DRAFT Decision on

End of Waste Criteria relating to

Recycled Aggregates from Crushed Demolition Concrete

for use by

Integrated Materials Solutions Limited Partnership (IMS)

DRAFT Decision establishing End-of-Waste Criteria

under

Article 28 of the European Communities (Waste Directive) Regulations 2011

For

Recycled Aggregates from Crushed Demolition Concrete

produced by

Integrated Materials Solutions Limited Partnership,

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1. Introduction & Background

1.1. Article 6 of the Waste Framework Directive, 2008[1] was transposed into Irish law by the European Communities (Waste Directive) Regulations 2011[2]. The Regulations assign responsibility to the Environmental Protection Agency to make certain decisions regarding end-of-waste. This responsibility is assigned under Article 28(3) and states that the Agency may decide case by case whether certain waste has ceased to be waste.

1.2. End-of-waste is a means of determining the point at which, for the purposes of waste regulation, a material need no longer be classified as waste after it has undergone a recovery, including recycling, operation and complies with specific criteria to be developed in accordance with the following conditions:

a. the substance or object is commonly used for specific purposes;

b. a market or demand exists for such a substance or object;

c. the substance or object fulfils the technical requirements for the specific purposes and meets the existing legislation and standards applicable to products; and

d. the use of the substance or object will not lead to overall adverse environmental or human health impacts.

1.3. The purpose of this document is to set out end-of-waste criteria for the production and use of recycled aggregate from demolition concrete. Compliance with these criteria is sufficient to ensure that the recycled aggregate may be used as a secondary raw material without the need for waste regulation or control.

1.4. This document indicates how compliance should be demonstrated.

1.5. Where the recycled aggregate is produced at a facility authorised by the Environmental Protection Agency (EPA), the EPA is the regulatory authority for overseeing that the recycled aggregate has been produced in accordance with these end-of-waste criteria.

1.6. Where the recycled aggregate is produced at a facility authorised by the local authority, the local authority is the regulatory authority for overseeing that the recycled aggregate has been produced in accordance with these end-of-waste criteria.

1.7. These end-of-waste criteria are applicable in Ireland only. Countries of transit and/or destination may take a different view and the end-of-waste criteria may not be recognised. If the competent authority in the country of transit and/or destination considers the material to be waste, the shipment may, if required by that competent authority, be subject to the controls set out in the Waste Shipment Regulation[3].

1.8. These end-of-waste criteria may be reviewed and updated by the EPA at any stage based on the experience of practical applications, technological developments or legislative amendments. The EPA reserves the right to depart from the position outlined and to take appropriate action to avoid overall adverse environmental or human health impacts.

[1] Waste Framework Directive - Directive 2008/98/EC on waste (WFD)
[2] Waste Directive Regulations - European Communities (Waste Directive) Regulations 2011 (SI 126 of 2011)
[3] Waste Shipment Regulations - Waste Management (Shipments of Waste) Regulations, 2007 (SI No. 419 of 2007)

1.9. If at any time the European Commission publishes generally applicable end-of-waste criteria for recycled aggregate from demolition concrete, those European criteria may supersede these criteria and the EPA may withdraw this decision.

1.10. These criteria do not affect the obligation of producers 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, storing or processing waste.

1.11. These Criteria do not affect permitting or any other legal requirements that do not depend on the status of the material as a waste.

2. Decision and Reasons for the Decision

The EPA has decided, in accordance with article 28(3) of the European Communities (Waste Directive) Regulations 2011, that the recycled aggregate (as defined in section 3 below) the subject of the application made by Integrated Materials Solutions Limited Partnership (IMS), on the 1st February 2019 and produced at an authorised waste facility operated by IMS will cease to be waste if it complies with the end-of-waste criteria set out in Section 4 of this document.

The EPA is satisfied, based on:

- the information provided by the applicant, including additional information;
- a peer review report completed by Geosyntec Consultants;
- Standards for the production of aggregate;
- Joint Research Centre, 2009 Final Report on "End-of-waste criteria", and
- Joint Research Centre, 2014 Technical Report on the "Study on methodological aspects regarding limit values for pollutants in aggregates in the context of possible development of end-of-waste criteria under the EU Waste Framework Directive"

that, subject to compliance with the end-of-waste criteria below, the recycled aggregate conforms with the requirements of article 28(1)(a) & (b) of the Regulations and its use as an aggregate will not lead to overall adverse environmental and human health impacts.

3. Glossary of Terms

Aggregate	A granular material used in construction. For the avoidance of doubt, topsoil, organic soils, silt and clay dominant soils and natural stone are not considered to be aggregates for the purposes of these Criteria.
Applicant	Integrated Materials Solutions Limited Partnership (IMS)
Attestation Level	A measure of how onerous a system of assessment is required to verify constancy of performance under the Construction Product Regulations (CPR).
Authorised waste facility	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.
Construction Products Regulations (CPR)	Construction Product Regulations 2013 (S.I. No. 225 of 2013) transposed the EU Regulation No. 305/2011 into Irish Law. The regulation lays down harmonised conditions for the marketing of construction products across Member States of the European Union.
Consignment	Each load of recycled aggregate that leaves the waste facility.
Declaration of Conformity	A declaration that the recycled aggregate conforms to end-of-waste criteria, product standards and specifications, it includes details of restriction on use of the recycled aggregate.
Facility	Any site or premises used for the purpose of the recovery or disposal of waste.
Factory Production Control	A management system focusing mainly on the production process which aims to ensure that product quality is consistently maintained to the required specifications.
Groundwater	Means all water which is below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil.
Inert	As defined in Council Directive 1999/31/EC on the landfill of waste
Producer	Integrated Materials Solutions Limited Partnership (IMS)
Recovery	As defined in the Waste Management Act 1996 as amended
Recycled aggregate	Aggregate that meets the end-of-waste criteria set out in this document.
Recycling	As defined in the Waste Management Act 1996 as amended
Surface Water	Means inland waters, except groundwater, transitional waters and coastal waters, except in respect of chemical status for which it shall also include territorial waters.
User	User means construction companies, manufacturers, contractors and all those organisations or individuals responsible for the end use of aggregate.
Waste	As defined in the Waste Management Act 1996 as amended

4. End-of-waste criteria

4.1. Recycled aggregate shall cease to be waste and no longer subject to waste management controls if, upon transfer from the producer to another person, all the following conditions are fulfilled:

a) the waste used as input for the recovery operation complies with the criteria and monitoring requirements set out in Section 1 of Annex 1;

b) the inputs have been treated in accordance with the criteria and monitoring requirements set out in Section 2 of Annex 1;

c) the recycled aggregate resulting from the recovery operation complies with the criteria and monitoring requirements set out in Section 3 & 4 of Annex 1.

5. Compliance

5.1. The recycled aggregate may be deemed to have ceased to be waste when conformance with the end-of-waste criteria set out in Section 4 above is demonstrated, verified and recorded.

5.2. The recycled aggregate must require no further processing, for the use for which it is destined at the time it is produced to comply with these criteria.

5.3. Use may be in

a) unbound applications – including sub-base, capping, general fill, and pipe bedding; and

b) bound applications – including hydraulically bound applications, concrete and asphalt.

The use is restricted to the construction of roadways, where the recycled aggregate will not be in contact with groundwater and/or surface water.

6. Non-Compliance

6.1. Recycled aggregate shall remain classified as waste and subject to waste regulatory controls if:

6.1.1. the recycled aggregate is not compliant with the end-of-waste criteria as set out in Section 4 above;

6.1.2. it is discarded or there is an intention or requirement to discard, for example if it is disposed of;

6.1.3. it is stored indefinitely with little prospect of being used;

6.1.4. it is mixed with other waste materials; or

6.1.5. the producer cannot provide an audit report or the necessary documents demonstrating compliance with the certified quality management system.

Failure to manage waste in accordance with waste regulatory controls is an offence.

7. Waste Inputs & Controls

7.1. Waste Inputs

7.1.1. Inputs shall be restricted as set out in Annex 1.

7.1.2. A visual inspection[4] of all waste deliveries and an inspection of the accompanying documentation shall be carried out and documented by qualified staff[5] who are trained on how to identify input material that does not fulfil the criteria. The procedure for recognising prohibited waste streams shall be documented in the management system.

7.1.3. Where non-conforming waste is delivered, it shall be immediately moved to a designated quarantine area and stored pending consignment to an authorised waste management facility.

7.1.4. Waste containing, or which has been contaminated by any substance listed in Annex IV of Regulation (EC) No. 850 of 2004 (on persistent organic pollutants) or asbestos shall be immediately moved to a designated quarantine area and stored pending consignment to an appropriately authorised waste management facility for disposal or recovery in accordance with Annex V, part 1, of the Regulation.

8. Quality Management System

8.1. The producer shall implement an environmental management system suitable to ensure the demonstration of compliance with the end-of-waste criteria in Section 4 of this document.

8.2. The management system shall include a quality assurance system that complies with IS EN 13242: "*Aggregates for unbound and hydraulically bound materials for use in civil engineering work and road construction*" or with requirements which are equivalent to the provisions of IS EN 13242.

8.3. The quality assurance system must be reviewed, approved and certified by an independent third party, as a minimum level 2+ attestation[6] as referred to in Annex V of the Construction Products Regulation[7] (CPR), or any other equivalent system.

8.4. The quality assurance system shall incorporate Factory Production Controls (as required by the EN standard), including but not limited to a set of documented procedures concerning each of the following aspects:

8.4.1. Staff training,

[4] "visual inspection" means inspection of consignments using either or all human senses such as vision, touch and smell and any non-specialised equipment. Visual inspection shall be carried out in such a way that all representative parts of a consignment are covered. This may often best be achieved in the delivery area during loading or unloading and before packing. It may involve manual manipulations such as the opening of containers, other sensorial controls (feel, smell) or the use of appropriate portable sensors.

[5] Qualified staff is defined as: staff who are qualified by experience or training to monitor and assess the properties of the waste concrete.

[6] By referring to conformity level 2+ of the Construction Products Regulation, it shall be indicated that the quality system must have been reviewed once by an external body assessing the requirements for this system included in the criteria.

[7] Construction Products Regulation - Regulation (EU) No. 305/2011 (CPR)

8.4.2. Waste acceptance, to include dealing with non-conforming incoming waste for example rejection of loads, quarantine or disposal,

8.4.3. Waste input materials storage and control, to include checking for deterioration of stockpiled waste inputs,

8.4.4. Monitoring of the treatment processes and techniques, to include the use, control, calibration and maintenance of inspection, measuring and test equipment. Equipment must be uniquely identified,

8.4.5. Monitoring of the quality of recycled aggregate resulting from the recovery operation,

8.4.6. Maintenance of quality of the product during handling, storage, transport and delivery (including sampling and analysis). The finished product must be identifiable up to the point of sale,

8.4.7. Feedback from customers concerning the product quality, and

8.4.8. Review and improvement of the management system.

8.5. As standards and specifications referred to in this document are subject to review, producers shall ensure they are working to the latest version of any standard or specification.

8.6. The producer shall, upon request, provide competent authorities including EPA, the relevant local authorities and the Health and Safety Authority (HSA) access to the quality management system.

9. Records

9.1. In order to demonstrate compliance with these end-of-waste criteria, the producer shall keep and retain the following records and those outlined in Annex 1 to 4 of these criteria for a minimum of five years.

9.1.1. Factory Production Control Manual as required under IS EN 13242 to include but not limited to;

9.1.1.1. Details of a management representative nominated to have responsibility for ensuring that the Factory Production Control is implemented,

9.1.1.2. Records of periodic management reviews of the Factory Production Control to ensure its continuing suitability and effectiveness,

9.1.1.3. Details of controls in sub-contractors,

9.1.1.4. Inert waste 'acceptance criteria' specific to each site/location. These criteria must be followed at all times and must incorporate:

i. All statutory requirements relating to the receipt of incoming waste,
ii. Requirements arising from a certificate of registration, waste facility permit or waste licence and the duty of care,
iii. A list of the types of waste that are accepted (including list of waste codes),
iv. Source/place of origin of the waste,

v. Supplier and transporting agent, and
vi. Method of acceptance.

9.1.1.5. Records of the visual inspection of every load both on initial receipt and after tipping, to ensure compliance with the acceptance criteria.

9.1.1.6. A Method Statement of Production (MSP) that represents the recovery process for the incoming waste. It must contain a description or representation of the production process for each product type including:

i. Input materials,
ii. Equipment used,
iii. Actions undertaken at each stage from acceptance of waste to allocation to product stockpiles, and
iv. The aggregates must be produced to a recognised standard and/or specification.

9.1.1.7. The aggregate standard and specification will define the properties and characteristics of the product, as suitable for its application.

9.1.1.8. Records of the maintenance of processing equipment and adjustment as necessary during production.

9.1.1.9. Records and procedures as outlined in Section 8.4 above

9.2. Declaration of Conformity:

9.2.1. Each consignment of recycled aggregate shall be accompanied by a completed "Declaration of Conformity".
9.2.2. The producer shall retain a copy of each Declaration of Conformity for at least five years.
9.2.3. The Declaration of Conformity may be issued, and copies retained electronically.
9.2.4. The Declaration of Conformity shall state that the recycled aggregate is intended exclusively for uses which must not be in contact with groundwater and/or surface water.
9.2.5. The Declaration of Conformity shall state that the relevant provisions of REACH[8], CLP[9] and CPR regulations have been complied with.
9.2.6. The Declaration of Conformity shall be accompanied by or contain a link to an electronic copy of the safety data sheet for the recycled aggregate.

9.3. A register of non-conforming products i.e. a product that does not meet the requirements the IS EN Standards or these criteria shall be maintained. 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 should also include information on the outlet for the non-conforming product, i.e. re-introduced to the start of the process or disposed of or recovered as waste.

[8] Registration, Evaluation, Authorisation and Restriction of Chemicals - Regulation 1907/2006/EC (REACH)
[9] Classification, Labelling and Packaging - Regulation (EC) No 1272/2008 (CLP)

10. Use and Restrictions on Use

10.1. As for all aggregates, users of recycled aggregates that are produced in compliance with these criteria shall take full account of any environmental impact resulting from such use.

10.2. To comply with these criteria, recycled aggregate must be destined for use in unbound or bound applications in civil engineering and construction as set out below:

a) unbound applications – including sub-base, capping, general fill, and pipe bedding; and/or
b) bound applications – including hydraulically bound applications, concrete and asphalt.

The use is restricted to the construction of roadways, where the recycled aggregate will not be in contact with groundwater and/or surface water.

10.3. The use of this material in contact with groundwater and/or surface water is prohibited.

Annex 1: End of Waste Criteria and Monitoring Requirements

Criteria	Monitoring requirements
1. Waste used as input for the recovery operation	
1.1 Inputs shall be restricted to non-hazardous[10] demolition concrete wastes as per the List of Waste code 17 01 01: Concrete. 1.2 Hazardous concrete waste or receptacles used for hazardous waste shall not be used as an input. 1.3 Waste containing, or which has been contaminated by, any substance listed in Annex IV of Regulation (EC) No. 850 of 2004 (on persistent organic pollutants) shall not be accepted as an input material. 1.4 Waste to be processed into recycled aggregate shall not contain any of the following substances or materials: i. Asbestos or asbestos containing material, ii. Tar-containing asphalt, iii. Roofing materials, iv. Household waste, or v. Materials such as plastic, wood, plaster, etc. at levels which may give rise to adverse effects on the environment and the presence of such materials may be detrimental to the quality of the recycled aggregate. 1.5 Waste accepted shall be in accordance with any waste authorisation granted to the waste recovery facility. The Waste Acceptance Procedure shall be amended where necessary to conform with the requirements of any grant of authorisation under the Waste Management Act 1996 as amended. 1.6 Where non-conforming waste is delivered, this shall be immediately moved to a designated quarantine area and stored pending either return to the supplier, or consignment to an authorised waste management facility.	All waste deliveries shall be weighed at the on-site weighbridge and as a minimum the following details recorded; i. date of delivery, ii. vehicle registration plate number, iii. hauliers name, iv. list of Waste code, v. description of the waste, vi. weight of the waste, and vii. source of the waste A record of visual inspection, in accordance with Factory Production Controls shall be maintained, and as a minimum, the following details recorded; i. Time and date of the inspection, ii. Name and job title of the person carrying out the inspection, iii. Contents of the delivery, iv. Nature of any contaminants identified, and v. If contaminants are identified, details of the actions taken to correctly dispose of the non-conforming load(s) and corrective action(s) taken to prevent any such recurrence An asbestos survey should be undertaken prior to any demolition. 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. Records of relevant controls and inspections and training must be maintained for a minimum of 5 years. All reviews and revisions of procedures are to be included in an annex to the most up to date version of that procedure. Records shall be legible, identifiable and traceable to the process or product.

[10] The rules as outlined in the List of Waste (LoW) should be consulted when determining if a waste is or is not hazardous. The onus is on landowners, economic operators and persons excavating and transporting the waste material to satisfy themselves that this is the case.

Criteria	Monitoring requirements
2. Treatment processes and techniques	
2.1 Waste used as input shall be kept permanently separate from any other waste. 2.2 All processes (such as sorting, separating, size reducing, cleaning and grading) which are required in order to produce the recycled aggregate shall be completed in accordance with Factory Production Controls and waste regulatory controls.	A procedure for on-site waste storage and processing shall be documented in the environmental management system. All quality records, including any electronic media shall be stored and maintained in a manner that they are readily retrievable and protected against damage, deterioration or loss. Their retention time and stored location will be not less than 5 years. All records shall be maintained as appropriate or as deemed useful to the environmental system in order to demonstrate compliance with the relevant standard and for no less than 5 years
3. Quality of recycled aggregate resulting from the recovery operation	
3.1 The customer specification shall, as a minimum, include the requirements of the relevant industrial standard. The recycled aggregate shall comply with a customer specification and relevant industry standards for direct use in • unbound applications – including sub-base, capping, general fill, and pipe bedding; or • bound applications – including hydraulically bound applications, concrete and asphalt. The use is restricted to the construction of road ways, where the recycled aggregate will not be in contact with groundwater and/or surface water. 3.2 IS EN 13242 as a minimum shall apply to the production of the recycled aggregate; 3.3 The manufacturer shall have a quality assurance system that complies with IS EN 13242 or with requirements which are equivalent to the provisions of IS EN 13242. 3.3.1 The quality assurance system must be reviewed and approved by an independent third party, and shall be of a minimum of level 2+ attestation as referred to in Annex V of	The procedure for completing customer specifications as required by this document shall be documented in the environmental management system. Qualified staff shall verify and document that each consignment complies with the appropriate standards and specification. The record shall detail the specific standards and specifications which are being applied. A quality assurance system in line with Factory Production Controls as outlined in IS EN 13242 shall be available for inspection. At appropriate frequencies, representative samples of recycled aggregate shall be analysed to measure the content and nature of contaminant components. The results of such analysis shall be documented. The process of determining monitoring frequencies shall be documented as part of the management system and shall be available for auditing. Qualified staff shall carry out and document a visual inspection of each batch of recycled aggregate. The contaminant component content of less than or equal to 1% by mass shall be verified by suitably qualified staff, using a suitable and documented method. To prove conformity, the producer shall make available: i. The audit report demonstrating the outcome of the independent audit of the Factory Production Controls, and

Criteria	Monitoring requirements
the Construction Products Regulations, or any other equivalent system. 3.3.2 The quality assurance system shall as a minimum include procedures for the following components: i. acceptance of concrete waste for processing into recycled aggregate; ii. process control to include procedures for the use, control, calibration and maintenance of inspection, measuring and test equipment, and iii. sampling, testing and inspection of the recycled aggregate; iv. registration of tests and inspections; v. training of the manufacturer or their employees. 3.4 The type of testing for each product; and sampling and testing frequency must be appropriate to the end use of the recycled aggregates and testing frequencies must comply with the standards/specifications for the recycled aggregate produced. 3.5 Testing to confirm the contaminant component shall be carried out on each batch. 3.6 The contaminant component in the recycled aggregate shall be less than or equal to 1% by mass. 3.7 A declaration of conformity shall be completed for each batch of recycled concrete produced. The declaration of conformity may be issued in electronic form. The declaration of conformity may not be issued after the recycled aggregates have left the recycling facility. 3.8 The recycled aggregate shall: i. comply with relevant provisions of the CLP regulation; ii. comply with relevant provisions of the REACH regulation; and iii. comply with relevant provisions of the Construction Products Regulations.	ii. Completed declaration of conformity. The producer shall maintain documentary evidence, for assessment by the competent authority which demonstrates compliance with relevant provisions of the CLP, REACH and CPR regulations. The producer shall ensure these matters are addressed in customer supply contracts and documented in the Environmental Management System (EMS). Copies of appropriate CE marking shall be maintained.

Criteria	Monitoring requirements
3.9 Recycled aggregate shall be suitable for use, without further processing, as a raw material in unbound applications (including sub-base, capping, general fill, and pipe bedding) or bound applications (including hydraulically bound applications, concrete and asphalt). The use is restricted to the construction of roadways, where the recycled aggregate will not be in contact with groundwater and/or surface water. 3.10 Recycled aggregate shall not be supplied or used for: i. uses which are in contact with groundwater or surface water, ii. combustion, including as a fuel or for energy recovery; or iii. reprocessing into materials that are to be used as fuel. 3.11 Where appropriate, the recycled aggregate shall conform to CE conformity marking requirements as outlined in the Construction Products Regulations, which apply to all aggregates placed on the market to harmonised European Aggregates Standards from July 2013.	
4. Sampling and Analysis	
4.1 Product Safety and Environmental Monitoring including leachate, physical contaminant and pollutant limits for the final product - recycled aggregate: see Annex 4 below. 4.2 Procedures for the use, control, calibration and maintenance of inspection, measuring and test equipment must be set up and followed. Equipment must be uniquely identified. 4.3 A test plan for production must be defined that includes: i. types of testing for each product, and ii. sampling and testing frequency.	In order to demonstrate that the recycled aggregate does not pose a risk to the environment or human health, the producer shall make available; i. Interpretative reports including lab results, ii. Details of the test methods utilised, iii. Details of accreditation of the test method, and iv. Details of accreditation of laboratory.
5. Additional Documentation & Records:	
5.1 Marketability of the Recycled Aggregate If requested, purchasers must be provided with the results from the testing regime undertaken on each product.	To prove marketability of the recycled aggregate, the producers must maintain delivery documentation for every load of recycled aggregate despatched. This delivery documentation must include:

Criteria	Monitoring requirements
	i. Date of supply, ii. Customer's name and contact details, iii. Product description to aggregates standard and customer specification, iv. The name and contact details of the producer, including the address of the site of production, v. Quantity supplied by weight / volume, vi. A statement that the product was produced in compliance with these criteria, and vii. Details of restriction on use. These requirements are additional to any statutory record-keeping obligations. However, some records may be used to fulfil both a regulatory obligation and evidence of compliance with these criteria. For the purposes of these Criteria, the producer, must: i. Keep and retain specified records for a minimum of five years; and ii. Make them available for inspection by the regulator as requested.

Annex 2: Acceptable Inert Waste Input Materials

These Criteria only apply to recycled aggregates i.e. a granular material used in the construction of roadways, which is processed from demolition concrete waste.

Concrete (excluding concrete slurry), list of waste code 17 01 01 is considered acceptable for the production of recycled aggregate in accordance with these Criteria.

Waste inputs must not contain or be contaminated with dangerous substances described in Commission Decision 2000/532/EC. Incidental quantities of inert physical contaminants (such as soils, peat, clays, silts, wood, plastics, rubber, metal) may be present with the input material but must be removed during the processing of the waste to comply with the constituent requirements of aggregates in IS EN Standards and these Criteria.

Annex 3: Standards, Specifications, and Quality Controls for the Use of Aggregates

The producer must comply with all the requirements of an IS EN aggregates standard appropriate to the use for which the aggregate is destined for, at the time it is produced, to comply with these Criteria. The table below details the product and end uses, the IS EN Standards, specifications and quality controls relating to the production of the aggregate.

Product and End Use	IS EN Standard	Specification	Quality Controls
Unbound recycled aggregate: Pipe bedding Drainage	IS EN 13242: Aggregates for unbound and hydraulically bound materials for use in civil engineering work and road construction	As required by the customer	Independent Audit of the Factory Production Controls
Unbound recycled aggregate: Granular Fill General Fill Capping	IS EN 13242: Aggregates for unbound and hydraulically bound materials for use in civil engineering work and road construction	As required by the customer IS EN 13285: Unbound Mixtures: Specifications	Independent Audit of the Factory Production Controls
Unbound recycled aggregate: sub base	IS EN 13242: Aggregates for unbound and hydraulically bound materials for use in civil engineering work and road construction	As required by the customer IS EN 13285: Unbound Mixtures: Specifications	Independent Audit of the Factory Production Controls
Recycled aggregate for hydraulically bound mixtures	IS EN 13242: Aggregates for unbound and hydraulically bound materials for use in civil engineering work and road construction	As required by the customer IS EN 14227-1 to 5 Hydraulically Bound Mixtures: Specifications	Independent Audit of the Factory Production Controls

Should any of the above standards be amended or replaced, the most recent version of the standard shall be complied with, it is the responsibility of the producer and users to ensure that the most up to date version is being considered.

The National Standards Authority of Ireland (NSAI) publishes guidance documents that explain how the European Aggregate Standards are applied in Ireland: the ones relevant to Table B1 are:

- SR 21: Guidance on the use of IS EN 13242:2002+A1:2007 - Aggregates for Unbound and Hydraulically Bound Materials for use in Civil Engineering Work and Road Construction

Aggregate SRs and IS ENs can be purchased from NSAI: http://shop.standards.ie/nsai/

Annex 4: Sampling and Analysis

Procedures for the use, control, calibration and maintenance of inspection, measuring and test equipment must be set up and followed. Equipment must be uniquely identified.

A test plan for production must be defined that includes:

a) The types of testing for each product,
b) And sampling and testing frequency.

The relevant standards and specifications set out testing requirement associated with particular end uses. The leachate analysis for parameters outline in the table below should be carried out at a frequency of one per month. This frequency may be reduced subject to consistency or results over a 12-month period and with the explicit written agreement of the Agency. Justification for the reduction in test frequency will be required.

Leachate, Physical Contaminant and Pollutant limits for the final product, recycled aggregates:

Parameter	Leachate (mg/kg dw L/S 10) or Pollutant Content Limit
Antimony	0.42
Arsenic	0.3
Barium	0.16
Chromium	1.39
Molybdenum	1
Selenium	0.14
Sulphate	7,296
Mineral Oil	500 mg/kg
Floating Materials	5-10 cm3/kg2
Metal including steel	1%[11]
Soil	1%[8]
Gypsum	1%[8]
Wood	1%[8]
Plastic	1%[8]
Rubber	1%[8]

[11] By mass