Caulmert Limited

Engineering, Environmental & Planning Consultancy Services

Whisby IBA Processing Facility

Lincwaste Limited

Environmental Permit Variation Application

Environmental Risk Assessment

Prepared by:

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Environmental Risk Assessment

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1.0 INTRODUCTION

1.1 Application Overview

1.1.1 Caulmert Limited have been appointed by Lincwaste Limited ('the Operator') to prepare an environmental permit variation application for Whisby Landfill Site permit ref. EPR/BW2978ID to include for the processing of Incinerator Bottom Ash (IBA) and subsequent landfilling of IBA into mono cells within the boundary of the permitted installation.

1.1.2 It is proposed to accept up to 70,000 tonnes per annum of IBA wastes for processing at Whisby Landfill. The Operator proposes to vary their existing permit to add a 'Schedule 5.4 A(1)(b)(iii) activity for a mix of recovery and disposal of non-hazardous waste with a capacity exceeding 75 tonnes per day involving treatment of slags and ashes'.

1.1.3 This activity will involve processing Incinerator Bottom Ash (IBA) wastes at the site to remove ferrous and non-ferrous metals for recycling, producing an IBA Aggregate (IBAA) and disposing of the remaining IBA residues by landfilling at Whisby.

1.2 Document Structure

1.2.1 This report is an Environmental Risk Assessment which forms part of the environmental permit variation application for the site.

1.2.2 This risk assessment considers any potential risks associated with the proposed operations to sensitive receptors. It is expected that the risks will be low (with controls in place) with respect to odour, pests, dust, litter, noise, and other fugitive emissions and accidents from site operations.

1.2.3 This risk assessment has been compiled in accordance with the current Environment Agency guidance 'Risk Assessments for your Environmental Permit' (last updated 31st August 2022).

1.3 Site Setting and Location

1.3.1 Whisby Landfill Site is located approximately 8km to the southwest of Lincoln and 3km west of North Hykeham, accessed by Thorpe Road, in Whisby. The area of the proposed IBA Processing Facility (hereafter referred to as 'the Site') is within the Whisby Landfill Site permitted area, centred on National Grid Reference SK 89647 66699.

1.3.2 The landfill is already permitted to accept 49,900 tonnes per annum of non-hazardous waste for disposal and 50,000 tonnes per annum of wastes for restoration.

1.3.3 The area proposed for the IBA treatment and storage area (IBA Cell 1) and subsequent IBA Cells 2, 3 and 4 is predominantly surrounded by the existing landfill infrastructure to the south and east, and sand and gravel quarrying to the north. There is agricultural land further to the north, east, south and west, and surface water bodies associated with former sand and gravel pits.

1.3.4 The closest residential receptors are houses on Thorpe Road 415m to the northeast and Station Road 460m to the southeast. Crossing Gate Poultry Farm (and Sam's Auto Car Repairs Garage) is located 610m to the southwest and there is a row of houses on Eagle Lane 690m to the southeast. There are no schools or hospitals within 1km of the Site.

1.3.5 Tarmac Whisby Sand and Gravel Quarry is located 25m to the north of the Site and some commercial premises have been identified on Thorpe Road including The Railway Inn 480m southeast and TFM Country Store (a pet and animal feed store) 760m northeast. Lincoln Radio Sailing Club is also located 660m to the southwest.

1.3.6 An indicative site location plan of Whisby Landfill Site is shown below in Figure 1. The proposed IBA Cells 1-4 and IBA Processing Facility will sit within the permitted landfill site boundary in the north-western portion of the site (inside the blue line on Figure 1).

Figure 1 - Site Location (source: Google Earth, 2023)

1.4 Proposed Activities

1.4.1 The operator proposes to operate an IBA Processing Facility, to receive IBA from FCC-owned Energy from Waste (EfW) sites: FCC Eastcroft EfW and FCC Lincoln EfW.

1.4.2 The proposed Facility will use mobile plant within the footprint of the permitted boundary of Whisby Landfill Site to treat IBA waste. The purpose of the mobile plant will be to allow for the removal of ferrous and non-ferrous metals, separating out IBA Aggregate (IBAA) and disposing of the remaining IBA residues within the landfill, into IBA Cell 1 initially, before

moving onto additional IBA Cells 2, 3 and 4.The activity will require the temporary storage of IBA waste pre- and post-treatment in stockpiles and also of the separated metal fractions. The IBA residues will be disposed of by mono-filling, whilst the recovered metals will be sent for recycling off-site and the IBAA will also be sent off-site for re-use.

1.4.3 The site will accept and treat up to 70,000 tonnes per year of non-hazardous IBA waste as a mix of recovery and disposal activity, with the temporary storage of up to 140,000 tonnes of unprocessed IBA wastes at any one time during the maturation stage on the pad. It is anticipated up to 20,000 tonnes per year of IBAA will be separated out for export off-site and up to 7-8% removed as recovered metals, to be sent for recycling.

1.4.4 The IBA processing and temporary storage of unprocessed and processed IBA wastes and metals will take place on the base of the newly constructed IBA Cell 1 at the site.

1.4.5 The IBA will be sampled at the source site for analytical testing prior to arriving at Whisby. Incoming IBA will be stored in separate stockpiles awaiting test results. Once test results confirm the IBA is non-hazardous, the IBA will undergo maturation in windrows on the pad in the open air (atmospheric carbon dioxide and rainwater being required) prior to treatment. The maturation process should result in a reduction of pH and will stabilise any heavy metal leachability of the IBA. Any IBA wastes classed as hazardous based on test results will be rejected from site and sent to a suitably permitted facility.

1.4.6 The IBA processing will consist of mechanical screening of the IBA to remove ferrous and non-ferrous metals and will include screens, ferrous and non-ferrous metal separators and a picking station. Separated metals and IBAA will be stored in separate stockpiles on the pad, awaiting export off site. The site will also utilise dumper trucks for IBA deliveries to the pad and a front loading shovel for feeding IBA wastes into the process.

1.4.7 The proposed IBA processing facility is to be situated on a pad within the engineered IBA Cell 1. The cell will be constructed with engineered liner, drainage system and protection layer. Surface water/leachate will be managed by draining under gravity via the drainage blanket to a sump. No discharges to surface water or sewer are proposed.

2.0 SENSITIVE RECEPTORS

2.1 Overview

2.1.1 This report assesses the potential risks to nearby sensitive receptors from the proposed IBA Processing Facility at Whisby Landfill Site. A sensitive receptor search has been conducted of the surrounding area within 1km radius of the perimeter of the IBA Cells 1-4 using Defra's Magic Maps website[1] and other publicly available sources. The sensitive receptors identified are listed below in Table 1 and shown on the attached 'Sensitive Receptor Plan' drawing ref. 5671-CAU-XX-XX-DR-V-1800. The distance to each receptor is measured from the perimeter of the IBA Cells 1-4 (blue outline in Figure 1)('the Site').

2.1.2 The area proposed for the IBA treatment and storage pad and new landfill cells (IBA Cells 1-4) is predominantly surrounded by the existing landfill infrastructure to the south and east, and sand and gravel quarrying to the north. There is agricultural land further to the north, east, south and west, and surface water bodies associated with former sand and gravel pits.

2.1.3 The closest human receptors are workers on Whisby Landfill Site <10m south and east, and also at the Tarmac Whisby Sand and Gravel Quarry 25m north. The closest residential receptors are houses on Thorpe Road 415m to the northeast and Station Road 460m to the southeast. Crossing Gate Poultry Farm (and Sam's Auto Car Repairs Garage) is located 610m to the southwest and there is a row of houses on Eagle Lane 690m to the southeast. There are no schools or hospitals within 1km of the Site.

2.1.4 Some commercial premises have been identified on Thorpe Road including The Railway Inn 480m southeast and TFM Country Store (a pet and animal feed store) 760m northeast. Lincoln Radio Sailing Club is also located 660m to the southwest.

2.2 Designated Sites of Ecological Importance & Other Habitats

2.2.1 The site is not within a Source Protection Zone (SPZ), with the closest, a Zone III, located over 7.4 km to the east. The site is situated on the Balderton Sand and Gravel Member (sand and gravel) superficial deposits, which is designated a Secondary A Aquifer, defined as 'comprise permeable layers that can support local water supplies, and may form an important source of base flow to rivers'. Below this is the Scunthorpe Mudstone Formation (interbedded mudstone and limestone) bedrock, which is designated a Secondary B Aquifer, defined as 'mainly lower permeability layers that may store and yield limited amounts of groundwater through characteristics like thin cracks (called fissures) and openings or eroded layers'.

2.2.2 The Environment Agency Nature and Heritage Conservation Screen provided as part of the Basic Pre-Application Advice (Appendix 1) has identified 1 Local Nature Reserve (LNR), 8 Local Wildlife Sites (LWSs) and 2 Ancient Woodlands within 2km of the site. The closest sites within

[1] DEFRA Magic Maps 2021: https://magic.defra.gov.uk/MagicMap.aspx

1km are Hykeham Railway Line LWS 460m to the southeast and Whisby Nature Park LNR & LWS 570m to the east-southeast.

2.2.3 Within 2km of the site boundary, there are no Sites of Scientific Interest (SSSI), Special Areas of Conservation (SACs), Special Protection Areas (SPAs), National Nature Reserves (NNRs), Ramsar sites or Areas of Outstanding Natural Beauty (AONBs).

2.3 Summary of Identified Sensitive Receptors

2.3.1 A summary of the identified sensitive receptors is detailed in Table 1 below:

Table 1 – Summary of Sensitive Receptors within 1km of the site boundary

Receptor	Receptor Type	Distance/Direction
Secondary A Aquifer within Superficial Deposits (sand/gravel)	Groundwater	Below site
Secondary B Aquifer within Bedrock	Groundwater	Below site
Workers at Whisby Landfill Site	Industrial	<10m S and E
Surface Water Bodies/Flooded Sand and Gravel Workings	Surface water	25m E, 30m W, 110m SW, 160m W, 180m NW, 310m S, 610m E, 900m SW, 835m SE
Tarmac Whisby Sand and Gravel Quarry	Commercial / Industrial	25m N
Field Drain	Surface Watercourse	70m W
Pike Drain	Surface Watercourse	120m S
Agricultural Land	Agricultural	190m NE, 350m N, 440m E, 640m S, 700m SW, 730m W
Railway Line	Commercial / Industrial	260m S
House on Thorpe Road	Residential	415m NE
Users of Thorpe Rd / Station Rd	Public Road	425m E
Hykeham Railway Line LWS	Designated Habitat Site	460m SE
Houses/Businesses on Station Road	Residential/Commercial	460m SE
House on Thorpe Road	Residential	460m NE
The Railway Inn	Commercial	480m SE
Whisby Nature Park LNR & LWS	Designated Habitat Site/ Surface Water	570m ESE
Users of Eagle Lane / Thorpe Lane	Public Road	600m SW
Crossing Gate Poultry Farm	Agricultural / Residential	610m SW
Sam's Auto Car Repairs Garage	Commercial / Industrial	610m SW

Receptor	Receptor Type	Distance/Direction
Lincoln Radio Sailing Club & Lake	Recreational / Surface Water	660m SW
Row of houses on Eagle Lane	Residential	690m SE
Houses on Thorpe Road	Residential	725m NE
TFM Country Store	Commercial	760m NE
Thorpe Lane Farm	Agricultural / Residential	760m WSW
Scotland Farmhouse	Residential	1000m SW
Residence/Farm on Green Lane	Residential	1000m NW

2.4 Meteorological Setting

2.4.1 Fugitive emissions of dust, litter, odour and noise from the site are likely to be affected by local weather conditions, in particular by wind direction and strength.

2.4.2 The closest meteorological station to the site actively recording wind statistics is Swinderby RAF weather station, located over 4.5 km to the southwest of the Site. Wind statistics from this weather station are considered to be representative of the typical conditions at the site (see Figure 2 below).

2.4.3 A review of the data recorded daily between December 2011 and April 2023 on the Windfinder.com website[2] indicates that the most dominant wind direction is from the southwest towards the northeast. The sensitive receptor plan shows that predominant wind conditions are likely to blow from the IBA Processing Facility and Cells 1-4 away from most of the nearest sensitive receptors towards the few properties and businesses over 400m to the northeast on Thorpe Road and agricultural fields beyond.

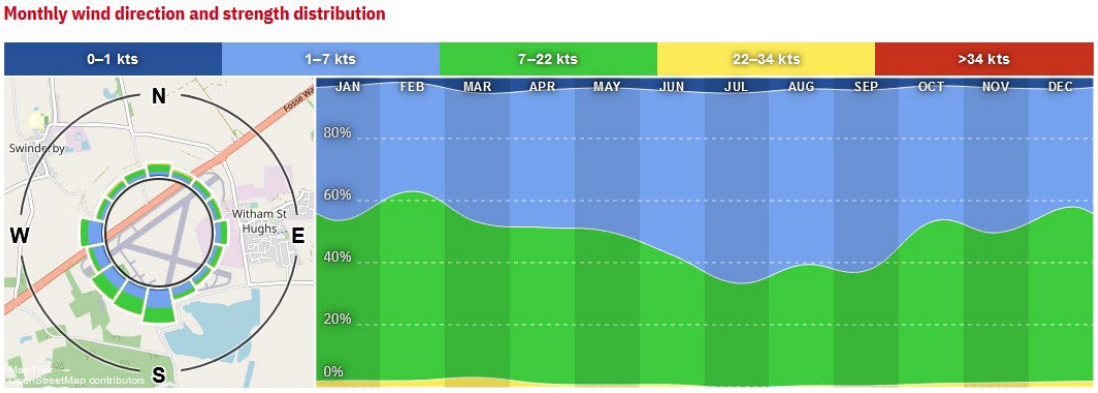

Figure 2 – Swinderby RAF wind statistics – average wind direction & strength 2011 to 2023

[2] Windfinder website 2023, found here: https://www.windfinder.com/windstatistics/swinderby_raf

3.0 RISK ASSESSMENTS

3.1 Assessments for the Proposed Operations

3.1.1 Risk assessment tables have been completed for odour, noise and vibration, fugitive emissions (dust, litter, mud and debris, pests and surface water run-off), visible plumes and accidents in line with the GOV.UK guidance 'risk assessments for your environmental permit' (last updated 31st August 2022).

3.1.2 It is considered that the biggest risk associated with the permitted operations are emissions resulting from dust, noise and odour, however all emissions have been considered in detail.

3.2 Risk Assessments - Tables

3.2.1 Possible hazards as a result of the proposed operations at the site that require risk assessment comprise:

- Sources of Odour (Table 2);
- Sources of Noise and Vibration (Table 3);
- Fugitive Emissions (dust, bioaerosols, litter, mud and debris, pests, surface water run-off) (Table 4);
- Visible emissions (smoke or visible plumes) (Table 5); and,
- Accidents (leaks and spillages, fire etc.) (Table 6).

3.2.2 The hazards identified above have the potential to escape beyond the site boundary and cause an amenity nuisance to sensitive receptors or harm the environment and human health. For each possible hazard, an assessment of the risk that it poses to potential sensitive receptors has been carried out, taking into account the control measures that will be in place.

3.2.3 The following Tables 2 to 6 give further detail on each hazard source, pathway and sensitive receptor, the risk management measures to be implemented, probability of exposure, consequences of exposure and an overall risk rating from Low (little or no risk) to High once all risk management measures have been taken into account.

Table 2 – Odour Risk Assessment

What do you do that can harm and what could be harmed			Managing the risk	Assessing the risk		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability 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 of probability and consequence**
Odour from unloading and storing IBA wastes	Workers and visitors to Whisby Landfill site and nearby businesses (quarry 25m N). Residents of nearby properties (closest 415m NE). Users of nearby roads Thorpe Road (425m E), Eagle Lane (600m SW). Users of nearby footpaths.	Via air.	IBA is unlikely to generate significant odours, but may have a distinctly earthy odour. This is not considered to have the potential to cause odour issues beyond the site boundary during normal operating conditions. The stockpiling of IBA for long periods has the potential to give rise to odour due to sulphates within the IBA being reduced to sulphides including hydrogen sulphide if the unprocessed stockpiles become anaerobic and malodour generation is possible from the surface. This can be prevented if stockpiles are kept to a minimum and not stored for long periods. Waste acceptance procedures are in place to ensure only the permitted waste types are accepted and treated. Measures to prevent odour nuisance from the reception and storage of IBA will include:	The frequency of exposure is likely to be **low** as: • Site setting is within landfill boundary. • The waste types to be accepted are unlikely to be malodorous on receipt; and • Residential receptors are some distance away (>400m). Commercial/industrial receptors less sensitive to odour.	Odour may cause annoyance to nearby human population.	**Low – if control measures are implemented**

What do you do that can harm and what could be harmed			Managing the risk	Assessing the risk		
Hazard	Receptor	Pathway	Risk management	Probability 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 of probability and consequence
			• Upon receipt of IBA, the waste will be verified by the acceptance procedure and material will only be stored in the dedicated waste storage area. • Once on site, the movement and agitation of the material will be kept to a minimum to reduce the likelihood of generation of odorous emissions that may occur when the material is disturbed, however some rotation will be required to ensure anaerobic conditions do not prevail which may cause odours. • IBA will not be stored for long periods of time (typically 2-3 weeks for maturation before processing) and will be within a rotating 'windrow style' stockpile. The site will operate on a first-in first-out basis ensuring good rotation of IBA wastes and preventing accumulation of anaerobic conditions within piles. • IBA stockpiles are kept outdoors to allow for ventilation/maturation of stockpiles. • General housekeeping, such as keeping the site cleared of debris and maintaining			

What do you do that can harm and what could be harmed			Managing the risk	Assessing the risk		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability 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 of probability and consequence**
			suitable spaces between heaps/windrows of IBA. • Olfactory monitoring is done by site personnel during the storage of the IBA. An Odour Management Plan is in place for the proposed IBA Processing Facility, as document ref. 5671-CAU-XX-XX-RP-V-0304.			
Odour from mechanical processing and agitation of IBA wastes	Workers and visitors to Whisby Landfill site and nearby businesses (quarry 25m N). Residents of nearby properties (closest 415m NE). Users of nearby roads Thorpe Road (425m E), Eagle Lane (600m SW). Users of nearby footpaths.	Via air.	IBA is unlikely to generate significant odours but may have a distinctly earthy odour. This is not considered to have the potential to cause odour issues beyond the site boundary during normal operating conditions. The processing of the IBA will consist of sending the IBA through mobile sieves with overband magnets, eddy current separators and a hand-sorting station. The processing is to remove ferrous and non-ferrous metals and separate out IBA Aggregate all which agitate the material and have the potential to release odours.	The frequency of exposure is likely to be **low** as: • Site setting is within landfill boundary. • IBA stockpiles will not be processed until aeration and stabilisation has occurred. • Residential receptors are some distance away (>400m).	Odour may cause annoyance to nearby human population.	**Low – if control measures are implemented**

What do you do that can harm and what could be harmed			Managing the risk	Assessing the risk		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability 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 of probability and consequence**
			Measures to prevent odour nuisance from the processing and subsequent storage of IBA will include: • Only IBA that has been fully matured and not allowed to undergo anaerobic conditions will be processed. Stockpiles discovered to be anaerobic and producing odours will be allowed to gradually aerate and stabilise prior to processing to prevent a large release of odours. • Processing will be undertaken outside in mobile plant equipment within landfill IBA Cell 1. Any minor odours likely to dissipate with air movement. • Treated IBA wastes will be stored only temporarily if immediate disposal within the landfill is not possible after processing. These stockpiles will be monitored closely to prevent anaerobic conditions occurring. • IBA stockpiles are kept outdoors to allow for ventilation/maturation of stockpiles. • General housekeeping, such as keeping processing equipment cleared of debris to	Commercial/industrial receptors less sensitive to odour.		

What do you do that can harm and what could be harmed			Managing the risk	Assessing the risk		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability 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 of probability and consequence**
			prevent build up and anaerobic conditions within debris causing odours. • Olfactory monitoring is done by site personnel during the processing of the IBA. • An Odour Management Plan is in place for the proposed IBA Processing Facility, as document ref. 5671-CAU-XX-XX-RP-V-0304.			
Odour from landfilling IBA wastes	Workers and visitors to Whisby Landfill site and nearby businesses (quarry 25m N). Residents of nearby properties (closest 415m NE). Users of nearby roads Thorpe Road (425m E), Eagle Lane (600m	Via air.	Only non-hazardous IBA wastes will be disposed of in IBA Cells 1-4 of the landfill. IBA typically has an earthy smell when at close quarters. Control measures during landfilling include: • IBA wastes will be covered in the landfill with inert soils/cover layer at the end of each working day to prevent the release of odours and to ensure a stable working surface. • Olfactory monitoring is done by site personnel during the landfilling of the IBA. • An Odour Management Plan is in place for the proposed IBA Processing Facility,	The frequency of exposure is likely to be **low** as: • Site setting is within landfill boundary. • Residential receptors are some distance away (>400m). Commercial/industrial receptors less sensitive to odour.	Odour may cause annoyance to nearby human population.	**Low – if control measures are implemented**

What do you do that can harm and what could be harmed			Managing the risk	Assessing the risk		
Hazard	Receptor	Pathway	Risk management	Probability 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 of probability and consequence
	SW). Users of nearby footpaths.		as document ref. 5671-CAU-XX-XX-RP-V-0304.			

Table 3 – Noise & Vibration Risk Assessment

What do you do that can harm and what could be harmed			Managing the risk	Assessing the risk		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability 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 of probability and consequence**
Noise & vibration from vehicle/plant movements	Workers and visitors to Whisby Landfill site and nearby businesses (quarry 25m N). Residents of nearby properties (closest 415m NE). Users of nearby roads Thorpe Road (425m E), Eagle Lane (600m SW). Users of nearby footpaths. Wildlife in nearby woodland, fields and designated habitats including Hykeham	Through air and ground.	Waste deliveries already made to landfill site with no history of complaints. Deliveries of IBA and collections of metals for recycling and IBA Aggregate will be made during same operational hours as landfill site, and collections will be made on a campaign basis (as and when needed). Delivery and collection vehicles will arrive and leave site intermittently throughout the day, and as a guide it is anticipated to be around 10 loads of IBA waste delivered per day. Preventative measures include: • The IBA Cells 1-4 will be set substantially below the surrounding ground level, which will reduce noise emissions leaving site. • Deliveries and collections of waste will only be within landfill site operational hours. • HGV/RORO delivery and collection vehicle movement managed so that	The frequency of exposure is likely to be **low** as: • Site is located within landfill boundary. • Delivery and collection vehicles should not create significant additional noise within landfill or additional to background levels of noise and vibration from quarry to north. • Other wastes already	Noise may cause annoyance to people nearby or passing the site on roads and footpaths.	**Low – if control measures are implemented**

What do you do that can harm and what could be harmed			Managing the risk	Assessing the risk		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability 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 of probability and consequence**
	Railway Line LWS 460m SE and Whisby Nature Park LNR & LWS 570m ESE.		reversing is minimised reducing noise from reversing alarms and speeds reduced. • All site staff and visitors given a Site Induction covering noise and vibration awareness and reporting of noise and vibration emissions. • Regular liaison will be maintained with nearby receptors to ensure they are notified in advance of any activities which may give rise to increased noise levels. • Drop heights when unloading and moving materials around site will be minimised to reduce the potential for generating noise and vibration emissions. Delivery drivers will be informed of these requirements upon entering site. • Site entrance and haul road surfaces will be inspected during daily site checks and repairs made where required to ensure a smooth-running surface for vehicles entering and leaving site, reducing noise	accepted at the landfill, with no history of noise complaints.		

What do you do that can harm and what could be harmed			Managing the risk	Assessing the risk		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability 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 of probability and consequence**
			generated by vehicles moving over potholes and other defects. • Site speed limits to be set and adhered to by all visiting vehicles to site. • Designated haul routes only to be used by delivery and collection vehicles, avoiding noise sensitive routes. • A Noise Impact Assessment (ref. UK.17811589/00) was undertaken by Bureau Veritas as part of the planning application for the proposed activities and it was concluded that the noise impact of the site operations would be below the Lowest Observed Adverse Effect Level at the nearest residential receptors, and that operational traffic generated by the development would have negligible noise impacts on off-site receptors.			
Noise and vibration from mechanical	Workers and visitors to Whisby Landfill site and nearby businesses (quarry 25m N).	Through air and ground.	Processing of IBA using mobile plant will be made during same operational hours as landfill site (as per planning permission). Preventative measures include:	The frequency of exposure is likely to be **low** as:	Noise may cause annoyance to people nearby or passing the site on roads and footpaths.	**Low – if control measures are implemented**

What do you do that can harm and what could be harmed			Managing the risk	Assessing the risk		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability 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 of probability and consequence**
processing plant	Residents of nearby properties (closest 415m NE). Users of nearby roads Thorpe Road (425m E), Eagle Lane (600m SW). Users of nearby footpaths. Wildlife in nearby woodland, fields and designated habitats including Hykeham Railway Line LWS 460m SE and Whisby Nature Park LNR & LWS 570m ESE.		• Processing of IBA waste will only be within landfill site operational hours. • Mechanical processing plant will be sat within IBA Cell 1 substantially below the surrounding ground level, which will reduce noise emissions leaving site. • All site staff and visitors given a Site Induction covering noise and vibration awareness and reporting of noise and vibration emissions. • Regular liaison will be maintained with nearby receptors to ensure they are notified in advance of any activities which may give rise to increased noise levels. • Planned Preventative Maintenance programme for all mobile plant and processing equipment to prevent noises and vibration being created by faulty or malfunctioning equipment. • Drop heights when unloading and moving materials around site will be minimised to reduce the potential for generating noise and vibration	• Site is located within landfill boundary. • IBA processing plant should not create significant additional noise within landfill or additional to background levels of noise and vibration from quarry to north. • Processing plant will be situated within landfill IBA Cell 1, providing a level of noise protection to		

What do you do that can harm and what could be harmed			Managing the risk	Assessing the risk		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability 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 of probability and consequence**
			emissions. Plant operative will be trained in awareness of noise and vibration and mitigating measures. • Site entrance and haul road surfaces will be inspected during daily site checks and repairs made where required to ensure a smooth-running surface for mobile plant moving around site, reducing noise generated by tyres moving over potholes and other defects. • Meteorological conditions should be considered before processing of IBA materials. These activities should be minimised during unfavourable wind conditions, in particular when strong winds are towards downwind receptors, to reduce the distance that noise emissions can be heard. • A Noise Impact Assessment (ref. UK.17811589/00) was undertaken by Bureau Veritas as part of the planning application for the proposed activities and it was concluded that the noise impact of the site operations would be	nearby receptors. • Planned preventative maintenance of plant to reduce potential for noise & vibration emissions.		

What do you do that can harm and what could be harmed			Managing the risk	Assessing the risk		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability 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 of probability and consequence**
			below the Lowest Observed Adverse Effect Level at the nearest residential receptors, and that operational traffic generated by the development would have negligible noise impacts on off-site receptors.			
Noise and vibration from tipping of treated IBA wastes into the landfill cells	Workers and visitors to Whisby Landfill site and nearby businesses (quarry 25m N). Residents of nearby properties (closest 415m NE). Users of nearby roads Thorpe Road (425m E), Eagle Lane (600m SW). Users of nearby footpaths.	Through air and ground	Noise from the tipping of treated IBA wastes into the landfill will only be during the landfill site's normal operational hours. Measures to prevent noise nuisance from the site include: • The IBA wastes will be tipped within engineered IBA Cells 1-4 which will be set substantially below surrounding ground levels and will reduce noise leaving site. • Drop heights will be minimised when tipping waste within the landfill cell to reduce noise and vibration emissions. • All plant and machinery will be maintained in accordance with manufacturer's specifications, to ensure the smooth and effective running of the plant and to detect and fix any faults or	The frequency of exposure is likely to be **low** as: • Site is located within landfill boundary. • Other wastes already tipped at the landfill with no history of noise and vibration complaints.	Noise may cause annoyance to people nearby or passing the site on roads and footpaths.	**Low – if control measures are implemented**

What do you do that can harm and what could be harmed			Managing the risk	Assessing the risk		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability 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 of probability and consequence**
	Wildlife in nearby woodland, fields and designated habitats including Hykeham Railway Line LWS 460m SE and Whisby Nature Park LNR & LWS 570m ESE.		defects which may increase noise or vibration emissions. • All site staff and visitors given a Site Induction covering noise and vibration awareness and reporting of noise and vibration emissions. • A Noise Impact Assessment (ref. UK.17811589/00) was undertaken by Bureau Veritas as part of the planning application for the proposed activities and it was concluded that the noise impact of the site operations would be below the Lowest Observed Adverse Effect Level at the nearest residential receptors, and that operational traffic generated by the development would have negligible noise impacts on off-site receptors.			

Table 4 – Fugitive Emissions Risk Assessment

What do you do that can harm and what could be harmed			Managing the risk	Assessing the risk		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability 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 of probability and consequence**
Dust						
Dust from delivery and storage of IBA waste stockpiles.	Workers and visitors to Whisby Landfill site and nearby businesses (quarry 25m N). Residents of nearby properties (closest 415m NE). Users of nearby roads Thorpe Road (425m E), Eagle Lane (600m SW). Users of nearby footpaths. Wildlife in nearby woodland, fields and designated habitats	Through air – wind borne.	There is the potential for dust emissions to be generated at the site during the delivery, unloading and storage of IBA wastes at the site. The nature of IBA is such that it is a coarse dust formed during the combustion process which is quenched as it leaves the incineration line and is then conveyed to IBA storage areas outside the EfW building. During combustion the smaller dust particles are carried by convection up the stack and will be caught by the APC system. Quenching will also wash out any remaining smaller particle fractions which will then end up being settled out in a tank or lagoon prior to arriving at Whisby. Preventative measures will include: • Wastes will arrive at site in covered or contained loads and waste transfer notes checked. • The IBA will be damp upon arrival. • A speed limit of 20 mph on surfaced roads and 10mph on unsurfaced roads will be in place on site to minimise dust generation.	The frequency of exposure is likely to be **low** as: • Residential receptors are unlikely to be affected at >400m distance. • Prevailing wind direction from SW towards NE, with residential receptors over 400m away to NE.	Dust may cause annoyance to people by settling on clothing, cars and buildings nearby. Potential smothering of flora and fauna inhibiting photosynthesis.	**Low – if control measures implemented.**

What do you do that can harm and what could be harmed			Managing the risk	Assessing the risk		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability 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 of probability and consequence**
	sensitive to smothering including Hykeham Railway Line LWS 460m SE and Whisby Nature Park LNR & LWS 570m ESE.		• Strict waste acceptance procedures at the site will assess wastes upon receipt to ensure they comply with the permit (non-hazardous waste types listed in the permit only), and if waste loads are found to be excessively dusty, they will be dampened down and covered, or where required, rejected from site. • A misting system (Pacific 250 or similar) will be used to dampen down the IBA within Cell 1 as and when is required should it dry out. Multiple 'misters' shall be installed around the perimeter of IBA Cell 1 which will use water (either pumped or brought by bowser) to dampen down the IBA. • Trained staff will assess if wastes are suitable to be sent onto site for processing, or if they should be held in quarantine area and rejected from site as soon as possible. • Visual dust monitoring across site and at permit boundary will be carried out by trained staff as part of daily site inspections. • IBA shall develop a crust when stored which shall make dust generation from wind unlikely. When the IBA is ready to be moved it shall be			

What do you do that can harm and what could be harmed			Managing the risk	Assessing the risk		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability 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 of probability and consequence**
			broken up, during which drop heights will be minimised. • Where necessary, on-site sweeping could be implemented to manage larger debris, dust and particulates but may also cause the mobilisation of smaller particles. Road sweeping vehicles damp down dust and particulates whilst brushing and collecting dust and particulates from the road surface, particularly at the kerbside. • Drop heights will be minimised when loading and unloading waste materials. • All site staff and visitors given a Site Induction covering dust awareness, minimisation and reporting of dust emissions. • Dusty waste, including in stockpiles, will be dampened down or covered where necessary on extremely dry and windy days. • Stockpiles of IBA will be no more than 5m high. • Off-loading to take place within designated area of pad which will limit dust emissions. • Windrows of IBA wastes undergoing maturation will be aligned with the prevailing wind direction to prevent cross-winds causing windblown dust.			

What do you do that can harm and what could be harmed			Managing the risk	Assessing the risk		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability 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 of probability and consequence**
			• The site surface will be tidied and/or dust suppression will be carried out if dusty conditions occur i.e. sprayed with water from a bowser to reduce dust emissions. • If dust emissions are detected beyond the site boundary, the site manager will be informed immediately, and a record made of the incident and actions taken. Depending on the dust source, the site manager will decide the best course of actions, which may include dust suppression by spraying water on stockpiles, site surfaces or machinery, cleaning and tidying site, minimising activities on site that give rise to dust emissions, particularly on windy days, reducing drop heights of wastes when loading/offloading, and covering or containing dusty waste piles. • Further detail of control measures are covered in the Dust & Emissions Management Plan for the site, document ref. 5671-CAU-XX-XX-RP-V-0305.			

What do you do that can harm and what could be harmed			Managing the risk	Assessing the risk		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability 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 of probability and consequence**
Dust from mechanical treatment operations and vehicle movements.	Workers and visitors to Whisby Landfill site and nearby businesses (quarry 25m N). Residents of nearby properties (closest 415m NE). Users of nearby roads Thorpe Road (425m E), Eagle Lane (600m SW). Users of nearby footpaths. Wildlife in nearby woodland, fields and designated habitats sensitive to smothering (including Hykeham Railway Line LWS 460m SE	Through air – wind borne.	There is the potential for dust emissions to be generated at the site during the processing and handling of IBA wastes at the site. Preventative measures will include: • A misting system (Pacific 250 or similar) will be used to dampen down the IBA in Cell 1 as and when is required should it dry out. Multiple 'misters' shall be installed around the perimeter of IBA Cell 1 which will use water (either pumped or brought by bowser) to dampen down the IBA. Misters will be fitted directly to mobile plant where appropriate. • Visual dust monitoring across site and at permit boundary will be carried out by trained staff as part of daily site inspections. • Drop heights will be minimised when loading and unloading waste materials for processing. • All site staff and visitors given a Site Induction covering dust awareness, minimisation and reporting of dust emissions. • Dusty waste will be dampened down or covered where necessary on extremely dry and windy days.	The frequency of exposure is likely to be **low** as: • Residential receptors are unlikely to be affected at >400m distance. • Prevailing wind direction from SW towards NE, with residential receptors over 400m away to NE.	Dust may cause annoyance to people by settling on clothing, cars and buildings nearby. Potential smothering of flora and fauna inhibiting photosynthesis.	**Low – if control measures implemented.**

What do you do that can harm and what could be harmed			Managing the risk	Assessing the risk		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability 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 of probability and consequence**
	and Whisby Nature Park LNR & LWS 570m ESE).		• Off-loading to take place within designated area of pad which will limit dust emissions to receptors. • The processing equipment will be kept cleaned, free of debris or obstruction and maintained, to prevent build-up of waste residue that could give rise to dust emissions. • If dust emissions are detected beyond the site boundary, the site manager will be informed immediately, and a record made of the incident and actions taken. Depending on the dust source, the site manager will decide the best course of actions, which may include dust suppression by spraying water on dusty area, site surfaces or machinery, cleaning and tidying site, minimising activities on site that give rise to dust emissions, particularly on windy days, reducing drop heights of wastes when loading/offloading, and covering or containing dusty waste piles. • Further detail of control measures are covered in the Dust & Emissions Management Plan for the site, document ref. 5671-CAU-XX-XX-RP-V-0305.			

What do you do that can harm and what could be harmed			Managing the risk	Assessing the risk		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability 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 of probability and consequence**
Dust from landfilling of IBA wastes.	Workers and visitors to Whisby Landfill site and nearby businesses (quarry 25m N). Residents of nearby properties (closest 415m NE). Users of nearby roads Thorpe Road (425m E), Eagle Lane (600m SW). Users of nearby footpaths. Wildlife in nearby woodland, fields and designated habitats sensitive to smothering (including Hykeham Railway Line LWS 460m SE	Through air – wind borne.	There is the potential for dust emissions to be generated at the site during the movement and depositing of IBA wastes during landfilling at the site. Preventative measures will include: • A misting system (Pacific 250 or similar) will be used to dampen down the IBA with Cell 1 as and when is required should it dry out. Multiple 'misters' shall be installed around the perimeter of IBA Cell 1 which will use water (either pumped or brought by bowser) to dampen down the IBA. Misters will be fitted directly to mobile plant where appropriate. • Visual dust monitoring across site and at permit boundary will be carried out by trained staff as part of daily site inspections. • Drop heights will be minimised when loading and unloading waste materials for landfilling. • All site staff and visitors given a Site Induction covering dust awareness, minimisation and reporting of dust emissions. • Dusty waste will be dampened down or covered where necessary on extremely dry and windy days.	The frequency of exposure is likely to be **low** as: • Residential receptors are unlikely to be affected at >400m distance. • Prevailing wind direction from SW towards NE, with residential receptors over 400m away to NE.	Dust may cause annoyance to people by settling on clothing, cars and buildings nearby. Potential smothering of flora and fauna inhibiting photosynthesis.	**Low – if control measures implemented.**

What do you do that can harm and what could be harmed			Managing the risk	Assessing the risk		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability 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 of probability and consequence**
	and Whisby Nature Park LNR & LWS 570m ESE).		• If dust emissions are detected beyond the site boundary, the site manager will be informed immediately, and a record made of the incident and actions taken. Depending on the dust source, the site manager will decide the best course of actions, which may include dust suppression by spraying water on dusty area, site surfaces or machinery, cleaning and tidying site, minimising activities on site that give rise to dust emissions, particularly on windy days, reducing drop heights of wastes when loading/offloading, and covering or containing dusty waste piles. • Further detail of control measures are covered in the Dust & Emissions Management Plan for the site, document ref. 5671-CAU-XX-XX-RP-V-0305.			
To Water						
Contaminated surface water run-off from site surface into surface water or groundwater.	Surface waters downstream of site (Pike Drain 120m S) and surface water Bodies/flooded Sand	Surface run-off/overland flow and infiltration down into ground.	Surface water within the engineered landfill cell for the disposal of IBA wastes will be contained within the lined cell and channelled by the drainage blanket to a collection sump prior to pumping out and tankering away to a suitable treatment facility.	**Unlikely** – due to IBA storage, treatment and disposal to be undertaken	Detriment to the quality of surface water could affect fish and other wildlife within	**Low – if control measures are implemented.**

What do you do that can harm and what could be harmed			Managing the risk	Assessing the risk		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability 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 of probability and consequence**
	and Gravel Workings (closest 25m E) and groundwater in Secondary A Aquifer within Superficial Deposits (sand/gravel) and Secondary B Aquifer within Bedrock.		Other preventative measures include: • Fuels and oils fuels stored on site will be in appropriate containers with secondary containment. Spill kits will be available. • Daily site inspections include checking drainage infrastructure and sump working correctly. • Staff trained in spillage procedures, should a spillage occur. Spills will be contained within the engineered landfill cell, with no risk of release to the environment. Spill incidents shall be recorded in the site diary and reported to site management.	within the engineered landfill cell with drainage and sump.	the watercourse (Pike Drain). Adversely affect groundwater quality (underlying aquifers).	
Pests						
Rodents and associated diseases	Workers and visitors to Whisby Landfill site and nearby businesses (quarry 25m N). Residents of nearby properties (closest 415m NE).	Over ground and via watercourses.	IBA wastes to be accepted at the site not likely to attract pests as they do not contain biodegradable or food waste. • Daily site inspections will monitor for the presence of rats and mice and other vermin on-site. • Wastes delivered to site with visible signs of rodent and other pest infestations will be rejected from site at the weighbridge. • If during storage, any wastes are found to contain a rodent infestation, it will be	**Unlikely –** Wastes to be accepted at the site not likely to attract pests.	General nuisance and health risk from rats being vectors for human pathogens (e.g. Weil's disease).	**Low – if control measures are implemented.**

What do you do that can harm and what could be harmed			Managing the risk	Assessing the risk		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability 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 of probability and consequence**
	Users of nearby roads Thorpe Road (425m E), Eagle Lane (600m SW). Users of nearby footpaths. Wildlife in nearby woodland, fields and designated habitats (including Hykeham Railway Line LWS 460m SE and Whisby Nature Park LNR & LWS 570m ESE).		segregated immediately, and a pest control contractor will be appointed. • In general, good housekeeping with regular sweeping and clearing of storage areas is encouraged to prevent build up. Vermin traps to be used around site if necessary. • Relatively short residence times of waste for processing to ensure that wastes are not stored in one place for long periods of time. • If rodents are found, the incident must be reported to the site manager immediately and a record must be made of the actions taken including calling the appropriate pest control service and any offending wastes removed.			
Flies and insects	Workers and visitors to Whisby Landfill site and nearby businesses (quarry 25m N).	Air	IBA wastes to be accepted at the site not likely to attract flies and insects as they do not contain biodegradable or food waste. Measures taken to prevent infestation: • Daily site inspections will monitor for the presence of flies and other pests on site. • In general, good housekeeping with regular sweeping and clearing of storage areas.	**Unlikely –** significant flies are not anticipated.	General nuisance to human receptors.	**Low - if control measures are implemented**

What do you do that can harm and what could be harmed			Managing the risk	Assessing the risk		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability 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 of probability and consequence**
	Residents of nearby properties (closest 415m NE). Users of nearby roads Thorpe Road (425m E), Eagle Lane (600m SW). Users of nearby footpaths.		• Non-conforming wastes will be assessed at the weighbridge and rejected from site. Waste delivered to site with evidence of heavy fly/insect infestations will be quarantined and contained if possible and removed from site as soon as possible. • In the event of a fly infestation being detected at the site, the incident must be reported to the site manager, a record must be made. • In severe cases a specialist pest control contractor will visit and continue to visit on an ad hoc basis, as required.			
Birds scavenging on waste stockpiles.	Workers and visitors to Whisby Landfill site and nearby businesses (quarry 25m N). Residents of nearby properties (closest 415m NE).	Birds flying over other properties.	IBA wastes to be accepted at the site not likely to attract scavenging birds as they do not contain biodegradable or food waste. Measures taken to prevent infestation: • Daily site inspections will monitor for the presence of any bird scavengers on site. • If birds scavenging are detected on site, the incident shall be reported and actions taken recorded. Actions may include tidying/sweeping site of residual waste and covering or containing	**Unlikely** – waste types accepted at site unlikely to attract scavenging birds.	Nuisance to human receptors.	**Low - if control measures are implemented**

What do you do that can harm and what could be harmed			Managing the risk	Assessing the risk		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability 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 of probability and consequence**
	Users of nearby roads Thorpe Road (425m E), Eagle Lane (600m SW). Users of nearby footpaths.		waste and reviewing waste acceptance and storage procedures. • In the event of a severe case of scavenging birds, a specialist pest control contractor may be appointed.			
Mud/Litter						
Mud & debris tracked by delivery and collection vehicles.	Users of nearby roads Thorpe Road (425m E), Eagle Lane (600m SW). Workers and visitors to Whisby Landfill site and nearby businesses (quarry 25m N). Residents of nearby properties (closest 415m NE).	Mud and debris being dragged onto public highway.	IBA waste to be accepted and processed may generate mud and finer particulates could build-up in certain areas on site. Preventative measures include: • Good housekeeping of site surfaces to ensure waste stockpiles are kept clear of site entry and exit. • Vehicle drivers will inspect their vehicle upon leaving the site to ensure tyres and undercarriage free of mud, debris and litter. If mud, debris or litter is detected, driver must remove this before leaving site. • Vehicles leaving site are unlikely to entrain significant quantities of mud or debris. Site access road is very long and any vehicles leaving the site will have a long drive for any residual mud and debris to fall off prior to entering	**Unlikely** – site access road and surfaces will be kept tidy and vehicles checked upon leaving site.	Potential skid risk to drivers on public roads. Unsightly roads covered in mud and debris.	**Low – if control measures implemented.**

What do you do that can harm and what could be harmed			Managing the risk	Assessing the risk		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability 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 of probability and consequence**
			public highways. This road will be maintained and inspected regularly and a road sweeper employed if large amounts of mud and debris are present. • Daily site inspections will check cleanliness of site surfaces and adjacent public roads connecting to site. • If mud and debris emissions are detected leaving the site boundary, the Site Manager will assess the issue and a road sweeper will be employed where necessary to clean public highways. • Any actions taken will be recorded in the site diary.			
Litter	Workers and visitors to Whisby Landfill site and nearby businesses (quarry 25m N). Residents of nearby properties (closest 415m NE).	Via air (windblown) and across ground	It is very unlikely IBA wastes may be a source of litter, however any removed from IBA wastes i.e. unburnt paper, will be contained within a covered skip to prevent windblown litter. Preventative measures include: • The waste skip which may contain litter from processing, will be a covered container stored in a sheltered part of site to prevent wind entraining litter across site.	**Unlikely –** the waste types accepted are unlikely to contain litter.	Nuisance to nearby human receptors in commercial premises and wider environment (agricultural fields and footpaths).	**Low – if control measures implemented.**

What do you do that can harm and what could be harmed			Managing the risk	Assessing the risk		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability 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 of probability and consequence**
	Users of nearby roads Thorpe Road (425m E), Eagle Lane (600m SW). Users of nearby footpaths.		• Storage of unprocessed and processed wastes will be within the landfill cell, sheltered from wind. • Daily site inspection will include checking for windblown litter around site and the site boundary. • Good site housekeeping should be maintained to ensure a tidy site. • Any waste containing loose and light material that have potential to be windblown i.e. unburnt paper, will be stored and covered. • Delivery vehicles will arrive to site covered and sheet-up immediately after leaving the site. • If litter is reported as leaving the site boundary, the site manager will be informed immediately, and the incident recorded in the site diary along with actions taken.			

Table 5 – Visible Plumes Risk Assessment

What do you do that can harm and what could be harmed			Managing the risk	Assessing the risk		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability 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 of probability and consequence**
Potential visible plumes.	Nearby receptors.	Air.	N/A –No routine activities carried out within the IBA Processing Facility will result in visible plumes. The IBA has been quenched accordingly and will not be transported if excessively hot, or excessive residual heat remains.	N/A	N/A	N/A

Table 6 – Accidents Risk Assessment

What do you do that can harm and what could be harmed			Managing the risk	Assessing the risk		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability 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 of probability and consequence**
Spillage of non-hazardous wastes on site	Surface waters (Pike Drain 120m S). Flooded Sand and Gravel Workings (closest 25m E). Groundwater in Secondary A Aquifer within Superficial Deposits (sand/gravel) and Secondary B Aquifer within Bedrock. Site not within a Source Protection Zone (SPZ).	Via ground, over ground.	• All IBA processing and landfilling will be undertaken within the engineered landfill cell which will prevent contamination of the ground below should a spillage of waste occur. • Good daily housekeeping in accordance with procedures outlined in the site's Management System will ensure spills or debris of waste is cleaned up promptly. • Site operatives will be trained to visually inspect the site for any spillages of waste during the course of their working hours, and to report any spillages to site management and implement clean up procedures.	**Unlikely –** site will be operated to ensure good housekeeping and spills of waste are cleared up promptly.	Nuisance to road users if dragged out onto public highway by site traffic.	**Very low – if control measures implemented.**

What do you do that can harm and what could be harmed			Managing the risk	Assessing the risk		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability 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 of probability and consequence**
	Users of nearby roads and footpaths.					
Spillage or leak of fuel or other hazardous liquids from plant and vehicles on site.	Surface waters (Pike Drain 120m S). Flooded Sand and Gravel Workings (closest 25m E). Groundwater in Secondary A Aquifer within Superficial Deposits (sand/gravel) and Secondary B Aquifer within Bedrock. Site not within a Source Protection Zone (SPZ).	Via ground and overland run-off.	Fuels and oils associated with delivery/collection vehicles and maintaining machinery and plant used to move and process wastes on site. Preventative measures include: • If fuels and oils are stored on site, they will be stored with secondary containment on an impermeable surface. • Site vehicles and plant will not be refuelled within IBA Cells 1-4. • Delivery vehicles and machinery and processing plant associated with moving and processing IBA wastes will operate within IBA Cell 1, which is an engineered cell with drainage sump to contain any potential spills or leaks of fuel or oils. • Spill kits (pads, booms, absorbents) on site should there be any leaks or spillages – incident recorded in the site diary and any spill kits are replaced.	**Unlikely** - very unlikely that any accidental spills or leaks of fuels/oils would reach water courses or groundwater due to operations undertaken within engineered IBA Cells 1-4.	Contamination of local water courses or underlying ground or groundwater.	**Low – if control measures are implemented**

What do you do that can harm and what could be harmed			Managing the risk	Assessing the risk		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability 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 of probability and consequence**
	Users of nearby roads and footpaths.		• Regular inspections to check for correct storage of any hazardous liquids (in secondary containment bunds). • All staff involved in waste handling will be inducted in the emergency procedures regarding the handling of spills. Spills must be contained, and drains protected. • Site surfacing surrounded by site drainage infrastructure with oil interceptors. • For larger spillages of hazardous substances, the site has a capacity of temporarily holding surface water run-off within the engineered landfill cell and sump. This will ensure spills and leaks are isolated from discharging into the environment. Larger spills can be contained and pumped off-site for suitable disposal. • Depending on severity of spill, the Environment Agency will be contacted, and incident reviewed by site management.			

What do you do that can harm and what could be harmed			Managing the risk	Assessing the risk		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability 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 of probability and consequence**
Flooding – washing/moving waste IBA materials off-site.	Surface waters (Pike Drain 120m S). Flooded Sand and Gravel Workings (closest 25m E). Groundwater in Secondary A Aquifer within Superficial Deposits (sand/gravel) and Secondary B Aquifer within Bedrock. Site not within a Source Protection Zone (SPZ).	Overland flow of flood water.	• According to the GOV.UK flood risk maps the site is in a Flood Zone 1 which has a Low Probability of flooding from Rivers and the Sea. The site is at Low Risk of Flooding from Surface Water and Very Low Risk of flooding from Rivers and the Sea. The site is also unlikely to be flooded by reservoirs and groundwater. • The IBA processing, storage and landfilling will be undertaken within IBA Cells 1-4, with dedicated drainage installed and will be very unlikely to be affected by flooding due to the landfill engineering and impermeable liner layer. • If flood warnings for the area are issued, the site manager or technically competent manager should consider the possibilities of moving waste materials if they are deemed at risk from flooding, however this is highly unlikely. Wastes stored on site that may have the potential to cause pollution if swept up in flood waters should, if needed, be moved to safer locations.	**Unlikely -** operational area of the site is not likely to be affected by flooding.	Contamination of local water courses/groundwater.	**Low - if control measures are implemented.**

What do you do that can harm and what could be harmed			Managing the risk	Assessing the risk		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability 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 of probability and consequence**
			• Where flooding could reach areas where electrical equipment is used and not possible to move, electricity supplies should be switched off and isolated. • Substances with hazardous properties are contained within sealed containers would be unlikely to leak as a result of partial submersion. • After flood waters have receded, the areas outside the site should be inspected and any materials which have escaped the boundary should be dealt with appropriately.			
Fire of combustible wastes stored on-site, landfill gas or site vehicles/plant.	Workers and visitors to Whisby Landfill site and nearby businesses (quarry 25m N). Residents of nearby properties (closest 415m NE).	Air transport of smoke and vapours.	Fires could occur as a result of arson, vandalism, self-combustion or from sources of ignition. IBA wastes to be accepted at site will have a low organic content and are inherently non-combustible in nature and will not generate significant volumes of landfill gas. Site vehicles and plant subject to regular preventative maintenance in line with site EMS procedures.	**Unlikely** –. IBA wastes to be accepted at site will have a low organic content and are inherently non-combustible in nature and will not generate significant	Smoke, local nuisance to human receptors, risk of fire spreading to other areas or neighbouring properties i.e. adjacent commercial and industrial sites. Potentially contaminated fire waters may pose a threat to nearby	**Low - if control measures are implemented.**

What do you do that can harm and what could be harmed			Managing the risk	Assessing the risk		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability 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 of probability and consequence**
	Users of nearby roads Thorpe Road (425m E), Eagle Lane (600m SW). Users of nearby footpaths. Wildlife in nearby woodland, fields and designated habitats (including Hykeham Railway Line LWS 460m SE and Whisby Nature Park LNR & LWS 570m ESE).		Fire control equipment will be on hand, with major incidents to be dealt with by the Fire Brigade in accordance with site EMS Procedures. No smoking policy on site, except in designated areas. Daily site inspections of internal and external storage areas to identify any signs of smoking or smouldering. Site security at landfill and locked gates out of hours will prevent fires caused by arson or vandalism. Any hot works will be carried out under a 'permit to work' and following any hot works a fire check will be carried out immediately, in the following 1 hour and also at the end of the day. Waste Acceptance at the weighbridge will ensure that no hot loads, smouldering, or smoking waste loads are not accepted. Good housekeeping of wastes and site. IBA Cells 1-4 will have installed drains and sumps which will contain any potentially contaminated fire waters generated in the event of a fire on site being doused by water.	volumes of landfill gas.	surface waters or groundwater.	

What do you do that can harm and what could be harmed			Managing the risk	Assessing the risk		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability 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 of probability and consequence**
			Actions in the event of fire: • Where it is safe to do so, site staff will use on-site firefighting equipment to extinguish fires, including water. • Where possible and safe, combustible materials will be isolated from the fire. Inert materials on site may be used to smother the fire. • Where a fire may have been caused by electricity or is close to electrical equipment, electricity to that area will be switched off and isolated. • Clear directions will be given to the fire service and a member of staff will wait at the entrance to the site to give directions to the fire crew upon arrival. This will ensure that the speediest fire-fighting service is provided. • Members of the public and site staff will be evacuated and prevented from entering the site until the fire is extinguished and confirmed by the Fire Service and if applicable the Environment Agency say it is safe to re-enter.			

What do you do that can harm and what could be harmed			Managing the risk	Assessing the risk		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability 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 of probability and consequence**
			• The emergency procedure will include incident reporting. As part of the environmental management system, incidents will be reviewed by management on a regular basis to identify whether lessons can be learnt, and procedures improved to better prepare for and prevent fires in future.			
Firewater from dousing a fire on-site.	Surface waters (Pike Drain 120m S). Flooded Sand and Gravel Workings (closest 25m E). Groundwater in Secondary A Aquifer within Superficial Deposits (sand/gravel) and Secondary B Aquifer within Bedrock.	Overland flow.	Fires could occur as a result of arson, self-combustion or from sources of ignition. Trained site staff and/or emergency fire crews will use water to extinguish any fires on-site and the resulting firewater has the potential to be contaminated and will be contained and disposed of appropriately. • The fire waters will be contained by drainage system and sump within IBA Cells 1-4 and then be removed from site by tanker and disposed of at an appropriate disposal facility. • Site inspections will be undertaken by staff after a fire to assess quantity of firewater and if further measures are required, such as pumping of firewater out of certain areas.	**Unlikely** – IBA Cells 1-4 will be contained with drainage system and sump.	Pollution of surface water courses and underlying groundwater. Pollution of local habitats hydraulically connected to site.	**Low – if control measure implemented.**

What do you do that can harm and what could be harmed			Managing the risk	Assessing the risk		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability of exposure**	**Consequence**	**What is the overall risk?**
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	Site not within a Source Protection Zone (SPZ).					
Vandalism – damage to site vehicles/plant, landfill infrastructure.	Workers and visitors to Whisby Landfill site and nearby businesses (quarry 25m N). Residents of nearby properties (closest 415m NE). Groundwater in Secondary A Aquifer within Superficial Deposits (sand/gravel) and Secondary B Aquifer within Bedrock.	Over land or by air.	Site location is fairly remote with limited access. Existing landfill site security will prevent access by unauthorised persons. Vehicles will be kept overnight in a secure area with appropriate security measures. Wastes not expected to require exposed active gas or leachate control infrastructure which could be subject to damage.	**Unlikely** – existing landfill security infrastructure in place.	Nuisance to nearby human receptors. Pollution of groundwater through leaks from damaged equipment.	**Low – if control measure implemented.**

What do you do that can harm and what could be harmed			Managing the risk	Assessing the risk		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability 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 of probability and consequence**
Explosion of stored fuel or landfill gas.	Workers and visitors to Whisby Landfill site and nearby businesses (quarry 25m N). Residents of nearby properties (closest 415m NE). Users of nearby roads Thorpe Road (425m E), Eagle Lane (600m SW). Users of nearby footpaths. Wildlife in nearby woodland, fields and designated habitats.	By air.	Fuel is stored with appropriate control to prevent fires or explosions, including a no smoking policy on site. Low organic content of IBA wastes will generate negligible volumes of landfill gas and will not present an explosion risk.	**Unlikely**	Nuisance to nearby human receptors. Pollution of groundwater through leaks from damaged equipment.	**Low – if control measure implemented.**

4.0 CONCLUSION

4.1.1 The risk assessments above enable identification of appropriate mitigation measures to control the amenity and accident risks from the proposed activities. All identified risk mitigation measures will be incorporated within the management system for the site.

4.1.2 The risk assessments indicate that provided the identified risk mitigation measures, which are identified in the tables above, are implemented at the site, the risk of nuisance or pollution from odour, noise and vibration, fugitive emissions including dust, litter, mud and debris, contaminated surface run-off, pests or accidents such as fire and spillages is low.

4.1.3 Also included within this permit application are the following documents relating to potential emissions from the site:

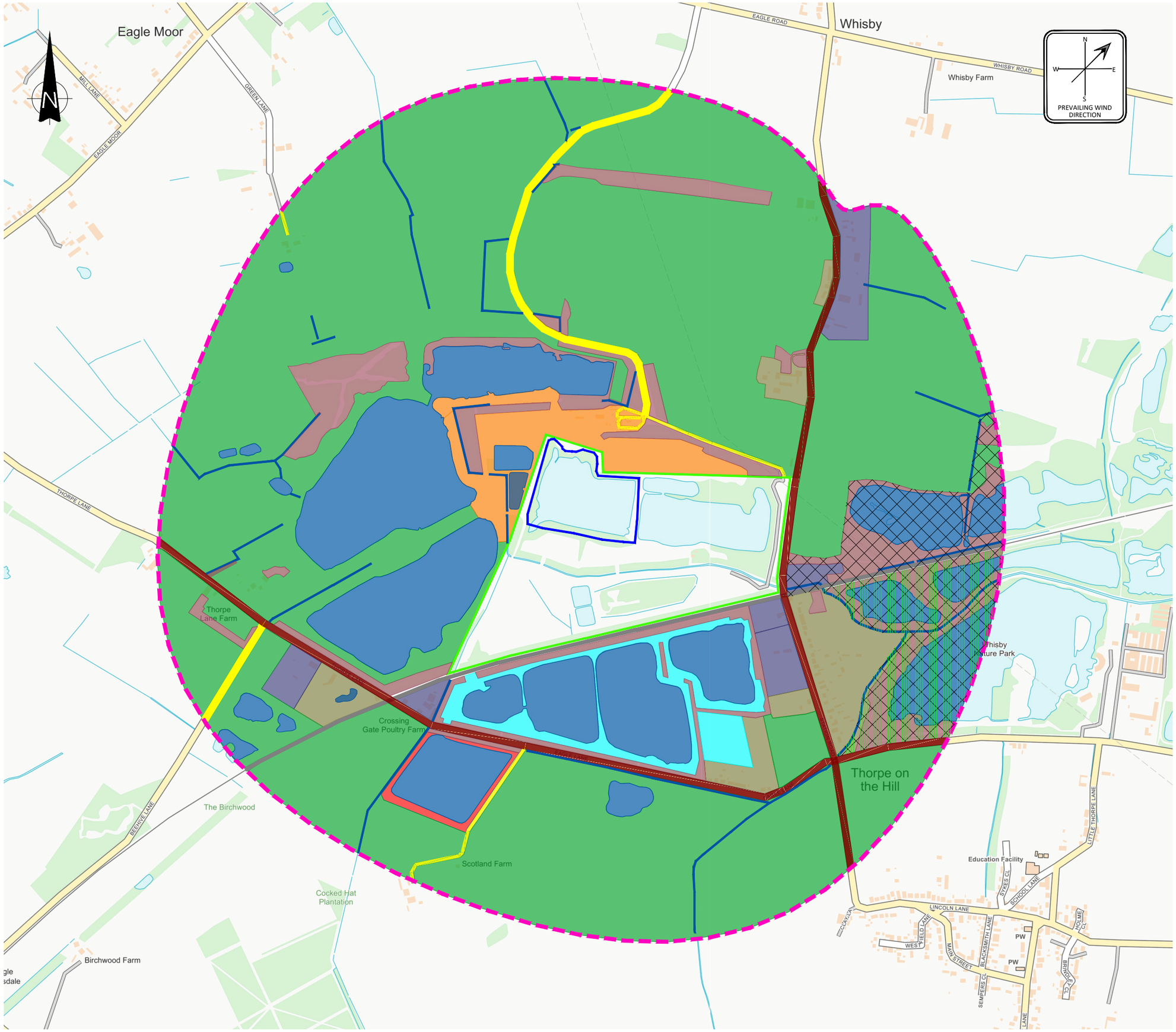
- Odour Management Plan (OMP) ref. 5671-CAU-XX-XX-RP-V-0304; and,
- Dust & Emissions Management Plan ref. 5671-CAU-XX-XX-RP-V-0305.

5.0 REFERENCES

1) Environment Agency guidance 'Risk Assessments for your environmental permit' (last updated 31st August 2022), found at: https://www.gov.uk/guidance/risk-assessments-for-your-environmental-permit.

DRAWINGS

5671-CAU-XX-XX-DR-V-1800 Sensitive Receptors Plan



LEGEND

- LANDFILL BOUNDARY
- IBA PROCESSING FACILITY
- 1000m OFFSET
- SURFACE WATER
- WOODLAND
- COMMERCIAL
- INDUSTRIAL
- RESIDENTIAL
- MAJOR ROAD
- MINOR ROAD
- RAIL
- AGRICULTURAL
- PUBLIC AREAS
- RECREATIONAL
- LOCAL WILDLIFE SITES
- LOCAL NATURE RESERVES

P02	BOUNDARY UPDATED	EJD	SH	SH	04.07.23
P01	ISSUED FOR INFORMATION	EJD	SH	SH	17.05.23
REV	MODIFICATIONS	BY	RE	AP	DATE

PURPOSE OF ISSUE: FOR INFORMATION

STATUS: S2

CLIENT: LINCWASTE LIMITED

PROJECT: IBA PROCESSING FACILITY
WHISBY LANDFILL SITE

TITLE: SENSITIVE RECEPTORS PLAN

DESIGNED BY	DRAWN BY	REVIEWED BY	AUTHORISED BY
EJD	EJD	SH	SH

DATE	SCALE @ A3	JOB REF:	REVISION
16.02.2023	1:10,000	5671	P02

DRAWING NUMBER: 5671-CAU-XX-XX-DR-V-1800

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APPENDIX 1

Environment Agency Habitats Screening Report

Nature and Heritage Conservation

Screening Report: Bespoke Installation

Reference	**EPR/BW2978ID/V009**
NGR	**SK 89646 66717**
Buffer (m)	**150**
Date report produced	**24/01/2023**
Number of maps enclosed	**3**

The nature conservation sites identified in the table below must be considered in your application.

Nature and heritage conservation sites	Screening distance (km)	Further information
Local Nature Reserve (LNR)	2	Natural England
Whisby Nature Park		
Local Wildlife Sites (LWS)	2	Appropriate Local Record Centre (LRC)
Cinder Plot		
Hykeham Railway Line		
Mr Nevile's Pits East, Whisby Pits Complex		
Mr Nevile's Pits West, Whisby Pits Complex		
Ski World, Whisby Pits Complex		
Tunman Wood		
Tunman Wood North		
Whisby Nature Park, Whisby Pits Complex		

Ancient Woodland	2	Woodland Trust
Tunman/Housham Woods		Forestry Commission
Whisby Stocking		Natural England

Where protected species are present, a licence may be required from Natural England or the Welsh Government to handle the species or undertake the proposed works.

The relevant Local Records Centre must be contacted for information on the features within local wildlife sites. A small administration charge may also be incurred for this service.

Please note we have screened this application for protected and priority sites, habitats and species for which we have information. It is however your responsibility to comply with all environmental and planning legislation, this information does not imply that no other checks or permissions will be required.

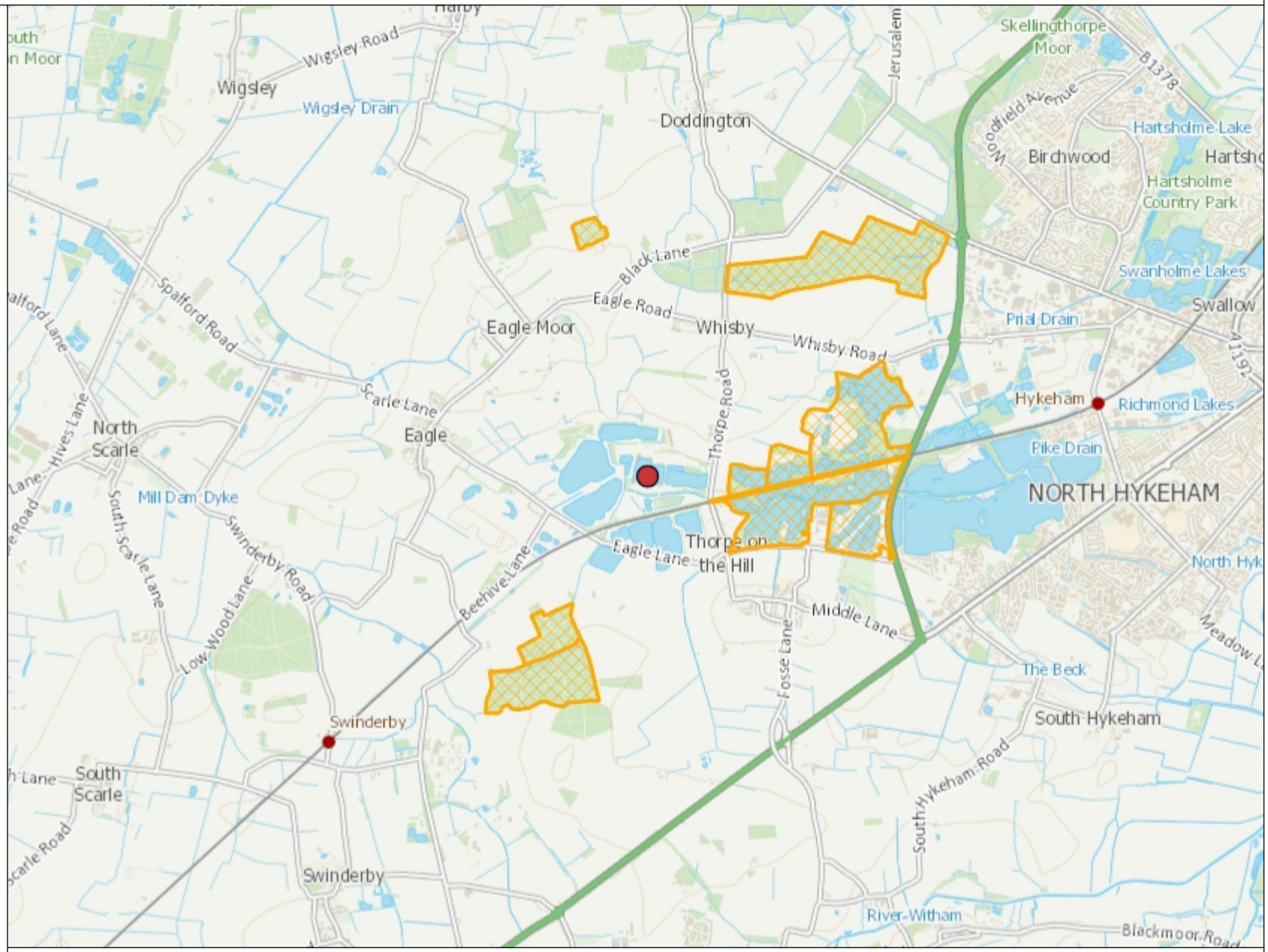
Please note the nature and heritage screening we have conducted as part of this report is subject to change as it is based on data we hold at the time it is generated. We cannot guarantee there will be no changes to our screening data between the date of this report and the submission of the permit application, which could result in the return of an application or requesting further information.

Local Wildlife Sites

Environment Agency

Legend

Local Wildlife Sites



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Metres

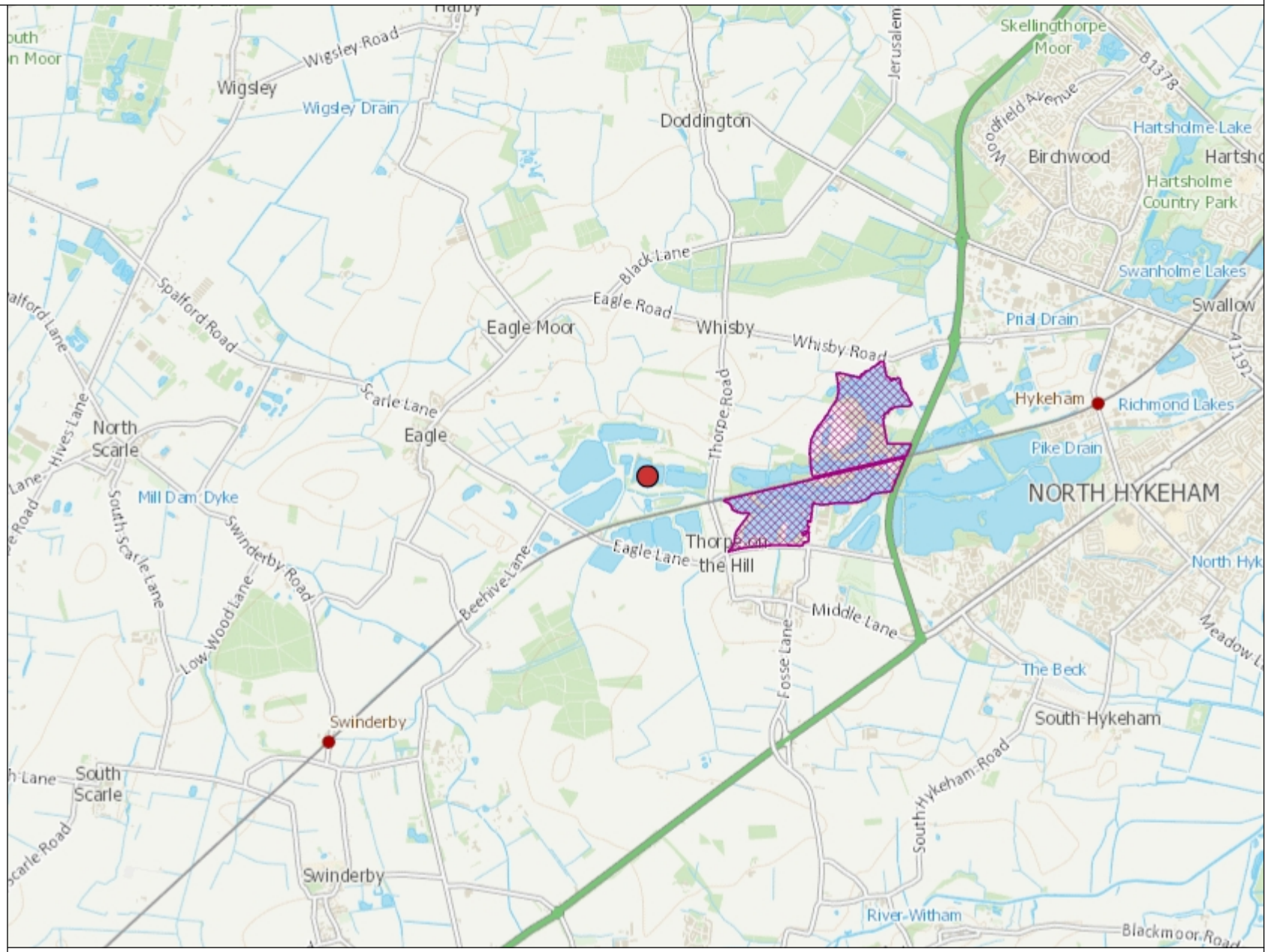
N W E S

Local Nature Reserves

Environment Agency

Legend

LNR (England)



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Metres

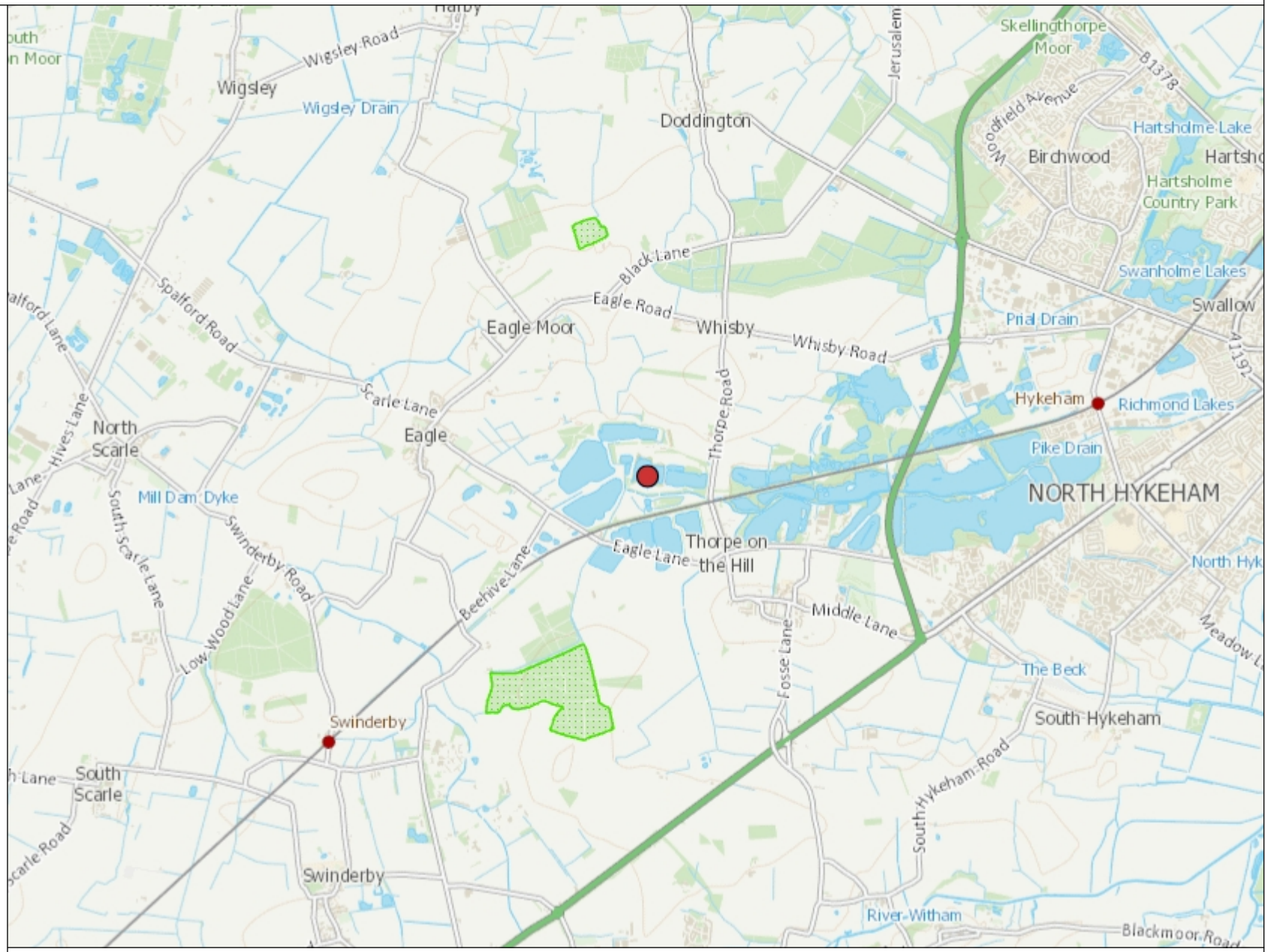
N W E S

Ancient Woodland

Environment Agency

Legend

Ancient Woodland (England)



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Metres

N W E S

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