Final Single Case End-of-Waste decision ART28-0099

of 24th August 2026

establishing criteria determining when recycled aggregate Green Rock 3 produced by

Starrus Eco Holdings Limited

of 24 Ballymount Rd Upper, Ballymount Dr, Kilnamanagh, Dublin

ceases to be waste under Regulation 28 of the European Union (Waste Directive) Regulations 2011 – 2020

Section 1

Subject matter

ART28-0099 establishes criteria determining when recycled aggregate known as Green Rock 3 (GR3) 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, 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 users statutory obligations or requirements under any other authorisations (including planning permission), enactments or regulations.

The Environmental Protection Agency (herein referred to as 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:

- deliberately or carelessly provides false or misleading information; or
- declares that waste has ceased to be waste, where the relevant end-of-waste criteria have not been demonstrated to have been fulfilled following recovery of waste;

commits an offence, under the Waste Management Act 1996 (End-of-waste) Regulations 2024.

Section 2

Definitions

For the purposes of this Decision, the definitions set out in the European Union (Waste Directive) Regulations 2011 – 2020 and Waste Management Act 1996, as amended shall apply.

In addition, the following definitions/ interpretations shall apply:

(1) 'applicant' is Starrus Eco Holding Ltd. 24 Ballymount Rd Upper, Ballymount Dr, Kilnamanagh, Dublin, D24 E097;

(2) 'authorised waste facility' means a facility which has been granted a waste authorisation in the form of an Industrial Emissions licence, a waste licence, a waste facility permit or a certificate of registration;

(3) 'batch' is defined as 2,000 tonnes of recycled aggregate produced from accepted construction and demolition waste under uniform processing conditions;

(4) 'bound uses'- aggregate that has been bound using a hydraulic binder (e.g. concrete) or bituminous binder (e.g. asphalt);

(5) 'competent authority' means any of the following: the Environmental Protection Agency (hereafter referred to as the Agency); a local authority, the National Waste Collection Permit Office, the Health and Safety Authority; the National Transfrontier Shipments of Waste Office, National Building Control and Market Surveillance Office; Transport Infrastructure Ireland, Geological Survey Ireland, Competition and Consumer Protection Commission, Food Safety Authority of Ireland or any other National or Irish governmental regulation body who may need to assess compliance with

these criteria or any associated activity;

(6) 'consignment' means a delivery quantity of recycled aggregate which leaves the production facility and may be contained in either one or several transport units;

(7) 'construction & demolition (C&D) fines' refers to the small-sized fraction of waste that is mechanically separated from a mixed-sized waste stream by means of passing it through a screen (such as a trommel) during a waste processing activity. Fines are typically segregated from a mixed waste stream after an initial shredding, agitation or crushing pre-step. There is no set or uniform screen size used by all operators to generate fines. Depending on the origin or nature of the waste from which the fines are generated, they may be specifically described by the operator as organic fines, C&D fines, inert fines or by some other name.

(8) 'construction works' has the meaning assigned in Regulation (EU) No 305/2011 of the European Parliament and of the Council laying down harmonised conditions for the marketing of construction products and repealing Council Directive 89/106/EEC;

(9) 'general use' means 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;

(10) 'groundwater' has the meaning assigned in European Communities Environmental Objectives (Groundwater) Regulations 2010 (S.I. no. 9 of 2010), as amended.

(11) 'high permeability' means the recycled aggregate is for use in one or both of the following scenarios:

(i) In areas of open ground (no hard standing or building will be present), and with:

a) Extreme groundwater vulnerability; or

b) High groundwater vulnerability; or

c) Moderate groundwater vulnerability where less than 1m of low permeability (<0.001m/d) clay is present below the aggregate;

(ii) 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;

(12) 'holder' means the natural or legal person who is in possession of recycled aggregate;

(13) 'linear feature' means roads, bunds, road and railway embankments or similar, railway lines, haul roads, construction roads, access roads, forestry road, agricultural lanes, tracks, paths (not adjacent to buildings), greenways or similar;

(14) 'low permeability use' means the recycled aggregate is for use in one or both of the following scenarios:

(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;

(15) 'load' is defined as an incoming delivery or collection quantity of construction and demolition waste which may originate from one or more sources.

(16) 'management system certification body' is a body which has an accreditation certificate issued by the Irish National Accreditation Board (INAB), or equivalent European accreditation body, to undertake quality management system certification to an approved standard;

(17) 'mineral' means stone, rock, sand, gravel, concrete, brick, or ceramic tiles;

(18) 'non-structural concrete' means concrete other than that described as 'structural concrete';

(19) 'notified body' is a body which has an accreditation certificate issued by the INAB[1], or equivalent European body to carry out assessment and verification of constancy or performance (AVCP) in accordance with harmonised standards falling under the remit of the Construction Product Regulations (EU No. 305/2011) and to be recognised as a:

[1] In accordance with Article 40.1 of the Construction Product Regulations (Source: Irish Notification Procedures for the Purpose of the Construction Products Regulation (305/2011) (Government of Ireland, July 2020).

(i) notified product certification body; and/or

(ii) notified factory production control certification body;

(20) 'POPs Regulation' means European Union regulation 2019/1021 concerning the regulation of Persistent Organic Pollutants;

(21) 'producer' means the waste operator who produces the recycled aggregate under a waste authorisation;

(22) 'protected species and habitats' means species and habitats protected under Directive 92/43/EEC [2] and Directive 2009/147/EC[3];

(23) 'qualified person' means suitably qualified, trained and experienced person who has the requisite knowledge and experience required for sampling, testing and waste characterisation;

(24) 'qualified staff' means staff which are qualified by experience or training to monitor and assess the properties of recycled aggregate;

(25) 'recovery operation' has the same meaning as 'waste recovery activity' assigned in the Waste Management Act 1996, as amended;

(26) 'recycled aggregate' means an aggregate which has resulted from the recovery of mineral wastes and which complies with the criteria laid down within this decision;

(27) 'specified use' means the suitable specific circumstances, as declared in the statement of conformity, under which the recycled aggregate can be used;

(28) 'statement of conformity' means a statement/declaration that the recycled aggregate conform to end-of-waste criteria, product standards and specifications, and includes details of restrictions on the use of the recycled aggregate;

(29) 'structural concrete' means concrete used in building or civil engineering works (e.g. to construct structural walls of a buildings, retaining structures, foundations, bridges, tunnels or similar), excluding linear features. Structural concrete includes concrete that:

(i) is load bearing; and/or

(ii) is reinforced; and/or

(iii) supports the weight of a structure;

(30) 'surface water' has the meaning assigned in European Communities Environmental Objectives (Surface Waters) Regulations, 2009 (S.I. No. 272 of 2009), as amended;

(31) 'user' means manufacturers, supply companies, contractors and all those organisations or individuals responsible for the end use of the product;

(32) 'unbound use'- aggregate used in granular form;

(33) 'visual inspection' means inspection using human senses or any non-specialised equipment.

(34) 'waste' is as defined in the Waste Management Act 1996 as amended.

The list of definitions and interpretations above is intended to assist understanding of these criteria and does not purport to be a legal interpretation of said terms.

Section 3

Criteria for recycled aggregate (GR3)

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

(a) the recycled aggregate results from a recovery operation undertaken under at an authorised waste facility;

(b) the waste used as input for the recovery operation complies with the criteria set out in Part 1 of Annex I;

(c) the waste used as input for the recovery operation has been treated in accordance with the criteria set out in Part 2 of Annex I;

[2] Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora

[3] Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds

(d) the quality of the recycled aggregate complies with the criteria set out in Part 3 of Annex I, including pollutant limits and physical contaminant limits;

(e) the producer has satisfied sampling and testing requirements set out in Part 4 of Annex I;

(f) the producer has satisfied storage requirements set out in Part 5 of Annex I;

(g) the producer has satisfied requirements set out in Sections 4 to 7;

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

Section 4

Specific uses and restrictions on use

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

Section 5

Statement of conformity

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.
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.
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.
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.
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.
6. The statement of conformity may be in electronic form.
7. The producer shall give competent authorities access to the statements of conformity upon request.
8. A safety data sheet of the recycled aggregate shall be included in the statement of conformity.

Section 6

Management system

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.
2. The management system shall include a set of documented Quality Control (QC) Procedures concerning each of the following aspects:

   (a) acceptance, control and quantification of waste used as input for the recovery operation as set out in Part 1 of Annex I, including quarantine, segregation, and control of non-conforming waste inputs;

   (b) due diligence assessment (knowledge of inputs), including assessment of inputs for potential contamination for pollutants beyond those listed in Table 2 of Annex I; This shall include an assessment for the presence of hazardous substances as may be identified in association with the source of the waste inputs;

   (c) recognising hazardous constituents or contamination in waste used as input;

   (d) monitoring of the treatment processes and techniques described in Part 2 of Annex I;

   (e) monitoring of the quality of recycled aggregate resulting from the recovery operation as set out in Parts 3 & 4 of

Annex I (including sampling and testing);

(f) storage of recycled aggregate as set out in Part 5 of Annex I;

(g) identification and specification of suitable specific uses and restrictions on use as set out in Annex II;

(h) completion and sign-off of a statement of conformity as set out in Annex III;

(i) quarantine, segregation, control and quantification of non-conforming outputs from the recovery process;

(j) feedback from customers or product accreditation body concerning compliance with recycled aggregate quality, including assessment, investigation, corrective actioning and tracking of non-conformance reports;

(k) record keeping of the results of monitoring conducted under points (a) to (i). All records including controls, inspections and training shall be maintained for a minimum of 5 years, which may include electronic records;

(l) review and improvement of the management system;

(m) training of staff on all aspects of the criteria including the sampling, testing, treatment system, monitoring, control and record keeping.

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.
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.
5. The producer shall maintain records of the quantities of:
   (a) waste used as input for the recovery operation per list of waste code;
   (b) recycled aggregate that have been recovered and can be demonstrated to meet these criteria;
   (c) recycled aggregate which meet these criteria and have been dispatched;
   (d) non-conforming outputs from the recovery operation; and
   (e) any non-conforming outputs reintroduced into the recovery operation.
6. The producer shall give competent authorities access to the management system and records upon request.
7. The producer shall make the management system and records available for inspection.

Section 7

Reporting

1. 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. 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.

Section 8

Entry into effect

Single case End-of-Waste Criteria No. Art28-0099 shall be available for use immediately following publication on the Agency's website.

Section 9

Compliance

The producer or holder of recycled aggregate shall comply with any request made by a competent authority in relation to the provision of evidence of compliance with these criteria or any associated waste, product, or health and safety requirements.

Any person who:

- deliberately or carelessly provides false or misleading information; or
- declares that waste has ceased to be waste, where the relevant end-of-waste criteria have not been demonstrated to have been fulfilled following recovery of waste;

commits an offence, under the Waste Management Act 1996 (End-of-waste) Regulations 2024.

ANNEX I

Criteria for recycled aggregate (GR3)

Part 1. Waste used as input for the recovery operation

Criteria		Requirements and Monitoring
1.1	Inputs shall be restricted to waste falling under list of waste (LoW) code 19 12 12: other wastes (including mixtures of materials) from mechanical treatment of waste other than those mentioned in 19 12 11. The 19 12 12 wastes shall be restricted to those originating from the processing of 17 01 01, 17 01 02, 17 01 03, 17 01 07, 17 05 04 and 17 09 04.	Acceptance control of all waste received (by visual inspection) and of the accompanying documentation shall be carried out by qualified staff who are trained on how to recognise waste that does not fulfil the criteria set out in this section. Where visual inspection or due diligence assessment raises any suspicion of possible hazardous properties or contamination, further appropriate monitoring measures shall be taken, such as sampling and testing where appropriate. The staff shall be trained on potential hazardous properties or contamination that may be associated with C&D waste and on material components or features that indicate these properties. New suppliers of 19 12 12 undertaking sorting or pretreatment will be required to supply written declaration of: • Description of the mechanical processing undertaken • Details of sorting and pre-treatment steps • Description of equipment used (screens, magnets, eddy currents, crushers, etc.) • Quality control procedures • Removal procedures for deleterious materials • Evidence that non-permitted materials are excluded • Confirmation that the supplied material is 19 12 12 derived from 17 01 01, 17 01 02, 17 01 03, 17 01 07, 17 05 04, 17 09 04 waste only The producer shall regularly review and revise quality control procedures to ensure they reflect current standards and operational requirements.
1.2	All incoming waste shall meet the incoming waste acceptance criteria of the waste authorisation under which the recycled aggregate is produced and shall be subject to the acceptance and rejection procedures set out in GR-01 of the applicant's internal quality control procedure.	
1.3	Each load of waste input shall be assigned a unique identifier.	
1.4	Wastes input, once received by the producer, shall be kept permanently separate from contact with any other waste.	
1.5	Only waste that contains recoverable aggregate (minerals) may be used as input.	
1.6	The following wastes shall not be used as inputs: a. hazardous wastes; b. Construction & Demolition (C&D) fines.	
1.7	Waste inputs shall not contain the following: a. asbestos; b. epoxy resin; c. paint or other similar visible treatments; d. municipal waste; e. granulated tyre materials; f. bio-waste; g. waste originated from electrical and electronic equipment; h. persistent organic pollutants; i. coal tar; j. invasive species; k. waste generated arising from remediation of deleterious materials e.g. pyrite remediation, or defective concrete block remediation etc.; and l. any other substance or material identified as unsuitable by the Agency.	
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 Table 1 and Table 2, shall be quantified via testing and shall be recorded. Testing shall be carried out in accordance with Part 4 of Annex I. A characterisation of the waste inputs shall also be conducted prior to waste acceptance from the source sites, identified on a risk-based manner, and on an annual basis thereafter. This characterisation shall include screening for specific parameters arising from due diligence carried out in accordance with Section 6, 2(b). The	

	applicant will advise the EPA of any changes that affect the end-of-waste decision.	
1.9	The waste input shall be assessed for physical contamination in accordance with Table 3. Non-conforming waste shall be managed in accordance with the quarantine requirements specified in the waste authorisation and with the applicant's quality management system and internal procedures.	

Part 2. Treatment process and techniques

Criteria		Requirements and Monitoring
2.1	All treatment processes needed to prepare the recycled aggregate for direct input into final use shall have been completed.	Treatment processes shall be undertaken in accordance with the waste authorisation under which the recycled aggregate is produced.
2.2	The treatment process shall include processes sufficient to reduce: i. pollutant concentrations to levels below those specified within Tables 1 and 2; ii. concentrations of chemical contamination of concern identified under Part 1.8 to acceptable levels; and iii. physical contaminants to levels as specified in Table 3.	Qualified staff shall visually inspect outputs from the treatment process. Qualified staff shall monitor and review the efficacy of the treatment process regularly. The producer shall regularly review and revise quality control procedures to ensure they reflect current standards and operational requirements.
2.3	Each batch of the recycled aggregate produced shall be assigned a unique identifier for traceability.	

Part 3. Quality of recycled aggregate resulting from the recovery operation.

Criteria		Requirements and Monitoring
3.1	Each batch of recycled aggregate shall be verified in accordance with the applicant's internal quality control procedures.	Qualified staff shall grade/classify each batch of recycled aggregate. A register of non-conforming products for these criteria shall be maintained by the producer. The register shall contain information as to the reasons for the non-conformance and the manner in which the non-conformance was rectified. The applicant shall regularly review and revise quality control procedures to ensure they reflect current standards and operational requirements.
3.2	The recycled aggregate shall be graded/ classified according to a customer specification or an industry specification/ standard for direct use.	
3.3	a. Construction Products Recycled aggregates which fall within the scope of Construction Product Regulation (CPR)[4] 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(s) 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. relevant harmonised aggregate product standard(s), where available and as applicable for the materials specified use; ii. applicable industry specification(s) as available and as applicable for the materials specified use; and	As regulations are subject to amendment and replacement, it is the applicant and user's responsibility to ensure that current regulations are referred to. As technical standards and specifications are subject to regular review, it is the applicant and user's responsibility to ensure that the latest version is referred to.

	iii. Any additional customer specifications.	
3.4	The recycled aggregate shall, as required, comply with the relevant provisions of the: i. Classification, Labelling and Packaging (CLP)[5] Regulation; ii. Construction Product Regulation (CPR); iii. Building Regulations[6]; iv. REACH[7] Regulation; v. POPs Regulation; vi. General Product Safety Regulations[8]; vii. Or any other relevant legislation requirements as applicable or as identified by the Agency.	As regulations are subject to amendment and replacement, it is the applicant's responsibility to ensure that current regulations are referred to.
3.5	The recycled aggregate shall comply with the pollutant limit values specified in Table 1 and Table 2 and sampling and testing requirements set out in Part 4.	A qualified person shall investigate each batch by visual inspection. Where visual inspection raises any suspicion of possible hazardous properties or contamination, further appropriate monitoring measures shall be taken, such as sampling and testing where appropriate. A qualified person shall review the test results and determine material as compliant or non-compliant with this criterion. The staff shall be trained on potential hazardous properties or contamination that may be associated with recycled aggregate and on material components or features that indicate these properties. A register of non-conforming product for these criteria shall be maintained by the producer. The register shall contain information as to the reasons for the non-conformance and the manner in which the non-conformance was rectified. The register shall also include information on the outlet for the non-conforming product, for example whether it is re-introduced to the start of the process, disposed of, or recovered as waste.
3.6	The recycled aggregate shall comply with the physical contaminant limits specified in Table 3 and sampling and testing requirements set out in Part 4.	
3.7	Chemical contamination identified under Part 1.8 shall be demonstrated to have been reduced to acceptable levels.	
3.8	Testing shall be carried out in accordance with Part 4.2.	
3.9	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 2, 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.	A qualified person shall ensure statements of conformity are complete and retain copies of each statement of conformity.

[4] Construction Product Regulation (CPR) (EU No.305/2011)
[5] Classification, Labelling and Packaging - Regulation (EC) No 1272/2008 (CLP)
[6] Building Regulations 1997, as amended
[7] Registration, Evaluation, Authorisation and Restriction of Chemicals - Regulation 1907/2006/EC (REACH)
[8] S.I. No. 726/2024- European Union (General Product Safety) Regulations 2024

Table 1: Recycled Aggregate (Output) - Solid Pollutant Limit Values (PLVs)

Compound	PLV	Laboratory Preparation Method	Laboratory Analysis method
Total Organic Carbon (TOC)	2.4% (24,000 mg/kg)	Dried and ground solid samples are washed with hydrochloric acid, then rinsed with deionised water to remove the mineral carbon before TOC analysis.	Modified ISO 7755-3, ISO 10694: Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO2 generated is quantified using infra-red detection. Organic Matter (SOM) calculated as per EA MCERTS Chemical Testing of Soil, March 2012 v4
Total BTEX	0.025 mg/kg	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.
PCBs (7 Congeners)	0.035 mg/kg	Modified US EPA method 8270D v5:2014. Determination of specific Polychlorinated Biphenyl congeners by GC-MS.	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.
Mineral Oil (C10-C40)[9]	50 mg/kg	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8 C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.
Total PAHs	2 mg/kg	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.
Chromium VI	2 mg/kg	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Hex Cr 7196A (1992)	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide topsoil for hexavalent chromium using a reciprocal shaker.
Arsenic Note 1	40 mg/kg	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified I.S. EN ISO 11885: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996
Lead Note 1	310 mg/kg		

[9]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. a it is not to be used for a residential or allotment end-use;
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).

Note 1: Arsenic and lead solid PLVs only apply for specified uses that include residential settings.

Table 2: Recycled Aggregate (Output) - Leachate Pollutant Limit Values (PLVs)

Compound	All values based on L/S = 10:1 leach test (mg/kg)		Laboratory Preparation Method	Laboratory Analysis method
	General use scenario PLV	Low permeability uses scenario PLV		
Arsenic	0.063	0.063	Modified method I.S. EN 12457-2: As received solid samples are leached with water in a 10:1 water to soil ratio for 24 hours, the moisture content of the sample is included in the ratio. Any crushing undertaken of samples should be undertaken using a roller crusher as to I.S. EN 12457-2.	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified I.S. EN ISO 11885: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996
Barium	5.1	11		
Cadmium	0.0074	0.0074		
Total Chromium	0.25	0.54		
Copper	7.3	16		
Mercury	0.0057	0.0057		
Molybdenum	0.28	0.6		
Nickel	0.069	0.15		
Lead	0.05	0.078		
Antimony	0.17	0.37		
Selenium	0.15	0.3		
Zinc	0.33	0.71		
Vanadium	1	2.2		
Chloride	440	950		Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), – All anions comparable to ISO 15923-1
Sulphate	1,000	2,200		
Fluoride	4.2	9.1		Analysis of fluoride by ISE (Ion Selective Electrode) using modified ISE method 9214 - 340.2 (EPA 1998)
Phenol	0.1	0.1		Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro Chemical Detection.
Dissolved Organic Carbon	180	400		TC/TOC analysis of Waters by High Temperature Combustion followed by NDIR detection. Based on the following modified standard methods: USEPA 9060A (2002), APHA SMEWW 5310B:1999 22nd Edition, ASTM D 7573, and USEPA 415.1.

Table 3: Recycled Aggregate (Output) - Physical Contaminant Limit Values

Physical Contaminants	Percentage by mass	Test Method
Total	1%	I.S. EN 933-11: Test for Geometrical properties of aggregate: Classification test for the constituents of coarse recycled aggregate
Ferrous and non-ferrous metals	1%	
Soils (including topsoil, clay and sediment)	1%	
Gypsum	1%	
Glass	1%	
Wood	1%	
Plastic	1%	
Rubber	1%	
Bituminous materials	1%	
Asbestos	"No Asbestos Detected"	Visual inspection for asbestos fibres as per HSG 248 Second edition (2021)

Part 4. Sampling and Testing

Criteria		Requirements and Monitoring
4.1	A composite sample shall be prepared for detailed compositional analysis. Testing of the composite sample shall be conducted as follows: i. at a frequency of every batch produced; ii. at an accredited laboratory, using accredited test methods, where available, for all parameters specified in Table 1 and 2; iii. in accordance with relevant test methods as specified in Tables 1 to 3.	The laboratory selected shall be able to achieve detection limits for each parameter specified in Table 1 and 2. Laboratory analysis shall be undertaken in accordance with I.S. EN ISO-IEC 17025: General requirements for the competence of testing and calibration laboratories. Samples shall be collected by a qualified person. A sample shall comprise a composite of a minimum of 3 no. sub-samples and be collected in accordance with ISO 18400-104: Soil quality Sampling Part 104: Strategies.
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.	

Part 5. Storage		
Criteria		**Requirements and Monitoring**
5.1	Recycled aggregate pending the results of testing, shall be identified and physically separated into individual batches per representative sample.	A storage and labelling plan shall be established and maintained. Qualified staff shall regularly monitor storage and labelling plans and records and undertake a review thereof bi-annually. Any recycled aggregate stored greater than 24 months shall be re-classified as waste and managed accordingly until classified otherwise.
5.2	Prior to dispatch or use, recycled aggregate that fulfil the criteria shall be kept in designated areas, separate from any other products or waste.	
5.3	Recycled aggregate shall not be stored for a period greater than 24 months. Products that exceed the time limit for storage of a period of 24 months shall be deemed a waste unless otherwise demonstrated by re-testing as per Part 3.5 and Part 3.6 and any geotechnical testing that is required to comply with part 3.3.	
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').	

ANNEX II

Specific use and restrictions on use

1. Specific uses

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

i. unbound uses:

(a) road construction, excluding any form of structure or fill to structures;

(b) railway ballast;

(c) other linear feature construction or maintenance less than 50m in width;

(d) temporary or permanent areas of hardstandings or groundcover;

(e) general fill in uses such as void filling, raising ground levels, berm construction;

(f) piling mats;

(g) pipe-bedding, haunching or surrounding materials;

(h) any other similar uses as agreed by the Agency.

ii. bound uses:

(a) non-structural concrete;

(b) bituminous mixtures;

(c) large interlocking non-structural concrete blocks for use as division of storage bays and barriers.

2. Restrictions on use

2.1 For the purpose of environmental and human health protection, recycled aggregate that is produced in compliance with these criteria is not suitable for use:

i. in contact with groundwater or surface waters;

ii. within 25m of a groundwater abstraction;

iii. within 10m of a natural surface water feature, spring, lake, turlough likely to flood, or cavernous or karstified limestone features;

iv. as pipe bedding, haunching or surrounding materials around perforate pipe or in drainage construction (i.e. parts/ systems that may be in direct contact with water);

v. for the purpose of infilling of any former quarry, pit or mineral excavation related to mining;

vi. as growth medium in areas used for food production or livestock grazing;

vii. as ground cover in areas where protected species or habitats are present;

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;

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;

x. any other restrictions as may be prescribed by the Agency.

2.2 To safeguard structures, recycled aggregate that is produced in compliance with these criteria is not suitable for use:

i. in structural concrete or mortar or other bound applications for structural use;

ii. in concrete blocks or other masonry other than those specified in 1.1 (ii) (c);

iii. in building structures, including beneath the structure or within its fabric, foundations, or curtilage (within 1m);

iv. footpaths adjacent to building structures;

v. in civil engineering structures, excluding linear features, including beneath the structure or within its fabric, foundations or supports;

vi. as unbound granular fill (hardcore) for use under concrete floors and footpaths adjacent to building structures;

vii. any other restrictions as may be prescribed by the Agency.

2.3 The recycled aggregate is limited to sale and use in Ireland and in any other destination country where approval has been attained from the country's relevant competent authority that the recovered material is recognised by the competent authority in that jurisdiction as a non-waste prior to the material being placed on that market.

2.4 In the event of the material being exported, the National Transfrontier Shipments Office shall be contacted, and confirmation attained that they recognise this approval from another jurisdiction prior to the material being placed on an export market.

ANNEX III

Statement of conformity with the end-of-waste criteria

1.	**Producer of the recycled aggregate** Producer Organisation Name: Registered Company Address: Waste Authorisation Ref. No.: Address and Eircode of Production: Contact Tel: Contact E-mail: Date of Production: Batch number:
2.	Quantity of the consignment in kg:
3.	**Classification/ specification and suitability for use** (a) The material in this consignment is only suitable for the following specified use(s): *Specify applicable suitable uses* • *Delete this item as appropriate* [The material in this consignment is only suitable for use: i. beneath a hydraulically or bituminous bound layer; and/or ii. above a low permeability subsoil (e.g. clay) or drift.] (b) Name, grade or classification of recycled aggregate category, in accordance with an industry specification or standard (as specified in Part 4 below): •
4.	The recycled aggregate in this consignment complies with the customer specification, industry specification or standard listed below: •
5.	**Restrictions on use** The material in this consignment is not suitable for use in: i. *Delete this item as appropriate*- [exposed areas (e.g. at ground surface without an overlying hardstanding layer (such as concrete or macadam) when present over high permeability subsoils.] ii. *Delete this item as appropriate*- [residential settings.] iii. in contact with groundwater or surface waters; iv. within 25m of a groundwater abstraction; v. within 10m of a natural surface water feature, spring, lake, turlough likely to flood, or cavernous or karstified limestone features; vi. as pipe bedding, haunching or surrounding materials around perforate pipe or in drainage construction (i.e. parts/ systems that may be in direct contact with water); vii. for the purpose of infilling of any former quarry, pit or mineral excavation related to mining; viii. as growth medium in areas used for food production or livestock grazing; ix. as ground cover in areas where protected species or habitats are present; x. 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; xi. within 25m of another area(s) of recycled aggregate where the combined area is greater than 100m in width for square or rectangular applications; xii. in structural concrete or mortar or other bound applications for structural use; xiii. in concrete blocks or other masonry other than large interlocking non-structural concrete blocks for use as division of storage bays and barriers; xiv. in building structures, including beneath the structure or within its fabric, foundations, or curtilage (within 1m); xv. footpaths adjacent to building structures; xvi. in civil engineering structures, excluding linear features, including beneath the structure or within its fabric, foundations or supports; xvii. as unbound granular fill (hardcore) for use under concrete floors and footpaths adjacent to building structures; xviii. any other restrictions as may be prescribed by the Agency. **NOTE: Any use under these scenarios is taken at the liability of the user and may be subject to enforcement action.**

6.	The recycled aggregate in this consignment meets the criteria specified in Single Case End-of-Waste decision Art28-0099 for recycled aggregate.
7.	The producer of recycled aggregate in this consignment applies a management system certified by a Management System Certification Body accredited by the Irish National Accreditation Board, or equivalent European accreditation body.
8.	The material has been tested at an accredited laboratory, using accredited test methods, where available, for all parameters listed in Table 1 and 2.
9.	Declaration of the producer of recycled aggregate in this consignment: I certify that the above information is complete and correct to the best of my knowledge: Name: Date: Signature:
10.	**Chain of custody** **Producer** **As per Item 1.** Date of transfer to next holder:
	Haulier (where applicable) Organisation Name: Contact Tel: Contact E-mail: Date of transfer to next holder:
	Any other holder (where applicable) Organisation Name: Contact Tel: Contact E-mail: Date of transfer to next holder:
	User Organisation Name (if applicable): Name: Contact Tel: Contact E-mail: Use Location:
	NOTE: it is the responsibility of the holder who transfers the recycled aggregate to the next holder to ensure the chain of custody has been completed to include details of the next holder.