# Determination of an Application for an Environmental Permit under the Environmental Permitting (England & Wales) Regulations 2010

## Decision document recording our decision-making process

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| The Permit Number is: | EPR/XP3030VM |
| The Applicant is: | Ballast Phoenix Limited |
| The Installation is located at: | Sandy Lane IBA Facility, Sandy Lane Quarry and Landfill, Bromsgrove, Worcestershire, B61 0QT |

## What this document is about

This is a decision document, which accompanies a permit.

It explains how we have considered the Applicant's Application, and why we have included the specific conditions in the permit we are issuing to the Applicant. It is our record of our decision-making process, to show how we have taken into account all relevant factors in reaching our position. Unless the document explains otherwise, we have accepted the Applicant's proposals.

We try to explain our decision as accurately, comprehensively and plainly as possible. Achieving all three objectives is not always easy, and we would welcome any feedback as to how we might improve our decision documents in future. A lot of technical terms and acronyms are inevitable in a document of this nature: we provide a glossary of acronyms near the front of the document, for ease of reference.

## Preliminary information and use of terms

We gave the application the reference number EPR/XP3030VM/A001. We refer to the application as "the **Application**" in this document in order to be consistent.

The number we have given to the permit is EPR/XP3030VM. We refer to the permit as "the **Permit**" in this document.

The Application was duly made on 7 April 2014.

The Applicant is Ballast Phoenix Limited. We refer to Ballast Phoenix Limited as "the **Applicant**" in this document. Where we are talking about what would happen after the Permit is granted (if that is our final decision), we call Ballast Phoenix Limited "the **Operator**".

Ballast Phoenix Limited's proposed facility is located at Sandy Lane IBA Facility, Sandy Lane Quarry and Landfill, Bromsgrove, Worcestershire, B61 0QT. We refer to this as "the **Installation**" in this document.

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# Glossary of acronyms used in this document

| | |
|---|---|
| AAC | Absolute Area Coverage |
| ABL | Asphaltic Binder Layer |
| BAT | Best Available Technique(s) |
| BREF | BAT Reference Note |
| CBR | California Bearing Ratio |
| CROW | Countryside and rights of way Act 2000 |
| DAA | Directly associated activity – Additional activities necessary to be carried out to allow the principal activity to be carried out |
| DAC | Dense Asphaltic Concrete |
| DD | Decision document |
| DWS | Drinking Water Standard |
| EAC | Effective Area Coverage |
| EAL | Environmental assessment level |
| ELV | Emission limit value |
| EMS | Environmental Management System |
| EPR | Environmental Permitting (England and Wales) Regulations 2010 (SI 2010 No. 675) as amended |
| EQS | Environmental quality standard |
| EWC | European waste catalogue |
| HRA | Human Rights Act 1998 |
| IBA | Incinerator Bottom Ash |
| IBAA | Incinerator Bottom Ash Aggregate |
| IED | Industrial Emissions Directive (2010/75/EU) |
| Opra | Operator Performance Risk Appraisal |
| PC | Process Contribution |
| PEC | Predicted Environmental Concentration |
| PPS | Public Participation Statement |
| PR | Public Register |
| RGS | Regulatory Guidance Series |
| SAC | Special Area of Conservation |
| SGN | Sector guidance note |
| SHPI(s) | Site(s) of High Public Interest |

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|---|---|
| SL | Stabilising Layer |
| SPA(s) | Special Protection Area(s) |
| SPZ | Source Protection Zone |
| SSSI(s) | Site(s) of Special Scientific Interest |
| TCM | Technically Competent Manager |
| TGN | Technical guidance note |
| US EPA | United States Environmental Protection Agency |
| WFD | Waste Framework Directive (2008/98/EC) |
| WQS | Water Quality Standards |

# 1 Our proposed decision

We have decided to grant the Permit to the Applicant. This will allow the Applicant to operate the Installation, subject to the conditions in the Permit.

We consider that, in reaching that decision, we have taken into account all relevant considerations and legal requirements and that the permit will ensure that a high level of protection is provided for the environment and human health.

This Application is to operate an installation which is subject principally to the Industrial Emissions Directive (IED) and Waste.

The Permit contains many conditions taken from our standard Environmental Permit template including the relevant Annexes. We developed these conditions in consultation with industry, having regard to the legal requirements of the Environmental Permitting Regulations (EPR) and other relevant legislation. This document does not therefore include an explanation for these standard conditions. Where they are included in the permit, we have considered the Application and accepted the details are sufficient and satisfactory to make the standard condition appropriate. This document does, however, provide an explanation of our use of "tailor-made" or installation-specific conditions, or where our Permit template provides two or more options.

# 2 How we reached our decision

## 2.1 Receipt of Application

The Application was duly made on 7 April 2014. This means we considered it was in the correct form and contained sufficient information for us to begin our determination but not that it necessarily contained all the information we would need to complete that determination (see below).

The Applicant made no claim for commercial confidentiality. We have not received any information in relation to the Application that appears to be confidential in relation to any party.

## 2.2 Consultation on the Application

We carried out consultation on the Application in accordance with the EPR, our statutory Public Participation Statement (PPS) and our own Regulatory Guidance Series (RGS) Note 6 for Determinations involving Sites of High Public Interest. We consider that this process satisfies, and frequently goes beyond the requirements of the Aarhus Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters, which are directly incorporated into the IED, which applies to the Installation and the Application. We have also taken into account our obligations under the Local Democracy, Economic Development

and Construction Act 2009 (particularly Section 23). This requires us, where we consider it appropriate, to take such steps as we consider appropriate to secure the involvement of representatives of interested persons in the exercise of our functions, by providing them with information, consulting them or involving them in any other way. In this case, our consultation already satisfies the Act's requirements.

We advertised the Application by a notice placed on our website, which contained all the information required by the IED, including telling people where and when they could see a copy of the Application. We also placed an advertisement in the Bromsgrove Advertiser on 7 May 2014.

We placed a paper copy of the Application and all other documents relevant to our determination (see below) on our Public Register at the Environment Agency Office, Riversmeet House, Northway Lane, Newtown Industrial Estate, Tewkesbury. Anyone wishing to see these documents could do so and arrange for copies to be made. We also distributed a number of copies of the Application on CD to members of the public following requests.

We sent copies of the Application to the following bodies, which include those with whom we have "Working Together Agreements":

- Worcestershire County Council Planning Authority
- Bromsgrove District Council Planning Authority
- Worcestershire Regulatory Services (Environmental Health Department)
- Public Health England
- Director of Public Health (Bromsgrove District Council)
- Health & Safety Executive
- Severn Trent Water

These are bodies whose expertise, democratic accountability and/or local knowledge make it appropriate for us to seek their views directly. Under our Working Together Agreement with Natural England, we only inform Natural England of the results of our assessment of the impact of the installation on designated Habitats sites.

Further details along with a summary of consultation comments and our response to the representations we received can be found in Annex 3. We have taken all relevant representations into consideration in reaching our determination.

### 2.3 Requests for further information

Although we were able to consider the Application duly made, we did in fact need more information in order to determine it, and issued information notices on 9 June 2014, 5 August 2014 and 4 March 2015. A copy of each information notice was placed on our public register as was the response when received.

In addition to our information notices, we received additional information during the determination from the Applicant:

- Information concerning lagoon capacity – received 24 July 2014.
- Information concerning groundwater trigger levels and rebound; thermal input of proposed generator – received 29 January 2015;
- Ecology survey report – received 4 August 2015;
- Revised site plan – received 18 August 2015.

We received additional information from the Applicant following the publicising and public consultation on the draft decision. The information was clarification on certain aspects of the Application and therefore not material to require further public consultation:

- Clarification of lagoon capacity calculation, ash ageing timescales and use of bituminous sealant – received 20 October 2015

We made a copy of the information available to the public in the same way as the response to our information notice.

# 3 The legal framework

The Permit will be granted, under Regulation 13 of the EPR. The Environmental Permitting regime is a legal vehicle which delivers most of the relevant legal requirements for activities falling within its scope. In particular, the regulated facility is:

- a *waste installation* as described by the IED;
- an *operation* covered by the WFD, and
- subject to aspects of other relevant legislation which also have to be addressed.

We address some of the major legal requirements directly where relevant in the body of this document. Other requirements are covered in a section towards the end of this document.

We consider that, in granting the Permit, it will ensure that the operation of the Installation complies with all relevant legal requirements and that a high level of protection will be delivered for the environment and human health.

We explain how we have addressed specific statutory requirements more fully in the rest of this document.

# 4 The Installation

## 4.1 Description of the Installation and related issues

### 4.1.1 The permitted activities

The Installation is subject to the EPR because it carries out an activity listed in Part 1 of Schedule 1 to the EPR:

- Section 5.4 A(1) (b) (iii) – Recovery or a mix of recovery and disposal of non hazardous waste with a capacity exceeding 75 tonnes per day involving treatment of slags and ashes

An Installation may also comprise "directly associated activities", which at this Installation include:

- Storage of wastes pending recovery
- Storage of processed materials
- Electrical power supply
- Raw material storage (including fuels)
- Collection and storage of process water
- Collection and storage of surface water

Together, these listed and directly associated activities comprise the Installation – a regulated facility.

### 4.1.2 The Site

The proposed Installation – Sandy Lane IBA facility is to be located west of an operational landfill site and adjacent to a sand quarry, within the district of Bromsgrove, Worcestershire. The site is bordered to the south by the A491 that forms part of the strategic highway network, and is also within 2 km west of the M5 (junction 4) and links to the A456 trunk road.

Residential properties front onto Madeley Road situated approximately 100 metres west of the application site. Further west of the proposed site are residential properties that front onto Sandy Lane. Further north are isolated properties, one known as 'The Cottage' on Harbours Hill and another isolated property at the corner of the junction where Harbours Hill and Sandy Lane meet.

There are four Sites of Special Scientific Interest (*Sling Gravel Pits, Hurst Farm Pasture, Madeley Heath Pit and Feckenham Forest*) and ten Local Wildlife Sites within 2 km of the site.

The Applicant submitted a plan which we consider is satisfactory, showing the site of the Installation and its extent. A plan is included in Schedule 7 to the Permit, and the Operator is required to carry on the permitted activities within

the site boundary. Further information on the site is addressed below in Section 4.2.

### 4.1.3 What the Installation does

The key features of the Installation can be summarised as follows:

The Installation will accept up to 120,000 tonnes of IBA per annum. The IBA will arrive at the site quenched from incinerators burning waste in covered vehicles. The IBA will be tipped and stockpiled onto a concrete yard area. Raw (unprocessed) IBA will be stored outside for it to be open to the elements of air and water. The external storage enables the IBA to mature or condition over a period of 3 to 6 weeks to a stage where the matured IBA can be suitable for recycling. The conditioning period is a type of IBA treatment process, which generates chemical reactions including carbonation, oxidation and hydration to improve the physical and chemical properties, which then results in stabilising the material. As the material conditions over a period of time, the top layer of the IBA stockpile hardens. This outer crust enables dust and odour to be locked within the stockpiles.

Following conditioning of the IBA, the material will be transported by a mechanical loading shovel into an enclosed building for further treatment. The IBA will then go through vibrating screens and magnetic metal separation; this removes the ferrous and non-ferrous metals and produces different sized fractions of IBA.

The processed IBA along with ferrous and non-ferrous recyclates will be moved to external stockpile areas. Once the IBA is fully conditioned (approximately after 4 weeks), it will be distributed to the markets as Incinerator Bottom Ash Aggregate (IBAA) for re-use in the construction industry. The ferrous and non-ferrous metals are then sent onto the metals processing facilities for further recovery.

### 4.1.4 Key Issues in the Determination

The key issues arising during this determination were the potential impacts on human health of:

- fugitive emissions to air (dust);
- fugitive emissions to groundwater; and
- emissions of noise /vibration.

We therefore describe how we addressed these issues in more detail in this document (section 5.4).

## 4.2 The site and its protection

### 4.2.1 Site setting, layout and history

The proposed application site is to be on the floor of an existing operational sand quarry, approximately 2.4 hectares. The floor level of the sand quarry is approximately 20 metres below the surrounding area and adjacent roads. The quarry is mostly occupied by exposed sand material, therefore the site is mostly absent of other features with little vegetation existing on the site.

The remaining area of the sand quarry, which occupies the western area closest to Madeley Road, follows different topographical characteristic to the application site due to this area not having been fully extracted for sand. This western area of the sand quarry has varying topographical levels formed by heaps of sand currently occupying the remaining area of the sand quarry.

A thick buffer of trees forms the perimeter of the sand quarry including the proposed site area. Public footpaths exist along the western and northern boundaries of the site where the buffer of trees are located. The tree boundary and footpath areas are located at the same level as the surrounding roads and surrounding site area as opposed to the lower level of the sand quarry floor.

The surrounding countryside to the site is mainly pastoral where there are small fields used for either grazing or hay and silage production. Some areas within the vicinity of the site are also used for sand and gravel extraction such as Pinches Quarry to the east and Chadwick Quarry to the north of the application site. An existing quarry is located opposite to the Sandy Lane site as well as other nearby landfill sites.

### 4.2.2 Proposed site design: potentially polluting substances and prevention measures

Fuel for the proposed on-site generator will be diesel and will be stored in two tanks with appropriate secondary containment. Bunds will be constructed to appropriate standards and lined with materials that are impervious to the content of the material which they hold. Procedures will be in place to deal with any spillages, including inspection records of all pollution prevention measures. All process areas will be located on hardstanding with sealed drainage.

In accordance with Article 22(2) of the IED, the Applicant is required to provide a baseline report containing the information set out in paragraphs (a) and (b) of the Article before starting operation.

The Applicant has submitted a site condition report which does not include a report on the baseline conditions as required by Article 22. We have reviewed the report and consider that it does not adequately describe the condition of the soil and groundwater prior to the start of site operations. We have

therefore set a pre-operational condition (POC 6) requiring the Operator to provide this information prior to the commencement of site commissioning.

The baseline report is an important reference document in the assessment of any contamination should it arise during the operational lifetime of the Installation and at cessation of activities at the Installation.

### 4.2.3 Closure and decommissioning

Having considered the information submitted in the Application, we are satisfied that the appropriate measures will be in place for the closure and decommissioning of the Installation, as referred to in the Application. Pre-operational condition POC 2 requires the Operator to have an Environmental Management System in place before the Installation is operational, and this will include a site closure plan.

At the definitive cessation of activities, the Operator has to satisfy us that the necessary measures have been taken so that the site ceases to pose a risk to soil or groundwater taking into account both the baseline conditions and the site's current or approved future use. To do this, the Operator has to apply to us for surrender, which we will not grant unless and until we are satisfied that these requirements have been met.

## 4.3 Operation of the Installation – general issues

### 4.3.1 Administrative issues

The Applicant is the sole Operator of the Installation.

We are satisfied that the Applicant is the person who will have control over the operation of the Installation after the granting of the Permit; and that the Applicant will be able to operate the Installation so as to comply with the conditions included in the Permit.

We are satisfied that the Applicant's submitted Opra profile is accurate.

The Opra score will be used as the basis for subsistence and other charging, in accordance with our Charging Scheme. Opra is the Environment Agency's method of ensuring application and subsistence fees are appropriate and proportionate for the level of regulation required.

### 4.3.2 Management

The Applicant has stated in the Application that they will implement an Environmental Management System (EMS) that will be certified under ISO14001. A pre-operational condition (POC 2) is included requiring the Operator to provide a written copy of the EMS prior to the commencement of site commissioning and to make available for inspection all EMS documentation. The Environment Agency recognises that certification of the EMS cannot take place until the Installation is operational. An improvement

condition (IC 1) is included requiring the Operator to report progress towards gaining accreditation of its EMS.

We are satisfied that appropriate management systems and management structures will be in place for this Installation, and that sufficient resources are available to the Operator to ensure compliance with all the permit conditions.

The treatment/ recycling of IBA requires a Technically Competent Manager (TCM) under an approved scheme. The Applicant has provided evidence that they will have a TCM that holds a relevant qualification at the Installation. A pre-operational condition (POC 7) is included which requires the Operator to provide written evidence of the TCM at the Installation prior to the commencement of site commissioning.

### 4.3.3 Site security

Having considered the information submitted in the Application, we are satisfied that appropriate infrastructure and procedures will be in place to ensure that the site remains secure. Site security will form part of the Environmental Management System and must be in place prior to the commencement of site commissioning as required by pre-operational condition 2 (POC 2). We consider it prudent to include an improvement condition (IC 5) which requires the Operator to install a perimeter fence around the storage and treatment areas of the facility due to the sensitive location of the site.

### 4.3.4 Accident management

The Applicant has submitted an Accident Management Plan. Having considered the Plan and other information submitted in the Application, we are satisfied that appropriate measures will be in place to ensure that accidents that may cause pollution are prevented but that, if they should occur, their consequences are minimised. An Accident Management Plan will form part of the Environmental Management System and must be in place prior to the commencement of site commissioning as required by pre-operational condition 2 (POC 2).

### 4.3.5 Off-site conditions

We do not consider that any off-site conditions are necessary.

### 4.3.6 Operating techniques

We have specified that the Applicant must operate the Installation in accordance with the following documents contained in the Application:

| **Description** | **Parts** |
|---|---|
| Application EPR/XP3030VM/A001 | Information provided in response to section 3a – technical standards, Part B3 of the application form:<br>• How to comply with your Environmental Permit |

| Description | Parts |
|---|---|
| | • Internal Documentation Quality Protocol<br>• ESA sampling and testing<br><br><u>Other documents</u>:<br>• Non Technical Summary – Sandy Lane<br>• Wastes accepted on site<br>• P006 Dust Management Plan<br>• Fugitive Emissions Management Plan and Risk Assessment<br>• Proposed Site Plans<br>• Environmental Risk Assessment – Sandy Lane |
| Response to Schedule 5 Notice #1 dated 09/06/14 | Response to questions detailing:<br>• Waste acceptance procedures;<br>• Purpose of site generator;<br>• Purpose of diesel storage tank and proposed bunding;<br>• Storage of IBAA, ferrous and non-ferrous metal output;<br>• Emissions management in enclosed building;<br>• Particulate (dust) monitoring protocol |
| Additional information | Lagoon capacity calculations. |
| Response to Schedule 5 Notice #2 dated 05/08/14 | Response to questions detailing:<br>• SGN IPPC S5.06 and BAT compliance;<br>• Accident management plan;<br>• Site plan showing location of spill kits and fire extinguishers;<br>• Lagoon and hardstanding containment design;<br>• Destination of IBA process water tankered off-site;<br>• Lagoon monitoring plan;<br>• Number of oil storage tanks<br>• Frequency of particulate (dust) monitoring and monitoring locations;<br>• Groundwater monitoring plan |
| Additional information | Further information regarding the groundwater monitoring plan and thermal input of proposed site generator. |
| Response to Schedule 5 Notice #3 dated 04/03/15 | Revised BAT assessment. |

The details set out above describe the techniques that will be used for the operation of the Installation that have been assessed by the Environment Agency as BAT; they form part of the Permit through conditions 2.3.1, 2.3.2 and Table S1.2 in the Permit Schedules.

### 4.3.7 Waste types

Article 45(1) of the IED requires that the Permit must include a list of all types of waste which may be treated using at least the types of waste set out in the European Waste List established by Decision 2005/532/EC, if possible, and containing information on the quantity of each type of waste, where appropriate. The Application contains one specific waste type (19 01 12), coded by the European Waste Catalogue (EWC) number, which the Applicant will accept at the facility and which the plant is capable of processing in an environmentally acceptable way. We have specified the permitted waste type description in Table S2.2.

We are satisfied that the Applicant can accept the waste contained in Table S2.2 of the Permit because the waste is categorised as non-hazardous in the European Waste Catalogue and is capable of being safely processed at the Installation.

### 4.3.8 Energy efficiency

Having considered the information submitted in the Application, we are satisfied that appropriate measures will be in place to ensure that energy is used efficiently within the Installation.

The Application details a number of measures that will be implemented at the Installation in order to maximise energy efficiency, as set out in Section 2.7 of the BAT assessment response received as part of the Application. All items of plant within the Installation are driven by electric motors and will be chosen for their energy efficiency. Plant will not be left to run when no material is being fed into the plant, whilst at the same time avoiding shutting down and re-starting the plant. Maintenance and housekeeping procedures will be implemented on site to ensure efficient operation of all plant.

There is no specific BAT requirement to reduce the energy consumption to a set level for the IBA recycling sector. There is no Climate Change Agreement (CCA) in place at the Installation. The Installation is not subject to a Greenhouse Gas Permit under EU ETS. The Applicant's commitment to ensure efficient operation of all plant is considered to be BAT. Reporting of energy usage is required in the Permit under Schedule 4.

### 4.3.9 Efficient use of raw materials

Having considered the information submitted in the Application, we are satisfied that the appropriate measures will be in place to ensure the efficient use of raw materials.

We have specified the following limits and controls on the use of raw materials and fuels:

| Raw Material or Fuel | Specifications | Justification |
|---|---|---|
| Gas Oil | < 0.1% sulphur content | As required by Sulphur Content of Liquid Fuels Regulations. |

The Applicant will store diesel, oils and lubricants on site for operational use. All storage tanks will be appropriately bunded in accordance with Section 2.2.5 of SGN IPPC S5.06.

The Applicant will minimise mains water use where possible. IBA is delivered to the Installation with high moisture content, typically around 20 per cent. All the water that drains from the IBA joins the full containment system at the facility and is stored in the on-site lagoon. This water is then re-used in the dust suppression system using water spray cannons.

During periods of excessive dry weather, the lagoon may be topped up using mains water. The self-contained water system on site is designed to minimise water usage by making use of grey water, including run-off from site surfacing and from the rainwater collected from the roof of the process building. The rainwater run-off from the process building roof will be directed to a harvesting tank which will be connected to the dust suppression system. If the rainwater storage tank is full, it will be directed to the lagoon to create additional storage capacity, provided this will not affect the required capacity for floodwaters.

Reporting of raw material usage is required in the Permit under condition 1.3 and Schedule 4.

4.3.10 Avoidance, recovery or disposal with minimal environmental impact of wastes produced by the activities

This requirement addresses wastes produced at the Installation and does not apply to the waste being treated there. Note also that the purpose of this plant is to move the waste up the waste hierarchy (e.g. produce substitute aggregate material and separate the metals for recycling). The principal waste streams the Installation will produce are processed IBA (referred to as Incinerator Bottom Ash Aggregate – IBAA), recovered ferrous and non-ferrous metals, and residual IBA.

Most IBA is likely to be classified as non-hazardous waste. However, IBA is classified on the European List of Wastes as a “mirror entry”, which means IBA is a hazardous waste if it possesses a hazardous property relating to the content of dangerous substances. Classification of IBAA for its subsequent use or disposal is controlled by other legislation and so is not duplicated within the permit.

Having considered the information submitted in the Application, we are satisfied that the waste hierarchy referred to in Article 4 of the WFD will be applied to the generation of waste and that any waste generated will be treated in accordance with this Article.

We are satisfied that waste from the Installation that cannot be recovered will be disposed of using a method that minimises any impact on the environment. Permit condition 1.4 will ensure that this position is maintained.

# 5. Minimising the Installation's environmental impact

Regulated activities can present different types of risk to the environment, these include odour, noise and vibration; accidents, fugitive emissions to air and water; as well as point source releases to air, discharges to ground or groundwater, global warming potential and generation of waste.

For an installation of this kind, the principal emissions are:

- fugitive releases to air (discussed in section 5.4.1);
- fugitive releases to surface water and groundwater (discussed in section 5.4.2); and
- noise and vibration (discussed in section 5.4.4)

The next sections of this document explain how we have approached the critical issue of assessing the likely impact of emissions from the processing of IBA on human health and the environment and what measures we are requiring to ensure a high level of protection.

## 5.1 Point source emissions to air

Point source emissions to air will be from the diesel generator and fuel storage tank vents, which are unabated. The Applicant will install a diesel generator (thermal input 0.97 MW) to power the facility. Given the size of the proposed generator, we consider that emissions are unlikely to have a significant impact on air quality. We however consider it prudent to include a pre-operational condition (POC 5) which requires the submission of the specification of the diesel generator to verify the details stated in the Application.

Emissions to air from the fuel tank vents may occur during road tanker loading and off-loading (i.e. breathing losses). However these releases are likely to be minimal and will have a limited impact on air quality. We consider that dispersion modelling of emissions from storage tank vents is unnecessary. Although referenced as point sources in Table S3.1 in the permit for consistency, we have not set any emission limits for the generator and the fuel tank vents.

## 5.2 Point source emissions to surface water and /or groundwater

No discharges to surface water and /or groundwater are authorised from this Installation. Due to the sensitive nature of the proposed Installation, we have set emission limits and imposed monitoring requirements of groundwater.

## 5.3 Point source emissions to sewer

No discharges to sewer are authorised from this Installation. This permit allows the transfer of surface water run-off by tanker from the Installation to authorised off-site facilities for further treatment.

## 5.4 Other emissions to the environment

### 5.4.1 Fugitive emissions to air

The IED specifies that an Operator must be able to demonstrate that the plant is designed in such a way as to prevent and where that is not practicable reduce emissions and the impact on the environment as a whole.

#### 5.4.1.1 Air quality impact assessment

The Applicant's assessment of the impact of air quality is set out in Appendix B of the Application. The assessment comprises dispersion modelling of emissions to air from the operation of the IBA facility. This section deals primarily with the dispersion modelling of emissions to air from the processing of IBA and its impact on local air quality. The impact on conservation sites is considered in section 5.5.

Air dispersion modelling enables the process contribution (PC) to be predicted at any environmental receptor that might be impacted by the plant. Once short-term and long-term PCs have been calculated in this way, they are compared with Environmental Quality Standards (EQS) referred to as "benchmarks" in the H1 Guidance.

Where an EU EQS exists, the relevant standard is the EU EQS. Where an EU EQS does not exist, our guidance sets out a National EQS (also referred to as Environmental Assessment Level - EAL) which has been derived to provide a similar level of protection to human health and the environment as the EU EQS levels. In a very small number of cases, e.g. for emissions of Lead, the National EQS is more stringent that the EU EQS. In such cases, we use the National EQS standard for our assessment.

National EQSs do not have the same legal status as EU EQSs, and there is no explicit requirement to impose stricter conditions than BAT in order to comply with a national EQS. However, national EQSs are a standard for harm and any significant contribution to a breach is likely to be unacceptable.

PCs are considered **Insignificant** if:

- the **long-term** process contribution is less than **1%** of the relevant EQS; and
- the **short-term** process contribution is less than **10%** of the relevant EQS.

The **long term** 1% process contribution insignificance threshold is based on the judgements that:

- It is unlikely that an emission at this level will make a significant contribution to air quality;
- The threshold provides a substantial safety margin to protect health and the environment.

The **short term** 10% process contribution insignificance threshold is based on the judgements that:

- spatial and temporal conditions mean that short term process contributions are transient and limited in comparison with long term process contributions;
- the proposed threshold provides a substantial safety margin to protect health and the environment.

Where an emission is screened out in this way, we would normally consider that the Applicant's proposals for the prevention and control of the emission to be BAT. That is because if the impact of the emission is already insignificant, it follows that any further reduction in this emission will also be insignificant.

**However, where an emission cannot be screened out as insignificant, it does not mean it will necessarily be significant.**

For those pollutants which do not screen out as insignificant, we determine whether exceedences of the relevant EQS are likely. This is done through detailed audit and review of the Applicant's air dispersion modelling taking background concentrations and modelling uncertainties into account. Where an exceedance of an EU EQS is identified, we may require the Applicant to go beyond what would normally be considered BAT for the Installation or refuse the Application. Whether or not exceedences are considered likely, the application is subject to the requirement to operate in accordance with BAT.

This is not the end of the risk assessment, because we also take into account local factors (for example, particularly sensitive receptors nearby such as a SSSIs, SACs or SPAs). These additional factors may also lead us to include more stringent conditions than BAT.

If, as a result of reviewing of the risk assessment and taking account of any additional techniques that could be applied to limit emissions, we consider that emissions **would cause significant pollution**, we would refuse the Application.

The Applicant has assessed the Installation's potential emissions to air against the relevant air quality standards, and the potential impact to human health. These assessments predict the potential effects on local air quality from the Installation's fugitive emissions from IBA handling using the ADMS version 5 model, which is a commonly used computer model for regulatory dispersion modelling. The model used 5 years of meteorological data collected from the Coleshill weather station between 2006 and 2010. The impact of the terrain surrounding the site upon plume dispersion was considered in the dispersion modelling.

The conservative assumptions adopted in this assessment are summarised below:

- It was assumed that the facility would operate at the maximum capacity continuously for the entire year;

- The results are based on the maximum concentrations predicted at any of the receptor locations;
- The results are based on the maximum prediction concentrations determined for the five years of meteorological data used in the assessment. During a typical year, the concentrations would be lower than those reported;
- The modelled dust deposition rates are based on the maximum 24-hour rate rather than the daily rate calculated over a period of one month;
- Although the facility will be closed on bank holidays, the model included operation on all Monday and Friday bank holidays.

The Applicant generated the emission rates from the storage and handling of IBA by using the United States Environmental Protection Agency (USEPA) AP-42 emission factors. To generate the emission factors, the Applicant has assumed the following:

- $PM_{10}$ particle size factor of 0.35;
- Total particulate size factor 0.74;
- Mean wind speed of 5 m/s;
- IBA moisture content of 20%;
- IBAA moisture content of 5%.

We are in agreement with this approach. The assumptions underpinning the model have been checked and are reasonably precautionary. As well as calculating the peak ground level concentration, the Applicant has modelled the concentration of $PM_{10}$ at a number of specified locations within the surrounding area.

The way in which the Applicant used dispersion models, its selection of input data, use of background data and the assumptions it made have been reviewed by the Environment Agency's modelling specialists to establish the robustness of the Applicant's air impact assessment. The output from the model has then been used to inform further assessment of health impacts.

The Applicant's modelling predictions are summarised in the tables below. The figures shown indicate the predicted peak ground level exposure to pollutants in ambient air. Whilst we have used the Applicant's modelling predictions in the table below, we have made our own simple verification calculation of the percentage process contribution and predicted environmental concentration. Our review of the Applicant's assessment leads us to agree with the Applicant's conclusions. We have also audited the air quality assessment and similarly agree that the conclusions drawn in the reports are acceptable.

**Table 1 Maximum modelled $PM_{10}$ concentrations at human receptor locations**

| Pollutant | EQS / EAL ($\mu g/m^3$) | PC ($\mu g/m^3$) | PC as % of EQS / EAL | Background concentration ($\mu g/m^3$) | PEC ($\mu g/m^3$) | PEC as % EQS / EAL |
|---|---|---|---|---|---|---|
| $PM_{10}$ (long-term) | 40 | 0.002 | 0.004 | [1] | [1] | [1] |
| $PM_{10}$ (short-term) | 50 | 0.002 | 0.004 | [1] | [1] | [1] |
| **Note [1]**: Where the PC is less than 1% of the benchmark for a long term measurement or less than 10% for a short term measurement, the impact is considered to be insignificant. In these cases, examination of the background and PEC is not required. | | | | | | |

**Table 2 Maximum modelled dust deposition rates at human receptor locations**

| Pollutant | Averaging period | Guideline value ($mg/m^2/day$) | PC ($mg/m^2/day$) | PC as % of EQS / EAL | Background concentration (($mg/m^2/day$) |
|---|---|---|---|---|---|
| Dust deposition | Maximum 24-hour | 200 | 0.22 | 0.11% | [1] |
| **Note [1]**: Where the PC is less than 1% of the benchmark for a long term measurement or less than 10% for a short term measurement, the impact is considered to be insignificant. In these cases, examination of the background and PEC is not required. | | | | | |

From the tables above, the $PM_{10}$ emissions and dust deposition rates can be screened out as insignificant in that the process contribution is <1% of the long term EQS/EAL and <10% of the short term EAQ/EAL. Therefore, generally, we consider the Applicant's proposals for preventing and minimising the emissions of $PM_{10}$ to be BAT for the Installation.

5.4.1.2 Dust management plan

Based upon the information in the Application, we are satisfied that appropriate measures will be in place to prevent and /or minimise fugitive emissions to air.

The Applicant submitted a dust management plan to prevent and minimise off-site emissions of dust as part of the Application. Key measures in the dust management plan include:

- Processing of IBA will be carried out within an enclosed building;
- Processed material will leave the processing building by conveyor to intermediate storage areas, where the material will not be allowed to

free fall for more than 2000 mm and will be contained in walled storage bays;

- The site surface will be fully concreted to minimise potential fugitive emissions being generated;

- A speed limit will be implemented to minimise dust generation on internal haul routes;

- An adequate water supply for dust suppression will be maintained at the site; and

- A dust suppression system will be installed and operated as necessary to control potential dust emissions from material handling and storage and from on-site traffic movements. This will include the dampening of incoming material and of stockpiles and the site surface.

The dust management measures have been incorporated into the permit as an operating technique in Table S1.2 of Schedule 1.

The Applicant submitted a particulate monitoring plan to assess the potential impact of dust on sensitive receptors from a number of sampling locations once the site is operational. The Applicant proposes to use a combination of sticky pad directional dust gauges with a settlement gauge and will incorporate a two week sampling period. The passive directional gauge will sample fugitive dust in flux from 360° around the sampling head to determine the direction(s) from which dust has arisen. The passive settlement gauge will sample dust depositing out of the air. The collected dust will be measured in terms of %AAC and %EAC (established annoyance/nuisance criteria) and, characterised to determine the mass, particle size and chemistry, if necessary.

We have included an Improvement Condition 6 (IC6) which requires the Operator to review the effectiveness of the site particulate monitoring strategy from the results obtained from sampling, 12 months following the commencement of site operations.

5.4.2 Fugitive emissions to surface water and groundwater

Based upon the information in the Application, we are satisfied that appropriate measures will be in place to prevent and /or minimise fugitive emissions to surface water and groundwater.

i. Site containment and hardstanding design

The Applicant provided a lagoon and hardstanding containment design in response to a request for further information dated 5 August 2014.

Site lagoon

The Applicant proposes a dense asphaltic concrete (DAC) for the lagoon containment lining system and the site hardstanding (used for storage of stockpiles of IBA and IBAA). The Applicant reports that DAC is a fully engineered, site-specifically designed containment lining system, made up of three component layers which will ensure optimum performance of the lining system. Each of the three component layers fulfils specific functions to ensure the integrity of the liner system:

- The stabilising/drainage layer (SL) is analogous to the sub-base of a road. It is constructed from clean compacted, graded aggregate and serves two functions: it prevents the build-up of water pressure beneath the liner caused by aquifers, seepage or the ingress of water around the edge of the liner whilst providing a firm, stable surface on which the equipment required for the construction of subsequent layers can be used. The SL is generally placed on a granular sub-grade layer or clay layer which has been compacted up to a stiffness of <50 MN/m² or a California Bearing Ratio (CBR) of ≥ 20% (this deformation modulus is required to ensure satisfactory compaction of the subsequent asphaltic materials). When compacted, the stabilising layer is sprayed with a bituminous emulsion, which helps bind together the fines in the upper layers of the material whilst at the same time creating adhesion for the next layer.

- The asphaltic binder layer (ABL) is an open textured asphaltic layer specifically designed to have a comparatively high permeability. This layer provides a strong stable base against which the dense asphaltic layer can be compacted and, by virtue of its permeability, allows any steam generated during the construction of the dense asphaltic layer to escape and so assist in preventing the formation of bubbles in the DAC layer. The ABL layer is designed to be strong enough to easily support the DAC layer, the passage of vehicles without thinning and/or deforming or being forced into the voids of the underlying stabilising layer. Since it also has sufficient strength in a landfill application to support the depth of the landfilled waste, cover material and any capping/restoration material, DAC has adequate capacity to support stockpiles of IBA which will be located on the hardstanding areas which also will be formed with DAC.

- The dense asphaltic layer comprises an asphaltic mixture with a continuously graded aggregate matrix, laboratory designed for each individual contract so that the quantity and grading of each aggregate fraction fills the gaps left in the matrix formed by larger sizes. The cementitious binding agent is bitumen, which plays an important part in the overall design and construction of the dense asphaltic concrete layer, being the agent that binds the minerals together.

A stability risk assessment has been carried out for the void formation and construction of the lagoon. The dimensions proposed for the DAC lining

system are typical of those selected for landfill lining applications. The thickness of the DAC layer is 80 mm, the thickness of the asphaltic binder layer is 60 mm and the thickness of the stabilising/drainage layer is 200 mm.

Site hardstanding

The hardstanding areas comprise plant movement routes, raw material stockpiles, raw IBA and processed output stockpiles. These will either "receive" runoff from the stockpiled materials or will conduct surface water and runoff from the stockpiles to the lagoon.

The design for the DAC lining system for the hardstanding areas is – thickness of the DAC layer is 60 mm, thickness of the asphaltic binder layer is 60 mm and thickness of the stabilising/drainage layer is 200 mm.

The Applicant reports that once laid and compacted, a DAC lining system forms a layer that is resistant to deformation, yet retaining ample flexibility to accommodate any deformation. Tests demonstrate that deformation caused by differential settlement of up to 1 in 10 causes no signs of stress fracture or cracking. The completed lining system has a bulk density of approximately 2,500 kg/$m^3$. The lining system cannot be punctured unless it were intentionally excavated by powered machinery such as road planning plant or pneumatic road drills. It is unaffected by vandalism, wind, frost-action and all natural weather conditions that may be experienced. Construction plant and vehicles may run and operate on the surface without damaging the lining system. The Applicant considers that a DAC lining system for the hardstanding areas will perform to a high standard.

The Applicant confirms that a Construction Quality Assurance (CQA) Plan will be provided prior to works being undertaken. We have included conditions in the Permit which require the Operator to submit CQA proposals to the Environment Agency for approval, prior to the construction of the lagoon, site hardstanding, bunding and groundwater monitoring infrastructure.

All liquids, whose emissions to water or land could cause pollution (diesel and other maintenance liquids) will be contained in adequate bunding constructed in line with industry best practice standards and sized to contain 110% of the contents of the largest tank or 25% of the total tankage within a bund, whichever is the greater. We have included Pre-operational conditions (POC 3 and 4) which require the submission of a report confirming that the construction and integrity of the proposed secondary containment and site surfacing are fit for purpose and in accordance with industry standards prior to the commencement of site commissioning. This will ensure that the proposed secondary containment and site surfacing are properly designed to reduce the risks of accidents and their consequences.

ii. Groundwater risk assessment

The Applicant provided a hydrogeological quantitative risk assessment to demonstrate the theoretical impact of IBA runoff from the stockpiles produced

by the weathering on groundwater integrity. The approach uses a contaminant transport modelling package and models the impact of runoff from the stockpiles leaking through the base of the surface water and runoff lagoon, driven by the hydraulic pressure of liquid in the lagoon, and leakage of runoff from the stockpiles through the site hardstanding.

The Sandy Lane IBA facility is situated within the outer Source Protection Zone (SPZ 3) of the Wildmoor public groundwater abstraction, a highly sensitive receptor and strategically important water supply. The Wildmoor Sandstone is classified as a principal aquifer and forms part of the nationally significant Sherwood Sandstone aquifer. A principal aquifer is described as layers of rock or drift deposits that have high intergranular and/or fracture permeability and are likely to support water supply and/or river base flow on a strategic scale.

A number of major water abstractions, including for public water supply, are sourced from this aquifer and this includes a public water supply borehole located approximately 1.2 km to the south of the site (Wildmoor pumping station). SPZ 3 defines the groundwater capture zone for the borehole as a minimum of 400 days' time for groundwater at the IBA facility to reach the Wildmoor abstraction. The source protection zone (total catchment) for this abstraction includes the site.

Laboratory leaching tests of IBA have been undertaken to assess what determinands could be leached from the IBA as it is weathered. These laboratory leaching test data have been supplemented by a review of data from another IBA processing plant so that "real" data can be considered. Based on the determinands that have been detected in the leaching tests, the quantitative risk assessment has been undertaken for the following determinands: Antimony, Cadmium, Chloride, Chromium, Copper, Iron, Lead, Mercury and Selenium.

Methodology

In order to carry out the migration assessment, a groundwater model for the site using a contaminant transport modelling package has been used – the Golders/EA ConSim package. The ConSim model allows for various levels of assessment. A "Level 3" assessment has been undertaken which ultimately allows for:

- the migration of determinands from the near-surface, the effects of degradation, retardation and dispersion as the determinands move through the unsaturated zone and aquifer to the receptors; and

- the assessment of concentrations and the time taken for the determinands to reach receptors at some distance from the site.

To assess the modelling results, Water Quality Standards (WQS) have been set for each determinand. For this assessment, the target concentration at the compliance point is set to one of the following:

- The Drinking Water Standards (DWS) is relevant for groundwater discharging to the abstraction boreholes at Wildmoor and is assessed at the compliance point adjacent to each zone and at the point 100 m from the site; or

- For hazardous /dangerous substances (mercury and cadmium), the WQS have been set at the laboratory limit of detection. This is relevant for hazardous substances which should be prevented from discharging to groundwater. The relevant compliance point for these substances is the point of entry to groundwater.

Non-hazardous substances

The results of the non-hazardous substances are considered at the compliance point adjacent to each zone and at the 100 m compliance point. The results show that there is no discernible impact on groundwater in the principal aquifer for the majority of the non-hazardous substances in the 20,000 year timeframe being considered. However, for chloride and selenium the results do show that there may be an impact at a concentration below the WQS used in this assessment. For chloride, the most likely ($50^{th}$ percentile) concentration adjacent to the lagoon is shown to be 12 mg/l which is around 5% of the DWS of 250 mg/l. For selenium, no impact is predicted at the $50^{th}$ percentile level and the impact at the $95^{th}$ percentile is predicted to be such that it would not be detected by commercially available analytical methods.

With respect to the travel times for migration of chloride from the base of the DAC under the surface water and runoff lagoon, the model predicts that there would be no discernible breakthrough at the base of the unsaturated zone for approximately 42 years as the worst case or 176 years at the most likely case. This time excludes the travel time through the DAC itself which has been calculated to be in the order of 250 years for the design case. Total travel times are therefore predicted to be in the order of 300 years at the worst case level and 425 years as the most likely case. With respect to selenium, the breakthrough time is considerably longer due to the retardation of this determinand in the unsaturated zone and the worst case travel time is predicted to be over 15,000 years. Migration times for chloride and selenium through the hardstanding are considerably lower than from the surface water and runoff lagoon.

Migration of chloride in the aquifer to the point 100 m from the surface water and runoff lagoon is predicted to be in the order of 190 years at the most likely level with a travel time of 17,000 years for selenium.

Hazardous /dangerous substances

The results show that for each area of the site in the 20,000 year time frame considered, there is no discernible input of either cadmium or mercury to groundwater and in both cases the ConSim model results show the concentration to be 0 mg/l and travel times to be longer than 20,000 years.

Conclusion

The risk assessment indicates that for the majority of determinands, there would be no discernible input to groundwater when considering the worst case scenario (as modelled at the 95$^{th}$ percentile confidence level).

For chloride and selenium (which have the lowest retardation coefficients), the model predicts that for the worst case scenario there may be a discharge to groundwater. The model shows that the concentration in the discharge at the base of the unsaturated zone may be above the WQS for chloride but below for selenium. However, the model predicts that following dilution in the groundwater, the concentration would be below the DWS for both of these two determinands at the edge of the proposed development site.

The model shows that the impact on the groundwater at a point 100 m from the source area would not be significant with all predicted results (including at the worst case) being below the WQSs (or not detectable in the case of hazardous substances) used in this assessment. When travel time through the DAC is considered, the model predicts that any impact would not be discernible at the 100 m compliance point for approximately 300 years in relation to chloride, the most mobile of the determinands considered.

Based on the results of the groundwater risk assessment, the Applicant considers that the proposed construction and mitigation measures of using DAC for the construction of the surface water and runoff lagoon and site hardstanding will be sufficient to protect groundwater and groundwater resources from significant impact for the likely life of the Installation.

We agree with the Applicant's assessment.

iii. Groundwater monitoring plan

The Applicant provided a groundwater monitoring plan which will firstly, provide an early warning detection system of potential breakout from the lagoon into the principal aquifer and secondly, to identify possible groundwater rebound which could increase the likelihood of a breakout from the lagoon.

The groundwater monitoring plan identifies the location of the proposed monitoring points and the frequency of monitoring required as well as any additional surveys that may need to be undertaken to confirm the baseline conditions for the Wildmoor Sandstone principal aquifer. The plan includes the typical chemical tracers that might be associated with an IBA processing facility and a methodology for determining the trigger levels for groundwater quality.

Baseline monitoring data for the period January 2012 to July 2014 included samples collected from monitoring boreholes SAN 821 and SAN 825 which are located up-gradient from the Sandy Lane Landfill. Analysis of antimony, mercury, selenium and electrical conductivity is not currently part of the

landfill's permit monitoring regime. Analysis of these parameters will form part of the IBA facility baseline monitoring programme. Baseline water quality contains elevated concentrations of lead, sulphate and a low pH, exceeding EQS limits. Detectable concentrations of cadmium, chromium, nickel and chloride are present.

The Applicant proposes to include other parameters such as electrical conductivity, COD, free ammonia, arsenic, boron, dissolved iron, antimony, mercury and selenium. We have included monitoring of the proposed parameters in the permit.

Groundwater level monitoring around the Sandy Lane Landfill has been carried out since 1995. Boreholes SAN 802, SAN 805, SAN 807, SAN 809, SAN 810, SAN 821, SAN 825, SAN 841, SAN 844, SAN 845 and SAN 846 are monitored on a monthly basis. Over the monitoring period, peak groundwater elevations of 144 m above Ordnance Datum (AOD) (February 2002) were recorded in the southern part of the site, down-gradient of the proposed IBA lagoon; this peak level was approximately 4.5 m below the base of the proposed lagoon. A groundwater elevation plot from February 2011 showed groundwater flow direction to be towards the south-east and the Wildmoor abstraction. Groundwater elevations are strongly controlled by abstraction from the principal aquifer as well as rainfall recharge.

The Applicant proposes to use the existing borehole SAN 800 as the baseline/background monitoring location for the IBA facility. Two new boreholes are proposed to monitor groundwater levels and quality down-gradient of the lagoon:

- IBA 1 positioned immediately down-gradient of the lagoon area; and
- IBA 2 positioned approximately 40 m east of IBA 1, down-gradient of the lagoon area.

Groundwater quality monitoring will be undertaken in boreholes SAN 800, IBA 1 and IBA 2. Groundwater levels will be monitored in San 800, IBA 1, IBA 2, SAN 821, SAN 825, SAN 810, SAN 809, SAN 807, SAN 805 and SAN 841.

Groundwater levels will be recorded in each borehole on a monthly basis, as meters below ground level and converted to groundwater elevation using an agreed datum point on site.

Due to the risk of groundwater level rise, which may lead to flooding the operational area of the IBA facility, borehole IBA 1 will be installed with an automatic level logger, recording groundwater levels every 24 hours. The logger data will be downloaded on each monitoring round to provide a higher resolution dataset of groundwater levels. In addition, IBA 1 will be fitted with an alarm and associated telemetry system. The alarm will sound if groundwater levels rise to within 1.5 m of the base of the site lagoon. This will allow sufficient time to allow further investigation of the rise in levels and appropriate action to prevent emissions to groundwater.

Groundwater Quality Control and Trigger Levels

The Applicant proposed control and trigger levels for groundwater quality parameters (see Table 3 below). The control and trigger levels will apply to monitoring carried out in boreholes SAN 800, IBA 1 and IBA 2, i.e. those locations which are dedicated to the monitoring of the groundwater quality.

Groundwater quality "control levels" are site-specific assessment criteria that are used to determine whether a landfill or similar facility is performing as designed and are intended to draw the attention of the Operator to the development of adverse trends in the monitoring data. If breached, they indicate that the lagoon may not be performing as predicted. They should be regarded, therefore, as an early warning system to enable appropriate investigation or corrective measures to be implemented, rather than as an indication that groundwater pollution has occurred.

Groundwater quality "trigger levels" (also referred to as compliance limits) represent the level of contamination that constitutes pollution. This means that a change in water quality to a concentration below the compliance limits would be acceptable, but a concentration at or above the compliance limit would be unacceptable and the procedures outlined in the emergency action plan would be implemented.

**Table 3 Proposed groundwater quality control and trigger levels for the IBA facility monitoring regime.**

| Parameter | Control level | Trigger level |
|---|---|---|
| Mercury | 0.01 µg/l | 0.01 µg/l |
| Chloride | 125 mg/l | 250 mg/l |
| Iron (dissolved) | 100 µg/l | 200 µg/l |
| Antimony | 2.5 µg/l | 5 µg/l |
| Lead | 80 µg/l | 125 µg/l |
| Selenium | 5 µg/l | 10 µg/l |
| pH | -- | <6.5 or >10 |

Control and trigger levels have not been set for all determinands. The determinands have been selected on the basis of the groundwater risk assessment and therefore includes the most mobile contaminants (chloride and selenium) and a hazardous /dangerous substance (mercury). The Applicant confirms that the control and trigger levels have been set in accordance with the Environment Agency's H1 Guidance – Annex J. We have applied the trigger levels as emission limits in Table S3.3 in the Permit.

Groundwater Level Control and Trigger Levels

The Applicant reports that groundwater levels are artificially depressed below the IBA facility as a result of abstraction from the aquifer. Groundwater levels have shown considerable fluctuation and naturally rise and fall over periods of months and years due to changes in abstraction regimes and rainfall recharge. Should this abstraction cease or reduce or recharge rates

significantly increase, groundwater levels could rise and flood the IBA facility. A cessation of pumping at the Wildmoor pumping station or other major abstraction in the area could cause levels to rise more rapidly than previously recorded. The Applicant considers that if rebounding groundwater levels can be identified early, then actions can be taken to reduce potential impacts to the aquifer.

The Applicant did not carry out a “rebound simulation” as the model did not have a sufficient resolution to answer specific questions relating to groundwater level rebound within the vicinity of the site. The Applicant considered that a strong conceptual model using data from the Sandy Lane Landfill monitoring programme and Environment Agency groundwater level data were sufficient.

Given the above uncertainties, the Applicant has identified two separate response levels as follows:

- Control level: This level will be used to flag periods of elevated risk and will be 1.5 m below lagoon base level. The groundwater control level will be 147 m AOD.

- Critical Trigger level: This is the ground water level associated with a shutdown of site operations and will be 0.5 m below lagoon base level. The critical groundwater trigger level will be148 m AOD.

The Applicant has provided an emergency action plan in the event that any of these levels are exceeded.

The Applicant considers that the groundwater monitoring plan outlines a robust strategy for managing the potential risk of rebounding water levels by proposing control and trigger levels including an emergency response plan. Alerts from the Sewerage Undertaker (Severn Trent Water Limited) will be requested by the Operator to inform them of any planned shutdowns or changes in the abstraction regime. This would give the Operator advance notice of any possible issues and allow appropriate actions to be taken.

The Applicant considers that given that the Wildmoor abstraction has been operational for decades and the abstraction is effectively at a steady state, the cessation of pumping is predicted to result in relatively slow rebound. This will give the Operator sufficient time to implement the site emergency action plan.

iv. <u>Lagoon monitoring plan</u>

The Applicant provided a lagoon monitoring plan to:

- summarise the measures that are proposed to minimise the risk of pollution to the environment from the lagoon;
- set out the measures and systems that will be employed to physically monitor the lagoon and ensure that it is operating as expected and designed; and

- set out steps to be undertaken if the measures above indicate that the system is not operating as designed or that pollution to the environment is current or is likely to shortly occur.

The operational site will be sloped from the north down to the south with a maximum elevation of around 155.45 m AOD and a minimum surface elevation around the edge of the lagoon at 153 m AOD. The lagoon is designed with a depth of 4.5 m and a minimum slab level in the base of the lagoon of around 148.5 m AOD.

Surface water from the main operational area will be managed on the basis that no liquids must be allowed to discharge to the underlying aquifer. Runoff from the roof of the process building located within the operational area will be directed to a designated rainwater harvesting tank. This water stream will be used for dust suppression. Surplus water will be allowed to overflow into the general drainage systems within the operational area of the site.

Rainwater from the remainder of the operational area along with water sprayed for dust suppression and any leachate from IBA piles will flow down to the surface water lagoon at the southern end of the site. Water will be taken from this lagoon and applied to the IBA stockpiles as part of the IBA conditioning process and to the internal areas of hardstanding for dust suppression.

During wet periods, the volume of water falling on the site will however exceed evaporation. No surface water discharge will be undertaken as a result of:

- the nature of the site which makes a gravity discharge to a watercourse or sewer impossible; and
- the sensitive nature of the underlying aquifer which is heavily abstracted for public water supply.

The volume of available surface water storage on the site has been designed to be sufficient to hold and contain all flows for the most severe period of prolonged wet weather that could be reasonably expected while still retaining a significant freeboard. Long term monthly rainfall data (68 years of data) has been used to undertake a water balance for the proposed operations on the site and to estimate how much storage would be necessary to capture and control all runoff. Using this data and the resulting water balance calculations, the lagoon has been sized at 6,600 $m^3$.

In addition, the lagoon will be actively managed with the aim of ensuring the available volume of onsite storage does not drop below 3,000 $m^3$. This is significantly in excess of the volume of liquids stored on the site out of the lagoon and as such the lagoon would be able to accept and contain flows even in the unlikely case of a major onsite failure. If there is an extended period where the site is not operational, the Operator will arrange for water to be tankered away in the event water storage capacity ever drops below 3,000 $m^3$ (greater than 3 months of average rainfall and the greatest recorded monthly rainfall).

The nature of the water collecting within the surface water lagoon will mostly be storm water runoff from areas of hardstanding with a small amount of entrained sediment /IBA that is tracked onto hard surfaces around the stockpiles. The volume of runoff that will drain to the lagoon from the stockpiles will be limited as water will not be applied to saturated stockpiles.

Water levels within the lagoon will be continually monitored using telemetry and an alarm system with the data collected and stored for future review as required. The physical monitoring device will be a vertically mounted optical probe set above the maximum possible water level that can be contained within the lagoon and the bottom part of the site. The probe will be used to alert site personnel if water levels within the lagoon breach set thresholds. Each of the alarms will result in the sounding of a physical bell on the site. In addition, the system will be designed such that text messages are sent to at least three site employees.

An alarm would result in tankers being mobilised to remove excess water from the site. The Applicant confirms that three potential tanker providers have been contacted. All three providers have confirmed that they would typically have sufficient capacity to address the tankering requirements at the Installation. In addition the tanker providers have multiple destination points for disposal, all of which can specifically exclude any nearby disposal points that may be considered to be over capacity during periods of extreme rainfall. Following commencement of site operations, the three tanker providers will be contacted annually by the Operator to confirm that they are still able to meet requirements and, if deemed necessary, alternative providers would be identified at this point.

Lagoon lining

The Applicant provided an emergency action plan in the event a leak from the lagoon is suspected. If a leak from the lagoon is identified through the groundwater monitoring regime, or other means, this will be reported to the Environment Agency and the borehole(s) with elevated results will be re-sampled. If the results are still elevated following re-testing, an assessment of the immediate risk to groundwater, groundwater abstractions and surface waters will be made, including making recommendations for mitigation measures to be undertaken. This will take into consideration any long term trends observed in concentrations or whether the results may be related to short term influences such as extreme weather conditions.

The Applicant confirms that a programme of works, supported by the risk assessments, shall be provided and agreed with the Environment Agency. In all instances where it is demonstrated that the facility poses a direct risk to the public water supply, or there is otherwise significant and justifiable concern that this is likely to be the case, the facility will cease operations until further clarification of the risks is obtained and necessary mitigation measures put in place to allow operations to continue without unacceptable risk.

We have assessed the Applicant's proposals and consider that they are acceptable. The plans form part of the operating techniques through Permit conditions 2.3.1, 2.3.2 and Table S1.2 in the Permit Schedules.

### 5.4.3 Odour

IBA ash treatment is an inherently non-odorous process – the process is mechanical and does not produce odour. IBA and IBAA are not considered to be malodorous or offensive. The Applicant has waste pre-acceptance and acceptance procedures in place to ensure that only IBA is accepted for treatment at the facility. Emissions of odour will be regulated through Permit conditions 3.3.1 and 3.3.2.

Based upon the information in the Application, we are satisfied that appropriate measures will be in place to prevent or where that is not practicable to minimise odour and to prevent pollution from odour.

### 5.4.4 Noise and vibration

Based upon the information provided in the Application, we are satisfied that appropriate measures will be in place to prevent or where that is not practicable to minimise noise and vibration and to prevent pollution from noise and vibration outside the site.

The Application contained a noise impact assessment which identified local noise-sensitive receptors, potential sources of noise at the proposed plant and noise attenuation measures. Measurements were taken of the prevailing ambient noise levels to produce a baseline noise survey. An assessment was carried out in accordance with BS 4142:2014 to compare the predicted plant rating noise levels with the established background levels. Noise predictions were made using the noise software modelling program CadnaA.

The assessment concluded that during the daytime period, the operation of the plant at the predicted noise levels would be unlikely to cause complaints at any of the assessment locations. The change in noise impact at the sensitive receptors was assessed as being below marginal significance in line with BS 4142:2014. Our assessment shows that the impact of noise from the proposals is less than marginal significance at all receptor locations. We agree with the Applicant's conclusion that the Installation would not result in significant noise pollution at off-site receptors.

The assessment carried out by the Applicant was based on equipment that has not yet been installed in buildings that have not yet been built. We have set Improvement conditions (IC 2 and IC 3) for a further noise assessment following the commencement of site operations. Improvement condition 2 (IC 2) requires the submission of a report detailing the outcome of further noise assessment (post plant commissioning) to verify the assumptions made in the Application and proposals for carrying out mitigation measures from the results of the assessment if required (IC 3).

## 5.5 Impact on SSSIs and non-statutory conservation sites

We considered the impact of fugitive emissions from the IBA facility on the conservation sites as follows:

### 5.5.1 Sites considered

The following Sites of Special Scientific Interest (SSSI) are located within 2 km of the Installation:

- Sling Gravel Pits
- Hurst Farm Pasture
- Madeley Heath Pit
- Feckenham Forest

Feckenham Forest SSSI and Hurst Farm Pasture SSSI are designated for their geological significance, and so will not be affected by emissions from the Installation.

The following non-statutory local wildlife sites are located within 2 km of the Installation:

- Great Farley Wood
- Shut Coppice
- Pepper Wood
- Little Farley Wood
- Hoo and Barnett Brook
- Meadow near Yew Tree Farm
- Sling Pool and Marsh
- Madeley Heath Pit
- Hadley, Elmey & Hockley Brooks
- Catshill Marsh

The Environment Agency's Technical Guidance Note (M17 – Monitoring Particulate Matter in Ambient Air around Waste Facilities) states that most relatively insensitive vegetation species will not be significantly affected by smothering at dust deposition levels below about 200 $mg/m^2$/day (i.e. the human nuisance custom and practice guideline). The distance from the IBA facility to the above ecological sites is further away from the nearest human receptors (between 900 metres and 2 km). Emitted dust tends to deposit within a relatively short distance from the source.

We consider that given the size of the PC which is a small fraction of the dust guideline at the nearest human receptor, the impact on the ecological sites is not likely to cause significant pollution. As modelling and assessment have demonstrated that the predicted ground level environmental concentration of dust even at a maximum will not compromise any Air Quality Objectives, then we are satisfied that the operation of the IBA facility will not compromise the integrity or damage the interest features of the above ecological sites.

# 6. Application of Best Available Techniques

## 6.1 BAT for processing of IBA

The principal aim of IBA treatment is to improve ash quality in order to generate a material that has the potential for safe recovery (e.g. for use as a secondary aggregate material in road construction) and to mechanically separate and collect the ferrous and non-ferrous metal fractions for further recycling. The use of treated IBA as a secondary aggregate both reduces the use of virgin aggregates and reduces the amount of waste sent to landfill.

IBA is a coarse ash produced from the incineration of municipal solid waste. Depending on the waste burnt, IBA is likely to contain varying quantities of glass, ceramics, brick, concrete and metals in addition to clinker and ash.

Processes for IBA treatment can broadly be categorised as follows:

- Dry Treatment
- Wet Treatment
- Thermal Treatment (vitrification)

The Applicant proposes to use a dry treatment process. Currently this is the most common type of treatment and generally involves the following mechanical processes: screening, size-reduction of oversize material, separation of ferrous and non-ferrous metals and any residual un-burnt material.

The Applicant has chosen the dry process for the following reasons. Wet treatment systems may produce a better quality cleaner aggregate, however they produce additional wash /rinse waters which require management. Thermal treatment systems produce a chemically inert product, but have a very high energy consumption and there are none operating in the UK at the present time.

Both wet and dry treatment systems can be combined with an ash ageing process, which utilises the weak cement-like properties of the ash and through a number of chemical reactions (oxidation, carbonation, hydration) improves its physical properties and chemical properties by stabilising the material and reducing its leaching capacity.

In summary the Applicant proposes the following:

- The IBA processing site will comprise of three zones:

  (1) Unprocessed external IBA storage area to receive IBA from off-site incineration plants. The IBA is inspected and unsuitable unburnt material removed. The stockpiled IBA goes through an ageing process before it is processed;

  (2) The IBA Processing Building where the IBA goes through a screen and magnetic separation to remove all metals, separate oversize and grade the IBA; and

(3) An external area to store processed Incinerator Bottom Ash Aggregate (IBAA) and separated metals prior to transportation off-site.

- All waste storage areas will be on impermeable surfaces. The drainage system removes surplus water to a lagoon, which is then re-used for the process and dust suppression. Excess water is removed off-site via tankers to appropriate treatment facilities.

- The IBA processing plant will accept up to 120,000 tonnes of IBA per annum

The Applicant submitted a cost-benefit analysis in response to a request for further information dated 4 March 2015. The Applicant considered three options as follows:

- Option 1 – Fully enclosed (with both roof and walls) with 2,000 $m^3$ lagoon for clean rainwater and a 20 $m^3$ tank for circulation of run-off from the IBA and IBAA stockpiles;

- Option 2 – Covered open-side structure to support a roof, with 2,000 $m^3$ lagoon for clean rainwater and a 20 $m^3$ tank for circulation of run-off from the IBA and IBAA stockpiles;

- Option 3 – Uncovered open area, with 6,600 $m^3$ lagoon with a Dense Asphaltic Concrete liner for retention of combined run-off and rainwater.

We have reviewed the Applicant's assessment and agree with its conclusion – the additional costs of implementing options 1 and 2 are higher compared to option 3 than the additional benefits that they would generate. Overall, we have assessed the Applicant's proposals for the treatment of IBA, against Environment Agency guidance document *Quick guide 384_12 – Storing and treating incinerator bottom ash*. As a result of our assessment, we are satisfied that the Applicant's proposals are BAT for IBA treatment at this Installation.

## 6.2 Commissioning

At the commissioning stage, Operators are required to demonstrate that a plant is under control and that appropriate measures are in place to protect the environment and human health. The proposed Installation will undergo a period of commissioning before becoming fully operational. The IED and the conditions set out in the permit cover activities at the Installation once operational – accepting waste for processing. Prior to commissioning, the Operator shall submit a commissioning plan (required under pre-operational condition POC 1) to the Environment Agency for approval, outlining the expected emissions during different stages of commissioning, the expected duration and timeline for completion of activities and any necessary action to

protect the environment in the event that actual emissions exceed expected emissions. Commissioning can only be undertaken in accordance with the approved commissioning plan.

It is recognised that certain information provided in the Application are based upon design data or data from similarly designed operational plant. The commissioning stage provides an early opportunity to verify much of the information submitted in the Application and to demonstrate compliance with the conditions of the Permit. Improvement condition 4 (IC 4) has been set in the permit requiring the submission of a report which includes an assessment of the performance of the Installation following the commencement of site operations and any deviation from the permit. This will ensure that any impacts on human and ecological receptors can be identified and rectified at the earliest opportunity.

## 6.3 Monitoring

We have specified that monitoring should be carried out for the parameters listed in Schedule 3 table S3.3, S3.4, S3.5 and S3.6 in the permit using the methods and to the frequencies in those tables. These monitoring requirements have been imposed in order to demonstrate compliance with emission limit values and the operation of the Installation as a whole.

Monitoring of groundwater and ambient air (Table S3.3 and S3.5 in the permit) will be undertaken by MCERTS accredited personnel using MCERTS approved methods. The Environment Agency has specified that monitoring should be carried out in accordance with the relevant monitoring guidance documents.

Monitoring of groundwater levels are required due to the sensitive location of the site and to ensure groundwater beneath the site is not compromised

We have specified other monitoring at the Installation as a whole (see Table S3.6 in the permit). Monitoring parameters include daily site boundary checks for odour and dust, visual integrity checks of fuel storage tanks and storage lagoon. These monitoring requirements are imposed to ensure that site operations are not causing pollution and any malfunction of site infrastructure is detected early to prevent significant pollution.

Sampling and analysis of the processed ash may be required depending on the end use of the material. The end uses of processed IBA are not controlled by this permit but through other environmental legislation. The Operator may be required to carry out monitoring to meet the requirements of this legislation. However these controls are not duplicated within this permit.

Based on the information in the Application and the requirements set in the conditions of the permit, we are satisfied that the Operator's techniques, personnel and equipment will have either MCERTS certification or MCERTS accreditation as appropriate.

## 6.4 Reporting

We have specified the reporting requirements in Schedule 5 of the Permit either to meet the reporting requirements set out in the IED, or to ensure data is reported to enable timely review by the Environment Agency to ensure compliance with permit conditions and to monitor the efficiency of material use and energy recovery at the Installation.

# 7 Other legal requirements

In this section we explain how we have addressed other relevant legal requirements, to the extent that we have not addressed them elsewhere in this document.

The purpose of IBA treatment is to generate a material which is inert, does not negatively affect water bodies, and has the potential for safe recovery, e.g. as a soil substitute or in road construction. It is important to recognise that these recovered materials will continue to be considered as a waste material including for the purpose of any subsequent re-use.

The Environment Agency is currently engaged in work to establish 'product specifications' for treated IBA. The purpose of such a product specification would be to provide a test for treated IBA to cease to be considered a waste material.

In the interim, the Environment Agency has published a position statement on the status of these materials and how the requirements of waste regulation will be applied to them.

In this section we explain how we have addressed other relevant legal requirements, to the extent that we have not addressed them elsewhere in this document.

## 7.1 The EPR 2010 and related Directives

The EPR delivers the requirements of a number of European and national laws.

### 7.1.1 Schedules 1 and 7 to the EPR 2010 – IED

We address the requirements of the IED in the body of this document above.

There is one requirement not addressed above, which is that contained in Article 5(3) of the IED. Article 5(3) of the IED requires that "In the case of a new installation or a substantial change where Article 4 of Directive 85/337/EC applies, any relevant information obtained or conclusion arrived at pursuant to articles 5, 6 and 7 of that Directive shall be taken into account for the purposes of granting an environmental permit.

- Article 5 of EIA Directive relates to the obligation on developers to supply the information set out in Annex IV of the Directive when making an application for development consent.
- Article 6(1) requires Member States to ensure that the authorities likely to be concerned by a development by reason of their specific environmental responsibilities are consulted on the Environmental Statement and the request for development consent.
- Article 6(2)-6(6) makes provision for public consultation on applications for development consent.

- Article 7 relates to projects with trans-boundary effects and consequential obligations to consult with affected Member States.

The grant or refusal of development consent is a matter for the relevant local planning authority. The Environment Agency's obligation is therefore to take into consideration any relevant information obtained or conclusion arrived at by the local planning authorities pursuant to those EIA Directive articles.

In determining the Application we have considered the following documents:

- The Environmental Statement submitted with the planning application (which also formed part of the Environmental Permit Application).
- The response of the Environment Agency to the local planning authority in its role as consultee to the planning process.

From consideration of all the documents above, the Environment Agency considers that no additional or different conditions are necessary. The Environment Agency has also carried out its own consultation on the Environmental Permitting Application. The results of our consultation are described elsewhere in this decision document.

7.1.2 Schedule 9 to the EPR 2010 – Waste Framework Directive

As the Installation involves the treatment of waste, it is carrying out a *waste operation* for the purposes of the EPR 2010, and the requirements of Schedule 9 therefore apply. This means that we must exercise our functions so as to ensure implementation of certain articles of the WFD.

We must exercise our relevant functions for the purposes of ensuring that the waste hierarchy referred to in Article 4 of the Waste Framework Directive is applied to the generation of waste and that any waste generated is treated in accordance with Article 4 of the Waste Framework Directive (See also section 4.3.10 in this decision document).

The conditions of the permit ensure that waste generation from the facility is minimised. Where the production of waste cannot be prevented, it will be recovered wherever possible or otherwise disposed of in a manner that minimises its impact on the environment. This is in accordance with Article 4.

We must also exercise our relevant functions for the purposes of implementing Article 13 of the Waste Framework Directive; ensuring that the requirements in the second paragraph of Article 23(1) of the Waste Framework Directive are met; and ensuring compliance with Articles 18(2)(b), 18(2)(c), 23(3), 23(4) and 35(1) of the Waste Framework Directive.

Article 13 relates to the protection of human health and the environment. These objectives are addressed elsewhere in this document.

Article 23(1) requires the permit to specify:

(a) the types and quantities of waste that may be treated;

(b) for each type of operation permitted, the technical and any other requirements relevant to the site concerned;
(c) the safety and precautionary measures to be taken;
(d) the method to be used for each type of operation;
(e) such monitoring and control operations as may be necessary;
(f) such closure and after-care provisions as may be necessary.

These are all covered by permit conditions.

We consider that the intended method of waste treatment is acceptable from the point of view of environmental protection so Article 23(3) does not apply. Energy efficiency is dealt with elsewhere in this document but we consider the conditions of the permit ensure that the recovery of energy takes place with a high level of energy efficiency in accordance with Article 23(4).

Article 35(1) relates to record keeping and its requirements are delivered through permit conditions.

### 7.1.3 Schedule 22 to the EPR 2010 – Groundwater, Water Framework and Groundwater Daughter Directives

To the extent that it might lead to a discharge of pollutants to groundwater (a "groundwater activity" under the EPR 2010), the Permit is subject to the requirements of Schedule 22, which delivers the requirements of EU Directives relating to pollution of groundwater. The Permit will require the taking of all necessary measures to prevent the input of any hazardous substances to groundwater, and to limit the input of non-hazardous pollutants into groundwater so as to ensure such pollutants do not cause pollution, and satisfies the requirements of Schedule 22.

No releases to groundwater from the Installation are permitted. The Permit also requires material storage areas to be designed and maintained to a high standard to prevent accidental releases.

### 7.1.4 Directive 2003/35/EC – The Public Participation Directive

Regulation 59 of the EPR 2010 requires the Environment Agency to prepare and publish a statement of its policies for complying with its public participation duties. We have published our Public Participation Statement.

This Application has been consulted upon in line with this statement, as well as with our guidance RGS6 on Sites of High Public Interest, which addresses specifically extended consultation arrangements for determinations where public interest is particularly high. This satisfies the requirements of the Public Participation Directive.

Our decision in this case has been reached following a programme of extended public consultation, on the original application. The way in which this has been done is set out in Section 2 of this document. A summary of the

responses received to our consultations and our consideration of them is set out in Annex 3.

## 7.2 National primary legislation

### 7.2.1 Environment Act 1995

(i) Section 4 (Pursuit of Sustainable Development)

We are required to contribute towards achieving sustainable development, as considered appropriate by Ministers and set out in guidance issued to us. The Secretary of State for Environment, Food and Rural Affairs has issued *The Environment Agency's Objectives and Contribution to Sustainable Development: Statutory Guidance (December 2002)*. This document:

> "*provides guidance to the Agency on such matters as the formulation of approaches that the Agency should take to its work, decisions about priorities for the Agency and the allocation of resources. It is not directly applicable to individual regulatory decisions of the Agency*".

In respect of regulation of industrial pollution through the EPR, the Guidance refers in particular to the objective of setting permit conditions "*in a consistent and proportionate fashion based on Best Available Techniques and taking into account all relevant matters…*" The Environment Agency considers that it has pursued the objectives set out in the Government's guidance, where relevant, and that there are no additional conditions that should be included in this Permit to take account of the Section 4 duty.

(ii) Section 7 (Pursuit of Conservation Objectives)

We considered whether we should impose any additional or different requirements in terms of our duty to have regard to the various conservation objectives set out in Section 7, but concluded that we should not.

We have considered the impact of the Installation on local wildlife sites within 2 km which are not designated as either European Sites or SSSIs. We are satisfied that no additional conditions are required.

(iii) Section 81 (National Air Quality Strategy)

We have had regard to the National Air Quality Strategy and consider that our decision complies with the Strategy, and that no additional or different conditions are appropriate for this Permit.

### 7.2.2 Human Rights Act 1998

We have considered potential interference with rights addressed by the European Convention on Human Rights in reaching our decision and consider that our decision is compatible with our duties under the Human Rights Act 1998. In particular, we have considered the right to life (Article 2), the right to a fair trial (Article 6), the right to respect for private and family life (Article 8)

and the right to protection of property (Article 1, First Protocol). We do not believe that Convention rights are engaged in relation to this determination.

### 7.2.3 Countryside and Rights of Way Act 2000 (CROW 2000)

Section 85 of this Act imposes a duty on the Environment Agency to have regard to the purpose of conserving and enhancing the natural beauty of the area of outstanding natural beauty (AONB). There is no AONB which could be affected by the Installation.

### 7.2.4 Wildlife and Countryside Act 1981

Under section 28G of the Wildlife and Countryside Act 1981, the Environment Agency has a duty to take reasonable steps to further the conservation and enhancement of the flora, fauna or geological or physiographical features by reason of which a site is of special scientific interest. Under section 28I the Environment Agency has a duty to consult Natural England in relation to any permit that is likely to damage SSSIs.

We assessed the Application and concluded that the Installation will not damage the special features of any SSSI. This was recorded on a CROW Appendix 4 form. A copy of the full Appendix 4 Assessment can be found on the public register.

### 7.2.5 Natural Environment and Rural Communities Act 2006

Section 40 of this Act requires us to have regard, so far as is consistent with the proper exercise of our functions, to the purpose of conserving biodiversity. We have done so and consider that no different or additional conditions in the Permit are required.

## 7.3 National secondary legislation

### 7.3.1 The Conservation of Natural Habitats and Species Regulations 2010

We have assessed the Application in accordance with guidance agreed jointly with Natural England. There are no European Sites within 10 km of the proposed Installation.

### 7.3.2 Water Framework Directive Regulations 2003

Consideration has been given to whether any additional requirements should be imposed in terms of the Environment Agency's duty under regulation 3 to secure the requirements of the Water Framework Directive through (inter alia) EP permits, but it is felt that existing conditions are sufficient in this regard and no other appropriate requirements have been identified.

## 7.4 Other relevant EU legislation

None applies.

## 7.5 Other relevant legal requirements

### 7.5.1 Duty to Involve

Section 23 of the Local Democracy, Economic Development and Construction Act 2009 require us where we consider it appropriate to take such steps as we consider appropriate to secure the involvement of interested persons in the exercise of our functions by providing them with information, consulting them or involving them in any other way. Section 24 requires us to have regard to any Secretary of State guidance as to how we should do that.

The way in which the Environment Agency has consulted with the public and other interested parties is set out in section 2 of this document. The way in which we have taken account of the representations we have received is set out in Annex 3. Our public consultation duties are also set out in the EP Regulations, and our statutory Public Participation Statement, which implement the requirements of the Public Participation Directive. In addition to meeting our consultation responsibilities, we have also taken account of our guidance in Environment Agency Guidance Note RGS 6 and the Environment Agency's Building Trust with Communities toolkit.

## ANNEX 1: Pre-operational conditions

Based on the information on the Application, we consider that we do need to impose pre-operational conditions. These conditions are set out below and referred to, where applicable, in the text of this decision document. We are using these conditions to require the Operator to confirm that the details and measures proposed in the Application have been adopted or implemented prior to the operation of the Installation.

| Reference | Pre-operational measures |
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| POC 1 | At least six months (or any other date as agreed with the Environment Agency) prior to the commencement of commissioning of the installation, the operator shall submit a commissioning plan to the Environment Agency along with timescales for implementation. The plan shall be designed to demonstrate that permit conditions will be met under all anticipated operating conditions and shall also confirm the commissioning programme, detail plant monitoring protocols, assess the performance of all site infrastructure against design parameters and monitor any abnormal waste and emissions generated during commissioning.<br><br>No site operations shall commence or waste shall be accepted at the installation until the Environment Agency has given written approval of the commissioning plan. The plan shall be implemented in accordance with the Environment Agency's written approval. |
| POC 2 | At least six months (or any other date as agreed with the Environment Agency) prior to the commencement of commissioning of the installation, the operator shall submit a written copy of the site Environmental Management System (EMS) and make available for inspection all documents and procedures which form part of the site EMS.<br><br>The EMS shall cover all activities at the installation and shall be in accordance with the Environment Agency Guidance – How to comply with your Environmental Permit and section 2.3 in Sector Guidance Note IPPC S5.06 – Guidance for the Recovery and Disposal of Hazardous and Non Hazardous Waste. The EMS shall include the techniques the operator relies upon to manage the operation, closure and decommissioning of the site. 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. |
| POC 3 | At least six months (or any other date as agreed with the Environment Agency) prior to the commencement of commissioning of the installation, the operator shall ensure that a review of the method of construction and integrity of the proposed secondary containment for the fuel storage tanks is carried out by a qualified engineer.<br>The review shall compare the proposed secondary containment against the standards/ requirements set out in the following Guidance documents:<br>• CIRIA C736 – Containment Systems for the Prevention of Pollution – secondary, tertiary and other measures for |

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| | industrial and commercial premises;<br>• Sector Guidance Note IPPC S5.06 – Guidance for the Recovery and Disposal of Hazardous and Non Hazardous Waste;<br>• How to Comply with your Environmental Permit;<br>• The Control of Pollution (Oil Storage) (England) Regulations 2001; and/or<br>• other relevant industry standard.<br><br>The review shall identify any measures necessary to meet those requirements and propose a timescale for implementing them. A written report of the review shall be submitted to the Environment Agency for approval, detailing the reviews findings and recommendations. Remedial action shall be taken to ensure the secondary containment meets the standards set out in the above documents and implement the maintenance and inspection regime. The report shall be implemented in accordance with written approval from the Environment Agency.<br><br>No site operations shall commence or waste shall be accepted at the installation unless the Environment Agency has given prior written permission under this condition. |
| POC 4 | At least six months (or any other date as agreed with the Environment Agency) prior to the commencement of commissioning of the installation, the operator shall ensure that a review of the integrity of the site surfacing is carried out by a qualified engineer.<br><br>The review shall compare the integrity of the site surfacing against the requirements of Section 2.2.5 of the Sector Guidance Note IPPC S5.06 – Guidance for the Recovery and Disposal of Hazardous and Non Hazardous Waste and the relevant British Construction Standard stated in the Application. The review shall identify any measures necessary to meet those requirements and propose a timescale for implementing them. A written report of the review shall be submitted to the Environment Agency for approval, detailing the reviews findings and recommendations.<br><br>Remedial action shall be taken to ensure that the site surfacing meets the standards set out in the Application and implement the maintenance and inspection regime. The report shall be implemented in accordance with written approval from the Environment Agency.<br><br>No site operations shall commence or waste shall be accepted at the installation unless the Environment Agency has given prior written permission under this condition. |
| POC 5 | At least three months (or any other date as agreed with the Environment Agency) prior to the commencement of commissioning of the installation, the operator shall submit the specification of the diesel generator proposed for the installation to verify the details provided in the Application.<br><br>No site operations shall commence or waste shall be accepted at the |

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| | facility unless the Environment Agency has given prior written permission under this condition. |
| POC 6 | At least six months (or any other date as agreed with the Environment Agency) prior to the commencement of commissioning of the installation, the operator shall submit 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 Industrial Emissions Directive. 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 Industrial Emissions Directive. |
| POC 7 | At least four weeks (or any other date as agreed in writing with the Environment Agency) prior to the commencement of commissioning of the installation, the operator shall provide written evidence to the Environment Agency of the Technically Competent Manager (TCM) at the proposed installation. The report shall confirm that the person(s) hold the relevant qualifications under the Energy and Utilities Skill (ESA) scheme or other equivalent scheme for the operation of the incinerator bottom ash facility.<br><br>No site operations shall commence or waste shall be accepted at the facility unless the Environment Agency has given prior written permission under this condition. |

## ANNEX 2: Improvement conditions

Based on the information in the Application, we consider that we need to set improvement conditions. These conditions are set out below – justifications for these are provided at the relevant section of this decision document. We are using these conditions to require the Operator to provide the Environment Agency with details that need to be established or confirmed during and/or after commissioning.

| Reference | Improvement programme requirements |
|---|---|
| IC1 | The operator shall submit a written report to the Environment Agency on the implementation of its Environmental Management System (EMS) and the progress made in the accreditation of the system by an external body or if appropriate submit a schedule by which the EMS will be subject to accreditation. |
| IC2 | The operator shall undertake a detailed revised assessment of noise and vibration from site activities to verify the assumptions made in the Application. The assessment shall be conducted in accordance with the specified procedures in BS4142:2014.<br>The results of the assessment together with conclusions and recommendations shall be submitted to the Environment Agency for approval in writing. |
| IC3 | Following the completion of IC2 and if the assessment undertaken indicates the installation might give rise to pollution, the operator shall submit to the Environment Agency, a report detailing proposals and timescales for the implementation of appropriate noise mitigation measures to ensure that site noise levels do not give rise to pollution.<br>The proposals for noise mitigation shall be in accordance with the requirements of the Environment Agency's Technical Guidance Note IPPC H3 (Part 2) – Noise Assessment and Control. The proposals shall be implemented by the operator from the date of approval in writing by the Environment Agency subject to any such amendments or additions as notified by the Environment Agency. |
| IC4 | The operator shall submit a post-commissioning report to the Environment Agency which shall include, but not be limited to:<br>• a review of the environmental performance of the facility against the design parameters set out in the Application;<br>• a review of the performance of the facility against the conditions of this permit and the pre-commissioning report proposals; and<br>• details of procedures developed during commissioning for achieving and demonstrating compliance with permit conditions |
| IC5 | The operator shall submit a written plan to the Environment Agency for approval. The plan must contain the requirements to:<br>• install perimeter security fencing around the storage and treatment areas at the installation;<br>• review the need for additional security measures on site such as closed circuit television etc.; and |

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| | • any other measures to comply with the requirements of Environment Agency guidance, How to comply with your environmental permit and IPPC S5.06, including construction standards and maintenance measures.<br>The plan must contain dates for the implementation of individual measures and improvements.<br>The operator shall implement the plan as approved, and from the date stipulated by the Environment Agency. |
| IC6 | The operator shall submit a written report to the Environment Agency for approval. The report shall contain a review of the results of the particulate monitoring specified in the permit and the effectiveness of the site's particulate monitoring strategy. The report shall include further measures to be undertaken to reduce particulate emissions at the facility (if necessary) and dates for implementation.<br>The actions and outcomes of the report shall be implemented by the operator from the date of approval in writing by the Environment Agency subject to any such amendments or additions as notified by the Environment Agency. |

# Annex 3: Consultation, web publicising and newspaper advertising responses

## A) Advertising and Consultation on the Application

The Application has been advertised and consulted upon in accordance with the Environment Agency's Public Participation Statement. The way in which this has been carried out along with the results of our consultation and how we have taken consultation responses into account in reaching our decision is summarised in this Annex. Copies of responses from the organisations we consulted have been placed on the Environment Agency Public Register.

The Application was advertised on the Environment Agency website and in the Bromsgrove Advertiser on 7 May 2014. We placed a paper copy of the Application and all other documents relevant to our determination on our Public Register at the Environment Agency office, Riversmeet House, Northway Lane, Newtown Industrial Estate, Tewkesbury. Anyone wishing to see these documents could do so and arrange for copies to be made. We also distributed a number of copies of the Application on CD to members of the public following requests.

The following organisations were consulted:

- Worcestershire County Council Planning Authority
- Bromsgrove District Council Planning Authority
- Worcestershire Regulatory Services (Environmental Health Department)
- Public Health England
- Director of Public Health (Bromsgrove District Council)
- Health & Safety Executive
- Severn Trent Water

Written comments were accepted by the Environment Agency well beyond the formal consultation period. Details of consultation comments and our response to the representations we received are summarised below. We have taken all relevant representations into consideration in reaching our determination.

### 1. Consultation Responses from Statutory and Non-Statutory Bodies

| **Response received from Public Health England dated 15/05/14** | |
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| Brief summary of issues raised: | Summary of action taken / how this has been covered |
| PHE recommend that any Environmental Permit issued for this site should contain conditions to ensure that the following potential emissions do not impact upon public health: fugitive emissions from IBA stockpiles, vehicle movements and particulates generated from waste processing. | Emissions to air from the facility and their potential impacts are discussed in section 5.4.1 of this decision document. We also audited the Applicant's air quality impact assessment and agree that the conclusions drawn in the reports are acceptable, that there would be no significant impact to the environment or human health. Monitoring |

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| | conditions are specified in the permit which would enable compliance checks on emissions to air when the site is fully operational. |
| Based solely on the information contained in the application provided, PHE has no significant concerns regarding risk to health of the local population from this proposed activity, providing that the applicant takes all appropriate measures to prevent or control pollution, in accordance with the relevant sector technical guidance or industry best practice. | No further action. We have assessed the Applicant's proposals and consider that they are in accordance with our technical guidance notes. |

| **Response received from the Sewerage and Water Undertaker (Severn Trent Water Limited) dated 30/05/14 and 09/01/15** | |
|---|---|
| Brief summary of issues raised: | Summary of action taken / how this has been covered |
| The landfill site has a discharge to sewer which is subject to a Trade Effluent Agreement issued by Severn Trent Water Ltd. Our monitoring of the trade effluent discharge has indicated some minor compliance failures of the quality conditions of the discharge consent.<br><br>The proposed development is on the same site as the landfill however there is no proposed discharge to sewer from this development therefore this will have no impact on the current discharge from the landfill. | No discharges to sewer are permitted from the IBA facility. No further action. |
| We do not have enough of a reason to object to the permit. There is some risk to our borehole (Whitford borehole) as they have an onsite lagoon and the building is 20 m below ground level, so there's little geological protection before any contaminants hit the water table. Having said that, the general activities appear low risk as the material sounds inert according to the risk assessment provided with the application documents.<br><br>However, we would ask if the Operator could put a monitoring borehole between our (STWL) borehole (Whitford borehole) and the site on which they check the groundwater quality occasionally. | The Applicant has provided a groundwater monitoring plan identifying borehole monitoring points which has been consulted upon and accepted by the Environment Agency. We consider that the borehole locations proposed by the Applicant are appropriate. We are satisfied groundwater will be protected. |
| Our water quality data shows the average concentration in groundwater is <1 µg/l, which would suggest that the monitoring boreholes used are subject to other influences (e.g. the landfill). We would query | The Applicant states that the concentration of Lead in groundwater up-gradient of the Sandy Lane Landfill is around two to ten times above the Drinking Water Standard (DWS). In view of this, the Applicant |

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| the use of a control and trigger levels for Lead above the DWS. | considers that the trigger level at the IBA facility would be exceeded if it was set at < 1 µg/l. If the trigger levels are set below the background concentration of Lead in groundwater and are then exceeded, pollution will not be attributed to the IBA facility, therefore a lower limit than the background concentration is of little value.<br><br>The trigger level has been set at 10 per cent greater than the maximum concentration of Lead detected in groundwater (0.112 mg/l). This is to ensure potential pollution from the IBA facility is discernible against background concentrations. Note that the proposed control level is still below maximum background level for Lead and is considered a conservative approach. The proposed control and trigger levels will be reassessed after 12 months baseline quality monitoring has been undertaken. We have incorporated the groundwater monitoring plan in Table S1.2 in the permit. |
| The groundwater monitoring plan states that the monitoring boreholes down-gradient of the landfill will only be monitored for groundwater levels and not water quality (Table 4). This appears contrary to the purpose "*Monitored primarily to detect pollution from landfill*". Whilst not part of the IBA facility or lagoon, they are included in the application boundary and we would be concerned if groundwater quality monitoring was not being undertaken at these locations. We assume that this is being undertaken as part of the environmental permit for the landfill and seek clarification that this is indeed the case, and suggest it is made evident in the Groundwater Monitoring Plan for the facility. | Sandy Lane Landfill operated by Veolia ES Landfill Limited is required to undertake groundwater quality monitoring at the down-gradient boreholes in accordance with their existing environmental permit. |
| There appears to be a presumption that our Wildmoor PWS is in operation and exerts a control on groundwater levels. It is not evident if an assessment of groundwater rebound has been undertaken if the source was to cease operating over the lifetime of the facility (for example a simulation of the EA's Bromsgrove Groundwater Model). The baseline monitoring at SAN 800 would suggest ~3 m headroom between the maximum observed groundwater levels at the site (with Wildmoor in operation) and trigger levels. We note the groundwater level monitoring plans, alarms and telemetry, and tankering plans which appear adequate controls for business as usual activities. So this is a general comment about groundwater protection in the long-term. | We have addressed the issue of groundwater rebound in section 5.4.2 of this decision document. |

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| Overall, we have no objections, subject to implementation of the proposed control measures and conditions regarding monitoring of groundwater water quality as proposed in the Schedule 5 documentation, and clarification of the comments above. | No further action. The Applicant's monitoring proposals have been incorporated into Table S1.2 in the permit. |

| **Response received from Health and Safety Executive** | |
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| Brief summary of issues raised: | Summary of action taken / how this has been covered |
| No comments received. | No further action taken. |

| **Response received from the Director of Public Health, Bromsgrove District Council** | |
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| Brief summary of issues raised: | Summary of action taken / how this has been covered |
| No comments received. | No further action taken. |

| **Response received from Worcester Regulatory Services (Environmental Protection) dated 06/05/14** | |
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| Brief summary of issues raised: | Summary of action taken / how this has been covered |
| No issues raised. | No further action taken. |

| **Response received from Bromsgrove District Council (Planning Authority)** | |
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| Brief summary of issues raised: | Summary of action taken / how this has been covered |
| No issues raised. Referred permit application to Worcestershire County Council who are responsible for determining the planning application for the IBA facility. | No further action taken |

| **Response received from Worcestershire County Council (Planning Authority)** | |
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| Brief summary of issues raised: | Summary of action taken / how this has been covered |
| No issues raised. | No further action taken |

## 2. Consultation Responses from Members of the Public and Community Organisations

(a) Representations from Local Councillors and Parish / Town / Councils

Representations were received from Local Councillors from the Parish Councils (Hagley, Belbroughton and Bourneheath) and Worcestershire County Council, who raised the following issues:

| **Response received from Local Councillors, Parish Councils (Hagley, Belbroughton and Bourneheath) and Worcestershire County Council.** | |
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| Brief summary of issues raised: | Summary of action taken / how this has been covered |
| Impact of the facility on the integrity of the Wildmoor principal aquifer which supplies 19,500 households including businesses with clean drinking water. This area is sandstone-based and hence underlying rocks are permeable – which has potential of contaminating the principal aquifer with poisonous leachate. There needs to be an independent risk assessment in the event of any contamination of the water supply to this region. The presence of a principal aquifer outweighs against the operation of the facility. | Fugitive emissions to surface water and groundwater from the facility and their potential impacts are discussed in section 5.4.2 of this decision document.<br><br>We also reviewed the Applicant's groundwater risk assessment and agree that the conclusions drawn in the report are acceptable, that there would be no significant impact to the environment or human health. Emission limits and monitoring conditions are specified in the permit which would enable compliance checks on groundwater integrity when the site is fully operational. |
| Impact of dust emissions on sensitive receptors (human health, local businesses, livestock and crops) from external operations at the facility. | Emissions to air from the facility and their potential impacts are discussed in section 5.4.1 of this decision document. The Applicant has provided a fugitive emissions management plan which we have reviewed. We consider that the plan is in accordance with Environment Agency guidance document *Quick guide 384_12 – Storing and treating incinerator bottom ash* and is BAT for the processing of IBA.<br><br>Permit conditions 3.2.1 and 3.2.2 will ensure that fugitive emissions of dust do not cause pollution off-site. |
| Impact of emissions of noise and vibration from heavy plant on sensitive receptors. | The impact of noise and vibration is addressed in section 5.4.4 of this decision document. The Applicant submitted a noise impact assessment during the determination in response to a request for further information dated 5 August 2014.<br><br>The noise impact assessment was reviewed by the Environment Agency and we are satisfied that emissions of noise and vibration will not give rise to complaints. We have included Improvement Conditions 2 and 3 which require the Operator to undertake a noise survey in accordance with BS 4142:2014, to verify the assumptions made in the Application, following the commencement of site operations and to propose mitigation measures if emissions are exceeded.<br><br>Permit conditions 3.4.1 and 3.4.2 will ensure that emissions of noise and vibration do not cause pollution off-site. |
| There will be an impact of odour coming from the materials stored externally, including | We do not consider that emissions of odour will be an issue at this facility. The processing |

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| steam. There was evidence of odour emissions (alkaline smell) on sensitive receptors during a visit to the Applicant's IBA facility at Castle Bromwich.<br><br>The 'steam' emitted from the highly alkaline stockpiles of IBA may, given the right low pressure environmental conditions, potentially cause real odour problems for residents in Madeley Road and the nearby area. These have not been considered. | of IBA is a non-odorous activity. Any odours which may arise from the IBA storage piles will be largely localised within the installation boundary and will not be perceived off-site. The Operator has waste pre-acceptance and acceptance procedures in place to ensure that only permitted wastes are accepted on site.<br><br>We have reviewed the wastes that can be accepted for processing at the facility, and are satisfied that appropriate measures are in place to prevent /minimise odour emissions. The permit conditions 3.3.1 and 3.3.2 require the Operator to produce an odour management plan in the event odour emissions are causing pollution off-site. |
| The facility will cause an increase in traffic and congestion on A491 and A456 which will have an impact on human health and the Air Quality Management Area.<br><br>A traffic management plan and a traffic flow and impact assessment should be undertaken. | The impact of increase in traffic and /or congestion on A491 and A456 as a result of the IBA facility is not relevant to our determination. It is likely that it will be a material consideration for the Planning Authority. |
| The facility is in a vulnerable location – a green belt. The siting of the facility that produces dust and potential contaminants which is so close to the monitoring stations will not help the air management objectives.<br><br>The facility is too close to residential dwellings, approximately 140 metres. Other alternatives should be considered. | Decisions over land use are matters for the Planning Authority. The location of the installation is a relevant consideration for Environmental Permitting, but only in so far as its potential to have an adverse environmental impact on communities or sensitive environmental receptors. The environmental impact is assessed as part of the determination process and has been reported upon in the main body of this decision document. |
| Visual impact of buildings and heaps of bottom ash on users of public footpath. | Visual impact is not a material consideration in the determination of an Environmental Permit. Visual impact is a matter for the Planning Authority (Worcestershire County Council). |
| Proposed site surfacing and secondary containment is unlikely to be 100 per cent leachate-proof due to expansion gaps and other flaws caused by rising groundwater levels or pressure. The proposed secondary containment will only have finite capacity. Under flash flood conditions the capacity will be exceeded. This will increase the probability of leachate entering the aquifer. | The Applicant submitted additional information in response to a request for further information dated 5 August 2014. The Applicant proposes to use a dense asphaltic concrete for the lagoon and hardstanding areas at the facility (see section 5.4.2). We are satisfied that the measures imposed in the permit will protect groundwater. |
| Proposed removal of IBA leachate during heavy rainfall is inadequate. | The Applicant submitted a lagoon monitoring plan in response to a request for additional information dated 5 August 2014. We have reviewed the plan, including the emergency response and consider that it is acceptable |

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| | (see section 5.4.2). |
| The Applicant should undertake an independent Environmental Impact Assessment that is robust and includes the impact on a wider scale than just the immediate site. | This is a matter for the Planning Authority – Worcestershire County Council. The Planning Authority will determine whether or not the proposed development requires an Environmental Impact Assessment through screening. |
| The Water Undertaker (Severn Trent Water Limited) should be consulted in relation to the risk of contamination of the public aquifer. | We formally consulted Severn Trent Water Limited during the determination of this application. Their comments are documented in this Annex (see pages 53 to 55). |
| Additional waste water in the sewer system from the IBA facility will have a detrimental effect. | Releases to sewer from this facility is not authorised by this permit. |
| The waste acceptance procedures proposed by the applicant relies heavily on visual inspection and is therefore inadequate. | We consider that the waste acceptance procedures are acceptable and in accordance with our Sector Guidance Note IPPC S5.06 – *Guidance for the Recovery and Disposal of Hazardous and Non-Hazardous Waste* and Environment Agency guidance document *Quick guide 384_12 – Storing and treating incinerator bottom ash*. |
| The Environment Agency requires no dwellings (sensitive receptors) within 250 metres of the facility for standard conditions. There are dwellings within 140 metres of the facility, therefore this requirement cannot be met. | The Applicant has applied for a bespoke permit, not a standard rules permit. The distance criterion of 250 metres does not apply in this case. Standard rules permits are covered by a generic risk assessment. The 250 metres criterion does not mean that operations should always be this distance away. It means that where the operations are less than this distance, they require a site-specific risk assessment which has been undertaken in this determination. |
| Nature and safety of IBA – there is no guarantee that IBA is non-hazardous therefore independent testing is required to ensure unsatisfactory levels of toxic heavy metal compounds are present before the waste leaves the site where it was produced.<br><br>The protocol for the assessment of the hazard status of IBA is inadequate as the process takes up to one year to determine. | The ESA protocol for the assessment of the hazard status of IBA is widely recognised to be the standard process /protocol across the IBA processing industry sector. The Applicant reports that they will use this protocol as part of their pre-acceptance procedures. We consider that the protocol is acceptable.<br><br>We consulted PHE during the determination of the permit application. Their comments on the application are summarised in Annex 3 of this decision document. |
| Stability of IBA – the storage time of 3 weeks proposed by the applicant is not sufficient for the IBA to reach full maturation. The storage time has to be sufficient to allow maturation and not speeded up for commercial rather than safety reasons. | We consider that the storage time for the IBA proposed by the Applicant is appropriate. The Applicant processes IBA in accordance with an in-house management protocol which is used at their other IBA facilities. |

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| The Applicant has not conducted a valid ecological survey for Wildlife – Great Crested Newts, Bats. | The Applicant carried out a habitats survey at the proposed site as part of the existing Planning application. We have taken the details of the report into account during this determination and agree with the Applicant's conclusion.<br><br>Our assessment shows that site emissions will have no significant effect on any of the conservation sites or interest features within the vicinity of the IBA facility. |
| The Precautionary Principle should be applied in the case of IBA since its non-hazardous nature cannot be clearly proven. | The United Kingdom Interdepartmental Liaison Group on Risk Assessment (UK-ILGRA) state in their paper "The Precautionary Principle: Policy and Application" that the precautionary principle should be invoked when there is good reason to believe that harmful effects may occur and the level of scientific uncertainty about the consequences or likelihood of the risk is such that the best available scientific advice cannot assess the risk with sufficient confidence to inform decision making.<br><br>We consider there are no grounds for adopting the 'precautionary principle' to restrict the processing of IBA at the facility as we are satisfied that it can be determined whether it is non hazardous.<br><br>We consulted PHE during the determination of the permit application. Their comments on the application are summarised in Annex 3 of this decision document. |
| The Applicant must provide clear guidance as to the destination of leachate removed from the facility. Evidence is required to show that all leachate will remain on site, discharged to foul main sewer under a consent or despatched to an appropriate off-site treatment facility. | The Applicant provided clarification of the destination of IBA leachate removed from site following a request for further information dated 5 August 2014 (see section 5.4.2). |
| A flood risk assessment is not included in the application. Under flash flood conditions, access to the site may be impossible. | The Applicant provided a flood risk assessment following a request for further information dated 9 June 2014.<br><br>The Applicant carried out a flood risk assessment which we have reviewed. Storm runoff from the site access route will be diverted into trackside drains. A cut-off drain across the track before the entrance to the operational area will intercept this water. The water is transferred into the adjacent quarry to the west of the site via oil/fuel interceptors. Water within the quarry is managed through infiltration and evaporation. The drainage system for the access road will be sized and maintained such that the annual probability of |

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| | failure is less than 1:100 annually.<br><br>We have consulted the Planning Authority on this permit application. No issues relating to site access have been raised. |
| The siting of the IBA facility between two of Bromsgrove's areas of monitored air quality control will increase the poor air quality in these areas. | The Planning Authority have sole responsibility for declaring Air Quality Management Areas (AQMA). We have taken the AQMA into account during this determination. The facility is 3.7 km away from the nearest AQMA designated for nitrogen dioxide. We do not consider that emissions from the IBA facility will have a significant impact on the integrity of the AQMA. |

(b) Representations from Community and Other Organisations

Representations were received from Wildmoor Residents' Association. A number of the issues raised are the same as those raised by the Parish Councils. Additional issues raised were:

| **Response received from Wildmoor Residents' Association** | |
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| Brief summary of issues raised: | Summary of action taken / how this has been covered |
| There is a complete lack of detailed constructional information which addresses the issue of total containment or prevent ingress of the slab and structures by rising groundwater levels and pressure. If the Applicant's very loose concept design approach is maintained (during a design and build contract) there will be a very real risk that the leachate and highly alkaline concentrated pollutants from the storage areas and the concrete lagoon itself will pollute the underlying highly permeable sandstone and aquifer over the intended lifetime of the facility. | The Applicant submitted further information in relation to site containment and hard surfacing, groundwater risk assessment and monitoring plan during the determination (See section 5.4.2). We have included permit conditions which require the Operator to submit Construction Quality Assurance proposals for the containment and hardstanding design to the Environment Agency for approval prior to installation. |
| There are inconsistencies in the Applicant's documents in relation to the depth of groundwater below the site. From the data provided by the Applicant, it seems evident that the variable groundwater level will frequently get too close to the facility at 146.1 m AOD requiring a shutdown condition. There is no reference or estimate concerning how long the removal of leachate and other materials from site would take. Local knowledge about the site indicates that it is periodically flooded and is required to be pumped out. | The Applicant submitted further information in relation to groundwater risk assessment, groundwater monitoring plan and lagoon monitoring plan. We have reviewed the risk assessment and monitoring plans and consider that they are acceptable (See section 5.4.2). |
| A further sensitive receptor has not been considered in the dust risk assessment – the family who daily care for horses in the field immediately north of the site. This is within 20 metres of the site and less than 40 metres to | The sensitive receptor referred to was taken into account in our review of the Applicant's air quality and noise impact assessments (including the prevailing wind direction). We are satisfied that emissions of particulates |

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| the proposed IBA storage pads.<br><br>Users of the two footpaths alongside the western and northern boundary have not been considered at all in the risk assessment. The prevalent wind direction ensures that the northern footpath is particularly vulnerable. | and noise /vibration will not have a significant impact on the receptors.<br><br>Users of the two footpaths alongside the western and northern boundary are not considered as "sensitive receptors". A sensitive receptor means the nearest place to the permitted activities where people are likely to be for prolonged periods. This term would therefore apply to dwellings (including any associated gardens) and to many types of workplaces. We would not normally regard a place where people are likely to be present for less than 6 hours at one time as being a sensitive receptor.<br><br>The term does not apply to those controlling the permitted facility, their staff when they are at work or to visitors to the facility, as their health is covered by the Health & Safety at Work legislation, but would apply to dwellings occupied by the family of those controlling the permitted facility.<br><br>The Applicant has provided a fugitive emissions management plan which we have reviewed. We consider that the plan is in accordance with Environment Agency guidance document *Quick guide 384_12 – Storing and treating incinerator bottom ash* and is BAT for the processing and storage of IBA at this Installation. |
| People visiting both sites at Castle Bromwich and Sheffield had a very dry sensation and irritation in their throats both during and after the visits due to the highly alkaline dust emissions. | Visitors and site employees at waste treatment facilities are required to have appropriate personal protective equipment whilst on site and their health is covered by the Health and Safety Regulations. We regulate the emissions that leave the installation boundary. We are satisfied that emissions of particulates and noise /vibration will not have a significant impact on the sensitive receptors. |
| The proposed location of the lorry route delivering IBA means that it is at the closest possible proximity to the receptors along Madeley Road. We disagree with the Applicant's statement that "there is a low risk of any adverse impact to the identified sensitive receptors" as this cannot be proven regardless of the supposed mitigation measures. | Associated traffic issues from the delivery of IBA waste to the IBA facility are within the remit of the Local Planning Authority. The Applicant has provided a fugitive emissions management plan which we have reviewed. We consider that the plan is in accordance with Environment Agency guidance document *Quick guide 384_12 – Storing and treating incinerator bottom ash* and is BAT for the processing of IBA at this Installation. |
| It is stated that the IBA and the IBAA are both non-cohesive materials "which do not readily attach to vehicle wheels," When the Castle Bromwich site was visited by local residents, the ability of the IBA/IBAA to be cohesive was clearly demonstrated by the adhesion of | Part of the Applicant's fugitive emissions management plan includes the use of suitable road cleaning equipment to ensure that site areas are kept clean. Site roads will be dampened to reduce the risk of fugitive emissions. We are satisfied that fugitive |

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| wet compounds on the ground. Despite housekeeping measures this material is clearly very easily broadcast. | emissions of IBA and IBAA will not be deposited off-site. |
| With regard to the dust emissions within and beyond the processing building, the Applicant states that "*housing the process significantly reduces the likelihood of any fugitive emissions reaching a sensitive receptor as the operations are fully enclosed preventing fugitive emissions*".<br><br>Levels of dust within the processing building at Castle Bromwich were present as well and the processing shed was not fully enclosed as access doors were left open. | The permit requires the Operator to undertake the processing of IBA in an enclosed building to reduce the emissions of dust, as stated in the Application. We will regulate the site to ensure that this is the case during compliance checks throughout the life of the permit. We are satisfied that fugitive emissions will not have a significant impact on the receptors. |
| The Applicant's noise calculations are flawed. The additional levels have been based on another site at Sheffield. The annual capacity to recover IBA at Sheffield is only 50,000 tonnes compared to 120,000 tonnes proposed at Sandy Lane. It was queried whether an excess of 6.9 dB for Madeley Road residents is only of 'marginal significance'.<br><br>The electricity generator which is to supply the electricity, is not specified or detailed in the application, will generate a constant humming noise and cause annoyance to the closest receptors along Madeley Road especially in warm summer evenings if windows are left open. | The Applicant has undertaken a noise impact assessment (including modelling) in response to a request for further information dated 5 August 2014. We have carried out our own check modelling including sensitivity to our observations and agree with its conclusions. Improvement Conditions 2 and 3 in the permit require the Operator to carry out a noise survey following the commencement of site operations to verify the assumptions made in the application.<br><br>The Applicant provided further details of the proposed generator during the determination. The generator will have a thermal input of 0.97 MW. We have included a pre-operational condition (POC 5) in the permit which requires the submission of the specification of the generator prior to the commencement of site commissioning. |

## (c) Representations from Individual Members of the Public

A total of 110 responses were received from individual members of the public. These raised many of the same issues as previously addressed. Only those issues additional to those already considered and relevant to the Environmental Permit determination process are listed below:

| **Response received from individual members of the public** | |
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| Brief summary of issues raised: | Summary of action taken / how this has been covered |
| The processing of ash is banned in Germany and Austria due to the toxic nature of the product and processes. This would suggest extreme caution in any area where water contamination and danger to human health from multi-faceted pollution could occur. | We cannot comment on ash production and process in other countries although we can say it is not banned as a matter of EU law. The processing of IBA is not banned in England. The processing of IBA is regulated under the Environmental Permitting Regulations. |
| Wastes and leachate from the facility may block the public drains due to flooding | The Applicant carried out a flood risk assessment which we have reviewed. We have also reviewed |

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| issues. | the Applicant's lagoon monitoring plan submitted as part of the application. Action plans include monitoring of the lagoon and removing runoff from the site via tankers. This permit does not authorise the discharge of IBA leachate to foul sewer. |
| Why is the new application being considered when it was refused to the previous company? | We are not aware of any previous application for an environmental permit submitted by another Applicant to process IBA at this site other than Ballast Phoenix Limited. |
| Why is the application being considered when the Council are aware of the potential contamination and danger to the residents of Bromsgrove? | This is a consideration for the Local Planning Authority. The planning permission process is completely independent to our process for determining an environmental permit. Legislation sets out the criteria that this application must meet in order for the Environment Agency to approve an environmental permit.<br><br>Prior to issuing a Permit, the Applicant must demonstrate that the proposed Installation meets all the legal requirements including environmental, technological and health requirements. Part of our assessment includes consultation with the relevant health professionals, in this instance Public Health England (see PHE comments in this Annex). |
| Veolia do not have a strong record of maintaining standards in relation to water contamination processes. Veolia has an extensive history of questionable environmental practices particularly in the United States. | The application for an Environmental Permit submitted by Ballast Phoenix Limited sets out the processes and procedures that will be used for the design and operation of the IBA facility at Bromsgrove. Ballast Phoenix Limited will be the Operator of the IBA facility. We are satisfied that the Applicant will be able to operate the Installation so as to comply with the conditions we have included in the permit and the requirements of the IED are achieved on a routine basis. The Applicant has sufficient resources and expertise to operate the proposed Installation.<br><br>The record of enforcement action against Veolia is not one which would lead the Environment Agency to conclude that Ballast Phoenix Limited is an unsuitable Operator for the proposed Installation. |
| If leakage from the facility did occur, how long would it take to permeate through the sandstone to the pumping station and into our drinking water?<br><br>If a leakage from the facility is contained, how long will it be before it is safe to drink the water again?<br><br>Can Severn Trent Water be trusted to monitor the situation of the groundwater | The Applicant carried out a groundwater risk assessment as part of the application. These issues are addressed in section 5.4.2 of this decision document.<br><br>Monitoring of groundwater quality and levels will be undertaken by the Operator as specified in the permit.<br><br>We consider that the Sewerage Undertaker (Severn Trent) is an organisation whose |

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| effectively to ensure that the water quality is safe to drink? | expertise and local knowledge make it appropriate for us to seek their views directly. We consulted with Severn Trent Limited during this determination. Their comments are documented in this Annex (see pages 53 to 55). |
| Preventing waste chemicals leaching into the site accidentally cannot be guaranteed not to happen. | A lagoon containment and hardstanding proposal was submitted with the application and we consider that it is robust and will ensure that the groundwater is not compromised. |
| The relationship between the IBA facility and the adjacent landfill is unclear. | This permit application was submitted as a stand-alone IBA facility and is determined as such. Ballast Phoenix Limited is the sole Operator of the IBA facility. Veolia ES Landfill Limited is the Operator of the adjacent landfill. The operations at the IBA facility do not depend on the operation of the adjacent landfill. |
| The siting of the IBA facility infringes the Planning permission for the sand quarry. | This is a matter to be considered by the Local Planning Authority. |
| The Applicant may have difficulties in finding customers for the incinerator bottom ash aggregate. | The issue of customer availability is a business risk and material consideration for the Applicant, as IBA can be recovered for further use as an aggregate. |
| All parties involved in this development should appear on the application disclosing full details of all convictions and enforcement actions taken against them including cases outside the UK. | We are satisfied that that the Applicant will be the sole Operator of the IBA facility. The Applicant has disclosed all relevant convictions as part of the application. The Environment Agency National Enforcement Database has been checked to ensure that all relevant convictions have been declared by the Operator. No relevant convictions were found. The Operator satisfies the criteria in RGN 5 on Operator Competence. |
| The Environment Agency's Regulatory Position Statement (RPS) 172 states that "*a permit will not be granted if storage of such waste will be on a principal aquifer*". Siting of the IBA facility over the Wildmoor aquifer has the potential to cause irreversible harm as recognised by RPS 172. | The RPS 172 relates to the regulation of the use of unbound pulverised fuel ash (PFA) and furnace bottom ash (FBA) from the combustion of coal with or without co-combustion materials, not incinerator bottom ash.<br><br>FBA and PFA are the residual solid materials from the combustion of coal at high temperatures in excess of 1,000°C in coal-fired power stations. FBA is the coarse ash that, in a molten state, adheres to the boiler tubes within the furnace and falls to the bottom of the furnace where it is cooled using high-pressure water jets and flushed from the bottom of the furnace. PFA is the fine ash recovered from the gas stream and is also referred to as "fly ash" or "coal fly ash".<br><br>The RPS covers only the final use (permanent deposit on land) and storage of unbound PFA and FBA in construction projects such as embankments, road building and the construction of flood defences. |

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| | The RPS specifies the conditions an Applicant has to satisfy in order to operate without the need of an environmental permit. If the Applicant is not able to meet the conditions (including storage of PFA and FBA), then an environmental permit will be required to enable us assess the risks to human health and the environment.<br><br>The Application submitted by Ballast Phoenix Limited is for the processing of IBA, produced from the burning of waste. The processing of IBA is not a permanent deposit or storage on land. An Operator processing IBA must have an environmental permit and use appropriate measures to mitigate the risk of pollution. This includes impermeable surfaces to prevent pollution of groundwater. |
| The Applicant should use electricity from the nearby Veolia Landfill to reduce carbon emissions | The Applicant proposes to install a generator with a thermal input of 0.97 MW for use in providing electricity to the facility during operation. We do not consider that emissions from this generator will have any significant impact on human and/or ecological receptors. We have included a pre-operational condition (POC 5) in the permit which requires the Operator to provide the specification of the generator prior to the commencement of site commissioning.<br><br>In the circumstances, we cannot require an Operator to use a particular source of electricity under the Environmental Permitting Regulations. |
| Details of the site condition report are incorrect. | We consider that the Applicant has submitted an acceptable site condition report. We have included a pre-operational condition (POC 6) which requires the Operator to provide the site baseline reference data prior to the commencement of site commissioning. |

## B) Advertising and Consultation on the Draft Decision

This section reports on the outcome of the public consultation on our draft decision. Our normal 20 working day period for this stage of public consultation was extended to 30 September 2015, given that the consultation was started during the holiday season.

The draft decision was advertised on the Environment Agency website from 24 August 2015 to 30 September 2015. The draft decision was placed on the Public Register at the Environment Agency Office, Riversmeet House, Northway Lane, Newtown Industrial Estate, Tewkesbury. In addition, the draft decision was available for downloading from the Environment Agency website.

We issued a press release on 3 September 2015 notifying the public of a drop-in event. This event was aimed at explaining our decision making on the application and also give the public the opportunity of providing any new relevant information which may not have been considered during the initial consultation.

The public drop-in event was held at the Fairfield Village Hall, Stourbridge Road, Fairfield, Bromsgrove on 10 September 2015. The event was attended by about 50 persons, who were a mixture of local residents and the business community potentially impacted by the proposed facility. They were provided with feedback sheets to help facilitate the recording and collation of comments on our draft decision. The attendees were advised that if they had any relevant issues about the determination that were not resolved at the drop-in event discussions and not considered in the draft decision document, they should write to the designated Environment Agency address expressing those concerns. The comments subsequently received are included in summary in the tables below.

We received a total of 25 comments in response to this stage of consultation, including those submitted by attendees at the public drop-in event described above. Some of the issues raised in the submitted responses are duplicated in the comments from several respondents, and these are not repeated in the summary below.

In some cases, the issues raised in the second round of consultations were the same as those raised previously and already reported in section A of this Annex. Where this is the case, the Environment Agency response to those issues has not been repeated. Reference should be made to section A for an explanation of the particular concerns or issues. Some of the consultation responses received were on matters which are outside the scope of the Environment Agency's powers under the Environmental Permitting Regulations. Our position on these matters is as described previously.

## (1) Consultation Responses from Statutory and Non-Statutory Bodies

We undertook further consultation with the following organisations during the second consultation period:

- Worcestershire County Council (Planning Authority)
- Bromsgrove District Council (Planning Authority)
- Worcestershire Regulatory Services (Environmental Health Department)
- Public Health England
- Director of Public Health (Bromsgrove District Council)
- Health & Safety Executive
- Severn Trent Water

Worcestershire Regulatory Services (Environmental Health Department) responded with no further comments. We did not receive any comments or

concerns from the other consultees during and/or after the consultation period.

## (2) Consultation Responses from Members of the Public and Community Organisations

### (a) Representations from Local MP, Councillors and Parish / Town / Councils

| **Response received from Councillors (Worcestershire County Council)** | |
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| Brief summary of issues raised | Summary of action taken / how this has been covered |
| The Environment Agency has made the decision to grant a permit based on low risk to groundwater therefore a high level of protection for the environment and human health is not justified. | Our assessment of the impact of the proposed activities on groundwater integrity is addressed in section 5.4.2 of this decision document.<br><br>In reaching our decision, we have assessed the health effects from the operation of the proposed Installation and have applied the relevant requirements of the national and European legislation in imposing the permit conditions. We are satisfied that compliance with these conditions will ensure protection of the environment and human health.<br><br>When assessing an application, our priority is to ensure that the proposed Installation will be designed and operated without posing a significant risk to the health of local people and the environment. Before we consider issuing a permit, the Applicant must demonstrate that the proposed Installation meets all the legal requirements, including environmental, technological and health requirements. In this instance, having considered all the relevant factors including comments received from our consultation, we have reached the decision that the proposals would not give rise to any significant pollution of the environment or harm to human health. |

### (b) Representations from Community and Other Organisations

| **Response received from Wildmoor Residents' Association** | |
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| Brief summary of issues raised | Summary of action taken / how this has been covered |
| What assurances will the Applicant give that the facility will meet the necessary high construction standards to prevent pollution of the aquifer? Or will the Environment Agency make it a permit condition that the Applicant must apply a very high level of specification and construction to ensure that there is no pollution of the aquifer. | We have included permit conditions 2.3.8 and 2.3.9 which require the Operator to submit construction proposals for the site lagoon, containment, surfacing design and groundwater monitoring infrastructure to the Environment Agency for approval, prior to construction. This will ensure that the construction proposals are fit for purpose, thereby protecting groundwater integrity. |
| The Applicant's measures are not sufficiently proactive in order to safeguard the pollution of the aquifer. | The Applicant has specified routine monitoring of groundwater quality and levels and the actions that would be taken in the event of an emergency. These actions are detailed in the lagoon and groundwater monitoring plan. A detailed review of the |

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| | water balance of the site will be undertaken 12 months following commencement of site operations to ensure that site systems are able to respond to extreme periods of rainfall. We have reviewed the groundwater monitoring plan and consider that the measures are appropriate. |

## (c) Representations from Individual Members of the Public

| **Response received from individual members of the public** | |
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| Brief summary of issues raised | Summary of action taken / how this has been covered |
| The public drop-in session was not well publicised by the Environment Agency. | We issued a press release on our website on 3 September 2015 notifying the public about the drop-in event. We also notified all interested parties (including the Residents' Association) about the event. The purpose of the event was aimed at explaining our decision making on the Application, highlight if there was any new information that had not come to light since the initial consultation and to identify errors within the draft permit and decision document. The Environment Agency is satisfied that the advertising and consultation of the Application is in accordance with its Public Participation Statement (PPS). |
| The issue of flooding and water from the quarry after and during periods of heavy rain has not been addressed.<br>It is considered that the Operator will not be able to handle the large volume of run-off based on the dimensions of the IBA facility and rainfall data. | The Applicant provided further clarification of the management of the site during periods of heavy rain. The actual area draining to the lagoon is 1.5 ha. The main operational area of the site is on hardstanding and will be sloped from the north down to the lagoon located to the south of the site. This ensures that there are no standing water pools associated with flooding events.<br><br>The Applicant used long term monthly rainfall data to undertake a water balance for the proposed operations and estimated how much storage would be necessary to capture and control all run-off. This water balance enabled estimates to be made as to how much water would have been stored within a lagoon on any given month if the proposed development had been operational over that period.<br><br>The lagoon has been sized at 6,600 $m^3$ to accommodate the following volumes:<br><br>• the maximum amount of water that would have been accumulated (3,300 $m^3$) if the facility had been operating over the 68 year period for which the water balance assessment was made (January 1946 – October 2012);<br>• the projected volume of run-off for the 1:100 annual probability storm with a duration of 16 days (~1,700 $m^3$) – this was based on |

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| | modelling with a 20% uplift to account for potential changes in rainfall severity associated with climate change; and<br>• a further freeboard of 1,600 $m^3$.<br><br>The Applicant reports that extreme rainfall scenarios in excess of that of winter 2013/14 were included in the modelling. This included testing the response of the proposed system (and associated tankering regime) to three consecutive months with rainfall depth of 200 mm. The results of the testing demonstrated that the proposed systems would be sufficient and that there would be no overtopping of the lagoon. |
| No evidence of the use of cementitious bitumen as a sealant or binding agent has been provided by the Applicant. | The use of bitumen as a sealant in Dense Asphaltic Concrete (DAC) has a long history of application in a wide range of installations across Europe and the UK including reservoirs, landfills and canal containment lining systems. |
| What are the chemical components of cementitious bitumen when used as a sealant or binding agent? | The bitumen used consists of the heavy fraction of oil and is the same material that is used in road construction. DAC is a mixture of crushed stones or gravel, sand and filler with residual voids nearly completely filled with bitumen (void content <3%). |
| What effect would any of the chemicals from cementitious bitumen have on human health if leached into the groundwater? | The bitumen constituent is the same as is used for road construction with no significant resultant water quality impacts. DAC lining systems are highly resistant to chemical or hazardous material attack (acids, alkali or hydrocarbons) and consequently there is no potential for seepage of chemical components to migrate to the groundwater. The numerous applications of DAC for lining water supply reservoirs demonstrates that the components are acceptable for the storage of water for use in drinking water supply systems. |
| How will the cementitious bitumen cope with pumping and tankering of water at the facility given the high rainfall and local flooding within the proposed location over recent years? | The proposed lining system cannot be punctured unless it were intentionally excavated by powered machinery such as road planning plant or pneumatic road drills and consequently the risk associated with damage during the pumping and/or tankering of water (on the rare occasions when this is required) will be negligible.<br><br>The nature of DAC lining proposed is such that water will not penetrate it and as such it is resistant to frost damage caused by expansion of water components upon freezing. Consequently the risk of the site drainage breakout of any kind has been assessed to be negligible. A comprehensive groundwater monitoring programme is proposed to verify the effectiveness of the site and lagoon lining. |
| Have any of the Environment Agency staff visited such an IBA processing plant all of which are situated in | Environment Agency staff have visited the Applicant's Castle Bromwich and Sheffield IBA processing sites. Both sites although situated in |

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| industrial locations? | industrial areas also have nearby sensitive receptors. |
| Wheel cleaning equipment may not be effective at this site. | Wheel wash will be provided by the Operator and it will be their responsibility to ensure the wheel wash operates effectively. Should litter become an issue at the facility, the Operator is required to comply with their fugitive emissions management plan. |
| The processing of the IBA and the methane from the adjacent landfill are not compatible. | Maturation of IBA will be undertaken externally. This allows more space to easily handle the IBA and gives more air circulation for the IBA to mature. The external maturation of IBA reduces the risk of explosive situations, caused when hydrogen reacts with aluminium and is in accordance with the relevant guidance. The processing of matured IBA within the building would not pose a significant risk of dust emissions with sufficient dampening. The adjacent landfill is maintained under negative pressure to prevent the release of methane. Methane from the landfill is directed to gas engines to generate electricity. |
| The Applicant has not provided a guarantee that there would be no noise impact. | Emissions of noise and vibration are discussed in Section 5.4.4. It is standard practice for an Operator to re-assess the levels of noise and vibration following the commencement of commercial operation. We do not consider noise /vibration to be an issue given the location of the facility in the quarry and distance from residents. The Operator will assess the risk of noise /vibration and then demonstrate how their proposals are acceptable. If noise /vibration was perceived to be an issue, the Operator would be expected to undertake further mitigation measures to comply with the permit conditions. |
| Fly ash from an incinerator is disposed of by burying below the ground surface. How can this be a safe product when such deposits can be produced? | There is a testing protocol for IBA (ESA Protocol) which is undertaken by the Applicant in accordance with industry best practice. This ensures that the appropriate “quality” of IBA is processed on site. There will be no permanent deposit or storage of IBA on land at the proposed facility. Once the IBA is processed, it is removed from site. |
| The nitrate concentration in IBA can be extremely high. Farming in Nitrate Vulnerable Zones (NVZs) is regulated so as to protect waters which could become polluted by nitrates. There is no assurance that the IBA will not leach into groundwater. | There is no relationship between NVZs and the processing of IBA. Modelling of risk to groundwater is a scientific process and indicates a timeframe from several hundreds to many thousands of years (see section 5.4.2 of the decision document). |
| The requirement for site fencing indicates that the Environment Agency does not have the capability and resources available to regulate the facility. | The Environment Agency has adequate resources and capability to ensure that the requirements of the permit are complied with and those activities at the site are suitably controlled. The permit requires the Operator to install appropriate fencing to prevent unauthorised access. Prevention of unauthorized access is part of an Operator’s Environmental |

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| | Management System (EMS) and is a permit requirement for many regulated activities (see condition 1.1 in the permit). |
| Industrial activities will be issued permits even though they pose risks to human health. This has been demonstrated in this application as the Applicant has been given an excessive amount of time to respond to requests for additional information. | The Environmental Permitting Regulations require that the Regulator gives an Applicant sufficient time to respond to requests for additional information. Given the sensitive nature of the Application, we consider that that we have complied with that requirement. |
| The expertise that Ballast Phoenix and Veolia have had to resort to proves that they do not have the expertise to manage the IBA operation at this location. | Ballast Phoenix Limited will be the sole operator for the Sandy Lane IBA Facility at Bromsgrove. The Applicant has other operational IBA facilities in the UK and have demonstrated their expertise in processing IBA as part of this Application. The expertise which may have been employed in the preparation of the Application is not one which would lead the Environment Agency to conclude that Ballast Phoenix Limited are an unsuitable operator for the proposed Installation. |
| The site location and site description is incorrect. | The Operator submitted details of the site location and description as part of the Application, which we believe is correct. |
| Who in the Environment is directly responsible for giving the go-ahead for this and other operations including the IBA processing here in North Worcestershire? | The Environment Agency is the competent Authority in England and have given permission which allows Ballast Phoenix Limited to operate an IBA facility in Bromsgrove in accordance with an environmental permit. |
| There are a further 4 residences along Madeley Road which have not been included in the noise modelling. | We have assessed the Applicant's noise modelling including carrying out our own verification checks. The receptors have been included in our assessment and we consider that emissions of noise and vibration will not give rise to annoyance. |
| The Operator should have submitted the constructional quality assurance prior to the 'minded to' consultation. | The permit requires the Operator to submit construction proposals to the Environment Agency for approval prior to construction. In addition, a construction quality assurance (CQA) validation report is also required to demonstrate the engineering used complies with the specifications set out in the relevant technical guidance. The CQA validation report would be undertaken by a technically competent person. We would expect the CQA validation report once the infrastructure is completed and prior to commissioning. |
| The bunding that is proposed for the liquid tanks whose emissions could cause pollution is not adequate. There is no verification of the functional state of the bunding proposed. | We have included a pre-operational condition (POC 3) in the permit which requires the Operator to ensure that a review of the method of construction and integrity of the secondary containment for the fuel storage tanks is carried out by an engineer prior to the commencement of commissioning. This review will ensure that the secondary containment is fit for purpose and constructed in accordance with the relevant industry standards. |

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| There is no verification of the functional state of the sealing proposed for the site drainage. If there were to be a tank or pipe failure, then highly dangerous effluent could leach into the water supply. | The lining system will be covered by a layer of mastic asphalt. This mastic seal coat is an additional finishing layer, providing additional protection against UV exposure and weathering. The site and lagoon surface material will be inspected annually for evidence of any major deformity or surface damage. If during this inspection, or at any other point, damage to the superficial mastic layer is noted, additional checks will be made to ensure that the damage is only superficial and, provided that this is the case, the mastic layer would then be repaired. If more fundamental problems are noted during the inspection, site operations would be suspended and specialist support would be sought; however, given the known reliability and durability of the proposed system, this is considered to be highly unlikely when considered over the project development lifetime. |
| The monitoring of groundwater quality is too lax. It would be theoretically possible for pollutants to leak before detection. | We consider the groundwater monitoring requirements to be appropriate, given the site surfacing and containment proposed by the Applicant (see section 5.4.2 of the decision document). |
| Wildlife protection have been preferred over people in relation to the risks associated with the public water supply. | This is not so. We have assessed the impact of the facility on human and ecological receptors and consider that the impacts are insignificant. |
| The site currently operating has a very poor record of gaseous emissions that are foul smelling. It is surely not wise to entrust a more toxic plant into the hands of the current operators. | The IBA facility to be operated by Ballast Phoenix has not been built. The adjacent landfill is operated by Veolia Landfill ES Limited and regulated under a separate permit. Any on-going issues with the landfill will be addressed through the site's permit. |

## Matters on which the public may comment which may be more relevant to an application for Planning Permission or other matters

| **Response received from individual members of the public** | |
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| Brief summary of issues raised: | Response |
| Need for incinerator bottom ash treatment facility. The IBA facility is not in accordance with Worcestershire Waste Core Strategy. | The Environmental Permitting regime does not require an Applicant to demonstrate need. We have had regard to the objectives of the Waste Framework Directive (see section 7.1.2). Condition 2.3.3 and Table S2.2 in the permit specify which wastes can be processed at the IBA facility so as not to undermine recycling/recovery. |
| Impact of construction noise levels. | Monitoring of emissions during construction is not within the remit of environmental permitting, but will be covered through the planning process. We will regulate the operational activities at the site as defined in the permit and this will commence when any process materials are first brought to the site for initial storage. Permit conditions to control noise and vibration will ensure that emissions do not cause annoyance. |

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| Impact of increase in traffic on the local community. | The Environmental Permitting Regulations are concerned with control of emissions from the site and in determining this permit under these Regulations. We have considered the impact of emissions from the site on local air quality. Associated traffic issues (from the delivery of waste to the IBA facility) are within the remit of the Local Planning Authority. |
| The facility is to be located in a green belt and therefore not appropriate for waste disposal or recovery. An alternative site should be found for this facility. Waste IBA should be processed on or near as possible to the incinerators where they are produced. | Decisions over land use are matters for the planning system. The location of the installation is a relevant consideration for Environmental Permitting, but only in so far as it's potential to have an adverse environmental impact on communities or sensitive environmental receptors. The environmental impact is assessed as part of the determination process and has been reported upon in the main body of this document.<br><br>The appropriateness of the capacity and number of waste management facilities in a given area is considered within the planning system. The Environment Agency's role is to ensure that a facility can be operated without giving rise to significant pollution or harm to human health in the event that planning permission is granted. |