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Consulting Engineers Limited

Hillhouse IBA Facility

Fortis IBA

Environmental Risk Assessment

ENGINEERING CONSULTING

Document approval

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1 Introduction

Fortis IBA Limited (Fortis) are proposing to construct and operate the Hillhouse IBA Facility (the Facility). The Facility will be located at Little Thornton, Lancashire and will process up to 350,000 tonnes of non-hazardous IBA sourced from waste incineration facilities. The IBA facility will produce an Incinerator Bottom Ash Aggregate (IBAA) which can be used as a secondary aggregate in the construction industry. The aim of this report is to assess the environmental risks from the activities undertaken at the Facility.

Within the permit application, Fortis is required to demonstrate that the necessary measures are in place to protect the environment and ensure that the Facility, throughout its life, will not pose an unacceptable risk to the environment.

The aim of this document is to:

a. identify potential risks that the activity may present to the environment;
b. screen out those that are insignificant and don't require detailed assessment;
c. identify potentially significant risks, where appropriate;
d. choose the right control measures, where appropriate; and
e. report the findings of the assessment.

This document has been developed to consider the requirements of Environment Agency Guidance Notes H1 Annexes A, C, H and F. It is acknowledged that these guidance documents have been withdrawn; however, it is understood that the requirements of the guidance are still applicable.

1.1 Risk Assessment Process

This assessment has been developed in accordance with the Environment Agency Guidance Note H1. This guidance promotes four key steps:

1. identify risks from the activity;
2. assess the risks and check that they are acceptable;
3. justify appropriate measures to control the risks; and
4. present the assessment.

1.2 Step 1 – Identify Risks

The following report will identify the activities that present different types of risk to the environment associated with the operation of the Installation, including:

a. noise;
b. fugitive emissions; and
c. accidents.

Ther impact of odour has not been considered within this environmental risk assessment, as it is understood that IBA is not inherently odorous. Therefore, the operation of the IBA facility will not result in off-site odour impacts.

1.3 Step 2 – Assess the Risk

The report will include an assessment of risks associated with the operation of the Installation, and will identify the:

a. hazard;
b. receptor; and
c. pathway.

1.4 Step 3 – Justify Appropriate Measures

This report will demonstrate that the risks associated with the operation of the Installation have been considered, and identify the control measures which will be in place to demonstrate that the risks are being appropriately managed.

1.5 Step 4 – Present the Assessment

The assessment will conclude by presenting the following:

a. possibility of exposure;
b. consequence; and
c. the overall risk.

The report will present the overall risk applying the Environment Agency's H1 criteria, defined as:

a. insignificant;
b. not significant; and
c. significant.

2 Table A1 – Noise and Vibration Risk Assessment and Management Plan

What Do You Do That Can Harm and What Could Be Harmed?			Managing The Risk	Assessing The Risk		
Hazard	**Receptor**	**Pathway**	**Risk Management**	**Possibility of Exposure**	**Consequence**	**What is the Overall Risk?**
What has the potential to cause harm?	**What is at risk? What do I wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk? If it occurs who is responsible for what?**	**How likely is this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains? The balance and probability and consequence.**
Vehicle movements for the transfer of IBA from and to the IBA facility	Local environment and sensitive receptors.	Sound and vibration propagation through the air and ground.	Deliveries of IBA to and from the IBA facility will typically occur during day-time periods.	Minimal.	Nuisance.	Low noise impact. Refer to the noise assessment provided in Appendix E of the Application Pack.
Outside the process building - noise from mobile plant and road going vehicles.	Local environment and sensitive receptors.	Sound and vibration propagation through the air and ground.	The IBA storage building is only open on the northside and does not face human receptors. The movement and handling of IBA will be minimised during night-time periods.	Minimal.	Nuisance.	Low noise impact. Refer to the noise assessment provided in Appendix E of the Application Pack.
Noise from IBA processing equipment such as screens, conveyors and noise radiation	Local environment and sensitive receptors.	Sound propagation through the air and ground.	Processing plant will be installed inside a fully enclosed IBA processing building. There will be no vehicle movements in or out	Minimal.	Nuisance.	Low noise impact. Refer to the noise assessment provided in Appendix E of the Application Pack.

What Do You Do That Can Harm and What Could Be Harmed?			Managing The Risk	Assessing The Risk		
Hazard	**Receptor**	**Pathway**	**Risk Management**	**Possibility of Exposure**	**Consequence**	**What is the Overall Risk?**
What has the potential to cause harm?	**What is at risk? What do I wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk? If it occurs who is responsible for what?**	**How likely is this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains? The balance and probability and consequence.**
from the building envelope itself etc.			of the IBA processing building at night time. Regular maintenance of plant items.			

3 Table A2 – Fugitive Emissions Risk Assessment and Management Plan

What Do You Do That Can Harm and What Could Be Harmed?			Managing The Risk	Assessing The Risk		
Hazard	**Receptor**	**Pathway**	**Risk Management**	**Possibility of Exposure**	**Consequence**	**What is the Overall Risk?**
What has the potential to cause harm?	**What is at risk? What do I wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk? If it occurs who is responsible for what?**	**How likely is this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains? The balance and probability and consequence.**
Dust from IBA deliveries being blown off-site	Immediate area – air, land.	Air, direct contact.	IBA will be delivered to the IBA facility in a damp condition and in enclosed containers, minimising the risk of fugitive emissions. Visual checks on vehicles arriving to/leaving the site will be undertaken by competent contractors.	Unlikely.	Nuisance, dust on cars and road.	Insignificant.
Tracking of IBA from vehicle wheels on roads within Little Thornton.	Immediate area – air, land.	Air, direct contact.	A wheel wash facility will be provided at the IBA facility, and delivery vehicles will be required to pass through the wheel wash before leaving the site. This will reduce the potential for off-site 'tracking' of IBA onto local roadways. Road sweepers and/or regular washdown will be	Not likely.	Nuisance, dust on cars and road.	Not significant.

What Do You Do That Can Harm and What Could Be Harmed?			Managing The Risk	Assessing The Risk		
Hazard	**Receptor**	**Pathway**	**Risk Management**	**Possibility of Exposure**	**Consequence**	**What is the Overall Risk?**
What has the potential to cause harm?	**What is at risk? What do I wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk? If it occurs who is responsible for what?**	**How likely is this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains? The balance and probability and consequence.**
			implemented on vehicle movement areas within the installation where dust build-up has been identified, as part of good housekeeping procedures.			
Transfer of processed IBA to IBAA storage areas.	Immediate area – air, land, water.	Air, direct contact, surface runoff.	Conveyors for the transfer of IBA will be enclosed, with their integrity regularly inspected as part of a scheme of preventative maintenance.	Unlikely.	Nuisance, dust on cars and road, contamination of surface water.	Insignificant.
Dust emissions from IBA processing (crushing, size separation, etc.)	Immediate area – air, land.	Air, direct contact, surface runoff.	IBA will be maintained wet from quenching to reduce the generation of dust. The main processing building will be fully enclosed, with doors only opened for access/egress purposes. Good housekeeping and regular washdown of the IBA	Unlikely.	Nuisance, dust on cars and road, contamination of surface water.	Insignificant.

What Do You Do That Can Harm and What Could Be Harmed?			Managing The Risk	Assessing The Risk		
Hazard	**Receptor**	**Pathway**	**Risk Management**	**Possibility of Exposure**	**Consequence**	**What is the Overall Risk?**
What has the potential to cause harm?	**What is at risk? What do I wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk? If it occurs who is responsible for what?**	**How likely is this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains? The balance and probability and consequence.**
			processing equipment will be employed. Drop heights (e.g. from conveyors) will be minimised where possible.			
Emissions of combustion products from the operation of mobile plant (such as loading shovels).	Immediate area – air, land.	Air, direct contact, surface runoff.	Regulatory controls and best-practice measures to minimise source strength – vehicles will comply with relevant emissions standards. A no-idling policy will be in place for mobile plant when not in use.	Not likely.	Nuisance, dust on cars and road, contamination of surface water.	Not significant.
Emissions as a result of maintenance and cleaning operations.	Immediate area – air, land.	Air, direct contact, surface runoff.	Operators will be trained in using road sweepers, and site roads will be damped down in periods of dry weather. Process waters resulting from washdown would be contained within the process drainage system.	Not likely.	Nuisance, dust on cars and road, contamination of surface water.	Not significant.

4 Table A3 – Accidents Risk Assessment and Management Plan

What Do You Do That Can Harm and What Could Be Harmed?			Managing The Risk	Assessing The Risk		
Hazard	**Receptor**	**Pathway**	**Risk Management**	**Possibility of Exposure**	**Consequence**	**What is the Overall Risk?**
What has the potential to cause harm?	**What is at risk? What do I wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk? If it occurs who is responsible for what?**	**How likely is this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains? The balance and probability and consequence.**
Spillage during unloading/loading of IBA/IBAA.	Immediate area – air, land, water.	Direct contact, wind, surface runoff.	The IBA facility will have a full contained drainage system for all areas of IBA/IBAA storage. Manual handling will be minimised where possible. Spill kits will be available at easily accessible locations. Mobile plant will be operated by competent contractors.	Unlikely.	Release of substances to the wider environment, litter, nuisance.	Insignificant.
Exceeding the capacity of IBA/IBAA storage areas.	Immediate area – air, land, water.	Direct contact, wind, surface runoff.	Storage will be regularly monitored against maximum capacities through the stockpile management plan, with quantities recorded and reviewed regularly. Storage will be in areas with links to the process drainage system.	Unlikely.	Release of substances to the wider environment, litter, nuisance.	Insignificant.

What Do You Do That Can Harm and What Could Be Harmed?			Managing The Risk	Assessing The Risk		
Hazard	**Receptor**	**Pathway**	**Risk Management**	**Possibility of Exposure**	**Consequence**	**What is the Overall Risk?**
What has the potential to cause harm?	**What is at risk? What do I wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk? If it occurs who is responsible for what?**	**How likely is this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains? The balance and probability and consequence.**
			Spill kits will be readily available.			
Integrity failure of storage areas.	Immediate area – air, land, water.	Direct contact, wind, surface runoff.	All IBA/IBAA storage areas will be constructed of concrete hardstanding. Integrity checks of the hardstanding will be undertaken during construction as part of the CQA process. Regular preventative maintenance and visual inspections will be undertaken on all IBA/IBAA storage areas throughout the lifetime of the IBA facility.	Unlikely.	Release of substances to the wider environment, litter, nuisance.	Insignificant.
Leaks in the drainage system.	Immediate area – land, water.	Leaching/infiltration.	All drainage systems, and surface water storage tanks will be designed in accordance with the relevant standards and will be impermeable to prevent the	Unlikely.	Pollution of ground/groundwater.	Insignificant.

What Do You Do That Can Harm and What Could Be Harmed?			Managing The Risk	Assessing The Risk		
Hazard	**Receptor**	**Pathway**	**Risk Management**	**Possibility of Exposure**	**Consequence**	**What is the Overall Risk?**
What has the potential to cause harm?	**What is at risk? What do I wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk? If it occurs who is responsible for what?**	**How likely is this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains? The balance and probability and consequence.**
			release of liquid pollutants into the ground/groundwater. Quality assurance checks will be undertaken during construction to test/inspect the integrity of the water storage tank. Structures will be subject to regular inspection and preventative maintenance. In the event of the integrity of the structures being compromised, remedial maintenance will be undertaken in a timely manner and investigations of any potential contamination will be undertaken, where appropriate this could include for testing and analysis of groundwater.			

What Do You Do That Can Harm and What Could Be Harmed?			Managing The Risk	Assessing The Risk		
Hazard	**Receptor**	**Pathway**	**Risk Management**	**Possibility of Exposure**	**Consequence**	**What is the Overall Risk?**
What has the potential to cause harm?	**What is at risk? What do I wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk? If it occurs who is responsible for what?**	**How likely is this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains? The balance and probability and consequence.**
Failure of IBA processing equipment.	Immediate area – air, land, water.	Direct contact, wind, surface runoff.	Integrity checks will be undertaken during the construction phase, and regular preventative maintenance of equipment will be undertaken throughout its lifetime. Equipment would be operated by trained staff, with visual monitoring of the waste processing stages. Safe shutdown procedures will be in place to prevent continued operation of equipment under abnormal operation. Redundancy of critical equipment or spares on stock.	Unlikely.	Release of substances to the wider environment, litter, nuisance.	Insignificant.
Blockages in IBA processing equipment.	Immediate area – air, land, water.	Direct contact, wind, surface runoff.	IBA processing equipment would be operated by trained staff, with visual monitoring of the processing stages. Safe shutdown	Unlikely.	Release of substances to the wider environment, litter, nuisance.	Insignificant.

What Do You Do That Can Harm and What Could Be Harmed?			Managing The Risk	Assessing The Risk		
Hazard	**Receptor**	**Pathway**	**Risk Management**	**Possibility of Exposure**	**Consequence**	**What is the Overall Risk?**
What has the potential to cause harm?	**What is at risk? What do I wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk? If it occurs who is responsible for what?**	**How likely is this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains? The balance and probability and consequence.**
			procedures will be in place to prevent continued operation of equipment under abnormal operation, such as a blockage.			

5 Detailed Assessment

5.1 Emissions to air

There will be no point source emissions to air from the IBA facility.

IBA stockpiles will be sprayed with water to mitigate fugitive dust emissions. IBA and IBAA will be stored within a three-sided building to mitigate fugitive emissions of dusts from stockpiles.

IBA processing will be undertaken within a fully enclosed building to mitigate emissions of dusts.

5.2 Emissions to water and sewer

The Facility will not give rise to contaminated process effluents which will require discharge/transfer off-site.

Surface water comprises of uncontaminated runoff from the roofs of the IBA/IBAA storage, metals store, and the IBA processing building. Excess uncontaminated surface water will be discharged, via the site surface water drainage system, to the existing surface water drains or with a new discharge into Royles Brook.

Contaminated water run-off from the IBA processing building will be collected in a channel to the rear of the building. Due to the issue of contaminants, this water will not be discharged to surface water and/or to sewers and will instead be reused for dust suppression purposes in the IBA/IBAA storage building.

It is assumed that domestic effluents from welfare facilities will discharge separately to foul sewer.

5.3 Noise

The impact of noise from the Installation is considered in the noise assessment contained in Appendix E of the Application Pack. The assessment concludes that the Facility will result in a 'low noise impact' in accordance with the noise assessment criteria set out in BS4142.

5.4 Odour

IBA is generated from the combustion of waste. Due to the high temperatures at which it is combusted, any organic materials which is within the waste is destroyed. On this basis, it is understood that IBA is not inherently odorous, and thus, Fortis IBA does not propose to implement an Odour Management Plan for the IBA facility.

5.5 Visual impact

The visual impact of the Installation has not been considered in the EP application, since this is primarily a matter for the planning process.

5.6 Fire Prevention

In accordance with the Environment Agency titled 'Fire prevention plans: environmental permits', a Fire Prevention Plan is required for all waste treatment facilities which accept any amount of

combustible waste. Whilst the IBA facility will process wastes, the wastes which it processes is the non-combustible residue generated by waste incineration plants.

On this basis, it is understood that a Fire Prevention Plan is not required to support this application.

5.7 Habitats Assessment

There are a number of habitat sites present within a 10km radius of the Facility. The following habitat features presented in Table 5.1 have been considered:

Table 5.1: Sensitive Ecological Receptors

European designated sites (Ramsar, SPA, SAC) (within 10km)
Morecambe Bay and Duddon Estuary
Morecambe Bay
Liverpool Bay
UK designated sites (SSSI, NNR) (within 2km)
Wyre Estuary
Locally designated sites (LNR) (within 2km)
ICL Hillhouse Estuary Banks
Fleetwood Railway Branch Line Trunnah to Burn Naze
Burglars Alley Field
Jameson Road Saltmarsh
ICL Hillhouse International Pool
Rossall Lane Wood and Pasture
Fleetwood Farm Fields
Fleetwood Marsh Industrial Lands

In relation to the environmental risk to these features as a result of the operations undertaken at the Site, there are no point source emissions to air. The risk of fugitive emissions (e.g. of dust) will be low due to the management measures in place (refer to Table 3).

Because of the impermeable surface and the process drainage system, water within the Facility is contained, meaning there is no risk of water contamination outside of the Facility.

The Noise Assessment (Appendix E) shows that noise levels are acceptable.

Taking this into consideration, it is concluded that the operation of the Site will not result in any unacceptable impacts on habitat sites.

6 Conclusions

As presented in this report, the Facility is considered to contain appropriate control measures and management systems to ensure that the Facility does not have any significant impacts upon the local environment.

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