

Headquarters,  
P.O. Box 3000,  
Johnstown Castle Estate  
County Wexford, Ireland

# **LANDFILL FOR NON-HAZARDOUS WASTE**

## **WASTE LICENCE PROPOSED DECISION**

<b>Waste Licence</b>	74-1
<b>Register Number:</b>	
<b>Applicant:</b>	Tipperary (South Riding) County Council
<b>Location of Facility:</b>	Donohill Landfill, Garryshane, Donohill, Co. Tipperary

# 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 orderly operation in the short term and subsequent closure, capping and restoration/aftercare of the landfill at Garryshane, Donohill, Co. Tipperary.

The licensee, Tipperary (South Riding) County Council, is permitted to accept non-hazardous waste (municipal, commercial and industrial) for deposition at this landfill at a rate of 40,000 tonnes per annum. The licensee is also allowed to accept inert waste material for use in the restoration of the facility including capping and final landscaping. The final profile of the facility after restoration is to be dome-shaped with a maximum height of 112mOD (Malin). Restoration works are to be completed within eighteen months of the cessation of waste disposal at the landfill. The deposit of waste in a new area within the facility is allowed subject to the licensee lining that area to meet the requirements of the Landfill Directive.

The licensee is required to install a number of items of infrastructure at the facility including *inter alia*; a leachate management and collection system and a landfill gas collection and flaring system.

The licensee must manage and operate the facility to ensure that the activities do not cause environmental pollution. The licensee 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 the licensee is required operate and manage this facility.

The licence does not authorise the extension of the landfill into any additional unlined areas.

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# 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, a submission received from another party 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 Tipperary (South Riding) County Council to carry on the waste activities listed below at Donohill Landfill, Garryshane, Donohill, Co. Tipperary 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*

<b>Class 1.</b>	<b>Deposit on, in or under land (including landfill):</b> This activity is limited to the disposal of non-hazardous wastes specified in Condition 1.4.
<b>Class 4.</b>	<b>Surface impoundment, including placement of liquid or sludge discards into pits, ponds or lagoons:</b> This activity is limited to the storage of leachate in a lagoon (or tank) prior to disposal off-site at a suitable waste water treatment plant.
<b>Class 5</b>	<b>Specially engineered landfill, including placement into lined discrete cells which are capped and isolated from one another and the environment.</b> This activity is limited to the disposal of non-hazardous waste into lined cell(s) in the area indicated in blue hatch in Figure A.16.1 dated 5 <sup>th</sup> June 2001 as part of Article 16(1) response.

### *Licensed Waste Recovery Activities, in accordance with the Fourth Schedule of the Waste Management Act 1996*

<b>Class 3.</b>	<b>Recycling or reclamation of metals and metal compounds:</b> This activity is limited to the collection of metals in specified containers and areas for recycling off-site.
<b>Class 4.</b>	<b>Recycling or reclamation of other inorganic materials:</b> This activity is limited to the reclamation of materials for recycling off-site and the use of inert waste for use as road making material, daily cover and as components of the capping layer.
<b>Class 13.</b>	<b>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:</b> This activity is limited to the storage of inert waste on site prior to reuse.

## ***Part II: Activities Refused***

In pursuance of the powers conferred on it by the Waste Management Act, 1996, the Environmental Protection Agency (the Agency) proposes, under Section 40(1) of the said Act to refuse the following classes of activities.

*Refused waste disposal activities, in accordance with the Third Schedule of the Waste Management Act 1996*

<b>Class 2</b>	<b>Land treatment, including biodegradation of liquid or sludge discards in soils</b> <b>Reason:</b> The deposit of treated de-watered sludges in the landfill is considered to be covered by Classes 1 & 4 of the 3rd Schedule.
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*Refused waste recovery activities, in accordance with the Fourth Schedule of the Waste Management Act, 1996*

<b>Class 2.</b>	<b>Recycling or reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes):</b> <b>Reason:</b> Article 16(1) response received on 9 <sup>th</sup> April 2001 indicated that the proposed activity of composting waste is no longer intended to be carried out.
<b>Class 10.</b>	<b>The treatment of any waste on land with a consequential benefit for an agricultural activity or ecological system:</b> <b>Reason:</b> This activity was proposed to be the use of the compost from the proposed Class 2 activity above which is no longer intended to be carried out.
<b>Class 11.</b>	<b>Use of waste obtained from any activity referred to in a preceding paragraph of this Schedule:</b> <b>Reason:</b> The use of inert waste for use as road making material, daily cover and as components of the capping layer is considered to be covered by Class 4 of the 4 <sup>th</sup> Schedule.

# 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.

<b>Aerosol</b>	A suspension of solid or liquid particles in a gaseous medium.
<b>Adequate lighting</b>	20 lux measured at ground level.
<b>Agreement</b>	Agreement in writing.
<b>Annually</b>	At approximately twelve monthly intervals.
<b>Attachment</b>	Any reference to Attachments in this licence refers to attachments submitted as part of the waste licence application.
<b>Application</b>	The application by the licensee for this waste licence.
<b>Appropriate facility</b>	A waste management facility, duly authorised under relevant law and technically suitable.
<b>BAT</b>	Best Available Techniques
<b>Biodegradable waste</b>	Any waste that is capable of undergoing anaerobic or aerobic decomposition, such as food, garden waste, sewage sludge, paper and paperboard.
<b>Condition</b>	A condition of this licence.
<b>Construction and Demolition Waste</b>	All wastes which arise from construction, renovation and demolition activities.
<b>Containment boom</b>	A boom which can contain spillages and prevent them from entering drains or watercourses.
<b>Cover material</b>	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.
<b>Daily Cover</b>	Is the term used to describe material spread (about 150mm if soil cover is used) over deposited waste at the end of each day. Synthetic materials may also be used. Its objective is to minimise odour, the amount of litter generated and to control flies and access to the waste by birds and vermin. Where soils are used for daily cover, it is recommended that they be removed at the start of the day and subsequently reused as much as possible.
<b>Daytime</b>	8.00 a.m. to 10.00 p.m.
<b>Documentation</b>	Any report, record, result, data, drawing, proposal, interpretation or other document in written or electronic form which is required by this licence.
<b>Drawing</b>	Any reference to a drawing or drawing number means a drawing or drawing number contained in the application, unless otherwise specified in this licence.
<b>Emergency</b>	Those occurrences defined in Condition 9.4

<b>Emission Limits</b>	Those limits, including concentration limits and deposition levels established in <i>Schedule C: Emission Limits</i> of this licence.
<b>European Waste Catalogue (EWC)</b>	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.
<b>Green waste</b>	Waste wood (excluding timber), plant matter such as grass cuttings, and other vegetation.
<b>Hours of Operation</b>	The hours during which the facility is authorised to be operational. The hours of operation of a facility are usually longer than the hours of waste acceptance to facilitate preparatory and completion works, such as the removal and laying of daily cover. Different activities within the facility, such as the landfill and the civic waste facility, may have different hours of waste acceptance.
<b>Hours of Waste Acceptance</b>	The hours during which the facility is authorised to accept waste. Different activities within the facility, such as the landfill and the receptacles for recyclable waste, may have different hours of waste acceptance.
<b>Inert waste</b>	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.
<b>Intermediate Cover</b>	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.
<b>Landfill</b>	Refers to the area of the facility where the waste is disposed of by placement on the ground or on other waste.
<b>Landfill Gas</b>	Gases generated from the landfilled waste.
<b>LEL (Lower Explosive Limit)</b>	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.
<b>Licence</b>	A Waste Licence issued in accordance with the Act.
<b>Licensee</b>	Tipperary (South Riding) County Council
<b>List I/II Organics</b>	Substances classified pursuant to EC Directives 76/464/EEC and 80/68/EEC.
<b>Liquid Waste</b>	Any waste in liquid form and containing less than 2% dry matter. Any waste tankered to the facility.
<b>Maintain</b>	Keep in a fit state, including such regular inspection, servicing and repair as may be necessary to adequately perform its function.
<b>Mobile Plant</b>	Self-propelled machinery used for the emplacement of wastes or for the construction of specified engineering works.
<b>Monthly</b>	A minimum of twelve times per year, at approximately monthly intervals.
<b>Night-time</b>	10.00 p.m. to 8.00 a.m.

<b>Non-hazardous Asbestos Waste</b>	Includes bonded asbestos, such as tiles, which are not classified as hazardous waste and which are authorised for disposal at the facility.
<b>Recyclable Materials</b>	Those waste types, such as cardboard, batteries, gas cylinders, etc, which may be recycled
<b>Quarterly</b>	At approximately three monthly intervals.
<b>Sample(s)</b>	Unless the context of this licence indicates to the contrary, samples shall include measurements by electronic instruments.
<b>Sludge</b>	The accumulation of solids resulting from chemical coagulation, flocculation and/or sedimentation after water or wastewater treatment with between 2% and 14% dry matter.
<b>Specified Emissions</b>	Those emissions listed in <i>Schedule C: Emission Limits</i> of this licence.
<b>Specified Engineering Works</b>	Those engineering works listed in <i>Schedule B: Specified Engineering Works</i> of this licence.
<b>Treated Sludge</b>	Sludge which has undergone biological, chemical or heat treatment, long-term storage or any other appropriate process so as significantly to reduce its fermentability and the health hazards resulting from its use.
<b>Trigger Level</b>	A parameter value specified in the licence, the achievement or exceedance of which requires certain actions to be taken by the licensee.
<b>White Goods</b>	Refrigerators, cookers, ovens and other similar appliances.
<b>EPA Working Day</b>	Refers to the following hours; 9.00 a.m. to 5.30 p.m. Monday to Friday inclusive.
<b>Working Face</b>	The area of the site in which waste other than cover material or material for the purposes of the construction of specified engineering works is being deposited.



## ***PART III 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 Figure A.16.2 – Site Plan received as part of Article 16(1) response on 9<sup>th</sup> April 2001. 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. Municipal Waste, Commercial Waste and Industrial Waste may be recovered and disposed of at the facility subject to the maximum quantities and other constraints listed in *Schedule A: Waste Acceptance* of this licence.
- 1.5. No hazardous wastes, liquid wastes or untreated sludges shall be disposed of at the facility.
- 1.6. Waste Acceptance Hours and Hours of Operation
  - 1.6.1. Landfill
    - 1.6.1.1. Waste may only be accepted at the facility for disposal at the landfill between the hours of 8.30 a.m. and 5.00 p.m. Monday to Friday inclusive and 9.30 a.m. and 1.30 p.m. on Saturdays.
    - 1.6.1.2. The landfill at the facility may only be operated during the hours of 8.00 a.m. and 5.30 p.m. Monday to Friday inclusive and 9.00 a.m. and 2.00 p.m. on Saturdays, unless otherwise agreed with the Agency.
    - 1.6.1.3. Recyclable materials may be accepted in designated receptacles in accordance with Condition 5.10 between the hours of 8.00 a.m. and 5.30 p.m. Monday to Friday inclusive and 9.00 a.m. and 2.00 p.m. on Saturdays, unless otherwise agreed with the Agency.
- 1.7. 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.
- 1.8. 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:
  - 1.8.1. 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;
  - 1.8.2. 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; and

1.8.3. 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.

1.9. 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.

<b>Reason:</b> <i>To clarify the scope of this licence.</i>
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## **CONDITION 2 MANAGEMENT OF THE FACILITY**

### **2.1 Facility Management**

2.1.1 The licensee shall employ a suitably qualified and experienced facility manager 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 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.

2.1.3 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 from the date of grant of this licence, 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 System (EMS)**

2.3.1 The licensee shall establish and maintain an EMS. Within six months from the date of grant of this licence, the licensee shall submit to the Agency for its agreement a proposal for a documented Environmental Management System (EMS) for the facility. Following the agreement of the Agency, the licensee shall establish and

maintain such a system. The EMS shall be updated on an annual basis with amendments being submitted to the Agency for its agreement.

2.3.2 The EMS shall include as a minimum the following elements:

2.3.2.1 Environmental Management Plan (EMP)

The EMP shall include, as a minimum, the following:

- (i) the items specified to be contained in an Environmental Management Plan in the Landfill Operational Practices Manual published by the Agency;
- (ii) any other items required by written guidance issued by the Agency.

2.3.2.2 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.

2.3.2.3 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 six months of granting of the licence.

<b>Reason:</b>	<i>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.</i>
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## CONDITION 3 FACILITY INFRASTRUCTURE

3.1 The licensee shall establish all infrastructure 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 Security and stockproof fencing and gates shall be installed and maintained as described in Attachment D1(a) with the locations of the fencing as shown on Figure A.16.1 – *Plan of Site Perimeter Fence* received in Article 16(1) response on 4<sup>th</sup> April 2001. The base of the fencing shall be set in the ground.

3.4.2 The licensee shall remedy any defect in the gates and/or fencing as follows:

- a) a temporary repair shall be made by the end of the working day; and,
- b) a repair to the standard of the original gates and/or fencing shall be undertaken within three working days.

### 3.5 Facility Roads

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 Quarantine Area

- 3.7.1 A Waste Quarantine 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 quarantine of waste. The waste quarantine area shall be clearly identified.
- 3.7.3 Drainage from this area shall be directed to the leachate storage lagoon/tank.
- 3.8 Weighbridge
- 3.8.1 The licensee shall provide and maintain a weighbridge at the facility.
- 3.9 Waste Water Treatment Plant
- 3.9.1 The licensee shall provide and maintain a Wastewater Treatment plant at the facility for the treatment of wastewater arising on-site. The specification of the treatment plant shall be as referred to in Attachments D1(k) & D1(n), unless otherwise agreed with the Agency. 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.
- 3.10 Tank and Drum Storage Areas
- 3.10.1 All tank and drum storage areas shall be rendered impervious to the materials stored therein.
- 3.10.2 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.
- 3.10.3 All drainage from bunded areas shall be diverted for collection and safe disposal.
- 3.10.4 All inlets, outlets, vent pipes, valves and gauges must be within the bunded area.
- 3.10.5 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 six months of the date of grant of this licence.
- 3.11 Leachate and Surface Water Management Infrastructure
- 3.11.1 Within eighteen months of the date of grant of licence, unless where otherwise indicated, the licensee shall implement leachate and surface water management systems at the facility. The systems shall provide for the abstraction/collection of leachate from the waste and its transport for treatment at a suitable waste water treatment plant and for the maximisation of clean surface water runoff from the facility. It shall consist *inter alia* of the following;
- (i) Installation of a leachate collection toe drain, where practicable, around the perimeter of the waste filled areas of the facility. This toe drain shall consist of a gravel and perforated pipe drainage system. The leachate collection toe drain shall be keyed into and covered by the capping layer, once the capping layer is installed.
  - (ii) Adequately sized leachate storage prior to tankering off-site. Within nine months of the date of grant of this licence, the licensee shall install/provide an appropriately sized leachate storage lagoon/tank.

- (iii) Provision of suitable access to the leachate storage lagoon/tank for leachate collection vehicle/tanker.
- (iv) Separation of clean surface water from contaminated surface water/leachate. Contaminated surface water shall be directed to the leachate collection system.
- (v) Installation of two additional boreholes within the area indicated in green hatch in Figure A.16.1 of Article 16(1) response dated 5<sup>th</sup> June 2001, at locations to be agreed in advance with the Agency. These boreholes shall be used to facilitate the measurement of leachate levels and the removal of leachate.

3.11.2 The leachate storage lagoon referred to in Condition 3.11.1(ii) shall be lined by a composite liner in accordance with the following;

- (i) an upper component of a flexible membrane liner. At minimum a 2mm HDPE or equivalent flexible membrane liner should be used; and
- (ii) a lower component of a 1m layer of compacted soil with a hydraulic conductivity of less than or equal to  $1 \times 10^{-9}$  m/s constructed in a series of lifts no thicker than 250mm when compacted or a 0.5m artificial layer of enhanced soil giving equivalent protection to the foregoing also constructed in a series of lifts no thicker than 250mm when compacted.

3.11.3 The licensee shall maintain the existing leachate collection drainage system and leachate lagoon until such time as it is replaced by leachate management infrastructure referred to elsewhere in this condition.

### 3.12 Landfill Gas Management

3.12.1 Within eighteen months of the date of grant of licence the licensee shall install a landfill gas flare at the facility. The flare shall be of an enclosed type design.

3.12.2 Infrastructure for the active collection of landfill gas shall be installed prior to and during the capping of the facility such that as soon as practicable landfill gas can be collected and flared.

3.12.3 Flare unit efficiency shall be tested once it is installed and once every three years thereafter.

3.12.4 Prior to the use of the active landfill gas collection and flaring system passive landfill gas management at the facility shall be carried out.

3.12.5 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.

### 3.13 Construction and Demolition Waste Recovery Area.

3.13.1 Within six months of the date of grant of this licence, the licensee shall provide and maintain a construction and demolition waste recovery area. This infrastructure shall at a minimum comprise the following:

- a) an impermeable concrete slab; and
- b) collection and disposal infrastructure for all run-off.

### 3.14 Collection of recyclable materials

3.14.1 The licensee shall provide and maintain receptacles near the facility entrance to provide for the collection of any recyclable materials allowed by Condition 5.10.

### 3.15 Monitoring Infrastructure

#### 3.15.1 Landfill Gas

- (i) Within six months from the date of grant of this licence, the licensee shall install perimeter monitoring points at no greater than 50m intervals around the periphery of the landfill footprint as identified in Figure A.16.1 of Article 16(1) response dated 5<sup>th</sup> June 2001. These locations shall be agreed in advance with the Agency, subject to the landowners consent where relevant.
- (ii) Within **six months** from 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.

#### 3.15.2 Replacement of Infrastructure

- (i) Monitoring infrastructure which is damaged or proves to be unsuitable for its purpose shall be replaced within three months of it being damaged or recognised as being unsuitable.

### 3.16 Metal Recovery Area

3.16.1 The licensee shall provide and maintain a clearly segregated metal recovery area/scrap metal compound for the acceptance of white goods and other metal wastes.

3.16.2 Within three months of the date of grant of this licence, the licensee shall submit to the Agency for agreement a proposal for upgrading the infrastructure associated with this area.

### 3.17 Landfill Lining

3.17.1 The landfill liner for any cell(s) in the area indicated in blue hatch in Figure A.16.1, dated 5<sup>th</sup> June 2001 as part of Article 16(1) response, shall be a composite liner consisting of a basal mineral layer of at least 1m in thickness with a permeability of less than or equal to  $1 \times 10^{-9}$  m/s overlain by a 2 mm thick high density polyethylene (HDPE) layer (or equivalent protection as agreed by the Agency). The side walls shall be designed and constructed to achieve an equivalent protection.

<b>Reason:</b> <i>To provide appropriate infrastructure for the protection of the environment.</i>
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## CONDITION 4 RESTORATION AND AFTERCARE

- 4.1. The licensee shall restore the facility on a phased basis. Within six months of the date of grant of this licence, the licensee shall submit to the Agency for its agreement revised Restoration and Aftercare Plans for the facility to incorporate the plans submitted in Attachment G and the requirements of the conditions of this licence
- 4.2. The final profile of the facility shall be based on that shown in Drawing No. 14 – Final Restoration Plan, such that the final height, including the final capping and pre-settlement, shall be no higher than 112 mOD (Malin).
- 4.3. Final Capping
  - 4.3.1. 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  $1 \times 10^{-4}$  m/s;
  - d) compacted mineral layer of a minimum 0.6m thickness with a permeability of less than  $1 \times 10^{-9}$  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.
- 4.4. 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 eighteen months of the date of cessation of acceptance of waste for disposal at the facility.

<b>Reason:</b>	<i>To provide for the restoration of the facility</i>
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## **CONDITION 5 FACILITY OPERATIONS**

- 5.1 Wastes shall not be deposited in any cell or part of the landfill without the prior agreement of the Agency. In any case waste shall not be deposited in areas outside of;
- (i) the green hatched area indicated in Figure A.16.1 of Article 16(1) dated 5<sup>th</sup> June 2001,
  - (ii) the red hatched area in Drawing No. 98-02403.03.Rev.A of the application, and
  - (iii) subject to lining in accordance with Condition 3.17, the blue hatched area indicated in Figure A.16.1 of Article 16(1) response dated 5<sup>th</sup> June 2001.
- 5.2 Waste Acceptance and Characterisation Procedures
- 5.2.1 Waste Acceptance Procedures shall be carried out in accordance with Attachment E.2, unless otherwise agreed with or instructed by the Agency.
- 5.2.2 Within three months of the date of grant of this licence, the licensee shall submit to the Agency for its agreement written procedures for the acceptance and handling of wastes in the Construction and Demolition Waste Recovery Area and in the Metal Recovery Area.
- 5.3 All wastes shall be checked at the working face. Any wastes not suitable for acceptance shall be removed for recovery or disposal at an appropriate alternative facility. Such waste shall be stored in the Waste Quarantine Area only. No waste shall be stored in the Waste Quarantine Area for more than three months.
- 5.4 Working Face



- 5.4.1 Unless the prior agreement of the Agency is given, the following shall apply at the landfill:
- a) only one working face shall exist at the landfill at any one time for the deposit of waste other than cover or restoration materials; and
  - b) the working face of the landfill shall be no more than 2.5 metres in height after compaction, no more than 25 metres wide and have a slope no greater than 1 in 3.
- 5.4.2 All waste deposited at the working face shall be compacted, using a steel wheeled compactor, and covered as soon as is practicable and at any rate prior to the end of the working day.
- 5.4.3 The working face shall each day at the end of the day, be covered with suitable material.
- 5.5 Daily and Intermediate Cover
- 5.5.1 Any cover material at any location within the facility which is eroded, washed off or otherwise removed shall be replaced by the end of the working day.
- 5.6 Operational Controls
- 5.6.1 All large hollow objects and other large articles deposited at the facility shall be crushed, broken up, flattened or otherwise treated.
- 5.6.2 Wastes once deposited and covered shall not be excavated, disturbed or otherwise picked over with the exception of works associated with the construction and installation of the leachate and landfill gas collection systems unless with prior agreement from the Agency.
- 5.6.3 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
- 5.6.4 Filled cells shall be permanently capped within twelve months of the date of this licence or within twelve months of the cells having been filled to the required level.
- 5.6.5 Scavenging shall not be permitted at the facility.
- 5.6.6 Gates shall be locked shut when the facility is unsupervised.
- 5.6.7 The licensee shall provide and use adequate lighting during the operation of the facility in hours of darkness.
- 5.6.8 Fuels may only be stored at appropriately bunded locations on the facility subject to the advance agreement of the Agency.
- 5.6.9 All tanks and drums shall be labelled to clearly indicate their contents.
- 5.6.10 No smoking shall be allowed on the facility (other than in the site offices as shown on Figure A.16.4 – *Detail of Site Works* received in Article 16(1) response dated 15<sup>th</sup> March 2001).
- 5.7 Sludges
- 5.7.1. Treated industrial and treated sewage sludges shall only be accepted at the facility between the hours of 8:30 a.m. and 2.00 p.m. Monday to Friday inclusive. All sludges shall be covered immediately with other waste.

- 5.7.2. In addition to the characterisation required under the Waste Acceptance Procedures, the licensee shall carry out analyses on a minimum of two samples per annum for all industrial sludges being accepted at the facility. The results of these analyses shall be presented in the Annual Environmental Report (AER).
- 5.8. Non-hazardous Asbestos Waste
- 5.8.1 Only non-hazardous asbestos waste may be disposed of at the facility.
- 5.8.2 Non-hazardous asbestos based construction and demolition waste must be double wrapped in heavy gauge plastic which is clearly labelled to indicate the presence of asbestos.
- 5.8.3 Disposal of non-hazardous asbestos waste shall be into prepared bays or trenches of at least 2.5 metres in depth such that no asbestos waste shall be present within 2.5 metres of the surface.
- 5.8.4 Deposited non-hazardous asbestos waste shall be covered immediately with at least 250mm of suitable material. At the end of the day, the waste shall be covered with a minimum of 500mm of suitable material.
- 5.9 Off-site Disposal and Recovery
- 5.9.1 Waste sent off-site for recovery or disposal shall only be conveyed by a waste contractor agreed by the Agency;
- 5.9.2 All waste transferred from the facility shall only be transferred to an appropriate facility agreed by the Agency;
- 5.9.3 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.
- 5.10 Collection of recyclable wastes
- 5.10.1 Within six months of the date of grant of the licence, the licensee shall submit a proposal to the Agency for its agreement regarding the recovery of waste at the facility to achieve the targets in the Government policy document, "Changing Our Ways".
- 5.10.2 The following wastes may be deposited into a receptacle for recovery, provided the receptacle is designated and clearly labelled to indicate the specific waste type and where appropriate banded;
- a) glass
  - b) metal cans
  - c) paper
  - d) waste oil
  - e) batteries
  - f) any other recyclable waste agreed in advance with the Agency.
- 5.10.3 Scrap metal may be accepted for storage on site in a designated area as specified in Condition 3.16 prior to collection for recovery off-site.
- 5.11 Leachate Management
- 5.11.1 Within three months of date of grant of licence the licensee shall establish trigger levels for leachate in existing leachate boreholes. Trigger levels for additional boreholes shall be agreed within three months of installation.

- 5.11.2 When such trigger levels are reached leachate shall be removed from the boreholes and directed to the leachate storage lagoon/tank or as otherwise agreed in advance with the Agency.
- 5.11.3 The frequency of leachate removal from the leachate storage lagoon/tank shall be such that a minimum freeboard of 0.5m shall be maintained in the leachate storage lagoon/tank at all times. This shall also be the case for the existing leachate storage lagoon, until replaced, unless otherwise agreed with the Agency.
- 5.11.4 All leachate removed from the leachate storage lagoon/tank shall be disposed of by tankering off-site in fully enclosed road tankers.
- 5.11.5 Recirculation of leachate or other contaminated water shall not be undertaken at the facility.

## 5.12 Maintenance

- 5.12.1 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.
- 5.12.2 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.
- 5.12.3 The licensee shall maintain and clearly label and name all sampling and monitoring locations.

<b>Reason:</b>	<i>To provide for appropriate operation of the facility to ensure protection of the environment.</i>
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## 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 flare:

Temperature 273 K, pressure 101.3 kPa, dry gas at 3% oxygen; and

b) 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 landfill gas emissions to atmosphere in this licence shall be interpreted in the following way:-

6.3.3.1. Continuous monitoring

- (i) No 24 hour mean value shall exceed the emission limit value.
- (ii) 97% of all 30 minute mean values taken continuously over an annual period shall not exceed 1.2 times the emission limit value.
- (iii) No 30 minute mean value shall exceed twice the emission limit value.

6.3.3.2. Non-Continuous Monitoring

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

6.4. Emissions to Surface Water

6.4.1. No leachate shall be allowed to discharge to surface water.

6.5. There shall be no direct emissions to groundwater.

6.6. Disposal of Leachate

6.6.1. All leachate or contaminated water tankered from the facility shall be transported to Tipperary Town Waste Water Treatment Plant, or alternative facility agreed in advance with the Agency, and disposed of there.

<b>Reason:</b>	<i>To control emissions from the facility and provide for the protection of the environment.</i>
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## CONDITION 7 NUISANCES

7.1 The licensee shall ensure that vermin, birds, flies, mud, dust, litter 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 The measures and infrastructure as described in Attachment F.3 shall be applied to control litter at the facility.

- 7.3.2 All litter control infrastructure shall be inspected on a daily basis. The licensee shall remedy any defect in the litter netting as follows:
- a) a temporary repair shall be made by the end of the working day; and
  - b) a repair to the standard of the original netting shall be undertaken within three working days.
- 7.3.3 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 after such waste is discovered.
- 7.3.4 The licensee shall ensure that all vehicles delivering waste to and removing waste and materials 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.
- 7.5 The measures described in Attachment F.5 shall be applied to ensure that the public road is not soiled by vehicles leaving the facility.
- 7.6 Bird Control
- 7.6.1 Birds shall be prevented from gathering on and feeding at the facility by the use of birds of prey and/or other bird scaring techniques. The birds of prey and/or other techniques shall be in place on the facility within three months of the date of grant of the licence and shall be employed every day, from before dawn to after dark, until the waste activities cease and all the waste is capped to the written satisfaction of the Agency.

<b>Reason:</b>	<i>To provide for the control of nuisances</i>
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## 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. Landfill Gas
- 8.5.1. All landfill gas monitoring equipment, other than permanent monitoring systems within buildings, shall be certified as being intrinsically safe.

- 8.6. Noise
- 8.6.1. The licensee shall include a replacement noise monitoring location to be located along the eastern boundary of the facility.
- 8.7. Surface water
- 8.7.1. The licensee shall include an additional surface water monitoring location to be located further upstream of the facility and adjacent to Ballydonagh Marsh.
- 8.8. Meteorological Monitoring
- 8.8.1. The licensee shall make arrangements for representative meteorological data to be collated for the facility to fulfil the requirements of *Schedule D.6: Meteorological Monitoring* of this licence.
- 8.9. Topographical Survey
- 8.9.1. A topographical survey shall be carried out within three months of the date of grant of this licence. The survey shall include a measurement of the remaining available void space. It shall be repeated annually thereafter during landfilling operations and installation of the final capping. The survey shall be in accordance with any written instructions issued by the Agency.
- 8.10. Biological Assessment
- 8.10.1. A biological assessment of the drainage ditches as specified in Attachment J.2 shall be undertaken within six months of the date of grant of this licence and every two years thereafter, unless otherwise agreed with the Agency. This assessment shall use appropriate biological methods such as the EPA Q-rating system for the assessment of rivers and streams.
- 8.11. Stability Assessment
- 8.11.1. Within six months of the date of grant of this licence, and annually thereafter during landfilling operations and installation of the final capping, the licensee shall carry out a stability assessment of the side slopes of the facility.
- 8.12. Nuisance Monitoring
- 8.12.1. The licensee shall, at a minimum of one week intervals, inspect the facility and its immediate surrounds for nuisances caused by litter, vermin, birds, flies, mud, dust and odours.

<b>Reason:</b>	<i>To ensure compliance with the conditions of this licence by provision of a satisfactory system of monitoring of emissions.</i>
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## CONDITION 9 CONTINGENCY ARRANGEMENTS

- 9.1. In the event of an incident the licensee shall immediately:
- identify the date, time and place of the incident;
  - 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;
- f) provide a proposal to the Agency for its agreement within one month of the incident occurring to:
  - i) identify and put in place measures to avoid reoccurrence of the incident; and
  - ii) 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 fire water 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 containment booms and/or 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 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;
- 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 waste arriving at the facility, excluding recyclable wastes brought to the collection receptacles provided on site for recycling. The licensee shall record the following:

- a) the date;
- b) the name of the carrier (including if appropriate, the waste carrier's registration details);
- 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 (if appropriate) from which the load originated including the waste licence or waste permit register number;
- 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 and disposed of 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 activity. 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 of each consignment of leachate removed from the facility. The record shall include the following:

- a) the name of the carrier;
- b) the date and time of removal of leachate from the facility;
- c) the volume of leachate, in cubic metres, removed from the facility on each occasion;
- d) the name and address of the Waste Water Treatment Plant to which the leachate was transported;
- e) any incidents or spillages of leachate during its removal or transportation.

### 10.6 A written record shall be kept for each load of waste departing from the facility including recyclable wastes collected in receptacles. The following shall be recorded:

- a) the name of the carrier;
- 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.
- 10.7 A written record shall be kept at the facility of the programme for the control and eradication of vermin and fly infestations at the facility. These records shall include as a minimum the following:
- a) the date and time during which spraying of insecticide is carried out;
  - b) contractor details;
  - c) contractor logs and site inspection reports;
  - d) details of the rodenticide(s) and insecticide(s) used;
  - e) operator training details;
  - f) details of any infestations;
  - g) mode, frequency, location and quantity of application; and,
  - h) measures to contain sprays within the facility boundary.

<b>Reason:</b>	<i>To provide for the keeping of proper records of the operation of the facility</i>
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## **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 10.00 am 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; and
  - c) in the event of any incident which relates to discharges to surface water, notify Shannon Regional Fisheries Board as soon as practicable and in any case not later than 10:00am on the following working day after such an incident.

- 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 Reports relating to Facility Operations

#### 11.3.1 Leachate Handling Procedures

11.3.1.1 Within three months of the date of grant of this licence the licensee shall submit to the Agency for its agreement Leachate Handling Procedures for the handling of leachate on the facility and during removal from the lagoon and subsequent transport to a suitable Waste Water Treatment Plant.

### 11.4 Monitoring Locations

11.4.1. 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.

### 11.5 Annual Environmental Report

11.5.1. The licensee shall submit to the Agency for its agreement, within thirteen months from the date of grant of this licence, and within one month of the end of each year thereafter, an Annual Environmental Report (AER).

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

<b>Reason:</b>	<i>To provide for proper report to and notification of the Agency.</i>
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## CONDITION 12 CHARGES AND FINANCIAL PROVISIONS

### 12.1 Agency Charges

12.1.1 The licensee shall pay to the Agency an annual contribution of £10,849 (€13,775.39) 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 2002 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 2001, the licensee shall pay a pro rata amount from the date of this licence to 31<sup>st</sup> 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 The licensee shall from a date to be set by the Agency establish and maintain a fund, or provide a written guarantee, that is adequate to assure the Agency that the licensee

is at all times financially capable of implementing the Restoration and Aftercare Plan required by Condition 4. The type of fund established and means of its release/recovery shall be agreed by the Agency prior to its establishment.

12.2.2 Any fund established shall be maintained in an amount always sufficient to underwrite the current Restoration and Aftercare Plan.

12.2.3 The licensee shall revise the cost of restoration and aftercare annually and any details of the necessary adjustments to the fund or guarantee must, within two weeks of the revision, be forwarded to the Agency for its agreement. Any adjustment agreed by the Agency shall be effected within four weeks of said written agreement.

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.

<b>Reason:</b>	<i>To provide for adequate financing for monitoring and financial provisions for measures to protect the environment.</i>
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## SCHEDULE A : Waste Acceptance

### A.1 Waste Acceptance

**Table A.1 Waste Categories and Quantities for Disposal at the landfill**

WASTE TYPE	MAXIMUM QUANTITY <sup>Note 1</sup> (Tonnes per Annum)
Household	21,500
Commercial	10,500
Treated Sewage Sludge	1,000
Construction & Demolition	2,000
Industrial non-hazardous solids	4,000
Treated industrial non-hazardous sludges	1,000
<b>TOTAL</b>	<b>40,000</b>

**Note 1:** Quantities of waste types may be altered, subject to the agreement of the Agency, provided the total quantity for disposal does not exceed 40,000 tonnes per annum.

**Table A.2 Waste Categories for Recovery at the facility up until completion of the restoration of the landfill**

WASTE TYPE	LIMITATION
Recyclable wastes	Subject to Condition 5.10
Inert wastes	For use on site - in road making material, as cover material and in capping and restoration works.

## SCHEDULE B : Specified Engineering Works

Specified Engineering Works
Final capping.
Installation of Landfill Gas Management Infrastructure.
Installation of Leachate Management Infrastructure.
Installation of Groundwater Control Infrastructure.
Installation of Surface Water Management Infrastructure.
Any other works notified in writing by the Agency.
Development of Phases and future Cells of the facility including preparatory works and lining.

## SCHEDULE C : Emission Limits

**C.1 Noise Emissions:** (Measured at the facility boundary monitoring points indicated in *Table D.1.1 Monitoring Locations*), or other locations agreed or instructed by the Agency.

Day dB(A) $L_{Aeq}$ (30 minutes)	Night dB(A) $L_{Aeq}$ (30 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 *Table D.1.1 Monitoring Locations*).

Level (mg/m <sup>2</sup> /day) <sup>Note 1</sup>
350

**Note 1:** 30 day composite sample with the results expressed as mg/m<sup>2</sup> /day.

### C.4 Emission Limits Values for Landfill Gas Plant

Emission Point Reference Nos.: (to be agreed with the Agency)  
 Location: Landfill Gas Combustion Plant and Flare Stacks  
 Volume to be emitted: (to be agreed with the Agency)  
 Minimum discharge height: 5m

Parameter	Emission Limit Value <sup>Note 1</sup>
Nitrogen oxides as (NO <sub>2</sub> )	500 mg/m <sup>3</sup> for Combustion Plants 150mg/m <sup>3</sup> for Flare Stacks
CO	650 mg/m <sup>3</sup> for Combustion Plants 50mg/m <sup>3</sup> for Flare Stacks
Particulates	130 mg/m <sup>3</sup>
TA Luft Organics Class I <sup>Note 2</sup>	20 mg/m <sup>3</sup> (at mass flows > 0.1 kg/hr)
TA Luft Organics Class II <sup>Note 2</sup>	100 mg/m <sup>3</sup> (at mass flows > 2 kg/hr)
TA Luft Organics Class III <sup>Note 2</sup>	150 mg/m <sup>3</sup> (at mass flows > 3kg/hr)
Hydrogen Chloride	50 mg/m <sup>3</sup> (at mass flows > 0.3 kg/h)
Hydrogen Fluoride	5 mg/m <sup>3</sup> (at mass flows > 0.05 kg/h)
Hydrocarbons	10mg/m <sup>3</sup>

**Note 1:** Dry gas referenced to 5% oxygen by volume.

**Note 2:** In addition to the above individual limits, the sum of the concentrations of Class I, II and III shall not exceed the Class III limits.

## SCHEDULE D : Monitoring

Monitoring to be carried out as specified below.

### D.1 Monitoring Locations

Monitoring locations shall be those as set out in Table D.1.1, as shown in Drawing Number 6 of the application unless otherwise indicated or agreed with the Agency.

Table D.1.1 Monitoring Locations

LANDFILL GAS	DUST	NOISE	SURFACE WATER	GROUND WATER	LEACHATE
STATIONS	STATIONS	STATIONS	STATIONS	STATIONS	STATIONS
Note 1	ST1	N1 <sup>Note 5</sup>	SW1	GW1	L/G 1
	ST2	N2	SW2	GW9 <sup>Note 2&amp;3</sup>	L/G 2
	ST3	N3	SW3	GW6	L/G 3
		N4	<sup>Note 6</sup>	GW10 <sup>Note 2</sup>	L/G 4
		S1		GW7	L/G 5
		S2		GW8 <sup>Note 2</sup>	Leachate storage lagoon/tank
					Note 4

**Note 1:** Locations to be as set out in Condition 3.16 and as per *Schedule D.7.:Landfill Gas Combustion Plant*, of this licence

**Note 2:** As shown in Figure A.16.3 of Article 16(1) response dated 15<sup>th</sup> March 2001

**Note 3:** Or suitable replacement borehole

**Note 4:** Additional locations to be installed as specified in Condition 3.11.1(v)

**Note 5:** Alternative location as set out in Condition 8.6

**Note 6:** Additional location as set in Condition 8.7

### D.2 Landfill Gas

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

Parameter	Monitoring Frequency		Analysis
	Gas Boreholes/ Vents/Wells	Site Office	Method <sup>Note1</sup> /Technique <sup>Note2</sup>
Methane (CH <sub>4</sub> ) % v/v	Monthly	Weekly	Infrared analyser/flame ionisation detector
Carbon dioxide (CO <sub>2</sub> )%v/v	Monthly	Weekly	Infrared analyser/ flame ionisation detector
Oxygen(O <sub>2</sub> ) % v/v	Monthly	Weekly	Electrochemical cell
Atmospheric Pressure	Monthly	Weekly	Standard
Temperature	Monthly	Weekly	Standard

**Note1:** All monitoring equipment used should be intrinsically safe.

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

### D.3 Dust

Table D.3.1 Dust Monitoring Frequency and Technique

Parameter (mg/m <sup>2</sup> /day)	Monitoring Frequency	Analysis Method/Technique
Dust	Three times a year <sup>Note 2</sup>	Standard Method <sup>Note 1</sup>

**Note 1:** Standard method VDI2119 (Measurement of Dustfall, Determination of Dustfall using Bergerhoff Instrument (Standard Method) German Engineering Institute). A modification (not included in the standard) which 2 methoxy ethanol may be employed to eliminate interference due to algae growth in the gauge.

**Note 2:** Twice during the period May to September.

### D.4 Noise

Table D.4.1 Noise Monitoring Frequency and Technique

Parameter	Monitoring Frequency	Analysis Method/Technique
L(A) <sub>EQ</sub> [30 minutes]	Annual	Standard <sup>Note 1</sup>
L(A) <sub>10</sub> [30 minutes]	Annual	Standard <sup>Note 1</sup>
L(A) <sub>90</sub> [30 minutes]	Annual	Standard <sup>Note 1</sup>
Frequency Analysis(1/3 Octave band analysis)	Annual	Standard <sup>Note 1</sup>

**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

<b>Parameter</b> <sup>Note 1</sup>	<b>SURFACE WATER</b> <b>Monitoring Frequency</b>	<b>GROUNDWATER</b> <b>Monitoring Frequency</b>	<b>LEACHATE</b> <sup>Note 7</sup> <b>Monitoring Frequency</b>
<b>Visual Inspection/Odour</b> <sup>Note 2</sup>	Weekly	Quarterly	Quarterly
<b>Groundwater Level</b>	Not Applicable	Monthly	Not Applicable
<b>Leachate Level</b>	Not Applicable	Not Applicable	Weekly
<b>Ammoniacal Nitrogen</b>	Quarterly	Quarterly	Quarterly
<b>BOD</b>	Quarterly	Not Applicable	Quarterly
<b>COD</b>	Quarterly	Not Applicable	Quarterly
<b>Chloride</b>	Quarterly	Quarterly	Quarterly
<b>Dissolved Oxygen</b>	Quarterly	Quarterly	Not Applicable
<b>Electrical Conductivity</b>	Quarterly	Quarterly	Quarterly
<b>pH</b>	Quarterly	Quarterly	Quarterly
<b>Total Suspended Solids</b>	Quarterly	Not Applicable	Not Applicable
<b>Temperature</b>	Quarterly	Monthly	Quarterly
<b>Boron</b>	Annually	Quarterly	Annually
<b>Cadmium</b>	Annually	Annually	Annually
<b>Calcium</b>	Annually	Annually	Annually
<b>Chromium (Total)</b>	Annually	Annually	Annually
<b>Copper</b>	Annually	Annually	Annually
<b>Cyanide (Total)</b>	Not Applicable	Annually	Annually
<b>Fluoride</b>	Not Applicable	Annually	Annually
<b>Iron</b>	Annually	Quarterly	Annually
<b>Lead</b>	Annually	Annually	Annually
<b>List I/II organic substances</b> <sup>Note 3</sup>	<sup>Note 6</sup>	Annually	<sup>Note 6</sup>
<b>Magnesium</b>	Annually	Annually	Annually
<b>Manganese</b>	Annually	Annually	Annually
<b>Mercury</b>	Annually	Annually	Annually
<b>Nickel</b>	Not Applicable	Annually	Annually
<b>Selenium</b>	Not Applicable	Annually	Annually
<b>Silver</b>	Not Applicable	Annually	Annually
<b>Potassium</b>	Annually	Quarterly	Annually
<b>Sulphate</b>	Annually	Annually	Annually
<b>Sodium</b>	Annually	Quarterly	Annually
<b>Total Alkalinity</b>	Annually	Annually	Not Applicable
<b>Total Phosphorus / orthophosphate</b>	Annually	Annually	Annually
<b>Total Oxidised Nitrogen</b>	Annually	Quarterly	Quarterly
<b>Total Organic Carbon</b>	Not Applicable	Quarterly	Not Applicable
<b>Residue on evaporation</b>	Not Applicable	Annually	Not Applicable
<b>Zinc</b>	Annually	Annually	Annually
<b>Phenols</b>	Not Applicable	Quarterly	Not Applicable
<b>Faecal Coliforms</b> <sup>Note 4</sup>	Not Applicable	Quarterly	Annually
<b>Total Coliforms</b> <sup>Note 4</sup>	Not Applicable	Quarterly	Annually
<b>Biological Assessment</b>	Annually <sup>Note 5</sup>	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:** 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 (US Environmental Protection Agency method 525 or equivalent, and pesticides (US Environmental Protection Agency method 608 or equivalent).

**Note 4:** In the case where groundwater is extracted for drinking water, if there is evidence of bacterial contamination, the analysis at up gradient and downgradient monitoring points should include enumeration of total bacteria at 22°C and 37°C and faecal streptococci.

**Note 5:** Appropriate biological methods (such as EPA Q-Rating System to be used for the assessment of rivers and streams).

**Note 6:** Once off for List I/II organic substances unless otherwise instructed by the Agency.

**Note 7:** Visual Inspection and Leachate Levels for all leachate stations referred to in Table D.1.1. Sampling and analysis to be carried out for leachate in leachate storage lagoon/tank and two leachate boreholes in waste.



## D.6 Meteorological Monitoring

Table D.6.1 Meteorological Monitoring:

Data to be obtained from Kilkenny Meteorological Station unless otherwise agreed or instructed by the Agency.

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	Daily	Standard
Humidity	Daily	Standard
Atmospheric Pressure	Daily	Standard

## D.7 Landfill Gas Combustion Plant

Monitoring to be obtained at locations to be agreed with the Agency within three months of the date of grant of this licence.

Parameter	Monitoring Frequency	Analysis Method <sup>Note1</sup> /Technique <sup>Note2</sup>
Inlet		
Methane (CH <sub>4</sub> ) % v/v	Weekly	Infrared analyser/flame ionisation detector
Carbon dioxide (CO <sub>2</sub> )%v/v	Weekly	Infrared analyser/ flame ionisation detector
Oxygen (O <sub>2</sub> ) % v/v	Weekly	Infrared analyser
Outlet		
Volumetric Flow rate	Biannually	Pitot Tube Method
SO <sub>2</sub>	Biannually	Flue gas analyser
NO <sub>x</sub>	Biannually	Flue gas analyser
CO	Continuous	Flue gas analyser
Particulates	Annually	Isokinetic/Gravimetric
TA Luft Class I, II, III organics	Annually	Adsorption/Desorption / GC /GCMS <sup>Note 3</sup>
Hydrochloric acid	Annually	Impinger / Ion Chromatography
Hydrogen fluoride	Annually	Impinger / Ion Chromatography
Hydrocarbons	Annually	Adsorption/Desorption /GC /GCFID <sup>Note 3</sup>

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

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

**Note 3:** Test methods should be capable of detecting acetonitrile, dichloromethane, tetrachlorethylene and vinyl chloride as a minimum.

## SCHEDULE E : Recording and Reporting to the Agency

Report	Reporting Frequency <sup>Note1</sup>	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 Quality	Quarterly	Ten days after end of the quarter being reported on.
Monitoring of Groundwater Quality	Quarterly	Ten days after end of the quarter being reported on.
Monitoring of Leachate	Quarterly	Ten days after end of the quarter being reported on.
Meteorological Monitoring	Annually	One month after end of the year being reported on.
Dust Monitoring	Three times a year	Ten days after the period being reported on
Noise Monitoring	Annually	One month after end of the year being reported on.
Any other monitoring	As they occur	Within ten days of obtaining results.

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

## SCHEDULE F : Content of the Annual Environmental Report

Annual Environmental Report Content
<p>Reporting Period.</p> <p>Waste activities carried out at the facility.</p> <p>Quantity and Composition of waste received, disposed of and recovered during the reporting period and each previous year.</p> <p>Summary report on emissions, results and interpretation of environmental monitoring.</p> <p>Volume of leachate produced and volume of leachate transported off-site.</p> <p>Report on development works undertaken during the reporting period, and a timescale for those proposed during the coming year.</p> <p>Report on restoration of completed cells/ phases.</p> <p>Site survey showing existing levels of the facility at the end of the reporting period and calculated remaining capacity.</p> <p>Estimated annual and cumulative quantities of landfill gas emitted from the facility.</p> <p>Estimated annual and cumulative quantity of indirect emissions to groundwater.</p> <p>Annual water balance calculation and interpretation.</p> <p>Full title and a written summary of any procedures developed by the licensee in the year which relates to the facility operation.</p> <p>Tank, pipeline and bund testing and inspection report.</p> <p>Reported incidents and Complaints summaries.</p> <p>Review of Nuisance Controls.</p> <p>Reports on financial provision made under this licence, management and staffing structure of the facility, and a programme for public information.</p> <p>Report on training of staff.</p> <p>Any other items specified by the Agency.</p>

**Signed on behalf of the said Agency**  
on the 12th day of September 2001

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Ana Bolger **Authorised Person**