

# Permit with introductory note

## The Environmental Permitting (England & Wales) Regulations 2010

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Energy Works (Hull) Limited

Hull Energy Works  
Cleveland Street  
Hull  
East Yorkshire  
HU8 8AD

**Permit number**

**EPR/NP3837NV**

# Hull Energy Works

## Permit number EPR/NP3837NV

### Introductory note

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

This permit controls the operation of a waste incineration plant. The relevant listed activity is Section 5.1 Part A (1)(b), The incineration of non-hazardous waste in a waste incineration plant with a capacity exceeding 3 tonnes per hour. The permit implements the requirements of the EU Directives on Industrial Emissions and Waste.

The main features of the permit are as follows:

The installation is designed for the thermal treatment of waste derived fuels, by incineration. Energy will be recovered from the installation in the form of electricity, principally for export to the national grid. In addition the facility will be 'CHP ready' so that when a district heating market becomes available, the provision of heat to supply a local network will be achievable without any modifications to the installed system. The facility has a total capacity of approximately 100 MW (thermal input) and is capable of generating up to approximately 28 MWe of electrical power, and providing heat in the form of steam or hot water, up to 10MWth.

The installation is located at National Grid Reference TA 10130 30134, approximately 1.4km to the northeast of Hull city centre, East Yorkshire. The site is located alongside a bend in the River Hull, and consists of two main parts (referred to as the 'Cleveland Street' and the 'Dalton Street' parts of the site). These are joined by a narrow strip of land (referred to as the 'Link Strip') which is also part of the site and which forms a flood defence wall beside the river. The surrounding land use is largely industrial, being predominantly associated with waste management facilities, interspersed with areas of residential development, the nearest of which is located adjacent to the northern boundary of the Cleveland Street part of the site.

There is one Habitats Directive site (Special Area of Conservation, Special Protection Area or Ramsar) within 10km of the installation, namely, the Humber Estuary SAC/SPA/Ramsar. There is one Site of Special Scientific Interest within 2km of the installation, namely, the Humber Estuary SSSI. In addition there are numerous non-statutory Local Wildlife Sites within 2km of the installation.

The installation is capable of processing up to 315,000 tonnes of waste per year (36 tonnes per hour) in a single, fluidised bed gasification line. The waste derived fuels, consisting of municipal solid waste (MSW), commercial and industrial (C&I) waste, and waste wood, will be delivered to site by road, and by barge along the River Hull. All incoming waste will be stored indoors within the waste reception / processing buildings. Waste will initially pass through a mechanical treatment (MT) plant where non-combustible materials will be removed. The gasification process takes place in two zones within the gasifier, i.e. in the gasification zone, where the waste fuels will be gasified within the fluidised bed, and in the oxidation zone, where the resultant syngas and any tars and char will be combusted. Combustion gases are then passed through a boiler to raise steam, which is utilised in a steam turbine to generate electricity.

Combustion gases are cleaned before they are released to atmosphere. There are several components to flue gas cleaning and abatement:

- urea reagent, injected into the combustion chamber of the gasifier to control emissions of oxides of nitrogen;
- cyclones to remove larger particulates;
- dry hydrated lime reagent, injected to neutralise acid gas compounds;
- activated carbon, injected to absorb heavy metals, dioxins and furans; and
- bag filtration to remove finer particulates.

Cleaned flue gases are discharged to atmosphere through a 70 metre tall stack. Exhaust flue gases are continuously monitored for particulates, oxides of nitrogen, sulphur dioxide, carbon monoxide, total organic carbon and hydrogen chloride. Monitoring for heavy metals, dioxins and hydrogen fluoride is carried out periodically.

All surface water, foul and trade effluent will be collected on site and discharged to public sewer. As well as sewage from staff welfare facilities, the discharge will include small quantities of process effluent such as boiler blowdown and wastewaters from the demineralisation.

The incineration process results in several waste streams, i.e. bottom ash; fly ash; and air pollution control residues (APCr) from the flue gas treatment process; and non-combustible materials from the mechanical treatment plant. These materials will be temporarily stored on site prior to recovery or disposal in a suitably licensed off-site facility.

The permit sets conditions controlling the management, operation and the control of emissions from the installation, including the monitoring and reporting of emissions to all environmental media.

The status log of the 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 EPR/NP3837NV/A001	Duly made 01/04/15	Application for bespoke permit for new municipal waste incinerator
Additional information received EPR/NP3837NV/A001	14/05/15	Response to Schedule 5 Notice dated 17/04/15 concerning proposals for waste storage
	06/07/15	Response to Schedule 5 Notice dated 11/06/15: submission of revised noise modelling
	11/08/15	Response to Schedule 5 Notice dated 16/07/15: submission of Fire Prevention Plan
	18/09/15	Response to Schedule 5 Notice dated 21/08/15: submission of Noise Management Plan
Permit determined EPR/NP3837NV (PAS/Billing ref: NP3837NV)	29/01/16	Permit issued to Energy Works (Hull) Limited

End of introductory note

# Permit

## The Environmental Permitting (England and Wales) Regulations 2010

### Permit number

**EPR/NP3837NV**

The Environment Agency hereby authorises, under regulation 13 of the Environmental Permitting (England and Wales) Regulations 2010

**Energy Works (Hull) Limited** (“the operator”),

whose registered office is

**1 Humber Quays  
Wellington Street West  
Hull  
East Yorkshire  
HU1 2BN**

company registration number 07829330

to operate an installation at

**Hull Energy Works  
Cleveland Street  
Hull  
East Yorkshire  
HU8 8AD**

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

Name	Date
Tom Swift	29/01/2016

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, closure 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.

### 1.2 Energy efficiency

- 1.2.1 The operator shall:
- (a) take appropriate measures to ensure that energy is recovered with a high level of energy efficiency and 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) take any further appropriate measures identified by a review.
- 1.2.2 The operator shall provide and maintain steam and/or hot water pass-outs such that opportunities for the further use of waste heat may be capitalised upon should they become practicable.
- 1.2.3 The operator shall review the practicability of Combined Heat and Power (CHP) implementation at least every 2 years. The results shall be reported to the Agency within 2 months of each review.

### 1.3 Efficient use of raw materials

- 1.3.1 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.

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

- 1.4.1 The operator shall take appropriate measures to ensure that:
- (a) the waste hierarchy referred to in Article 4 of the Waste Framework Directive is applied to the generation of waste by the activities; and

- (b) any waste generated by the activities is treated in accordance with the waste hierarchy referred to in Article 4 of the Waste Framework Directive; and
  - (c) where disposal is necessary, this is undertaken in a manner which minimises its impact on the environment.
- 1.4.2 The operator shall review and record at least every four years whether changes to those measures should be made and 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”).
- 2.1.2 Waste authorised by this permit shall be clearly distinguished from any other waste on the site.

### **2.2 The site**

- 2.2.1 The activities shall not extend beyond the site, being the land shown edged in green 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 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.
- 2.3.3 Any raw materials or fuels listed in schedule 2 table S2.1 shall conform to the specifications set out in that table.
- 2.3.4 Waste shall only be accepted if:
- (a) it is of a type and quantity listed in schedule 2 table S2.2; and
  - (b) it conforms to the description in the documentation supplied by the producer or holder.
- 2.3.5 The operator shall ensure that where waste produced by the activities is sent to a relevant waste operation, that operation is provided with the following information, prior to the receipt of the waste:
- (a) the nature of the process producing the waste;
  - (b) the composition of the waste;
  - (c) the handling requirements of the waste;
  - (d) the hazardous property associated with the waste, if applicable; and
  - (e) the waste code of the waste.
- 2.3.6 The operator shall ensure that where waste produced by the activities is sent to a landfill site, it meets the waste acceptance criteria for that landfill.
- 2.3.7 Waste shall not be charged, or shall cease to be charged, if:

- (a) the combustion chamber temperature is below, or falls below, 850°C; or
- (b) any continuous emission limit value in schedule 3 table S3.1(a) is exceeded; or
- (c) any continuous emission limit value in schedule 3 table S3.1 is exceeded, other than under abnormal operating conditions; or
- (d) monitoring results required to demonstrate compliance with any continuous emission limit value in schedule 3 table S3.1 are unavailable other than under abnormal operating conditions.

2.3.8 The operator shall have at least one auxiliary burner in each line at start up or shut down or whenever the operating temperature falls below that specified in condition 2.3.7, as long as incompletely burned waste is present in the oxidation chamber. Unless the temperature specified in condition 2.3.7 is maintained in the combustion chamber, such burner(s) may be fed only with fuels which result in emissions no higher than those arising from the use of gas oil, liquefied gas or natural gas.

2.3.9 The operator shall record the beginning and end of each period of “abnormal operation”.

2.3.10 During a period of “abnormal operation”, the operator shall restore normal operation of the failed equipment or replace the failed equipment as rapidly as possible.

2.3.11 Where, during “abnormal operation”, on an incineration line, any of the following situations arise, waste shall cease to be charged on that line until normal operation can be restored:

- (a) continuous measurement shows that an emission exceeds any emission limit value in schedule 3 table S3.1 due to disturbances or failures of the abatement systems, or continuous emission monitor(s) are out of service, as the case may be, for a total of 4 hours uninterrupted duration;
- (b) the cumulative duration of “abnormal operation” periods over 1 calendar year has reached 60 hours;
- (c) continuous measurement shows that an emission exceeds any emission limit value in schedule 3 table S3.1 (a) due to disturbances or failures of the abatement systems;
- (d) continuous emission monitors or alternative techniques to demonstrate compliance with the emission limit value(s) for particulates, TOC and / or CO in schedule 3 table S3.1 (a), as agreed in writing with the Environment Agency, are unavailable.

2.3.12 The operator shall interpret the end of the period of “abnormal operation” as the earliest of the following:

- (a) when the failed equipment is repaired and brought back into normal operation;
- (b) when the operator initiates a shut down of the waste combustion activity, as described in the application or as agreed in writing with the Environment Agency;
- (c) when a period of four hours has elapsed from the start of the “abnormal operation”;
- (d) when, in any calendar year, an aggregated period of 60 hours “abnormal operation” has been reached.

2.3.13 APC residues, or other hazardous residues, shall not be mixed with any non-hazardous residues.

## **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.

2.4.1 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 Pre-operational conditions**

- 2.5.1 The activities shall not be brought into operation until the measures specified in schedule 1 table S1.4 have been completed.

## **3 Emissions and monitoring**

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

- 3.1.1 There shall be no point source emissions to water, air or land except from the sources and emission points listed in schedule 3 tables S3.1 and S3.2 except in "abnormal operation", when there shall be no point source emissions to water, air or land except from the sources and emission points listed in schedule 3 table S3.1(a).
- 3.1.2 The limits given in schedule 3 shall not be exceeded.
- 3.1.3 Wastes produced at the site shall, as a minimum, be sampled and analysed in accordance with schedule 3 table S 3.4. Additional samples shall be taken and tested and appropriate action taken, whenever:
- (a) disposal or recovery routes change; or
  - (b) it is suspected that the nature or composition of the waste has changed such that the route currently selected may no longer be appropriate.

### **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.
- 3.2.3 All liquids in containers, whose emission to water or land could cause pollution, shall be provided with secondary containment, unless the operator has used other appropriate measures to prevent or where that is not practicable, to minimise, leakage and spillage from the primary container.
- 3.2.4 The Operator shall carry out monitoring of groundwater in accordance with IED articles 14(1)(b), 14(1)(e) and 16(2) to the protocol agreed in writing with the Environment Agency under PO9.

### **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.
- 3.3.2 The operator shall:



- (a) if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to odour, submit to the Environment Agency for approval within the period specified, an odour management plan which identifies and minimises the risks of pollution from odour;
- (b) implement the approved odour management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

### 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 specified in the following tables in schedule 3 to this permit:

- (a) point source emissions specified in tables S3.1 and S3.1(a);
- (b) process monitoring specified in table S3.3; and
- (c) residue quality in table S3.4.

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 Monitoring equipment, techniques, personnel and organisations employed for the emissions monitoring programme and the environmental or other monitoring specified in condition 3.5.1 shall have either MCERTS certification or MCERTS accreditation (as appropriate) unless otherwise agreed in writing by the Environment Agency. Newly installed CEMs, or CEMs replacing existing CEMs, shall have MCERTS certification and have an MCERTS certified range which is not greater than 1.5 times the daily emission limit value (ELV) specified in schedule 3 table S3.1. The CEM shall also be able to measure instantaneous values over the ranges which are to be expected during all operating conditions. If it is necessary to use more than one range setting of the CEM to achieve this requirement, the CEM shall be verified for monitoring supplementary, higher ranges.

3.5.4 Permanent means of access shall be provided to enable sampling/monitoring to be carried out in relation to the emission points specified in schedule 3 tables S3.1 unless otherwise agreed in writing by the Environment Agency.

3.5.5 Where Continuous Emission Monitors are installed to comply with the monitoring requirements in schedule 3 table S3.1; the Continuous Emission Monitors shall be used such that;

- (a) the values of the 95% confidence intervals of a single measured result at the daily emission limit value shall not exceed the following percentages of the emission limit values:

• Carbon monoxide	10%
• Sulphur dioxide	20%
• Oxides of nitrogen (NO & NO <sub>2</sub> expressed as NO <sub>2</sub> )	20%
• Particulate matter	30%
• Total organic carbon (TOC)	30%
• Hydrogen chloride	40%

- (b) valid half-hourly average values shall be determined within the effective operating time (excluding the start-up and shut-down periods) from the measured values after having subtracted the value of the confidence intervals in condition 3.5.5 (a);
- (c) where it is necessary to calibrate or maintain the monitor and this means that data are not available for a complete half-hour period, the half-hourly average shall in any case be considered valid if measurements are available for a minimum of 20 minutes during the half-hour period. The number of half-hourly averages so validated shall not exceed 5 per day;
- (d) daily average values shall be determined as the average of all the valid half-hourly average values within a calendar day. The daily average value shall be considered valid if no more than five half-hourly averages in any day have been determined not to be valid;
- (e) no more than ten daily average values per year shall be determined not to be valid.

## **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 from pests;
- (b) implement the pests management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

## **3.7 Fire prevention**

3.7.1 The operator shall take all appropriate measures to prevent fires on site and minimise the risk of pollution from them including, but not limited to, those specified in any approved fire prevention plan.

# **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) off-site environmental effects; and
  - (ii) matters which affect the condition of the land and groundwater.

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 all 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 shall be submitted to the Environment Agency by 31 January (or other date agreed in writing by the Environment Agency) 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 the permit including an interpretive review of that data;
  - (b) the annual production /treatment data set out in schedule 4 table S4.2; and
  - (c) the performance parameters set out in schedule 4 table S4.3 using the forms specified in table S4.4 of that schedule.
  - (d) the functioning and monitoring of the incineration plant in a format agreed with the Environment Agency. The report shall, as a minimum requirement (as required by Chapter IV of the Industrial Emissions Directive) give an account of the running of the process and the emissions into air and water compared with the emission standards in the IED.
- 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) for the reporting periods specified in schedule 4 table S4.1 and using the forms specified in schedule 4 table S4.4 ; and
  - (c) giving the information from such results and assessments as may be required by the forms specified in those tables.
- 4.2.4 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.
- 4.2.5 Within 1 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.

## 4.3 Notifications

- 4.3.1 In the event:
- (a) 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) 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) 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.

4.3.5 The Environment Agency shall be given at least 14 days notice before implementation of any part of the site closure plan.

## **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 listed in Schedule 1 of the EP Regulations</b>	<b>Description of specified activity and WFD Annex I and II operations</b>	<b>Limits of specified activity and waste types</b>
S5.1 A(1)(b)	The incineration of non-hazardous waste in a waste incineration plant with a capacity exceeding 3 tonnes per hour  D10: Incineration on land	From receipt of waste to emission of exhaust gas and disposal of waste arising, including operation of the mechanical treatment (MT) plant.  Waste types and quantities as specified in Table S2.2 of this permit.
<b>Directly Associated Activities</b>		
Electricity Generation	Generation of approximately 28MWe electrical power using a steam turbine from energy recovered from the flue gases.	From receipt of steam to export of electricity for either on-site use or export to the grid
Back up diesel generator	For providing emergency electrical power to the plant in the event of supply interruption.	From receipt of fuel to generation of electricity for on-site use and emission of exhaust gases

<b>Table S1.2 Operating techniques</b>		
<b>Description</b>	<b>Parts</b>	<b>Date Received</b>
Application EPR/NP3837NV/A001	Parts B2 and B3 of the Application Form.  The Supporting Information document including associated Annexes.  Response to Not Duly Made letter: Questions 18-20 (emission points); and section 4 (additional design changes) except the proposal to store baled RDF outdoors.	01/04/15
Response to Schedule 5 Notice dated 17/04/15	Confirmation that temporary outdoor storage of Refuse Derived Fuel (RDF) would not be included under this permit application	14/05/15
Additional information EPR/NP3837NV/A001	Amended site plans showing the installation boundary (plan 1402-001, Rev. A5) and emission points (plan 1402-002, Rev. A5)	09/06/15
Response to Schedule 5 Notice dated 16/07/15	Fire Prevention Plan	11/08/15
Response to Schedule 5 Notice dated 21/08/15	Noise Management Plan	18/08/15
Additional information EPR/NP3837NV/A001	Responses to Q1 (low NOx burners), Q2 (metals and dioxins reagent injection), Q3 (odour abatement), and Q5 (steam conditions)	16/11/15

<b>Table S1.3 Improvement programme requirements</b>		
<b>Reference</b>	<b>Requirement</b>	<b>Date</b>
<b>IC1</b>	The Operator shall submit a written report to the Environment Agency on the implementation of its Environmental Management System and the progress made in the certification of the system by an external body or if appropriate submit a schedule by which the EMS will be certified.	Within 12 months of the date on which waste is first burnt.
<b>IC2</b>	The Operator shall submit a written proposal to the Environment Agency to carry out tests to determine the size distribution of the particulate matter in the exhaust gas emissions to air from emission point A1, identifying the fractions within the PM <sub>10</sub> and PM <sub>2.5</sub> ranges. The proposal shall include a timetable for approval by the Environment Agency to carry out such tests and produce a report on the results.  On receipt of written agreement by the Environment Agency to the proposal and the timetable, the Operator shall carry out the tests and submit to the Environment Agency a report on the results.	Within 6 months of the completion of commissioning.
<b>IC3</b>	The Operator shall submit a written report to the Environment Agency on the commissioning of the installation. The report shall summarise the environmental performance of the plant as installed against the design parameters set out in the Application. The report shall also include a review of the performance of the facility against the conditions of this permit and details of procedures developed during commissioning for achieving and demonstrating compliance with permit conditions. The report shall also summarise the results of the program of commissioning noise testing as referred to in PO11, and present the key findings from such testing.	Within 4 months of the completion of commissioning.
<b>IC4</b>	The Operator shall carry out checks to verify the residence time, minimum temperature and oxygen content of the exhaust gases in the furnace whilst operating under the anticipated most unfavourable operating conditions. The results shall be submitted in writing to the Environment Agency.	Within 4 months of the completion of commissioning.
<b>IC5</b>	The Operator shall submit a written report to the Environment Agency describing the performance and optimisation of the Selective Non Catalytic Reduction (SNCR) system and combustion settings to minimise oxides of nitrogen (NO <sub>x</sub> ) emissions within the emission limit values described in this permit with the minimisation of nitrous oxide emissions. The report shall include an assessment of the level of NO <sub>x</sub> and N <sub>2</sub> O emissions that can be achieved under optimum operating conditions.  The report shall also provide details of the optimisation (including dosing rates) for the control of acid gases and dioxins	Within 4 months of the completion of commissioning.
<b>IC6</b>	The Operator shall carry out an assessment of the impact of emissions to air of the component metals subject to emission limit values, i.e. Arsenic and Chromium VI. A report on the assessment shall be made to the Environment Agency.  Emissions monitoring data obtained during the first year of operation shall be used to compare the actual emissions with those assumed in the impact assessment submitted with the Application. An assessment shall be made of the impact of each metal against the relevant EQS/EAL. In the event that the assessment shows that an EQS/EAL can be exceeded, the report shall include proposals for further investigative work.	15 months from commencement of operations
<b>IC7</b>	The Operator shall submit a written summary report to the Environment Agency to confirm by the results of calibration and verification testing that the performance of Continuous Emission Monitors for parameters as specified in Table S3.1 and Table S3.1(a) complies with the	Initial calibration report to be submitted to the Agency within 3

<b>Table S1.3 Improvement programme requirements</b>		
<b>Reference</b>	<b>Requirement</b>	<b>Date</b>
	requirements of BS EN 14181, specifically the requirements of QAL1, QAL2 and QAL3.	months of the completion of commissioning.  Full summary evidence compliance report to be submitted within 18 months of the completion of commissioning.
<b>IC8</b>	<p>The Operator shall submit a comprehensive noise impact assessment report undertaken in accordance with the procedures given in BS4142:2014, <i>Methods for rating and assessing industrial and commercial sound</i>. The assessment shall include the identification and assessment of the impact of noise emissions upon surrounding sensitive receptors arising from the operation of the installation.</p> <p>In the event that the report indicates an adverse impact (or greater) at residential receptors, the report shall include proposals for the further attenuation and/or management of noise and shall include a timescale, to be agreed with the Environment Agency, for the implementation of these proposed measures.</p>	Within 12 months of the completion of commissioning.

<b>Table S1.4 Pre-operational measures</b>	
<b>Reference</b>	<b>Pre-operational measures</b>
<b>PO1</b>	Prior to the commencement of commissioning, the Operator shall send a summary of the site Environment Management System (EMS) to the Environment Agency and make available for inspection all documents and procedures which form part of the EMS. The EMS shall be developed in line with the requirements set out in Section 1 of How to comply with your environmental permit – Getting the basics right. The documents and procedures set out in the EMS shall form the written management system referenced in condition 1.1.1 (a) of the permit.
<b>PO2</b>	Prior to the commencement of commissioning, the Operator shall send a report to the Environment Agency which will contain a comprehensive review of the options available for utilising the heat generated by the waste incineration process in order to ensure that it is recovered as far as practicable. The review shall detail any identified proposals for improving the recovery and utilisation of waste heat and shall provide a timetable for their implementation.
<b>PO3</b>	Prior to the commencement of commissioning, the Operator shall submit to the Environment Agency for approval a protocol for the sampling and testing of bottom ash and fly ash for the purposes of assessing its hazard status. Sampling and testing shall be carried out in accordance with the protocol as approved.
<b>PO4</b>	Prior to the commencement of commissioning; the Operator shall provide a written commissioning plan, including timelines for completion, for approval by the Environment Agency. The commissioning plan shall include the expected emissions to the environment during the different stages of commissioning, the expected durations of commissioning activities and the actions to be taken to protect the environment and report to the Environment Agency in the event that actual emissions exceed expected emissions. Commissioning shall be carried out in accordance with the commissioning plan as approved.
<b>PO5</b>	Prior to the commencement of commissioning, the Operator shall submit a written report to the Environment Agency detailing the waste acceptance procedure to be used at the site. The waste acceptance procedure shall include the process and systems by which wastes unsuitable for treatment in the mechanical treatment plant and/or incineration at the site will be controlled. The procedure shall be implemented in accordance with the written approval from the Agency.
<b>PO6</b>	After completion of furnace design and at least three calendar months before any furnace operation; the operator shall submit a written report to the Environment Agency of the details of the computational fluid dynamic (CFD) modelling. The report shall demonstrate whether the design combustion conditions comply with the residence time and temperature requirements as defined by Chapter IV and Annex VI of the IED.
<b>PO7</b>	Prior to the commencement of commissioning, the operator shall submit a written report to the Environment Agency for approval that includes 'as built' detailed site drainage plans (internal process water and external surface water), confirmation of the exact locations of emissions points to sewer, and the specific design detail of the containment infrastructure at the site, including all sub-surface structures and equipment. The report shall also include an inspection and maintenance programme for the containment infrastructure and equipment at the site.
<b>PO8</b>	Prior to the commencement of commissioning, the Operator shall submit to the Environment Agency a report on the baseline conditions of soil and groundwater at the Installation. The report shall contain the information necessary to determine the state of soil and groundwater contamination so as to make a quantified comparison with the state upon definitive cessation of activities provided for in Article 22(3) of the IED. The report shall contain information, supplementary to that already provided in application Site Condition Report, needed to meet the information requirements of Article 22(2) of the IED.



<b>Table S1.4 Pre-operational measures</b>	
<b>Reference</b>	<b>Pre-operational measures</b>
<b>PO9</b>	<p>Prior to the commencement of commissioning, the Operator shall submit the written protocol referenced in condition 3.2.4 for the monitoring of soil and groundwater for approval by the Environment Agency. The protocol shall demonstrate how the Operator will meet the requirements of Articles 14(1)(b), 14(1)(e) and 16(2) of the IED. The procedure shall be implemented in accordance with the written approval from the Agency.</p>
<b>PO10</b>	<p>Prior to the commencement of operation, the Operator shall submit to the Environment Agency an updated Fire Prevention Plan (FPP). The plan shall include the following information, which was omitted from the FPP submitted as part of the permit application:</p> <ul style="list-style-type: none"> <li>(i) description of the measures in place to reduce the potential for hot exhausts to act as a source of ignition;</li> <li>(ii) details on whether bucket loaders are fitted with rubber strips to prevent sparks when the bucket comes in to contact with hard standing, etc. If not used then justification must be provided; and</li> <li>(iii) evidence of end use contracts for outgoing waste types.</li> </ul> <p>The updated FPP shall also include any other minor amendments deemed necessary following completion of detailed design and commissioning. All amendments to the FPP shall be clearly signposted by way of an accompanying cover letter.</p>
<b>PO11</b>	<p>Prior to the commencement of operation, the Operator shall submit to the Environment Agency for approval an updated Noise Management Plan (NMP) following completion of detailed design and a program of commissioning noise testing.</p> <p>The NMP shall reflect the requirements of our guidance, H3 Part 2, Noise Assessment and Control, and set out how the Operator will use all appropriate measures to prevent, or where that is not practicable, to minimise noise at levels likely to cause pollution outside the site.</p>

## Schedule 2 – Waste types, raw materials and fuels

Table S2.1 Raw materials and fuels	
Raw materials and fuel description	Specification
Fuel Oil	< 0.1% sulphur content

Table S2.2 Permitted waste types and quantities for incineration plant	
Maximum quantity	315,000 tonnes per annum
Waste code	Description
<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 03	plant-tissue waste
02 01 04	waste plastics (except packaging)
02 01 07	wastes from forestry
02 01 09	agrochemical waste other than those mentioned in 02 01 08
<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 04	materials unsuitable for consumption or processing
<b>02 05</b>	<b>wastes from the dairy products industry</b>
02 05 01	materials unsuitable for consumption or processing
<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
<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
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 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 10	fibre rejects, fibre-, filler- and coating-sludges from mechanical separation
<b>07</b>	<b>Wastes from organic chemical processes</b>
<b>07 02</b>	<b>wastes from the MFSU of plastics, synthetic rubber and man-made fibres</b>
07 02 13	waste plastic
<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 19	plastic
<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 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 10	combustible wastes other than those mentioned in 19 02 08 and 19 02 09
<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 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 04	plastic and rubber
19 12 07	wood other than that mentioned in 19 12 06
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

## Schedule 3 – Emissions and monitoring

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	Parameter	Source	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard(s) or method(s)
A1 [Point A1 on plan 1402-002, Rev. A5, submitted with EPR/ NP3837NV/A001]	Particulate matter	Incineration exhaust gases	30 mg/m <sup>3</sup>	½-hr average	Continuous measurement	BS EN 14181 and BS EN 15267-3
A1 [Point A1 on plan 1402-002, Rev. A5, submitted with EPR/ NP3837NV/A001]	Particulate matter	Incineration exhaust gases	10 mg/m <sup>3</sup>	daily average	Continuous measurement	BS EN 14181 and BS EN 15267-3
A1 [Point A1 on plan 1402-002, Rev. A5, submitted with EPR/ NP3837NV/A001]	Total Organic Carbon (TOC)	Incineration exhaust gases	20 mg/m <sup>3</sup>	½-hr average	Continuous measurement	BS EN 14181 and BS EN 15267-3
A1 [Point A1 on plan 1402-002, Rev. A5, submitted with EPR/ NP3837NV/A001]	Total Organic Carbon (TOC)	Incineration exhaust gases	10 mg/m <sup>3</sup>	daily average	Continuous measurement	BS EN 14181 and BS EN 15267-3
A1 [Point A1 on plan 1402-002, Rev. A5, submitted with EPR/ NP3837NV/A001]	Hydrogen chloride	Incineration exhaust gases	60 mg/m <sup>3</sup>	½-hr average	Continuous measurement	BS EN 14181 and BS EN 15267-3
A1 [Point A1 on plan 1402-002, Rev. A5, submitted with EPR/ NP3837NV/A001]	Hydrogen chloride	Incineration exhaust gases	10 mg/m <sup>3</sup>	daily average	Continuous measurement	BS EN 14181 and BS EN 15267-3
A1 [Point A1 on plan 1402-002, Rev. A5, submitted with EPR/ NP3837NV/A001]	Hydrogen fluoride	Incineration exhaust gases	2 mg/m <sup>3</sup>	periodic over minimum 1-hour period	Quarterly in first year. Then Bi-annual	BS ISO 15713
A1 [Point A1 on plan 1402-002, Rev. A5, submitted with EPR/ NP3837NV/A001]	Carbon monoxide	Incineration exhaust gases	100 mg/m <sup>3</sup>	hourly average	Continuous measurement	BS EN 14181 and BS EN 15267-3

<b>Table S3.1 Point source emissions to air – emission limits and monitoring requirements</b>						
<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(s) or method(s)</b>
A1 [Point A1 on plan 1402-002, Rev. A5, submitted with EPR/ NP3837NV/A001]	Carbon monoxide	Incineration exhaust gases	50 mg/m <sup>3</sup>	daily average	Continuous measurement	BS EN 14181 and BS EN 15267-3
A1 [Point A1 on plan 1402-002, Rev. A5, submitted with EPR/ NP3837NV/A001]	Sulphur dioxide	Incineration exhaust gases	200 mg/m <sup>3</sup>	½-hr average	Continuous measurement	BS EN 14181 and BS EN 15267-3
A1 [Point A1 on plan 1402-002, Rev. A5, submitted with EPR/ NP3837NV/A001]	Sulphur dioxide	Incineration exhaust gases	50 mg/m <sup>3</sup>	daily average	Continuous measurement	BS EN 14181 and BS EN 15267-3
A1 [Point A1 on plan 1402-002, Rev. A5, submitted with EPR/ NP3837NV/A001]	Oxides of nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )	Incineration exhaust gases	400 mg/m <sup>3</sup>	½-hr average	Continuous measurement	BS EN 14181 and BS EN 15267-3
A1 [Point A1 on plan 1402-002, Rev. A5, submitted with EPR/ NP3837NV/A001]	Oxides of nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )	Incineration exhaust gases	200 mg/m <sup>3</sup>	daily average	Continuous measurement	BS EN 14181 and BS EN 15267-3
A1 [Point A1 on plan 1402-002, Rev. A5, submitted with EPR/ NP3837NV/A001]	Cadmium & thallium and their compounds (total)	Incineration exhaust gases	0.05 mg/m <sup>3</sup>	periodic over minimum 30 minute, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 14385
A1 [Point A1 on plan 1402-002, Rev. A5, submitted with EPR/ NP3837NV/A001]	Mercury and its compounds	Incineration exhaust gases	0.05 mg/m <sup>3</sup>	periodic over minimum 30 minute, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 13211
A1 [Point A1 on plan 1402-002, Rev. A5, submitted with EPR/ NP3837NV/A001]	Sb, As, Pb, Cr, Co, Cu, Mn, Ni and V and their compounds (total)	Incineration exhaust gases	0.5 mg/m <sup>3</sup>	periodic over minimum 30 minute, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 14385
A1 [Point A1 on plan 1402-002, Rev. A5, submitted with EPR/ NP3837NV/A001]	Ammonia (NH <sub>3</sub> )	Incineration exhaust gases	No limit set	daily average	Continuous measurement	BS EN 14181 and BS EN 15267-3

<b>Table S3.1 Point source emissions to air – emission limits and monitoring requirements</b>						
<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(s) or method(s)</b>
A1 [Point A1 on plan 1402-002, Rev. A5, submitted with EPR/ NP3837NV/A001]	Nitrous oxide (N <sub>2</sub> O)	Incineration exhaust gases	No limit set	periodic over minimum 1-hour period	Quarterly in the first year of operation, then bi-annual	BS EN ISO 21258
A1 [Point A1 on plan 1402-002, Rev. A5, submitted with EPR/ NP3837NV/A001]	Dioxins / furans (I-TEQ)	Incineration exhaust gases	0.1 ng/m <sup>3</sup>	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 1948 Parts 1, 2 and 3
A1 [Point A1 on plan 1402-002, Rev. A5, submitted with EPR/ NP3837NV/A001]	Dioxins / furans (WHO-TEQ Humans / Mammals)	Incineration exhaust gases	No limit set	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 1948 Parts 1, 2 and 3
A1 [Point A1 on plan 1402-002, Rev. A5, submitted with EPR/ NP3837NV/A001]	Dioxins / furans (WHO-TEQ Fish)	Incineration exhaust gases	No limit set	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 1948 Parts 1, 2 and 3
A1 [Point A1 on plan 1402-002, Rev. A5, submitted with EPR/ NP3837NV/A001]	Dioxins / furans (WHO-TEQ Birds)	Incineration exhaust gases	No limit set	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 1948 Parts 1, 2 and 3
A1 [Point A1 on plan 1402-002, Rev. A5, submitted with EPR/ NP3837NV/A001]	Dioxin-like PCBs (WHO-TEQ Humans / Mammals)	Incineration exhaust gases	No limit set	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 1948-4
A1 [Point A1 on plan 1402-002, Rev. A5, submitted with EPR/ NP3837NV/A001]	Dioxin-like PCBs (WHO-TEQ Fish)	Incineration exhaust gases	No limit set	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 1948-4
A1 [Point A1 on plan 1402-002, Rev. A5, submitted with EPR/ NP3837NV/A001]	Dioxin-like PCBs (WHO-TEQ Birds)	Incineration exhaust gases	No limit set	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 1948-4

<b>Table S3.1 Point source emissions to air – emission limits and monitoring requirements</b>						
<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(s) or method(s)</b>
A1 [Point A1 on plan 1402-002, Rev. A5, submitted with EPR/ NP3837NV/A001]	Specific individual polycyclic aromatic hydrocarbons (PAHs), as specified in Schedule 6.	Incineration exhaust gases	No limit set	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS ISO 11338 Parts 1 and 2.

<b>Table S3.1(a) Point source emissions to air during abnormal operation of incineration plant – emission limits and monitoring requirements</b>						
<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>
A1 [Point A1 on plan 1402-002, Rev. A5, submitted with EPR/ NP3837NV/A001]	Particulate matter	Incineration exhaust gases	150 mg/m <sup>3</sup>	½-hr average	Continuous measurement	BS EN 14181 and BS EN 15267-3 during abatement plant failure
A1 [Point A1 on plan 1402-002, Rev. A5, submitted with EPR/ NP3837NV/A001]	Total Organic Carbon (TOC)	Incineration exhaust gases	20 mg/m <sup>3</sup>	½-hr average	Continuous measurement	BS EN 14181 and BS EN 15267-3 during abatement plant failure
A1 [Point A1 on plan 1402-002, Rev. A5, submitted with EPR/ NP3837NV/A001]	Carbon monoxide	Incineration exhaust gases	100 mg/m <sup>3</sup>	½-hr average	Continuous measurement	BS EN 14181 and BS EN 15267-3 during abatement plant failure

<b>Emission point ref. &amp; location</b>	<b>Source</b>	<b>Parameter</b>	<b>Limit (incl. Unit)</b>	<b>Reference period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method</b>
S1-S4 [Points S1-S4 on plan 1402-002, Rev. A5, submitted with EPR/ NP3837NV/A001]	Demin plant effluent, boiler blowdown, wash down waters, and site surface water	No parameter set	No limit set	-	-	-

<b>Emission point reference or source or description of point of measurement</b>	<b>Parameter</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method</b>	<b>Other specifications</b>
As agreed in writing with the Agency.	Wind Speed and Direction	Continuous	Anemometer	-
Location close to the Combustion Chamber inner wall or as identified and justified in Application.	Temperature (° C)	Continuous	Traceable to national standards	As agreed in writing with the Agency.
A1 [Point A1 on plan 1402-002, Rev. A5, submitted with EPR/ NP3837NV/A001]	Exhaust gas temperature	Continuous	Traceable to national standards	As agreed in writing with the Agency.
A1 [Point A1 on plan 1402-002, Rev. A5, submitted with EPR/ NP3837NV/A001]	Exhaust gas pressure	Continuous	Traceable to national standards	As agreed in writing with the Agency.
A1 [Point A1 on plan 1402-002, Rev. A5, submitted with EPR/ NP3837NV/A001]	Exhaust gas oxygen content	Continuous	BS EN 15267-3 BS EN 14181	-
A1 [Point A1 on plan 1402-002, Rev. A5, submitted with EPR/ NP3837NV/A001]	Exhaust gas water vapour content	Continuous	BS EN 15267-3 BS EN 14181	Unless gas is dried before analysis of emissions.



**Table S3.4 Residue quality**

<b>Emission point reference or source or description of point of measurement</b>	<b>Parameter</b>	<b>Limit</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method *</b>	<b>Other specifications</b>
Bottom Ash	TOC / LOI #	<3% TOC <5% LOI	Monthly in the first year of operation. Then Quarterly	Environment Agency Guidance, 'TGN M4 – Guidelines for Ash Sampling and Analysis'	-
Bottom Ash	Metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) and their compounds, dioxins/furans and dioxin-like PCBs.	-	Monthly in the first year of operation. Then Quarterly	Environment Agency Guidance, 'TGN M4 – Guidelines for Ash Sampling and Analysis'	-
Bottom Ash	Total soluble fraction and metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) soluble fractions	-	Before use of a new disposal or recycling route	Environment Agency Guidance, 'TGN M4 – Guidelines for Ash Sampling and Analysis'	-
APC Residues	Metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) and their compounds, dioxins/furans and dioxin-like PCBs.	-	Monthly in the first year of operation. Then Quarterly	Environment Agency Guidance, 'TGN M4 – Guidelines for Ash Sampling and Analysis'	-
APC Residues	Total soluble fraction and metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) soluble fractions	-	Before use of a new disposal or recycling route	Environment Agency Guidance, 'TGN M4 – Guidelines for Ash Sampling and Analysis'	-
Fly Ash	Metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) and their compounds, dioxins/furans and dioxin-like PCBs.	-	Monthly in the first year of operation. Then Quarterly	Environment Agency Guidance, 'TGN M4 – Guidelines for Ash Sampling and Analysis'	-
Fly Ash	Total soluble fraction and metals (Antimony, Cadmium, Thallium, Mercury, Lead,	-	Before use of a new disposal or	Environment Agency Guidance, 'TGN M4 –	-

**Table S3.4 Residue quality**

<b>Emission point reference or source or description of point of measurement</b>	<b>Parameter</b>	<b>Limit</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method *</b>	<b>Other specifications</b>
	Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) soluble fractions		recycling route	Guidelines for Ash Sampling and Analysis'	

\* Or other equivalent standard as agreed in writing with the Environment Agency.

# At least one of TOC or LOI to be reported.

## 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>Emission or monitoring point/reference</b>	<b>Reporting period</b>	<b>Period begins</b>
Emissions to air Parameters as required by condition 3.5.1	A1	Quarterly	1 Jan, 1 Apr, 1 Jul and 1 Oct
TOC / LOI Parameters as required by condition 3.5.1	Bottom Ash	Quarterly (but monthly for the first year of operation)	1 Jan, 1 Apr, 1 Jul and 1 Oct
Metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) and their compounds, dioxins/furans and dioxin-like PCBs Parameters as required by condition 3.5.1	Bottom Ash	Quarterly (but monthly for the first year of operation)	1 Jan, 1 Apr, 1 Jul and 1 Oct
Total soluble fraction and metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) soluble fractions Parameters as required by condition 3.5.1	Bottom Ash	Before use of a new disposal or recycling route	-
Metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) and their compounds, dioxins/furans and dioxin-like PCBs Parameters as required by condition 3.5.1	APC Residues	Quarterly (but monthly for the first year of operation)	1 Jan, 1 Apr, 1 Jul and 1 Oct
Total soluble fraction and metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) soluble fractions Parameters as required by condition 3.5.1	APC Residues	Before use of a new disposal or recycling route	-
Metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) and their compounds,	Fly Ash	Quarterly (but monthly for the first year of operation)	1 Jan, 1 Apr, 1 Jul and 1 Oct

**Table S4.1 Reporting of monitoring data**

Parameter	Emission or monitoring point/reference	Reporting period	Period begins
dioxins/furans and dioxin-like PCBs Parameters as required by condition 3.5.1			
Total soluble fraction and metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) soluble fractions Parameters as required by condition 3.5.1	Fly Ash	Before use of a new disposal or recycling route	-
Functioning and monitoring of the incineration plant as required by condition 4.2.2	-	Annually	1 Jan

<b>Parameter</b>	<b>Units</b>
Total Municipal waste incinerated	tonnes
Total Commercial & Industrial waste incinerated	tonnes
Total waste wood incinerated	tonnes
Electrical energy exported	MWh
Electrical energy produced and used on installation	MWh
Total electrical energy produced	MWh
Heat energy exported from the installation	MWh
Total quantity of APC residues produced	tonnes

<b>Parameter</b>	<b>Frequency of assessment</b>	<b>Units</b>
Total waste incinerated	Quarterly	tonnes
Electrical energy exported, imported and used at the installation	Quarterly	MWh / tonne of waste incinerated
Fuel oil consumption	Quarterly	m <sup>3</sup> / tonne of waste incinerated
Mass of bottom ash produced	Quarterly	Kgs / tonne of waste incinerated
Mass of APC residues produced	Quarterly	Kgs / tonne of waste incinerated
Mass of fly ash produced	Quarterly	Kgs / tonne of waste incinerated
Mass of non-combustible material produced from MT plant	Quarterly	Kgs / tonne of waste incinerated
Urea consumption	Quarterly	Kgs / tonne of waste incinerated
Activated carbon consumption	Quarterly	Kgs / tonne of waste incinerated
Hydrated lime consumption	Quarterly	Kgs / tonne of waste incinerated
Limestone consumption	Quarterly	Kgs / tonne of waste incinerated
Water consumption	Quarterly	m <sup>3</sup> / tonne of waste incinerated
Periods of abnormal operation	Quarterly	No of occasions and cumulative hours for current calendar year

<b>Table S4.4 Reporting forms</b>		
<b>Media/parameter</b>	<b>Reporting format</b>	<b>Date of form</b>
Air	Forms Air 1-7 or other form as agreed in writing by the Environment Agency	07/01/2016
Waste disposal and recovery	Form R1 or other form as agreed in writing by the Environment Agency	07/01/2016
Water and other raw materials usage	Form WU/RM1 or other form as agreed in writing by the Environment Agency	07/01/2016
Energy usage/export	Form Energy 1 or other form as agreed in writing by the Environment Agency	07/01/2016
Residues	Form Residues 1 or other form as agreed in writing by the Environment Agency	07/01/2016
Other performance indicators	Form Performance 1 or other form as agreed in writing by the Environment Agency	07/01/2016

# Schedule 5 – Notification

These pages outline 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	
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 submitted 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.	

Name*	
Post	
Signature	
Date	

\* authorised to sign on behalf of the operator



## Schedule 6 – Interpretation

“abatement equipment” means that equipment dedicated to the removal of polluting substances from releases from the installation to air or water media.

“abnormal operation” means any technically unavoidable stoppages, disturbances, or failures of the abatement plant or the measurement devices, during which the emissions into the air and the discharges of waste water may exceed the prescribed emission limit values.

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

“APC residues” means air pollution control residues.

“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.

“bottom ash” means the solid residue (inerts and clinkers) removed from the fluidised bed; referred to as *Tramp Material* in the permit application.

“CEM” Continuous emission monitor.

“CEN” means Comité Européen de Normalisation “bi-annual” means twice per year with at least five months between tests.

“daily average” for releases of substances to air means the average of valid half-hourly averages over a calendar day during normal operation.

“dioxin and furans” means polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans.

“disposal” means any of the operations provided for in Annex I to Directive 2008/98/EC of the European Parliament and of the Council on waste.

“emissions to land” includes emissions to groundwater.

“EP Regulations” means The Environmental Permitting (England and Wales) Regulations SI 2010 No.675 and words and expressions used in this permit which are also used in the 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 limit.

“fly ash” means the combined waste stream consisting of boiler ash, multi-clone ash and economiser ash.

“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.

“Hazardous property” has the meaning in Annex III of the Waste Framework Directive.

“incineration line” means all of the incineration equipment related to a common discharge to air location.

“Industrial Emissions Directive” means DIRECTIVE 2010/75/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 24 November 2010 on industrial emissions.

“ISO” means International Standards Organisation.

“LOI” means loss on ignition a technique used to determine the combustible material by heating the ash residue to a high temperature.

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

“PAH” means Poly-cyclic aromatic hydrocarbon, and comprises Anthanthrene, Benzo[a]anthracene, Benzo[b]fluoranthene, Benzo[k]fluoranthene, Benzo[b]naph(2,1-d)thiophene, Benzo[c]phenanthrene, Benzo[ghi]perylene, Benzo[a]pyrene, Cholanthrene, Chrysene, Cyclopenta[c,d]pyrene, Dibenz[ah]anthracene, Dibenz[a,i]pyrene Fluoranthene, Indo[1,2,3-cd]pyrene, Naphthalene.

“PCB” means Polychlorinated Biphenyl. Dioxin-like PCBs are the non-ortho and mono-ortho PCBs listed in the table below.

“Pests” means Birds, Vermin and Insects.

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

“recovery” means any of the operations provided for in Annex II to Directive 2008/98/EC of the European Parliament and of the Council on waste.

“shut down” is any period where the plant is being returned to a non-operational state and there is no waste being burned.

“start up” is any period, where the plant has been non-operational, after igniting the auxiliary burner until waste fuel has been fed to the plant in sufficient quantity to cover the grate and to initiate steady-state conditions.

“TOC” means Total Organic Carbon. In respect of releases to air, this means the gaseous and vaporous organic substances, expressed as TOC. [In respect of Bottom Ash, this means the total carbon content of all organic species present in the ash (excluding carbon in elemental form).]

‘Waste code’ means the six digit code referable to a type of waste in accordance with the List of Wastes and in relation to hazardous waste, includes the asterisk.

“Waste Framework Directive” or “WFD” means Waste Framework Directive 2008/98/EC of the European Parliament and of the Council on waste.

“year” means calendar year ending 31 December.

Where a minimum limit is set for any emission parameter, for example pH, reference to exceeding the limit shall mean that the parameter shall not be less than that limit.

Unless otherwise stated, any references in this permit to concentrations of substances in emissions into air means:

- (a) in relation to emissions from combustion processes, the concentration in dry air at a temperature of 273K, at a pressure of 101.3 kPa and with an oxygen content of 3% dry for liquid and gaseous fuels, 6% dry for solid fuels; and/or
- (b) in relation to emissions from non-combustion sources, the concentration at a temperature of 273K and at a pressure of 101.3 kPa, with no correction for water vapour content
- (c) in relation to gases from incineration plants other than those burning waste oil, the concentration in dry air at a temperature of 273K, at a pressure of 101.3 kPa and with an oxygen content of 11% dry.

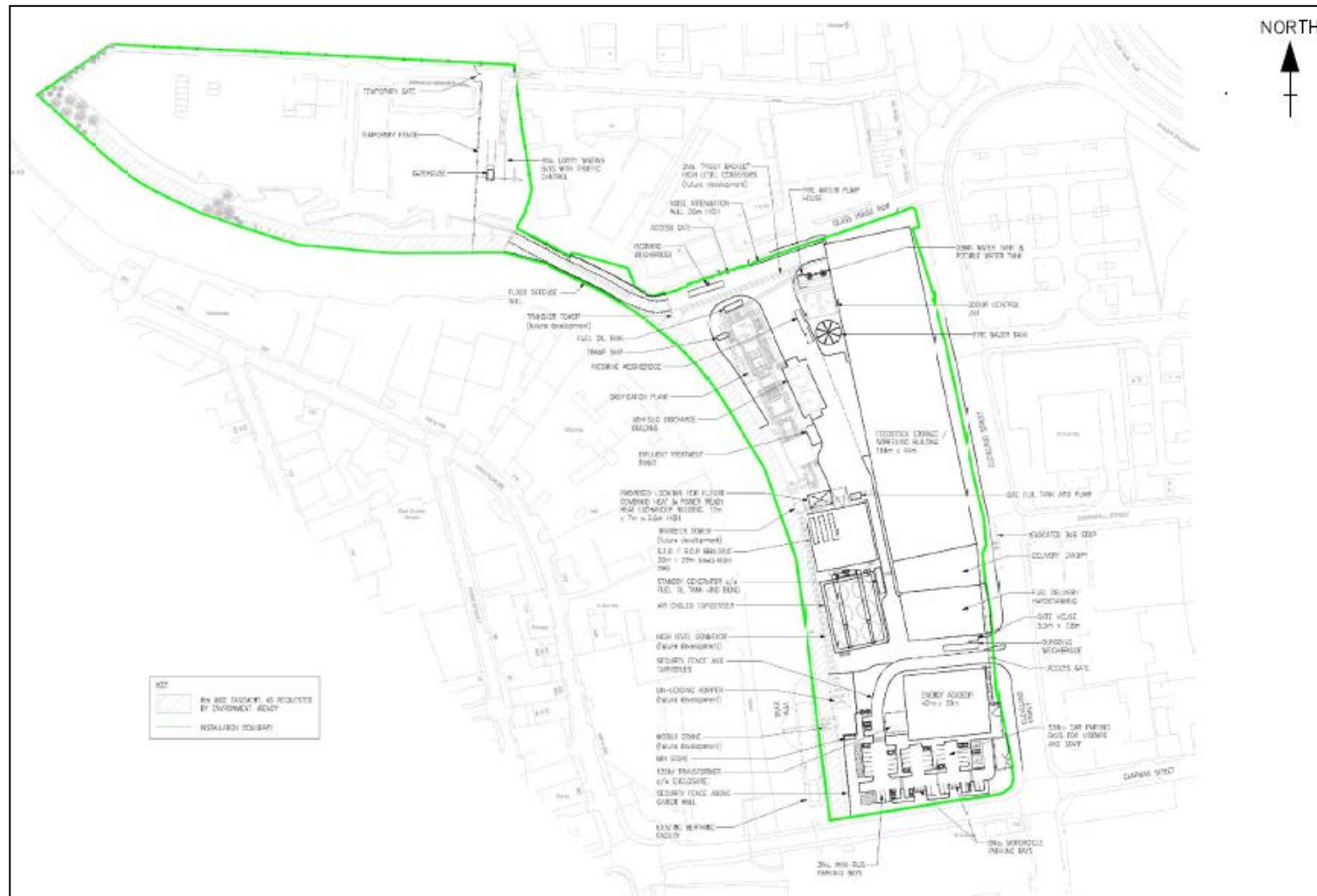
For dioxins/furans and dioxin-like PCBs the determination of the toxic equivalence concentration (I-TEQ, & WHO-TEQ for dioxins/furans, WHO-TEQ for dioxin-like PCBs) stated as a release limit and/ or reporting requirement, the mass concentrations of the following congeners have to be multiplied with their respective toxic equivalence factors before summing. When reporting on measurements of dioxins/furans and dioxin-like PCBs, the toxic equivalence concentrations should be reported as a range based on: all congeners less than the detection limit assumed to be zero as a minimum, and all congeners less than the detection limit assumed to be at the detection limit as a maximum. However the minimum value should be used when assessing compliance with the emission limit value in table S3.1.

TEF schemes for dioxins and furans				
Congener	I-TEF	WHO-TEF		
	1990	2005	1997/8	
		Humans / Mammals	Fish	Birds
<b>Dioxins</b>				
2,3,7,8-TCDD	1	1	1	1
1,2,3,7,8-PeCDD	0.5	1	1	1
1,2,3,4,7,8-HxCDD	0.1	0.1	0.5	0.05
1,2,3,6,7,8-HxCDD	0.1	0.1	0.01	0.01
1,2,3,7,8,9-HxCDD	0.1	0.1	0.01	0.1
1,2,3,4,6,7,8-HpCDD	0.01	0.01	0.001	<0.001
OCDD	0.001	0.0003	-	-
<b>Furans</b>				
2,3,7,8-TCDF	0.1	0.1	0.05	1
1,2,3,7,8-PeCDF	0.05	0.03	0.05	0.1
2,3,4,7,8-PeCDF	0.5	0.3	0.5	1
1,2,3,4,7,8-HxCDF	0.1	0.1	0.1	0.1
1,2,3,7,8,9-HxCDF	0.1	0.1	0.1	0.1
1,2,3,6,7,8-HxCDF	0.1	0.1	0.1	0.1
2,3,4,6,7,8-HxCDF	0.1	0.1	0.1	0.1
1,2,3,4,6,7,8-HpCDF	0.01	0.01	0.01	0.01
1,2,3,4,7,8,9-HpCDF	0.01	0.01	0.01	0.01
OCDF	0.001	0.0003	0.0001	0.0001

TEF schemes for dioxin-like PCBs			
Congener	WHO-TEF		
	2005	1997/8	
	Humans / mammals	Fish	Birds
<b>Non-ortho PCBs</b>			
3,4,4',5-TCB (81)	0.0001	0.0005	0.1
3,3',4,4'-TCB (77)	0.0003	0.0001	0.05
3,3',4,4',5 - PeCB (126)	0.1	0.005	0.1
3,3',4,4',5,5'-HxCB(169)	0.03	0.00005	0.001
<b>Mono-ortho PCBs</b>			
2,3,3',4,4'-PeCB (105)	0.00003	<0.000005	0.0001
2,3,4,4',5-PeCB (114)	0.00003	<0.000005	0.0001

<b>TEF schemes for dioxin-like PCBs</b>			
<b>Congener</b>	<b>WHO-TEF</b>		
	<b>2005</b>	<b>1997/8</b>	
	<b>Humans / mammals</b>	<b>Fish</b>	<b>Birds</b>
2,3',4,4',5-PeCB (118)	0.00003	<0.000005	0.00001
2',3,4,4',5-PeCB (123)	0.00003	<0.000005	0.00001
2,3,3',4,4',5-HxCB (156)	0.00003	<0.000005	0.0001
2,3,3',4,4',5'-HxCB (157)	0.00003	<0.000005	0.0001
2,3',4,4',5,5'-HxCB (167)	0.00003	<0.000005	0.00001
2,3,3',4,4',5,5'-HpCB (189)	0.00003	<0.000005	0.00001

# Schedule 7 – Site plan



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END OF PERMIT

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