tier 3: Detailed Quantitative Risk Assessment

If the tier 2 generic quantitative risk assessment has indicated that there is a potential risk to a receptor from an identified hazard, you should progress to a tier 3 risk assessment for that particular hazard and receptor where it has been identified that there could be an adverse effect. Tier 3, if required, generally requires more complex risk modelling tools and the generation of more detailed (less conservative still) data to characterise the scenario, material and receptors under consideration. Specialist advice is likely to be required when moving to tier 3.

⁹ <https://www.clare.co.uk/information-centre/water-and-land-library-wall>

¹⁰ HCVs are 'guidance levels' that allow the risk to human health to be determined for defined scenarios. They include levels that are relevant to different types of exposure, including inhalation values (e.g. OELs 'Occupational Exposure Levels') and oral values (ingested dose, e.g. TDI 'Tolerable Daily Intake').

A detailed quantitative risk assessment requires that specific assessment criteria be developed. These specific assessment criteria may relate to end use-specific or site-specific criteria. The representative hazard concentrations are compared to the specific assessment criteria. Specific assessment criteria are derived using detailed data on the contaminant (e.g. chemical form), pathway (e.g. attenuation rates), and receptor (e.g. time on site). The specific assessment criteria are usually more onerous than GAC and only apply to the end use they were developed for. Each individual receptor is modelled e.g. human health, groundwater, surface waters, ecology etc. Different risk assessment modelling tools are available as well as numerical groundwater flow models, numerical contaminant fate and transport models and other receptor specific models.

The EPA recommends that where risk assessment modelling is required, models which have been benchmarked by the UK Environment Agency as part of CLR 11¹¹ are used. It should be noted that accredited risk assessment tools and models should only be used by suitably qualified/experienced practitioners and should be selected and deployed with careful consideration to Ireland's specific geology and hydrogeology. Justification should be provided for any model being used.

Due to the varied nature of potential end-of-waste materials, uses and potential impacts, it is not possible to provide comprehensive guidance in this document on specific methods for tier 3 detailed quantitative risk assessments and reiterate that specialist advice should be sought if necessary.

The conclusion of your detailed quantitative risk assessment should include a summary of the findings of your tier 3 assessment including whether pollutant linkages exist, and the likelihood of harm or pollution associated with those pollutant linkages. In addition, the conceptual site model developed under tier 1 and tier 2 should be refined and finalised.

11 In June 2019 the Environment Agency (EA) published an update to the model procedures for the management of land contamination (CLR11), titled Land Contamination: Risk Management (LCRM). This was guidance was open for feedback in 2019. The EA state that they are currently looking at the feedback and will republish the guidance in early 2020. The EA will withdraw CLR11 when this updated guidance is published.

7. PROPOSING END-OF-WASTE CRITERIA

An essential final stage is to draw together your specific end-of-waste criteria from the full analysis that you have undertaken and to set these out in your application. The conclusion of your application should therefore be a clear set of criteria, addressing each pillar of the end-of-waste test, that you have compiled as a result of your assessment. The rationale for the criteria should be fully set out in the detailed sections of your application. Criteria can include, for example:

- ▲ controls over the sources and/or types of waste to be accepted into the process;
- ▲ concentration limits for constituents (e.g. contaminants) and/or requirements for physical properties of the input material (waste accepted);
- ▲ definition of the treatment (recovery) process;
- ▲ concentration limits for constituents (e.g. contaminants) and/or requirements for physical properties of the fully recovered material; and
- ▲ defined applications that the material can be used in and any 'controls' or limitations required in each application.

The Agency is fully committed to working with applicants to support appropriate end-of-waste decisions and consequently Ireland's circular economy objectives. However, it is important to recall that an application is the basis of an important regulatory decision that requires detailed scrutiny in the light of all relevant circumstances in that particular case. Therefore, applicants must recognise that, even if its application is good quality, it may not be possible to reach a positive end-of-waste decision or that it may only be possible to achieve end-of-waste for certain defined applications.

Considering this further, it is possible that an application will determine that the use of the material in defined applications presents unacceptable risks to human health or the environment. It is also possible that the assessment will determine that specific uses require certain controls or limitations to be in place to reduce the risks but that these controls are over and above those required for non-waste derived materials used in the same way. The Agency must consider if the proposed controls indicate that the material in fact retains its waste characteristics and whether its use should therefore take place under waste regulatory controls, so it does not undermine the effectiveness of the Waste Framework Directive.

Therefore, when setting out the required controls, applicants should define these for each specific application scenario and should also refer to the relevant technical requirements to determine if the required controls are broadly equivalent to those required for applications of the alternative non-waste material.

8. DEMONSTRATING ONGOING COMPLIANCE

8.1 Monitoring Compliance

If your end-of-waste application is successful, your obligations do not end there. You are now at the beginning of the ongoing compliance process. You need to ensure that:

- ▲ The circumstances of your end-of-waste application do not change. Any material change to your quality control procedures (waste inputs, waste treatment approach, technical requirements, markets etc.) may mean that your original end-of-waste application is no longer relevant or may need to be extended (e.g. if you have identified a new material use for which you seek end-of-waste status).
- ▲ That you continue to analyse the fully recovered material (compliance monitoring) so that you can confirm:
 - it continues to comply with end-of-waste criteria;
 - it remains within the requirements of the product specification(s); and
 - its properties have not changed therefore the risk assessment remains valid.

Your end-of-waste application needs to set out how you will monitor and demonstrate ongoing compliance. This includes for example setting out your approach to ongoing sampling and analysis and periodic review of your quality procedures, including how you will undertake monitoring against relevant technical requirements.

You may be subject to periodic inspections by the Agency and/or any other appropriate regulatory body to review your compliance regime.

8.2 Product Regulations

Your 'product' may also be subject to product regulations and controls. The following are common examples, but you must review whether any other controls apply to your circumstances. Your application should specify which product regulations apply to your product and detail how these shall be complied with.

CE Marking (Construction Products)

https://europa.eu/youreurope/business/product-requirements/labels-markings/ce-marking/index_en.htm

https://ec.europa.eu/growth/content/ce-marking-construction-products-step-step-guide-now-available-all-eu-languages-0_en

Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH Regulation) (Chemical Products)

<https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1436265231260&uri=CELEX:32006R1907>

Classification, Labelling and Packaging of Substances and Mixtures (CLP Regulation) (Chemical Products)

<https://eur-lex.europa.eu/legal-content/en/ALL/?uri=CELEX:02008R1272-20190726>

Persistent Organic Pollutants Regulation (POPs Regulation)

<https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019R1021&from=EN>

European Communities Chemicals Act (Control of Major Accident Hazards Involving Dangerous Substances) Regulations 2015 (S.I. No. 209 of 2015) (the “COMAH Regulations”)

<http://www.irishstatutebook.ie/eli/2015/si/209/made/en/print>

8.2.1 REACH Regulation

Wastes are exempt from REACH. REACH however does apply to substances that are recovered from waste once they cease to be waste and are placed on the market. REACH obligations are a common query in relation to end-of-waste, therefore this section explains the implications further, taking account of existing guidance on how REACH relates to waste derived materials¹².

- ▲ Recovery businesses are considered to be manufacturers under REACH, so may have registration obligations, unless certain exemptions apply;
- ▲ The main obligation under REACH is to register substances;
- ▲ There are some exemptions from registration obligations that could apply to recovered substances. These can be invoked for most recovered metals, some recovered solvents and some recovered plastics. Compost, biogas and anaerobic digestate are also exempt from REACH registration;
- ▲ Exemptions exist, for example, when the category of substance is already known to pose little or no risk to human health or the environment or the recovered substance is the same as its virgin equivalent that has been previously registered; and
- ▲ REACH requires manufacturers and importers of substances in quantities of 10 tonnes or more per annum to prepare a Chemical Safety Report. This must include exposure scenarios based on declared uses of the substances and recommend appropriate risk management measures.

The European Chemicals Agency (ECHA) has published further guidance on REACH and recovered waste substances. This contains specific guidance on paper, glass, metals, aggregates, polymers, rubber base oils and solvents¹³.

If you are unsure about your obligations under REACH, you should seek independent advice or contact the Health and Safety Authority (HSA)¹⁴, the lead Competent and Enforcement Authority for REACH in Ireland.

12 “REACH and Substances Recovered from Waste”, UK REACH Competent Authority Information Leaflet 14 – Substances Recovered from Waste, July 2016, HSE <https://www.hse.gov.uk/reach/resources/waste.pdf>

13 https://echa.europa.eu/documents/10162/23036412/waste_recovered_en.pdf/657a2803-710c-472b-8922-f5c94642f836

14 https://www.hsa.ie/eng/Your_Industry/Chemicals/Legislation_Enforcement/REACH/

9. OTHER USEFUL INFORMATION

The following provides guidance on how to manage any confidential information in your application and sets out some common mistakes and points to remember when developing your application.

9.1 Identifying and Protecting Confidential Information

Making an end-of-waste application requires the preparation and submission of information, some of which applicants may consider to be commercially sensitive or confidential.

The Freedom of Information Act 1997 (FOI Act) as amended by the Freedom of Information (Amendment) Act 2003 obliged a range of public bodies to publish information on their activities and to make the information that they held, including personal information, available to citizens. Citizens Information has published guidance on Freedom of Information¹⁵.

The Access to Information on the Environment Regulations 2007 (AIE Regulations)^{16,17} give citizens the right to access Environmental Information held by, or for, the Agency and other public authorities.

The information in your application may potentially come within the scope of the definition of Environmental Information. If it does not, the information may anyway be requested under the FOI Act.

As such, any data that you submit to the Agency as part of an end-of-waste application may be requested and subsequently have to be made available to the party that has requested it.

Therefore, if you consider that it is necessary to include any information that is sensitive and/or confidential in your application to allow the Agency to make an end-of-waste decision, you should clearly identify and separate it within your application. The Agency suggests that you provide such information as a separate appendix or enclosure bearing the legend "*In the event this information is deemed not to be held as confidential, it must be returned to...*". The Agency can then redact the information, if the application is subject to an FOI request, or return it after making its assessment.

You should also state the reasons why you consider the information to be confidential, with reference to the provisions in the AIE Regulations. In the event that the Agency decides to withhold information from the public, the nature of that information and the reason why it is considered confidential will be available for public inspection.

Note the Agency does not at this stage intend to adopt any single case decisions as national decisions. This means that individual applications and the decisions arising are for the benefit of the applicant companies only.

15 https://www.citizensinformation.ie/en/government_in_ireland/national_government/standards_and_accountability/freedom_of_information.html

16 <https://www.epa.ie/about/info/aie/>

17 [https://www.dcaea.gov.ie/en-ie/about-us/compliance/access-to-information-on-the-environment-\(aie\)/aie-legislation/Pages/AIE-Legislation.aspx](https://www.dcaea.gov.ie/en-ie/about-us/compliance/access-to-information-on-the-environment-(aie)/aie-legislation/Pages/AIE-Legislation.aspx)

9.2 Common Mistakes

- ▲ Not enough information/ detail.
 - Not telling the full story in terms of waste inputs, processes, outputs ('product') and uses.
- ▲ Too much detail outside the scope of the legal test – keep it relevant.
- ▲ Overreliance on work from other jurisdictions without clearly explaining why the adopted position is considered directly relevant (e.g. not acknowledging that scenarios can be quite different).
- ▲ Not clearly addressing all the elements of Article 28(1):
 - Failing to propose end-of-waste criteria;
 - Unclear how the quality of waste inputs are maintained;
 - Not describing how waste input will be assured to be free of contamination to maintain the quality of recovered product(s);
 - Unclear what product(s) is to be replaced;
 - Not identifying the standard(s) applicable to the product(s);
 - Not clearly explaining why available standards are considered irrelevant;
 - No product specification or insufficient specification;
 - Not justifying that it is used in the same way as the equivalent non-waste derived product;
 - Not including details of quality assurance procedures to give confidence that controls will be correctly and consistently applied;
 - Confusing the point at which to consider 'no overall adverse impact'. Depending on the end-of-waste point. This can be either:
 - When the material is placed on the market (most commonly, i.e. bringing the point of recovery forward from the point of use); or
 - When it is used;
 - Missing or inadequate risk assessments;
 - Use scenarios are not explained;
 - Risk assessments are not presented for all uses;
 - Lack of clarity on whether the material is used as a partial or full replacement of a product;
 - Inadequate data for emissions, leachate testing etc.; and
 - Where there is apparent dilution of waste.

9.3 Things to Remember

- ▲ Keep in mind the process for protecting any confidential information (reference section 9.1.1) when developing and making your application.
- ▲ Diagrams, photographs and copies of documents (e.g. process flow, quality procedures) can support your application by bringing your process to life.
- ▲ The key underlying principle to achieving end-of-waste status is demonstrating that there is no overall adverse human health or environmental effect.
- ▲ Understand your waste, source, process and market and set these out clearly.
- ▲ Good data is critical.
- ▲ Sampling: be specific, know what to sample for and use a consistent sampling regime that takes account of the relevant technical requirements.
- ▲ Consider whether identifying a comparator is helpful.
- ▲ Designing, undertaking and interpreting the outcomes of a risk assessment can be complicated. Specialist advice is recommended to ensure your risk assessment is appropriate and meaningful and to ensure that you do not undertake expensive abortive work.
- ▲ Ask the Agency if you have any further questions.

DRAFT

AN GHNÍOMHAIREACTH UM CHAOMHNÚ COMHSHAOIL

Tá an Gníomhaireacht um Chaomhnú Comhshaoil (GCC) freagrach as an gcomhshaoil a chaomhnú agus a fheabhsú mar shócmhainn luachmhar do mhuintir na hÉireann. Táimid tiomanta do dhaoine agus don chomhshaoil a chosaint ar thionchar díobhálach na radaíochta agus an truaillithe.

Is féidir obair na Gníomhaireachta a roinnt ina trí phríomhréimse:

Rialáil: Déanaimid córais éifeachtacha rialaithe agus comhlíonta comhshaoil a chur i bhfeidhm chun torthaí maíthe comhshaoil a sholáthar agus chun déileáil leo siúd nach gcloíonn leis na córais sin.

Eolas: Soláthraimid sonraí, faisnéis agus measúnú comhshaoil atá ar ardchaighdeán, spriocdhírthe agus tráthúil chun bonn eolais a chur faoin gcinnteoireacht ar gach leibhéal.

Abhcóideacht: Bímid ag saothrú i gcomhar le grúpaí eile chun tacú le comhshaoil atá glan, táirgiúil agus cosanta go maith, agus le hiompar a chuirfidh le comhshaoil inbhuanaithe.

Ár bhFreagrachtaí

Ceadúnú

Déanaimid na gníomhaíochtaí seo a leanas a rialú ionas nach ndéanann siad dochar do shláinte an phobail ná don chomhshaoil:

- saoráidí dramhaíola (*m.sh. láithreáin líonta talún, loisceoirí, stáisiúin aistrithe dramhaíola*);
- gníomhaíochtaí tionsclaíocha ar scála mór (*m.sh. déantúsaíocht cógaisíochta, déantúsaíocht stroighne, stáisiúin chumhachta*);
- an diantalmhaíocht (*m.sh. muca, éanlaith*);
- úsáid ghlanscartha agus scaoileadh rialaithe Orgánach Géinmhodhnaithe (*OGManna*);
- foinsí radaíochta ianúcháin (*m.sh. trealamh x-gha agus radaiteiripe, foinsí tionsclaíocha*);
- áiseanna móra stórála peitрил;
- doirtí fuíolluisce;
- gníomhaíochtaí dumpála ar farraige.

Forfheidhmiú Náisiúnta i leith Cúrsaí Comhshaoil

- Clár náisiúnta iniúchtaí agus cigireachtaí a dhéanamh gach bliain ar shaoráidí a bhfuil ceadúnas ón nGníomhaireacht acu.
- Maoirseacht a dhéanamh ar fhreagrachtaí cosanta comhshaoil na n-údarás áitiúil.
- Caighdeán an uisce óil, arna sholáthar ag soláthraithe uisce phoiblí, a mhaoirsiú.
- Obair le húdaráis áitiúla agus gníomhaireachtaí eile chun dul i ngleic le coireacht chomhshaoil trí chomhordú a dhéanamh ar líonra forfheidhmiúcháin náisiúnta, díriú ar chiontóirí, agus maoirsiú a dhéanamh ar fheabhsúcháin.
- Rialacháin maidir le Dramhthrealamh Leictreach agus Leictreonach (WEEE), le Srian ar Shubstaintí Guaiseacha (RoHS) agus ar shubstaintí ídionn an císeal ózóin.
- An dlí a chur orthu siúd a bhreiseann dlí an chomhshaoil agus a dhéanann dochar don chomhshaoil.

Bainistíocht Uisce

- Monatóireacht agus tuairisciú a dhéanamh ar cháilíocht aibhneacha, lochanna, uisce idirchreasa agus cósta na hÉireann, agus screamhuiscí; leibhéal uisce agus sruthanna aibhneacha a thomhas.
- Comhordú náisiúnta agus maoirsiú a dhéanamh ar an gCreat-Treoir Uisce.
- Monatóireacht agus tuairisciú a dhéanamh ar Cháilíocht an Uisce Snámha.

Monatóireacht, Anailís agus Tuairisciú ar an gComhshaoil

- Monatóireacht a dhéanamh ar cháilíocht an aeir agus Treoir an AE maidir le hAer Glan don Eoraip (CAFÉ) a chur chun feidhme.
- Tuairisciú neamhspleách le cabhrú le cinnteoireacht an rialtais náisiúnta agus áitiúil (*m.sh. tuairisciú tréimhsiúil ar Staid Chomhshaoil na hÉireann agus Tuarascálacha ar Tháscairí*).

Rialú Astaíochtaí na nGás Ceaptha Teasa in Éirinn

- Fardail agus réamh-mheastacháin na hÉireann maidir le gás ceaptha teasa a ullmhú.
- An Treoir maidir le Trádáil Astaíochtaí a chur chun feidhme i gcomhair breis agus 100 de na táirgeoirí dé-ocsaíde carbóin is mó in Éirinn.

Taighde agus Forbairt Comhshaoil

- Taighde comhshaoil a chistiú chun brúnna a shainaithint, bonn eolais a chur faoi bheartais, agus réitigh a sholáthar i réimsí na haeráide, an uisce agus na hinbhuanaitheachta.

Measúntachtaí Straitéisí Comhshaoil

- Measúnacht a dhéanamh ar thionchar pleananna agus clár beartaithe ar an gcomhshaoil in Éirinn (*m.sh. mórfheananna forbartha*).

Cosaint Raideolaíoch

- Monatóireacht a dhéanamh ar leibhéal radaíochta, agus measúnacht a dhéanamh ar an oiread is atá muintir na hÉireann gan chosaint ar an radaíocht ianúcháin.
- Cabhrú le pleananna náisiúnta a fhorbairt le haghaidh éigeandálaí ag eascairt as taimí núicléacha.
- Monatóireacht a dhéanamh ar fhorbairtí thar lear a bhaineann le saoráidí núicléacha agus leis an tsábháilteacht raideolaíochta.
- Sainseirbhísí cosanta ar an radaíocht a sholáthar, nó maoirsiú a dhéanamh ar sholáthar na seirbhísí sin.

Treoir, Faisnéis Inrochtana agus Oideachas

- Comhairle agus treoir a chur ar fáil d'earnáil na tionsclaíochta agus don phobal maidir le hábhair a bhaineann le caomhnú an chomhshaoil agus leis an gcosaint raideolaíoch.
- Eolas tráthúil agus inrochtana faoin gcomhshaoil a chur ar fáil chun an pobal a spreagadh páirt a ghlacadh i gcinnteoireacht chomhshaoil (*m.sh. Mo Thimpeallacht Áitiúil, Léarscáileanna Radóin*).
- Comhairle a chur ar fáil don Rialtas maidir le hábhair a bhaineann leis an tsábháilteacht raideolaíoch agus le cúrsaí práinnfhreagartha.
- Plean Náisiúnta Bainistíochta Dramhaíola Guaisí a fhorbairt chun dramhaíl ghuaiseach a chosc agus a bhainistiú.

Múscailt Feasachta agus Athrú Iompraíochta

- Feasacht chomhshaoil níos fearr a ghiniúint agus dul i bhfeidhm ar athrú iompraíochta dearfach trí thacú le gnóthais, le pobail agus le teaghlaigh a bheith níos éifeachtúla ar acmhainní.
- Tástáil le haghaidh radóin a chur chun cinn i dtithe agus in ionaid oibre, agus gníomhartha leasúcháin a spreagadh nuair is gá.

Bainistíocht agus Struchtúr GCC

Tá an gníomhaireacht á bainistiú ag Bord lánaimseartha, ar a bhfuil Ard-Stiúrthóir agus cúigear Stiúrthóirí. Déantar an obair ar fud cúig cinn d'Oifigí:

- An Oifig um Inbhuanaitheacht Comhshaoil
- An Oifig Forfheidhmithe i leith Cúrsaí Comhshaoil
- An Oifig um Fhianaise agus Measúnú
- An Oifig um Chosaint Radaíochta agus Monatóireacht Chomhshaoil
- An Oifig Cumarsáide agus Seirbhísí Corparáideacha

Tá Coiste Comhairleach ag an nGníomhaireacht le cabhrú léi. Tá dáréag comhaltaí air agus tagann siad le chéile go rialta le plé a dhéanamh ar ábhair inní agus le comhairle a chur ar an mBord.



Headquarters

**PO Box 3000,
Johnstown Castle Estate
County Wexford, Ireland**

**T: +353 53 916 0600
F: +353 53 916 0699
E: info@epa.ie
W: www.epa.ie
LoCall: 1890 33 55 99**

Regional Inspectorate

McCumiskey House,
Richview, Clonskeagh Road,
Dublin 14, Ireland

**T: +353 1 268 0100
F: +353 1 268 0199**

Regional Inspectorate

Inniscarra, County Cork,
Ireland

**T: +353 21 487 5540
F: +353 21 487 5545**

Regional Inspectorate

Seville Lodge, Callan Road,
Kilkenny, Ireland

**T +353 56 779 6700
F +353 56 779 6798**

Regional Inspectorate

John Moore Road, Castlebar
County Mayo, Ireland

**T +353 94 904 8400
F +353 94 902 1934**

Regional Inspectorate

The Glen, Monaghan, Ireland

**T +353 47 77600
F +353 47 84987**

Regional Offices

The Civic Centre
Church St., Athlone
Co. Westmeath, Ireland
T +353 906 475722

Room 3, Raheen Conference Centre,
Pearse House, Pearse Road
Raheen Business Park, Limerick,
Ireland
T +353 61 224764

