



## CIRCULAR ECONOMY PROGRAMME

*The Driving Force for Ireland's Move to a Circular Economy*



# EXPLANATORY NOTE ON NATIONAL END-OF-WASTE DECISION FOR RECYCLED AGGREGATES.

**DECISION REFERENCE NO: EOW-N001/2023**

**VERSION: 1.0 - 17<sup>TH</sup> OCTOBER 2023**

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**Document Control**

<b>Amendments to this Guidance</b>			
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## **Introduction**

### **Background**

End-of-waste marks the point at which a material transitions from a waste to a secondary product. Regulation 28(1) of the European Commission (Waste Directive) Regulations 2011-2020 (the Regulations), requires that in order for a recycled/recovered material to cease to be classified as a waste, it must meet criteria set out in an end-of-waste decision. The Agency have published a national decision on end-of-waste setting out criteria for recycled aggregates in decision EoW-N001/2023 (referred to as ‘the decision’ from herein).

### **Purpose**

This guidance provides explanatory notes in relation to criteria set out in the decision (EoW-N001/2023). It aims to assist producers of recycled aggregate to understand and comply with the decision.

This guidance is not exhaustive and does not preclude waste authorisation holders from complying with their statutory obligations. This document should be read in conjunction with the National End-of-Waste Decision for Recycled Aggregates (EoW-N001/2023).

It should be noted that this document is not a legal interpretation of the legislation relevant to end-of-waste.

### **Revision**

This document is proposed to act as ‘live guidance’. Accordingly, this document may be subject to change as a result of future amendments in relevant legislation or due to the introduction of relevant new legislation or as a result of an amendment to the decision. Any such changes may be made without consultation or prior notice. Revisions will endeavour to be communicated via email alert to all producers registered as utilising the criteria, as well as local authority waste enforcement staff and the office of environmental enforcement.

Please ensure you refer to the most recent version of this guidance, as published on the Agency’s website [here](#).

### **Other information**

General guidance in relation to end-of-waste is available [here](#).

Where this guidance document does not provide sufficient explanation on specific requirements of a criterion, clarification may be sought from [article28@epa.ie](mailto:article28@epa.ie). Additional clarifications may be sought from the Office of Environmental Enforcement or the relevant local authority with remit over the waste authorisation under which you operate.

### **Data protection**

The EPA intend to establish and maintain a live register of producers of recycled aggregate in accordance with national decision EoW-N001/2023. It is intended to publish the producers name and waste authorisation number on the EPA website. The basis for this is to provide traceability for recycled aggregate and enable compliance monitoring, surveillance and enforcement. This information may include personal data. The EPA or another regulator (e.g. a local authority, National Building Control Office & Market Surveillance Office etc.) may contact the primary data controllers (registered producer) to seek information in relation to the production of recycled aggregate in accordance with the national decision.

The website privacy policy is available on the EPA's website at <https://www.epa.ie/footer/privacypolicy/>. By visiting this website, you are accepting the terms of this Website Privacy Policy. Any external links to other websites are clearly identifiable as such and we are not responsible for the content or the privacy policies of these other websites.

## Explanatory notes

Explanatory notes are presented below in numerical order as per the criteria. For ease of reference the criteria are presented in *blue boxed italics*, under which the associated explanatory note is presented.

In the case where criteria are self-explanatory, explanation notes are not provided.

### Section 1: Subject matter

*National End-of-Waste Decision EoW-N001/2023 establishes criteria determining when recycled aggregate resulting from a recovery operation ceases to be waste.*

*These criteria do not:*

- *affect the obligation of the producer to hold and comply with a waste collection permit, certificate of registration, waste facility permit or waste/industrial emissions licence or any other National or European legislation which may apply when transporting, handling, storing or processing waste;*
- *affect permitting or any other legal requirements that do not depend on the status of the material as a waste; and*
- *negate the producers or user's statutory obligations or requirements under any other authorisations (including planning permission), enactments or regulations.*

*The Agency accepts no responsibility for material produced in compliance with these criteria. It is the producer's responsibility to ultimately ensure the material is fit for the intended use. It is the user's responsibility to store and use the material as specified by the producer. Any person who gives either to an authorised person, a relevant local authority or the Agency, information which to his or her knowledge is false or misleading in a material respect, shall be guilty of an offence.*

The decision is not a consent. It is a statement of fact that recycled aggregate, if produced in accordance with the criteria within the decision, will cease to be a waste and be classified as a product or secondary product.

The decision does not provide authorisation for the waste recovery operation. The recovery operation involves the acceptance and processing of waste. As such, an appropriate waste authorisation is required to produce recycled aggregate. Planning permission is also required for the facility/ site in which the recovery operation is being undertaken. The waste authorisation and planning permission consider and control the environmental impacts associated with the treatment process, including but not limited to noise, dust, run-off, emissions, traffic etc.

If recycled aggregate is being produced at a demolition/development site, for example recovered via mobile crushing, then the mobile crusher must hold an appropriate waste authorisation. Planning requirements may also apply. The recycled aggregate may be used at the same site in which it was recovered. It is the user's responsibility to ensure such use is in accordance with planning regulations.

Any transport of the input waste to the recovery facility should be undertaken under an appropriate waste collection permit.

The producer (waste operator) is responsible for ensuring that they hold appropriate waste authorisation, planning permission and any other statutory requirements including those related to waste management, planning, products, and any other requirements.

The producer may be subject to enforcement action if they produce recycled aggregate:

- i. without the appropriate waste authorisations; or
- ii. without appropriate planning permission.

The producer may be subject to enforcement action if they market (sell or make available) recycled aggregate:

- i. that does not comply with all criteria set out in the decision; or
- ii. that does not comply with any other statutory requirements.

Enforcement action may be taken under, but is not limited:

- i. Waste Management Act 1996, as amended;
- ii. Part VIII of the Planning and Development Acts 2000–2022;
- iii. European Union (Construction Products) Regulations 2013;
- iv. Roads Act 1993, as amended.

Where a recycled aggregate is used for purposes other than those listed on the statement of conformity as ‘suitable use’, (e.g. if used in contact with surface water), the user may be subject to enforcement action under the relevant legislation.

Figure 1 below illustrates the roles and responsibilities of competent authorities in relation to the recommended criteria.

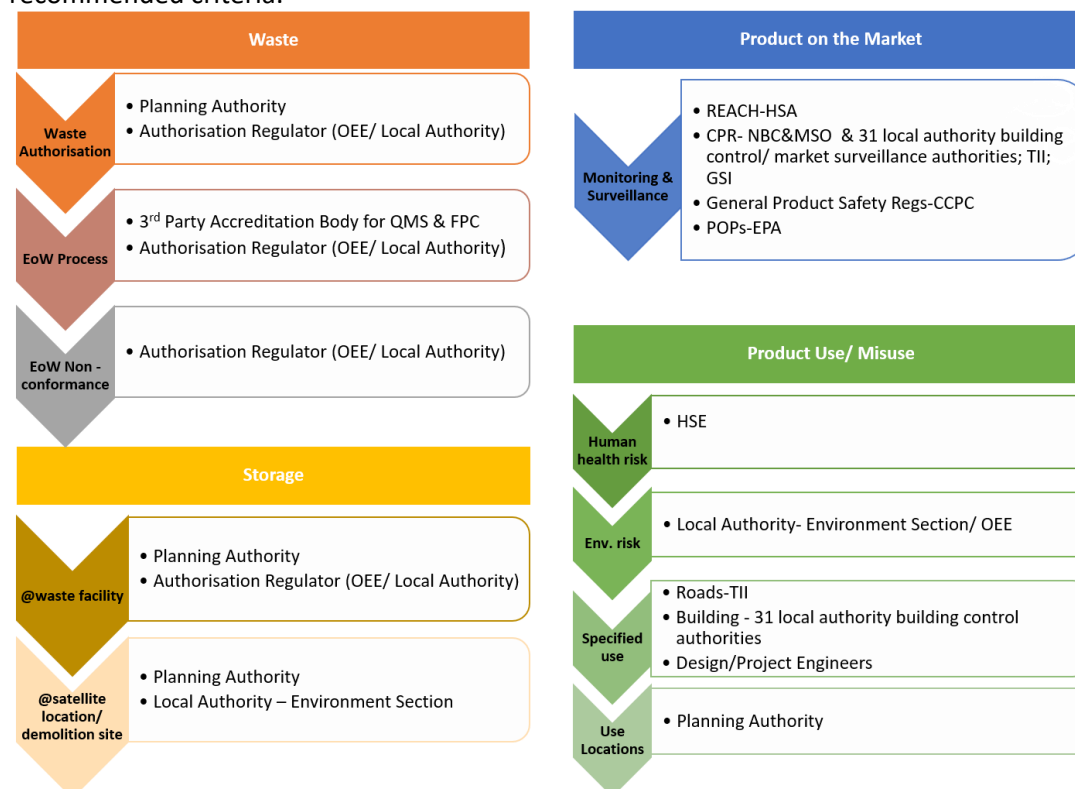


Figure 1- Roles and responsibilities of competent authorities in relation to the recommended criteria for end-of-waste for recycled aggregates.

It should be noted that where recycled aggregate which has been placed on the market as a product (i.e. has ceased to be waste) is misused (used against manufacturer (producer) specifications), the same rules and governing enforcement legislation that applies to virgin products apply. The

recycled aggregate does not automatically revert back to waste due to misuse. Depending on the misuse and risks posed by the misuse, it could be viewed as a pollution incident, a breach of building regulations, as a hazard (health and safety) and so on. The competent authority relevant to the risk posed would then be the relevant enforcement authority.

### Section 3: Criteria for recycled aggregate

*3.1 Recycled aggregate shall cease to be waste where all of the following conditions are demonstrated as fulfilled:*

The point at which the recycled aggregate stops being classified as a waste and is considered a product/ secondary product (non-waste), is when the material is demonstrated to comply with all criteria. Compliance with the criteria must be documented through issue of a statement of conformity.

Recycled aggregate can be considered to cease to be waste prior to leaving the site of production (recovery) or use at the site of production. A statement of conformity provides documented evidence/ a declaration down the chain of custody that recycled aggregate has ceased to be waste. It also provides important information to the user in relation to its suitable uses and restrictions on use.

Refer to [Section 5.2](#) for details of when a statement of conformity should issue.

*3.1.(a) the recycled aggregate results from a recovery operation undertaken under an appropriate waste authorisation;*

Refer to [Section 1](#).

*3.1 (h) the producer has satisfied requirements within any guidance issued by the Agency in relation to these criteria.*

This criterion requires compliance with this explanatory note.

### Section 4: Specific uses & restrictions on use

*4.1 Recycled aggregate fulfilling the criteria set out in Section 3 shall only be specified in the statement of conformity as suitable for use for purposes listed in Part 1 of Annex II.*

The producer may only identify uses as listed in Part 1 of Annex II as being suitable uses. The statement of conformity must list the use(s) for which the recycled aggregate is suitable.

*4.2 The restrictions on use as listed in Part 2 of Annex II shall be specified in the statement of conformity.*

The recycled aggregate is not suitable for use in any of the restricted uses listed in Part 2 of Annex II. The statement of conformity must list all unsuitable (restricted) use(s) along with any other restrictions specified by the producer.

### Section 5: Statement of conformity

*5.1 The producer shall issue a statement of conformity using the template set out in Annex III for each batch or consignment of recycled aggregate, whichever is of smaller quantity.*

The statement of conformity should mirror the template set out in Annex III.

A statement of conformity must issue for :

- each batch of recycled aggregate where the full batch is being supplied/ dispatched to a single user;
- each part of a full batch of recycled aggregate where the batch is divided and supplied to multiple users. i.e. a statement of conformity should be issued for each consignment from that batch;
- each batch of recycled aggregate where a consignment comprises more than one batch;
- each batch of recycled aggregate produced where the full batch is being used at the site of production (e.g. produced at demolition site via mobile crushing and then used at the same site); or
- each batch of recycled aggregate where more than one batch is produced and used at the site of production.

A producer may develop their own statement of conformity or incorporate the statement of conformity requirements of an environmental performance declaration or similar. This is provided all line items as presented in the template set out in Annex III and prescribed in Section 5 are included. It is recommended (if producing for CE marked products) that the statement of conformity appends the Declaration of Performance.

*5.2 The statement of conformity, excluding the section on chain of custody, shall be issued as documented evidence that the recycled aggregate meets these criteria and that the material ceases to be waste.*

The statement of conformity is essential in:

- documenting non-waste status of the product;
- providing for traceability; and
- communicating the suitable uses of material and restrictions on use to the customer or user.

Once the output has been documented to meet all criteria, including quality requirements, the recycled aggregate out may be considered to achieve end-of-waste meaning it is now a product. This means it may be stockpiled as a verified product, pending sale or use. Compliance with the criteria must be documented through issue of a statement of conformity .

The chain of custody within the statement of conformity does not need to be completed if the statement of conformity issues before dispatch or use.

*5.3 The statement of conformity, including a completed chain of custody, shall be issued prior to the recycled aggregate being dispatched to the next holder.*

If recycled aggregate is being sold/ made available to another user, a statement of conformity must be issued before it leaves the recovery site.

If recycled aggregate is being used at the same site in which it was recovered, for example recovered via mobile crushing at a development site and then used at the same site, a statement of conformity must be issued before it is used.

The chain of custody must be complete on dispatch or use of the batch, or part there-of , whichever occurs first.

Where an entire batch is dispatched in separate loads under one consignment to the same location, then a copy of the original statement of conformity with a completed chain of custody must travel with each load.

Where a statement of conformity is developed for stockpiled material and the batch is then subdivided into consignments, the statement of conformity must also be replicated into sub-divided parts. This should be represented in the nomenclature (reference numbering) in the statement of

conformity. For example, the original statement of conformity (parent) for the batch is reference no. 01.02.03. The batch is subsequently subdivided and sold in parts. The parent statement of conformity should be replicated with the same reference number and details, adding a part number to the batch reference e.g. ref: no. 01.02.03-1. The same should be complete for any subsequent parts with reference numbers assigned in numerical order e.g. ref: no. 01.02.03-1, 01.02.03-2 and 01.02.03-3. The chain of custody should be completed for each separate part prior to dispatch/ use. Apart from the reference number and chain of custody, all other details on the chain of custody should be the same as in the parent statement of conformity. On the parent statement of conformity, the producer should complete the chain of custody by reference to the reference numbers for each part of the batch. A copy of the chain of custody for each separate part should be appended to/ filed with parent chain of custody.

*5.4 The statement of conformity shall state the suitable specific use(s) for the recycled aggregate and any associated restrictions as set out in Section 4.*

Refer to [Section 4.1](#) and [Section 4.2](#).

*5.5 The producer shall transmit the statement of conformity to the next holder of the recycled aggregate. The producer shall retain a copy of the statement of conformity for a minimum of 5 years after its date of issue and shall make it available to competent authorities upon request.*

The producer must supply the next holder (i.e. the buyer, user, haulier or another intermediary) with the statement of conformity. Good practice would be to issue an electronic copy to all known parties, including those involved in the transport, sale or use of the recycled aggregate.

Onsite User

If the material is to be used at the same site in which it was recovered, then a statement of conformity should be transferred directly from the producer (waste operator) to the user.

Haulier

An intermediary such as a haulier may become the next holder if transport of the recycled aggregate is required. The producer should give the haulier the statement of conformity prior to or on collection for transport.

A haulier transporting the recycled aggregate must have a hardcopy or electronic copy during transportation. The haulier should give the statement of conformity to the next holder (i.e. the buyer or user or supplier).

Supplier

If recycled aggregate is being sold/ made available to an intermediary supplier such as a building depot, the intermediary supplier must transfer the statement of conformity to the next holder (i.e. the buyer/user).

Buyer/Offsite User

If recycled aggregate is being sold/ made available to a buyer/ user, the buyer/ user should retain a copy of the statement of conformity.

If the buyer/ user is a contractor or the buyer/user transfers the recycled aggregate to another holder, the statement of conformity should be given to the final holder, i.e. the person with overall control or ownership at the use location.

The statement of conformity acts as evidence that the material is not a waste. Where a recycled aggregate is used or moved without a statement of conformity this may be construed as movement of waste and may be subject to enforcement action.



**Section 6: Management system**

*6.1 The producer shall implement a management system suitable to demonstrate compliance with the criteria referred to in Sections 3 to 5 and Section 7, and specific monitoring requirements set out in Annex I for each criterion*

The management system must conform to a recognised accredited industry standard; Refer to [Section 6.4](#). The system should set out policies, controls, processes and procedures to ensure the recycled aggregate is produced in accordance with the criteria. The system should include records to demonstrate each criteria has been fulfilled for each batch of recycled aggregate.

The management system may be incorporated within another management system operated by the producer. For example, the producer may incorporate the management system within the management system they operate for the waste authorisation under which the recycled aggregate is produced.

Similarly, where agreeable with the accreditation body, factory production controls as may be required under industry standards, may also be incorporated within the management system.

*6.2 The management system shall include a set of documented procedures concerning each of the following aspects: (a) to (m)*

Documented procedures should set out the steps to be taken for particular tasks that need to be undertaken. The procedure acts as a guide/set of rules for the producer (waste operator) to ensure they and their staff undertake tasks in a consistent manner. Documented procedures should also set out the roles and responsibilities of staff undertaking the tasks, or individual steps within a task.

A separate procedure should be drafted, implemented and followed for each item (task) numbered (a) to (m).

The quality management system should clearly define these roles and the level of competency required, in addition to any training records/ evidence to demonstrate competency of staff. The table below sets out the minimum level of competence required to undertaken listed tasks:

Task	For completion by:
Assessment of potential contamination, including review of waste classification reports and asbestos surveys for inputs.	“qualified staff”
Visual assessments.	“qualified staff”
Waste characterisation/ acceptance, including basic due diligence assessment (for example ascertaining knowledge of the raw material or review of waste classification reports) to determine whether there is a risk of contamination and if further detailed due diligence is required.	“qualified staff”
Detailed due diligence assessment, including waste sampling and testing, interpretation of laboratory analytical results and drafting of waste classification reports or similar reporting.	“qualified person”
Geotechnical sampling & testing.	“qualified staff” or as required by harmonised aggregate product standard
Environmental sampling.	“qualified person”
Interpretation of environmental analytical results.	“qualified person”
Interpretation of geotechnical test results.	“qualified staff” or as required by harmonised aggregate product standard
Completion of statement of conformity.	“qualified staff” or “qualified person”
Responsibility for QMS, including maintaining training and records	“qualified staff” or “qualified person”

*6.3 Where any of the treatments referred to in Part 2 of Annex I is carried out by a prior holder, or the same holder, the producer shall ensure that the supplier implements a management system for the pre-treatment which complies with the requirements of this Section.*

Where input waste has undergone any prior recovery or treatment as set out in Part 2 of Annex I, the producer who undertakes this treatment must operate a management system compliant with Section 6. The producer shall check and document that that producer who undertook any previous treatment has an appropriately accredited management system in place which complies with Section 6.

Where soil and stone from List of Waste (LoW) code 17 05 03 has undergone pre-treatment, reclassification under Low Code 19 13 02 may be undertaken, provided it is not hazardous.

Where waste from LoW code 17 01 01, 17 01 02, 17 01 03, 17 01 07, 17 05 04, or 17 09 04 has undergone pre-treatment, reclassification under Low Code 19 12 09 may be undertaken, provided it is not hazardous.

Reclassification of waste following pre-treatment does not require the reclassified waste to leave the facility. Any such a change/ reclassification of LoW codes at the waste facility following pre-treatment is subject to the written approval by the environmental enforcement authority with remit over the waste authorisation. In some cases, particularly in the case of hazardous material, waste classification in line with basic characterisation requirements specified within the Landfill Directive<sup>1</sup>, including verification testing, may be required to validate the reclassification.

Where a producer is undertaking pre-treatment and wishes to reclassify the waste they should seek approval in writing from the enforcement authority with remit over their waste authorisation for the re-classification. Written approvals, if granted, would be required to form part of the management system for the waste authorisation. Such approval may be subject to conditions in relation to basic characterisation as detailed above. It is envisaged this would be a once off request/ approval per authorisation, provided the inputs and reclassification process stays the same.

Sorting by hand picking/ grabber is not considered to constitute mechanical treatment and is not considered as pre-treatment for the purpose of reclassification.

Refer to [Annex I, Part 1.1](#) for allowable inputs under pre-treated 19 LoW codes.

*6.4 The management system shall be certified by a Management System Certification Body accredited by the Irish National Accreditation Board, or equivalent European accreditation body. This certification shall verify that the management system complies with the requirements of this Section. The verification shall be carried out annually.*

The management system must conform to a recognised industry standard. Examples of such standards include, but are not limited to:

- *ISO 9001- Quality Management Systems*
- *ISO 14001- Environmental Management Systems*

The management system must be certified by a third party on an annual basis. The third party must be accredited to undertake such certification. The certification acts as evidence that the management system conforms to the industry standard adopted. This certification should include verification that the management system complies with the requirements of Section 6 of the decision.

It is considered that the quality management systems for the waste authorisation and end-of-waste recovery process can be merged.

<sup>1</sup> Council Decision 2003/33/EC of 19th December 2002 establishing criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 of and Annex II to Directive 1999/31/EC

*6.6 The producer shall give competent authorities access to the management system and records upon request.*

A competent authority (regulator) may at any stage, whether for compliance, monitoring or surveillance purposes, in response to an incident or non-compliance or for enforcement purposes, may seek a copy of the management system. The management system and all associated records must be made available to the competent authority.

## Section 7: Register & reporting

*7.1 Prior to production of recycled aggregates in accordance with these criteria, a producer shall register on the Agency's public register, or as may be otherwise prescribed by the Agency. Where it is the case that a producer operates under multiple waste authorisations, a separate registration shall be made relating to each waste authorisation under which the recycled aggregates are produced..*

The Agency will establish a public register of producers of recycled aggregate who produce recycled aggregate in accordance with the national decision. This register will list producers who produce recycled aggregate which has ceased to be waste. The register will be publicly available on the Agency website so that buyers/ users can choose an appropriate authorised supplier and that competent authorities can undertake compliance, monitoring and/or surveillance checks. The register may also act to inform those generating certain wastes of producers who provided circular solutions for their waste. The register will include filter and download functionality.

Where a recycled aggregate is supplied (sold or made available for use) by a producer that is not registered as a producer, this is in breach of the criteria and as such may be construed as misclassification of waste and may be subject to enforcement action.

The register will include the following details:

- Name of the producer (waste operator);
- Organisational email address or contact no.;
- Waste authorisation reference number;
- Environmental enforcement regulator with remit over the waste authorisation (either the Office of Environmental Enforcement (EPA) or the Environment Section of the issuing local authority;
- End-of-waste decision reference no. being utilised (in this case: EoW-N001/2023); and
- End-of-waste material being produced (in this case: recycled aggregates).

The register will be managed and overseen by the Agency.

### How to Register

To register as a producer of recycled aggregates complete the registration form and return to [article28@epa.ie](mailto:article28@epa.ie). The registration form is available to download at <https://www.epa.ie/our-services/licensing/waste/end-of-waste-art-28/end-of-waste-criteria-in-ireland/>.

In order to register as a producer of recycled aggregate in accordance with the National End-of-Waste Criteria-Recycled Aggregates (EoW-N001/2023), the producer must hold an appropriate waste authorisation for the recovery activity. Where a producer intends to produce recycled aggregates under multiple waste authorisation, a separate registration should be made for each waste authorisation.

Note: An automated registration system is currently under development by the EPA. Registration information within this explanatory note and on the EPA website shall be updated once the automated registration system is available.

### **Post Registration**

When a registration form is submitted to the EPA, the registration will be assigned a registration reference number and details of the registration will be entered on the End-of-Waste Register. The relevant environmental enforcement authority shall receive an alert when a waste authorisation within their remit has been added to the register. The National Waste Collection Permit Office shall also be alerted. The environmental enforcement authority may decide to undertake site visits or request records.

Once registered, the producer may commence production of recycled aggregate in accordance with the National End-of-Waste Criteria-Recycled Aggregates (EoW-N001/2023), provided they hold appropriate authorisation for the recovery activity.

*7.2 The producer shall report tonnages of recycled aggregates produced per annum on an annual basis as part of environmental performance reporting/ annual environmental reporting for the waste authorisation under which the material is produced, or shall make such records available as may be otherwise prescribed by the Agency, Local Authorities, the National Waste Collection Permit Office or the National Transfrontier Shipment Office.*

The producer shall specify the total tonnage of recycled aggregates recovered and produced from waste annually within their returns (environmental performance reporting/ annual environmental reporting) to the environmental regulator with remit over the waste authorisation under which the recycled aggregate was produced.

The tonnages reported should account for and include a note of any non-conforming outputs reintroduced into the recovery process.

This explanatory note may be updated, where any other future or alternative reporting requirements are prescribed.

## **Section 8: Entry into force**

*National End-of-Waste Criteria No. EoW-N001/2023 shall be available for utilisation following publication on the Agency's website.*

The decision will come into force from the date the **finalised version** is published on the Agency website. Any producer, who holds an appropriate waste authorisation, which provides for the recovery operation and waste inputs, may utilise the criteria. The criteria may be utilised to establish when recycled aggregate recovered from waste ceases to be waste. In plain terms, the criteria can be used as a means of reclassifying recycled aggregate from a waste to a non-waste (product).

In order to utilise the criteria, the producer must register as a producer of recycled aggregate in accordance with the decision. Refer to [Section 7.1](#)

## **Annex I – Part 1: Waste inputs**

*1.1 Inputs shall be restricted to the non-hazardous list of waste codes specified in Table 1.*

Only waste types assigned list of waste code as listed in Table 1 can be used to produce recycled aggregate.

While LoW code 17 05 03\* has not been included within the allowable inputs due to its hazardous nature, where soil and stone from LoW code 17 05 03\* has undergone pre-treatment and has been reclassified under Low Code 19 13 02, provided it is not hazardous, it may be used as an input for the recovery of recycled aggregates. This is subject to the approval of the enforcement authority for the waste authorisation.

Waste inputs classified as 19 12 09 are limited to wastes “originating from the treatment of 17 01 01, 17 01 02, 17 01 03, 17 01 07, 17 05 04, or 17 09 04.” No other reclassified list of waste codes are acceptable under 19 12 09 as inputs. Any reclassification of list of waste 17 codes to 19 12 09 is subject to the approval of the enforcement authority for the waste authorisation.

Refer to [Section 6, Part 3](#) in this regard to waste reclassification and approval.

*1.2 Inputs shall meet the incoming waste acceptance criteria of the waste authorisation under which the recycled aggregate is produced.*

The waste authorisation must authorise the acceptance of the list of waste codes for the waste inputs to be used in the recovery operation to produce recycled aggregate.

The producer must also comply with the tonnages of waste permitted to be accepted and/or recovered under the waste authorisation.

*1.5 Only waste that contains recoverable aggregate (minerals) may be used as input.*

The input waste must contain minerals (stone, rock, sand, gravel, concrete, brick, or ceramic tiles) which can be extracted as aggregate.

With the exception of soil and stone and dredgings, the waste input should predominantly consist of minerals. Any non-mineral constituents (material other than stone, rock, sand, gravel, concrete, brick, or ceramic tiles) should be minimal and the recovery process should be capable of removing these to acceptably low levels as specified in Table 4 of the decision.

Soil and stone and dredgings inputs should predominantly consist of soil/sediment and minerals. Apart from soil/sediment, any non-mineral constituents should be minimal. The recovery process should be capable of removing soil contents (fractions) and non-mineral contents to acceptably low levels as specified in Table 4 of the decision.

*1.7 (a) Wastes inputs shall not contain the following: asbestos;*

For materials originating for demolition activities an asbestos survey shall be undertaken prior to any demolition activities from which input material is sourced. Any asbestos or asbestos containing material identified must be segregated and disposed of separately in accordance with National and European legislation. Asbestos and asbestos containing materials are not permitted in the input material, therefore records of inspection of asbestos surveys completed for the source sites shall be maintained. Any such records should be maintained within the quality management system. Records should be maintained for at least 5 years.

An asbestos survey is not required for waste arising from a manufacturing process (e.g. List of waste codes 10 12 and 10 13), greenfield soil and stone (e.g. list of waste code 17 05 04) or other non-demolition sources, where the presence of asbestos is highly unlikely. A justification for not including an asbestos survey shall be clearly recorded and form part of the due diligence assessment (Refer to [Part 1.8](#)).

*1.7 (b) Wastes inputs shall not contain the following: epoxy resin;*

Epoxy resin is not permitted to be contained within waste inputs.

Concrete and other demolition wastes inputs have the potential to be treated with epoxy resin. Epoxy resins are used to form a chemical resistant, waterproof and durable layer on the surface of concrete and typically form a layer a few millimetres to a few centimetres thick on the surface of the concrete. Some epoxy resin entry into the concrete matrix may also occur.

Concrete or other demolition wastes containing epoxy resins should be segregated at source. Producers should specify to their waste suppliers their requirements in this regard. A due diligence assessment of the input should identify the potential for such materials to be contained within the input (Refer to [Part 1.8](#)). In addition, visual inspection of waste inputs shall be undertaken to assess for the presence of flaky gel-like structures or concrete fragments containing shiny surfaces.

*1.7 (j) Wastes inputs shall not contain the following: invasive species;*

In order to avoid accidental spread, waste inputs should not be contaminated with/ contain invasive species. Example of invasive species include, but are not limited to, Japanese knotweed, Chilean rhubarb ([Gunnera](#)), Rhododendron etc. A due diligence assessment of the input should identify the potential for invasive species to be contained within the input (Refer to [Part 1.8](#)).

[Ireland's Invasive Alien Species Soil and Stone Pathway Action Plan 2023 -2027](#) has been drafted to tackle priority pathways of unintentional introduction and spread of invasive species. Under this action plan, development of core biosecurity measures guidance document is planned. In addition updates of the '[Best Practice Guidelines for the preparation of resource & waste management plans for construction & demolition projects](#)' and '[Guidance on waste acceptance criteria at authorised soil recovery facilities](#)' with regard to invasive species is planned. Further information is available at the following link <https://invasives.ie/biosecurity/pathway-action-plans>.

*1.7 (k) Wastes inputs shall not contain the following: waste generated arising from remediation of deleterious materials e.g. pyrite remediation, or defective concrete block remediation etc*

In order to avoid such high risk inputs re-entering the production chain, waste from remediation of deleterious materials for example from demolition of defective homes impacted by pyrite, mica, pyrrhotite etc. is not permitted as waste input. A due diligence assessment of the input should identify the potential for such inputs (Refer to [Part 1.8](#)).

*1.7 (l) Wastes inputs shall not contain the following: any other substances or material identified as unsuitable by the Agency.*

As regulations are subject to amendment and replacement, and new regulations come into force, the Agency may amend/ add additional restrictions on substances or materials contained with waste inputs. Any such addition/ amendment shall be specified within a revision of this document.

*1.8 A due diligence assessment for each new source of input waste shall be completed to identify any potential for contamination. Where potential for chemical contamination is identified, any additional contaminants of concern, other than those specified within Tables 2 and Table 3, shall be quantified via testing and shall be recorded. Testing shall be carried out in accordance with Part 4.2 of Annex I.*

For all new source of waste inputs, the requirement a due diligence assessment is required. Due diligence may simply require a knowledge of the raw input for low risk inputs such as greenfield soil

and stone (17 05 04) or material arising from a waste product residues arising from a manufacturing process (List of waste codes 10 12 and 10 13).

Refer to [Section 6.2](#) above for further information in relation to the level of competency required to undertake certain tasks in relation to due diligence assessments.

A site investigation report or waste classification report or waste characterisation reports may be required to identify potential contamination of inputs and associated contaminants of concern. Such reports/assessments should be prepared by a qualified person. A qualified person is a suitably qualified, trained and experienced and who has the requisite knowledge and experience required for sampling, testing and waste characterisation. These reports/assessments are to include knowledge of the material, including historic uses of the source site. Where potential for contaminants of concern which are not listed in Table 2 and Table 3 are identified, sampling and analysis should be undertaken to quantify these.

Where there is potential for contaminants of concern to be present, basic characterisation i.e. testing and analysis for contaminants of concern is to be undertaken as a minimum. Basic characterisation includes a thorough determination, according to standardised analysis and behaviour testing methods, of the short and long-term leaching behaviour and/or characteristic properties of the waste input. Samples should be collected, and associated results interpreted by a qualified person. Any such testing and frequency of testing should be in line with basic characterisation requirements specified within the Landfill Directive<sup>2</sup> and the EPA 2020, *Guidance on waste acceptance criteria for soil recovery facilities*<sup>3</sup>.

Where testing identifies contaminants of concern, an assessment needs to be undertaken to determine whether these parameters or substances are above or below 'acceptable levels'.

'Acceptable levels' of contaminants for parameters not listed in Table 2 and Table 3 may be interpreted as:

- below the laboratory's limits of detection that is commonly reported by environmental testing laboratories for the compound(s) of concern;
- below the 98<sup>th</sup> percentile values from the National Soils Database (for naturally occurring parameters or substances); or
- below levels as agreed with the Agency or a local authority environment enforcement office.

Where concentrations are determined to be above acceptable levels, the treatment process must be capable of reducing contaminants to acceptable levels. Where the treatment process is not capable of reducing contaminants to acceptable levels, the waste should not be used as an input.

It is considered good practice to seek waste classification from waste suppliers prior to acceptance at a waste facility. It is also common practice to carry out compliance testing and on-site verification testing prior to input to the recovery process for producing recycled aggregates. Waste classification should include sampling and laboratory testing for commonly reported suites of contaminants. In some cases, this may be required by the waste authorisation in some capacity anyway. For further detailed information in relation to basic characterisation refer to:

- *Council Decision 2003/33/EC of 19th December 2002 establishing criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 of and Annex II to Directive 1999/31/EC; and*

<sup>2</sup> Council Decision 2003/33/EC of 19th December 2002 establishing criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 of and Annex II to Directive 1999/31/EC

<sup>3</sup> <https://www.epa.ie/publications/compliance--enforcement/waste/Guidance-on-Waste-Acceptance-Criteria-at-Authorised-Soil-Recovery-Facilities.pdf>

- *EPA’s 2020 Guidance on waste acceptance criteria at authorised soil recovery facilities.*

Testing of inputs can identify unsuitable inputs which are likely to give rise to non-conforming material. This may help to avoid cost and resource losses associated with processing material that will fail the criteria. Such testing is recommended to include pollutant limits specified in Table 2 and Table 3 and any other potential contaminants of concern associated with the historic use of the source site or source material. Such contaminants could include pesticides, volatiles and other persistent or dangerous substances.

**Annex I – Part 2: Recovery processes & treatment techniques**

*2.1 All treatment processes (like crushing or grinding; sorting, separation, washing, decontamination, grading, sieving, soil flocculation) needed to prepare the recycled aggregate for direct input into final use shall have been completed.*

The recovery operation needs to include treatment process/ techniques that are sufficient to produce a recycled aggregate that meet quality requirements set out in Part 3 of Annex I.

For example:

- The recovery process may need to include crushing and grading in order to meet a geotechnical grading classification specified within an industry standard.
- The recovery process for clean, source segregate uncontaminated concrete (17 01 01) may only require crushing and grading.
- The recovery process for waste input 17 05 04 (soil and stone) needs to be capable of removing soil content to < 1% within the recycled aggregate.
- The recovery process for waste input 17 01 07 (mixtures of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06 ) may require washing in addition to crushing and grading as it may not meet pollutant limit values without washing.

As a rule of thumb, the cleaner the input (source segregated and uncontaminated), the cleaner the output and the more likely the material is to meet the quality criteria. Producers should specify their requirements to their waste suppliers in regard to the quality of waste inputs, including any requirements in relation to source segregation and physical and chemical contamination.

Any blending of recycled aggregate with virgin aggregate to achieve a certain geotechnical grade/ classification should be undertaken after the point in which the material ceases to be waste and should not be form part of the recovery process.

*2.2 The treatment process shall include processes sufficient to reduce:  
(i) pollutant concentrations to levels below those specified within Tables 2 and 3*

Where pollutant concentrations in the input are greater than the pollutant limits in Table 2 and Table 3, or above acceptable levels if identified under [Part 1.8](#), whether the cause is naturally occurring or as a result of contamination, the treatment process/ techniques need to be capable of reducing/ removing pollutants.

Self-monitoring requirement (extracted below) applies:

*Qualified staff shall monitor and review the efficacy of the treatment process regularly.*

This should include a comparison of the test results for the input and output from the recovery process to ensure pollutant reduction consistently occurs.

*2.2 The treatment process shall include processes sufficient to reduce:  
(ii) concentrations of chemical contamination of concern identified under Part 1.8 to acceptable levels*



Where testing completed under Part 1.8 identifies contaminants of concern which are above acceptable levels, the treatment process/ techniques need to be capable of reducing/ removing these parameters or substances to acceptable levels. Refer to [Part 2.2 \(i\)](#) and [Part 1.8](#).

### Annex I – Part 3: Quality of recycled aggregate

**3.1** *The recycled aggregate shall be graded/ classified according to a customer specification or an industry specification/ standard for direct use.*

Where the recycled aggregate is required to conform to an industry standard the material should be graded and classified according to that standard. For example, a recycled aggregate that complies with I.S. EN 13242 may be graded per its size as coarse, fine or all-in. Other properties of the aggregate will also need to be quantified and declared. Depending on the specified use the standard recommendation for the industry standard may refer to industry specifications, under which the material can also be classified. For example:

- Material for use as general fill should meet the specifications for general fill under Transport Infrastructure Ireland -CC-SPW-00600 - *Specification for Road Works Series 600 – Earthworks*. The material can be classified for example as Selected Granular Fill-6F2 for which grading requirements also apply.
- Material for use in road pavements should meet the specifications under Transport Infrastructure Ireland CC-SPW-00800 Specification for Road Works Series 800 – Road Pavements – Specification for Road Works Series 800-Road pavements- Unbound and cement bound mixtures. The material can be classified for example as Unbound Granular Mixture B (UGM B), for which grading requirements also apply.

**3.2** *a. Construction Products*

*Recycled aggregates which fall within the scope of Construction Product Regulation (CPR)<sup>4</sup> and are defined as construction products shall comply with:*

- i a relevant harmonised aggregate product standard(s) applicable to the materials specified use;*
  - ii applicable industry specification as available and as applicable for the materials specified use; and*
  - iii Any additional customer specifications;*
- or*

*b. Non-Construction Products*

*Recycled aggregates which do not fall within the scope of CPR shall comply with:*

- i a relevant harmonised aggregate product standard(s), where available and applicable for the materials specified use;*
- ii applicable industry specification as available and as applicable for the materials specified use; and*
- iii Any additional customer specifications”*

The recycled aggregate must comply with all relevant standards and specifications applicable to its intended/ specified use. Where a technical standard is available for a specified use, the recycled aggregate must comply with the standard. For clarity, the applicability of standards and specifications aggregates has been set out separately for construction and non-construction products.

Construction products;

The criteria require that all recycled aggregate construction products falling under CPR, must comply with an applicable harmonised aggregate product standard for the specified use and any associated National provisions.

Non-construction products;

- a. With applicable harmonised aggregate product standards or specifications*

<sup>4</sup> Construction Product Regulation (CPR) (EU No.305/2011)

Where a recycled aggregate is not considered to be a construction product i.e. a non-construction product, however there is a harmonised aggregate product standard or specification available for a specified use, it must comply with the applicable standard or specification. For example, recycled aggregates intended for use as an input into non-structural concrete for use as a hardstanding in a yard should meet I.S. EN 12620.

*b. With no applicable harmonised aggregate product standards or specifications*

Where no harmonised aggregate product standards or specification applies directly to the specified use, the recycled aggregate may be marketed without the need to conform to a standard or specification. This is the approach applies in the same way for uses of virgin aggregate which would not warrant compliance with an industry standard or specification. In this case a customer specification may apply. For example, recycled aggregates intended for use in agricultural lanes.

The table below provides a synopsis of the applicable technical requirements under these categories for specified uses set out in the criteria.

Category	Construction products	Non-construction products	
Sub-category	N/a	Applicable technical requirements	No current applicable technical requirements
<b>Specified use</b>	Unbound & bound uses in <u>construction works</u> including: concrete & bituminous mixtures road construction; pavements, general fill, railway ballast; other linear features defined; pipe-bedding, haunching or surrounding materials; armourstone any other uses coming within the definition of construction works within the CPR.	All bound uses including: concrete & bituminous mixtures; non-construction general fill material; any other use within the criteria not defined as construction works within the CPR where technical requirements are available.	Temporary or permanent areas of unbound groundcover (e.g. decorative gravel); unbound haul/ access roads/ lanes/ tracks/ paths, bunds or similar; any other use within the criteria not defined as construction works within the CPR, and where an applicable technical requirement is not available.
<b>Requirement</b>	Compliance with CPR. The CPR requires that each construction product, for which a harmonised aggregate product standard exists, has a Declaration of Performance from the producer and must be affixed with the CE Mark before it can be placed on the market. <sup>Note 1</sup>	Compliance with harmonised aggregate product standards or specification applicable to the specified use.	Compliance with a customer specification, where required. A customer may specify that the material needs to meet classification set out in a harmonised aggregate product standards or specification. Similarly, where a material is marketed or declared as conforming with an industry classification, the material must comply with all requirements of that harmonised aggregate product standards or specification.
<b>Details of technical requirements</b>	Producers must test and declare the performance of their construction products using a common technical language prescribed in the standard.	The producer must test in accordance with requirements and methods set out in the harmonised aggregate product	Compliance with customer technical specifications, if specified.

	<p>The producer must test in accordance with requirements and methods set out in the harmonised aggregate product standards. The product must comply with other applicable specifications, as required. Any classification of the product must be in accordance with the standard or specification. The manufacturer must also comply with any the National provisions for the applicable standard set out in S.R.s or National Annex.</p>	<p>standards or specification. They must declare the performance of their products. Any classification of the product must be in accordance with the standard or specification. The manufacturer must also comply with any the National provisions for the applicable standard set out in S.R.s or National Annex.</p>	
<p><b>Applicable harmonised aggregate product standards and associated S.R.s or National Annex relevant to the criteria</b> Note 2 &amp; 3</p>	<p>S.R. 16:2016 - Guidance of the use of I.S. EN 12620:2002+A1:2008</p> <p>I.S. EN 12620:2002+A1:2008 - Aggregates For Concrete</p> <p>S.R. 17:2004- Guidance on the use of I.S. EN 13043:2002</p> <p>I.S. EN 13043:2002: Aggregates for bituminous mixtures and surface treatments for roads, airfields and other trafficked areas</p> <p>S.R. 21:2014+A1:2016 -Guidance on the use of I.S. EN 13242:2002</p> <p>I.S. EN 13242:2002 +A1:2007 - Aggregates for unbound and hydraulically bound materials for use in civil engineering work and road construction</p> <p>I.S. EN 13450:2002 - Aggregates for Railway Ballast</p> <p>I.S. EN 13383-1:2002 - Armourstone – Part 1: Specification</p> <p>I.S. EN 13055-1:2002 - Lightweight aggregates – Part 1: Lightweight aggregates for concrete, mortar and grout</p> <p>I.S. EN 13055-2:2004 - Lightweight aggregates – Part 2: Lightweight aggregates for bituminous mixtures and surface treatments for unbound and bound applications</p>		
<p><b>Applicable technical specifications</b> Note 4</p>	<p>TII- CC-SPW-00500 - Specification for Road Works Series 500 – Drainage and Service Ducts</p> <p>TII-CC-SPW-00600 - Specification for Road Works Series 600 – Earthworks</p> <p>TII- CC-SPW-00800 Specification for Road Works Series 800 – Road Pavements – Unbound and cement bound mixtures</p> <p>TII- CC-SPW-00900 - Specification for Road Works Series900 – Road Pavements- Bituminous Mixtures.</p>		

Note 1: CE marking is a part of the EU’s harmonisation legislation. By affixing the CE marking to a product, a manufacturer declares that the product meets all the legal requirements for CE marking and can be sold throughout the EEA.

Note 2: While I.S. EN 13139:2002/AC:2004 Aggregates for mortar and S.R. 18:2021 Guidance on the use of I.S. EN 13139:2002 have been identified as applicable standards for aggregate products; the restrictions on the recommended criteria exclude this use. Therefore, these are not listed above.

Note 3: Aggregate inputs for .S. EN 206 requires aggregate inputs to comply with I.S. EN 12620:2002+A1:2008 - Aggregates For Concrete or I.S. EN 13242:2002 +A1:2007 - Aggregates for unbound and hydraulically bound materials for use in civil engineering work and road construction. Therefore I.S. EN 206 is not considered directly relevant to aggregates and is not listed above.

Note 4: While technical specifications listed are specified for road works, S.R. 21:2014+A1:2016 -Guidance on the use of I.S. EN 13242:2002 requires compliance with these specifications for certain applications.

The above list is not exhaustive and other industry standard may be applicable to other uses. As

standards are subject to regular review, it is the producer and user's responsibility to ensure that the latest version is referred to. It should also be noted that new standards may be published which are applicable or which may replace existing standards for listed or unlisted specified uses.

In many cases, industry specifications may also apply to your specified use. The national standard recommendation SR21<sup>5</sup>, which acts as guidance for the technical I.S. EN 13242, currently links requirements for specified uses to industry specifications. While it may be common practice to only comply with the industry standard, it should be noted that this may not fulfil overarching legislative requirements such as the Construction Product Regulations that may be applicable to your use. The industry standard includes CE marking requirements with a requirement to declare aggregate properties, performance and attestation (accreditation).

In some cases, industry standards may limit or restrict use of recycled aggregate to a percentage content. For example, currently<sup>6</sup>:

- National standard recommendation SR21 for the technical I.S. EN 13242 explicitly excludes the use of recycled aggregate from use as unbound granular fill (hardcore) for use under concrete floors and footpaths adjacent to building structures. Therefore, recycled aggregate currently cannot be used for this specified use.
- TII- CC-SPW-00800 *Specification for Road Works Series 800 - Road pavements- Unbound and cement bound mixtures* limits the allowable content in some classification to 30% while there is no limitation on other classifications.
- National standard recommendation SR18 for the technical I.S. EN 13139 specifies the "*guidance is only for natural aggregates used to make masonry mortar, plastering/rendering and floor screeds. It does not include guidance with regard to the use of manufactured or recycled aggregates or for special bedding materials, repair mortar or grouts.*"

It is the user's (or their agent, such as an engineer or designer) responsibility to define any specific customer specifications to the producer. It is the producer's responsibility to confirm whether the material conforms to an industry standard, industry specification or customer specification and to specify if the material is suitable for certain uses.

There may be instances where an industry standard or specification is not directly applicable for a specified use. For example, construction of agricultural lanes, forestry roads/ tracks, decorative gravel, or temporary or permanent unbound ground cover i.e. carparks, construction compounds etc. In these cases, compliance with a customer specification may be considered sufficient. This is provided that uses of virgin aggregate in the same use would not warrant compliance with an industry standard or specification. The requirements for recycled aggregates with regard to standard compliance should mirror those for virgin aggregates. While it may not be required, as best practice, to ensure a minimum technical quality standard, it is recommended that the recycled aggregate conforms with a quality standard most comparable for the specified use. For example, recycled aggregate to be used in unbound applications such as constructing access roads/ lanes or as general ground cover is recommended to comply with an industry standard such as I.S. EN 13242 or similar.

**3.3 The recycled aggregate shall, as required, comply with the relevant provisions of the:**

- Classification, Labelling and Packaging (CLP) Regulation<sup>7</sup>;*
- CPR;*

<sup>5</sup> Standard Recommendation 21 – Guidance on the use of I.S. EN 13242:2002+A1:2007 – Aggregates for unbound and hydraulically bound material for use in civil engineering work and road construction.

<sup>6</sup> January 2023

<sup>7</sup> Classification, Labelling and Packaging - Regulation (EC) No 1272/2008 (CLP)

- iii *Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) Regulation<sup>8</sup>;*
- iv *Building Regulation<sup>9</sup>;*
- v *Persistent Organic Pollutants (POPs) Regulation<sup>10</sup>;*
- vi *General Product Safety Regulations<sup>11</sup>; and*
- vii *Or any other relevant legislation requirements as applicable or as identified by the Agency.*

As per self-monitoring requirements extracted below:

*As regulations are subject to amendment and replacement, it is the producer and user's responsibility to ensure that current regulations are referred to.*

This also applies to the provisions of any new legislation. The producer should satisfy themselves that they fulfil any legislative requirements applicable to the recycled aggregate product which they produce and for any markets they supply.

The Health and Safety Authority (HSA) have advised the following in relation to REACH:

*Recycled aggregates are within the scope of REACH and as such REACH obligations are likely to apply. It is the producer's responsibility to ensure and demonstrate that REACH obligations are satisfied.*

*ECHA guidance on waste and recovered substances is available on the ECHA website the following link:*

*[https://echa.europa.eu/view-article/-/journal\\_content/title/echa-publishes-new-guidance-on-waste-and-recovered-substances](https://echa.europa.eu/view-article/-/journal_content/title/echa-publishes-new-guidance-on-waste-and-recovered-substances).*

*The Health and Safety Authority (HSA) are the competent authority in relation to REACH in Ireland. Queries in relation to REACH can be directed to the HSA via [chemicals@hsa.ie](mailto:chemicals@hsa.ie).*

**3.6 Chemical contamination identified under Part 1.8 shall be demonstrated to have been reduced to acceptable levels.**

**Testing shall be carried out in accordance with Part 4.2.**

Where testing under Part 1.8 identifies detectable contaminants of concern in the input, repeat testing must be undertaken for those detected contaminants of concern. An assessment should be undertaken by a qualified person to determine whether these contaminants of concern comply with acceptable levels. Refer to [Part 1.8](#). Where concentrations do not meet acceptable levels, the batch of recycled aggregate should be considered as non-conforming and cannot cease to be waste (i.e. remains waste).

While detectable contaminants of concern may have been determined to be below acceptable levels under Part 1.8, where the recovery process includes change of size via crushing, or removal of soil content, this may increase the leachability of those contaminants of concern and give rise to increased concentrations and potential to exceed acceptable levels. Accordingly, repeat testing of the recovery operation output for detectable contaminants of concern recorded under Part 1.8 should be undertaken.

**3.7 Where the recycled aggregate is only suitable for 'low permeability use' and not suitable for 'general use', as determined by sampling and testing set out in Table 3, the statement of conformity shall specify:**

- i *the recycled aggregate is suitable in 'low permeability use' scenarios only; and*
- ii *the recycled aggregate is not suitable for uses in exposed areas (e.g. at ground surface without an overlying hardstanding layer (such as concrete or macadam) when present over high permeability subsoils.*

<sup>8</sup> Registration, Evaluation, Authorisation and Restriction of Chemicals - Regulation 1907/2006/EC (REACH)

<sup>9</sup> Building Regulations 1997, as amended;

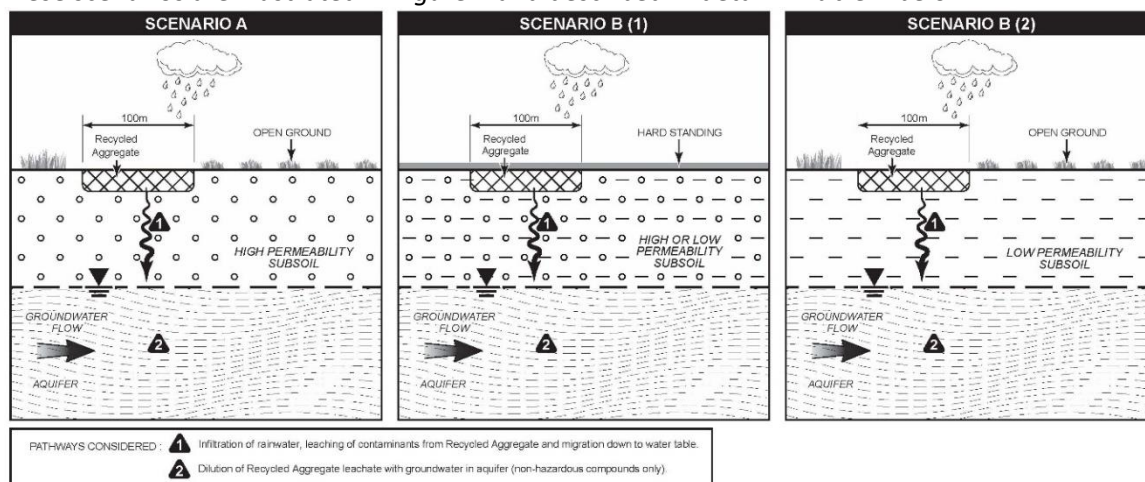
<sup>10</sup> Persistent Organic Pollutants - Regulation 850/2004/EC (POPs)

<sup>11</sup> S.I. No. 199/2004 - European Communities (General Product Safety) Regulations 2004

There are two sets of pollutant limits set out in Table 3; one set for all specified uses “general use” and one set of less stringent limits for “low permeability uses”. While a recycled aggregate may fail the “general use” limits they may comply with the “low permeability uses”. The “low permeability uses” limits have been set on the basis that the recycled aggregate is either placed:

- (i) beneath areas of hardstanding (e.g. a hydraulically or bituminous bound layer); and/or
- (ii) in areas of open ground, with:
  - a. Low groundwater vulnerability; or
  - b. Moderate groundwater vulnerability, where at least 1m of low permeability (<0.001m/d) clay is present below the aggregate;

These scenarios are illustrated in *Figure 2* and described in detail in *Table 2* below:



**Figure 2:** Schematic Conceptual Site Model of Different Scenarios Considered in the Generation of Pollutant Limit Values. (Source Geosyntec Consultants Ltd., 2023<sup>12</sup>)

**Table 2:** Proposed Pollutant Limit Value (PLV) Scenarios, (Source Geosyntec Consultants Ltd., 2023).

	Scenario A PLV	Scenario B PLV
<b>Conditions of use</b>	<p>These PLV apply to Recycled Aggregate to be used in:</p> <ol style="list-style-type: none"> <li>Areas of open ground (no hard standing or building will be present), and with:                             <ul style="list-style-type: none"> <li>• Extreme groundwater vulnerability; or</li> <li>• High groundwater vulnerability; or</li> <li>• Moderate groundwater vulnerability where less than 1m of low permeability (&lt;0.001m/d) clay is present below the aggregate.</li> </ul> </li> <li>Areas of open ground (no hard standing or building will be present) directly underlain by a sand and gravel aquifer, or other shallow geology that can represent a viable aquifer.</li> </ol>	<p>These PLV apply to Recycled Aggregate to be used in:</p> <ol style="list-style-type: none"> <li>Areas where hard standing will be present; or</li> <li>Areas of open ground, with:                             <ul style="list-style-type: none"> <li>• Low groundwater vulnerability, or</li> <li>• Moderate groundwater vulnerability, where at least 1m of low permeability (&lt;0.001m/d) clay is present below the aggregate.</li> </ul> </li> </ol>

<sup>12</sup> Geosyntec Consultants Ltd., 2023 *End-of-Waste Technical Information - Development of Pollutant Limit Values for Recycled Aggregate Products.*

Notes:

1. The groundwater vulnerability of a location, and/or whether a sand and gravel aquifer is present at a location, to be identified from (a) GSI maps available free to view at <https://gis.epa.ie/EPAMaps/>; and/or (b) site specific data showing a shallow geological material that can represent a viable aquifer.
2. Site specific data or literature may be used to assess the presence of low permeability clay in a Moderate groundwater vulnerability zone, to justify the use of Scenario A values.
3. Refer, in addition, to exclusion distances from sensitive receptors (Table 3.3) and limitations on the extent of the application spreading area (Table 3.2).

The low permeability scenario assumes there is less risk of contaminants leaching into the underlying groundwater due to either:

- reduced infiltration of water and consequently reduced leachate generation as a result of an overlying less permeable bound layer of surfacing such as concrete or tarmacdam; or
- reduced migration of leachate as a result of the presence of low permeability subsoil beneath the material.

This “general use” scenario assumes use in areas exposed (at ground surface without an overlying hydraulically or bituminous bound layer such as concrete or macadam) and present over a high permeability subsoil, which overlie a groundwater aquifer, and can include low permeability uses. The general use scenario can be considered a more sensitive scenario. Use of recycled aggregate classified as suitable for “low permeability use” only in a “general use” scenario may result in environmental impacts. Accordingly, it is essential, particularly for material only suitable for low permeability uses, that this is communicated to the customer through the statement of conformity.

*Part 3, Table 2 Solid Pollutant Limit Values (PLVs)*

Testing for and compliance with arsenic and lead solid pollutant limits is only required when the specified use scenario relates to a residential use scenario. These limits have been set to ensure human health protection under a residential scenario. Typically, arsenic and lead in recycled aggregate do not present a human health risk in commercial and public open spaces scenarios or to workers.

Where arsenic and/or lead solid limits are failed, but all other testing limits are complied with, the statement of conformity should clearly state that the recycled aggregate is not suitable for use in residential settings. Where testing is not undertaken but there is potential for the material to be used in these scenarios the same should be stated.

If the Mineral Oil (C10-C40) S-PLV is exceeded the aggregate is still considered to pass proposed PLV as long as the following conditions apply:

- a it is not to be used for a residential or allotment end-use; **and**
- b the solid Mineral Oil (C10-C40) concentration is less than 200 mg/kg; **and**
- c leachable concentrations of all speciated Total Petroleum Hydrocarbon (TPH) criteria working group (TPH-CWG) fractions within the Mineral Oil (C10-C40) range are below laboratory methods detection limits. Minimum 10:1 L/S Ratio laboratory method detection limits that should be met are:
  - i 0.05 mg/kg: TPH Aliphatic (>C10-C12), TPH Aromatic (>C10-C12)
  - ii 0.1 mg/kg: TPH Aliphatic (>C12-C16), TPH Aliphatic (>C16-C21), TPH Aliphatic (>C21-C35), TPH Aliphatic (>C21-C44), TPH Aromatic (>C12-C16), TPH Aromatic (>C16-C21), TPH Aromatic (>C21-C35), TPH Aromatic (>C21-C44).

*Part 3, Table 4 Recycled Aggregate (Output) - Physical contaminant limit values*

It is acknowledged that many of the physical contaminants listed within Table 4 are similar to those specified as “constituents” with technical specifications and standards and that similar test methods for classification and quantification may apply. Physical contaminants are listed in the criteria on environmental grounds, whereas constituents may be listed for geotechnical quality purposes in

the technical standards and specifications. In any case, all limits specified within the Table 4 of criteria must be complied with. Where a technical specifications and standards is also being complied with, any limits on constituents must also be complied with.

**Annex I – Part 4: Sampling & testing**

4.1 A verification sample shall be collected and tested for each batch of the recycled aggregate produced, or every 2,000 tonnes produced, whichever is the lesser. The sample shall be tested:

- i. at an accredited laboratory, using accredited test methods, where available, for all parameters specified in Table 2 and Table 3; and
- ii. in accordance with relevant test methods as specified in Tables 2 to 4.

Batch size

As per the definition set out in Section 2 of the decision, batch means:

*‘a production quantity or stockpile of material produced at one time under conditions that are presumed uniform, that can be regarded as a single unit, and has a unique reference’*

A batch may be from a single source or multiple sources. A batch should be considered to have reasonably consistent properties and should arise from similar inputs. For example:

- the production process uses 5,000 tonnes of soil and stone (17 05 04) from a single source as input into the recovery process. In this scenario the batch may be 5,000 tonnes, with testing of the output to occur every 2,000 tonnes;
- the production process typically uses concrete (17 01 01) of a reasonably consistent (clean) quality from multiple sources as input into the recovery process on an ongoing basis. In this scenario a batch size may be as defined by the producer. Testing of the output must occur at least every 2,000 tonnes;
- the production process uses 5,000 tonnes of concrete (17 01 01) from multiple sources as input into the recovery process. In this scenario the batch may be 5,000 tonnes, with testing of the output to occur every 2,000 tonnes. Depending on the sources of the concrete input and assessment under Part 1.8 (Refer to [Part 1.8](#)), the producer may decide to separate the waste input into smaller batches per single sources or groups of sources. They may do this where there is concern for potential failure of criteria associated with a particular input source;
- the production process uses 1,000 tonnes of soil and stone (17 05 04) from a single source as input into the recovery process. Following the processing of the 1,000 tonnes of soil and stone (17 05 04), 800 tonnes of concrete (17 01 01) from multiple (5 no.) sources is input into the recovery process. In this scenario there should be a minimum of two batches one for the soil and stone input and one for the concrete input. As per the example above, the producer may decide to split the concrete input into smaller batches depending on the source and nature of the input. A verification sample of the output should be collected from each batch;
- the production process typically uses inputs from multiple list of waste codes (e.g. 17 07 01, 17 01 02, 17 01 03 17 01 01 and 17 09 04) from multiple sources on a continuous basis. The different LoW inputs are mixed together for processing. In this scenario a batch size will be as defined by the producer. Testing of the output must occur at least every 2,000 tonnes. However, it should be noted in this scenario that increased testing should be undertaken, and consideration given as part of the diligence assessments for inputs. Refer to [Part 1.8](#).



Sampling and testing methods

As per self-monitoring requirements extracted below:

- *The laboratory selected should be able to achieve detection limits for each parameter below the PLVs specified in Tables 2 to 3, where possible.*
- *A sample should comprise a composite of a minimum of 3 no. sub-samples and be collected in accordance with ISO 10381-8: Soil Quality Testing – Sampling – Part8: Guidance on sampling of Stockpiles*

Note that for larger stockpiles/ batches, the number of sub-samples collected per composite sample may need to be greater than three.

Samples should be collected, and associated results interpreted by a qualified person.

*4.2 Where contaminants of concern have been identified under Part 1.8, a verification sample (of outputs) shall be collected and tested for all contaminants of concern identified under Part 1.8. Testing shall be undertaken at an accredited laboratory, using accredited test methods, where available. Testing shall be undertaken for each batch of the recycled aggregate produced, or every 2,000 tonnes produced, whichever is the lesser.*

Refer to [Part 3.6](#) with regard to parameters to be tested.

Refer to [Part 4.1](#) with regard to batch size and sampling and testing requirements.

Laboratory’s limits of detection should be at concentrations commonly reported by environmental testing laboratories for the compound(s) of concern, using accredited test methods, where available.

**Annex I – Part 5: Storage**

*5.4 Stockpiles of recycled aggregates compliant with these criteria shall be identified and physically separated according to the results of the environmental testing and geotechnical testing and/or specified uses. As a minimum, they shall be segregated according to the results of environmental testing (‘general use’ or ‘low permeability use’).*

Once the output has been documented to meet all criteria, including quality requirements, the recycled aggregate output may be considered to achieve end-of-waste meaning it is now a product. This means it may be stockpiled as a verified product, pending sale or use. Compliance with the criteria must be documented through issue of a statement of conformity .

Should the size of batching prove problematic with regard to storage, it is at the producer’s discretion to undertake more frequent sampling i.e. to have smaller batch sizes.

For clarity:

- outputs from the recovery process prior to achieving end-of-waste = waste;
- compliant end-of-waste outputs with statement of conformity =non-waste /products

Storage of products should be in accordance with applicable planning requirements.

Storage of products should be clearly identified, with records maintained to enable easy identification. Where it cannot be demonstrated that a stockpile is a product, the material may be viewed by enforcement authorities as waste. Products should be stockpiled separately according to its suitable end uses.

**Annex II – Specified uses and restrictions on use**

**1.1 The recycled aggregate that is produced in compliance with these criteria shall only be suitable for the following specific uses:**

The full list of specified uses as per Annex II, Part 1.1 should not be transcribed into the statement of conformity. The producer should assess and define the suitable uses.

The suitability of use of the recycled aggregate shall be determined by the quality of the recycled aggregate defined by a geotechnical testing in accordance with technical standards and specifications undertaken under Annex 1, Part 3. From the quality assessment undertaken, the producer shall determine which uses listed in Annex II, Part 1.1 are suitable and shall only specify (list) these as suitable on the statement of conformity. The producer may transcribe uses as listed in Annex II, Part 1.1 as written in the decision, or they may refine the specification to be more specific where they see fit.

For example,

- if the recycled aggregate has not been assessed under *I.S. EN 12620: Aggregates for Concrete*, then the aggregate cannot be specified as suitable for use in bound uses for non-structural concrete (Part1.1 (ii)(a))
- if the recycled aggregate has been assessed under *I.S EN. 13242: Aggregates for bound and hydraulically bound materials for use in civil engineering work and road construction*, then the aggregate can be specified as suitable for use in road construction (Part1.1 (i)(a)). The producer may however further specify, as defined by the quality testing, that the recycled aggregate be used as UBG B (refer to [Annex I Part 3.1](#)) in road construction.

Recycled aggregates may be used in bound applications to:

- construct linear features such as roads, bunds, haul and construction roads, access roads, lanes, tracks, paths, greenways or similar;
- construct areas of non-structural hardstanding (e.g. open air carparks); and
- make large interlocking non-structural concrete blocks.

The specified list is not exhaustive. Where an intended use scenario is comparable to a listed specified use this may be considered suitable, provided it is not listed as a restricted use and has been agreed with the Agency.

In addition, the specified use may need to include a limitation based on environmental performance testing. Where the recycled aggregate only conforms with pollutant limits for “low permeability uses” the statement of conformity must specify “The material in this consignment is only suitable for use:

- i beneath a hydraulically or bituminous bound surface layer; and/or
- ii above a low permeability subsoil (e.g. clay) or drift.]”

This explanatory note may be updated, where any other suitable specified uses are identified.

**2.1(v) for the purpose of infilling of any former quarry, pit or mineral excavation related to mining;**

Large volume use scenarios such as infilling of quarries have the potential to generate a large volume of leachate and will represent a much higher risk to the water environment than the scenarios which have been modelled to derive the pollutant limits presented within the decision. Accordingly, the criteria, with particular reference to pollutant limits, are not suitable for filling large volume sources such as quarries. In any case the restriction of the use of recycled aggregate to and area of 100m x 100m would preclude such use scenarios.

<p><i>2.1(vi) as a growth medium in areas used for food production or livestock grazing;</i></p>
<p>This exclusion relates to areas where food is grown including residential, allotments, public open space or agricultural settings or in pasture areas used for livestock. This exclusion does not incorporate tracks within forestry and agricultural land, on which living organisms are likely to spend only limited time.</p>
<p><i>2.1(vii) as ground cover in areas where protected species or habitats are present;</i></p>
<p>This exclusion does not incorporate tracks within forestry and agricultural land, on which living organisms are likely to spend only limited time.</p> <p>To determine whether a protected species or habitats could be present, an assessment should be made by checking for statutory defined protected sites, or by seeking the advice of a competent ecologist.</p>
<p><i>2.1(viii) in an area greater than or equal to 100m width x 100m length or in an area greater than 50m in width when used in linear features</i></p>
<p>Recycled aggregate must not be placed over an area wider than 100m x 100m or linear features (e.g. roads, bunds, haul and construction roads, access roads, lanes, tracks, paths, greenways or similar) with widths greater than 50m. These dimensions have been assumed in calculations to generate pollutant limit values which are set to ensure no overall adverse environmental impact associated with the recycled aggregate’s use. If a larger area was assumed, this would have resulted in lower PLVs which would be impractically low for use. For larger areas refer to Annex II, <a href="#">Section 2.1 (ix)</a> of this document.</p> <p>There is no limitation on the thickness of recycled aggregate that can be placed.</p> <p>Use in areas exceeding this may result in environmental impacts. Consequently, this area restriction has been applied.</p>
<p><i>2.1(ix) within 25m of another area(s) of recycled aggregate where the combined area is greater than 100m in width for square or rectangular applications;</i></p>
<p>There should be a minimum distance of 25m separation between areas of recycled aggregate use in the same project. These distances would apply if the total length of an application was 100m or greater (if the application area is square/ rectangular) or 1km or over (for linear features).</p> <p>If there are a number of smaller areas of recycled aggregate within a project, the 25m separation between each areas of recycled aggregate would not apply if the overall total width and length of the area in which they are placed is less than 100m x 100m or less than 1km x 50m for linear features.</p> <p>Regardless of the percentage content of recycled aggregate within an aggerate (i.e. recycled aggregate mixed with virgin aggregate) the same area restrictions apply.</p>
<p><i>2.1 (x) &amp; 2.2(vii) any other restrictions as may be prescribed by the Agency.</i></p>
<p>This explanatory note may be updated where any other future restrictions are deemed appropriate by the Agency.</p>
<p><i>2.2 To safeguard structures, recycled aggregate that is produced in compliance with these criteria is not suitable for use under circumstances (i) to (vii)</i></p>

Recycled aggregate should not be used to construct any buildings or civil engineered structures. Buildings structures include domestic, commercial, industrial, agricultural, or similar buildings. Civil engineering structures include retaining walls, bridges, tunnels etc. Recycled aggregates should not be used within the structure itself (fabric) or underneath it, adjacent to it, or in the surrounding area in which the weight/ load of the structure acts upon.

*Annex E* of national standard recommendation (SR21), for the technical I.S. EN 13242 explicitly excludes the use of recycled aggregate from use as unbound granular fill (hardcore) for use under concrete floors and footpaths adjacent to building structures. Therefore, recycled aggregate cannot currently be used for this specified use.

While these criteria exclude the use of recycled aggregates in buildings and civil engineered structures, criteria for such uses may be developed in the future.

### Annex III – Statement of conformity

#### 1. Producer of the recycled aggregate

All fields are of this section are **mandatory**.

For traceability purposes, the waste authorisation details and contact details for the producer are required. It is recommended that organisational contacts details are provided only. No personal data should be included on a statement of conformity, by doing so would be otherwise considered as consent that the personal data could be shared. It should be noted that this would be uncontrolled and at the risk of the person filling out the statement of conformity.

The date testing confirms compliance with the end-of-waste criteria (i.e. date of issue of the statement of conformity) is the date on which the material ceased to be classified as waste (i.e. as a non-waste or a product). Refer to [Section 1](#) for further details on when recycled aggregate ceases to be waste.

#### 3. Classification/ specification & suitability for use

*(a) The material in this consignment is only suitable for the following specified use(s):*

Text in *italics* (e.g. *“Delete this item as appropriate”*) is the instruction to the producer. Text in [brackets] is text for inclusion or deletion by the producer as appropriate.

The producer should list suitable uses as determined through environmental and geotechnical performance assessment undertaken under Annex 1, Part 3 . Refer to [Annex II Part 1.1](#).

*(b) Name, grade or classification of recycled aggregate category, in accordance with an industry specification or standard (as specified in Part 4 below):*

The producer should list classifications, grade and specifications of the aggregate as determined through environmental and geotechnical performance assessment undertaken under Annex 1, Part 3 . Refer to [Annex II Part 1.1](#). Any classification, grade and specification specified must be in accordance with those set out in a technical standards, industry specifications and any customer specification listed in Part 4 of the statement of conformity.

*4. This recycled aggregate in this consignment complies with the customer specification, industry specification or standard listed below:*

As defined under Annex 1, Part 3.2 , list the technical standards, industry specifications and any customer specification against which the recycled aggregate has been tested and demonstrated to conform to.

**5. Restrictions on use**

Text in *italics* (e.g. *“Delete this item as appropriate”*) is the instruction to the producer. Text in [brackets] is text for inclusion or deletion by the producer as appropriate.

- i. *Delete this item as appropriate-* [exposed areas (e.g. at ground surface without an overlying hardstanding layer (such as concrete or )at surface macadam) when present over high permeability subsoils.]

This restriction must be included where the results of testing fail pollutant limits for “general use” as specified in Table 3 of Annex 1, Part 3. i.e. the test results only comply with “low permeability use” pollutant limits.

This restriction may be deleted if test results comply with associated leachate pollutant limits for “general use” specified in Table 2 of Annex 1, Part 3.

- ii. *Delete this item as appropriate-* [residential settings.]

This restriction must be included where either:

- testing related to residential settings has not been undertaken for solid arsenic and lead parameters specified in Table 2 of Annex 1, Part 3; or
- the results of testing related to residential settings fail pollutant limits specified in Table 2 of Annex 1, Part 3.

This restriction may be deleted if test results related to residential settings for arsenic and lead comply with associated solid pollutant limits specified in Table 2 of Annex 1, Part 3.

It is the producer’s responsibility to specify the restrictions on use of the material. It is the user’s responsibility to comply with restrictions on use as specified by the producer. By stating that *“Any use under these scenarios is taken at the liability of the user and may be subject to enforcement action.”*, the producer is making the user aware of their liability if the material is used in restricted uses.

**9. Chain of custody**

The producer, on transfer of the recycled aggregate, must complete the chain of custody specifying the date they transferred the material and they should fill out the details of the next holder.

It is the next holder’s, and any subsequent holders, responsibility to fill out the date they transfer the material to the next holder and they should fill out the details of the next holder, as applicable.

The holder of the recycled aggregate should have the original statement of conformity and an up to date chain of custody. Each holder should retain a copy of the statement of conformity

The producer or any subsequent holder is not required to hold a completed copy of the chain of custody for holders beyond those in which they transferred the material to.