



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

## WASTE LICENCE PROPOSED DECISION

<b>Waste Licence</b>	18-1
<b>Register Number:</b>	
<b>Applicant:</b>	<b>Waterford Corporation</b>
<b>Location of Facility:</b>	Kilbarry Landfill Site, Kilbarry, Waterford City, Co. Waterford.

## **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 continued operation of the Kilbarry Landfill Facility at Kilbarry, Waterford City, Co. Waterford for the acceptance of municipal solid waste. The facility also includes a modern Civic Waste Facility and a Metal Recovery Compound.

The facility has operated as a landfill within the facility boundary, comprising approximately 20 hectares, since the early 1970's.

The facility is not an engineered landfill and waste is currently deposited in unlined landfill areas. The licence restricts the areas of the landfill within which waste can be disposed to Landfill Areas 1 and 4 only. Landfill Area 1 is required to be lined in accordance with the conditions of the licence prior to the acceptance of waste in this landfill area. There is no leachate or landfill gas management system in place at the facility. The licence requires the introduction of leachate and landfill gas management systems and surface water and groundwater management programmes at the facility. The waste intake at the facility is limited to 75,000 tonnes per annum. 68,000 tonnes per annum is permitted to be disposed of in lined cells, the remainder is associated with the recovery activities permitted at the facility. The maximum presettlement height to which waste is permitted to be deposited at the facility is 15m O.D. and the areas within waste can be disposed are restricted.

The licensee must manage and operate the facility to ensure that the activities do not cause environmental pollution. The licensee has 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 conditions of this licence set out in detail the legal constraints under which Waterford Corporation is allowed to operate and manage the facility.

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<b>DECISION &amp; REASONS FOR THE DECISION</b>	

The Environmental Protection Agency (The Agency) is satisfied, on the basis of the information available, that the waste activity, or activities, licensed hereunder will comply with the requirements of Section 40(4) of the Waste Management Act, 1996.

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 Waterford Corporation to carry on the waste activities listed below at Kilbarry Landfill Site, Kilbarry, Waterford City, Co Waterford subject to eleven 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 1. Deposit on, in or under land (including landfill).**  
This activity is limited to the deposit of non-hazardous waste in Landfill Area 4 and inert waste for restoration in Landfill Areas 2 and 3 only.
- Class 2. Land treatment, including biodegradation of liquid or sludge discards in soils.**  
This activity is limited to the disposal of sludges within lined cells.
- Class 4. Surface impoundment, including placement of liquid or sludge discards into pits, ponds or lagoons.**  
This activity is limited to the storage of leachate generated within the facility in a lined leachate storage lagoon and the storage of firewater and surface water runoff in lined surface water ponds.
- Class 5. Specially engineered landfill, including placement into lined discrete cells which are capped and isolated from one another and the environment.**  
This activity is limited to the disposal of waste in lined cells **within Landfill Area 1.**
- Class 7. Physico-chemical treatment not referred to elsewhere in this Schedule (including evaporation, drying and calcination) which results in final compounds or mixtures which are disposed of by means of any activity referred to in paragraphs 1. to 10. of this Schedule.**  
This activity is limited to treatment of leachate at the facility as required by this licence and the disposal of residuals arising from leachate treatment at the facility.
- Class 11. Blending or mixture prior to submission to any activity referred to in a preceding paragraph of this Schedule.**  
This activity is limited to the blending and mixing of waste prior to disposal at the facility.
- Class 13. Storage prior to submission to any activity referred to in a preceding paragraph of this Schedule, other than temporary storage, pending collection, on the premises where the waste concerned is produced.**  
This activity is limited to the storage of waste in the civic waste facility and in the waste inspection/quarantine area prior to such waste being deposited in the landfill or the removal of such waste offsite for disposal at an appropriate alternative facility.

### *Licensed waste recovery activities, in accordance with the Fourth Schedule of the Waste Management Act, 1996*

- Class 3. Recycling or reclamation of metals and metal compounds.**

This activity is limited to the storage of metals including abandoned cars and white goods at the proposed metal recovery area and the storage of beverage cans at the civic waste facility prior to removal offsite.

**Class 4. Recycling or reclamation of other inorganic materials.**

This activity is limited to the acceptance of glass bottles, batteries and fluorescent tubes and other inorganic materials at the civic waste facility and the possible future recovery of inert waste and construction and demolition waste at the facility for use in site development works and site restoration .

**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 (derived from the waste deposited within the lined cells) for the purpose of generating 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 recovery and transport off-site for reuse of the waste types stored at the civic waste facility and the proposed metal recovery area .

**Class 12. Exchange of waste for submission to any activity referred to in a preceding paragraph of this Schedule.**

This activity is limited to the exchange of metals and other inorganic materials.

**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 wastes within designated areas prior to recovery.

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

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 refuse the following classes of activities.

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

**Class 6 Biological treatment not referred to elsewhere in this Schedule which results in final compounds or mixtures which are disposed of by means of any activity referred to in paragraphs 1. to 10. of this Schedule.**

Reason: No relevant proposals were included in the licence application

*Refused 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).**

**Reason:** No relevant proposal was included in the licence application.

**Class 10. The treatment of any waste on land with a consequential benefit for an agricultural activity or ecological system.**

**Reason:** The activity referred to in the application is the use of organic waste which has been composted as intermediate cover and in the closure/restoration of the landfill. Composting, (Class 2) is not permitted to be undertaken at the facility as no relevant proposal was included in the licence application.

## **INTERPRETATION**

All terms in this licence should be interpreted in accordance with the definitions in the Waste Management Act, 1996 (the Act), unless otherwise defined in this section.

<b>Adequate lighting</b>	20 lux measured at ground level.
<b>Agreement</b>	Agreement in writing.
<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>Biodegradable waste</b>	Any waste that is capable of undergoing anaerobic or aerobic decomposition, such as food and garden waste, and 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 these 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>Emission Limit Value</b>	Those limits, including concentration limits and deposition levels established in Schedule G: Emission Limits.
<b>Environmental Pollution</b>	As defined in Section 5 (1) of the Act.
<b>EPA Working Day</b>	Refers to the following hours; 9.00 a.m. to 5.30 p.m. Monday to Friday inclusive.
<b>European Waste Catalogue (EWC)</b>	The EWC is 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>Facility</b>	That area or areas defined under Condition 1.2
<b>Facility Working Day</b>	08:00 to 18:00 Monday to Friday inclusive and 08:30 to 14:00 on Saturday. For Bank Holiday weekends 08:30 to 18:00 on Saturday.
<b>FAS Waste Management Training Programme</b>	A competency based certification to meet the EPA Waste Management Integrated Licensing requirements.
<b>Green waste</b>	Waste wood, plant matter and other vegetation.
<b>Hazardous Waste</b>	As defined in Section 4 (2) of the Act.
<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 civic waste facility, 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>Incident</b>	Any reference to an incident in this licence means an incident as defined in Condition 3.1.
<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>Leachate</b>	Any liquid percolating through the deposited waste and emitted from or contained within a landfill as defined in Section 5 (1) of the Act.
<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>	Waterford Corporation
<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>	At minimum of 12 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>Quarterly</b>	At approximately three monthly intervals.
<b>Recyclable Materials</b>	Those waste types, such as cardboard, batteries, gas cylinders, etc, which may be recycled
<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 Schedule G: Emission Limits of this licence.
<b>Specified Engineering Works</b>	Those engineering works listed in Schedule E: Specified Engineering Works of this licence.
<b>Submit</b>	Unless the context of this licence indicates otherwise, submit in writing to the Agency for its agreement
<b>Treated Sludge</b>	Sludge which has undergone biological, chemical or heat treatment, long-term storage or any other appropriate process so as to reduce significantly its odour potential, fermentability and the health hazards resulting from its use.
<b>Trigger Level</b>	A parameter value which when achieved or exceeded requires certain actions to be taken.
<b>White Goods</b>	Refrigerators, cookers, ovens and other similar appliances.
<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

- 1.1. Waste activities at the facility shall be restricted to those listed and described in Part I and required by this licence.
- 1.2. For the purpose of this licence, the facility is the area of land outlined in red *Drawing No. B.2/2 Rev. A - Location Plan of Kilbarry Landfill Site* 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. The total quantity of wastes to be accepted at the facility shall not exceed 75,000 tonnes per annum as listed in *Schedule A : Waste Acceptance- Table A.1* of this licence.
- 1.5. Those waste types specified in *Schedule A: Waste Acceptance* of this licence may be recovered or disposed of at the facility subject to the constraints listed in this licence.
- 1.6. No hazardous waste, liquid waste, untreated sludge, non-hazardous asbestos waste and animal by-products or remains shall be disposed of at the facility.
- 1.7. Waste Acceptance Hours and Hours of Operation
  - a) Waste shall only be accepted at the landfill facility between the hours of 08:00 and 17:30 Monday to Saturday inclusive.
  - b) Treated industrial non-hazardous sludges and treated sewage sludges shall only be accepted at the facility between 08:00 and 14:00 from Monday to Friday inclusive. No sludges shall be accepted at the facility on Saturday.
  - c) The facility shall only be operated during the hours of 07:30 to 18:30 Monday to Saturday inclusive.
- 1.8. Where the Agency considers that a non-compliance with the Conditions of this licence has occurred, it may serve a notice on the licensee specifying:
  - a) 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;
  - b) 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,
  - c) 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 confirmation is received from the Agency that the notice is withdrawn.
- 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. Every 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.

*REASON: To clarify the scope of this licence.*

## **CONDITION 2 MANAGEMENT OF THE ACTIVITY**

### 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 suitably qualified and experienced deputy, shall be present at all times during the operation of the facility. Both the facility manager and deputy shall successfully complete both the FAS waste management training programme (or equivalent agreed with the Agency) and associated on site assessment appraisal. Furthermore, any replacement site manager or deputy must have a similar qualification.
- 2.1.2 The licensee shall ensure that personnel performing specifically assigned tasks shall be qualified on the basis of appropriate education, training and/or experience, as required and shall be aware of the requirements of this licence.

### 2.2 Management Structure

Within three months from the date of grant of this licence, the licensee shall submit written updated details of the management structure of the facility to the Agency. Any proposed changes in the management structure shall be submitted 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;
- b) details of the responsibilities for each individual named under a) above;
- c) details of the relevant experience, competence and qualifications held by each of the persons nominated under a) above; and
- d) contingency arrangements for the absences of the named persons from the facility.

### 2.3 Environmental Management System

- 2.3.1 The licensee shall within six months from the date of grant of this licence, submit to the Agency for its agreement a proposal for an Environmental Management System (EMS) for the facility to reflect the requirements of this licence. 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:
- i. Schedule of Environmental Objectives and Targets  

The Schedule shall address a five year period as a minimum and shall be reviewed and submitted annually to the Agency for its agreement. The objectives should be specific and the targets measurable.
  - ii. Environmental Management Programme (EMP)

The EMP shall include a time-scale for achieving the Schedule of Objectives and Targets and shall comply with any other guidance issued by the Agency. The EMP shall include, as a minimum, the information specified in *Schedule B: Content of the Environmental Management Programme*. The EMP shall be reviewed and submitted to the Agency for its agreement annually.

iii. Corrective Action Procedure

The Corrective Action Procedures shall detail the corrective action to be taken should specified requirements of this licence not be fulfilled.

iv. Awareness and Training Procedures

The Awareness and Training Procedures shall identify training needs and provide appropriate training for personnel whose work is related to the licensed facility. Written records of training shall be maintained.

v. Communications

The Communications Programme shall ensure that members of the public can obtain information concerning the environmental performance of the facility at all reasonable times.

2.4 Annual Environmental Report

2.4.1 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).

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

*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 NOTIFICATION AND RECORD KEEPING**

- 3.1 The licensee shall make written records of the following incidents:
- a) any nuisance caused by the activity
  - b) any emission which results in the contravention of any relevant standard, including any standard for an environmental medium, or any relevant emission limit value, prescribed under any relevant enactment;
  - c) any emission which does not comply with the requirements of this licence;
  - d) any trigger level specified in this licence which is attained or exceeded;
  - e) any indication that environmental pollution has, or may have, taken place;
  - f) any occurrence with the potential for environmental pollution; and,
  - g) any emergency.
- 3.2 The written record shall include all aspects described in Condition 10.7(a-e).
- 3.3 Unless otherwise instructed in writing by the Agency, 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 the written record required by this condition 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 the Southern 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.
- 3.4 Should any further actions be taken after the date of written notification, 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.
- 3.5 Unless otherwise agreed by the Agency, all documentation submitted to the Agency shall:
- (a) be sent to the Agency's headquarters;
  - (b) comprise one original and three copies;
  - (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; and

- (g) in the case of results of any environmental monitoring, be accompanied by a written interpretation setting out their significance.
- 3.6 Copies of all environmental monitoring data obtained by the licensee which relates to the facility shall be forwarded to the Agency at the frequencies set out *in Schedule D: Recording and Reporting to the Agency* of this licence.
- 3.7 Unless otherwise agreed with the Agency, all documentation and records required to be made under this licence, shall be retained by the licensee.
- 3.8 The licensee shall provide additional copies of any documentation and records referred to in this licence to the Agency upon written request, within the time specified in writing by the Agency.
- 3.9 The licensee shall keep the following documents at the facility office referred to in Condition 4.6.
- 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 (including nuisance control measures implemented at the facility) which relate to the licensed activities.
- 3.10 The licensee shall maintain a written record, for each load of waste arriving (excluding those wastes accepted at the civic waste facility for recycling/recovery) at the facility and departing from the facility. The licensee shall record the following:
- a) the name of the carrier;
  - b) the vehicle registration number;
  - c) the name of the producer(s)/collector(s) of the waste as appropriate;
  - d) a description of the waste including the associated EWC codes;
  - e) the quantity of the waste, recorded in tonnes;
  - f) the name of the person checking the load;
  - g) where loads or wastes are removed (for recovery or disposal elsewhere) or rejected, details of the date of occurrence, the types of waste and the facility to which they were removed.
  - h) the quantity of waste leaving the facility tonnes (solid waste) and litres/cubic metres (liquid wastes- comprising waste oils at the civic waste facility and any rejected loads comprising liquid waste); and,
  - i) any other information which might be required from time to time subject to prior agreement with the Agency
- 3.11 The licensee shall maintain a written record of the type and quantity, recorded in tonnes, of all wastes recovered or disposed of at the facility.
- 3.12 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 vehicle registration number
  - c) the date and time of removal of leachate from the facility;
  - d) the volume of leachate, in cubic metres, removed from the facility on each occasion;

- e) the name and address of the Waste Water Treatment Plant to which the leachate was transported;
  - f) any incidents or spillages of leachate during its removal or transportation.
- 3.13 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.
- 3.14 A written record shall be kept at the facility of the daily actions undertaken as part of the programme for the control and eradication of rodent and insect infestations at the facility. These records shall include as a minimum the following as appropriate:
- a) the date and time during which spraying of rodenticide(s) and insecticide(s) 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.
- 3.15 Provision shall be made for the transfer of environmental information specified by the Agency, in relation to the activities carried on under this licence, to the Agency's computer system within a timescale specified in writing by the Agency.

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

## CONDITION 4 SITE INFRASTRUCTURE

- 4.1 The licensee shall establish all infrastructure referred to in this licence prior to the commencement of the licensed activities or as instructed by the Agency.
- 4.2 Specified Engineering Works
- 4.2.1 The licensee shall submit written proposals for all Specified Engineering Works, as defined in *Schedule E: Specified Engineering Works*, 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.
- 4.2.2 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.
- 4.2.3 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) where relevant a drawing and sections showing the location of all samples and tests carried out;
  - e) where relevant daily records sheets/diary;
  - f) name(s) of contractor(s)/individual(s) responsible for undertaking the 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; and
  - i) any other information requested in writing by the Agency.
- 4.3 Site Notice Board
- 4.3.1 The licensee shall provide and maintain a Site 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.
- 4.3.2 The board shall clearly show:
- a) the name and telephone number of the facility;
  - b) the normal hours of opening;
  - c) the name, address and telephone number of the licence holder;
  - d) an emergency out of hours contact telephone number;
  - e) the name, address and telephone number of the operator of the facility;
  - f) the licence reference number;

- g) where and when environmental monitoring information relating to the facility can be obtained.

#### 4.4 Site Security

4.4.1 Within six months of the date of grant of this licence, a main entrance gate and a 2.5m high wall as described in Attachment D1. -Infrastructure shall be maintained at the facility entrance. A minimum 2.5m high security and stockproof palisade fencing shall be installed and maintained around the entire facility boundary as shown on *Drawing No. Art 16-1 Rev. A Site Layout Plan (dated March 2000)*. Such fencing shall be set in the ground.

4.4.2 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 or as otherwise agreed with the Agency.

4.4.3 Gates shall be locked shut when the facility is unsupervised.

#### 4.5 Site Roads and Hardstanding

4.5.1 The access roads, internal site haul roads and areas of hard standing shall be provided and maintained to the specification described and referred to in Attachment D1 (b) Access Roads and D1(c) Hardstanding Areas.

4.5.2 Traffic control and signage at the facility shall be as shown on *Drawing No. Art 16-5 - Traffic Control Measures D.1.1* of the application.

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

4.7 The licensee shall provide and maintain a working telephone and facsimile machine in the office.

#### 4.8 Waste Inspection/ Quarantine Area

4.8.1 A Waste Inspection Area and a Waste Quarantine Area shall be provided and maintained at the facility. The design details/specifications of this area shall be as shown in *Drawing No. Art.16-8 Rev.A - Details of Waste inspection/Waste Quarantine Area*.

4.8.2 The licensee shall ensure that these areas shall be constructed and maintained in a manner suitable, and be of a size appropriate, for the inspection of waste and its subsequent quarantine if required. The waste inspection area and the waste quarantine area shall be suitably and clearly segregated from each other. Following construction of the leachate lagoon, drainage from these areas shall be directed to the lagoon.

#### 4.9 Weighbridge

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

#### 4.10 Wheelwash

4.10.1 Within three months of the date of grant of this licence, the licensee shall install and maintain a wheelwash at the facility to the specifications shown on *Drawing No. Art 16-7 Rev.A (dated March 2000) –Wheelwash Details*.



- 4.10.2 The wheelwash shall be inspected on a daily basis and drained as required. Silt, stones and other accumulated material shall be removed as required from the wheelwash and disposed of at the working face or to a skip. Water drained from the wheelwash shall be directed to the foul water collection sump and/or the leachate lagoon (following its commissioning) prior to discharge to sewer or transport offsite for treatment.
- 4.11 The licensee shall provide and use adequate lighting during the operation of the facility in hours of darkness.
- 4.12 Waste Water
- 4.12.1 The licensee shall within six months of the date of grant of this licence provide and maintain a wastewater treatment system at the facility for the treatment of sewage arising on-site. The system shall satisfy the design criteria set out in the Agency's manual on "Small Scale Treatment Systems". The outlet from the treatment plant shall discharge to the foul water collection sump or the leachate lagoon (following its commissioning).
- 4.13 Storage Areas
- 4.13.1 The licensee shall within six months of the date of grant of this licence provide and maintain bunded storage areas at the facility for fuel and waste oils. Following the construction of this area, fuels and oils for use in site operation, maintenance and development, shall only be stored in this area. Fuel and oils shall not be stored at other locations within the facility boundary.
- 4.13.2 Within three months of the date of grant of this licence, the licensee shall replace the underground waste oil storage tank with an above ground bunded fuel tank within the Civic Waste Facility shown in *Drawing No. Art16-6 Rev.A – Layout Plan of Civic Area Amenity at Kilbarry landfill site*. The underground tank shall then be decommissioned.
- 4.13.3 Lubricants and pesticides shall be stored in an enclosed container to be provided within the Plant Storage Yard shown on *Drawing No. Art 16-1 Rev.A – Site Layout Plan (dated March 2000) Site Layout Plan* and shall be appropriately labelled. Lubricants shall be stored on a bunded pallet within the enclosed container.
- 4.13.4 All tank and drum storage areas shall be rendered impervious to the materials stored therein. In addition, 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.
- 4.13.5 All drainage from bunded areas shall be diverted for collection and safe disposal.
- 4.13.6 All inlets, outlets, vent pipes, valves and gauges must be within the bunded area.
- 4.13.7 The integrity and water tightness of all the bunds, tanks and containers (including leachate tankers) and their resistance to penetration by water or other materials stored therein shall be tested and demonstrated by the licensee and shall be reported to the Agency within nine months of the date of grant of this licence. This testing shall be carried out by the licensee at least once every three years thereafter and reported to the Agency on each occasion. A written record of all integrity tests and any maintenance or remedial work arising from them shall be maintained by the licensee.
- 4.13.8 All tanks and containers shall be labelled to clearly indicate their contents.
- 4.14 Lining System:

- 4.14.1 The liner system for the leachate storage lagoon and the proposed surface water retention pond shall comprise the following (or equivalent): a composite liner consisting of at minimum a basal soil/clay layer of at least 1m in thickness with a permeability of less than  $1 \times 10^{-9} \text{ ms}^{-1}$  overlain by a 2mm thick high density polyethylene (HDPE) layer. The side walls shall be designed and constructed to achieve an equivalent protection.
- 4.14.2 Newly constructed cells within the proposed Landfill Area 1 shall be lined with a composite liner consisting of a 1m layer of compacted soil with a hydraulic conductivity of less than  $1 \times 10^{-9} \text{ ms}^{-1}$  or equivalent to be agreed with the Agency overlain by a 2mm thick HDPE layer. A geotextile protection layer shall be placed over the HDPE layer. A 500mm drainage layer with minimum hydraulic conductivity of  $1 \times 10^{-3} \text{ ms}^{-1}$  shall be placed over the geotextile layer and shall be prewashed, uncrushed, granular, rounded stone (16-32 mm grain size). The side walls shall be designed and constructed to achieve an equivalent protection. The liner system in Landfill Area 1 shall be installed in accordance with this specification within six months of the date of grant of this licence.
- 4.14.3 Following the placement of the liner system in Landfill Area 1, the leachate storage lagoon and the proposed surface water retention pond the licensee shall commission an independent leak detection survey of the liner system. Any defects recorded shall be remedied.

#### 4.15 Leachate and Groundwater Management

- 4.15.1 Within six months of the date of grant of this licence, the licensee shall implement a groundwater management plan to ensure the protection of the groundwater resources in the vicinity of the facility during site development works, operation, restoration and closure.
- 4.15.2 Within twelve months of the date of grant of this licence the licensee shall install, commission and maintain a leachate management system at the facility. The leachate management system shall include the following elements:
- the construction of a leachate collection drain between the footprint of the landfill and the perimeter drain;
  - leachate abstraction and collection pipework and associated pump sumps and rising mains;
  - the abstraction and collection of leachate from within the waste;
  - the storage of leachate within a lined leachate storage lagoon;
  - a leachate conditioning plant for the removal of methane;
  - a leachate monitoring and control management system; and,
  - a rising main connecting the leachate lagoon/leachate conditioning plant to the Cork Road Sewer.
- 4.15.3 The leachate cut off drain shall be excavated to a minimum of 1m below the lowest level of the waste.
- 4.15.4 All structures for the treatment of leachate shall be fully enclosed except for inlet and outlet piping.
- 4.15.5 Prior to the commissioning of the leachate conditioning plant and the leachate lagoon, leachate collected in the perimeter drain shall be discharged to the Cork Road Sewer. During this interim period the licensee shall put in place measures to reduce the level of dissolved methane in the effluent being discharged to sewer.

- 4.15.6 Following commissioning of the leachate conditioning plant, treated leachate stored in the leachate storage lagoon shall be discharged to the Cork Road Sewer.
- 4.15.7 The frequency of discharge of leachate from the leachate storage lagoon shall be such that a minimum freeboard of 0.5m shall be maintained in the leachate lagoon at all times.
- 4.15.8 All leachate collection, pumping, containment structures on-site shall be inspected and certified fit for purpose prior to being commissioned and on an annual basis by an independent and appropriately qualified chartered engineer. Any remedial works recommended in this report must be implemented within a time-scale to be agreed with the Agency.
- 4.15.9 There shall be no recirculation of leachate or other contaminated water within the waste at the facility.

#### 4.16 Landfill Gas Management:

- 4.16.1 Within twelve months of the date of grant of this licence, a system for the active abstraction, collection and flaring of landfill gas shall be installed and commissioned at the facility.
- 4.16.2 The flare unit shall be of an enclosed type design. The flare unit shall be located within the Proposed Gas to Power Compound shown on *Drawing No. Art16-1 Site Layout of Kilbarry landfill site (dated March 2000)*.
- 4.16.3 The landfill gas and abstraction and collection system shall be as described in the Kilbarry Landfill- Conditioning Plan –September 2000 submitted to the Agency on 8 September 2000 and as shown on *Drawing No. B.3 Rev. A –Details of Gas Management System dated September 2000*). The landfill gas abstraction boreholes shall be at the locations and to the specifications shown on this drawing unless otherwise agreed with the Agency.
- 4.16.4 Within eighteen months of the date of grant of this licence, a system for the utilisation of landfill gas shall be installed and commissioned at the facility.
- 4.16.5 All buildings constructed on the facility shall have regard to the guidance given in the Department of Environments 1994 publication “Protection of New Buildings and Occupants from Landfill Gas” and any subsequent revisions.
- 4.16.6 Until the operation of the landfill gas flare, passive landfill gas management at the facility shall be carried out. Landfill gas management and infrastructure shall meet the recommendations given in the Agency Manual on “Landfill Operational Practices”. All vents installed to facilitate passive gas venting shall be fitted with an effective activated carbon filter.
- 4.16.7 The licensee shall within six months of the date of grant of this licence introduce as a minimum a landfill gas-venting trench along the eastern and northern site boundary as shown on *Drawing No. Art 16-11 –Details of Proposed Gas Management System (dated March 2000)*.
- 4.16.8 The licensee shall maintain all gas wells, pipework, valves, pumps, flares and other infrastructure that form part of the landfill gas management scheme in a safe and fully operational manner.

#### 4.17 Sludge Disposal Areas

4.17.1 Within one month of the date of grant of this licence the licensee shall decommission the existing designated sludge disposal area(s) utilised within the facility.

#### 4.18 Capping

4.18.1 Daily cover and intermediate capping shall consist of the following: subsoils and other excavation waste or construction industry waste such as bricks and crushed broken concrete or equivalent. The material should be free draining and preferably of low clay content. Daily cover should be 150mm in depth.

4.18.2 Intermediate capping prior to placement of the final capping system on completed cells will consist of a minimum of 500mm of suitable inert material.

4.18.3 Final capping shall consist of the following:

- top soil (150 -300mm);
- subsoils, such that total thickness of top soil and subsoils is at least 1m;
- drainage layer of 0.5m thickness having a minimum hydraulic conductivity of  $1 \times 10^{-4}$  m/s;
- 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
- gas collection layer of natural material (minimum 0.3m) or a geosynthetic layer.

4.18.4 All future filled cells shall be capped within twelve months of the cells having been filled to the required level. Previously filled cells shall be capped within twelve months of the date of grant of this licence.

#### 4.19 Surface Water Management

4.19.1 The licensee shall ensure the effective control of surface water run off from the facility during construction, operation and restoration.

4.19.2 A lined stormwater retention pond(s) to facilitate the containment of surface water run-off from the facility shall be constructed and commissioned at the facility within twelve months of the date of grant of this licence. The storm water retention pond(s) shall be capable of fulfilling the requirements of this licence and dealing with all surface water run-off at the facility. Following its commissioning a minimum freeboard of 0.75m shall be maintained in the surface water retention pond(s) at all times.

4.19.3 The outlet from the stormwater settling ponds shall incorporate a penstock for preventing surface water discharges in the event that monitoring should indicate contamination of the surface water.

#### 4.20 Civic Waste Facility

4.20.1 The licensee shall maintain a Civic Waste Facility at the location and to the specifications shown in *Drawing No. Art16-6 Rev.A – Layout Plan of Civic Area Amenity at Kilbarry landfill site*.

4.20.2 The bottle bank within the civic waste facility shall be relocated within one month of the date of grant of this licence from the location shown on *Drawing No. Art16-6 Rev.A – Layout Plan of Civic Amenity Area at Kilbarry landfill site* to a new location in the south- east corner of the civic waste facility.

4.21 Metal Waste Recovery area

4.21.1 A metal recovery area shall be constructed within six months of the date of grant of this licence at the location and to the specifications shown on *Drawing No. B.5 Metals Recovery Compound (dated 7.12.1998)* and referred to thereon as Proposed Metal Recovery Area. There shall be clearly segregated areas for the separate storage of white goods and abandoned cars and other metals within the metals recovery area.

4.22 Perimeter Planting

4.22.1 Within six months of the date of grant of this licence the license shall introduce suitable tree and shrub planting around the perimeter of the facility.

*Reason: To provide for the protection of the environment.*

## CONDITION 5 WASTE MANAGEMENT

- 5.1. Non-hazardous waste shall only be deposited within Landfill Area 1 as shown on *Drawing No. Art 16-1 Rev.A – Site Layout Plan (dated March 2000)* and Landfill Area 4 as shown on *Figure No.B.2 Rev.A (dated September 2000)* (as modified in accordance with Condition 5.2). Waste to be deposited in Landfill Areas 2 and 3 as shown on *Figure No.B.2 Rev.A (dated September 2000)* shall be restricted to inert waste for restoration purposes.
- 5.2. The licensee shall reduce the extent of the **proposed Landfill Area 4** as shown on *Figure No.B.2 Rev.A (dated September 2000)* to provide for a minimum 15 m wide zone along the western facility boundary within which no waste shall be deposited.
- 5.3. Waste shall only be disposed of in Landfill Area 1 following the placement of the liner system in accordance with Condition 4.14.2 and the commissioning of a leachate collection and abstraction system to the satisfaction of the Agency.
- 5.4. The maximum pre-settlement height to which waste for disposal is permitted to be deposited at the facility shall be 15m O.D.
- 5.5. The disposal of waste in any newly constructed lined cell or part of the landfill shall not commence without the prior agreement of the Agency.
- 5.6. Waste Acceptance Procedures
  - 5.6.1. Within three months of the date of grant of this licence, the licensee shall submit to the Agency for its agreement detailed written procedures for site staff on the acceptance and handling and storage of all wastes. Unless otherwise agreed with the Agency, these procedures shall be based on the information submitted on waste acceptance in Attachment E.2 - Waste Acceptance Procedures and Attachment E.3 Waste Handling of the application and any guidance issued by the Agency.
  - 5.6.2. These procedures shall include site specific written procedures for site staff on the acceptance and handling of all non-hazardous sludge and procedures to ensure that only non-hazardous industrial sludge is accepted at the facility. Testing shall be performed on a minimum of two samples per annum for all industrial sludges/solids accepted at the facility and the results submitted to the Agency on an annual basis. This testing shall include sludge eluate and toxicity testing by standardised and internationally accepted procedures and carried out by a competent laboratory.
  - 5.6.3. Prior to the agreement of the procedures required by Condition 5.6.1 waste acceptance at the facility shall be carried out in accordance with waste acceptance procedures described in Attachment E.2 - Waste Acceptance Procedures and Attachment E.3 Waste Handling of the application.
- 5.7. Sludge Disposal
  - 5.7.1. Within one month of the date of grant of this licence, sludges shall only be disposed of in a segregated sludge disposal area within the active tipping area in Landfill Areas 1 and 4.
  - 5.7.2. Within six months of the date of grant of this licence, the licensee shall submit to the Agency for its agreement proposals for reducing the quantity of sludges to be accepted at the facility.
- 5.8. All wastes for disposal at the active tipping area shall be visually inspected prior to unloading in accordance with “Level 3: On-site verification” outlined in the Agency’s Draft Manual on Waste Acceptance. In addition all wastes for shall be checked at the working face to ensure

that they comply with the requirements of the licence. Any wastes deemed to be in contravention of this licence and/or unsuitable for recovery or disposal at this facility shall be removed for recovery or disposal at an appropriate alternative facility. Such waste shall be stored in the Waste Inspection/Quarantine Area only and may be stored for a maximum of forty-eight- hours. A record of all inspections shall be maintained on a daily basis.

- 5.9. Construction and demolition waste and inert waste for use in site development works shall be stored separately in a designated area(s) within the facility.
- 5.10. Access to the facility by members of the public shall be restricted to the Civic Waste Facility as shown on in *Drawing No. Art16-6 Rev. A – Layout Plan of Civic Amenity Area at Kilbarry landfill site.*
- 5.11. Unless otherwise agreed in advance with the Agency, 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;
  - 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 25 metres in length and have a slope no greater than 1 in 3; and,
  - c) all waste deposited at the working face shall be compacted and covered as soon as is practicable and at any rate prior to the end of the working day.
- 5.12. The working face of the operational cell and any other exposed waste shall, at the end of each day, be covered with material suitable to minimise any nuisances occurring. At the end of the working week a minimum of 150mm of suitable inert material shall be placed over the waste. 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.
- 5.13. Apart from the active tipping area and the sludge disposal area, within three months of the date of grant of this licence, the licensee shall ensure that all previously deposited waste within the current landfill footprint shown on *Drawing No. Art 16-1 Rev. A - Site Layout Plan (dated March 2000)* covered by a temporary cover of at least 500mm of suitable inert material so that no waste other than cover material or material suitable for specified engineering works is exposed.
- 5.14. A steel wheeled compactor shall be used for compacting all waste other than that used for restoration or construction purposes.
- 5.15. Scavenging shall not be permitted at the facility.
- 5.16. In order to prevent the formation of voids, all large hollow objects and other large articles deposited at the facility shall be crushed, broken up, flattened or otherwise treated.
- 5.17. Unless otherwise agreed with the Agency, waste once deposited and covered shall not be excavated, disturbed or otherwise picked over with the exception of works associated with the construction, installation of the leachate management system, the landfill gas management system, the surface water management system, site investigations required by this licence and the occurrence of a fire within the waste.
- 5.18. No smoking shall be allowed on the facility other than in the site office/administration block as shown on *Drawing No. Art 16-1 Rev. A Site Layout Plan (dated March 2000).*

5.19. Civic Waste Facility

- 5.19.1. Waste to be accepted at the civic waste facility shall be limited to domestic waste, paper and cardboard, glass, beverage cans, waste oils, batteries, fluorescent tubes, only unless subject to the prior agreement of the Agency. These waste types shall be stored in separate appropriate containers within the civic waste facility. All containers shall be clearly labelled to indicate their contents.
- 5.19.2. Waste oils and batteries shall be stored in a banded container within a banded area. Fluorescent tubes shall be stored in an enclosed container, which provides individual compartments for the storage of fluorescent tubes in such a manner to prevent breakage.
- 5.19.3. Separate skips or other suitable containers shall be provided for the acceptance of household waste for disposal at the landfill and biodegradable waste destined for composting at the civic waste facility.
- 5.19.4. Household waste delivered to the civic waste facility destined for landfilling shall be deposited at the working face prior to the end of the working day.
- 5.19.5. Waste sent off-site for recovery or disposal shall only be conveyed by a waste contractor(s) agreed in advance by the Agency. The ultimate recovery or disposal facility for all wastes including material excavated during site development work shall be transported shall be agreed in advance with the Agency. 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.

5.20. Metal Waste Recovery Area

- 5.20.1. Apart from beverage cans (to be stored in the appropriate containers in the civic waste facility) waste metals including cars and white goods shall only be stored at the proposed metal recovery area shown on *Drawing No .B.1 Rev. A Metals Recovery Compound* following its construction. Prior to the construction of the metal recovery area abandoned cars, white goods and other metals, other than beverage cans, shall only be stored in a clearly defined area. White goods shall be clearly segregated from other metal wastes. Equipment and written procedures shall be maintained for degassing of CFC's from refrigerators.
- 5.20.2. The licensee shall ensure the removal of fuel and oil from all vehicles and other machinery accepted at the facility. Fuel and oils removed shall be stored in a banded area.

5.21. Within six months of the date of grant of this licence, proposals for the following at the facility shall be submitted to the Agency for its agreement:

- 5.21.1. the separation of recyclable materials from the waste;
- 5.21.2. the recovery of Construction and Demolition Waste and inert waste to be used for site development works and cover/restoration material at the facility and,
- 5.21.3. the recovery of commercial waste, including cardboard.

*Reason: To provide for the acceptance and management of wastes authorised under this waste licence.*



## CONDITION 6 ENVIRONMENTAL NUISANCES

- 6.1. The licensee shall ensure that vermin, birds, insects, mud, dust and odours do not give rise to nuisance at the facility or the immediate area of the facility. Any method used by the licensee to control any such nuisance shall not cause environmental pollution or contravene any national statutory protection granted in respect of protected species.
- 6.2. The licensee shall, at a minimum of twice a week intervals, inspect the facility and its immediate surrounds for nuisances caused by vermin, birds, insects, mud, dust, litter and odours. Written records shall be made of all inspections and any actions taken as a result of these inspections.
- 6.3. 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.
- 6.4. Litter Control
  - 6.4.1. The measures and infrastructure as described in *Attachment F.5 Litter Control* of the application and required by this licence shall be applied to control litter at the facility.
  - 6.4.2. Litter fencing shall be installed and maintained around the perimeter of the active tipping area by 31 July, 2001.
  - 6.4.3. All litter control infrastructure shall be inspected on a daily basis and 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 fencing shall be undertaken within three working days or as otherwise agreed with the Agency.
  - 6.4.4. Within three months of the date of grant of this licence the licensee shall submit to the Agency for its agreement proposals for the operation of the facility in adverse wind conditions.
  - 6.4.5. All litter (including longstanding litter) accumulated within the facility and its surrounds shall, subject to landowners agreement, be removed and disposed of appropriately as soon as practicable after the date of grant of this licence.
  - 6.4.6. A daily litter patrol shall be carried out and all loose litter accumulated within the facility and its environs, excluding that which is deposited on the working face, shall be removed subject to the agreement of the landowners where relevant, and appropriately disposed of on a daily basis.
  - 6.4.7. Within three months of the date of grant of this licence, litter screens shall be placed across all watercourses discharging from the site so as to prevent litter being carried offsite in these watercourses. The litter screens shall be inspected on a daily basis and any accumulated litter removed and disposed of appropriately.
- 6.5. Any waste placed on or in the vicinity of the facility, other than in accordance with the requirements of this licence, shall be removed by the licensee immediately and in any event by 10:00am of the next working day, after such waste is discovered. Such waste shall be disposed of at an appropriate facility.
- 6.6. The licensee shall ensure that all vehicles delivering waste to and removing waste and materials from the facility are appropriately covered.

- 6.7. Prior to exiting the facility, all waste vehicles, vehicles delivering clay and other materials for site development and restoration and vehicles removing excavated material offsite shall use the wheelwash required.
- 6.8. Dust Control
- 6.8.1. The dust control measures outlined in Attachment *F.3 Dust Control* of the application and F.1 –Dust of further information submitted to the Agency on 30 March 2000 shall be implemented to control dust at the facility.
- 6.9. Bird Control
- 6.9.1. Birds shall be prevented from gathering on and feeding at the facility by the use of birds of prey (following consultation and approval from Duchas) and other bird scaring techniques. The birds of prey and other techniques shall be in place on the facility within three months of the date of grant of this licence and the licensee shall maintain their presence every day, from before dawn to after dark, until the waste activities cease and all the waste is capped. The use of gas operated bird scaring devices is prohibited at the facility. A written record of the Bird Control Programme implemented at the facility, the daily bird control activities and the numbers of birds observed on the facility shall be kept.
- 6.10. Vermin Control
- 6.10.1. The licensee shall implement and maintain a site specific programme for the prevention, control and eradication of vermin and insect infestations at the facility. This programme shall include as a minimum, details on the operational practices employed at the facility to control vermin (rodents and insects), rodenticide(s) and insecticide(s) to be used, the mode and frequency of application, operator training, the criteria which dictate when the control/eradication measures are applied and the measures to contain sprays within the facility boundary.

*Reason: To provide for the control of nuisance.*

## CONDITION 7 EMISSIONS AND ENVIRONMENTAL IMPACTS

- 7.1. No specified emission from the facility shall exceed the emission limit values set out in *Schedule G: Emission Limits* of this licence. There shall be no other emissions of environmental significance.
- 7.2. 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.
- 7.3. 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.
- 7.4. There shall be no clearly audible tonal component or impulsive component in the noise emission from the activity at any noise sensitive location.

### 7.5. Landfill Gas

7.5.1. The following are the trigger levels for landfill gas emissions from the facility measured in any service 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; and
- b) Carbon dioxide, greater than or equal to 1.5% v/v.

7.5.2. 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 at 5% oxygen.

7.5.3. Emission limits for emissions to atmosphere in this licence shall be interpreted in the following way:-

#### 7.5.3.1. 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.

#### 7.5.3.2. Non-Continuous Monitoring

- (i) 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.
- (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.

## 7.6. Emissions to Surface Water

- 7.6.1. No raw leachate, treated leachate or contaminated surface water shall be discharged to the John's River catchment once the leachate management and surface water management systems required by this licence are commissioned. Condition 7.6.1.1 to 7.6.1.5 inclusive shall apply at the facility following commissioning of the surface water retention pond.
  - 7.6.1.1. Surface water run off at the facility shall be diverted to the lined surface water retention pond(s) prior to discharge from the facility at a point(s) to be agreed in advance with the Agency.
  - 7.6.1.2 Clean surface water from the facility shall only be discharged to the perimeter streams from the stormwater settling ponds.
  - 7.6.1.3 Prior to the commissioning of the surface water retention pond, trigger levels for the discharge of surface water /contaminated liquid shall be submitted to the Agency for its agreement.
  - 7.6.1.4. No surface water/contaminated liquid stored within the surface water retention pond shall be discharged to the John's River or the Lisduggan Stream when its quality indicates that it exceeds the trigger levels specified in Condition 7.6.1.3.
  - 7.6.1.5. All surface water from hardstanding areas must pass through a silt trap and Class II Full Oil Interceptor prior to reaching the stormwater settling ponds or the Cork Road sewer.
- 7.6.2 Surface water run off from the civic waste facility shall be directed to the foul water collection chamber or the foul sewer (following commissioning of the rising main to the Cork Road Sewer) via an oil interceptor and a silt trap.
- 7.6.3. No substance shall be discharged in a manner, or at a concentration which, following initial dilution causes tainting of fish or shellfish.

## 7.7. Disposal of Leachate/Emissions to sewer

- 7.7.1. Following commissioning of the leachate collection drain and the leachate lagoon leachate collected and stored in the lagoon and other contaminated water originating within the facility shall be discharged following treatment in the leachate conditioning plant, to the Cork Road sewer via a rising main as shown in outline *Drawing No. B1 Rev. A (dated September 2000)*.
- 7.7.2. In the event that leachate or contaminated water stored at the facility is to be transported offsite for treatment at a wastewater treatment plant, permission shall be obtained from the relevant Sanitary Authority. Any such proposal shall be agreed in

advance with the Agency. Disposal procedures for the leachate at the treatment plant shall be in accordance with any written requirements of the Sanitary Authority.

7.8. There shall be no other discharge or emission of environmental significance.

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

## **CONDITION 8 RESTORATION AND AFTERCARE**

- 8.1. A Restoration and Aftercare Plan for the facility shall be submitted to the Agency for its agreement within six months of the date of grant of this licence. The Restoration Plan shall take into account the proposed restoration plan shown on *Figure No.1 3 Rev.A –Final Restoration Plan (dated September 1997)* and *Drawing No.G1/1-Cross Sections through Kilbarry Landfill Site (dated September 1997)*. The final profile of the facility shall be a domed profile to minimise rainwater infiltration. The plan shall include a drawing showing the proposed final profile of the facility and details of the landfilling to achieve these contours. The Plan shall have regard to the requirements of the Landfill Directive (1999/31/EC) and the Agency's *Landfill Manual : "Landfill Restoration and Aftercare"*.
- 8.2. The Restoration and Aftercare Plan required under Condition 8.1 shall include the following:
- 8.2.1. a proposal for perimeter planting;
  - 8.2.2. a schedule detailing the various stages of restoration, including timescales;
  - 8.2.3. details of the ongoing protection from any impacts from this landfill on the habitats within and immediately adjoining the Kilbarry Bog proposed Natural Heritage Area (developed in consultation with Duchas); and,
  - 8.2.4. the quantity of inert waste material to be used in site restoration,
- 8.3. 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.
- 8.4. The restoration of the landfill site shall be completed within two years of the final cessation of waste being deposited at the landfill.
- 8.5. 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.
- 8.6. Where tree planting is proposed to be carried out above waste-filled areas, a synthetic barrier shall be used to augment the clay cap. Topsoil and subsoil depths shall be a minimum of 1m.

*Reason: To provide for the restoration and aftercare of the facility.*

## CONDITION 9 ENVIRONMENTAL MONITORING

- 9.1 The licensee shall carry out such monitoring and at such locations and frequencies as set out in *Schedule F: Monitoring* and as specified in the Conditions of this licence.
- 9.2 Within six months of the date of grant of this licence, the licensee shall submit to the Agency an updated appropriately scaled drawing(s) showing the location of all the monitoring locations that are stipulated in this licence. This shall include any additional monitoring locations required to fulfil this licence. This shall be accompanied by a register of unique coded reference numbers and twelve figure grid references for each monitoring location.
- 9.3 Surface Water Monitoring
- 9.3.1. The licensee shall undertake water quality monitoring (including biological monitoring) of the John's River and the Lisduggan Stream and other unnamed watercourses and tributaries immediately upstream and downstream of the facility. This shall be included in the monitoring programme set out in *Schedule F: Monitoring*.
- 9.3.2. The licensee shall install continuous monitoring for flow, pH, TOC and conductivity on the inlet point to the stormwater retention pond.
- 9.3.3. A visual examination of the surface water discharge shall be carried out daily. A log of such inspections shall be maintained.
- 9.3.4. All flow meters shall be calibrated, operated and maintained as necessary so they will accurately reflect both the effluent discharge and the receiving water flow.
- 9.4 Within three months from the date of grant of this licence, the licensee shall install a permanent gas monitoring system in the site office/administration building and any other enclosed structures at the facility.
- 9.5 The licensee shall undertake monitoring of emissions from the proposed enclosed flare and the landfill gas utilisation plant unit following their commissioning.
- 9.6 The applicant shall undertake continuous monitoring of water in the proposed surface water retention pond following its commissioning. This monitoring shall take into account the trigger levels which will determine when the outlet from these ponds shall be closed. Such continuous monitoring shall, as a minimum, include conductivity, pH and TOC and shall be carried out on the inlet to the stormwater retention pond.
- 9.7 The licensee shall within three months of the date of grant of this licence, submit to the Agency a drawing showing the location and design details of one groundwater monitoring borehole upgradient and two groundwater monitoring locations downgradient of the facility boundary. Subject to the agreement of the landowners the boreholes shall be constructed and commissioned within six months of the date of grant of this licence and shall be included in the monitoring programme set out in *Schedule F: Monitoring*.
- 9.8 The licensee shall within nine months of the date of grant of this licence install a series of monitoring boreholes at locations between the proposed leachate collection drain and the perimeter drain at a minimum of 200m intervals. The monitoring boreholes shall be designed and located so as to monitor the effectiveness of the leachate collection drain as required by Condition 4.15.2. The licensee shall include these monitoring boreholes in the monitoring programme set out in *Schedule F: Monitoring*.

- 9.9. All private wells within 500m of the facility boundary shall, subject to the agreement of the landowners, be included in the monitoring programme set out in *Schedule F: Monitoring*.
- 9.10. The licensee shall maintain all sampling and monitoring points, and clearly label and name (including national grid number) all sampling and monitoring locations, so that they may be used for representative sampling and monitoring.
- 9.11. The licensee shall provide safe and permanent access to all on-site sampling and monitoring points and off-site points as required by the Agency. All ditches and drains located around the perimeter of the facility are to be kept clear such that monitoring can be carried out successfully.
- 9.12. 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 or discharge or environmental parameter.
- 9.13. The licensee shall amend the frequency, locations, methods and scope of monitoring, sampling, analyses and investigations 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.
- 9.14. Within two months of the date of grant of this licence the following information shall be submitted to the Agency: the names, qualifications and a summary of relevant experience of all persons that will 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. Any proposed changes to the above shall be submitted to the Agency.
- 9.15. An updated topographical survey including the void space shall be carried out within six months of the date of grant of this licence. It shall be repeated annually thereafter. The survey shall be in accordance with any written instructions issued by the Agency.
- 9.16. Monitoring infrastructure which proves to be unsuitable for its purpose shall be replaced within three months of monitoring results indicating that the monitoring infrastructure is damaged or unsuitable.
- 9.17. Within six months of the date of grant of this licence, and annually thereafter, the licensee shall carry out a stability assessment of the side slopes of the facility including the leachate storage lagoon, the surface water retention pond and the sludge disposal lagoon) and provide a report on that assessment to the Agency. This report shall include a description of any remedial measures undertaken or proposed to be undertaken.
- 9.18. The licensee shall undertake monthly inspections of the landfill for any evidence of slippage or failure of the perimeter embankment of landfill, the leachate lagoon and surface water retention pond(s). Written records of these inspections shall be maintained at the facility office.
- 9.19. All landfill gas monitoring equipment used for monitoring landfill gas under the requirements of this licence shall be certified as being intrinsically safe.
- 9.20. Ecological Monitoring
- 9.20.1. An ecological assessment of the habitats and associated plant and animal communities within and immediately adjoining (i) the Kilbarry Bog proposed Natural Heritage Area and(ii) the associated watercourses, shall be undertaken annually and shall be submitted to the Agency. This assessment shall include a description of remedial measures to be introduced to control discharges of leachate and contaminated water from the landfill into surface and groundwater regime within Kilbarry Bog. The assessment shall establish the status of salmonid species, kingfisher and otter in the

watercourses and adjoining habitats within Kilbarry Bog and in the John's River and its tributaries in the immediate vicinity of, upstream and downstream of the landfill.

9.21. Archaeological Monitoring

- 9.21.1. Prior to the commencement of any works associated with the landfill (including the installation of monitoring infrastructure), within 50m from the Kilbarry Church, perceptory and graveyard site complex the licensee shall submit a report on an archaeological assessment, carried out by an appropriately qualified person, to the Agency. This assessment shall take into account the Suggested Recommendations in Section 7 of Appendix 2 –Archaeological Report of the application.

*Reason: To ensure compliance with the requirements of other conditions of this licence by provision of a satisfactory system of measurement and monitoring of emissions.*



## CONDITION 10 CONTINGENCY ARRANGEMENTS

- 10.1. The licensee shall, within six months of the date of grant of this licence, submit an updated 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.
- 10.2. 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.
- 10.3. 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.
- 10.4. No waste shall be burned or otherwise combusted at the facility. A fire at the facility shall be treated as an emergency. Immediate action shall be taken to extinguish it and the appropriate authorities notified.
- 10.5. In the event that monitoring of local wells indicate that the facility is having a significant adverse effect the quantity and/or quality of the water supply this shall be treated as an incident. The licensee shall provide an alternative supply of water to those affected.
- 10.6. In the event that monitoring should indicate contamination of the water in the surface water/ groundwater retention ponds, the outlet from the pond shall be closed and the contaminated water shall be pumped to the leachate lagoon until such time as the source of the contamination has been identified and appropriate measures introduced to prevent further contamination of suffice water.
- 10.7. Unless otherwise notified in writing by the Agency, in the event that any monitoring, sampling, complaints or observations indicate that an incident has, or may have, taken place, 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;
  - c) isolate the source of the 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 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.
- 10.8. 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 incident.
- 10.9. The licensee shall carry out an updated risk assessment to determine the requirements at the facility for fire fighting and fire water retention facilities and shall, within six months from the

date of grant of this licence submit a report, including recommendations on the risk assessment to the Agency for its agreement. The Chief Fire Officer of Waterford Corporation shall be consulted by the licensee during this assessment.

- 10.10. Prior to the implementation of the measures required by Condition 10.9 the precautions and actions outlined in *Attachment D.1 Fire Control System and Attachment F.4 Fire Control* (insofar as they are applicable to the site) of the application, shall be applied, to prevent the occurrence of fires and to control any incidents involving a fire at the facility. Leachate shall not be used as a means of fire control.
- 10.11. Within six months of the date of grant of this licence and prior to the commissioning of future phases of development of the facility a risk assessment of the facility, or part thereof, shall be carried out by an independent third party whose identity shall be agreed in advance with the Agency. This risk assessment shall pay particular regard to any accidents, emergencies, or other incidences which might occur on the facility and their effect on the environment and on the neighbours of the facility and on adjoining landuses. The assessment and recommendations including a timescale for implementation shall be submitted to the Agency for agreement. The agreed recommendations shall be implemented within the agreed timescales.

*Reason: To provide for the protection of the environment.*

## **CONDITION 11 CHARGES AND FINANCIAL PROVISIONS**

### **11.1 Agency Charges**

- 11.1.1 The licensee shall pay to the Agency an annual contribution of £20,968 (€26,624) 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 2001. This amount shall be paid to the Agency within one month of the date of grant of this licence.
- 11.1.2 In the event that the frequency or extent of monitoring or other functions carried out by the Agency needs to be increased or decreased the licensee shall contribute such sums as determined by the Agency to defraying its costs.

### **11.2 Financial Provision for Closure, Restoration and Aftercare**

- 11.2.1 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 8.1. The type of fund and means of its release/recovery shall be agreed by the Agency prior to its establishment.
- 11.2.2 Any fund established shall be maintained in an amount always sufficient to underwrite the current Restoration and Aftercare Plan.
- 11.2.3 The licensee shall revise the cost of restoration and aftercare annually and any details of the necessary adjustments to the fund 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.

11.2.4 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

The following waste quantities may accepted at the facility.

**Table A.1 Waste Categories and Quantities for Disposal and Recovery**

WASTE TYPE	MAXIMUM TONNES PER ANNUM
Household	17,000
Commercial	12,500
Industrial non hazardous	28,500
Treated Sewage Sludges <sup>Note 1</sup>	2,500
Treated Industrial non hazardous sludges <sup>Note 1</sup>	7,500
Construction and Demolition Waste <sup>Note 2</sup>	2,000
Waste for Recycling and Recovery at the Civic Waste Facility <sup>Note 3, Note 4, Note 5</sup>	3,000
Waste for Recycling and Recovery at the Metal Recovery Area <sup>Note 3</sup>	2,000
<b>TOTAL</b>	<b>75,000</b>

Note 1: All sludge deposited at the facility shall be immediately covered with suitable material.

Note 2: Construction and demolition waste shall not be disposed of at the facility but may be accepted for recovery (use as daily cover in site construction works and landfill restoration).

Note 3: For recovery.

Note 4: Only household waste, commercial waste and those recyclable waste types outlined in D.3 of further information submitted to the Agency on 30 March 2000 shall be accepted at the waste recycling and recovery area. Waste loads comprising mainly of cardboard, white goods, glass, recyclable metals or loose plastic shall not be deposited at the landfill but can be recovered at the Civic Waste Facility.

Note 5: Only segregated domestic quantities of the following household hazardous household waste types shall be accepted at the recycling and recovery area: waste oil, batteries, fluorescent light bulbs and all such wastes shall be disposed or recovered off-site.

## SCHEDULE B :Content of the Environmental Management Programme

Environmental Management Programme
Items specified to be contained in an Environmental Management Plan in the Landfill Operational Practices Manual published by the Agency, or otherwise as agreed with the Agency
Timescale for achieving the objectives and targets listed in the Schedule of Objectives and Targets
Designation of Responsibility for Achieving Targets and Objectives
Other items specified by the Agency

# SCHEDULE C :Content of the Annual Environmental Report

## Annual Environmental Report Content <sup>NOTE 1</sup>

Reporting Period.

Waste activities carried out at the facility.

Quantity and Composition of waste received, disposed of and recovered during the reporting period and each previous year.

Calculated remaining capacity of the facility and year in which final capacity is expected to be reached.

Methods of deposition of waste.

Summary report on emissions.

Summary of results and interpretations of environmental monitoring, including plans and any updates of all monitoring locations including 12 digit grid references. This must include the following:

- Summary of monitoring results for key leachate parameters;
- Comparison of monitoring results against baseline data and relevant standards;
- Graphical presentation of the trends in the concentration of key leachate parameters; and,
- An assessment and explanation of the significance of the results and trends detected

Resource and energy consumption summary.

Proposed development of the facility and timescale of such development.

Updated as built drawing(s) showing all infrastructure at the facility required by this licence.

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

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

Report on restoration of completed cells/ phases.

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.

Monthly water balance calculation and interpretation.

Schedule of Environmental Objectives and Targets for the forthcoming year.

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

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.

A report on local environmental /heritage programmes and initiatives and expenditure.

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

Any other items specified by the Agency.

Note 1: Content to be revised subject to the agreement of the Agency after cessation of waste acceptance at the facility.

# SCHEDULE D :Recording and Reporting to the Agency

Table D.1 Recurring Reports

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.
Liner system Leak Detection Survey	As they arise	Prior to the placement of any waste in newly developed cells.
Risk Assessment	As they arise	Within six months of the date of grant of licence.
Monitoring of landfill gas	Quarterly	Ten days after end of the quarter being reported on.
Landfill Gas Flare /Utilisation Plant	Quarterly	Ten days after end of the quarter being reported on.
Landfill Gas Flare Unit efficiency assessment	Every three years	Four months from the date of grant of licence and one month after the end of the three year period 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 surface water/groundwater retention ponds	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.
Ecological assessment of Kilbarry Bog and adjoining habitats	Annually	Within twelve months from the date of grant of licence and one month after the end of the twelve month period being reported on.
Biological Monitoring	Annually	One month after end of the year being reported on.
Slope Stability	Annually	Six months from the date of grant of licence and one month after the end of each year thereafter
Topographical Survey	Annually	Three months from the date of grant of licence and one month after the end of each year thereafter
Any other monitoring	As they occur	Within ten days of obtaining results.

Note 1: Unless altered at the request of the Agency

## SCHEDULE E : Specified Engineering Works

### Specified Engineering Works

Development of all future new cells.

Landfill cap installation, including temporary and intermediate capping, installation and all other containment works (including any containment works relating to leachate control).

Bunding of fuel and oil storage areas.

Installation of landfill gas management and monitoring systems.

Installation of leachate management, detection, storage, treatment, monitoring and control systems.

Installation of groundwater management, storage, monitoring and control systems.

Installation of surface water management, storage, monitoring, and control systems.

Construction of firewater retention pond.

Recycling and recovery activities and associated infrastructure including Metal Recovery Area.

Restoration and Aftercare Works.

Any other works notified in writing by the Agency.

# SCHEDULE F :Monitoring

Monitoring to be carried out as specified below.

## F.1 Landfill Gas

Landfill gas monitoring locations shall be those as set out in Table F.1.1 at the frequencies set out in Table F.1.2.

Table F.1.1 Landfill Cells Monitoring Locations (as shown on **Figure No. Art 16-14 Layout Plan showing Monitoring Locations**)<sup>Note 1</sup>

STATION
<b>Within landfill area:</b> <sup>Note 1</sup>
LM2, LM3, LM4, LM5, LM6, GW3,
Within proposed Landfill Areas 1,2, 3 and 4
<b>Perimeter monitoring locations:</b>
LM1, GW1, GW2, GW8/GW9, GW4, GW5/GW10, GW6/GW11, GW12, GW7.
<b>Western boundary:</b>
Location between GW11 and GW12
Location between GW7 and proposed gas to energy compound.
<b>Eastern Boundary</b>
Location between GW4 and GW8/GW9. Location adjacent to ESB substation.
<b>Buildings:</b>
Site office; Nearest residential property

Note 1: At least one monitoring location for **each landfill area**.

Table F.1.2 Landfill Gas Monitoring 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
Minor landfill gas constituents	Annual	Annual	See Note 3

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

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

Note 3: Sampling to be carried out for minor landfill gas constituents (e.g. H<sub>2</sub>S, mercaptans, aliphatic acids etc.) as required by the Agency following evaluation of monthly results.

## F.2 Landfill Gas Flare and Landfill Gas Utilisation Plant

Landfill gas monitoring stations shall be those as set out in Table F. 2.1

Table F.2.1 Landfill Gas Flare/Landfill Gas Utilisation Plant

STATION
Landfill Gas Flare <sup>Note 1</sup>
Landfill Gas Utilisation Plant <sup>Note 2</sup>

Note 1: Monitoring Location to be agreed with the Agency as part of the proposal required by Condition 4.16.1.

Note 2: Monitoring Location to be agreed with the Agency as part of proposal required by Condition 4.16.4.

Table F.2.2 Landfill Gas Flare /Utilisation Plant Monitoring



Parameter	Monitoring Frequency <sup>Note 1</sup>	Analysis Method <sup>Note2</sup> /Technique <sup>Note3</sup>
<b>Inlet</b>		
<b>Methane (CH<sub>4</sub>) % v/v</b>	Weekly	Infrared analyser/flame ionisation detector
<b>Carbon dioxide (CO<sub>2</sub>)%v/v</b>	Weekly	Infrared analyser
<b>Oxygen (O<sub>2</sub>) %v/v</b>	Weekly	Electrochemical cell
<b>Outlet</b>		
<b>Volumetric Flow rate</b>	Six monthly	Pitot Tube Method
<b>SO<sub>2</sub></b>	Six monthly	Flue gas analyser
<b>NO<sub>x</sub></b>	Six monthly	Flue gas analyser
<b>CO</b>	Continuous	Flue gas analyser
<b>Particulates</b>	Annually	Isokinetic/Gravimetric
<b>TA Luft Class I, II, III organics</b>	Annually	Adsorption/Desorption / GC /GCMS <sup>Note 4</sup>
<b>Hydrogen chloride</b>	Annually	Impinger / Ion Chromatography
<b>Hydrogen fluoride</b>	Annually	Impinger / Ion Chromatography

Note 1: From the date of commissioning of the landfill gas flare and landfill gas utilisation plant.

Note 2: All monitoring equipment used should be intrinsically safe.

Note 3: Or other methods agreed in advance with the Agency.

Note 4: Test methods should be capable of detecting acetonitrile, dichloromethane, tetrachlorethylene and vinyl chloride as a minimum.

### F.3 Dust/ / Odour

Dust and odour monitoring locations shall be those as set out in Table F.3.1 and as shown on *Drawing No. Art16-14 Rev.A – Layout Plan showing Monitoring Point Locations (dated March 2000)*.

Table F.3.1 Dust and Odour Monitoring Locations

STATION
Dust: D1, D2, B1,B2, S2, B6, GW5,
Odour: At noise sensitive locations specified in Table F.4.1

Table F.3.2 Dust and Odour Monitoring Frequency and Technique

Parameter (mg/m <sup>2</sup> /day)	Monitoring Frequency	Analysis Method/Technique
<b>Dust</b>	Three times a year <sup>Note 2</sup>	Standard Method <sup>Note 1</sup>
<b>Odour</b>	Quarterly	See Note 3

Note 1: Standard method VDI2119 (Measurement of Dustfall, Determination of Dustfall using Bergerhoff Instrument (Standard Method) German Engineering Institute). The substance 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, or as otherwise specified in writing by the Agency. With the agreement of the Agency monitoring can cease once landfill restoration is complete.

Note 3: Odour measurements shall be by olfactometric measurement and analysis for mercaptans, organic acids and hydrogen sulphide to be agreed with the Agency.

### F.4 Noise

Noise monitoring locations shall be those as set out in Table F.4.1 shown on *Drawing No. Art 16-14 Rev.A – Layout Plan showing Monitoring Point Locations (dated March 2000)* and as required by the conditions of this licence.

Table F.4.1 Noise Monitoring Locations

STATION
B1,B2,B3,B4,B5,B6 B7
NSL2, NSL3, NSL4 ,NSL5
Nearest noise sensitive location (NSL) on the western facility boundary between NS3 and NS5. Nearest NSL in residential areas to the southeast and north east of the eastern facility boundary.

Table F.4.2 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."

### ***F.5 Surface Water, Groundwater and Leachate***

Surface water monitoring locations shall be those as set out in Table E.5.1 and the onsite locations shown on *Drawing No. Art16-14 Rev.A – Layout Plan showing Monitoring Point Locations (dated March 2000)*. The monitoring parameters and frequencies shall be as outlined in Table F.5.5.

Table F.5.1 Surface Water Monitoring Locations

STATION
S1-S9 inclusive
EPA Monitoring locations 0300, 0330, 0350,0400.
Additional surface water monitoring location required by Condition 9.3
Surface water Retention Pond <sup>Note 1</sup>

Note 1: Continuous monitoring of the proposed Surface Water Retention Pond shall include as a minimum conductivity, pH and TOC and shall be carried out at the inlet to the stormwater retention pond following its commissioning.

Groundwater monitoring locations shall be those as set out in Table F.5.2. The monitoring parameters and frequencies shall be as outlined in Table F.5.5.

Table F. 5.2 Groundwater Monitoring Locations

STATION <sup>Note 1</sup>
GW1, GW8/GW9 <sup>Note 2</sup> , GW5/10 <sup>Note 2</sup> , GW6/GW11 <sup>Note 2</sup> , GW7, GW12.
Additional groundwater monitoring locations required by Condition 9.7 at one location upgradient and two locations downgradient of the facility and agreed with the Agency.
Additional groundwater monitoring locations required by Condition 9.9
Groundwater monitoring locations associated with the leachate collection drain as required by Condition 9.8 <sup>Note 3</sup> and agreed with the Agency.

Note 1: Unless otherwise agreed with the Agency.

Note 2: One of these locations only to be used.

Note 3: Monitoring shall only include levels, ammoniacal - N, Electrical Conductivity, pH, TOC.

Leachate monitoring locations shall be those as set out in Table F.5.3. The monitoring parameters and frequencies shall be as outlined in Table F.5.4 and Table F.5.5.

Table F.5.3 Leachate Monitoring Locations

STATIONS <sup>Note 1</sup>	LM 1,LM2,LM3,LM4, LM5 ,LM6	Landfill Areas 1,3 and 4.	Leachate Storage Lagoon <sup>Note 2</sup>

Note 1 : Unless otherwise agreed with the Agency

Note 3: From date of commissioning of Leachate Storage Lagoon.

Table F.5.4 Leachate Monitoring Locations and Frequency

Monitoring Medium	Parameters	Frequency		Monitoring Points
		Operational	Aftercare	
Leachate	Leachate levels and freeboard in leachate storage lagoon	Daily	Weekly	In Landfill Areas 1,2,3 and 4, the former landfill areas within the facility boundary, LM1 and in the leachate storage lagoon.
	Leachate composition analysis as per Table F.5.5	As per Table F.5.5	At half the frequency specified in Table F.5.5 with a minimum of once per annum	The active cells of the landfill, the former landfill areas within the facility boundary, LM1 and the leachate storage lagoon(s).

Table F.5.5 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> <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	Monthly	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	Monthly	Quarterly
<b>pH</b>	Quarterly	Monthly	Quarterly
<b>Suspended Solids</b>	Quarterly	Not Applicable	Not Applicable
<b>Temperature</b>	Quarterly	Monthly	Quarterly
<b>Boron</b>	Not Applicable	Annually	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	Annually	Quarterly
<b>Lead</b>	Annually	Annually	Annually
<b>List I/II organic substances</b> <sup>Note 3</sup>	Note 6	Annually	Note 7
<b>Magnesium</b>	Annually	Annually	Annually
<b>Manganese</b>	Annually	Annually	Annually
<b>Mercury</b>	Annually	Annually	Annually
<b>Potassium</b>	Annually	Quarterly	Quarterly
<b>Sulphate</b>	Annually	Annually	Annually
<b>Sodium</b>	Annually	Quarterly	Quarterly
<b>Total Alkalinity</b>	Annually	Annually	Annually
<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	Annually	Annually
<b>Total Coliforms</b> <sup>Note 4</sup>	Not Applicable	Annually	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. The testing laboratory and the testing procedures shall be agreed with the Agency in advance.

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: 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 at two locations to be agreed with the Agency.
- Note 7: Once off for List I/II organic substances and thereafter as required by the Agency.

## F.6 Meteorological Monitoring

Table E.6.1 Meteorological Monitoring:

Monitoring Location: **Data to be obtained from Waterford Regional Airport or other appropriate meteorological monitoring station to be agreed with 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

## F.7 Monitoring of Emissions to Sewer

Monitoring Location: **At a location prior to the discharge of leachate from the facility to the Cork Road Sewer. Monitoring location to be agreed with the Agency.**

Table F.7.1 Sewer Monitoring - Parameters /Frequency

Parameter	Monitoring Frequency	Analysis Method/Technique <sup>Note 1</sup>
Flow	Continuous	Flow meter / recorder
Methane	Continuous	Headspace methane monitor <sup>Note 2</sup>
pH	Continuous	pH meter/recorder
Ammoniacal nitrogen	Monthly (24 hour composite)	Standard Method <sup>Note 3</sup>
Biochemical Oxygen Demand	Monthly (24 hour composite)	Standard Method <sup>Note 3</sup>
Sulphates	Monthly (24 hour composite)	Standard Method <sup>Note 3</sup>
Suspended Solids	Monthly (24 hour composite)	Gravimetric

**Note 1:** Or an equivalent method acceptable to the Agency.

**Note 2:** Exact details of monitor to be agreed with the Agency.

**Note 3:** "Standards Methods for the Examination of Water and Wastewater", (prepared and published jointly by A.P.H.A., A.W.W.A & W.E.F) 19th Ed. 1995, American Public Health Association, 1015 Fifteenth Street, N.W., Washington DC 20005, USA".

## F.8 Ecological Monitoring

Parameter	Monitoring Frequency
Ecological survey of habitats and associated plant and animal communities within and adjoining Kilbarry Bog proposed Natural Heritage Area.	Annually

# SCHEDULE G :Emission Limits

**G.1 Noise Emissions:** (Measured at the monitoring points indicated in Table F.4.1).

Day dB(A) L <sub>Aeq</sub> (30 minutes)	Night dB(A) L <sub>Aeq</sub> (30 minutes)
55	45

**G.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

**G.3 Emission Limit Values for Landfill Gas Flare & Utilisation Plant**

Emission Point reference no's to be agreed in advance with the Agency

Location: Landfill Gas Combustion Plant and flarestacks

Volume to be emitted from each stack: 3000m<sup>3</sup>/hr: Minimum discharge height for each stack: 6m

Parameter	Emission Limit Value <sup>Note 2</sup>
Nitrogen oxides as (NO <sub>2</sub> )	500 mg/m <sup>3</sup> (150mg/m <sup>3</sup> ) <sup>Note 3</sup>
CO	650 mg/m <sup>3</sup> (50mg/m <sup>3</sup> ) <sup>Note 3</sup>
Particulates	130 mg/m <sup>3</sup>
TA Luft Organics Class I <sup>Note 1</sup>	20 mg/m <sup>3</sup> (at mass flows > 0.1 kg/hr)
TA Luft Organics Class II <sup>Note 1</sup>	100 mg/m <sup>3</sup> (at mass flows > 2 kg/hr)
TA Luft Organics Class III <sup>Note 1</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)

Note 1: 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.

Note 2: Dry gas referenced to 5% oxygen by volume.

Note 3: Emission limit Values in brackets represent limit values for flare units.

**G.4 Dust Deposition Limits:** (Measured at any boundary monitoring location).

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.

**G.5 Quality Limits for Leachate Being Discharged to Sewer**

Emission Point Reference No. Emission Point to be agreed with the Agency.

Grid Reference: To be submitted to the Agency at least one month prior to the commissioning of the connection to sewer from the leachate storage lagoon and the leachate conditioning plant.

of this licence : Volume to be emitted: Subject to the agreement of the Sanitary Authority

Parameter	Emission Limit Value <sup>Note 1</sup>
	Daily Mean Concentration (mg/l)
Sulphate	500
pH	6-9
Dissolved Methane <sup>Note 2</sup>	0.14

Note 1: Quality limits apply to leachate discharged to sewer following commissioning of the leachate storage lagoon and the leachate conditioning plant subject to the agreement of the Agency and the sanitary authority

Note 2: Dissolved methane to be determined by calculation. Exact method to be agreed with the Agency.

**Signed on behalf of the said Agency**

on the 24<sup>th</sup> day of **May, 2001**

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A. Bolger

**Authorised Person**