



ARTICLE 14 RESPONSE

APPENDIX 2

Revised Section H of Waste Licence Application

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SECTION H – MATERIALS AND HANDLING

Sub-Section	Title	Location of Information
H.1	Waste Types and Quantities – Existing & Proposed	WLA p.31-33 and Attachment H.1 EIS Section 7.2 & 7.3
H.2	Waste Acceptance Procedures	WLA p.33 and Attachment H.2 EIS Section 7.5
H.3	Waste Handling	WLA p.33 and Attachment H.3
H.4	Waste Arisings	WLA p.33-34 and Attachment H.4

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ATTACHMENT H.1
WASTE TYPES AND QUANTITIES EXISTING & PROPOSED

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H.1 WASTE TYPES AND QUANTITIES – EXISTING & PROPOSED

The types of materials to be used to restore the Walshestown Pit will be confined to inert dry waste arising mainly from civil engineering and building construction and demolition projects. The waste types acceptable for restoration purposes under any future Waste Licence will include inert materials such as stone & soils, glass, concrete, brick, tiles, ceramics, etc. Putrescible household and commercial wastes (or 'black bag' waste) will *not* be acceptable at this Facility.

Inert waste is defined by the Landfill Directive (1999/31/EC) as: "*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*".

The types of waste proposed for acceptance are shown in Table H.1(i).

In summary, all wastes used for the restoration of the Site will be considered inert and will meet the proposed leaching and total pollutant limit values indicated in Section 7.6 of the EIS Volume 1. All wastes arriving at the Facility will be:

- From pre-authorized sites;
- Biologically stable, non-reactive and therefore, unlikely to produce emissions to generate landfill gas; and
- Not likely to cause instability in the restored areas after deposition at the Site.

The materials to be accepted at the Walshestown Facility will be sourced from wastes generated by construction, demolition and excavation projects in the Greater Dublin Area in the first instance, and in Leinster in general. All incoming material will undergo rigorous acceptance procedures to ensure that suitable materials are used for restoration purposes.

Non-inert materials that may be contained in loads delivered to the Site (such as wood, plastics, metals etc that are not removed at source) will be separated out and removed at the Inert Waste Processing Area, to be recovered/recycled or disposed by authorised and approved waste management contractors at appropriately authorised waste management facilities.

It is proposed to import ca. 2.4 million cubic metres of inert materials from greenfield and brownfield sites primarily from the Greater Dublin Area, as defined in the Rural Planning Guidelines 2004 to 2016. Using a conversion factor of 1.8 tonnes/m³, this equates to ca. 4.3 million tonnes of inert materials. This equates approximately to 330,000 tonnes per year on

average over a 13 year development. The actual amount imported in any year will depend on market forces.

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TABLE H.1(i): WASTE - Other Waste Recovery/Disposal

Waste material	EWC Code	Main source ¹	Quantity		On-site Recovery/Disposal ¹ (Method & Location)	Off-site Recovery, reuse or recycling (Method, Location & Undertaker)	Off-site Disposal (Method, Location & Undertaker)
			Tonnes / month	m ³ / month			
Waste gravel and crushed rocks other than those mentioned in 01 04 07 (uncontaminated)	01 04 08	Development Sites			Processing at Facility and used for restoration	Processed material used in other construction projects off-Site.	
Waste sand and clays (uncontaminated)	01 04 09	"			"	"	"
Tailings and other wastes from washing and cleaning of minerals other than those mentioned in 01 04 07 and 01 04 11	01 04 12	"			"	"	"
Concrete	17 01 01	"			"	"	"
Bricks	17 01 02	"			"	"	"
Tiles and Ceramics	17 01 03	"			"	"	"
Mixture of concrete, bricks, tiles and ceramics	17 01 07	"			"	"	"
Soil and stones other than	17 05 04	"			"	"	"

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Waste material	EWC Code	Main source ¹	Quantity		On-site Recovery/Disposal ¹ (Method & Location)	Off-site Recovery, reuse or recycling (Method, Location & Undertaker)	Off-site Disposal (Method, Location & Undertaker)
			Tonnes / month	m ³ / month			
those mentioned in 17 05 03					"	"	"
Dredging spoil other than those mentioned in 17 05 05	17 05 06	"			"	"	"
Mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03	17 09 04	"			"	"	"
Soil and stones	20 02 02	"			"	"	"

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¹ A reference should be made to the main activity / process for each waste.

ATTACHMENT H.2
WASTE ACCEPTANCE PROCEDURES

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H.2 WASTE ACCEPTANCE

H.2.1 Overview

Incoming material to the Walshestown Facility will be limited to the wastes listed in Table H.1(i). Prior to acceptance of waste from a specific source, Basic Characterisation of the waste will be carried out in accordance with the Annex to Council Decision 2003/33/EC (Council Decision 2003). Inspection, documentation and control procedures will be implemented to ensure that only high-quality material will be accepted and processed. The proposed leaching limit values and total pollutant content limit values of the materials to be used to restore the site are presented in Section 7.7, Tables 7.5 and 7.6 of Volume 1 of the EIS. Tables 7.5 and 7.7 are reproduced herein as Tables H.2.1 and H.2.2. Groundwater risk assessment modelling using site specific hydrogeological data supports the use of the limit values indicated in Tables H.2.1 and H.2.2 for the Walshestown inert waste landfill facility. Attachment I.4 contains a report on the risk assessment modelling.

Table H.2.1 Proposed Leaching Limit Values to be met at Walshestown

Component	L/S = 2 l/kg	L/S = 10 l/kg	C ₀ (percolation test)
	mg/kg dry substance	mg/kg dry substance	mg/l
As	0.2	1	0.12
Ba	14	40	8
Cd	0.06	0.08	0.04
Cr total	0.4	1	0.2
Cu	1.8	4	1.2
Hg	0.006	0.02	0.004
Mo	0.6	1	0.4
Ni	0.4	0.8	0.24
Pb	0.4	1	0.3
Sb	0.04	0.12	0.2
Se	0.12	0.2	0.08
Zn	4	8	2.4
Chloride	1,100	1,600	920
Fluoride	8	20	5
Sulphate	1,120	2,000	3,000
Phenol index	1	2	0.6
DOC	480	1,000	320
TDS	5,000	8,000	-

Table H.2.2 Proposed Limit Values for Total Content of Organic Parameters to be met at Walshestown

Parameter	Value mg/kg
TOC (total organic carbon)	30,000
BTEX (benzene, toluene, ethylbenzene and xylenes)	6
PCBs (polychlorinated biphenyls, 7 congeners)	1
Mineral oil (C10 to C40)	500
PAHs (polycyclic aromatic hydrocarbons) (*)	100

* For determining the total of PAHs, seventeen PAH compounds will be added to a sum, as was provided for in the Murphy Environmental Hollywood Waste Licence W0129-02.

Waste shipments will arrive by truck at the Facility Reception. Scheduled and documented shipments will be directed to the weighbridge where the load is weighed and visually checked by CCTV cameras. The Walshestown Facility will have established procedures for verification of waste. Subject to the waste being suitable, the Facility operator will sign a declaration and will give a copy to the waste contractor.

Any waste streams resulting from recovery or processing of material that do not meet the specification of the required restoration materials will be removed and disposed or recovered off-Site.

Records will be maintained on all consignments of waste, providing information on:

- The tonnage and European Waste Catalogue (EWC) Code for the waste materials imported and/or sent off-Site for disposal/recovery;
- The names of the agent and carrier of the waste, and their waste collection permit details, if required (to include issuing authority and vehicle registration number); and
- Details of the ultimate disposal/recovery destination facility for any rejected waste and its appropriateness to accept the consigned waste stream, to include its permit/licence details and issuing authority, if required.

H.2.2 Waste Characterisation

The criteria and procedures for the characterisation and acceptance of waste at the proposed Facility will operate in conformance with Council Decision 2003/33/EC (Council Decision 2003), procedures which include a series of tests based on the following hierarchy:

Level I - Basic Characterisation

Basic Characterisation is the first step in the acceptance procedure and constitutes a full characterisation of the waste by gathering all necessary information for a safe disposal of waste in the long term. Basic information on the waste such as type and origin, composition, consistency and leachability will be collected.

The fundamental requirements for Basic Characterisation are listed in Section 1.1.2 of the Annex to Council Decision 2003/33/EC (Council Decision 2003).

Basic Characterisation will be carried out on the wastes prior to acceptance at the Walshestown Facility. In general, the waste contractor will be required to carry out Basic Characterisation and supply it to the Facility operator. Analysis testing will constitute laboratory testing for a range of parameters, to be specified in the Waste Licence, and will be in line with tables 2.1.2.1 and 2.1.2.2 of the Annex to the Council Decision 2003/33/EC). Some wastes will not require testing, as indicated in Table 7.1 in Volume 1 of the EIS, which is reproduced as Table H.2.3 herein, and in accordance with Section 2.1.1 of the Annex to Council Decision 2003/33/EC.

A target of at least one test per 2,000 tonnes of waste is proposed. Even if a consignment of waste from a source is less than 2,000 tonnes it will be subjected to Basic Characterisation testing.

Level II – Compliance Testing

Level II Compliance Testing comprises periodical testing by simpler standard analysis and behaviour-testing methods to determine whether a waste complies with specific reference criteria. The tests focus on key variables and behaviours identified from Level I (Basic Characterisation) testing. Thus Level II (Compliance Testing) acts as an independent verification of Level I laboratory results.

Compliance testing will be conducted randomly for at least 1 in every 5,000 tonnes received over the weighbridge, even if a full Basic Characterisation test has already been carried out on that load. In addition one sample from each waste type/source will be tested. In the case that a Basic Characterisation has not already been carried out on the load in question, a complete testing schedule (at a frequency of 1 test per 2,000 tonnes) will be undertaken.

The compliance check will also include the following:

- Review of the Level I Basic Characterisation data;
- If appropriate, a review/audit of source site to ascertain the nature of waste being generated at that site and to ensure that it is unlikely to contain constituents or materials of concern; and
- Representative sampling and chemical analysis of waste to confirm key constituents of the waste stream indicated by the basic characterisation data.

If samples are taken for chemical analysis, they will be despatched to an INAB and UKAS-accredited laboratory for analysis. Level II checks will be documented and records retained on-Facility at the proposed Site offices.

Level III - On Site Verification of Wastes

Level III constitutes rapid check methods to confirm that a waste is the same as that which has been subjected to Basic and Compliance testing and that which is described in any accompanying documents. This Level III will consist of a visual and odour inspection of a load of waste, first at the weighbridge and again at the tipping face. If any material is visible that is not permitted for disposal at the Facility, or does not match the description, the consignment will be deemed unauthorised and the Procedure for Rejected Waste Loads will be followed (see Section 7.8 of the EIS Volume 1).

At the weighbridge a member of the Facility staff will conduct a visual inspection of every load of incoming waste, to the extent practical, for non-conforming waste and to confirm that the consignment matches the description of the waste provided. Where there is suspicion of non-conforming waste the weighbridge transaction will not be permitted to proceed and the load will be rejected. Visual and odour inspection will be recorded as satisfactory or otherwise at the weighbridge.

The load will again be inspected at the tipping face and any unacceptable waste will be removed and quarantined until it is shipped off-Site to an appropriate waste recovery or disposal facility. Also, if any materials such as steel or timber can be recovered/recycled it will be removed from the tipped load and contained in the quarantine area until such time that there is sufficient quantity of like material to be despatched to an appropriate and permitted waste recovery facility.

A further inspection will be made by the plant operators at the disposal face when the vehicle has unloaded.

Table H.2.3 Materials to be Accepted at the Facility

EWC code (#)	Description	Restrictions
01 04	Wastes from physical and chemical processing of non-metalliferous minerals	
01 04 08	Waste gravel and crushed rocks (uncontaminated)	Testing required
01 04 09	Waste sand and clays (uncontaminated)	Testing required
01 04 12	Tailings and other wastes from washing and cleaning of non-metalliferous minerals	Testing required
17 01	Concrete, bricks, tiles and ceramics	
17 01 01	Concrete	Selected C & D waste only (*). No testing required
17 01 02	Bricks	Selected C & D waste only (*). No testing required
17 01 03	Tiles and ceramics	Selected C & D waste only (*). No testing required
17 01 07	Mixtures of concrete, bricks, tiles and ceramics	Selected C & D waste only (*). No testing required
17 05	Soil (including excavated soil from contaminated sites), stones and dredging spoil	
17 05 04	Soil and stones	Testing required
17 05 06	Dredging spoil	Testing required
17 09	Other Construction & Demolition Waste	
17 09 04	Mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03	Testing required
20 02	Garden and park wastes	
20 02 02	Soil and stones	Including topsoil and peat. Testing required

Notes:

(#) See EPA (2002) for full list of European Waste Catalogue (EWC) Codes

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

— No C & D waste from constructions, polluted with inorganic or organic dangerous substances, e.g. because of production processes in the construction, soil pollution, storage and usage of pesticides or other dangerous substances, etc., unless it is made clear that the demolished construction was not significantly polluted (i.e. <100mg/kg for PAH, which is a key indicator parameter.)

— No C & D waste from constructions, treated, covered or painted with materials, containing dangerous substances in significant amounts.

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ATTACHMENT H.3

WASTE HANDLING

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H.3 WASTE HANDLING

H.3.1 Waste Reception

All wastes will be accepted via the Site entrance. Upon arrival, all delivery vehicles shall be directed to the Facility check-in office and weighbridge where the arrival of each load will be recorded. All documentation accompanying the waste and the waste carrier will be inspected, and the nature of the waste will be confirmed by the Weighbridge Operator/Check in Person. A waste transfer note containing the details of the load delivery time, date, tonnage, and carrier's details will be produced at the weighbridge.

An inspection of the haulier's consignment documents will be made by the Weighbridge Operator/Check in Person. If paper work is incomplete the Weighbridge Operator/Check in Person will retain the load until further information is provided. When the Weighbridge Operator/Check in Person is satisfied with the paper work and the origin of the wastes he/she will inform the driver of relevant Site Safety information and direct the driver to the tipping area.

H.3.2 Waste Handling Procedures

Restoration of the Site will be carried out in agreement with the EPA and in line with best practice. Restoration will be completed on a phased basis and will involve the filling of cells defined within each vertical stage in maximum 2 to 3-metre lifts with fill slopes no steeper than 1V:2H, to ensure the maximum slope stability. Phasing allows progressive filling and restoration to occur simultaneously. As shown on Figures 8.8 and 8.9 filling will progress in vertical stages and restoration will proceed from west to east. Each lift will be divided into cells in which surface water drainage will be managed. The size of cells will vary within any given vertical stage, but would typically be 1 to 2 ha in area.

Each landfill cell will be notionally subclassified into grids, identified by a unique reference number, in order to identify the specific deposition area of each waste load and build up a 3-D model of each landfill cell. The grid location of each incoming load will be recorded.

Waste will be deposited, inspected and spread in 2 to 3-metre lifts in each cell, with a bulldozer and compactor on Site ensuring waste is positioned and spread as required to ensure maximum cell stability.

H.3.3 Summary

A summary of the proposed waste placement procedure is provided below:

1. Cell construction will involve:
 - Preparation of the cell;
 - Laying of cell liner;
 - Testing of the cell liner; and
 - Validation that the cell meets EPA requirements.
2. The cell will be divided into sub-grids and an appropriate referencing system assigned (e.g. C1/D1 refers to cell 1, grid reference D, level 1);
3. Incoming loads will be directed to cell sub-grid;
4. Waste will be deposited by the delivery contractor;
5. Deposited waste will be compacted;
6. Cell will be filled to a height of 2 to 3 m and then the next lift in the cell will be constructed until the entire cell has been filled; and
7. Upon completion of the final lift, capping will be applied and the cell restored.

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ATTACHMENT H.4
WASTE ARISING

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H.4 WASTE ARISING

Other than construction waste that will be generated during the construction of the Facility infrastructure, no waste shall be produced on-Site other than canteen and office wastes. Waste produced from the canteen and office buildings will be source segregated and placed in wheelie bins for collection. An agreement will be made with a waste contractor holding a valid and appropriate waste collection permit to make collection on a regular basis.

The quantities of commercial waste generated at the Facility during operations is expected to be insignificant (less than 400kg/worker per annum).

Inert waste received at the Facility will be stored on or near the processing area. This will be segregated into different grades of materials to make the processing more efficient. Any unwanted materials such as wood plastic glass etc., found in stockpiles will be removed and stored in the quarantine shed. These skips will be collected when almost full by an appropriately licensed contractor and transported off-Site to a licensed facility for re-use or recycling if possible. Some waste may not be fit for further use and may require disposal as a result. An emphasis will be placed on recovering and recycling as much material as possible, therefore diverting waste away from landfill.

Waste engine oil and lubrication oil will be generated during the servicing of plant and equipment at the Facility. All waste oils will be stored in the quarantine shed until collection by the contractors carrying out the servicing or by an appropriately licensed contractor for disposal off-Site.

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