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Ireland

**WASTE LICENCE
PROPOSED DECISION**

LANDFILL FOR INERT WASTE

Waste Licence Application Register Number:	127-1
Applicant:	Fingal County Council
Location of Facility:	Dunsink Landfill, aka Dunsink Civic Amenity, Dunsink Lane, Finglas, County Dublin.

INTRODUCTION

This introduction is not part of the licence and does not purport to be a legal interpretation of the licence.

This licence is for the closure and restoration of areas previously landfilled at Dunsink Landfill, aka Dunsink Civic Amenity, Dunsink Lane, Finglas, County Dublin. Fingal County Council is required to restore and remediate the facility and to install infrastructure to monitor and manage landfill gas and leachate emissions and to cap previously filled areas using inert materials. The works are required to be completed within three years of the date of grant of this licence. The licence also allows for the continued operation of the civic waste facility (Bring Centre), green waste composting on site and the acceptance of white goods.

Fingal County Council must manage and operate the facility to ensure that the activities do not cause environmental pollution. Fingal County Council is required to carry out regular environmental monitoring and submit all monitoring results, and a wide range of reports on the operation and management of the facility to the Agency.

The licence sets out in detail the conditions under which Fingal County Council will operate and manage this facility.

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DECISION & REASONS FOR THE DECISION

Reasons for the Decision

The Environmental Protection Agency (the Agency) is satisfied, on the basis of the information available, that the requirements of Section 40(4) of the Waste Management Act, 1996 have been complied with in respect of the application for a waste licence for the activities listed hereunder in Part I.

In reaching this decision the Agency has considered the application and supporting documentation received from the applicant, all submissions received from other parties and the report of its inspector.

Part I Activities Licensed

In pursuance of the powers conferred on it by the Waste Management Act, 1996, the Agency proposes, under Section 40(1) of the said Act to grant this Waste Licence to Fingal County Council to carry on the waste activities listed below at Dunsink Landfill, aka Dunsink Civic Amenity, Dunsink Lane, Finglas, County Dublin subject to conditions, with the reasons therefor and the associated schedules attached thereto set out in the licence.

Licensed Waste Disposal Activities, in accordance with the Third Schedule of the Waste Management Act 1996

Class 4	Surface impoundment, including placement of liquid or sludge discards into pits, ponds or lagoons: This activity is limited to: <ul style="list-style-type: none">• The provision and use of a leachate lagoon to temporarily store leachate generated in the landfill, prior to discharge to the public foul sewer; and• The provision and use of a surface water attenuation pond to control the quality and quantity of the surface water run off from site.
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Licensed Waste Recovery Activities, in accordance with the Fourth Schedule of the Waste Management Act 1996

Class 2	Recycling or reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes): This activity is limited to the composting of green waste, the recycling/ reclamation of cardboard, paper and waste oil at the facility.
Class 3	Recycling or reclamation of metals and metal compounds: This activity is limited to the recycling of ferrous / non-ferrous metals and white goods.
Class 4	Recycling or reclamation of other inorganic materials: This activity is limited to recycling or reclamation of subsoil and topsoil (for the restoration of the site) and dry recyclables at the Bring Centre.
Class 9	Use of any waste principally as a fuel or other means to generate energy: This activity is limited to the utilisation of landfill gas for the generation of electricity.
Class 11	Use of waste obtained from any activity referred to in a preceding paragraph of this Schedule: This activity is limited to the use of suitable subsoil and topsoil and composted material for the restoration programme.
Class 13	Storage of waste intended for submission to any activity referred to in a preceding paragraph of this Schedule, other than temporary storage, pending collection, on the premises where such waste is produced: This activity is limited to the storage of recyclable waste prior to recovery off site and the storage of soil on site for the restoration programme.

INTERPRETATION

All terms in this licence should be interpreted in accordance with the definitions in the Waste Management Act, (the Act), unless otherwise defined in this section.

Agreement	Agreement in writing.
Annually	At approximately twelve monthly intervals.
Attachment	Any reference to Attachments in this licence refers to attachments submitted as part of the waste licence application.
Application	The application by the licensee for this waste licence.
Appropriate Facility	A waste management facility, duly authorised under relevant law and technically suitable.
Compost	The stable, sanitised and humus-like material rich in organic matter and free from offensive odours resulting from the composting process of separately collected biowaste, which complies with the environmental quality classes 1 and 2 of <i>Schedule F: Standards for Compost Quality</i> , of this licence.
Condition	A condition of this licence.
Construction and Demolition Waste	All wastes which arise from construction, renovation and demolition activities.
Containment boom	A boom which can contain spillages and prevent them from entering drains or watercourses.
Cover material	Bricks, crushed concrete, tarmac, earth, soil, sub-soil, stone, rock or other similar natural materials; or other cover material the use of which has been agreed with the Agency.
Daytime	0800 hrs to 2200 hrs.
Documentation	Any report, record, result, data, drawing, proposal, interpretation or other document in written or electronic form which is required by this licence.
Drawing	Any reference to a drawing or drawing number means a drawing or drawing number contained in the application, unless otherwise specified in this licence.
Emergency	Those occurrences defined in Condition 9.4.
Emission Limits	Those limits, including concentration limits and deposition levels established in <i>Schedule C: Emission Limits</i> , of this licence.
European Waste Catalogue (EWC)	A harmonised, non-exhaustive list of wastes drawn up by the European Commission and published as Commission Decision 94/3/EC and any subsequent amendment published in the Official Journal of the European Community.
Green waste	Waste wood (excluding timber), plant matter such as grass cuttings, and other vegetation.
Hours of Operation	The hours during which the facility is authorised to be operational.

Hours of Waste Acceptance	The hours during which the facility is authorised to accept waste.
Inert waste	Waste that does not undergo any significant physical, chemical or biological transformations. Inert waste will not dissolve, burn or otherwise physically or chemically react, biodegrade or adversely affect other matter with which it comes into contact in a way likely to give rise to environmental pollution or harm human health. The total leachability and pollutant content of the waste and the ecotoxicity of the leachate must be insignificant, and in particular not endanger the quality of surface water and/or groundwater.
Intermediate Cover	Refers to placement of material (minimum 300mm if soil is used) for a period of time prior to restoration or prior to further disposal of waste.
Landfill	Refers to the area of the facility where the waste is disposed of by placement on the ground or on other waste.
Landfill Gas	Gases generated from the landfilled waste.
LEL (Lower Explosive Limit)	The lowest percentage concentration by volume of a mixture of flammable gas with air which will propagate a flame at 25°C and atmospheric pressure.
Licence	A waste licence issued in accordance with the Act.
Licensee	Fingal County Council.
List I/II Organics	Substances classified pursuant to EC Directives 76/464/EEC and 80/68/EEC.
Liquid Waste	Any waste in liquid form and containing less than 2% dry matter. Any waste tankered to the facility.
Maintain	Keep in a fit state, including such regular inspection, servicing and repair as may be necessary to adequately perform its function.
Monthly	A minimum of 12 times per year, at approximately monthly intervals.
Night-time	2200 hrs to 0800 hrs.
Recyclable Materials	Those waste types, such as cardboard, batteries, gas cylinders, etc which may be recycled.
Quarterly	At approximately three monthly intervals.
Sample(s)	Unless the context of this licence indicates to the contrary, samples shall include measurements by electronic instruments.
Sanitary Authority	Fingal County Council.
Specified Emissions	Those emissions listed in <i>Schedule C: Emission Limits</i> , of this licence.
Specified Engineering Works	Those engineering works listed in <i>Schedule B: Specified Engineering Works</i> , of this licence.
Stabilised Biowaste	Waste resulting from the mechanical/ biological treatment of unsorted waste or residual municipal waste as well as any other treated biowaste which does not comply with the environmental quality classes 1 or 2 of <i>Schedule F: Standards for Compost Quality</i> , of this licence.

Trigger Level	A parameter value specified in the licence, the achievement or exceedance of which requires certain actions to be taken by the licensee.
White Goods	Refrigerators, cookers, ovens and other similar appliances.
EPA Working Day	Refers to the following hours: 0900 hrs to 1730 hrs Monday - Friday inclusive.

PART II CONDITIONS

CONDITION 1 SCOPE OF THE LICENCE

- 1.1. Waste activities at the facility shall be restricted to those listed and described in Part I: Activities Licensed and authorised by this licence.
- 1.2. For the purposes of this licence, the facility is the area of land outlined in red on Drawing No. 'Dunsink Landfill, General Site Map, Figure 1B' of the application. Any reference in this licence to "facility" shall mean the area thus outlined in red.
- 1.3. This licence is for the purposes of waste licensing under the Waste Management Act, 1996 only and nothing in this licence shall be construed as negating the licensee's statutory obligations or requirements under any other enactments or regulations.
- 1.4. No waste shall be accepted for disposal at the landfill. Inert waste shall be accepted for the purposes of remediation and restoration of the landfill. Only those waste categories and quantities listed in *Schedule A: Waste Acceptance* of this licence shall be accepted at the facility. The total quantity of soil to be accepted at the facility shall not exceed that required to achieve the Restoration and Aftercare Plan to be agreed under Condition 4.1 of this licence. The total quantity of green waste to be accepted at the facility shall be:
 - 1.4.1. 3,000 Tonnes per annum (tpa) of green waste for open windrow composting at this facility subject to the restriction specified in Condition 1.4.2.; and
 - 1.4.2. 7,500 Tonnes per annum (tpa) of green waste for composting at this facility subject to the installation and commissioning of an in-vessel/enclosed system which is agreed in advance with the Agency. Upon commencement of operation of an in-vessel/enclosed composting system, open windrow composting activities shall cease.
- 1.5. Waste Acceptance Hours and Hours of Operation
 - 1.5.1. Waste may only be accepted at the facility for remediation and restoration of the facility between the hours of 08.00 – 18.00 Monday to Friday inclusive unless otherwise agreed with the Agency.
 - 1.5.2. Waste shall only be accepted at the Civic Waste Facility between the hours of 08.00 – 18.00 Monday to Saturday inclusive.
 - 1.5.3. Facility operation shall only be between the hours of 08.00 – 19.00 Monday to Saturday inclusive.
- 1.6. The following shall constitute an incident for the purposes of this licence:-
 - a) An emergency;
 - b) Any emission which does not comply with the requirements of this licence;
 - c) Any trigger level specified in this licence which is attained or exceeded; and
 - d) Any indication that environmental pollution has, or may have, taken place.
- 1.7. Where the Agency considers that a non-compliance with any condition of this licence has occurred, it may serve a notice on the licensee specifying.
 - 1.7.1. That only those wastes as specified, if any, in the notice are to be accepted at the facility after the date set down in the notice.

1.7.2 That the licensee shall undertake the works stipulated in the notice, and/or otherwise comply with the requirements of the notice as set down therein, within the time-scale contained in the notice.

1.7.3 That the licensee shall carry out any other requirement specified in the notice.

When the notice has been complied with, the licensee shall provide written confirmation that the requirements of the notice have been carried out. No waste, other than that, which is stipulated in the notice, shall be accepted at the facility until written permission is received from the Agency.

1.8 Every plan, programme or proposal submitted to the Agency for its agreement pursuant to any condition of this licence shall include a proposed timescale for its implementation. The Agency may modify or alter any such plan, programme or proposal in so far as it considers such modification or alteration to be necessary and shall notify the licensee in writing of any such modification or alteration. Every such plan, programme or proposal shall be carried out within the timescale fixed by the Agency but shall not be undertaken without the agreement of the Agency. Every such plan, programme or proposal agreed by the Agency shall be covered by the conditions of this licence.

REASON: To clarify the scope of this licence.

CONDITION 2 MANAGEMENT OF THE FACILITY

2.1 Facility Management

2.1.1 The licensee shall employ a suitably qualified facility manager with experience commensurate with the level of expertise required who shall be designated as the person in charge. The facility manager or a nominated, suitably qualified and experienced, deputy shall be present on the facility at all times during its operation.

2.1.2 The Civic Waste Facility shall be supervised by an appropriately qualified and competent person at all times while waste is being accepted.

2.1.3 Both the facility manager and deputy, and any replacement manager or deputy, shall successfully complete both the FAS Waste Management Training Programme (or equivalent agreed with the Agency) and associated on site assessment appraisal within twelve months of appointment.

2.1.4 The licensee shall ensure that personnel performing specifically assigned tasks shall be qualified on the basis of appropriate education, training and experience, as required and shall be aware of the requirements of this licence.

2.2 Management Structure

2.2.1 Within three months of waste activities, the licensee shall submit written details of the management structure of the facility to the Agency. Any proposed replacement in the management structure shall be notified in advance in writing to the Agency. Written details of the management structure shall include the following information:-

- a) The names of all persons who are to provide the management and supervision of the waste activities authorised by the licence, in particular the name of the facility manager and any nominated deputies;
- b) Details of the responsibilities for each individual named under a) above; and
- c) Details of the relevant education, training and experience held by each of the persons nominated under a) above.

2.3 Environmental Management

2.3.1 The licensee shall establish and maintain

a) Schedule of Environmental Objectives and Targets

The objectives should be specific and the targets measurable. The schedule shall address a three-year period as a minimum. The schedule shall include a time-scale for achieving the objectives and targets and shall comply with any other written guidance issued by the Agency.

b) Corrective Action Procedures

The Corrective Action Procedures shall detail the corrective actions to be taken should any of the procedures detailed in the EMS not be followed.

c) Awareness and Training Programme

The Awareness and Training Programme shall identify training needs, for personnel who work in or have responsibility for the licensed facility.

2.4 Communications Programme

2.4.1 The licensee shall establish and maintain a Communications Programme to ensure that members of the public can obtain information at the facility, at all reasonable times, concerning the environmental performance of the facility. This shall be established within three months of the date of grant of the licence.

REASON: To make provision for the proper management of the activity on a planned basis having regard to the desirability of ongoing assessment, recording and reporting of matters affecting the environment.

CONDITION 3 FACILITY INFRASTRUCTURE

3.1 The licensee shall establish all infrastructures referred to in this licence as required by the conditions of this licence.

3.2 Specified Engineering Works

3.2.1 The licensee shall submit proposals for all Specified Engineering Works, as defined in *Schedule B: Specified Engineering Works*, of this licence, to the Agency for its agreement at least two months prior to the intended date of commencement of any such works. No such works shall be carried out without the prior agreement of the Agency.

3.2.2 All specified engineering works shall be supervised by a competent person(s) and that person, or persons, shall be present at all times during which relevant works are being undertaken.

3.2.3 Following the completion of all specified engineering works, the licensee shall complete a construction quality assurance validation. The validation report shall be made available to the Agency on request. The report shall include the following information:-

- a) A description of the works;
- b) As-built drawings of the works;
- c) Records and results of all tests carried out (including failures);

- d) Drawings and sections showing the location of all samples and tests carried out;
- e) Daily record sheets/diary;
- f) Name(s) of contractor(s)/individual(s) responsible for undertaking the specified engineering works;
- g) Name(s) of individual(s) responsible for supervision of works and for quality assurance validation of works;
- h) Records of any problems and the remedial works carried out to resolve those problems; and
- i) Any other information requested in writing by the Agency.

3.3 Facility Notice Board

3.3.1 The licensee shall provide and maintain a Facility Notice Board on the facility so that it is legible to persons outside the main entrance to the facility. The minimum dimensions of the board shall be 1200 mm by 750 mm.

3.3.2 The board shall clearly show:-

- a) The name and telephone number of the facility;
- b) The normal hours of opening;
- c) The name of the licence holder;
- d) An emergency out of hours contact telephone number;
- e) The licence reference number; and
- f) Where environmental information relating to the facility can be obtained.

3.4 Facility Security

3.4.1 Within three months of the date of grant of this licence, the licensee shall carry out a review of the site security arrangements for the site and submit to the Agency for its agreement a report to include any improvements considered necessary.

3.5 Facility Roads and Hardstanding

3.5.1 Effective site roads shall be provided and maintained to ensure the safe movement of vehicles within the facility.

3.6 Facility Office

3.6.1 The licensee shall provide and maintain an office at the facility. The office shall be constructed and maintained in a manner suitable for the processing and storing of documentation.

3.6.2 The licensee shall provide and maintain a working telephone and a method for electronic transfer of information at the facility.

3.7 Waste Inspection Area

3.7.1 Within three months of the grant of this licence a Waste Inspection Area shall be provided and maintained at the facility.

3.7.2 This area shall be constructed and maintained in a manner suitable, and be of a size appropriate, for the inspection of waste.

3.7.3 Drainage from this area shall be directed to Leachate lagoon/sewer.

3.8 Weighbridge

3.8.1 The licensee shall provide and maintain a weighbridge at the facility.

3.9 Wheel Cleaning

3.9.1 The licensee shall provide and maintain a wheelwash(s) at the facility.

3.10 Waste Water Treatment Plant

3.10.1 The licensee shall provide and maintain a Wastewater Treatment plant at the facility for the treatment of wastewater arising on-site. Any percolation area shall satisfy the criteria set out in the *Wastewater Treatment Manual, Treatment Systems for Single Houses*, published by the Environmental Protection Agency.

3.11 Tank and Drum Storage Areas

3.11.1 All tank and drum storage areas shall be rendered impervious to the materials stored therein.

3.11.2 All tank and drum storage areas shall, as a minimum, be bunded, either locally or remotely, to a volume not less than the greater of the following:-

- (a) 110% of the capacity of the largest tank or drum within the bunded area; or
- (b) 25% of the total volume of substance which could be stored within the bunded area.

3.11.3 All drainage from bunded areas shall be diverted for collection and safe disposal.

3.11.4 All inlets, outlets, vent pipes, valves and gauges must be within the bunded area.

3.11.5 The integrity and water tightness of all the bunds and their resistance to penetration by water or other materials stored therein shall be confirmed by the licensee and shall be reported to the Agency within three months of the date of grant of this licence. This confirmation shall be repeated at least once every three years thereafter and reported to the Agency on each occasion.

3.12 Surface Water Management

(i) A proposal detailing surface water management infrastructure on site shall be submitted to the Agency for agreement within six months of the grant of this licence. This report shall include recommendations for the provision of surface water retention ponds and overall improvement of the surface water system and the timeframes for implementation of same.

(ii) Effective surface water management infrastructure shall be provided and maintained during the construction and operation of the composting operations and the restoration and aftercare of the facility. As a minimum, the infrastructure shall be capable of the following:-

- Diverting drainage from site roads and hardstanding areas through silt traps and oil interceptors;
- The prevention of contaminated water and leachate discharges into surface water drains and courses; and
- The collection/diversion of run off arising from capped and restored areas.

- (iii) Any additional leachate management/surface water management infrastructure proposed to be installed at the facility shall be agreed in advance with the Agency.

3.13 Leachate Management Infrastructure

- 3.13.1 Within six months of grant of this licence a report detailing the effectiveness of the leachate collection system on site shall be submitted to the Agency for agreement. This report shall include recommendations for improvement of leachate collection system, the need for leachate pre-treatment and the timeframes for implementation of same.
- 3.13.2 Any infrastructure to be used for the abstraction/storage of leachate shall be agreed in advance with the Agency.

3.14 Landfill Gas Management

- 3.14.1 Within six months of the date of grant of licence, the licensee shall submit a report to the Agency for agreement outlining the design details and locations of all gas management infrastructure and effectiveness of the system on site including reference to all areas previously landfilled.
- 3.14.2 All buildings constructed on the facility shall have regard to the guidance given in the Department of Environment 1994 publication "Protection of New Buildings and Occupants from Landfill Gas" and any subsequent revisions.
- 3.14.3 The licensee shall maintain all gas wells and the gas collection network in a safe and fully operational manner.
- 3.14.4 Landfill Gas Combustion Plant
 - 3.14.4.1 Within six months of the date of grant of licence, the licensee shall install continuous carbon monoxide and/or nitrogen oxide monitors on the outlets of the gas engine(s).
 - 3.14.4.2 Condensate collected from the combustion plant must be diverted to the leachate collection system.

3.15 Compost facility

- 3.15.1 Appropriate infrastructure for the composting of waste shall be established and maintained at the facility prior to the acceptance of any waste for composting on site. This infrastructure shall at a minimum comprise the following:-
 - 3.15.1.1 An impermeable concrete slab for windrow process (if undertaken); and
 - 3.15.1.2 Collection and disposal of all run-off to the leachate collection system.

3.16 Telemetry

- 3.16.1 Within six months a telemetry system shall be installed and maintained at the facility. All facility operations linked to the telemetry system shall also have a manual control, which will be reverted to in the event of break in power supply or during maintenance.

This system shall include for:-

- a) Recording of leachate levels in the lagoon and any newly installed pump sumps; and

- b) Quality of the surface water at the inlet to the surface water lagoons and being discharged to the perimeter streams.

3.17 Monitoring Infrastructure

3.17.1 Landfill Gas

Within six months of the date of grant of this licence the licensee shall install an effective permanent gas monitoring system in the site office any other enclosed structures at the facility.

3.17.2 Groundwater

Within three months of the date of grant of this licence the licensee shall submit to the Agency for its agreement details of the monitoring locations required in *Schedule D: Monitoring - Table D.1.1 Monitoring Locations* of this licence. The licensee shall clearly mark/tag these locations within two weeks of receiving agreement from the Agency.

3.17.3 Replacement of Infrastructure

Monitoring infrastructure, which is damaged or proves to be unsuitable for its purpose shall be replaced as soon as possible but no later than three months of it being damaged or recognised as being unsuitable.

REASON: To provide appropriate infrastructure for the protection of the environment.

CONDITION 4 RESTORATION AND AFTERCARE

- 4.1. The licensee shall restore the facility on a phased basis. The licensee shall submit a Restoration and Aftercare Plans for the facility within six months of the grant of this licence. This Plan shall make reference to the relevant conditions and timeframes outlined in the licence.
- 4.2. Final Capping
 - 4.2.1. The final capping shall consist of the following:-
 - a) Top soil (150 -300mm);
 - b) Subsoils, such that total thickness of top soil and subsoils is at least 1m;
 - c) Drainage layer of 0.5m thickness having a minimum hydraulic conductivity of 1×10^{-4} m/s or an equivalent geosynthetic layer;
 - d) Compacted mineral layer of a minimum 0.6m thickness with a permeability of less than 1×10^{-9} m/s or a geosynthetic material (e.g. GCL) or similar that provides equivalent protection; and
 - e) Gas collection layer of natural material (minimum 0.3m) or a geosynthetic layer.
- 4.3. Within three months of the date of grant of this licence, the licensee shall submit a report on those areas of the landfill that have previously been restored. This report shall include details on (i) the areas that have been restored, (ii) the type of capping installed, (iii) the state of the restored areas and (iv) recommendations. Any recommendations arising from this report and a timetable for implementation shall be agreed with the Agency and implemented.
- 4.4. No material or object that is incompatible with the proposed restoration of the facility shall be present within one metre of the final soil surface levels.
- 4.5. Where tree planting is to be carried out above waste-filled areas, a synthetic barrier shall be used to augment the clay cap. Combined topsoil and subsoil depths shall be a minimum of 1m.

- 4.6. The restoration of the landfill facility shall be completed within three years of the date of grant of this licence.
- 4.7. Soil Storage
- 4.7.1. All soils shall be stored to preserve the soil structure for future use.

REASON: To provide for the restoration of the facility.

CONDITION 5 FACILITY OPERATION AND WASTE MANAGEMENT

5.1 Waste Acceptance and Characterisation Procedures

Within six months of grant of this licence, the licensee shall submit to the Agency and obtain its agreement on written procedures for the acceptance and handling of all wastes. The procedures shall have regard to the EU decision (2003/22/EC) on establishing the criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 and Annex II of Directive (1999/31/EC) on the landfill of waste.

- 5.2 All wastes shall be checked. Any wastes not suitable for acceptance shall be removed for recovery or disposal at an appropriate alternative facility.

5.3 Operational Controls

- (i) Completed areas of the landfill shall be profiled so that no depressions exist in which water may accumulate. Any depressions arising after profiling shall be rectified by the emplacement of suitable capping or restoration materials.
- (ii) Scavenging shall not be permitted at the facility.
- (iii) Gates shall be locked shut when the facility is unsupervised.
- (iv) The licensee shall provide and use adequate lighting during the operation of the facility in hours of darkness.
- (v) Fuels shall only be stored at appropriately bunded locations on the facility.
- (vi) All tanks and drums shall be labelled to clearly indicate their contents.
- (vii) No smoking shall be allowed on the facility except in the facility office.

5.4 Inert Waste

- 5.4.1 Inert Waste accepted at the facility shall comply with the standards established in *Schedule A: Waste Acceptance*, of this licence.

5.5 Compost

- 5.5.1 Where the licensee proposes to undertake windrow composting, operational controls shall include the use of a purpose built windrow-turner within six months of date of grant of licence.
- 5.5.2 The area where screening and grinding is planned to take place shall be approved by the Agency prior to commencement of composting activities.
- 5.5.3 A report detailing the noise levels associated with critical items of plant shall be furnished to the Agency prior to commencement of composting activities on site. Such critical items of plant shall be low noise plant and/or shall have acoustic panels and exhaust silencers fitted for the purposes of noise abatement.

- 5.5.4 Windrow heights shall be restricted to a maximum of 2m. Maturation/curing and storage pile heights shall be limited to a maximum of 3m.
- 5.5.5 Separate identifiable areas shall be maintained for final compost and incoming waste.
- 5.5.6 Adequate space (minimum 1.5m) shall be maintained between windrows for the purpose of turning.
- 5.6 Composting Process Management and validation
 - 5.6.1 All composting shall be executed in line with the treatment regimes outlined in *Schedule E: Process Management* of this licence.
 - 5.6.2 Compost produced by the facility shall be analysed in accordance with the requirements of *Schedule F: Standards for Compost Quality* of this licence.
- 5.7 Off site disposal and recovery
 - 5.7.1 Waste sent off-site for recovery or disposal shall only be conveyed by a waste contractor agreed by the Agency.
 - 5.7.2 All waste transferred from the facility shall only be transferred to an appropriate facility agreed by the Agency.
 - 5.7.3 All wastes removed off-site for recovery or disposal shall be transported from the facility to the consignee in a manner which will not adversely affect the environment.
- 5.8 Civic Waste Facility
 - 5.8.1 No more than one area shall be designated the Civic Waste Facility.
 - 5.8.2 The Civic Waste Facility shall only be used by private vehicles. The facility shall not be used as a transfer station for disposal of waste by commercial waste disposal contractors or local authority waste collection vehicles.
 - 5.8.3 All waste deposited in the Civic Waste Facility shall be either:-
 - a) Into a skip;
 - b) Into the hopper of the compactor for disposal;
 - c) Into a receptacle for recovery; and
 - d) In the case where inspection is required, into a designated inspection area.
 - 5.8.4 The licensee shall assign and clearly label each container at the Civic Waste Facility to indicate their contents.
 - 5.8.5 At the end of the working day the hardstanding area of the Civic Waste Facility shall be cleared of any waste not in skips or receptacles.
- 5.9 Leachate Management
 - 5.9.1 The level of leachate in any newly installed pump sumps shall be monitored continuously.
 - 5.9.2 The frequency of leachate removal/discharge from the leachate lagoon shall be such that a minimum freeboard of 0.75m shall be maintained in the leachate lagoon at all times.
 - 5.9.3 Unless treated on the facility, leachate stored in the leachate storage lagoon shall be disposed of by sewer following Sanitary Authority Consent.

5.9.4 Recirculation of leachate or other contaminated water shall not be undertaken at the facility.

5.10 Maintenance

5.10.1 All treatment/abatement and emission control equipment shall be calibrated and maintained, in accordance with the instructions issued by the manufacturer/supplier or installer. Written records of the calibrations and maintenance shall be made and kept by the licensee.

5.10.2 All lagoon structures on the facility shall be inspected and certified fit for purpose every three years by an independent and appropriately qualified chartered engineer.

5.10.3 The licensee shall maintain and clearly label and name all sampling and monitoring locations.

5.10.4 The wheel-wash shall be inspected on a daily basis and drained as required. Silt, stones and other accumulated material shall be removed as required from the wheel-wash and disposed of at the active restoration area.

REASON: To provide for appropriate operation of the facility to ensure protection of the environment.

CONDITION 6 EMISSIONS

6.1. No specified emission from the facility shall exceed the emission limit values set out in *Schedule C: Emission Limits*, of this licence. There shall be no other emissions of environmental significance.

6.2. The licensee shall ensure that the activities shall be carried out in a manner such that emissions do not result in significant impairment of, or significant interference with the environment beyond the facility boundary.

6.3. Landfill Gas

6.3.1. The following are the trigger levels for landfill gas emissions from the facility measured in any service duct or manhole on, at or immediately adjacent to the facility and/or at any other point located outside the body of the waste:-

- a) Methane, greater than or equal to 1.0% v/v; or
- b) Carbon dioxide, greater than or equal to 1.5% v/v.

6.3.2. The concentration limits for emissions to atmosphere specified in this licence shall be achieved without the introduction of dilution air and shall be based on gas volumes under standard conditions of :-

- a) In the case of landfill gas combustion plant:
Temperature 273 K, pressure 101.3 kPa, dry gas; 5% oxygen.

6.3.3. Emission limits for emissions from landfill combustion plant to atmosphere in this licence shall be interpreted in the following way.

6.3.3.1. Continuous monitoring

- a) No 24 hour mean value shall exceed the emission limit value;

- b) 97% of all 30 minute mean values taken continuously over an annual period shall not exceed 1.2 times the emission limit value; and
- c) No 30-minute mean value shall exceed twice the emission limit value.

6.3.3.2 Non-Continuous Monitoring

- a) For any parameter where, due to sampling/analytical limitations, a 30 minute samples is inappropriate, a suitable sampling period should be employed and the value obtained therein shall not exceed the emission limit value;
- b) For all other parameters, no 30 minute mean value shall exceed the emission limit value; and
- c) For flow, no hourly or daily mean value shall exceed the emission limit value.

6.4. Groundwater

6.4.1 Within six months of the date of grant of this licence, the licensee shall submit to the Agency for its agreement, groundwater monitoring trigger levels in accordance with the requirements of Directive 1999/31/EC for one upgradient and two downgradient monitoring boreholes.

6.5. Emissions to Surface Water

6.5.1. No raw leachate, treated leachate or contaminated surface water shall be discharged to Scribblestown Stream, or associated tributaries.

6.5.2. No substance shall be discharged in a manner, or at a concentration which, following initial dilution causes tainting of fish or shellfish.

6.6. Trigger Level for PM₁₀

6.6.1. The trigger level for PM₁₀ from the facility measured at any location on the boundary of the facility is:-

- a) PM₁₀ greater than 50µg/m³ for a daily sample.

REASON: To control emissions from the facility and provide for the protection of the environment.

CONDITION 7 NUISANCE CONTROL

7.1 The licensee shall ensure that vermin, birds, flies, mud, dust, litter, noise and odours do not give rise to nuisance at the facility or in the immediate area of the facility. Any method used by the licensee to control any such nuisance shall not cause environmental pollution.

7.2 The road network in the vicinity of the facility shall be kept free from any debris caused by vehicles entering or leaving the facility. Any such debris or deposited materials shall be removed without delay.

7.3 Litter Control

7.3.1 All loose litter or other waste, placed on or in the vicinity of the facility, other than in accordance with the requirements of this licences, shall be removed, subject to the agreement of the landowners, immediately and in any event by 10.00am of the next working day.

7.3.2 The licensee shall ensure that all vehicles delivering waste to and removing waste from the facility are appropriately covered.

7.4 Dust Control

7.4.1 In dry weather, site roads and any other areas used by vehicles shall be sprayed with water as and when required to minimise airborne dust nuisance.

7.4.2 Prior to exiting the facility, all waste vehicles shall use the wheelwash.

7.4.3 Compost being cured or stored shall be covered with a flexible cover for the purposes of dust minimisation.

7.4.4 Water suppression systems shall be used (hosing and bowser) to prevent dust emissions from the storage and processing of waste/compost.

7.4.5 A dust suppression system (including wetting down of compost and a machinery cover on the grinder/screen) shall be used when screening or grinding waste/compost.

7.4.6 The licensee shall carry out an examination of the requirement for full enclosure of the screening/grinding processes (for the purposes of dust and noise control) within nine months of date of grant of this licence. This examination shall refer to the observed effectiveness of the measures outlined above and monitoring data collected in the interim period and be submitted to the Agency for agreement. The findings of this examination shall be implemented within twelve months of date of grant of this licence unless otherwise agreed with the Agency.

7.5 Odour Control

7.5.1 Within six months of the date of grant of this licence or prior to commencement of compost activities, whichever is sooner, the licensee shall submit to the Agency for its agreement, an odour management plan for the facility. The plan shall include:

- (i) Measures and details of odour abatement equipment that are necessary to control odours from waste activities to be carried on; and
- (ii) Details for monitoring effectiveness of odour abatement equipment.

REASON: To provide for the control of nuisances.

CONDITION 8 MONITORING

8.1 The licensee shall carry out such monitoring and at such locations and frequencies as set out in *Schedule D: Monitoring*, of this licence and as specified in this licence. Unless otherwise specified by this licence, all environmental monitoring shall commence no later than two months after the date of grant of this licence.

8.2 The licensee shall amend the frequency, locations, methods and scope of monitoring as required by this licence only upon the written instruction of the Agency and shall provide such information concerning such amendments as may be requested in writing by the Agency. Such alterations shall be carried out within any timescale nominated by the Agency.

8.3 Monitoring and analysis equipment shall be operated and maintained in accordance with the manufacturers' instructions (if any) so that all monitoring results accurately reflect any emission, discharge or environmental parameter.

- 8.4 The licensee shall provide safe and permanent access to all on-site sampling and monitoring points and to off-site points as required by the Agency.
- 8.5 All landfill gas monitoring equipment, other than permanent monitoring systems within buildings, shall be certified as being intrinsically safe.
- 8.6 Meteorological Monitoring
- 8.6.1 The licensee shall obtain monitoring details for the parameters listed in *Schedule D.6: Meteorological Monitoring*, of this licence.
- 8.7 Topographical Survey
- 8.7.1 A topographical survey shall be carried out within three months of the date of grant of this licence and shall be submitted to the Agency within four months of grant of this licence. The survey shall be in accordance with any written instructions issued by the Agency.
- 8.8 Biological Assessment
- 8.8.1 A biological assessment of Scribblestown Stream shall be taken annually. This assessment shall use appropriate biological methods such as the EPA Q-rating system for the assessment of rivers and streams. The location of monitoring points shall be agreed with the Agency.
- 8.9 Stability Assessment
- 8.9.1 Within three months of the date of grant of this licence, the licensee shall carry out a stability assessment of the side slopes of the facility. It shall be repeated annually thereafter.
- 8.10 Nuisance Monitoring
- 8.10.1 Within two months of the date of grant of licence, the licensee shall, at a minimum of one-weekly intervals, commence inspection of the facility and its immediate surrounds for nuisances caused by litter, vermin, birds, flies, mud, dust, noise, and odours.

REASON: To ensure compliance with the conditions of this licence by provision of a satisfactory system of monitoring of emissions.

CONDITION 9 CONTINGENCY ARRANGEMENTS

- 9.1. In the event of an incident the licensee shall immediately:-
- a) Identify the date, time and place of the incident;
 - b) Carry out an immediate investigation to identify the nature, source and cause of the incident and any emission arising therefrom;
 - c) Isolate the source of any such emission;
 - d) Evaluate the environmental pollution, if any, caused by the incident;
 - e) Identify and execute measures to minimise the emissions/malfunction and the effects thereof; and

- f) Provide a proposal to the Agency for its agreement within one month of the incident occurring to:-
 - a) Identify and put in place measures to avoid reoccurrence of the incident;
 - b) Identify and put in place any other appropriate remedial action.

- 9.2. The licensee shall, within six months of the date of grant of this licence, submit a written Emergency Response Procedure (ERP) to the Agency for its agreement. The ERP shall address any emergency situations, which may originate on the facility and shall include provision for minimising the effects of any emergency on the environment. This shall include a risk assessment to determine the requirements at the facility for fire fighting and firewater retention facilities. The Fire Authority shall be consulted by the licensee during this assessment.

- 9.3. The licensee shall have in storage an adequate supply of suitable absorbent material to contain and absorb any spillage at the facility. Once used the absorbent material shall be disposed of at an appropriate facility.

- 9.4. Emergencies
 - 9.4.1. All significant spillages occurring at the facility shall be treated as an emergency and immediately cleaned up and dealt with so as to alleviate their effects.
 - 9.4.2. No waste shall be burnt within the boundaries of the facility. A fire at the facility shall be treated as an emergency and immediate action shall be taken to extinguish it and notify the appropriate authorities.
 - 9.4.3. In the event that monitoring of local wells indicates that the facility is having a significant adverse effect on the quantity and/or quality of the water supply this shall be treated as an emergency and the licensee shall provide an alternative supply of water to those affected.
 - 9.4.4. In the event that monitoring of the slide slopes of the facility indicate that there may be a risk of slope failure this will be treated as an emergency.

REASON: To ensure compliance with the conditions of this licence by provision of a satisfactory system of monitoring of emissions.

CONDITION 10 RECORDS

- 10.1 The licensee shall keep the following documents at the facility office:-
 - a) The current waste licence relating to the facility;
 - b) The current EMS for the facility;
 - c) The previous year's AER for the facility; and
 - d) All written procedures produced by the licensee which relate to the licensed activities.

- 10.2 The licensee shall maintain a written record for each load of restoration material arriving at the facility, excluding those arriving at the Civic Waste Facility. The licensee shall record the following:-
 - a) The date;
 - b) The name of the carrier;
 - c) The vehicle registration number;

- d) The name of the producer(s)/collector(s) of the waste as appropriate;
- e) The name of the waste facility from which the load originated including the waste licence or waste permit register number(if appropriate);
- f) A description of the waste including the associated EWC codes;
- g) The quantity of the waste, recorded in tonnes;
- h) The name of the person checking the load; and
- i) Where loads or wastes are removed or rejected, details of the date of occurrence, the types of waste and the facility to which they were removed.

10.3 Written Records

The following written records shall be maintained by the licensee:-

- a) The types and quantities of waste recovered at the facility each year. These records shall include the relevant EWC Codes;
- b) All training undertaken by facility staff;
- c) Results from all integrity tests of bunds and other structures and any maintenance or remedial work arising from them;
- d) Details of all nuisance inspections; and
- e) The names and qualifications of all persons who carry out all sampling and monitoring as required by this licence and who carry out the interpretation of the results of such sampling and monitoring.

10.4 The licensee shall maintain a written record of all complaints relating to the operation of the facility. Each such record shall give details of the following:-

- a) Date and time of the complaint;
- b) The name of the complainant;
- c) Details of the nature of the complaint;
- d) Actions taken on foot of the complaint and the results of such actions; and
- e) The response made to each complainant.

10.5 A written record shall be kept for each load of waste departing from the Civic Waste Facility. The following shall be recorded:-

- a) The name of the carrier and waste collection permit details;
- b) The vehicle registration number;
- c) The destination of the waste (facility name and waste licence/permit number as appropriate);
- d) A description of the waste (if recovered or rejected waste, the specific nature of the waste);
- e) The quantity of waste, recorded in tonnes;
- f) The name of the person checking the load; and
- g) The time and date of departure.

REASON: To provide for the keeping of proper records of the operation of the facility.

CONDITION 11 REPORTS AND NOTIFICATIONS

11.1 Unless otherwise agreed by the Agency, all reports and notifications submitted to the Agency shall:-

- a) Be sent to the Agency's headquarters;
- b) Comprise one original and three copies unless additional copies are required;
- c) Be formatted in accordance with any written instruction or guidance issued by the Agency;
- d) Include whatever information as is specified in writing by the Agency;
- e) Be identified by a unique code, indicate any modification or amendment, and be correctly dated to reflect any such modification or amendment;
- f) Be submitted in accordance to the relevant reporting frequencies specified by this licence, such as in *Schedule E: Recording and Reporting to the Agency*, of this licence;
- g) Be accompanied by a written interpretation setting out their significance in the case of all monitoring data; and
- h) Be transferred electronically to the Agency's computer system if required by the Agency.

11.2 In the event of an incident occurring on the facility, the licensee shall:-

- a) Notify the Agency as soon as practicable and in any case not later than 1000 hrs the following working day after the occurrence of any incident;
- b) Submit a written record of the incident, including all aspects described in Condition 9.1(a-e), to the Agency as soon as practicable and in any case within five working days after the occurrence of any incident;
- c) In the event of any incident which relates to discharges to surface/sewer water, notify the Sanitary Authority and the Eastern Regional Fisheries Board as soon as practicable and in any case not later than 1000 hrs on the following working day after such an incident; and
- d) Should any further actions be taken as a result of an incident occurring, the licensee shall forward a written report of those actions to the Agency as soon as practicable and no later than ten days after the initiation of those actions.

11.3 Waste Recovery Reports

Within six months of the date of grant of this licence, a report examining waste recovery options shall be submitted to the Agency for its agreement. This report shall address methods to contribute to the achievement of the recovery targets stated in national and European Union waste policies and shall include the following:-

- a) Proposals for the contribution of the facility to the achievement of targets for the reduction of biodegradable waste to landfill, going to landfills as specified in the Landfill Directive;
- b) The separation of recyclable materials from the waste;
- c) The recovery of non-hazardous inorganic waste;
- d) Composting of biodegradable or green waste at the facility having regard to good practice and sustainability;

e) Inert waste to be used for cover/restoration material at the facility;

11.4 Reports relating to Facility Operations

11.4.1. Achievement of Final Profile

11.4.1.1 Within six months of the date of grant of this licence, the licensee shall submit to the Agency for its agreement, proposals for restoration to achieve the final profile/height of the facility to the Agency for its agreement.

11.5 Monitoring Locations

11.5.1. Within three months of the date of grant of this licence, the licensee shall submit to the Agency an appropriately scaled drawing(s) showing all the monitoring locations that are stipulated in this licence. The drawing(s) shall include the reference code of each monitoring point.

11.6 Annual Environmental Report

11.6.1. The licensee shall submit to the Agency for its agreement by March 1, 2004, and within one month of the end of each year thereafter, an Annual Environmental Report (AER).

11.6.2. The AER shall include as a minimum the information specified in *Schedule H: Content of Annual Environmental Report* of this licence and shall be prepared in accordance with any relevant written guidance issued by the Agency.

11.7 European Pollution Emissions Register (EPER)

11.7.1. European Pollution Emission Register reporting shall be in accordance with any relevant guidance issued by the Agency.

REASON: To provide for proper reports to and notifications to the Agency.

CONDITION 12 CHARGES AND FINANCIAL PROVISIONS

12.1 Agency Charges

12.1.1 The licensee shall pay to the Agency an annual contribution of €26,057 or such sum as the Agency from time to time determines, towards the cost of monitoring the activity or otherwise in performing any functions in relation to the activity, as the Agency considers necessary for the performance of its functions under the Waste Management Act, 1996. The licensee shall in 2004 and subsequent years, not later than January 31 of each year, pay to the Agency this amount updated in accordance with changes in the Public Sector Average Earnings Index from the date of the licence to the renewal date. The updated amount shall be notified to the licensee by the Agency. For 2003, the licensee shall pay a pro rata amount from the date of this licence to 31st December. This amount shall be paid to the Agency within one month of the date of grant of this licence.

12.1.2 In the event that the frequency or extent of monitoring or other functions carried out by the Agency needs to be increased the licensee shall contribute such sums as determined by the Agency to defraying its costs.

12.2 Financial Provision for Closure, Restoration and Aftercare

12.2.1 Within six months the licensee shall arrange for a risk assessment of the facility to be carried out. The risk assessment shall have particular regard to any accidents, emergencies, or other incidents, which might occur at the facility and their effect on the environment. The risk assessment shall include a comprehensive and fully costed Environmental Liabilities Risk Assessment for the facility including the cost of making such Financial Provision as is required for the purposes of Section 53(1) of the Waste Management Act 1996. The financial provision shall include the costs entered into or incurred in the carrying on of the activities to which this licence relates or will relate including the aftercare of the facility.

12.2.2 The licensee shall, within nine months establish and maintain a fund, or provide a written guarantee for the costs determined under Condition 12.2.1. The type of fund established and means of its release/recovery shall be agreed by the Agency prior to its establishment.

12.2.3 The licensee shall within two weeks of purchase, renewal or revision of the financial provision required under Condition 12.2.2, forward to the Agency written proof of such indemnity. The licensee shall revise the cost of restoration and aftercare annually.

12.2.4 Unless otherwise agreed any revision to the fund shall be computed using the following formula:-

$$\text{Cost} = (\text{ECOST} \times \text{WPI}) + \text{CiCC}$$

Where:-

Cost = Revised restoration and aftercare cost

ECOST = Existing restoration and aftercare cost

WPI = Appropriate Wholesale Price Index [Capital Goods, Building & Construction (i.e. Materials & Wages) Index], as published by the

Central Statistics Office, for the year since last closure calculation/revision.

CiCC = Change in compliance costs as a result of change in site conditions, changes in law, regulations, regulatory authority charges, or other significant changes.

REASON: To provide for adequate financing for monitoring and financial provisions for measures to protect the environment.

SCHEDULE A : Waste Acceptance

A.1 Waste Acceptance

Table A.1.1 Waste Categories and Quantities

Waste Type	Maximum (Tonnes Per Annum)
Civic Amenity/ Bring Centre Recyclables	3,500
White Goods	3,000
Inert Waste for Restoration	186,000
Green Waste for Composting	3,000 (open windrow process) <i>or</i> 7,500 (Enclosed/ in vessel process) ^{Note 1}
TOTAL	195,500 (incl windrow process) <i>or</i> 200,000 (incl Enclosed/ in vessel process)

Note 1: Only with the prior agreement of the Agency.

A.2 Acceptable Waste

Unless otherwise agreed with the Agency, only inert wastes listed in Table A.2.1 are acceptable for recovery at the facility without testing. If there is a doubt that the waste fulfils the definition of inert waste testing must be applied as agreed under Condition 5.1.

Table A.2.1 Wastes acceptable for Landfill Restoration

EWC Code	Description	Exclusions
10 11 03	Waste glass based fibrous materials	Only without organic binders
15 01 07	Glass Packaging	
17 01 01	Concrete	Selected C& D Waste Only ^{Note 1}
17 01 02	Bricks	Selected C& D Waste Only ^{Note 1}
17 01 03	Tiles and Ceramics	Selected C& D Waste Only ^{Note 1}
17 01 07	Mixtures of concrete, bricks, tiles and ceramics	Selected C& D Waste Only ^{Note 1}
17 02 02	Glass	
17 05 04	Soil and Stones	Excluding soils and stones from contaminated sites
19 12 05	Glass	
20 01 02	Glass	Separately collected glass only
20 02 02	Soil and Stones	Only from Parks and Gardens

Note 1: Selected C&D waste: with low contents of other types of materials (like metals, plastic, soil, organics, wood, rubber etc.). The origin of the waste must be known.

SCHEDULE B : Specified Engineering Works

Specified Engineering Works

Installation of leachate, surface water and landfill gas Infrastructure.

Installation of final cap.

Installation of waste inspection and quarantine areas.

Installation of windrow composting process.

Installation of any in-vessel/enclosed composting system.

Any other works notified in writing by the Agency.

SCHEDULE C : Emission Limits

C.1 Noise Emissions:

Measured at any the noise sensitive location indicated in Drawing 'Noise Monitoring Locations' C.8.1.

Day Db(A) L_{Aeq} (15 minutes)	Night dB(A) L_{Aeq} (15 minutes)
55	45

C.2 Landfill Gas Concentration Limits:

Measured in any building on or adjacent to the facility.

Methane	Carbon Dioxide
20 % LEL (1% v/v)	1.5 % v/v

C.3 Dust Deposition Limits:

Measured at the monitoring points indicated in Drawing 'Dust Monitoring Locations C.1.2.

Level (mg/m^2 /day) ^{Note 1}
350

Note 1: 30 day composite sample with the results expressed as mg/m^2 /day.

C.4 Surface Water Discharge Limits:

Measured at the outlet from the stormwater lagoon.

Level (Suspended Solids mg/l)
35 mg/l

C.5 Emission Limits Values for Landfill Gas Plant

Emission Point Reference numbers: **(to be agreed with Agency in advance)**.

Volume to be emitted: 3000m³/hr (unless results from modelling suggests otherwise)

Minimum discharge height: 5m (unless results from modelling suggests otherwise)

Parameter	Utilisation Plant Emission Limit Value ^{Note 1}
Nitrogen oxides (NO_x)	500 mg/m ³
CO	1400 mg/m ³
Particulates	130 mg/m ³
Total Volatile Organic Compounds (VOCs) as carbon	1000 mg/m ³
Total non-methane VOCs	75 mg/m ³
Hydrogen Chloride	50 mg/m ³ (at mass flows > 0.3 kg/h)
Hydrogen Fluoride	5 mg/m ³ (at mass flows > 0.05 kg/h)

Note 1: Dry gas referenced to 5% oxygen by volume for utilisation plants.

C.6 Emission Limits for Leachate Being Discharged to Sewer

Parameter ^{Note 1}	Emission Limit Value
Dissolved Methane	0.14mg/l

Note 1: ELVs for other parameters to be agreed with the Sanitary Authority

SCHEDULE D : Monitoring

D.1 Monitoring Locations

Monitoring locations shall be those as set out in Table D.1.1 below and correspond with Drawing C 1.1 (Gas monitoring locations), Drawing C 1.2 (Dust monitoring locations), Drawing C. 8.1 (Noise monitoring locations), and Drawing C.9.1 (Surface water monitoring locations) of the application.

Table D.1.1 Monitoring Locations

Landfill Gas within Waste and Boundary Locations	Landfill Utilisation Plant	Dust Deposition Odour	PM ₁₀ / Bioaerosols	Noise	Ground Water	Leachate
Stations		Stations		Stations	Stations	Stations
G1 G6 G9 G12 G13 G18 G21 G23	LFGU1 LFGU2 LFGU3 LFGU4	DM1 DM2 DM3 DM4 DM5 1 other to be located adjacent to the compost area.	Four locations to be agreed with the Agency in advance of restoration works.	NSL1 NSL2 NSL3 NL1 NL2 NL5 ^{Note 1}	BH3 BH4 BH16 BH18 BH28 BH29 BH31 BH32	Northeast Lagoon
Surface Monitoring Locations						
	SW1 SW2 SW4 SW7 SW9 SW10	3 locations for biological sampling to include 1 upgradient & 1 downgradient.		4 other stations at the settlement pond inlet & outlet points.		

Note 1: NL5 is to be located adjacent to the compost area at a location to be agreed with the Agency.

D.2 Landfill Gas

Table D.2.1 Landfill Gas Monitoring Parameters, Frequency and Technique

Parameter	Monitoring Frequency		Analysis Method ^{Note 1} /Technique ^{Note 2}
	Gas Boreholes/ Vents/Wells	Site Office	
Methane (CH ₄) % v/v	Monthly	Weekly	Infrared analyser/flame ionisation detector
Carbon dioxide (CO ₂) % v/v	Monthly	Weekly	Infrared analyser/ flame ionisation detector
Oxygen(O ₂) % v/v	Monthly	Weekly	Electrochemical cell
Atmospheric Pressure	Monthly	Weekly	Standard
Temperature	Monthly	Weekly	Standard

Note 1: All monitoring equipment used should be intrinsically safe.

Note 2: Or other methods agreed in advance with the Agency.

D.3 Dust/PM10/ Bioaerosol Monitoring

Table D.3.1 Dust Monitoring Frequency and Technique

Parameter (mg/m ² /day)	Monitoring Frequency	Analysis Method/Technique
Dust	Quarterly ^{Note 2}	Standard Method ^{Note 1}
PM ₁₀	Quarterly	See ^{Note 3}
Mesophilic Bacteria	Annually	Grab sample ^{Note 4}
Aspergillus fumigatus	Annually	Grab sample ^{Note 4}

Note 1: Standard method VDI2119 (Measurement of Dustfall, Determination of Dustfall using Bergerhoff Instrument (Standard Method) German Engineering Institute). Any modifications to eliminate interference due to algae growth in the gauge should be reported to the Agency.

Note 2: Twice during the period May to September.

Note 3: As described in prEN12341 or an equivalent agreed with the Agency.

Note 4: Enumeration of colonies to be carried out as described in 'Standardised Protocol for the Sampling and Enumeration of Airborne Micro-organisms at composting Facilities' the Composting Association 1999.

D.4 Noise

Table D.4.1 Noise Monitoring Frequency and Technique

Parameter	Monitoring Frequency	Analysis Method/Technique
L(A) _{EQ} [30 minutes]	Bi – Annual	Standard ^{Note 1}
L(A) ₁₀ [30 minutes]	Bi – Annual	Standard ^{Note 1}
L(A) ₉₀ [30 minutes]	Bi – Annual	Standard ^{Note 1}
Frequency Analysis (1/3 Octave band analysis)	Bi – Annual	Standard ^{Note 1}

Note 1: "International Standards Organisation. ISO 1996. Acoustics - description and Measurement of Environmental noise. Parts 1, 2 and 3."

D.5 Surface Water, Groundwater and Leachate

Table D.5.1 Water and Leachate - Parameters / Frequency

PARAMETER ^{Note 1}	SURFACE WATER ^{Note 2}	GROUNDWATER	LEACHATE ^{Note 3}
	Monitoring Frequency	Monitoring Frequency	Monitoring Frequency
Visual Inspection/Odour ^{Note 2}	Weekly	Quarterly	Quarterly
Groundwater Level	Not Applicable	Quarterly	Not Applicable
Leachate Level	Not Applicable	Not Applicable	Continuous ^{Note 7}
Ammoniacal Nitrogen	Quarterly	Quarterly	Annually
BOD	Quarterly	Not Applicable	Annually
COD	Annually	Not Applicable	Annually
Chloride	Annually	Annually	Annually
Dissolved Oxygen	Annually	Annually	Not Applicable
Electrical Conductivity	Quarterly	Quarterly	Annually
Ph	Quarterly	Quarterly	Annually
Total Suspended Solids	Quarterly	Not Applicable	Not Applicable
Temperature	Annually	Quarterly	Quarterly
Metals / non metals ^{Note 3}	Annually	Annually	Annually
Cyanide (Total)	Not Applicable	Annually	Annually
Fluoride	Not Applicable	Annually	Annually
List I/II organic substances ^{Note 4}	Once off ^{Note 5}	Annually ^{Note 5}	Once off ^{Note 5}
Mercury	Annually	Annually	Annually
Sulphate	Annually	Annually	Annually
Total Alkalinity	Annually	Annually	Not applicable
Total P/orthophosphate	Annually	Annually	Annually
Total Oxidised Nitrogen	Annually	Annually	Annually
Total Organic Carbon	Not Applicable	Quarterly	Not Applicable
Residue on evaporation	Not Applicable	Annually	Not Applicable
Biological Assessment	Annually ^{Note 6}	Not Applicable	Not Applicable

Note 1: All the analysis shall be carried out by a competent laboratory using standard and internationally accepted procedures.

Note 2: Where there is evident gross contamination of leachate, additional samples should be analysed.

Note 3: Metals and elements to be analysed by AA/ICP should include as a minimum: boron, cadmium, calcium, chromium (total), copper, iron, lead, magnesium, manganese, nickel, potassium, sodium and zinc.

Note 4: Samples screened for the presence of organic compounds using Gas Chromatography / Mass Spectrometry (GC/MS) or other appropriate techniques and using the list I/II Substances from EU Directive 76/464/EEC and 80/68/EEC as a guideline. Recommended analytical techniques include: volatiles (US Environmental Protection Agency method 524 or equivalent), semi-volatiles (USEPA method 525 or equivalent, and pesticides (USEPA method 608 or equivalent).

Note 5: 2 surface water locations, 3 groundwater locations and 1 leachate location to be agreed with the Agency for these parameters.

Note 6: Appropriate biological methods (such as EPA Q-Rating System) to be used for the assessment of rivers and streams.

Note 7: Location to be agreed with the Agency.

D.6 Meteorological Monitoring

Table D.6.1 Meteorological Monitoring:
Data to be obtained from Dublin Airport include:

Parameter	Monitoring Frequency	Analysis Method/Technique
Precipitation Volume	Daily	Standard
Temperature (min/max.)	Daily	Standard
Wind Force and Direction	Daily	Standard
Evaporation	Daily	Standard
Evapotranspiration ^{Note 1}	Daily	Standard
Humidity	Daily	Standard
Atmospheric Pressure ^{Note 1}	Daily	Standard

Note 1: Monitoring frequency for these parameters may be decreased with the agreement of the Agency.

D.7 Landfill Gas Combustion Plant

Location: Utilisation plant

Table D.7.1 Landfill Gas Utilisation Plant/Enclosed Flare Parameters and Monitoring Frequency

Parameter	Utilisation Plant Monitoring Frequency	Analysis Method ^{Note 1} /Technique ^{Note 2}
Inlet		
Methane (CH ₄) % v/v	Weekly	Infrared analyser/flame ionisation detector/thermal conductivity
Carbon dioxide (CO ₂)% v/v	Weekly	Infrared analyser/ thermal conductivity
Oxygen (O ₂) %v/v	Weekly	Electrochemical/thermal conductivity
Total Sulphur	Annually	Ion chromatography
Total Chlorine	Annually	Ion chromatography
Total Fluorine	Annually	Ion Selective Electrode
Process Parameters		
Combustion Temperature	Quarterly	Temperature Probe/datalogger
Outlet		
CO	Continuous ^{Note 3}	Flue gas analyser/datalogger
Nox	Continuous ^{Note 3}	Flue gas analyser
SO ₂	Annually	Flue gas analyser
Total VOCs as carbon	Annually	Flame ionisation
Total non-methane VOCs	Annually	Adsorption-thermal desorption

Particulates	Annually	Isokinetic/Gravimetric
Hydrochloric acid	Annually	Impinger / Ion Chromatography
Hydrogen fluoride	Annually	Impinger / Ion Chromatography

Note 1: All monitoring equipment used should be intrinsically safe.

Note 2: Or other methods agreed in advance with the Agency.

Note 3: Monitoring of one of these parameters may be reduced to quarterly with the prior agreement of the Agency.

D.8 Monitoring of Emissions to Sewer

Emission Point Reference No: To be agreed with the Sanitary Authority and the Agency

Table D.8.1 Sewer Monitoring - Parameters/Frequency

Parameter ^{Note 1}	Monitoring Frequency	Analysis Method/Technique
Dissolved Methane	Continuous	Note 2

Note 1: Other parameters to be agreed with Sanitary Authority and the Agency.

Note 2: Dissolved methane probe or alternative to be agreed in advance with the Agency.

SCHEDULE E : Process Management

Table E.1: Composting. During the composting process the entire quantity of biowaste being composted shall be exposed to the following temperature :

Temperature	Treatment Time	Turnings
Windrow Composting		
• At least 55°C	2 weeks	5
• At least 65°C	1 week	2
In-Vessel Composting		
• At least 60°C	1 week	N/A

Table E.2: Monitoring of Composting Processes

Parameter	Monitoring Frequency	Monitoring equipment/method
• Windrows		
• <i>Temperature</i>	Twice weekly during first 6 weeks of composting & weekly thereafter.	Temperature probe
• Enclosed Composting /vessels (where used)		
• <i>Temperature vs. time</i>	Continuous	Temperature probe/recorder
• Maturation (curing)		
• <i>Temperature</i>	Weekly	Temperature probe
• <i>Moisture</i>	Weekly	Subjective by operator.

Table E.3 Process validation. The composting process shall be tested using the following indicator organism ^{Note 1}.

Indicator Organism	Frequency
Salmonella spp.	Annually ^{Note 2}

Note 1: Unless otherwise agreed with the Agency.

Note 2: This test shall be repeated if major changes to either the composition of the incoming biowaste or the treatment process are made.

SCHEDULE F : Standards for Compost Quality

Compost shall be deemed unsatisfactory if more than 25% of samples fail the criteria below. No sample shall exceed 1.2 times the quality limit values set.

[The following criteria (where they apply to compost) are deemed a quality standard for the use of compost as a soil improver and should not be deemed as criteria for fertiliser. In addition N, P, K, NH₄-N, NO₃-N, pH and dry matter content should also be measured]

1. Maturity

The state of the curing pile must be conducive to aerobic biological activity.

Compost shall be deemed to be mature if it meets two of the following groups of requirements:

1. Respiration activity after four days AT₄ is ≤10mg/O₂/g dry matter **or** Dynamic Respiration Index is ≤1,000mgO₂/kg VS/h.
2. Germination of cress (*Lepidium sativum*) seeds and of radish (*Raphanus sativus*) seeds in compost must be greater than 90 percent of the germination rate of the control sample, and the growth rate of plants grown in a mixture of compost and soil must not differ more than 50 percent in comparison with the control sample.
3. Compost must be cured for at least 21 days; and
Compost will not reheat upon standing to greater than 20°C above ambient temperature.
4. If no other determination of maturity is made, the compost must be cured for a six month period. In addition, offensive odours from the compost shall be minimal for the compost to be deemed mature.
5. Or other maturity tests as may be agreed with the Agency .

2. Maximum Trace Element Concentration Limits ^{Note s 1, 2 & 3}

Parameter (mg/kg, dry mass)	Compost Quality Standards ^{Note 4}		Stabilised Biowaste
	Class 1	Class 2	
Cadmium (Cd)	0.7	1.5	5
Chromium (Cr)	100	150	600
Copper (Cu)	100	150	600
Mercury (Hg)	0.5	1	5
Nickel (Ni)	50	75	150
Lead (Pb)	100	150	500
Zinc (Zn)	200	400	1500
PolyChlorinated Biphenyls (PCB's)	-	-	0.4
Polynuclear Aromatic Hydrocarbons (PAH's)	-	-	3
Impurities >2mm ^{Note 5}	<0.5%	<0.5%	<3%
Gravel and Stones >5mm ^{Note 5}	<5%	<5%	-

Note 1: These limits apply to the compost prior to mixing with any other materials.

Note 2: Incoming sludges shall be monitored quarterly (on a client by client basis) for the parameters outlined in this table.

Note 3: The above alone should not be taken as an indication of suitability for addition to soil as the cumulative metal additions to soil should be first calculated.

Note 4: Normalised to 30% organic matter content.

Note 5: Compost must not contain any sharp foreign matter measuring over a 2 mm dimension that may cause damage or injury to humans, animals and plants during or resulting from its intended use.

3. Pathogens

Pathogenic organism content must not exceed the following limits:

Salmonella sp.	Absent in 50g	n=5
Faecal Coliforms	≤1000 Most Probable Number (MPN) in 1g	n=5

Where: n = Number of samples to be tested.

4. Monitoring

The licensee shall monitor the compost product at least monthly. The licensee shall submit to the Agency for its agreement, prior to commencement of the composting operations, details of the sampling protocol, methods of analyses and number of sample.

The following criteria are deemed a quality standard for the use of compost as a soil improver and should not be deemed as criteria for fertiliser. In addition N, P, K, NH₄-N, NO₃-N, pH and dry matter content should also be measured.

Compost shall be deemed unsatisfactory if more than 10% of samples fail the criteria below. No sample shall exceed 1.2 times the quality limit values set.

SCHEDULE G : Recording and Reporting to the Agency

Report	Reporting Frequency ^{Note1}	Report Submission Date
Environmental Management System Updates	Annually	One month after the end of the year reported on.
Annual Environment Report (AER)	Annually	Thirteen months from the date of grant of licence and one month after the end of each year thereafter.
Record of incidents	As they occur	Within five days of the incident.
Bund, tank and container integrity assessment	Every three years	Six months from the date of grant of licence and one month after end of the three year period being reported on.
Specified Engineering Works reports	As they arise	Prior to the works commencing.
Monitoring of landfill gas	Quarterly	Ten days after end of the quarter being reported on.
Monitoring of Surface Water /Groundwater/Leachate Quality	Quarterly	Ten days after end of the quarter being reported on.
Compost Quality	Quarterly	Ten days after end of the quarter being reported on.
Dust Monitoring	Quarterly	Ten days after end of the quarter being reported on.
Noise Monitoring	Bi- Annual	One month after end of the period being reported on.
Topographical Survey	Annually	Within four months of date of grant of licence and annually thereafter
Stability Assessment	Annually	Within four months of date of grant of licence and annually thereafter
Meteorological Monitoring	Annually	One month after end of the year being reported on.
Biological Monitoring	Annually	One month after end of the year being reported on.
PM₁₀ & Air-Borne Micro-organism Monitoring	Annually	One month after the end of the year reported on.

Note 1: Unless altered at the request of the Agency.

SCHEDULE H : Content of the Annual Environmental Report

Annual Environmental Report Content

Reporting Period.

Report on restoration of completed cells/ phases.

Waste activities carried out at the facility.

Summary report on emissions and interpretation of environmental monitoring results.

Resource and energy consumption summary.

Volume of leachate produced and volume of leachate discharged off-site.

Report on development works undertaken (and proposed) during the reporting period, and a timescale for those proposed during the coming year.

Site survey showing existing levels of the facility at the end of the reporting period.

Estimated annual and cumulative quantities of landfill gas emitted from the facility.

Estimated annual and cumulative quantity of indirect emissions to groundwater.

Annual water balance calculation and interpretation.

Report on the progress towards achievement of the Environmental Objectives and Targets contained in previous year's report.

Schedule of Environmental Objectives and Targets for the forthcoming year.

Full title and a written summary of any procedures developed by the licensee in the year which relates to the facility operation.

Tank, pipeline and bund testing and inspection report.

Reported incidents and Complaints summaries.

Review of Nuisance Controls.

Reports on financial provision made under this licence, management and staffing structure of the facility, and a programme for public information.

Report on training of staff.

Any other items specified by the Agency.

Signed on behalf of the said Agency

on the 15th day of August, 2003

Ray Cullinane

Authorised Person