

# Notice of variation and consolidation with introductory note

**The Environmental Permitting (England & Wales) Regulations 2016**

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Biffa Waste Services Limited

Hartlebury Landfill Site  
Whitlenge Lane  
Hartlebury  
Kidderminster  
Worcestershire  
DY10 4HB

**Variation application number**

EPR/ZP3232SF/V007

**Permit number**

EPR/ZP3232SF

# Hartlebury Landfill Site

## Permit number EPR/ZP3232SF

### Introductory note

#### **This introductory note does not form a part of the notice**

Under the Environmental Permitting (England & Wales) Regulations 2016 (schedule 5, part 1, paragraph 19) a variation may comprise a consolidated permit reflecting the variations and a notice specifying the variations included in that consolidated permit.

Schedule 1 of the notice specifies the conditions that have been varied and schedule 2 comprises a consolidated permit which reflects the variations being made. Only the variations specified in schedule 1 are subject to a right of appeal.

Biffa Waste Services Limited is the permit holder for Hartlebury landfill site. Hartlebury landfill site is located at the National Grid Reference NGR SO 8550 7105. It lies approximately 300 m to the north-east of Hartlebury Trading Estate and 1 km east of Hartlebury village. The site is skirted by a completed, unlined landfill site and by Walton Lane to the south and Whitlenge Lane to the west. Pear Trees is located approximately 25m from the site's north-west boundary and Wienerberger's Hartlebury brickworks is located to the south west of the site. The site lies approximately 4.5 km east of the River Severn. The surface water runoff from the site is captured by a drain which runs through the North-West edge of the site and carries water northwards to the stream by Whitlenge Farm which connects to a tributary of the River Severn.

The site is located in a mixed urban and rural setting, covering an area of 18 Hectares with an elevation that ranges from between 55 m AOD and 65 m AOD. The ground slopes to the North-West at gradients of up to approximately 1:15.

The listed activities that site is authorised to undertake are landfilling of non-hazardous and stable, non-reactive hazardous waste (separate asbestos cell) including landfill restoration. These activities are regulated under Section 5.2 Part A(1)(a) of the Environmental Permitting (England & Wales) Regulations 2016.

The site is also authorised to undertake the following Directly Associated activities:

- Utilisation of landfill gas for energy recovery in an appliance with a rated thermal input <50MW;
- Landfill gas flaring, comprising flaring of landfill gas for disposal in an appliance;
- Leachate management, comprising extraction and storage prior to removal off-site, and/or recirculation;
- Fuel storage, comprising storage of fuel for operation of plant and equipment; and
- Water discharges to controlled waters, comprising discharges of site drainage from the landfill, and discharge from waters pumped from groundwater drainage systems at the landfill.

This variation authorises

- a reduction in the frequency of leachate level monitoring from weekly to monthly.
- the removal of the wording that restricts staged recovery of groundwater levels to post closure phase in table S3.1 of the permit.
- the removal of naphthalene from groundwater monitoring requirements in the down-gradient boreholes.
- the removal of mecoprop from groundwater monitoring requirements in the underdrainage emission points 4000 and 4001.
- the removal of gas monitoring borehole 1160 from the list of boreholes that require compliance monitoring in Table S3.5.

- the addition of nickel to groundwater monitoring requirements for the underdrainage emission points 4000 and 4001.
- the addition of an improvement condition that allows future review of the down-gradient groundwater boreholes following recovery of groundwater levels.
- an amendment to the expenditure plan and financial provision for the site. The revised expenditure plan takes account of the fact that site operations did not commence as early as originally planned due to a period of mothballing, and that the site is also taking much longer to fill with current input rates. Furthermore, the breakdown of costs has been revised based on current costs and predicted requirements for landfill gas and leachate management, as well as taking account of changes to monitoring schedules.

The schedules specify the changes made to the permit.

The status log of a permit sets out the permitting history, including any changes to the permit reference number.

| <b>Status log of the permit</b>   |                       |   |
|---|-----------------------|---|
| <b>Description</b>  | <b>Date</b>           | <b>Comments</b>   |
| Application received  | 17/08/05              |   |
| Permit Application ZP3232SF<br>(EPR reference<br>EPR/ZP3232SF/A001)   | 13/07/06              | Permit ZP3232SF determined.   |
| Application EPR/ZP3232SF/V002   | 01/07/10              | Received.   |
| Variation determined<br>EPR/ZP3232SF/V002   | 15/07/10              | Issued.   |
| Application EPR/ZP3232SF/V003   | 23/09/11              | Received.   |
| Variation determined<br>EPR/ZP3232SF/V003   | 21/11/11              | Varied permit issued to amend monitoring requirements at the site.  |
| Request for further information   | 07/12/11              | Plan PSE22-11-09A showing groundwater riser locations.  |
| Variation determined<br>EPR/ZP3232SF/V004   | 16/01/12              | Varied permit issued to resolve errors/omissions in previous variation EPR/ZP3232SF/V003.   |
| Agency variation determined<br>EPR/ZP3232SF/V005  | 30/05/13              | Agency variation to implement the changes introduced by IED.  |
| Environment Agency Landfill<br>Sector Review 2015<br>Permit reviewed<br>Variation determined EPR/<br>ZP3232SF/V006<br>Permit EPR/ZP3232SF | 26/03/15              | Varied and consolidated permit issued in modern condition format.   |
| Application EPR/ZP3232SF/V007<br>(variation and consolidation)  | Duly made<br>25/05/18 | Application to vary emission limits and monitoring requirements following review of the Landfill Gas Action Plan and the Hydrogeological Risk Assessment (HRA) and to amend the financial provision for the site. |
| Variation determined<br>EPR/ZP3232SF<br>(Billing ref VP3437JC)  | 05/11/18              | Varied and consolidated permit issued.  |

End of introductory note

# Notice of variation and consolidation

## The Environmental Permitting (England and Wales) Regulations 2016

The Environment Agency in exercise of its powers under regulation 20 of the Environmental Permitting (England and Wales) Regulations 2016 varies

### Permit number

**EPR/ZP3232SF**

### Issued to

**Biffa Waste Services Limited** (“the operator”)

whose registered office is

**Coronation Road  
Cressex  
High Wycombe  
Buckinghamshire  
HP12 3TZ**

company registration number 00946107

to operate a regulated facility at

**Hartlebury Landfill Site  
Whitlenge Lane  
Hartlebury  
Kidderminster  
Worcestershire  
DY10 4HB**

to the extent set out in the schedules.

The notice shall take effect from 05/11/2018.

| Name                  | Date              |
|-----------------------|-------------------|
| <b>Claire Roberts</b> | <b>05/11/2018</b> |

Authorised on behalf of the Environment Agency

## **Schedule 1**

The following conditions and tables were varied as a result of the application made by the operator:

- Condition 1.2.1 has been amended to incorporate changes in the financial provision.
- Conditions 2.4.1 and 2.4.2 are added to the permit to cover the Improvement Programme required by this variation.
- Table S1.3 as referenced in Condition 2.4.1 is added to insert an improvement requirement which allows for a review of the down-gradient groundwater boreholes following the cessation of dewatering operations.
- Table S3.1 as referenced in Conditions 2.7.1 and 3.5.1(a) is amended to reduce the frequency of leachate level monitoring from weekly to monthly, designate leachate monitoring boreholes 3302, 3303 within Phase 1 area as 'non-operational' and remove wording in the table that restricted staged recovery of groundwater levels to the post closure phase.
- Table S3.4 as referenced in Condition 3.5.1(c) is amended to remove naphthalene and mecoprop from groundwater monitoring requirements, and add Nickel to the monitoring requirements for the groundwater underdrainage emission points.
- Table S3.5 as referenced in Condition 3.5.1(d) is amended to remove borehole 1160 from the list of boreholes that require monitoring for compliance purposes

## **Schedule 2 – consolidated permit**

Consolidated permit issued as a separate document.

# Permit

## The Environmental Permitting (England and Wales) Regulations 2016

### Permit number

**EPR/ZP3232SF**

This is the consolidated permit referred to in the variation and consolidation notice for application EPR/ZP3232SF/V007 authorising,

**Biffa Waste Services Limited** (“the operator”),

whose registered office is

**Coronation Road**

**Cressex**

**High Wycombe**

**Buckinghamshire**

**HP12 3TZ**

company registration number 00946107

to operate an installation at

**Hartlebury Landfill Site**

**Whitlenge Lane**

**Hartlebury**

**Kidderminster**

**Worcestershire**

**DY10 4HB**

to the extent authorised by and subject to the conditions of this permit.

| Name           | Date       |
|----------------|------------|
| Claire Roberts | 05/11/2018 |

Authorised on behalf of the Environment Agency.

# Conditions

## 1 Management

### 1.1 General management

- 1.1.1 The operator shall manage and operate the activities:
- (a) in accordance with a written management system that identifies and minimises risks of pollution, including those arising from operations, maintenance, accidents, incidents, non-conformances and those drawn to the attention of the operator as a result of complaints; and
  - (b) using sufficient competent persons and resources.
- 1.1.2 Records demonstrating compliance with condition 1.1.1 shall be maintained.
- 1.1.3 Any person having duties that are or may be affected by the matters set out in this permit shall have convenient access to a copy of it kept at or near the place where those duties are carried out.
- 1.1.4 The operator shall comply with the requirements of an approved competence scheme.

### 1.2 Finance

- 1.2.1 The financial provision for meeting the obligations under this permit set out in the agreement made between the operator and the Environment Agency 13/07/2006 as varied on 05/11/2018 shall be maintained by the operator throughout the subsistence of this permit and the operator shall produce evidence of such provision whenever required by the Environment Agency.
- 1.2.2 The operator shall ensure that the charges it makes for the disposal of waste in the landfill cover all of the following:
- (a) the costs of setting up and operating the landfill;
  - (b) the costs of the financial provision required by condition 1.2.1; and
  - (c) the estimated costs for the closure and aftercare of the landfill.

### 1.3 Energy efficiency

- 1.3.1 The operator shall:
- (a) take appropriate measures to ensure that energy is used efficiently in the activities;
  - (b) Review and record at least every four years whether there are suitable opportunities to improve the energy efficiency of the activities; and
  - (c) Implement any appropriate measures identified by a review.

### 1.4 Efficient use of raw materials

- 1.4.1 The operator shall:
- (a) take appropriate measures to ensure that raw materials and water are used efficiently in the activities;
  - (b) maintain records of raw materials and water used in the activities;
  - (c) review and record at least every four years whether there are suitable alternative materials that could reduce environmental impact or opportunities to improve the efficiency of raw material and water use; and
  - (d) take any further appropriate measures identified by a review.

## **1.5 Avoidance, recovery and disposal of wastes produced by the activities**

1.5.1 The operator shall:

- (a) take appropriate measures to ensure that waste produced by the activities is avoided or reduced, or where waste is produced it is recovered wherever practicable or otherwise disposed of in a manner which minimises its impact on the environment;
- (b) review and record at least every four years whether changes to those measures should be made; and
- (c) take any further appropriate measures identified by a review.

## **2 Operations**

### **2.1 Permitted activities**

2.1.1 The operator is only authorised to carry out the activities specified in schedule 1, table S1.1 (the “activities”).

### **2.2 The site**

2.2.1 The activities shall not extend beyond the site, being the land shown edged in red on the site plan at schedule 7 to this permit.

### **2.3 Operating techniques**

2.3.1 The activities shall, subject to the conditions of this permit, be operated using the techniques and in the manner described in the documentation specified in schedule 1, table S1.2, unless otherwise agreed in writing by the Environment Agency.

2.3.2 If notified by the Environment Agency that the activities are giving rise to pollution, the operator shall submit to the Environment Agency for approval within the period specified, a revision of any plan or other documentation (“plan”) specified in schedule 1, table S1.2 or otherwise required under this permit which identifies and minimises the risks of pollution relevant to that plan, and shall implement the approved revised plan in place of the original from the date of approval, unless otherwise agreed in writing by the Environment Agency.

### **2.4 Improvement programme**

2.4.1 The operator shall complete the improvements specified in schedule 1, table S1.3 by the date specified in that table unless otherwise agreed in writing by the Environment Agency.

2.4.2 Except in the case of an improvement which consists only of a submission to the Environment Agency, the operator shall notify the Environment Agency within 14 days of completion of each improvement.

### **2.5 Landfill Engineering**

2.5.1 No construction of any new cell of the landfill shall commence until the operator has submitted construction proposals and the Environment Agency has confirmed that it is satisfied with the construction proposals.

2.5.2 Where the operator proposes to construct any new cell other than the first cell, but proposes no change from the design of the most recently approved cell which could have any impact on the performance of any element of the design, no construction of the new cell shall commence until the



operator has submitted a cell layout drawing and the Environment Agency has confirmed that it is satisfied with the cell layout drawing.

- 2.5.3 The construction of a new cell shall take place only in accordance with the approved construction proposals unless:
- (a) any change to the approved construction proposals would have no impact on the performance of any element of the design; or
  - (b) a change has otherwise been agreed in writing by the Environment Agency.
- 2.5.4 No disposal of waste shall take place in a new cell until the operator has submitted a CQA Validation Report and the Environment Agency has confirmed that it is satisfied with the CQA Validation Report.
- 2.5.5 No construction of landfill infrastructure shall commence until the operator has submitted relevant construction proposals or a written request to use previous construction proposals and the Environment Agency has confirmed that it is satisfied with the construction proposals.
- 2.5.6 The construction of the landfill infrastructure shall take place only in accordance with the approved construction proposals unless:
- (a) any change to the approved construction proposals would have no impact on the performance of any element of the design; or
  - (b) a change has otherwise been agreed in writing by the Environment Agency.
- 2.5.7 The operator shall submit a CQA Validation Report as soon as practicable following the construction of the relevant landfill infrastructure.
- 2.5.8 Where pollution controls are immediately necessary to prevent an incident or accident, then conditions 2.5.5 and 2.5.6 do not apply and the relevant landfill infrastructure may be constructed, provided that the construction proposals are submitted to the Environment Agency as soon as practicable.
- 2.5.9 For the purposes of conditions 2.5.1, 2.5.2, 2.5.4 and 2.5.5, the Environment Agency shall be deemed to be satisfied where it has not, within the period of four weeks from the date of receipt of the relevant construction proposals or CQA Validation Report, either:
- (a) confirmed whether or not it is satisfied; or
  - (b) informed the operator that it requires further information.
- 2.5.10 Where the Environment Agency has required further information under condition 2.5.9(b), the Environment Agency shall be deemed to be satisfied where it has not, within the period of four weeks from the date of receipt of the further information, either:
- (a) confirmed whether or not it is satisfied; or
  - (b) informed the operator that it requires further information.

## **2.6 Waste acceptance**

- 2.6.1 Wastes shall only be accepted for disposal if:
- (a) they are listed in schedule 2, table S2.1 & S2.3; and
  - (b) they are non-hazardous waste or asbestos and construction materials containing asbestos, and
  - (c) they are not whole used tyres (other than bicycle tyres and tyres with an outside diameter of more than 1400mm), and
  - (d) they are not shredded used tyres, and
  - (e) they are not liquid waste (including waste waters but excluding sludge), and

- (f) they are not chemical substances from research and development or teaching activities, for example laboratory residues, which are unidentified and/or which are new and whose effects on man and/or the environment are unknown, and
- (g) all the relevant waste acceptance procedures have been completed, and
- (h) they fulfil the relevant waste acceptance criteria, and
- (i) they have not been diluted or mixed solely to meet the relevant waste acceptance criteria, and
- (j) they are wastes which have been treated, except for: inert wastes for which treatment is not technically feasible; or it is waste other than inert waste and treatment would not reduce its quantity or the hazards which it poses to human health or the environment, and
- (k) they are wastes with a code beginning with 07 05 and 16 03, they shall exclude waste medicinal products and pharmaceutically active waste materials arising from their manufacture.

2.6.2 Wastes shall only be accepted for restoration where:

- (a) they are listed in schedule 2, table S2.2 and
- (b) they are accepted in accordance with a restoration plan approved in writing by the Environment Agency.

2.6.3 Asbestos containing wastes and construction materials containing asbestos shall only be disposed of with other suitable wastes and not in cells containing biodegradable non-hazardous waste. Asbestos waste and construction material containing asbestos must meet the relevant waste acceptance criteria and must be covered daily and before each compaction operation with appropriate material.

2.6.4 The operator shall:

- (a) visually inspect without unloading it, waste that is not in an enclosed container or enclosed vehicle on arrival at the landfill and waste at the point of deposit; and
- (b) be satisfied that the waste conforms to the requirements of condition 2.6.1.

2.6.5 Where the operator has taken samples to establish that the waste is in conformity with the documentation submitted by the holder then the samples taken shall be retained for at least one month and results of any analysis for at least two years.

2.6.6 The operator on accepting each delivery of waste shall provide a receipt to the person delivering it.

2.6.7 The total quantity of waste that shall be deposited in the landfill shall be limited by the pre-settlement levels shown on drawing ESID4B.

2.6.8 The quantity of waste that is deposited in the landfill in any year shall not exceed the limits in schedule 1 table S1.4.

2.6.9 The operator shall maintain and implement a system which ensures that a record is made of the quantity, characteristics, date of delivery and, where practicable, origin of any waste that is received for disposal or recovery and of the identity of the producer, or in the case of municipal waste and multiple collection vehicles, of the collector of such waste. Any information regarded by the operator as commercially confidential shall be clearly identified in the record.

2.6.10 The operator shall maintain and implement a system to record the disposal location of any hazardous waste.

## **2.7 Leachate levels**

2.7.1 The limits for the level of leachate listed in schedule 3, table S3.1 shall not be exceeded.

## **2.8 Closure and aftercare**

2.8.1 The operator shall maintain a closure and aftercare management plan.

## **2.9 Landfill gas management**

- 2.9.1 The operator shall take appropriate measures, including, but not limited to, those specified in any approved landfill gas management plan, to:
- (a) collect landfill gas; and
  - (b) control the migration of landfill gas.
- 2.9.2 The operator shall use the collected landfill gas to produce energy. If the collected landfill gas cannot be used to produce energy, the operator shall use appropriate measures to flare or treat the gas in accordance with an approved landfill gas management plan.
- 2.9.3 The operator shall:
- (a) if notified by the Environment Agency, submit to the Environment Agency for approval within the period specified, a revised landfill gas management plan;
  - (b) implement the revised landfill gas management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

## **3 Emissions and monitoring**

### **3.1 Emissions to water, air or land**

- 3.1.1 The limits in Schedule 3 shall not be exceeded.
- 3.1.2 There shall be no point source emissions to water, air or land except from the sources and emission points listed in schedule 3, tables S3.2, S3.3 and S3.6.
- 3.1.3 The limits given in Table S3.2 shall not be exceeded, save that compliance with an emission limit in that table shall include incorporation of the uncertainty allowance stated in Environment Agency guidance LFTGN 05 and LFTGN 08.
- 3.1.4 The operator shall prevent the input of any hazardous substances from the activities into groundwater.
- 3.1.5 The operator shall submit to the Environment Agency a review of the Hydrogeological Risk Assessment:
- (a) between nine and six months prior to the fourth anniversary of the granting of the permit, and
  - (b) between nine and six months prior to every subsequent six years after the fourth anniversary of the granting of the permit.

### **3.2 Emissions of substances not controlled by emission limits**

- 3.2.1 Emissions of substances not controlled by emission limits (excluding odour) shall not cause pollution. The operator shall not be taken to have breached this condition if appropriate measures, including, but not limited to, those specified in any approved emissions management plan, have been taken to prevent or where that is not practicable, to minimise, those emissions.
- 3.2.2 The operator shall:
- (a) if notified by the Environment Agency that the activities are giving rise to pollution, submit to the Environment Agency for approval within the period specified, an emissions management plan which identifies and minimises the risks of pollution from emissions of substances not controlled by emission limits;
  - (b) implement the approved emissions management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

### **3.3 Odour**

- 3.3.1 Emissions from the activities shall be free from odour at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Environment Agency, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved odour management plan, to prevent or where that is not practicable to minimise the odour.

### **3.4 Noise and vibration**

- 3.4.1 Emissions from the activities shall be free from noise and vibration at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Environment Agency, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved noise and vibration management plan to prevent or where that is not practicable to minimise the noise and vibration.

### **3.5 Monitoring**

- 3.5.1 The operator shall, unless otherwise agreed in writing by the Environment Agency, undertake the monitoring and any other actions specified in the following tables in schedule 3 to this permit:
- (a) Leachate specified in tables S3.1 and S3.11;
  - (b) Point source emissions specified in tables S3.2, S3.3 and S3.6;
  - (c) Groundwater specified in tables S3.4 and S3.9;
  - (d) Landfill gas specified in tables S3.5, S3.8 and S3.10;
  - (e) Surface water specified in table S3.12;
  - (f) Particulate matter specified in table S3.7; and
  - (g) Ambient air specified in table S3.13.
- 3.5.2 The operator shall maintain records of all monitoring required by this permit including records of the taking and analysis of samples, instrument measurements (periodic and continual), calibrations, examinations, tests and surveys and any assessment or evaluation made on the basis of such data.
- 3.5.3 A topographical survey of the site referenced to ordnance datum shall be carried out and shall be used to produce a plan of a scale adequate to show the surveyed features of the site:
- (a) annually, and
  - (b) prior to the disposal of waste in any new cell or new development area of the landfill, and
  - (c) following closure of the landfill or part of the landfill.

### **3.6 Pests**

- 3.6.1 The activities shall not give rise to the presence of pests which are likely to cause pollution, hazard or annoyance outside the boundary of the site. The operator shall not be taken to have breached this condition if appropriate measures, including, but not limited to, those specified in any approved pests management plan, have been taken to prevent or where that is not practicable, to minimise the presence of pests on the site.
- 3.6.2 The operator shall:
- (a) if notified by the Environment Agency, submit to the Environment Agency for approval within the period specified, a pests management plan which identifies and minimises risks of pollution hazard or annoyance from pests;
  - (b) implement the pests management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

## 4 Information

### 4.1 Records

4.1.1 All records required to be made by this permit shall:

- (a) be legible;
- (b) be made as soon as reasonably practicable;
- (c) if amended, be amended in such a way that the original and any subsequent amendments remain legible, or are capable of retrieval; and
- (d) be retained, unless otherwise agreed in writing by the Environment Agency, for at least 6 years from the date when the records were made, or in the case of the following records until permit surrender:
  - (i) the results of groundwater monitoring;
  - (ii) sub-surface landfill gas monitoring;
  - (iii) leachate levels, quality and quantities;
  - (iv) landfill gas generation and collection;
  - (v) waste types and quantities;
  - (vi) the location of hazardous waste deposits; and
  - (vii) the specification and as built drawings of the basal, sidewall and capping engineering systems.

4.1.2 The operator shall keep on site all records, plans and the management system required to be maintained by this permit, unless otherwise agreed in writing by the Environment Agency.

### 4.2 Reporting

4.2.1 The operator shall send reports and notifications required by the permit to the Environment Agency using the contact details supplied in writing by the Environment Agency.

4.2.2 A report or reports on the performance of the activities over the previous year ('the annual report') shall be submitted to the Environment Agency by 31st January each year or such other date as may be agreed in writing by the Agency, with the exception of 4.2.2(c) that must be provided by the end of February each year. The report(s) shall include as a minimum:

- (a) a review of the results of the monitoring and assessment carried out in accordance with this permit against the relevant assumptions, parameters and results in the risk assessments submitted in relation to this installation and any agreed amendments thereto. The review will include written descriptions of the improvements made to operational performance during the year, action plans developed and planned improvements for the coming year;
- (b) the energy consumed at the site, reported in the format set out in schedule 4, table S4.3
- (c) the annual production/treatment set out in schedule 4, table S4.2;
- (d) the topographical surveys required by condition 3.5.3 other than those submitted as part of a CQA validation report;
- (e) the volumetric difference (reported in cubic metres) between the most recent topographical survey and the previous annual topographical survey i.e. the additional volume of the landfill void that is occupied by waste;
- (f) an assessment of the settlement behaviour of the landfill body based on the difference between the most recent topographical survey and previous annual topographical survey for the areas of the landfill which did not receive waste between the surveys;

- (g) a calculation of the remaining capacity (reported in cubic metres) derived from the pre-settlement contours and the most recent topographical survey;
  - (h) a plan(s) ('the monitoring and extraction point plan – MEPP') showing the locations of leachate and landfill gas extraction and all monitoring points.
- 4.2.3 Within 28 days of the end of the reporting period the operator shall, unless otherwise agreed in writing by the Environment Agency, submit reports of the monitoring and assessment carried out in accordance with the conditions of this permit, as follows:
- (a) in respect of the parameters and emission points specified in schedule 4, table S4.1;
  - (b) using the forms specified in schedule 4, table S4.4 or other reporting format as agreed in writing with the Environment Agency; and
  - (c) giving the information from such results and assessments as may be required by the forms specified in those tables.
- 4.2.4 Within one month of the end of each quarter, the operator shall submit to the Environment Agency using the form made available for the purpose, the information specified on the form relating to the site and the waste accepted and removed from it during the previous quarter.
- 4.2.5 The operator shall, unless notice under this condition has been served within the preceding four years, submit to the Environment Agency, within six months of receipt of a written notice, a report assessing whether there are other appropriate measures that could be taken to prevent, or where that is not practicable, to minimise pollution.

### 4.3 Notifications

- 4.3.1 (a) In the event that the operation of the activities gives rise to an incident or accident which significantly affects or may significantly affect the environment, the operator must immediately—
- (i) inform the Environment Agency,
  - (ii) take the measures necessary to limit the environmental consequences of such an incident or accident, and
  - (iii) take the measures necessary to prevent further possible incidents or accidents;
- (b) in the event of a breach of any permit condition the operator must immediately—
- (i) inform the Environment Agency, and
  - (ii) take the measures necessary to ensure that compliance is restored within the shortest possible time;
- (c) in the event of a breach of permit condition which poses an immediate danger to human health or threatens to cause an immediate significant adverse effect on the environment, the operator must immediately suspend the operation of the activities or the relevant part of it until compliance with the permit conditions has been restored.
- 4.3.2 Any information provided under condition 4.3.1 (a)(i), or 4.3.1 (b)(i) where the information relates to the breach of a limit specified in the permit, shall be confirmed by sending the information listed in schedule 5 to this permit within the time period specified in that schedule.
- 4.3.3 The Environment Agency shall be notified within 14 days of the occurrence of the following matters, except where such disclosure is prohibited by Stock Exchange rules:
- Where the operator is a registered company:
- (a) any change in the operator's trading name, registered name or registered office address; and
  - (b) any steps taken with a view to the operator going into administration, entering into a company voluntary arrangement or being wound up.

Where the operator is a corporate body other than a registered company:

- (a) any change in the operator's name or address; and
  - (b) any steps taken with a view to the dissolution of the operator.
- 4.3.4 Where the operator proposes to make a change in the nature or functioning, or an extension of the activities, which may have consequences for the environment and the change is not otherwise the subject of an application for approval under the Regulations or this permit:
- (a) the Environment Agency shall be notified at least 14 days before making the change; and
  - (b) the notification shall contain a description of the proposed change in operation.

#### **4.4 Interpretation**

- 4.4.1 In this permit the expressions listed in schedule 6 shall have the meaning given in that schedule.
- 4.4.2 In this permit references to reports and notifications mean written reports and notifications, except where reference is made to notification being made "immediately", in which case it may be provided by telephone.

## Schedule 1 – Operations

| <b>Table S1.1 activities</b>          |   |   |   |  |
|---------------------------------------|---|---|---|--|
| <b>Activity reference</b>             | <b>WFD Annex I and II operations (where applicable)</b>   | <b>Activity listed in Schedule 1 of the EP Regulations</b>        | <b>Description of specified activity</b>  | <b>Limits of specified activity</b>  |
| A1                                    | D5 –Specially engineered landfill and R10 – Land treatment resulting in benefit to agriculture or ecology | Section 5.2 Part A(1)(a),<br>The disposal of waste in a landfill  | Landfill for non-hazardous waste and landfill restoration   | Receipt, handling, storage and disposal of wastes, consisting of the types and quantities specified in conditions 2.5, as an integral part of landfilling. |
| A2                                    | D5 –Specially engineered landfill   | Section 5.2 Part A(1)(a),<br>The disposal of waste in a landfill. | Landfill for hazardous waste (separate asbestos cell)   | Receipt, handling, storage and disposal of wastes, consisting of the types and quantities specified in conditions 2.5, as an integral part of landfilling. |
| <b>Directly Associated Activities</b> |   |   |   |  |
| A3                                    | R1 – use principally as a fuel to generate energy   |   | Utilisation of landfill gas for energy recovery in an appliance with a rated thermal input <50MW                                  | Treatment and utilisation of landfill gas arising from the landfill.   |
| A4                                    | N/A   |   | Flaring of landfill gas for disposal in an appliance  | Landfill gas arising from the landfill.  |
| A5                                    | N/A   |   | Temporary storage of waste (leachate) and/or recirculation of leachate.   | Leachate arising from the landfill.  |
| A6                                    | D6 – release to water body except seas/ oceans  |   | Discharges of site drainage from the landfill, and discharge from waters pumped from groundwater drainage systems at the landfill | From surface water management system and groundwater management systems to points of entry to controlled waters.   |
| A7                                    | N/A   | Fuel storage  | Storage of fuel for operation of plant and equipment.   | Fuel storage tank.   |



| <b>Table S1.2 Operating techniques</b> |   |                      |
|--|---|----------------------|
| <b>Description</b>                     | <b>Parts</b>  | <b>Date Received</b> |
| Application                            | The responses to questions 2.1 and 2.2 given in section 2 of the landfill Part B form submitted in relation to operation of the landfill and dated 16 August 2005.<br>Excluding sections:<br>2.2.64; 2.2.65 (Particulate matter management and monitoring)<br>2.2.67; 2.2.68 (Odour management and monitoring)<br>2.9.1 (Noise and vibration management and monitoring)   | 17/08/05             |
| Application                            | The responses to questions 2.1 to 2.12 inclusive given in pages 2 and 3 of the non-landfill Part B form submitted (under cover of letter dated 13 September 2005) in relation to operation of the gas utilisation plant.  | 15/09/05             |
| Application                            | The response dated 27 January 2006 to Schedule 4 Notice served 06 January 2006 in relation to the following questions:<br>Q4 Leachate storage and removal<br>Q6 Construction detail of engineered fill and groundwater back drain<br>Q8 Landfill gas management within groundwater drainage blanket<br>Q10 Location and management for disposal of asbestos waste   | 27/01/06             |
| Application                            | Response to Pre-operational condition 5a & 5b in relation to surface water management.  | 16/09/09             |
| Leachate storage tank                  | Tank installation details submitted November 2009, including location plan H6032100 and tank design drawing. Valve Lock off Procedure - Hart/SSOW/04.   | November 2009        |
| Application<br>EPR/ZP3232SF/V007       | <ul style="list-style-type: none"> <li>▪ Sections 3.1.1, 3.1.2, 5.5, 6.2, 6.3.2 of the document titled 'Hartlebury Landfill Site – HRA Review, report number 1776845.501/A.5', dated January 2018 providing information on the proposed changes to leachate and groundwater levels and quality monitoring requirements.</li> <li>▪ Appendix 4 of the supporting documents submitted with the application containing information on the Landfill Gas Action Plan.</li> <li>▪ Appendix 6 of the supporting documents submitted with the application containing information on the proposed changes to the Financial Provision arrangement.</li> </ul> | 29/03/18             |

| <b>Table S1.3 Improvement programme requirements</b> |   |   |
|--|---|---|
| <b>Reference</b>                                     | <b>Requirement</b>  | <b>Date</b>   |
| IC1  | <p>The operator shall:</p> <ul style="list-style-type: none"> <li>▪ Undertake groundwater monitoring in accordance with the Environment Agency Guidance LFTGN02 'Monitoring of Landfill Leachate, Groundwater and Surface Water' published February 2003 (<a href="#">Link</a>) for a minimum period of two years following the cessation of dewatering operations.</li> <li>▪ Review groundwater monitoring data obtained from all of the down-gradient monitoring points for the determinands and at the frequencies specified in Table S3.4.</li> <li>▪ Submit a written report to the Environment Agency for approval which proposes revised compliance limits to replace the limits for the determinands specified in Table S3.4.</li> <li>▪ The revised compliance limits shall become effective from the date written approval is obtained from the Environment Agency.</li> </ul> | 2 years following the cessation of dewatering operations. |

| <b>Table S1.4 Annual waste input limits</b>                  |                           |
|--|---------------------------|
| <b>Category</b>  | <b>Limit Tonnes/ Year</b> |
| Non-hazardous waste  | 298,000                   |
| Inert waste  | 149,000                   |
| Asbestos waste and construction material containing asbestos | 37,250                    |
| Waste for restoration  | 50,000                    |
| <b>Total</b>   | <b>534,250</b>            |

## Schedule 2 – List of permitted wastes

| <b>Table S2.1 Permitted waste types for disposal at a landfill for non-hazardous waste</b> |   |
|--|---|
| <b>Waste code</b>  | <b>Description</b>  |
| <b>01</b>  | <b>Wastes resulting from exploration, mining, quarrying, and physical and chemical treatment of minerals</b>              |
| <b>01 01</b>   | <b>wastes from mineral excavation</b>   |
| 01 01 01   | wastes from mineral metalliferous excavation  |
| 01 01 02   | wastes from mineral non-metalliferous excavation  |
| <b>01 03</b>   | <b>wastes from physical and chemical processing of metalliferous minerals</b>   |
| 01 03 06   | tailings other than those mentioned in 01 03 04 and 01 03 05  |
| 01 03 08   | dusty and powdery wastes other than those mentioned in 01 03 07   |
| 01 03 09   | red mud from alumina production other than the wastes mentioned in 01 03 07   |
| <b>01 04</b>   | <b>wastes from physical and chemical processing of non-metalliferous minerals</b>   |
| 01 04 08   | waste gravel and crushed rocks other than those mentioned in 01 04 07   |
| 01 04 09   | waste sand and clays  |
| 01 04 10   | dusty and powdery wastes other than those mentioned in 01 04 07   |
| 01 04 11   | wastes from potash and rock salt processing other than those mentioned in 01 04 07  |
| 01 04 12   | tailings and other wastes from washing and cleaning of minerals other than those mentioned in 01 04 07 and 01 04 11       |
| 01 04 13   | wastes from stone cutting and sawing other than those mentioned in 01 04 07   |
| <b>01 05</b>   | <b>drilling muds and other drilling wastes</b>  |
| 01 05 04   | freshwater drilling muds and wastes   |
| 01 05 07   | barite-containing drilling muds and wastes other than those mentioned in 01 05 05 and 01 05 06                            |
| 01 05 08   | chloride-containing drilling muds and wastes other than those mentioned in 01 05 05 and 01 05 06                          |
| <b>02</b>  | <b>Wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing, food preparation and processing</b> |
| <b>02 01</b>   | <b>wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing</b>                                  |
| 02 01 01   | sludges from washing and cleaning   |
| 02 01 02   | animal-tissue waste   |
| 02 01 03   | plant-tissue waste  |
| 02 01 04   | waste plastics (except packaging)   |
| 02 01 06   | animal faeces, urine and manure (including spoiled straw), effluent, collected separately and treated off-site            |
| 02 01 07   | wastes from forestry  |
| 02 01 09   | agrochemical waste other than those mentioned in 02 01 08   |
| 02 01 10   | waste metal   |

| <b>Table S2.1 Permitted waste types for disposal at a landfill for non-hazardous waste</b> |   |
|--|---|
| <b>Waste code</b>  | <b>Description</b>  |
| <b>02 02</b>   | <b>wastes from the preparation and processing of meat, fish and other foods of animal origin</b>  |
| 02 02 01   | sludges from washing and cleaning   |
| 02 02 02   | animal-tissue waste   |
| 02 02 03   | materials unsuitable for consumption or processing  |
| 02 02 04   | sludges from on-site effluent treatment   |
| <b>02 03</b>   | <b>wastes from fruit, vegetables, cereals, edible oils, cocoa, coffee, tea and tobacco preparation and processing; conserve production; yeast and yeast extract production, molasses preparation and fermentation</b> |
| 02 03 01   | sludges from washing, cleaning, peeling, centrifuging and separation  |
| 02 03 02   | wastes from preserving agents   |
| 02 03 03   | wastes from solvent extraction  |
| 02 03 04   | materials unsuitable for consumption or processing  |
| 02 03 05   | sludges from on-site effluent treatment   |
| <b>02 04</b>   | <b>wastes from sugar processing</b>   |
| 02 04 01   | soil from cleaning and washing beet   |
| 02 04 02   | off-specification calcium carbonate   |
| 02 04 03   | sludges from on-site effluent treatment   |
| <b>02 05</b>   | <b>wastes from the dairy products industry</b>  |
| 02 05 01   | materials unsuitable for consumption or processing  |
| 02 05 02   | sludges from on-site effluent treatment   |
| <b>02 06</b>   | <b>wastes from the baking and confectionery industry</b>  |
| 02 06 01   | materials unsuitable for consumption or processing  |
| 02 06 02   | wastes from preserving agents   |
| 02 06 03   | sludges from on-site effluent treatment   |
| <b>02 07</b>   | <b>wastes from the production of alcoholic and non-alcoholic beverages (except coffee, tea and cocoa)</b>   |
| 02 07 01   | wastes from washing, cleaning and mechanical reduction of raw materials   |
| 02 07 02   | wastes from spirits distillation  |
| 02 07 03   | wastes from chemical treatment  |
| 02 07 04   | materials unsuitable for consumption or processing  |
| 02 07 05   | sludges from on-site effluent treatment   |
| <b>03</b>  | <b>Wastes from wood processing and the production of panels and furniture, pulp, paper and cardboard</b>  |
| <b>03 01</b>   | <b>wastes from wood processing and the production of panels and furniture</b>   |
| 03 01 01   | waste bark and cork   |

| <b>Table S2.1 Permitted waste types for disposal at a landfill for non-hazardous waste</b> |   |
|--|---|
| <b>Waste code</b>  | <b>Description</b>  |
| 03 01 05   | sawdust, shavings, cuttings, wood, particle board and veneer other than those mentioned in 03 01 04 |
| <b>03 03</b>   | <b>wastes from pulp, paper and cardboard production and processing</b>                              |
| 03 03 01   | waste bark and wood   |
| 03 03 02   | green liquor sludge (from recovery of cooking liquor)   |
| 03 03 05   | de-inking sludges from paper recycling  |
| 03 03 07   | mechanically separated rejects from pulping of waste paper and cardboard                            |
| 03 03 08   | wastes from sorting of paper and cardboard destined for recycling                                   |
| 03 03 09   | lime mud waste  |
| 03 03 10   | fibre rejects, fibre-, filler- and coating-sludges from mechanical separation                       |
| 03 03 11   | sludges from on-site effluent treatment other than those mentioned in 03 03 10                      |
| <b>04</b>  | <b>Wastes from the leather, fur and textile industries</b>  |
| <b>04 01</b>   | <b>wastes from the leather and fur industry</b>   |
| 04 01 01   | fleshings and lime split wastes   |
| 04 01 02   | liming waste  |
| 04 01 06   | sludges, in particular from on-site effluent treatment containing chromium                          |
| 04 01 07   | sludges, in particular from on-site effluent treatment free of chromium                             |
| 04 01 08   | waste tanned leather (blue sheetings, shavings, cuttings, buffing dust) containing chromium         |
| 04 01 09   | wastes from dressing and finishing  |
| <b>04 02</b>   | <b>wastes from the textile industry</b>   |
| 04 02 09   | wastes from composite materials (impregnated textile, elastomer, plastomer)                         |
| 04 02 10   | organic matter from natural products (for example grease, wax)                                      |
| 04 02 17   | dye-stuffs and pigments other than those mentioned in 04 02 16                                      |
| 04 02 20   | sludges from on-site effluent treatment other than those mentioned in 04 02 19                      |
| 04 02 21   | wastes from unprocessed textile fibres  |
| 04 02 22   | wastes from processed textile fibres  |
| <b>05</b>  | <b>Wastes from petroleum refining, natural gas purification and pyrolytic treatment of coal</b>     |
| <b>05 01</b>   | <b>wastes from petroleum refining</b>   |
| 05 01 10   | sludges from on-site effluent treatment other than those mentioned in 05 01 09                      |
| 05 01 13   | boiler feedwater sludges  |
| 05 01 14   | wastes from cooling columns   |
| 05 01 16   | sulphur-containing wastes from petroleum desulphurisation   |
| 05 01 17   | bitumen   |
| <b>05 06</b>   | <b>wastes from the pyrolytic treatment of coal</b>  |

| <b>Table S2.1 Permitted waste types for disposal at a landfill for non-hazardous waste</b> |   |
|--|---|
| <b>Waste code</b>  | <b>Description</b>  |
| 05 06 04   | waste from cooling columns  |
| <b>05 07</b>   | <b>wastes from natural gas purification and transportation</b>  |
| 05 07 02   | wastes containing sulphur   |
| <b>06</b>  | <b>Wastes from inorganic chemical processes</b>   |
| <b>06 03</b>   | <b>wastes from the MFSU of salts and their solutions and metallic oxides</b>  |
| 06 03 14   | solid salts and solutions other than those mentioned in 06 03 11 and 06 03 13   |
| 06 03 16   | metallic oxides other than those mentioned in 06 03 15  |
| <b>06 05</b>   | <b>sludges from on-site effluent treatment</b>  |
| 06 05 03   | sludges from on-site effluent treatment other than those mentioned in 06 05 02  |
| <b>06 06</b>   | <b>wastes from the MFSU of sulphur chemicals, sulphur chemical processes and desulphurisation processes</b>   |
| 06 06 03   | wastes containing sulphides other than those mentioned in 06 06 02  |
| <b>06 09</b>   | <b>wastes from the MFSU of phosphorous chemicals and phosphorous chemical processes</b>   |
| 06 09 02   | phosphorous slag  |
| 06 09 04   | calcium-based reaction wastes other than those mentioned in 06 09 03  |
| <b>06 11</b>   | <b>wastes from the manufacture of inorganic pigments and opacifiers</b>   |
| 06 11 01   | calcium-based reaction wastes from titanium dioxide production  |
| <b>06 13</b>   | <b>wastes from inorganic chemical processes not otherwise specified</b>   |
| 06 13 03   | carbon black  |
| <b>07</b>  | <b>Wastes from organic chemical processes</b>   |
| <b>07 01</b>   | <b>wastes from the manufacture, formulation, supply and use (MFSU) of basic organic chemicals</b>   |
| 07 01 12   | sludges from on-site effluent treatment other than those mentioned in 07 01 11  |
| <b>07 02</b>   | <b>wastes from the MFSU of plastics, synthetic rubber and man-made fibres</b>   |
| 07 02 12   | sludges from on-site effluent treatment other than those mentioned in 07 02 11  |
| 07 02 13   | waste plastic   |
| 07 02 15   | wastes from additives other than those mentioned in 07 02 14  |
| 07 02 17   | waste containing silicones other than those mentioned in 07 02 16   |
| <b>07 03</b>   | <b>wastes from the MFSU of organic dyes and pigments (except 06 11)</b>   |
| 07 03 12   | sludges from on-site effluent treatment other than those mentioned in 07 03 11  |
| <b>07 04</b>   | <b>wastes from the MFSU of organic plant protection products (except 02 01 08 and 02 01 09), wood preserving agents (except 03 02) and other biocides</b> |

| <b>Table S2.1 Permitted waste types for disposal at a landfill for non-hazardous waste</b> |  |
|--|--|
| <b>Waste code</b>  | <b>Description</b>   |
| 07 04 12   | sludges from on-site effluent treatment other than those mentioned in 07 04 11   |
| <b>07 05</b>   | <b>wastes from the MFSU of pharmaceuticals</b>   |
| 07 05 12   | sludges from on-site effluent treatment other than those mentioned in 07 05 11   |
| 07 05 14   | solid wastes other than those mentioned in 07 05 13  |
| <b>07 06</b>   | <b>wastes from the MFSU of fats, grease, soaps, detergents, disinfectants and cosmetics</b>  |
| 07 06 12   | sludges from on-site effluent treatment other than those mentioned in 07 06 11   |
| <b>07 07</b>   | <b>wastes from the MFSU of fine chemicals and chemical products not otherwise specified</b>  |
| 07 07 12   | sludges from on-site effluent treatment other than those mentioned in 07 07 11   |
| <b>08</b>  | <b>Wastes from the manufacture, formulation, supply and use (MFSU) of coatings (paints, varnishes and vitreous enamels), adhesives, sealants and printing inks</b> |
| <b>08 01</b>   | <b>wastes from MFSU and removal of paint and varnish</b>   |
| 08 01 12   | waste paint and varnish other than those mentioned in 08 01 11   |
| 08 01 14   | sludges from paint or varnish other than those mentioned in 08 01 13   |
| 08 01 16   | aqueous sludges containing paint or varnish other than those mentioned in 08 01 15   |
| 08 01 18   | wastes from paint or varnish removal other than those mentioned in 08 01 17  |
| <b>08 02</b>   | <b>wastes from MFSU of other coatings (including ceramic materials)</b>  |
| 08 02 01   | waste coating powders  |
| 08 02 02   | aqueous sludges containing ceramic materials   |
| <b>08 03</b>   | <b>wastes from MFSU of printing inks</b>   |
| 08 03 07   | aqueous sludges containing ink   |
| 08 03 13   | waste ink other than those mentioned in 08 03 12   |
| 08 03 15   | ink sludges other than those mentioned in 08 03 14   |
| 08 03 18   | waste printing toner other than those mentioned in 08 03 17  |
| <b>08 04</b>   | <b>wastes from MFSU of adhesives and sealants (including water proofing products)</b>  |
| 08 04 10   | waste adhesives and sealants other than those mentioned in 08 04 09  |
| 08 04 12   | adhesive and sealant sludges other than those mentioned in 08 04 11  |
| 08 04 14   | aqueous sludges containing adhesives or sealants other than those mentioned in 08 04 13  |
| <b>09</b>  | <b>Wastes from the photographic industry</b>   |
| <b>09 01</b>   | <b>wastes from the photographic industry</b>   |
| 09 01 07   | photographic film and paper containing silver or silver compounds  |
| 09 01 08   | photographic film and paper free of silver or silver compounds   |
| 09 01 10   | single-use cameras without batteries   |

| <b>Table S2.1 Permitted waste types for disposal at a landfill for non-hazardous waste</b> |   |
|--|---|
| <b>Waste code</b>  | <b>Description</b>  |
| 09 01 12   | single-use cameras containing batteries other than those mentioned in 09 01 11                |
| <b>10</b>  | <b>Wastes from thermal processes</b>  |
| <b>10 01</b>   | <b>wastes from power stations and other combustion plants (except 19)</b>                     |
| 10 01 01   | bottom ash, slag and boiler dust (excluding boiler dust mentioned in 10 01 04)                |
| 10 01 02   | coal fly ash  |
| 10 01 03   | fly ash from peat and untreated wood  |
| 10 01 05   | calcium-based reaction wastes from flue-gas desulphurisation in solid form                    |
| 10 01 07   | calcium-based reaction wastes from flue-gas desulphurisation in sludge form                   |
| 10 01 15   | bottom ash, slag and boiler dust from co-incineration other than those mentioned in 10 01 14  |
| 10 01 17   | fly ash from co-incineration other than those mentioned in 10 01 16                           |
| 10 01 19   | wastes from gas cleaning other than those mentioned in 10 01 05, 10 01 07 and 10 01 18        |
| 10 01 21   | sludges from on-site effluent treatment other than those mentioned in 10 01 20                |
| 10 01 23   | aqueous sludges from boiler cleansing other than those mentioned in 10 01 22                  |
| 10 01 24   | sands from fluidised beds   |
| 10 01 26   | wastes from cooling-water treatment   |
| <b>10 02</b>   | <b>wastes from the iron and steel industry</b>  |
| 10 02 01   | wastes from the processing of slag  |
| 10 02 02   | unprocessed slag  |
| 10 02 08   | solid wastes from gas treatment other than those mentioned in 10 02 07                        |
| 10 02 10   | mill scales   |
| 10 02 14   | sludges and filter cakes from gas treatment other than those mentioned in 10 02 13            |
| 10 02 15   | other sludges and filter cakes  |
| <b>10 03</b>   | <b>wastes from aluminium thermal metallurgy</b>   |
| 10 03 02   | anode scraps  |
| 10 03 05   | waste alumina   |
| 10 03 16   | skimmings other than those mentioned in 10 03 15  |
| 10 03 18   | carbon-containing wastes from anode manufacture other than those mentioned in 10 03 17        |
| 10 03 20   | flue-gas dust other than those mentioned in 10 03 19  |
| 10 03 22   | other particulates and dust (including ball-mill dust) other than those mentioned in 10 03 21 |
| 10 03 24   | solid wastes from gas treatment other than those mentioned in 10 03 23                        |
| 10 03 26   | sludges and filter cakes from gas treatment other than those mentioned in 10 03 25            |
| 10 03 28   | wastes from cooling-water treatment other than those mentioned in 10 03 27                    |
| 10 03 30   | wastes from treatment of salt slags and black drosses other than those mentioned in 10 03 29  |



| <b>Table S2.1 Permitted waste types for disposal at a landfill for non-hazardous waste</b> |  |
|--|--|
| <b>Waste code</b>  | <b>Description</b>   |
| <b>10 04</b>   | <b>wastes from lead thermal metallurgy</b>   |
| 10 04 10   | wastes from cooling-water treatment other than those mentioned in 10 04 09                       |
| <b>10 05</b>   | <b>wastes from zinc thermal metallurgy</b>   |
| 10 05 01   | slags from primary and secondary production  |
| 10 05 04   | other particulates and dust  |
| 10 05 11   | dross and skimmings other than those mentioned in 10 05 10                                       |
| <b>10 06</b>   | <b>wastes from copper thermal metallurgy</b>   |
| 10 06 01   | slags from primary and secondary production  |
| 10 06 02   | dross and skimmings from primary and secondary production  |
| 10 06 04   | other particulates and dust  |
| 10 06 10   | wastes from cooling-water treatment other than those mentioned in 10 06 09                       |
| <b>10 07</b>   | <b>wastes from silver, gold and platinum thermal metallurgy</b>                                  |
| 10 07 01   | slags from primary and secondary production  |
| 10 07 02   | dross and skimmings from primary and secondary production  |
| 10 07 03   | solid wastes from gas treatment  |
| 10 07 04   | other particulates and dust  |
| 10 07 05   | sludges and filter cakes from gas treatment  |
| 10 07 08   | wastes from cooling-water treatment other than those mentioned in 10 07 07                       |
| <b>10 08</b>   | <b>wastes from other non-ferrous thermal metallurgy</b>  |
| 10 08 04   | particulates and dust  |
| 10 08 09   | other slags  |
| 10 08 11   | dross and skimmings other than those mentioned in 10 08 10                                       |
| 10 08 13   | carbon-containing wastes from anode manufacture other than those mentioned in 10 08 12           |
| 10 08 14   | anode scrap  |
| 10 08 16   | flue-gas dust other than those mentioned in 10 08 15   |
| 10 08 18   | sludges and filter cakes from flue-gas treatment other than those mentioned in 10 08 17          |
| 10 08 20   | wastes from cooling-water treatment other than those mentioned in 10 08 19                       |
| <b>10 09</b>   | <b>wastes from casting of ferrous pieces</b>   |
| 10 09 03   | furnace slag   |
| 10 09 06   | casting cores and moulds which have not undergone pouring other than those mentioned in 10 09 05 |
| 10 09 08   | casting cores and moulds which have undergone pouring other than those mentioned in 10 09 07     |
| 10 09 10   | flue-gas dust other than those mentioned in 10 09 09   |
| 10 09 12   | other particulates other than those mentioned in 10 09 11  |

| <b>Table S2.1 Permitted waste types for disposal at a landfill for non-hazardous waste</b> |   |
|--|---|
| <b>Waste code</b>  | <b>Description</b>  |
| 10 09 14   | waste binders other than those mentioned in 10 09 13  |
| <b>10 10</b>   | <b>wastes from casting of non-ferrous pieces</b>  |
| 10 10 03   | furnace slag  |
| 10 10 06   | casting cores and moulds which have not undergone pouring, other than those mentioned in 10 10 05   |
| 10 10 08   | casting cores and moulds which have undergone pouring, other than those mentioned in 10 10 07       |
| 10 10 10   | flue-gas dust other than those mentioned in 10 10 09  |
| 10 10 12   | other particulates other than those mentioned in 10 10 11   |
| 10 10 14   | waste binders other than those mentioned in 10 10 13  |
| <b>10 11</b>   | <b>wastes from manufacture of glass and glass products</b>  |
| 10 11 03   | waste glass-based fibrous materials   |
| 10 11 05   | particulates and dust   |
| 10 11 10   | waste preparation mixture before thermal processing, other than those mentioned in 10 11 09         |
| 10 11 12   | waste glass other than those mentioned in 10 11 11  |
| 10 11 14   | glass-polishing and -grinding sludge other than those mentioned in 10 11 13                         |
| 10 11 16   | solid wastes from flue-gas treatment other than those mentioned in 10 11 15                         |
| 10 11 18   | sludges and filter cakes from flue-gas treatment other than those mentioned in 10 11 17             |
| 10 11 20   | solid wastes from on-site effluent treatment other than those mentioned in 10 11 19                 |
| <b>10 12</b>   | <b>wastes from manufacture of ceramic goods, bricks, tiles and construction products</b>            |
| 10 12 01   | waste preparation mixture before thermal processing   |
| 10 12 03   | particulates and dust   |
| 10 12 05   | sludges and filter cakes from gas treatment   |
| 10 12 06   | discarded moulds  |
| 10 12 08   | waste ceramics, bricks, tiles and construction products (after thermal processing)                  |
| 10 12 10   | solid wastes from gas treatment other than those mentioned in 10 12 09                              |
| 10 12 12   | wastes from glazing other than those mentioned in 10 12 11  |
| 10 12 13   | sludge from on-site effluent treatment  |
| <b>10 13</b>   | <b>wastes from manufacture of cement, lime and plaster and articles and products made from them</b> |
| 10 13 01   | waste preparation mixture before thermal processing   |
| 10 13 04   | wastes from calcination and hydration of lime   |
| 10 13 06   | particulates and dust (except 10 13 12 and 10 13 13)  |
| 10 13 07   | sludges and filter cakes from gas treatment   |
| 10 13 10   | wastes from asbestos-cement manufacture other than those mentioned in 10 13 09                      |

| <b>Table S2.1 Permitted waste types for disposal at a landfill for non-hazardous waste</b> |  |
|--|--|
| <b>Waste code</b>  | <b>Description</b>   |
| 10 13 11   | wastes from cement-based composite materials other than those mentioned in 10 13 09 and 10 13 10   |
| 10 13 13   | solid wastes from gas treatment other than those mentioned in 10 13 12   |
| 10 13 14   | waste concrete and concrete sludge   |
| <b>11</b>  | <b>Wastes from chemical surface treatment and coating of metals and other materials; non-ferrous hydro-metallurgy</b>  |
| <b>11 01</b>   | <b>wastes from chemical surface treatment and coating of metals and other materials (for example galvanic processes, zinc coating processes, pickling processes, etching, phosphating, alkaline degreasing, anodising)</b> |
| 11 01 10   | sludges and filter cakes other than those mentioned in 11 01 09  |
| 11 01 14   | degreasing wastes other than those mentioned in 11 01 13   |
| <b>11 02</b>   | <b>wastes from non-ferrous hydrometallurgical processes</b>  |
| 11 02 03   | wastes from the production of anodes for aqueous electrolytical processes  |
| 11 02 06   | wastes from copper hydrometallurgical processes other than those mentioned in 11 02 05   |
| <b>11 05</b>   | <b>wastes from hot galvanising processes</b>   |
| 11 05 01   | hard zinc  |
| 11 05 02   | zincash  |
| <b>12</b>  | <b>Wastes from shaping and physical and mechanical surface treatment of metals and plastics</b>  |
| <b>12 01</b>   | <b>wastes from shaping and physical and mechanical surface treatment of metals and plastics</b>  |
| 12 01 01   | ferrous metal filings and turnings   |
| 12 01 02   | ferrous metal dust and particles   |
| 12 01 03   | non-ferrous metal filings and turnings   |
| 12 01 04   | non-ferrous metal dust and particles   |
| 12 01 05   | plastics shavings and turnings   |
| 12 01 13   | welding wastes   |
| 12 01 15   | machining sludges other than those mentioned in 12 01 14   |
| <b>15</b>  | <b>Waste packaging, absorbents, wiping cloths, filter materials and protective clothing not otherwise specified</b>  |
| <b>15 01</b>   | <b>packaging (including separately collected municipal packaging waste)</b>  |
| 15 01 01   | paper and cardboard packaging  |
| 15 01 02   | plastic packaging  |
| 15 01 03   | wooden packaging   |
| 15 01 04   | metallic packaging   |
| 15 01 05   | composite packaging  |

| <b>Table S2.1 Permitted waste types for disposal at a landfill for non-hazardous waste</b> |   |
|--|---|
| <b>Waste code</b>  | <b>Description</b>  |
| 15 01 06   | mixed packaging   |
| 15 01 07   | glass packaging   |
| 15 01 09   | textile packaging   |
| <b>15 02</b>   | <b>absorbents, filter materials, wiping cloths and protective clothing</b>  |
| 15 02 03   | absorbents, filter materials, wiping cloths and protective clothing other than those mentioned in 15 02 02  |
| <b>16</b>  | <b>Wastes not otherwise specified in the list</b>   |
| <b>16 01</b>   | <b>end-of-life vehicles from different means of transport (including off-road machinery) and wastes from dismantling of end-of-life vehicles and vehicle maintenance (except 13, 14, 16 06 and 16 08)</b> |
| 16 01 03   | end-of-life tyres   |
| 16 01 12   | brake pads other than those mentioned in 16 01 11   |
| 16 01 17   | ferrous metal   |
| 16 01 18   | non-ferrous metal   |
| 16 01 19   | plastic   |
| 16 01 20   | glass   |
| <b>16 02</b>   | <b>wastes from electrical and electronic equipment</b>  |
| 16 02 14   | discarded equipment other than those mentioned in 16 02 09 to 16 02 13  |
| 16 02 16   | components removed from discarded equipment other than those mentioned in 16 02 15  |
| <b>16 03</b>   | <b>off-specification batches and unused products</b>  |
| 16 03 04   | inorganic wastes other than those mentioned in 16 03 03   |
| 16 03 06   | organic wastes other than those mentioned in 16 03 05   |
| <b>16 08</b>   | <b>spent catalysts</b>  |
| 16 08 01   | spent catalysts containing gold, silver, rhenium, rhodium, palladium, iridium or platinum (except 16 08 07)   |
| 16 08 03   | spent catalysts containing transition metals or transition metal compounds not otherwise specified  |
| <b>16 11</b>   | <b>waste linings and refractories</b>   |
| 16 11 02   | carbon-based linings and refractories from metallurgical processes others than those mentioned in 16 11 01  |
| 16 11 04   | other linings and refractories from metallurgical processes other than those mentioned in 16 11 03  |
| 16 11 06   | linings and refractories from non-metallurgical processes others than those mentioned in 16 11 05   |
| <b>17</b>  | <b>Construction and demolition wastes (including excavated soil from contaminated sites)</b>  |
| <b>17 01</b>   | <b>concrete, bricks, tiles and ceramics</b>   |

| <b>Table S2.1 Permitted waste types for disposal at a landfill for non-hazardous waste</b> |  |
|--|--|
| <b>Waste code</b>  | <b>Description</b>   |
| 17 01 01   | concrete   |
| 17 01 02   | bricks   |
| 17 01 03   | tiles and ceramics   |
| 17 01 07   | mixtures of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06  |
| <b>17 02</b>   | <b>wood, glass and plastic</b>   |
| 17 02 01   | wood   |
| 17 02 02   | glass  |
| 17 02 03   | plastic  |
| <b>17 03</b>   | <b>bituminous mixtures, coal tar and tarred products</b>   |
| 17 03 02   | bituminous mixtures other than those mentioned in 17 03 01   |
| <b>17 04</b>   | <b>metals (including their alloys)</b>   |
| 17 04 01   | copper, bronze, brass  |
| 17 04 02   | aluminium  |
| 17 04 03   | lead   |
| 17 04 04   | zinc   |
| 17 04 05   | iron and steel   |
| 17 04 06   | tin  |
| 17 04 07   | mixed metals   |
| 17 04 11   | cables other than those mentioned in 17 04 10  |
| <b>17 05</b>   | <b>soil (including excavated soil from contaminated sites), stones and dredging spoil</b>  |
| 17 05 04   | soil and stones other than those mentioned in 17 05 03   |
| 17 05 06   | dredging spoil other than those mentioned in 17 05 05  |
| 17 05 08   | track ballast other than those mentioned in 17 05 07   |
| <b>17 06</b>   | <b>insulation materials and asbestos-containing construction materials</b>   |
| 17 06 04   | insulation materials other than those mentioned in 17 06 01 and 17 06 03   |
| <b>17 09</b>   | <b>other construction and demolition wastes</b>  |
| 17 09 04   | mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03   |
| <b>18</b>  | <b>Wastes from human or animal health care and/or related research (except kitchen and restaurant wastes not arising from immediate health care)</b> |
| <b>18 02</b>   | <b>wastes from research, diagnosis, treatment or prevention of disease involving animals</b>   |
| 18 02 03   | wastes whose collection and disposal is not subject to special requirements in order to prevent infection  |
| 18 02 06   | chemicals other than those mentioned in 18 02 05   |

| <b>Table S2.1 Permitted waste types for disposal at a landfill for non-hazardous waste</b> |  |
|--|--|
| <b>Waste code</b>  | <b>Description</b>   |
| <b>19</b>  | <b>Wastes from waste management facilities, off-site waste water treatment plants and the preparation of water intended for human consumption and water for industrial use</b> |
| <b>19 01</b>   | <b>wastes from incineration or pyrolysis of waste</b>  |
| 19 01 02   | ferrous materials removed from bottom ash  |
| 19 01 12   | bottom ash and slag other than those mentioned in 19 01 11   |
| 19 01 14   | fly ash other than those mentioned in 19 01 13   |
| 19 01 16   | boiler dust other than those mentioned in 19 01 15   |
| 19 01 18   | pyrolysis wastes other than those mentioned in 19 01 17  |
| 19 01 19   | sands from fluidised beds  |
| <b>19 02</b>   | <b>wastes from physico/chemical treatments of waste (including dechromatation, decyanidation, neutralisation)</b>  |
| 19 02 03   | premixed wastes composed only of non-hazardous wastes  |
| 19 02 06   | sludges from physico/chemical treatment other than those mentioned in 19 02 05   |
| 19 02 10   | combustible wastes other than those mentioned in 19 02 08 and 19 02 09   |
| <b>19 03</b>   | <b>stabilised/solidified wastes<sup>1</sup></b>  |
| 19 03 05   | stabilised wastes other than those mentioned in 19 03 04   |
| 19 03 07   | solidified wastes other than those mentioned in 19 03 06   |
| <b>19 04</b>   | <b>vitrified waste and wastes from vitrification</b>   |
| 19 04 01   | vitrified waste  |
| <b>19 05</b>   | <b>wastes from aerobic treatment of solid wastes</b>   |
| 19 05 01   | non-composted fraction of municipal and similar wastes   |
| 19 05 02   | non-composted fraction of animal and vegetable waste   |
| <b>19 06</b>   | <b>wastes from anaerobic treatment of waste</b>  |
| 19 06 04   | digestate from anaerobic treatment of municipal waste  |
| 19 06 06   | digestate from anaerobic treatment of animal and vegetable waste   |
| <b>19 08</b>   | <b>wastes from waste water treatment plants not otherwise specified</b>  |
| 19 08 01   | screenings   |
| 19 08 02   | waste from desanding   |
| 19 08 05   | sludges from treatment of urban waste water  |
| 19 08 09   | grease and oil mixture from oil/water separation containing only edible oil and fats   |
| 19 08 12   | sludges from biological treatment of industrial waste water other than those mentioned in 19 08 11   |

<sup>1</sup> Stabilisation processes change the dangerousness of the constituents in the waste and thus transform hazardous waste into non-hazardous waste. Solidification processes only change the physical state of the waste (e.g. liquid into solid) by using additives without changing the chemical properties of the waste.

| <b>Table S2.1 Permitted waste types for disposal at a landfill for non-hazardous waste</b> |  |
|--|--|
| <b>Waste code</b>  | <b>Description</b>   |
| 19 08 14   | sludges from other treatment of industrial waste water other than those mentioned in 19 08 13  |
| <b>19 09</b>   | <b>wastes from the preparation of water intended for human consumption or water for industrial use</b>   |
| 19 09 01   | solid waste from primary filtration and screenings   |
| 19 09 02   | sludges from water clarification   |
| 19 09 03   | sludges from decarbonation   |
| 19 09 04   | spent activated carbon   |
| 19 09 05   | saturated or spent ion exchange resins   |
| 19 09 06   | solutions and sludges from regeneration of ion exchangers  |
| <b>19 10</b>   | <b>wastes from shredding of metal-containing wastes</b>  |
| 19 10 01   | iron and steel waste   |
| 19 10 02   | non-ferrous waste  |
| 19 10 04   | fluff-light fraction and dust other than those mentioned in 19 10 03   |
| 19 10 06   | other fractions other than those mentioned in 19 10 05   |
| <b>19 11</b>   | <b>wastes from oil regeneration</b>  |
| 19 11 06   | sludges from on-site effluent treatment other than those mentioned in 19 11 05   |
| <b>19 12</b>   | <b>wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified</b>          |
| 19 12 01   | paper and cardboard  |
| 19 12 02   | ferrous metal  |
| 19 12 03   | non-ferrous metal  |
| 19 12 04   | plastic and rubber   |
| 19 12 05   | glass  |
| 19 12 07   | wood other than that mentioned in 19 12 06   |
| 19 12 08   | textiles   |
| 19 12 09   | minerals (for example sand, stones)  |
| 19 12 10   | combustible waste (refuse derived fuel)  |
| 19 12 12   | other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11                      |
| <b>19 13</b>   | <b>wastes from soil and groundwater remediation</b>  |
| 19 13 02   | solid wastes from soil remediation other than those mentioned in 19 13 01  |
| 19 13 04   | sludges from soil remediation other than those mentioned in 19 13 03   |
| 19 13 06   | sludges from groundwater remediation other than those mentioned in 19 13 05  |
| <b>20</b>  | <b>Municipal wastes (household waste and similar commercial, industrial and institutional wastes) including separately collected fractions</b> |

| <b>Table S2.1 Permitted waste types for disposal at a landfill for non-hazardous waste</b> |   |
|--|---|
| <b>Waste code</b>  | <b>Description</b>  |
| <b>20 01</b>   | <b>separately collected fractions (except 15 01)</b>  |
| 20 01 01   | paper and cardboard   |
| 20 01 02   | glass   |
| 20 01 08   | biodegradable kitchen and canteen waste   |
| 20 01 10   | clothes   |
| 20 01 11   | textiles  |
| 20 01 25   | edible oil and fat  |
| 20 01 28   | paint, inks, adhesives and resins other than those mentioned in 20 01 27  |
| 20 01 30   | detergents other than those mentioned in 20 01 29   |
| 20 01 36   | discarded electrical and electronic equipment other than those mentioned in 20 01 21, 20 01 23 and 20 01 35   |
| 20 01 38   | wood other than that mentioned in 20 01 37  |
| 20 01 39   | plastics  |
| 20 01 40   | metals  |
| 20 01 41   | wastes from chimney sweeping  |
| 20 01 99   | Other fractions not otherwise specified (comprising only of non-clinical human and animal offensive/hygiene waste (not arising from healthcare and/or related research i.e. not including waste from natal care, diagnosis, treatment or prevention of disease) which is not subject to special requirements in order to prevent infection. |
| <b>20 02</b>   | <b>garden and park wastes (including cemetery waste)</b>  |
| 20 02 01   | biodegradable waste   |
| 20 02 02   | soil and stones   |
| 20 02 03   | other non-biodegradable wastes  |
| <b>20 03</b>   | <b>other municipal wastes</b>   |
| 20 03 01   | mixed municipal waste   |
| 20 03 02   | waste from markets  |
| 20 03 03   | street-cleaning residues  |
| 20 03 04   | septic tank sludge  |
| 20 03 06   | waste from sewage cleaning  |
| 20 03 07   | bulky waste   |

| <b>Table S2.2 Permitted waste types for restoration</b> |  |
|---|--|
| <b>Waste code</b>                                       | <b>Description</b>   |
| <b>01</b>   | <b>Wastes resulting from exploration, mining, quarrying, and physical and chemical treatment of minerals</b> |
| <b>01 01</b>  | <b>wastes from mineral excavation</b>  |
| 01 01 01  | wastes from mineral metalliferous excavation   |
| 01 01 02  | wastes from mineral non-metalliferous excavation   |



| <b>Table S2.2 Permitted waste types for restoration</b> |  |
|---|--|
| <b>Waste code</b>                                       | <b>Description</b>   |
| <b>01 04</b>  | <b>wastes from physical and chemical processing of non-metalliferous minerals</b>  |
| 01 04 08  | waste gravel and crushed rocks other than those mentioned in 01 04 07  |
| 01 04 09  | waste sand and clays   |
| <b>10</b>   | <b>Wastes from thermal processes</b>   |
| <b>10 12</b>  | <b>wastes from manufacture of ceramic goods, bricks, tiles and construction products</b>   |
| 10 12 08  | waste ceramics, bricks, tiles and construction products (after thermal processing)   |
| <b>17</b>   | <b>Construction and demolition wastes (including excavated soil from contaminated sites)</b>   |
| <b>17 01</b>  | <b>concrete, bricks, tiles and ceramics</b>  |
| 17 01 01  | concrete   |
| 17 01 02  | bricks   |
| 17 01 03  | tiles and ceramics   |
| 17 01 07  | mixtures of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06  |
| <b>17 05</b>  | <b>soil (including excavated soil from contaminated sites), stones and dredging spoil</b>  |
| 17 05 04  | soil and stones other than those mentioned in 17 05 03   |
| <b>17 09</b>  | <b>other construction and demolition wastes</b>  |
| 17 09 04  | mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03   |
| <b>19</b>   | <b>Wastes from waste management facilities, off-site waste water treatment plants and the preparation of water intended for human consumption and water for industrial use</b> |
| <b>19 05</b>  | <b>wastes from aerobic treatment of solid wastes</b>   |
| 19 05 03  | off-specification compost  |
| <b>19 08</b>  | <b>wastes from waste water treatment plants not otherwise specified</b>  |
| 19 08 05  | sludges from treatment of urban waste water  |
| <b>19 12</b>  | <b>wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified</b>  |
| 19 12 09  | minerals (for example sand, stones)  |
| 19 12 12  | other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11  |
| <b>19 13</b>  | <b>wastes from soil and groundwater remediation</b>  |
| 19 13 04  | sludges from soil remediation other than those mentioned in 19 13 03   |
| <b>20</b>   | <b>Municipal wastes (household waste and similar commercial, industrial and institutional wastes) including separately collected fractions</b>                                 |
| <b>20 02</b>  | <b>garden and park wastes (including cemetery waste)</b>   |
| 20 02 02  | soil and stones  |

| <b>Table S2.3 Permitted waste types for disposal in the asbestos cell</b> |   |
|---|---|
| <b>Waste code</b>   | <b>Description</b>  |
| <b>06</b>   | <b>Wastes from inorganic chemical processes</b>   |
| <b>06 13</b>  | <b>wastes from inorganic chemical processes not otherwise specified</b>   |
| 06 13 04*   | wastes from asbestos processing   |
| <b>10</b>   | <b>Wastes from thermal processes</b>  |
| <b>10 13</b>  | <b>wastes from manufacture of cement, lime and plaster and articles and products made from them</b>   |
| 10 13 09*   | wastes from asbestos-cement manufacture containing asbestos   |
| <b>16</b>   | <b>Wastes not otherwise specified in the list</b>   |
| <b>16 01</b>  | <b>end-of-life vehicles from different means of transport (including off-road machinery) and wastes from dismantling of end-of-life vehicles and vehicle maintenance (except 13, 14, 16 06 and 16 08)</b> |
| 16 01 11*   | brake pads containing asbestos  |
| <b>16 02</b>  | <b>wastes from electrical and electronic equipment</b>  |
| 16 02 12*   | discarded equipment containing free asbestos  |
| <b>17</b>   | <b>Construction and demolition wastes (including excavated soil from contaminated sites)</b>  |
| <b>17 05</b>  | <b>soil (including excavated soil from contaminated sites), stones and dredging spoil</b>   |
| 17 05 03*   | soil and stones containing dangerous substances   |
| <b>17 06</b>  | <b>insulation materials and asbestos-containing construction materials</b>  |
| 17 06 01*   | insulation materials containing asbestos  |
| 17 06 05*   | construction materials containing asbestos  |

## Schedule 3 – Emissions and monitoring

| Table S3.1 Leachate level limits and monitoring requirements   |   |                      |  |
|--|---|----------------------|--|
| Monitoring point reference/ Description  | Limit   | Monitoring frequency | Monitoring standard and method   |
| Leachate compliance and monitoring points<br>3102<br>3103<br>3202<br>3203<br>3302<br>3303<br>3402<br>3403<br>as shown on plan ESID8A | <p><b>For operational cells or phases</b> (any cells or phases that do not have a final engineered cap agreed in accordance with the landfill engineering condition 2.5) -</p> <p>Leachate level shall be no more than 1.0 metre above the top of the engineered clay liner at the base of the landfill</p> <p>Or</p> <p><b>For non-operational cells or phases</b> (any cells or phases that have a final engineered cap agreed in accordance with the landfill engineering condition 2.5) -</p> <p>Leachate level shall be no more than 5.0 metres above the top of the engineered clay liner at the base of the landfill and shall not exceed a level equal to 2.0 metres below surrounding groundwater level adjacent to the landfill</p> | Monthly              | As specified in Environment Agency Guidance LFTGN02 (February 2003) or such other subsequent guidance as may be agreed in writing with the Environment Agency. Or as otherwise agreed with the Agency as part of a leachate monitoring plan. |

**Table S3.2 Point source emissions to air – emission limits and monitoring requirements**

| <b>Emission point Ref. &amp; Location</b>   | <b>Parameter</b>   | <b>Source</b>         | <b>Limit (including unit)</b> | <b>Reference Period</b> | <b>Monitoring Frequency</b> | <b>Monitoring Standard or Method</b>  |
|---|--------------------|-----------------------|-------------------------------|-------------------------|-----------------------------|---|
| Landfill gas engine 1<br>Landfill gas engine 2<br>Situated in Landfill Gas Extraction Equipment Compound as shown on drawing ESID8B | Oxides of Nitrogen | Gas utilisation plant | 500 mg/m <sup>3</sup>         | Hourly mean             | Annually                    | As per M2 or such other subsequent guidance as may be agreed in writing with the Environment Agency.  |
|   | CO                 |                       | 1400 mg/m <sup>3</sup>        |                         |                             |   |
|   | Total VOCs         |                       | 1000 mg/m <sup>3</sup>        |                         |                             |   |
| Landfill gas flare 1<br>Landfill gas flare 2<br>Situated in Landfill Gas Extraction Equipment Compound as shown on drawing ESID8B   | Oxides of Nitrogen | Landfill Gas Flares   | 150 mg/m <sup>3</sup>         | Hourly mean             | Annually                    | As per M2 or such other subsequent guidance as may be agreed in writing with the Environment Agency.<br>Monitoring is unnecessary where the flare is active for <10% of the year. |
|   | CO                 |                       | 50 mg/m <sup>3</sup>          |                         |                             |   |
|   | Total VOCs         |                       | 10 mg/m <sup>3</sup>          |                         |                             |   |

| <b>Emission point Ref. &amp; Location</b> | <b>Parameter</b>    | <b>Source</b>  | <b>Limit (incl unit)</b> | <b>Reference Period</b> | <b>Monitoring Frequency</b> | <b>Monitoring Standard or Method</b>  |
|---|---------------------|--|--------------------------|-------------------------|-----------------------------|---|
| 2006<br>as shown on drawing<br>ESID8A     | Suspended Solids    | Surface water and pumped groundwater from the permitted landfill | 75 mg/l                  | Spot Sample             | Quarterly                   | Unless otherwise agreed in writing with the Environment Agency, monitoring methods used shall be in accordance with Environment Agency document 'Guidance on monitoring of landfill leachate, groundwater and surface water' (LFTGN02). |
|   | BOD                 |  | 3.6 mg/l                 |                         |                             |   |
|   | Chloride            |  | 52.4 mg/l                |                         |                             |   |
|   | Ammoniacal Nitrogen |  | 2 mg/l                   |                         |                             |   |
|   | pH                  |  | 6 - 9                    |                         |                             |   |

| <b>Monitoring point reference</b>        | <b>Parameter</b>    | <b>Limit (including unit)</b> | <b>Reference Period</b> | <b>Monitoring frequency</b> | <b>Monitoring standard or method</b>  |  |
|--|---------------------|-------------------------------|-------------------------|-----------------------------|---|--|
| 4000<br>As shown on drawing PSE22-11-09A | Cadmium             | 2.3 µg/l                      | Spot Sample             | Monthly                     | As specified in Environment Agency Guidance LFTGN02 'Monitoring of Landfill Leachate, Groundwater and Surface Water' (February 2003), <u><a href="#">risk assessments for your environmental permit (www.gov.uk)</a></u> or such other subsequent guidance as may be agreed in writing with the Environment Agency. |  |
|  | Phenol              | 30 µg/l                       |                         |                             |   |  |
|  | Nickel              | 33.6 µg/l                     |                         |                             |   |  |
|  | Ammoniacal Nitrogen | 2.9 mg/l                      |                         |                             |   |  |
|  | Chloride            | 250 mg/l                      |                         |                             |   |  |
| 4001<br>As shown on drawing PSE22-11-09A | Cadmium             | 1.5 µg/l                      | Spot Sample             | Monthly                     |   |  |
|  | Phenol              | 30 µg/l                       |                         |                             |   |  |
|  | Nickel              | 16.1 µg/l                     |                         |                             |   |  |
|  | Ammoniacal Nitrogen | 1.3 mg/l                      |                         |                             |   |  |
|  | Chloride            | 250 mg/l                      |                         |                             |   |  |

| Table S3.4 Groundwater – emission limits and monitoring requirements |                     |                        |                  |                      |   |
|--|---------------------|------------------------|------------------|----------------------|---|
| Monitoring point reference   | Parameter           | Limit (including unit) | Reference Period | Monitoring frequency | Monitoring standard or method   |
| 1010, 1180, 1220, 1250, 1280<br>as shown on drawing ESID8A           | Nickel              | 20 µg/l                | Spot Sample      | 6-monthly            | As specified in Environment Agency Guidance LFTGN02 'Monitoring of Landfill Leachate, Groundwater and Surface Water' (February 2003), <u>risk assessments for your environmental permit (<a href="http://www.gov.uk">www.gov.uk</a>)</u> or such other subsequent guidance as may be agreed in writing with the Environment Agency. |
|  | Chloride            | 250 mg/l               |                  | Quarterly            |   |
|  | Phenol              | 0.6 µg/l               |                  | 6-monthly            |   |
| 1010<br>as shown on drawing ESID8A                                   | Ammoniacal Nitrogen | 0.9 mg/l               | Spot Sample      | Quarterly            |   |
| 1180<br>as shown on drawing ESID8A                                   |                     | 1.1 mg/l               |                  |                      |   |
| 1220<br>as shown on drawing ESID8A                                   |                     | 0.7 mg/l               |                  |                      |   |
| 1250, 1280<br>as shown on drawing ESID8A                             |                     | 0.6 mg/l               |                  |                      |   |
| 1010<br>as shown on drawing ESID8A                                   | Mecoprop            | 0.43 µg/l              | Spot Sample      | 6-monthly            |   |
| 1180, 1220, 1250<br>as shown on drawing ESID8A                       |                     | 0.1 µg/l               |                  |                      |   |
| 1280<br>as shown on drawing ESID8A                                   |                     | 0.17 µg/l              |                  |                      |   |
| 1010<br>as shown on drawing ESID8A                                   | Cadmium             | 3.4 µg/l               | Spot Sample      | 6-monthly            |   |
| 1180<br>as shown on drawing ESID8A                                   |                     | 1.0 µg/l               |                  |                      |   |
| 1220<br>as shown on drawing ESID8A                                   |                     | 1.9 µg/l               |                  |                      |   |
| 1250, 1280<br>as shown on drawing ESID8A                             |                     | 1.6 µg/l               |                  |                      |   |

**Table S3.5 Landfill gas in external monitoring boreholes – limits and monitoring requirements**

| Monitoring point Ref. /description   | Parameter            | Limit (including units) | Monitoring frequency | Monitoring standard or method   |
|--|----------------------|-------------------------|----------------------|---|
| 1010<br>1020<br>1030<br>1040<br>1170<br>1180<br>1190<br>1200<br>1210<br>1220<br>1230<br>1240<br>1250<br>1260<br>1270<br>1280<br>1290<br>1300<br>as shown on drawing ESID8A | Methane              | 1 %v/v                  | Monthly Agency       | As per LFTGN03 (v1 – September 2004) or such other subsequent guidance as may be agreed in writing with the Environment Agency.<br><br>Record whether the ground is:<br>waterlogged<br>frozen<br>snow covered |
|  | Carbon Dioxide       | no limit                |                      |   |
|  | Oxygen               | no limit                |                      |   |
|  | Atmospheric pressure | no limit                |                      |   |
|  | Meteorological data  | no limit                |                      |   |
|  |                      |                         |                      |   |
| 1050<br>1060<br>1070<br>1080<br>1190<br>1100   | Methane              | no limit                | Monthly              | As per LFTGN03 (v1 – September 2004) or such other subsequent guidance as may be agreed in writing with the Environment Agency.<br><br>Record whether the ground is:<br>waterlogged<br>frozen<br>snow covered |
|  | Carbon Dioxide       | no limit                |                      |   |
|  | Oxygen               | no limit                |                      |   |
|  | Atmospheric pressure | no limit                |                      |   |

| Table S3.5 Landfill gas in external monitoring boreholes – limits and monitoring requirements |           |                         |                      |                               |
|---|-----------|-------------------------|----------------------|-------------------------------|
| Monitoring point Ref. /description  | Parameter | Limit (including units) | Monitoring frequency | Monitoring standard or method |
| 1110<br>1120<br>1130<br>1140<br>1150<br>1160<br>as shown on drawing<br>ESID8A                 |           |                         |                      |                               |

| Table S3.6 Point source emissions to sewer, effluent treatment plant or by tankering or other transfer off-site – emission limits and monitoring requirements |           |                                      |                        |                  |                      |                               |
|---|-----------|--------------------------------------|------------------------|------------------|----------------------|-------------------------------|
| Emission point Ref. & Location  | Parameter | Source                               | Limit (including unit) | Reference Period | Monitoring Frequency | Monitoring Standard or Method |
| Tanker discharge point<br>Located in temporary flare compound shown on plan<br><i>'Temporary flare Location H6032100'</i>                                     | -         | Leachate from the permitted landfill | -                      | -                | -                    | -                             |



| <b>Table S3.7 Particulate matter in ambient air - monitoring requirements</b>                           |                              |  |                         |   |  |
|---|------------------------------|--|-------------------------|---|--|
| <b>Monitoring Point Ref. /Description</b>   | <b>Parameter</b>             | <b>Limit</b>   | <b>Reference Period</b> | <b>Monitoring Frequency</b>   | <b>Monitoring Standard or Method</b>   |
| 20m downwind of asbestos disposal cell  | Asbestos Fibres              | Where total fibre concentration exceeds 0.01 fibres/ ml in any sample, that sample must be submitted for electron microscopy to confirm the concentration of asbestos fibres present | 2 hours                 | Twice per year or every 5000 tonnes asbestos deposited, whichever is greater. | While asbestos is being deposited. <ul style="list-style-type: none"> <li>• Pumped sampling</li> <li>• 1m above ground level</li> <li>• Flow rate = 4 litres/ minute</li> <li>• Minimum sample volume = 480 litres</li> <li>• Filter pore size = 1.2µm</li> </ul> Asbestos fibre limit of detection = 0.001 fibres/ ml |
| 50m upwind of asbestos disposal cell  | Asbestos Fibres              |  | 2 hours                 | During all downwind monitoring  |  |
| Site boundary downwind of asbestos disposal cell  | Asbestos Fibres              |  | 2 hours                 | Minimum twice per year.   |  |
| Any monitoring locations or surveys approved under pre-operational condition 2.6.2, Table S1.4B, Ref. 2 | Total dust deposition        | >160 mg/m <sup>2</sup> /day  | Continuous              | Hourly average reported   | As stated in document 'Odour and Dust Management Plan Hartlebury Landfill Site', ref: 03523403.541   |
|   | Dust soiling                 | 25 SU/Week   | Weekly average          | As required by complaints   |  |
|   | Suspended particulate matter | 40µg/m <sup>3</sup> (24 hour mean concentration)   | As required             | As required   |  |

| <b>Monitoring point Ref. /description</b> | <b>Parameter</b>       | <b>Monitoring frequency</b>           | <b>Monitoring Standard or method</b>  |
|---|------------------------|---------------------------------------|---|
| Permanently capped zone                   | Methane concentration  | Every 12 months                       | As per LFTGN 07 (v2 2010) or such other subsequent guidance as may be agreed in writing with the Environment Agency.  |
| Temporarily capped zone                   | Methane concentration  | Every 12 months                       | As per LFTGN 07 (v2 2010) or such other subsequent guidance as may be agreed in writing with the Environment Agency.  |
| Whole site                                | Total methane emission | As agreed with the Environment Agency | As per LFTGN 07 (v2 2010) or such other subsequent guidance as may be agreed in writing with the Environment Agency.  |
| Uncapped areas                            | Methane concentration  | Every 12 months                       | As agreed with the Environment Agency based on the wording of revised LFTGN 07 or landfill sector guidance or such other subsequent guidance as may be agreed in writing with the Environment Agency. |

| <b>Monitoring Point Ref./Description</b> | <b>Parameter</b>  | <b>Monitoring frequency</b>               | <b>Monitoring standard or method</b>   |
|--|---|---|--|
| Up gradient<br>MEPP                      | Water level, electrical conductivity, chloride, ammoniacal nitrogen, pH,  | Quarterly                                 | As specified in Environment Agency Guidance TGN02 'Monitoring of Landfill Leachate, Groundwater and Surface Water' (February 2003), Horizontal Guidance Note H1 – Environmental Risk Assessment for permits, Annex J3, (version 2.1, Dec 2011), or such other subsequent guidance as may be agreed in writing with the Environment Agency. |
|  | total alkalinity, magnesium, potassium, total sulphates, calcium, sodium, chromium, copper, iron, lead, nickel, zinc, manganese | Annually                                  |  |
|  | Hazardous substances  | Annually for first six years of operation |  |

| <b>Table S3.9 Groundwater – other monitoring requirements</b> |   |  |  |
|---|---|--|--|
| <b>Monitoring Point Ref./Description</b>                      | <b>Parameter</b>  | <b>Monitoring frequency</b>                                    | <b>Monitoring standard or method</b>   |
| Down or cross gradient<br>MEPP                                | Water level, electrical conductivity, chloride, ammoniacal nitrogen, pH,  | Quarterly  | As specified in Environment Agency Guidance TGN02 'Monitoring of Landfill Leachate, Groundwater and Surface Water' (February 2003), Horizontal Guidance Note H1 – Environmental Risk Assessment for permits, Annex J3, (version 2.1, Dec 2011), or such other subsequent guidance as may be agreed in writing with the Environment Agency.<br><br>After the initial 6 year monitoring period for hazardous substances, if the results of quarterly or annual monitoring suggest an increase in contamination, the operator shall also undertake a full leachate hazardous substances screen. |
|   | total alkalinity, magnesium, potassium, total sulphates, calcium, sodium, chromium, copper, iron, lead, nickel, zinc, manganese | Annually   |  |
|   | Hazardous substances detected in leachate   | Annually for first six years of operation then every two years |  |
| MEPP  | Base of monitoring point (mAoD)   | Annually   |  |

**Table S3.10 Landfill gas – other monitoring requirements**

| Monitoring Point Ref. /Description   | Parameter   | Monitoring frequency                   | Monitoring standard or method  | Other specifications  |
|--|---|--|--|---|
| In waste gas monitoring boreholes or sealed leachate wells or sacrificial gas extraction system in cells for non-hazardous waste | Methane<br>Carbon Dioxide<br>Oxygen<br>Carbon Monoxide<br>Differential pressure<br>Atmospheric pressure | Monthly until gas extraction commences | Calibrated handheld monitoring instrument  | For cells or phases which have no active gas extraction. Gas extraction system shall be installed and extraction commenced once monitoring shows onset of methane production in waste at a rate that can be sustainably extracted.<br><br>Once gas extraction has commenced in a particular cell or phase, there is no longer a requirement to carry out this monitoring. |
|  | Hydrogen sulphide   | Quarterly                              | Calibrated handheld monitoring instrument or Tedlar Bag sample in accordance with LFTGN04 (v3.0, 2010) or other such subsequent guidance as may be agreed in writing with the Environment Agency or a method agreed with the Environment Agency. | For cells or phases which have no active gas extraction. Once gas extraction has commenced in a particular cell or phase, there is no longer a requirement to carry out this monitoring.<br><br>Concentrations of hydrogen sulphide shall be assessed in accordance with the gas and odour management plans.  |

**Table S3.10 Landfill gas – other monitoring requirements**

| Monitoring Point Ref.<br>/Description   | Parameter   | Monitoring frequency | Monitoring standard or method  | Other specifications   |
|---|---|----------------------|--|--|
| One in waste borehole per cell and / or leachate wells for separate cells for asbestos at landfills for non-hazardous waste | Methane<br>Carbon Dioxide<br>Oxygen<br>Carbon Monoxide<br>Differential pressure<br>Atmospheric pressure | Monthly              |  |  |
|   | Hydrogen sulphide<br>Hydrogen   | Quarterly            | Calibrated handheld monitoring instrument or Tedlar Bag sample in accordance with LFTGN04 (v3.0, 2010) or other such subsequent guidance as may be agreed in writing with the Environment Agency or a method agreed with the Environment Agency. | Concentrations of hydrogen sulphide shall be assessed in accordance with the gas and odour management plans  |
| One in waste borehole or one leachate well per cell for separate cells for asbestos on landfills for non-hazardous waste    | Trace gas   | Annually             | Trace gas analysis in accordance with LFTGN04 (v3.0, 2010) or a trace gas characterisation method agreed with the Environment Agency or such other subsequent guidance as may be agreed in writing with the Environment Agency                   | The concentration of trace gas components shall be assessed against the assumptions made in the Landfill gas risk assessment and dispersion modelling. |

**Table S3.10 Landfill gas – other monitoring requirements**

| Monitoring Point Ref. /Description  | Parameter   | Monitoring frequency  | Monitoring standard or method  | Other specifications   |
|---|---|---|--|--|
| Gas collection system at well control valve, manifolds (if applicable) and strategic points on gas system | Methane<br>Carbon Dioxide<br>Oxygen<br>Carbon Monoxide<br>Atmospheric pressure<br>Gas flow rate or suction<br>% Balance Gas (calculated as the difference between the sum of measured gases and 100%) | Monthly or at such other frequency as may be agreed in writing with the Environment Agency. | Calibrated handheld monitoring instrument  | Where the oxygen concentration exceeds 5% or the % balance gas is greater than 20% an assessment of air ingress into the system shall be undertaken.<br><br>Where the concentration of carbon monoxide exceeds 100ppm then further investigation shall be undertaken<br><br>Record the ambient air temperature and whether the ground is:<br><br>waterlogged<br><br>frozen<br><br>snow covered |
| Gas collection system at well control valve   | Hydrogen sulphide   | Six monthly   | Calibrated handheld monitoring instrument or Tedlar Bag sample in accordance with LFTGN04 (v3.0, 2010) or other such subsequent guidance as may be agreed in writing with the Environment Agency or a method agreed with the Environment Agency. | Concentrations of hydrogen sulphide shall be assessed in accordance with the gas and odour management plans  |

**Table S3.10 Landfill gas – other monitoring requirements**

| <b>Monitoring Point Ref. /Description</b>  | <b>Parameter</b>   | <b>Monitoring frequency</b> | <b>Monitoring standard or method</b>   | <b>Other specifications</b>  |
|--|--|-----------------------------|--|--|
| Input to flare or LFG Utilisation Compound | Trace gas  | Annually                    | Trace gas analysis in accordance with LFTGN04 (v3.0, 2010) or such other subsequent guidance as may be agreed in writing with the Environment Agency | The concentration of trace gas components shall be assessed against the assumptions made in the Landfill gas risk assessment and dispersion modelling. |
| Input to flare or LFG Utilisation Compound | Methane<br>Carbon Dioxide<br>Oxygen<br>Gas flow rate<br>Suction<br>% Balance Gas (calculated as the difference between the sum of measured gases and 100%) | Weekly                      |  | Where the oxygen concentration exceeds 5% or the % balance gas is greater than 20% an assessment of air ingress into the system shall be undertaken.   |

**Table S3.10 Landfill gas – other monitoring requirements**

| <b>Monitoring Point Ref.<br/>/Description</b>   | <b>Parameter</b> | <b>Monitoring frequency</b>  | <b>Monitoring standard or method</b>   | <b>Other specifications</b>  |
|---|------------------|--|--|--|
| Landfill gas flare 1<br>Landfill gas flare 2<br>Situated in Landfill Gas Extraction Equipment Compound as shown on drawing ESID8B               | Temperature      | As per LFTGN05 (v2.0, 2010) or such other subsequent guidance as may be agreed in writing with the Environment Agency. | As per M2 or such other subsequent guidance as may be agreed in writing with the Environment Agency.   |  |
| Landfill gas engine 1<br>Landfill gas engine 2<br>Situated in Landfill Gas Extraction Equipment Compound as shown on drawing ESID8B, post turbo | NOx and CO       | Quarterly  | In accordance with Appendix C of LFTGN08, version 2: 2010 or such other subsequent guidance as may be agreed in writing with the Environment Agency. | Where monitoring using hand-held, electrochemical equipment indicates an exceedance of the emissions standards specified in Table S3.2, these shall be used as action levels and the operator shall investigate the cause and take appropriate measures to reduce emissions. |



| <b>Table S3.11 Leachate – other monitoring requirements</b>  |   |                             |  |                             |
|--|---|-----------------------------|--|-----------------------------|
| <b>Monitoring point reference or description</b>   | <b>Parameter</b>  | <b>Monitoring frequency</b> | <b>Monitoring standard or method</b>   | <b>Other specifications</b> |
| <b>Operational Cells or Phases</b><br>(Any cell or phases that do not have a final engineered cap agreed in accordance with condition 2.5) |   |                             | At leachate compliance point as listed in table S3.1.<br><br>As specified in Environment Agency Guidance TGN02 (February 2003) and Horizontal Guidance Note H1 – Environmental Risk Assessment for permits, Annex J3 (version 2.1, Dec 2011) with one sampling point per cell / phase or such other subsequent guidance as may be agreed in writing with the Environment Agency. |                             |
| MEPP   | pH, EC, total alkalinity, ammoniacal nitrogen, Chloride, COD, BOD, cadmium, chromium, copper, lead, nickel, iron, arsenic, magnesium, potassium, total sulphates, calcium, sodium, zinc, manganese  | Quarterly                   |  | None                        |
| MEPP   | Hazardous substances  | Annually                    |  | None                        |
| MEPP   | Depth to base (mAoD)  | Annually                    |  | None                        |
| <b>Non Operational Cells or Phases</b><br>(Any cell or phases that have a final engineered cap agreed in accordance with condition 2.5)    |   |                             |  |                             |
| MEPP   | pH, EC, total alkalinity, ammoniacal nitrogen, Chloride, COD, BOD, cadmium, chromium, copper, lead, nickel, iron, arsenic, magnesium, potassium, total sulphates, calcium, sodium, zinc, manganese, | Annually                    |  |                             |
| MEPP   | Hazardous substances  | Once every four years       |  | None                        |
| MEPP   | Depth to base (mAoD)  | Annually                    |  |                             |

| <b>Table S3.12 Surface water – other monitoring requirements</b> |   |                             |                                      |  |
|--|---|-----------------------------|--------------------------------------|--|
| <b>Monitoring Point Ref. /Description</b>                        | <b>Parameter</b>  | <b>Monitoring frequency</b> | <b>Monitoring standard or method</b> | <b>Other specifications</b>  |
| MEPP   | Ammoniacal nitrogen<br>Chloride<br>Suspended Solids<br>Visual Oil and Grease<br>pH<br>electrical conductivity | Monthly                     | Spot sample                          | As specified in Environment Agency Guidance TGN02 'Monitoring of Landfill Leachate, Groundwater and Surface Water' (February 2003) and Horizontal Guidance Note H1 – Environmental Risk Assessment for permits, (Annex J3, version 2.1, Dec 2011) or such other subsequent guidance as may be agreed in writing with the Environment Agency. |

| <b>Table S3.13 Ambient air – other monitoring requirements</b> |                                  |                                    |                                      |   |
|--|----------------------------------|------------------------------------|--------------------------------------|---|
| <b>Monitoring Point Ref. /Description</b>                      | <b>Parameter</b>                 | <b>Monitoring frequency</b>        | <b>Monitoring standard or method</b> | <b>Other specifications</b>   |
| Installation boundary  | Methane in ambient air           | Monthly                            | Flame Ionisation Detector            | Limit 10 ppmv<br>Unless otherwise agreed in writing with the Environment Agency |
| Installation boundary  | Hydrogen sulphide in ambient air | On exceedance of the methane limit | -                                    | Limit 10 ppbv<br>Unless otherwise agreed in writing with the Environment Agency |

## Schedule 4 – Reporting

Parameters, for which reports shall be made, in accordance with conditions of this permit, are listed below.

| <b>Table S4.1 Reporting of monitoring data</b>  |                         |  |
|---|-------------------------|--|
| <b>Parameter</b>  | <b>Reporting period</b> | <b>Period ends</b>                           |
| Leachate level<br>As specified by schedule 3, table S3.1                                    | Every 3 months          | 31 March, 30 June, 30 September, 31 December |
| Point source emission to air<br>As specified by schedule 3, table S3.2                      | Every 12 months         | 31 December                                  |
| Point source emission to water (other than sewer)<br>As specified by schedule 3, table S3.3 | Every 3 months          | 31 March, 30 June, 30 September, 31 December |
| Emission to groundwater<br>As specified by schedule 3, table S3.4                           | Every 3 months          | 31 March, 30 June, 30 September, 31 December |
| Landfill gas in external monitoring boreholes<br>As specified by schedule 3, table S3.5     | Every 3 months          | 31 March, 30 June, 30 September, 31 December |
| Particulate matter in ambient air.<br>As required by schedule 3, table S3.7                 | Every 6 months          | 30 June, 31 December                         |
| Emission of landfill gas from capped surfaces<br>As specified by schedule 3, table S3.8     | Every 12 months         | 31 December                                  |
| Other groundwater monitoring<br>As specified by schedule 3, table S3.9                      | Every 3 months          | 31 March, 30 June, 30 September, 31 December |
| Other Landfill gas monitoring<br>As specified by schedule 3, table S3.10                    | Every 3 months          | 31 March, 30 June, 30 September, 31 December |
| Trace gas monitoring  | Every 12 months         | 31 December                                  |
| Other leachate monitoring<br>As specified by schedule 3, table S3.11                        | Every 12 months         | 31 December                                  |
| Other surface water monitoring<br>As specified by schedule 3, table S3.12                   | Every 12 months         | 31 December                                  |
| Meteorological data<br>Landfill Directive, annex III, section 2                             | Every 12 months         | 31 December                                  |
| Other ambient air monitoring<br>As specified by Schedule 3, table S3.13                     | Every 12 months         | 31 December                                  |

\* - where the reporting period is 12 months, you may submit this information as part of the 'annual report' required by condition 4.2.2.

| <b>Table S4.2: Annual production/treatment</b>   |   |
|--|---|
| Leachate:<br>Disposed of offsite;<br>Recirculated into the waste mass.   | Cubic metres/year   |
| Landfill gas:<br>combustion in flares;<br>combustion in gas engines;<br>Other methods of gas utilisation.<br>Average methane content entering the landfill gas utilisation or treatment compound (based on the annual average of Table S3.10 monitoring)<br>Methane generation rate (50%ile from a representative model) | Normalised cubic metres/year<br><br>% methane v/v<br><br>m3 /hr |

| <b>Table S4.3 Performance Parameters</b>       |                                |                     |                                   |
|--|--------------------------------|---------------------|-----------------------------------|
| <b>Parameter</b>                               | <b>Frequency of assessment</b> | <b>Annual total</b> | <b>Unit</b>                       |
| Energy used (including for leachate treatment) | Annually                       | -                   | MWh of electricity or natural gas |

| <b>Table S4.4 Reporting Forms</b> |  |                     |
|-----------------------------------|--|---------------------|
| <b>Media/parameter</b>            | <b>Reporting Format</b>  | <b>Date of Form</b> |
| Leachate                          | Form leachate 1 or other reporting format to be agreed in writing with the Environment Agency    | 01/03/2015          |
| Air                               | Form Air 1 or other reporting format to be agreed in writing with the Environment Agency         | 01/03/2015          |
| Controlled water                  | Form Water 1 or other reporting format to be agreed in writing with the Environment Agency       | 01/03/2015          |
| Groundwater                       | Form Groundwater 1 or other reporting format to be agreed in writing with the Environment Agency | 01/03/2015          |
| Landfill gas                      | Form LFG 1 or other reporting format to be agreed in writing with the Environment Agency         | 01/03/2015          |

| <b>Table S4.4 Reporting Forms</b>                 |  |                     |
|---|--|---------------------|
| <b>Media/parameter</b>                            | <b>Reporting Format</b>  | <b>Date of Form</b> |
| Particulate matter                                | Form Particulate 1 or other reporting format to be agreed in writing with the Environment Agency | 01/03/2015          |
| Waste Return                                      | Waste Return Form RATS2E   | N/A                 |
| Landfill topographical surveys and interpretation | Reporting format to be agreed in writing with the Environment Agency                             | N/A                 |

# Schedule 5 – Notification

This page outlines the information that the operator must provide.

Units of measurement used in information supplied under Part A and B requirements shall be appropriate to the circumstances of the emission. Where appropriate, a comparison should be made of actual emissions and authorised emission limits.

If any information is considered commercially confidential, it should be separated from non-confidential information, supplied on a separate sheet and accompanied by an application for commercial confidentiality under the provisions of the EP Regulations.

## Part A

|                                |  |
|--------------------------------|--|
| Permit Number                  |  |
| Name of operator               |  |
| Location of Facility           |  |
|                                |  |
| Time and date of the detection |  |

|   |  |
|---|--|
| <b>(a) Notification requirements for any malfunction, breakdown or failure of equipment or techniques, accident, or emission of a substance not controlled by an emission limit which has caused, is causing or may cause significant pollution</b> |  |
| <b>To be notified within 24 hours of detection</b>  |  |
| Date and Time of the event  |  |
| Reference or description of the location of the event   |  |
| Description of where any release into the environment took place  |  |
| Substances(s) potentially released  |  |
| Best estimate of the quantity or rate of release of substances  |  |
| Measures taken, or intended to be taken, to stop any emission   |  |
| Description of the failure or accident.   |  |

|   |  |
|---|--|
| <b>(b) Notification requirements for the breach of a limit</b>                      |  |
| <b>To be notified within 24 hours of detection unless otherwise specified below</b> |  |
| Emission point reference/ source  |  |
| Parameter(s)  |  |
| Limit   |  |
| Measured value and uncertainty  |  |

|   |  |
|---|--|
| <b>(b) Notification requirements for the breach of a limit</b>                      |  |
| <b>To be notified within 24 hours of detection unless otherwise specified below</b> |  |
| Date and time of monitoring   |  |
| Measures taken, or intended to be taken, to stop the emission                       |  |

|   |                            |
|---|----------------------------|
| <b>Time periods for notification following detection of a breach of a limit</b> |                            |
| <b>Parameter</b>  | <b>Notification period</b> |
|   |                            |
|   |                            |

|  |  |
|--|--|
| <b>(c) Notification requirements for the detection of any significant adverse environmental effect</b> |  |
| <b>To be notified within 24 hours of detection</b>   |  |
| Description of where the effect on the environment was detected  |  |
| Substances(s) detected   |  |
| Concentrations of substances detected  |  |
| Date of monitoring/sampling  |  |

## Part B to be supplied as soon as practicable

|  |  |
|--|--|
| Any more accurate information on the matters for notification under Part A.  |  |
| Measures taken, or intended to be taken, to prevent a recurrence of the incident   |  |
| Measures taken, or intended to be taken, to rectify, limit or prevent any pollution of the environment which has been or may be caused by the emission |  |
| The dates of any unauthorised emissions from the facility in the preceding 24 months.  |  |

|                  |  |
|------------------|--|
| <b>Name*</b>     |  |
| <b>Post</b>      |  |
| <b>Signature</b> |  |
| <b>Date</b>      |  |

\* authorised to sign on behalf of the operator

## Schedule 6 – Interpretation

“accident” means an accident that may result in pollution.

“annually” means once every year.

“application” means the application for this permit, together with any additional information supplied by the operator as part of the application and any response to a notice served under Schedule 5 to the EP Regulations.

“authorised officer” means any person authorised by the Environment Agency under section 108(1) of The Environment Act 1995 to exercise, in accordance with the terms of any such authorisation, any power specified in section 108(4) of that Act.

“Background concentration” means such concentration of that substance as is present in:

- For emissions to surface water, the surface water quality up-gradient of the site; or
  - For emissions to sewer, the surface water quality up-gradient of the sewage treatment works discharge;
- or

- For emissions of landfill gas, the ground or air outside the site and not attributable to the site.

(a) “Cell layout drawing” means: A drawing or drawings of the proposed new cell that illustrate(s) in sufficient detail:

- (i) the location of the new cell on the site;
- (ii) the proposed level (Above Ordnance Datum) of the base of the excavation;
- (iii) the proposed finished levels of all containment and leachate drainage layers;
- (iv) the positions of leachate management infrastructure; and
- (v) the positions of landfill gas infrastructure (if appropriate).

(b) A detailed written explanation of any minor design changes from the most recently approved cell that result from the new cell layout. This would include, for example:

- (i) changes to slope length and gradient within the cell;
- (ii) new leachate or landfill gas infrastructure construction design;
- (iii) slope stability issues such as new basal excavation level; and/or
- (iv) depth of waste.

“Construction Proposals” means written information, at a level of detail appropriate to the complexity and pollution risk, on the design, specifications of materials selected, stability assessment (where relevant) and the construction quality assurance (CQA) programme in relation to the New Cell or Landfill Infrastructure.

“CQA Validation Report” means the final “as built” construction and engineering details of the New Cell or of the Landfill Infrastructure. It must provide a comprehensive record of the construction and must include, where relevant:

- The results of all testing required by the CQA programme - this must include the records of any failed tests with a written explanation, details of the remedial action taken, referenced to the appropriate secondary testing;
- Plans showing the location of all tests;
- “As-built” plans and sections of the works;
- Copies of the site engineer’s daily records;
- Records of any problems or non-compliances and the solution applied;



- Any other site specific information considered relevant to proving the integrity of the New Cell or Landfill Infrastructure;
- Validation by a qualified person that all of the construction has been carried out in accordance with the Construction Proposals.

“emissions to land” includes emissions to groundwater.

“EP Regulations” means The Environmental Permitting (England and Wales) Regulations 2010, SI 2010 No.675. Words and expressions used in this permit which are also used in those Regulations have the same meanings as in those Regulations.

“emissions of substances not controlled by emission limits” means emissions of substances to air, water or land from the activities, either from the emission points specified in schedule 3 or from other localised or diffuse sources, which are not controlled by an emission or background concentration limit.

“exceeded” means that a value is above a permitted limit, or where a range of values or a minimum value is set as a permitted limit it means a value outside that range or below the minimum value, whichever is applicable.

“Hazardous substances” as defined by the Environmental Permitting (England and Wales) Regulations 2010, SI 2010 No.675, schedule 22 and listed in our Hydrogeological risk assessment guidance, annex J to our H1 risk assessment guidance.

“Landfill Infrastructure” means any specified element of the:

- permanent capping;
- temporary capping (i.e. engineered temporary caps not cover materials);
- leachate abstraction systems;
- leachate transfer, treatment and storage systems;
- surface water drainage systems;
- leachate monitoring wells;
- groundwater monitoring boreholes;
- landfill gas monitoring boreholes;
- landfill gas management systems;
- lining within the installation.

within the site.

“Liquids” means any liquid other than leachate within the engineered landfill containment system.

“LFTGN 05” means Environment Agency Guidance for monitoring enclosed landfill gas flares.

“LFTGN 07” means Environment Agency Guidance on monitoring landfill gas surface emissions.

“LFTGN 08” means Environment Agency Guidance for monitoring landfill gas engines.

“groundwater” means all water, which is below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil.

“inert waste” means 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

“Medicinal product” means any medicine licensed by the Medicines and Healthcare products Regulatory Agency (MHRA) or their predecessors under the Medicines Act 1968, section 130.

“M2” means Environment Agency Guidance Monitoring of stack emissions to air.

“new Cell” means any new cell, part of a cell or other similar new area of the site where waste deposit is to commence after issue of this permit and can comprise:

- groundwater under-drainage system;
- permanent geophysical leak location system;
- leak detection layer;
- sub-grade;
- barriers;
- liners;
- leachate collection system;
- leachate abstraction system;
- separation bund/layer;
- cell or area surface water drainage system;
- side wall subgrade and containment systems;

for the New Cell.

“MEPP” Monitoring and extraction point plan, required by condition 4.2.2(h) to specify extraction points and routine monitoring locations.

“MCERTS” means the Environment Agency’s Monitoring Certification Scheme.

“no impact” means that the change made to the construction process will not affect the agreed design criteria, specification or performance in a way that has a negative effect.

“pests” means Birds, Vermin and Insects.

“previous year” means the 12 month period preceding the month the annual report is submitted in.

“quarter” means a calendar year quarter commencing on 1 January, 1 April, 1 July or 1 October.

“Relevant waste acceptance procedures” means the procedure for the acceptance of waste at landfills and the associated sampling and test methods specified in the Council Decision Annex (2003/33/EC, European Council of 19 December 2002).

“Relevant waste acceptance criteria” means the waste acceptance criteria and the associated sampling and test methods specified in the Council Decision Annex (2003/33/EC, European Council of 19 December 2002).

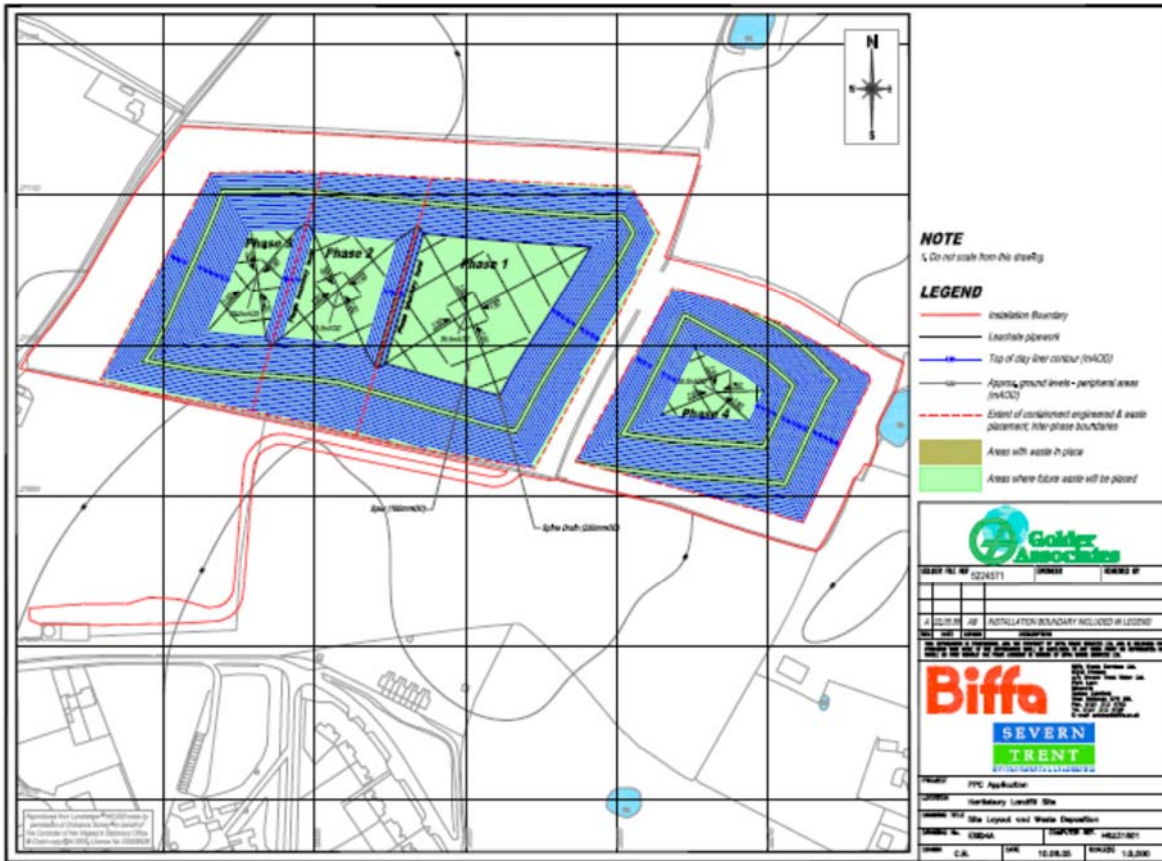
“Review of the Hydrogeological Risk Assessment” means a written review of the hydrogeological risk assessment included in the Application, together with any other parts of the Application that addressed the requirements of the EP Regulations. The review shall assess whether the activities of disposal or tipping for the purpose of disposal of waste authorised by the permit continue to meet the requirements of the EP Regulations.

‘Sustainably extracted’ means where suction can be applied to the extraction wells such that a flow rate of landfill gas, with a methane content capable of either being combusted, or treated by bio-oxidation, can be extracted without increasing the risk of air ingress to the waste or inducing aerobic degradation within the waste.

“Waste code” means the six digit code referable to a type of waste in accordance with the List of Wastes (England) Regulations 2005, or List of Wastes (Wales) Regulations 2005, as appropriate, and in relation to hazardous waste, includes the asterisk.

Unless otherwise stated, any references in this permit to concentrations of substances in emissions into air means the standards included in Environment Agency Guidance for Monitoring Enclosed Landfill Gas Flares LFTGN 05 or Guidance for Monitoring Landfill Gas Engine Emissions LFTGN 08

# Schedule 7 – Site plan



END OF PERMIT