

## SECTION G – DECOMMISSIONING AND AFTERCARE

Sub-Section	Title	Location of Information
G.1	Decommissioning/ Restoration Scheme	WLA Attachment G.1
G.2	Aftercare Management Plan	WLA Attachment G.2

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**G. DECOMMISSIONING AND AFTERCARE**

A description should be furnished of the existing or proposed measures for the closure, decommissioning, restoration, remediation and aftercare of the facility concerned after the cessation of the activity in question. Additional advice on completing this section is provided in the *Guidance Note*. Provide a description of the existing or proposed measures to minimise any detrimental impact on the environment after the activity, or part of the activity, ceases operation.

The following should be included;

**G.1 Decommissioning / RESTORATION SCHEME**

Attachment G.1 should include details of the decommissioning procedures. The appropriate documents and drawings should be provided.

Attachment included	yes <input checked="" type="checkbox"/>	no <input type="checkbox"/>	not applicable <input type="checkbox"/>
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SEE ATT. G.1.

\* ATT = Attachment

**G.2 Aftercare Management Plan**

Attachment G.2 should include details of the management of the site after cessation of waste management activities. Remediation requirements and long-term commitments to site management should be itemised.

Attachment included	yes <input checked="" type="checkbox"/>	no <input type="checkbox"/>	not applicable <input type="checkbox"/>
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SEE ATT. G.2.

\* ATT = Attachment.

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## **ATTACHMENT G.1 – DECOMMISSIONING/RESTORATION SCHEME**

The premise of the project is to restore the Whitestown Lower sand and gravel pit, which contains previously deposited wastes. The reinstated site will be subsequently used for agricultural purposes.

Below is a general description of elements of the Decommissioning/Restoration Scheme:

### **a) Decommissioning Scheme**

The proposed Resource Recovery Building (RRB), Centralised Composting Facility and site offices will be dismantled as the restoration work nears completion in Year 8. Materials resulting from the dismantling of the buildings will be recycled where possible. All other materials will be disposed of in authorised facilities.

Any remaining wastes will also be removed from the site, and recovered and/or disposed of in authorised facilities.

The proposed floors, walls and hardstand will then be excavated, removed, and recovered and/or disposed of at authorised facilities. Any in-situ C&D wastes underlying the formation level of the building and adjoining hardstand will also be excavated and recovered.

### **b) Restoration Scheme**

The plan is to restore the former sand and gravel pit to a landform that blends into the surrounding landscape, which in turn will be returned for agricultural use.

The highest level of the wastes will be restored surface will be 172 mOD after consolidation and settlement. Inert materials will be used for landscaping mounds and hills across the site where possible.

The uppermost layer on the landfill surface will be topsoil approximately 150 mm. The land surface will be restored generally from a south to north direction following behind the filling operations.

Below the topsoil there will be a layer of subsoil 850 mm thick. This layer will overlie environmental control layers (See EIS, Volume I, Section 2.7.8).

Runoff from the completed surface will be controlled as required by a system of open and French drains installed along the edge of the completed landform.

### **c) Landscaping Plan**

There is a proposed Master Landscape Plan that involves planting trees and shrubs along former hedgerows and along boundaries of the site (See EIS, Volume II, Appendix 13). Woodlots will be established on the restored surface. The surface will be seeded with grass to return the site back to its former condition prior to the commencement of sand and gravel extraction and waste activities.

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## **ATTACHMENT G.2 – AFTERCARE MANAGEMENT PLAN**

An aftercare period of 20 years is proposed to ensure any potential environmental pollution is controlled and that there are no significant risks to the environment. The details of the aftercare management plan will be developed and agreed with the Agency.

Below is a general description of elements of the aftercare management plan.

### **a) maintenance and management of environmental monitoring**

On-going monitoring of emissions and environmental media will be required during the aftercare period. Pollution control systems which require maintenance and protection include the following:

- landfill gas management system (Section 2 of EIS, Volume I)
- leachate management system (Section 2 of EIS, Volume I)
- landfill capping system including drainage system (Section 2 of EIS, Volume I)
- surface water collection, storage and discharge systems (Section 2 of EIS, Volume I)
- groundwater monitoring boreholes (See Figure J-1 of WLA)
- surface water monitoring points (See Figure J-1 of WLA)

### **b) maintenance and management of site engineering works**

Aftercare will include at least annual inspections of the surface of the site, drains, monitoring installations and hedgerows.

There will also be weekly surveillance of the leachate pumping systems, which will have to be maintained for a number of years after closure.

There will be weekly surveillance of gas management systems, which will have to be maintained for a number of years after closure.

### **c) maintenance and management of restored areas of site**

The proposed Master Landscape Plan for the site is described in the EIS, Volume II, Appendix 13, entitled 'Landscape & Visual Impact Assessment Report' (March 2004).

The site will need minimum maintenance after the establishment phase of this plan. The fences around the site and around the planted areas will be maintained against livestock. Trees will be weeded for the first two years until

they have become established. Those areas sown to a wildflower mix will need no maintenance until after the third year when grasses have become established, after which they should be lightly grazed by sheep.

The reinstated site will subsequently used for agricultural purposes.

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## SECTION H – ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Sub-Section	Title	Location of Information
H.1	Air	EIS, Volume I, Section 3.1
H.2	Climate	EIS, Volume I, Section 3.2
H.3	Cultural Heritage	EIS, Volume I, Section 3.3
H.4	Ecology	EIS, Volume I, Section 3.4
H.5	Human Beings / Human Health	EIS, Volume I, Section 3.5
H.6	Geology & Hydrogeology	EIS, Volume I, Section 3.7
H.7	Landscape	EIS, Volume I, Section 3.8
H.8	Noise & Vibration	EIS, Volume I, Section 3.9
H.9	Discharge to Surface Water	EIS, Volume I, Section 3.10
H.10	Discharge to Sewer	WLA Attachment H.10

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## H. ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Information on the potential environmental impacts of the development and the proposed mitigation measures are required. For new developments, predictions need to be made of the potential impacts. For existing facilities, data obtained from investigations and environmental monitoring should be used to assess the current level of emissions from the site and their impacts. This information must be provided under the headings below. Additional advice on completing this section is provided in the *Guidance Note*.

Attachments H.1 to H.10 should include information on the potential impacts of the development and on the mitigation measures proposed. Emissions should be characterised using the standard forms where provided.

Where development is proposed to be carried out, being development which is of a class for the time being specified under article 24 of the Environmental Impact Assessment Regulations, the environmental impacts and mitigation measures should be addressed in the EIS. In such cases, it will suffice for the purposes of this section to provide adequate cross-references to the relevant sections in the EIS.

### H.1 Air

Attachment included	yes <input checked="" type="checkbox"/>	no <input type="checkbox"/>	not applicable <input type="checkbox"/>
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SEE EIS, VOL I  
SECTION 3.1

### H.2 Climate

Attachment included	yes <input checked="" type="checkbox"/>	no <input type="checkbox"/>	not applicable <input type="checkbox"/>
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SEE EIS, VOL I  
SECTION 3.2

### H.3 Cultural Heritage

Attachment included	yes <input checked="" type="checkbox"/>	no <input type="checkbox"/>	not applicable <input type="checkbox"/>
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SEE EIS, VOL I  
SECTION 3.3

### H.4 Ecology

Attachment included	yes <input checked="" type="checkbox"/>	no <input type="checkbox"/>	not applicable <input type="checkbox"/>
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SEE EIS, VOL I  
SECTION 3.4.



H.5 Human Beings / HUMAN HEALTH

Attachment included	yes <input checked="" type="checkbox"/>	no <input type="checkbox"/>	not applicable <input type="checkbox"/>
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SEE EIS, VOL. I  
SECTION 3.5

GEOLOGY  
H.6 Hydrogeology

Attachment included	yes <input checked="" type="checkbox"/>	no <input type="checkbox"/>	not applicable <input type="checkbox"/>
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SEE EIS, VOL. I  
SECTION 3.7

H.7 Landscape

Attachment included	yes <input checked="" type="checkbox"/>	no <input type="checkbox"/>	not applicable <input type="checkbox"/>
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SEE EIS, VOL. I  
SECTION 3.8

H.8 Noise + VIBRATION

Attachment included	yes <input checked="" type="checkbox"/>	no <input type="checkbox"/>	not applicable <input type="checkbox"/>
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SEE EIS, VOL. I  
SECTION 3.9

H.9 Discharge to Surface Water

Attachment included	yes <input checked="" type="checkbox"/>	no <input type="checkbox"/>	not applicable <input type="checkbox"/>
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SEE EIS, VOL. I  
SECTION 3.10

H.10 Discharge to Sewer

Attachment included	yes <input checked="" type="checkbox"/>	no <input type="checkbox"/>	not applicable <input type="checkbox"/>
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SEE ATT. H.10

\* ATT = Attachment.

**Table H.10: DETAILS OF DISCHARGES TO SEWER**  
**(ONE TABLE PER EMISSION POINT)**

<b>Emission Point Ref. N°:</b>	<b>NOT APPLICABLE</b>		
<b>Name of emission point:</b>			
<b>Source of emission:</b>			
<b>Location of sewer connection:</b>			
<b>Grid Ref. (12 digit, 6E, 6N):</b>			
<b>Date of commencement:</b>			
<b>Name of sewer undertaker:</b>			
<b>Periods of emission (avg.):</b>			
<b>Volume to be emitted:</b>	Average/day:		m <sup>3</sup> /d
	Maximum rate/hour:		m <sup>3</sup> /h
	Maximum rate/day:		m <sup>3</sup> /d
<b>Name of receiving water:</b>			
<b>Flow rate in receiving water:</b>	Flow	.....m <sup>3</sup> .sec <sup>-1</sup> Dry Weather	
		.....m <sup>3</sup> .sec <sup>-1</sup> 95%ile flow	
<b>Available waste assimilative capacity:</b> kg/day			

## **ATTACHMENT H.10 – DISCHARGE TO SEWER**

There will be no discharge of trade effluent to sewer. However, it is proposed to transport waste-water (leachate) from the Whitestown facility to the local Wicklow County Council Waste-Water Treatment Plant in Baltinglass.

Waste-water in the form of leachate produced on-site will be collected/pumped into a holding tank for storage on-site. The leachate will then be hauled by tanker to the Baltinglass Plant.

An Effluent Discharge Licence &/or Agreement between the Applicant and the Body with responsibility for the Waste Water Treatment Plant (Wicklow County Council) will be sought.

A letter dated 23 February 2004 was forwarded to Wicklow County Council seeking a meeting with Mr. Sean O'Neil, Environmental Section. The objective of this meeting is to discuss the disposal of leachate from the proposed facility to the Baltinglass Plant. A copy of this correspondence is attached (Attachment-B.4). No such meeting has yet taken place.

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## SECTION I - MANAGEMENT PLANS

Sub-Section	Title	Location of Information
I.1	Environmental Management System/Plan	WLA Attachment I.1
I.2	Conditioning Plan	WLA Attachment I.2

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## I. MANAGEMENT PLANS

All applicants should include an Environmental Management Plan with their applications. Applications for existing sites should also include a Conditioning Plan. These plans should be consistent with all other details in the application. Additional advice on completing this section is provided in the *Guidance Note*.

### I.1 Environmental Management Plan <sup>SYSTEM/</sup>

Attachment I.1 should comprise the Environmental Management Plan. The Plan should comply with the requirements established in the Landfill Operational Practices manual published by the Agency.

Attachment included  yes  no  not applicable  SEE ATT. I.1.

\* ATT = Attachment.

### I.2 Conditioning Plan

Attachment I.2 should comprise the Conditioning Plan. All sites currently accepting wastes should submit a Conditioning Plan for the upgrading of existing operations and for continual improvement in environmental performance. Details of any adjacent waste activities (re: WMA Section 41(4)) including historical waste activities should also be provided. Submit a plan showing any relevant areas. The plan should clearly identify the boundary of the facility and indicate the north point. Note, if an existing facility, according to the Landfill Directive (99/31/EC) it may not continue unless, by 16/07/02 the operators of the landfill have prepared and presented to the competent authorities a conditioning plan for the facility.

For existing landfills the Conditioning Plan must comply with the requirements of Article 14 of the Landfill Directive (1999/31/EC).

Attachment included  yes  no  not applicable  SEE ATT. I.2.

\* ATT. = Attachment.

## ATTACHMENT I.1 – ENVIRONMENTAL MANAGEMENT SYSTEM/PLAN

According to the "Draft Guidance on Environmental Management Systems and Reporting to the Agency":

*"The underlying premise behind an EMS involves the implementation of a system which forms a basis for continuous, structured and quantifiable improvement in a facilities environmental performance."*

A detailed Environmental Management Plan (EMP) will be prepared, for the Agency's agreement, upon issuing of the waste licence.

The EMP will address all aspects of the operations carried out at the Integrated Waste Management Facility located in Whitestown Lower, Co. Wicklow and will contain the following elements:

- 1. Details of Operator**  
Company Management Structure
- 2. Types of Waste Accepted**
- 3. Quantities of Waste Accepted**
- 4. Engineering Details**  
Fencing, Gates and Other Security  
Site Access Road and Haul Roads  
Fuel Storage  
Site Infrastructure
- 5. Operational Matters**  
Description of Operator  
Control Measures for environmental Nuisances  
Control Measures for Emissions  
Hours of Operation  
Access Control  
Waste Acceptance procedures  
Unacceptable Waste Procedures  
Equipment  
Details of Site Personnel  
Monitoring Procedures  
Maintenance Procedures  
Trigger levels for Emissions  
Operational Safety Rules / Safety Statement  
Emergency Procedures  
Schedule of Environmental Objectives and Targets  
Document Control  
Corrective Action Procedures  
Awareness and Training

Communications Programme  
Traffic Management Plan

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## ATTACHMENT I.2 – CONDITIONING PLAN

There was an existing landfill in operation at the Whitestown Lower site when the Landfill Directive (1999/31/EC) came into force on 16 July 2001.

Articles 8 & 14 of the Landfill Directive (1999/31/EC) outline the information to be contained in a Conditioning Plan and are depicted in Table I.2.1. These elements have all been addressed elsewhere in the Waste Licence Application.

**Table I.2.1: Elements of a Conditioning Plan.**

Elements of Conditioning Plan	Location in WLA
<b>ARTICLE 8</b>	
(a) (ii) The Management of the Landfill Site will be in the hands of a natural person who is technically competent to manage the site.	Attachment L.2
Provision of professional and technical development and training of landfill operators and staff.	Attachment L.2
(a) (iii) The Landfill shall be operated in such a manner that the necessary measures are taken to prevent accidents and limit their consequences.	Attachment K.1: Section 1.0 Emergency Situations
(a) (iv) Provision of adequate provisions, by way of financial security or other equivalent, to ensure that the obligations (including after-care provisions) under the permit/licence are discharged.	Attachment L.3
<b>ARTICLE 14</b>	
(a) Within a period of one year after the date laid down in Article 18(1), the operator of a landfill shall prepare and present to the competent authorities, for their approval, a conditioning plan for the site including the particulars listed in Article 8 and any corrective measures which the operator considers will be needed in order to comply with the requirements of the Directive.	At a time to be agreed with the Agency



## SECTION J – ENVIRONMENTAL MONITORING

Sub-Section	Title	Location of Information
J.1	Dust	WLA Attachment J & EIS, Volume I, Section 4
J.2	Ecological	WLA Attachment J & EIS, Volume I, Section 4
J.3	Groundwater	WLA Attachment J & EIS, Volume I, Section 4
J.4	Air / Landfill Gas	WLA Attachment J & EIS, Volume I, Section 4
J.5	Sewer Discharge (Leachate)	WLA Attachment J & EIS, Volume I, Section 4
J.6	Meteorological Data	WLA Attachment J & EIS, Volume I, Section 4
J.7	Noise	WLA Attachment J & EIS, Volume I, Section 4
J.8	Odours	WLA Attachment J & EIS, Volume I, Section 4
J.9	Surface Water	WLA Attachment J & EIS, Volume I, Section 4

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**J. ENVIRONMENTAL MONITORING**

Programmes for environmental monitoring should be submitted as part of the application. These programmes should be provided as Attachments J.1 to J.9. Monitoring programmes for the Construction, Operation and Post-Closure Phases should be included. Monitoring programmes to be included are listed below. Additional advice on completing this section is provided in the *Guidance Note*. A drawing showing the locations of all monitoring points should be provided.

**J.1 Dust**

Monitoring Programme specified	yes <input checked="" type="checkbox"/>	no <input type="checkbox"/>	not applicable <input type="checkbox"/>
Attachment included	yes <input checked="" type="checkbox"/>	no <input type="checkbox"/>	not applicable <input type="checkbox"/>

SEE ATT. 8.

**J.2 Ecological**

Monitoring Programme specified	yes <input checked="" type="checkbox"/>	no <input type="checkbox"/>	not applicable <input type="checkbox"/>
Attachment included	yes <input checked="" type="checkbox"/>	no <input type="checkbox"/>	not applicable <input type="checkbox"/>

SEE ATT. 8

**J.3 Groundwater**

Monitoring Programme specified	yes <input checked="" type="checkbox"/>	no <input type="checkbox"/>	not applicable <input type="checkbox"/>
Attachment included	yes <input checked="" type="checkbox"/>	no <input type="checkbox"/>	not applicable <input type="checkbox"/>

SEE ATT. 8.

**J.4 Air**

Monitoring Programme specified	yes <input checked="" type="checkbox"/>	no <input type="checkbox"/>	not applicable <input type="checkbox"/>
Attachment included	yes <input checked="" type="checkbox"/>	no <input type="checkbox"/>	not applicable <input type="checkbox"/>

SEE ATT. 8

\*ATT= Attachment.

J.5 Sewer Discharge

Monitoring Programme specified	yes <input checked="" type="checkbox"/>	no <input type="checkbox"/>	not applicable <input type="checkbox"/>
Attachment included	yes <input checked="" type="checkbox"/>	no <input type="checkbox"/>	not applicable <input type="checkbox"/>

SEE ATT. 8

J.6 Meteorological Data

Monitoring Programme specified	yes <input checked="" type="checkbox"/>	no <input type="checkbox"/>	not applicable <input type="checkbox"/>
Attachment included	yes <input checked="" type="checkbox"/>	no <input type="checkbox"/>	not applicable <input type="checkbox"/>

SEE ATT. 8

J.7 Noise

Monitoring Programme specified	yes <input checked="" type="checkbox"/>	no <input type="checkbox"/>	not applicable <input type="checkbox"/>
Attachment included	yes <input checked="" type="checkbox"/>	no <input type="checkbox"/>	not applicable <input type="checkbox"/>

SEE ATT. 8

J.8 Odours

Monitoring Programme specified	yes <input checked="" type="checkbox"/>	no <input type="checkbox"/>	not applicable <input type="checkbox"/>
Attachment included	yes <input checked="" type="checkbox"/>	no <input type="checkbox"/>	not applicable <input type="checkbox"/>

SEE ATT. 8

J.9 Surface Water

Monitoring Programme specified	yes <input checked="" type="checkbox"/>	no <input type="checkbox"/>	not applicable <input type="checkbox"/>
Attachment included	yes <input checked="" type="checkbox"/>	no <input type="checkbox"/>	not applicable <input type="checkbox"/>

SEE ATT. 8

\* ATT = Attachment.

## ATTACHMENT J – ENVIRONMENTAL MONITORING

Details of monitoring for the proposed Whitestown facility are included in Section 4 of the EIS. This attachment summarises the monitoring programmes for the Construction, Operation and Post Closure Phases of the proposed development.

### Construction & Operation Monitoring Programmes

As the proposed development will include both construction and operation activities, which will run concurrently for the duration of the development, these programmes are discussed under the one heading.

The facility will operate for a ca. 10 year period. It is proposed to monitor at monitoring locations as listed in Table J.1. It is noted that the proposed monitoring locations are outside the proposed footprint for development. Table J.2 includes details of the proposed monitoring regime, which will be undertaken on an annual basis. Table J.3 includes the proposed analytical parameters for surface water, groundwater and leachate. Figure J-1 depicts the proposed monitoring locations.

### Post Closure Phase Monitoring Programme

It is expected that the facility will close following ca. 10 years of operation. Post closure monitoring will be undertaken on an annual basis, and will include landfill gas and leachate monitoring, landfill stability and settlement monitoring. Monitoring of the flaring units will also be undertaken during the landfill gas production period.

Some groundwater and surface water monitoring will also be undertaken, subject to agreement with the Agency.

**Table J.1: Proposed Monitoring Points**

<b>MEDIA</b>	<b>LOCATION</b>
<b>DUST</b>	D-1
	D-2
	D-3
	D-4
	D-5
<b>ODOUR</b>	OD-1
	OD-2
	OD-3
<b>NOISE</b>	N-1
	N-2
	N-3
	N-4
	N-5
	N-6
<b>LANDFILL GAS (OFFICES &amp; BUILDINGS)</b>	Office 1
	Office 2
	BUILDINGS
	BUILDINGS
<b>LANDFILL GAS (BOREHOLES)</b>	G-1
	G-2
	G-3
	G-4
	G-5
	G-6
	G-7
	G-8
<b>LANDFILL GAS (FLARE)</b>	Flare
<b>GROUNDWATER</b>	MW-3
	MW-4
	MW-6
	MW-7
	MW-8
	MW-9
	MW-10
MW04-4	
<b>SURFACE WATER</b>	SW-2
	SW-3
	SW-5
<b>SURFACE WATER DISCHARGE MONITORING POINT</b>	S-1
	S-2
	S-3

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**Table J.2: Proposed Monitoring Regime at Whitestown Lower Facility**

Media	Parameter	Frequency	ELV*	Comments
Air	Dust	Three times annually	350 mg/m <sup>3</sup> /day	It is proposed to monitor dust at the locations shown in Figure J-1. In addition the site manager will observe and record dust generation daily. Complaints will be recorded and appropriate actions taken.
	Odour	Annually	N/A	Parameters tested will include VOCs, mercaptans, hydrogen sulphide.
	Noise	Annually	Day: 55 dB(A) Night: 45 dB(A)	It is proposed to monitor noise at the 6 locations shown in Figure J-1.
Landfill Gas Monitoring Boreholes	CH <sub>4</sub> , CO <sub>2</sub> , O <sub>2</sub> , Atmospheric Pressure, Temperature	Monthly	CH <sub>4</sub> - 1% v/v (20% LEL) CO <sub>2</sub> - 1.5% v/v	The concentration of methane, carbon dioxide, and oxygen will be measured in landfill perimeter gas monitoring boreholes and in shallow gas monitoring boreholes near the offices and canteen. Readings will also be taken in the site offices and RRB.
Landfill Gas Site Offices & Buildings		Weekly		
Landfill Gas Flare Inlet	CH <sub>4</sub> , CO <sub>2</sub> , O <sub>2</sub> , S, Cl, FI	Continuous Annually	To be agreed with Agency	Appropriate sampling methods will be adopted
Landfill Gas Flare Outlet	CO, NO <sub>x</sub> , SO <sub>2</sub> , TOC, HCL, HFL	Continuous Annually	To be agreed with Agency	Appropriate sampling methods will be adopted
Groundwater	Levels	Monthly	Trigger levels will be established	A minimum of one upgradient and three downgradient boreholes will be sampled quarterly.
	Quality	Quarterly		Standard and extensive list of parameters for groundwater will be used (see Table J.3)
Surface Water	Visual Inspection	Weekly	Trigger levels will be established.	Discharge from site drains will be inspected weekly and sampled quarterly (S1 to S3)
	Quality	Quarterly		The three sampling locations along the Carrigower River, as shown on Figure J-1 will be used for surface water monitoring
	Ecological Assessment	Annually	N/A	Standard and extensive list of parameters for Surface Water will be used (see Table J.3) This will be carried out by a third party.

**Table J.2: Proposed Monitoring Regime at Whitestown Lower Facility  
(continued)**

<b>Leachate</b>	Levels	Daily	N/A	Pressure Transducers will be used to record leachate levels.
	Quality	Quarterly	For leachate tankered to a Wastewater Treatment Plant:  pH 6-8 COD 25,000 ppm	Leachate composition will be monitored at the leachate holding tank.  Standard and extensive list of parameters (see Table J.3)
<b>Meteorological</b>	Precipitation Volume, Temperature, Wind Force & Direction, Evaporation, Atmospheric Pressure, Humidity	Daily	Not applicable	A meteorological station will be installed. Evaporation and evapotranspiration data will be obtained from a nearby Met station.

\* ELV – Emission Limit Value.

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**Table J.3: Monitoring Parameters for Surface Water, Groundwater, and Leachate (Based on Waste Licence No. 165-1)**

Parameter	Surface Water* Monitoring Frequency	Groundwater Monitoring Frequency	Leachate Monitoring Frequency
Odour/Visual Inspection	Weekly	Quarterly	Biannually
Groundwater Level	Not Applicable	Monthly	Not Applicable
Leachate Level	Not Applicable	Not Applicable	Continuous
Flow	Weekly	Not Applicable	Not Applicable
Ammoniacal Nitrogen	Quarterly	Quarterly	Biannually
BOD	Quarterly	Not Applicable	Biannually
COD	Quarterly	Not Applicable	Biannually
Chloride	Quarterly	Quarterly	Biannually
Flouride	Not Applicable	Quarterly	Biannually
Sulphate	Quarterly	Quarterly	Biannually
Phosphorus	Quarterly	Quarterly	Biannually
Total orthophosphate	Quarterly	Quarterly	Biannually
Dissolved Oxygen	Quarterly	Quarterly	Not Applicable
Electrical Conductivity	Quarterly	Quarterly	Biannually
pH	Quarterly	Quarterly	Biannually
Total Suspended Solids	Quarterly	Not Applicable	Biannually
Temperature	Quarterly	Quarterly	Biannually
Arsenic	Not Applicable	Quarterly	Biannually
Barium	Not Applicable	Quarterly	Biannually
Boron	Not Applicable	Quarterly	Biannually
Cadmium	Quarterly	Quarterly	Biannually
Calcium	Quarterly	Quarterly	Biannually
Chromium (Total)	Quarterly	Quarterly	Biannually
Copper	Quarterly	Quarterly	Biannually
Cyanide (Total)	Not Applicable	Quarterly	Biannually
Iron	Quarterly	Quarterly	Biannually
Lead	Quarterly	Quarterly	Biannually
Magnesium	Quarterly	Quarterly	Biannually
Manganese	Quarterly	Quarterly	Biannually
Mercury	Quarterly	Quarterly	Biannually
Nickel	Quarterly	Quarterly	Biannually
Potassium	Quarterly	Quarterly	Biannually
Selenium	Not Applicable	Quarterly	Not Applicable
Silver	Not Applicable	Quarterly	Not Applicable
Sodium	Quarterly	Quarterly	Biannually
Zinc	Quarterly	Quarterly	Biannually
List I/II organic substances	Quarterly	Quarterly	Biannually
Total Alkalinity	Quarterly	Quarterly	Biannually
Total Oxidised Nitrogen	Quarterly	Quarterly	Biannually



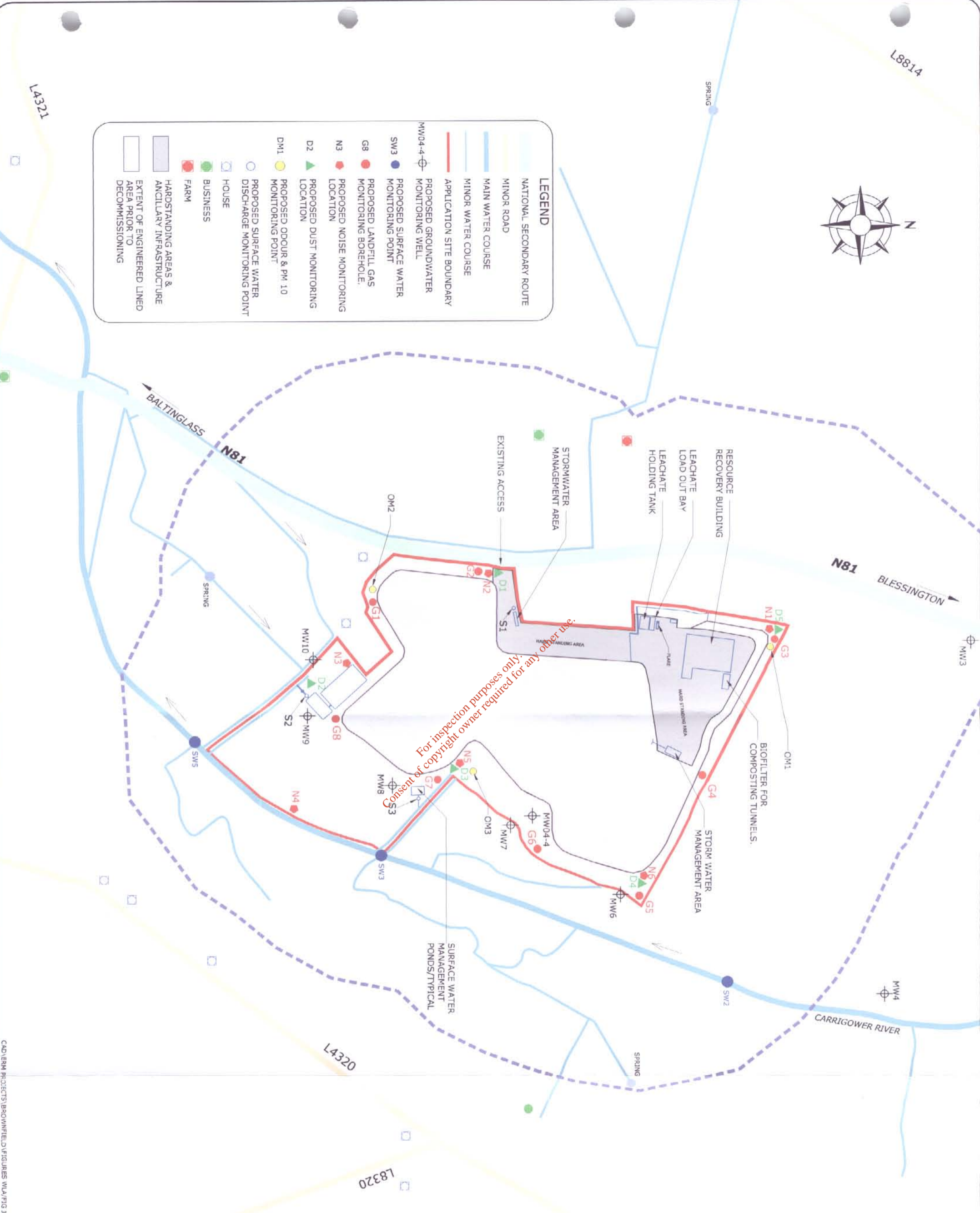
**Table J.3: Monitoring Parameters for Surface Water, Groundwater, and Leachate (Based on Waste Licence No. 165-1) (continued)**

Total Oxidised Nitrogen	Quarterly	Quarterly	Biannually
Total Organic Carbon	Quarterly	Quarterly	Biannually
Residue on evaporation	Not Applicable	Quarterly	Biannually
Faecal Coliforms	Quarterly	Quarterly	Not Applicable
Total Coliforms	Quarterly	Quarterly	Not Applicable
Phenol	Not Applicable	Quarterly	Not Applicable

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LEGEND	
	NATIONAL SECONDARY ROUTE
	MINOR ROAD
	MAIN WATER COURSE
	MINOR WATER COURSE
	APPLICATION SITE BOUNDARY
	PROPOSED GROUNDWATER MONITORING WELL
	PROPOSED SURFACE WATER MONITORING POINT
	PROPOSED LANDFILL GAS MONITORING BOREHOLE
	PROPOSED NOISE MONITORING LOCATION
	PROPOSED DUST MONITORING LOCATION
	PROPOSED ODOUR & PM 10 MONITORING POINT
	PROPOSED SURFACE WATER DISCHARGE MONITORING POINT
	HOUSE
	BUSINESS
	FARM
	HARDSTANDING AREAS & ANCILLARY INFRASTRUCTURE
	EXTENT OF ENGINEERED LINED AREA PRIOR TO DECOMMISSIONING



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<b>ORDNANCE SURVEY IRELAND</b> LICENCE NUMBER <b>AR0056004</b>	
Issue Date:	
No.:	
Date:	
Description:	
A MAR '04 WASTE LICENCE APPLICATION	
Surveyed by: Environment & Resource Management Ltd.	
Client: <b>BROWNFIELD RESTORATION IRELAND LTD.</b> WHITESTOWN LOWER, CO. WICKLOW	
Project: <b>PROPOSED INTEGRATED WASTE MANAGEMENT FACILITY</b>	
Title of Figure: <b>PROPOSED ENVIRONMENTAL MONITORING LOCATIONS</b>	
Scale:	1:4,000 A3
Fig. No.:	FIG. 3-1
Drawn:	AS
Job No.:	03.115
Approved:	GP
Rev.:	<b>A</b>
Prepared by: Environment & Resource Management Ltd. NO. 3 TARA COURT, DUBLIN 20, IRELAND KILDARE TELEPHONE: 045 274411 FAX: 045 874589	

CAD:IRM PROJECTS\BROWNFIELD\FIGURES\WASTE\FIG 3-1