Britannia Refined Metals

E-Scrap Project

Application Technical Report for an
Installation Activity
EPR/YP3306MF/A001

WSP Environment & Infrastructure Solutions UK Limited – March 2023

Report for

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Document revisions

No.	Details	Date
01	Draft Permit Application	4/10/22
02	Draft Permit Application Rev1	10/10/22

03	Final Permit Application for issue	14/10/2022
04	Updated to incorporate updated information	5/3/2023

Non-technical Summary

Britannia Refined Metals (BRM), plans to redevelop a plot of land next to the site it currently occupies on Botany Road, in Northfleet Gravesend. This Environmental Permit application is required to be submitted as the redeveloped site will accommodate a facility that will accept a specific types of wastes, that will be sampled to characterise metal content, some of which will be shredded. The wastes to be accepted include:

- Wire cables from Automotive Waste *
- Wire cables from shredded Waste Electrical and Electronic Equipment (WEEE)*
- Printed circuit boards *
- Small (shredded) mixed WEEE*
- Smelter grade metal rich fraction of incinerator bottom Ash (IBA). This waste stream is referred to as incinerator bottom Ash (IBA).

Only those wastes identified with an asterisk will be shredded. These wastes are referred to as E-Scrap throughout this application. The wastes will then be removed from the site for export to sites outside of the United Kingdom where they will be smelted to recover the metal fraction. These sites will be operated by Glencore Plc.

There will no chemical treatment of wastes or emissions at the installation.

These wastes to be accepted will be variable in nature and will contain a range of substances some of which are potentially hazardous (including copper fines, lead, antimony, zinc, chromium, certain flame retardants, and persistent organic pollutants). These are therefore classified as hazardous wastes.

The facility will receive up to 25,000 tonnes per annum of these waste streams. The amount of waste received and exported each day will vary though will typically be equivalent to 5 heavy goods vehicles importing or removing waste from the site. It is anticipated the site will mainly operate during daytime hours, though depending on the level of demand for the waste, it may also operate outside of these hours and on weekends.

As storage, blending and treatment (shredding) of hazardous and non-hazardous wastes in the quantities mentioned above are regulated by the Environmental Permitting Regulations 2016 (as amended), BRM must apply to the Environment Agency for an Environmental Permit to allow the site to operate lawfully. To allow the Environment Agency to grant an Environmental Permit for the operation, BRM must demonstrate to the satisfaction of the Environment Agency that the design, operation and management of the installation will comply with ‘Appropriate Measures’ for the waste management activities. Appropriate Measures are the standards the Environment Agency require operators of these facilities to comply with to prevent or where this is not possible, to reduce emissions to the environment and the associated impacts. The Environment Agency will also use Appropriate Measures when setting conditions in the Permit.

The Environment Agency has indicated it will take approximately 12 months from the date of this application to issue the Environmental Permit. To allow the Permit to be issued in the timeframe required, BRM has agreed with the Environment Agency that the application can be made slightly

earlier than is usually the case. On this basis, this Technical Application Report that supports the application describes the anticipated design and operating arrangements for the facility which have not yet been finalised. This report therefore compares the proposed design and operating arrangements to the Appropriate Measures. As the design is progressing and is not finalised and, there are some gaps and limitations in the information provided and some information may be subject to change. This Technical Application Report therefore includes a series of Forward Actions, that set out the additional information to be provided to the Environment Agency in the next few months, to allow all relevant details to be provided to allow the regulator to determine the application.

In summary, this Technical Application Report describes the baseline environment of the facility, reflecting the extensive environmental and engineering assessments that have been undertaken to ensure redevelopment of the site and design of the new facility mitigates environmental sensitivities of the location. It also sets out the approach BRM will take to accepting, sampling, storing, handling, shredding, repackaging and exporting the wastes. These activities will be undertaken within a purpose designed and constructed building.

This information contains extensive information detailing the approaches BRM will take to:

- Accepting, inspecting, storing, handling, treating and packaging for export the wastes received.
- Efficiently using raw materials, water, energy and minimising wastes generated.
- Minimising accident scenarios that may give rise to adverse environmental impacts and controlling their impacts.
- Controlling and monitoring emissions to the environment.
- Environmental management and technical competence of BRM to manage waste activities.

This Report also assesses the potential for nuisance of human receptors together with disturbance and considers effects on environmental receptors and ecology that is protected by legislation.

The application demonstrates that building and the site more generally is being designed and will be operated carefully to ensure that:

- **Only the wastes permitted to be accepted will be received at the installation.** Wastes will only be accepted from suppliers approved by BRM and its owner, Glencore. Detailed processes and procedures will be developed to ensure wastes accepted are:
  - Consistent with the information provided in the legal documentation prepared that must accompany waste consignments.
  - Tested to ensure wastes transferred to the site do not contain radioactive materials typically found in E-Scrap, such as smoke alarms.
  - Inspected to provide additional verification that they are suitable for acceptance. A dedicated area for this purpose will be installed. As E-Scrap will be treated, several stages will be implemented to inspect the waste and remove foreign objects before shredding.

The Appropriate Measures for waste acceptance require extensive sampling and analysis of wastes to confirm physical and chemical characteristics. To minimise the amount of time wastes are stored at the installation, a precautionary approach will be taken. This means that the highest standard of risk and protection will be assigned, particularly for handling E-Scrap, ensuring the highest levels of environmental protection are provided.

BRM will not accept wastes that are not accurately detailed in the legal documentation outlined above and/or that are not stated in the Environmental Permit.

- **Emissions of dust are controlled.** Dust from activities including unloading consignments, sorting waste to remove foreign materials, storing, handling and repackaging wastes in the main building will be retained in the building and supressed, using very fine water sprays to settle airborne dust. Moisture from the spray will be absorbed by the waste.

  E-Scrap will be shredded using proprietary shredding equipment that complies with Appropriate Measures. This activity will generate dust emissions with elevated concentrations of hazardous substances. Dust from handling, sampling and shredding E-Scrap will be extracted for abatement to allow harmful components and fine particles to be abated in a bag filter to ensure air released does not give rise to adverse environmental effects. Air released from the bag filter will then pass through a second filter to remove very fine particulates, to provide additional protection for the environment.

  These technologies are compatible with Appropriate Measures for abatement of dust from the activities proposed.

- **Emissions to water will not contain hazardous substances**. The waste management activities will be undertaken in a purpose designed building that will not generate wastewater or process effluent. The internal area is therefore not connected to sewer or systems that drain to surface water. Storm water run-off from external areas including hard standing, roads, pavements and rooves will drain to the surface water drainage system which will ultimately discharge to the River Thames via the drainage system that currently runs between the site and the adjacent BRM installation that accommodates a lead refining plant. To remove any hydrocarbons from roads and silt washed into the drainage system, two oil separators will be installed to ensure water released in not contaminated. A range of measures will be implemented to ensure harmful substances in the dust will not be deposited on the rooves and hardstanding. This includes containing fugitive emissions within the building, suppressing dust within the building to prevent escape and operating the dust abatement system.

  Opportunities for contamination of flows to surface water have also been considered in the design of the facility. All structures and infrastructure installed at the building have been designed to mitigate flood risks and the drainage system is designed to retain polluted run-off on site. This includes contaminated fire water.

  The main building has also been designed so it is self-bunded to prevent flood water entering and exiting the building and to ensure fire-fighting water will be retained inside.

The site includes basic welfare facilities for workers. Wastewater from the welfare facility will drain to the cess tank, which will be emptied periodically by a licensed contractor.

- **Emissions of noise will not create nuisance or disturb ecological receptors.** All waste management activities will be undertaken within the main building and so noise emissions that will be detectable at the installation will be associated with HGV movements and operation of the abatement plant. The noise screening assessment provided at Appendix J confirms emissions during the operating phase do not require further assessment.

  The local planning authority has reservations that HGV movements to the site may impact on the Swanscombe Peninsula Site of Special Scientific Interest, which is located adjacent to the site. As this activity is not regulated by the Environmental Permit, it is not considered as part of this application.

- **Accidents that may have environmental consequences will be managed.** The site has been developed to ensure that in particular, risks associated with fire and flooding have been accurately characterised in accordance with authoritative approaches and effective arrangements are in place to ensure the environmental impacts of these are mitigated. An assessment of an extensive range of accident scenarios has been undertaken. All accident scenarios are confirmed to be either low or moderate severity.

- **All activities will be managed to a high standard.** BRM operates an Environmental Management System certified to the ISO 14001 standard and has extensive experience operating a facility regulated by the Environmental Permitting Regulations subject to an Environmental Permit. To ensure a high level of protection of the environment is provided, it will also develop a comprehensive suite of Operating Techniques to ensure compliance with the conditions included in the Permit. These will be subject to periodic audits by the Environment Agency. In addition, BRM will also implement a Competence Management Scheme developed by the Environmental Services Association and Energy and Utility Skills, to ensure the organisation achieves high standards of technical competence for waste management activities.

- **Raw materials and energy will be used efficiently.** The process has been designed to minimise energy consumption and generate electricity using photovoltaic cells. The facility will also be designed to minimise the requirement for raw materials including chemicals and water. This will also minimise waste arisings.

- **The effects of emissions are acceptable.** An assessment of the impact of emissions to air and arrangements for managing fugitive emissions of dust to air have been undertaken. These confirm that:

  - Releases to air via the abatement system will not give rise to unacceptable impacts to receptors and emissions will be below the thresholds for emissions for dust published by the Environment Agency.

  - Control measures to manage releases of dust from the building will be effective and will not give rise to unacceptable environmental impacts.

The facility will be designed and operating techniques will be developed to prevent deposition of dust on hardstanding within the facility that will be released to water. Interceptors will also be

installed to collect silt and any hydrocarbons arising from vehicle movements deposited on the site road. On this basis, BRM considers run off released to water will not be contaminated or give rise to adverse environmental impacts and, consistent with other waste sites regulated by Environmental Permits, does not propose to monitor emissions to water.

Contents

Appendix J - Noise Screening Assessment

Appendix K - Operating Techniques Summary

Appendix L - Fire Prevention Plan

Appendix M Emissions Inventory (Air)

1. Introduction

1.1 Background and Context to the application

Britannia Refined Metals (BRM), proposes to operate an installation (the E-Scrap Facility) that will accept, shred and export from the site a limited range of waste streams comprising the following:

- Wire cables from Automotive Waste *
- Wire cables from shredded Waste Electrical and Electronic Equipment (WEEE)*
- Printed circuit boards *
- Small (shredded) mixed WEEE*
- Smelter grade metal rich fraction of incinerator bottom Ash (IBA). This waste stream is referred to as incinerator bottom Ash (IBA).

*These waste streams are referred to as E-Scrap throughout this application.

The facility is sized and specified to receive up to 25,000 tonnes of waste per annum, based on the facility typically importing up to 125 tonnes of waste per day by heavy goods vehicles. All wastes will be imported during weekday hours, though the site may be required to operate outside of these hours and on weekends according to supply chain requirements.

The waste streams will be sourced from suppliers approved by BRM and its owner, Glencore. The wastes will typically have been subject to pre-sorting by suppliers to minimise the prospect of non-conforming wastes being transferred to the site. All waste streams imported to the installation will be subject to visual inspection to inform the decision to accept the wastes and to enable removal of foreign materials. IBA, waste streams that cannot be visually inspected, that have not previously been accepted at the installation and/or wastes transferred from new suppliers, will also be analysed before being formally accepted.

E-Scrap will be treated at the installation. It will be shredded to support further offsite processing and to enable composite samples to be taken for analysis to determine the fractions of specific metals in the consignment for commercial purposes. There will no chemical treatment of wastes or emissions at the installation. All accepted waste streams will be bagged or transferred to sealed intermodal containers at the installation and exported to sites operated by Glencore outside of the United Kingdom.

On the basis of the design capacity of the proposed infrastructure, the waste classifications of the E-scrap and the physical treatment (shredding) undertaken, the proposed activities regulated by the Environmental Permitting Regulations 2016 (as amended) are set out at Table 1.1 below. The approach taken to defining the regulated activities outlined in Table 1.1 is consistent with the advice provided by the Environment Agency in pre-application discussions.

Table 1.1 Regulated activities

Waste Stream	Waste type/classification	Regulated Activity	Activity Description
Main regulated activity			
E-Scrap	Hazardous WEEE and automotive Wire, WEEE and IBA	Section 5.3. Part A(1)(ii)	Physico-chemical treatment of waste
Directly associated regulated activities			
E-Scrap	Hazardous WEEE and automotive wire	Section 5.3. Part A(1) (iiii)	Blending or mixing of waste prior to undertaking activities listed in Section 5.3 or in Section 5.1 of the Environmental Permitting Regulations
E-Scrap	Hazardous WEEE and automotive wire	Section 5.3. Part A(1) (iv)	Repackaging of waste prior to undertaking any activities listed in Section 5.3 or Section 5.1 of the Environmental Permitting Regulations
E-Scrap	Hazardous WEEE and automotive wire	Section 5.6	Temporary storage of hazardous waste with a total capacity exceeding 50 tonnes pending any activities listed in Sections 5.1, 5.2, 5.3 and paragraph (b) of Section 5.6 of the Environmental Permitting Regulations.
IBA	Hazardous waste	Section 5.6 (As above)	Temporary storage of hazardous waste with a total capacity exceeding 50 tonnes pending any activities listed in Sections 5.1, 5.2, 5.3 and paragraph (b) of Section 5.6 of the Environmental Permitting Regulations
Copper Scrap	Non-hazardous waste and WEEE	Section 5.4. Part A(1) (v)	Section 5.4 (a)(v) and (b)(iv) - Treatment in shredders of metal waste, including WEEE and end of life vehicles and their components
Copper Scrap	Non-hazardous waste		Waste Operation - Metal Recycling Site Metal recycling site - mixed metals
Other directly associated activities: Import and unpacking of imported wastes (as detailed below) Monitoring and release of abated emissions to air Release of uncontaminated storm water run-off to surface water Bagging and loading of wastes for export.			

1.2 Waste streams for Acceptance

The waste to be accepted at the installation outlined above will be variable in nature and contain a complex and heterogenous mix of product types and materials, some of which are potentially hazardous (including copper fines, lead, antimony, zinc, chromium, certain flame retardants, and persistent organic pollutants).

Details of the waste streams for acceptance are summarised below.

Table 1.2 Proposed Wastes for Acceptance

Waste stream types	List of Waste Code	LoW Description	Waste classification
E-Scrap			
Wire cables from shredded Waste Electrical and Electronic Equipment (WEEE)	19 02 04*	Premixed wastes composed of at least one hazardous waste	Absolute hazardous
Printed circuit boards	16 02 15*	Hazardous components removed from discarded equipment	Absolute hazardous
Small (shredded) mixed WEEE	19 02 04*	Premixed wastes composed of at least one hazardous waste	Absolute hazardous
Small size Wire cables from Automotive Waste	19 02 04*	Premixed wastes composed of at least one hazardous waste	Absolute hazardous
Small sized wire cables (from other industries)	17 04 10*	Cables containing oil, coal tar and other hazardous substances	Mirror hazardous
Small sized wire cables (from other industries)	17 04 11	Cables other than those mentioned in 17 04 10	Mirror non hazardous
Small sized wire cables (from other industries)	19 10 02	Non-ferrous waste	Absolute non hazardous
Simple Wastes			
Large Size Wire cables from Automotive Waste (whole wiring looms)	19 02 04*	Premixed wastes composed of at least one hazardous waste	Absolute hazardous
Large wire cables (from other industries)	17 04 10*	Cables containing oil, coal tar and other hazardous substances	Mirror hazardous
Large wire cables (from other industries)	17 04 11	Cables other than those mentioned in 17 04 10	Mirror non hazardous
Copper Scrap	17 04 01	Copper, bronze, brass	Mirror non hazardous
Copper Scrap	19 10 02	Non-ferrous waste	Absolute non hazardous
Copper Scrap	19 12 03	Non-ferrous metal	Absolute non hazardous
Complex Wastes			

Waste stream types	List of Waste Code	LoW Description	Waste classification
Incinerator Bottom Ash (Smelter Grade Concentrate)	19 12 11*	other wastes (including mixtures of materials) from mechanical treatment of waste containing hazardous substances	Mirror Hazardous

All waste will be derived from the UK and exported to international destinations for onward processing at sites operated by Glencore. Glencore is a major recycler of end-of-life electronics, lithium-ion batteries, and other critical metal-containing products including copper, nickel, cobalt, zinc and precious metals.

For the purposes of this application, these waste streams are classified into three broad categories:

- **Simple wastes** that can be visually inspected. These will be subject to manual sampling though will not be subject to physical treatment (shredding). These wastes will include baled copper and whole wire looms from vehicles.
- **E-Scrap and wastes** that can be visually inspected that will be subject to shredding and sampling. These will include:
  - Shredded small items of mixed WEEE
  - Circuit boards
  - Small pieces of wire cable from WEEE
  - Small items of copper scrap
  - Small pieces of wire cables from automotive wastes
- **Complex wastes** requiring more detailed checks to confirm these are suitable for acceptance. These will include the smelter grade concentrate (metal rich fractions) of Incinerator Bottom Ash (IBA) wastes and wastes that cannot be visually inspected.

1.3 Overview of the proposed activities

The current proposals for the activities to be undertaken at the site include the following, which will all be undertaken within an enclosed building to be built at the site:

- Import, accepting, storing and transferring from the installation, a limited range of waste streams as described above. Wastes will be received and exported as bagged and loose bulk consignments.
- Inspection of the documentation for wastes and physical inspection before being formally accepted for storage and/or treatment, together with preparing documentation for transfer offsite.
- Screening and shredding E-Scrap to reduce the particle size, to enable representative samples to be created for analysis of material precious metal content. Composite samples will be extracted by an automated system during the shredding process.

Analysis is required to enable commercial valuation of the metals content, pending export of the processed materials. This information is required to determine the value of the waste streams accepted.

- Bagging or bulk loading of waste for export from the site in sealed containers.
- Collection of dusts generated from storage and physical treatment of wastes. Air extracted from these areas will be extracted and transferred to a Filter House for abatement before release to the environment, using technologies consistent with Appropriate Measures. The dust collected will be exported for recovery.
- To supress elevated levels of dusts associated with activities such as unloading, storing and bagging wastes, a misting system will be operated when required. This will essentially spray a very fine mist that when attracted to dust particles will increase particle weight, settling them from the air. The very fine spray and controlled release rate means this will not produce waste sludge or wastewater; the very low volume of water being absorbed in the components. The misting system will also be able to provide a more water dense spray, though this will not be administered at levels that will generate run-off.

The activities will not give rise to release of trade or process effluent to water or sewer and surface water run-off from the facility will release to surface water. Sanitary wastewater will be generated from welfare facilities. This will be retained at site and periodically removed for offsite treatment.

Installation Boundary

The envisaged Installation Boundary is presented at Figure 1.1 below and accommodates all activities outlined at Table 1.1. The access/egress point to the wharf and flood defences (managed by the Environment Agency) and the associated access road are excluded from the boundary. BRM will install a sheet piled flood wall and associated flood gate along the eastern length of the installation boundary on the seaward side of the existing flood wall.

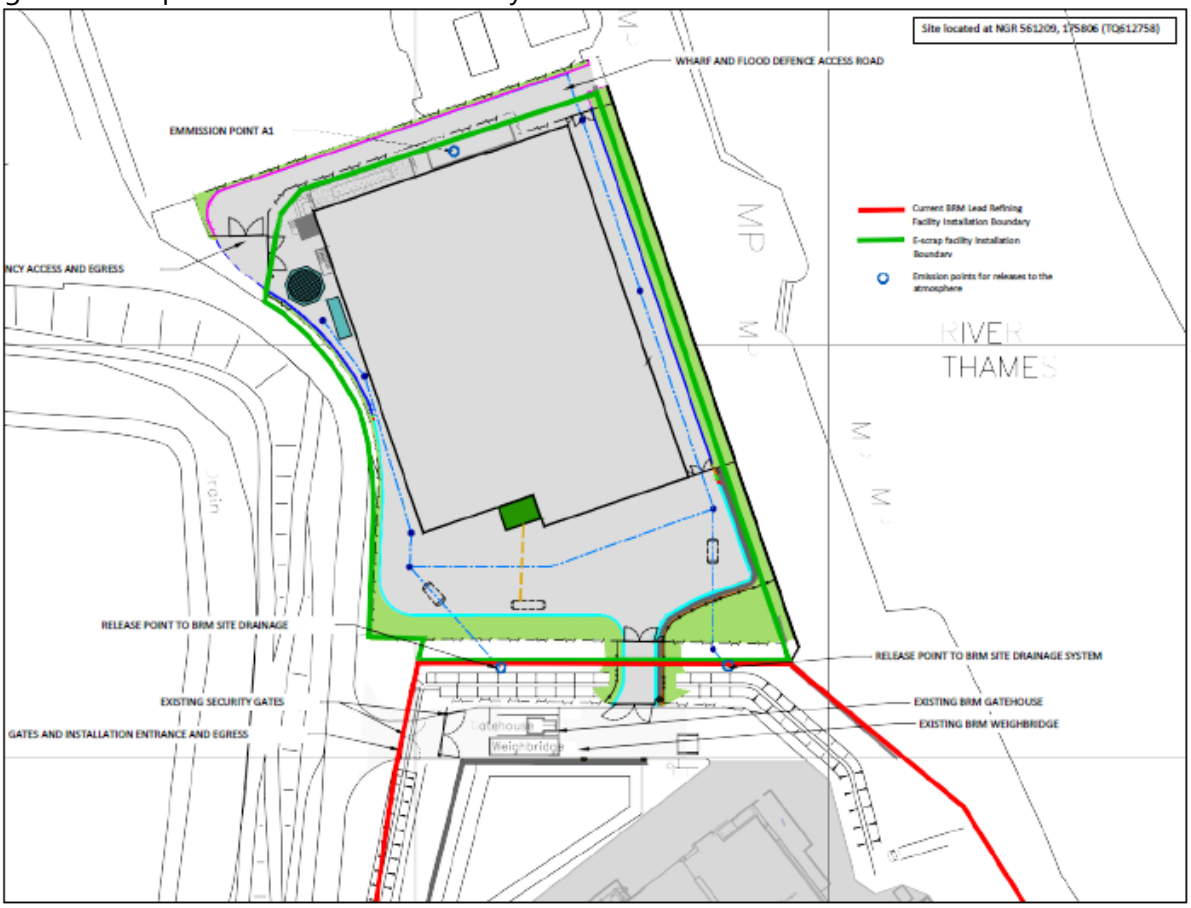
As the site entrance, exit, weighbridge and gate house are regulated subject to Permit EPR/BM4945IW, granted to BRM for lead refining facility activities, these arrangements are also excluded from the installation boundary, though it is acknowledged this position may be required to be reviewed. As agreed with the Environment Agency the following activities will be undertaken at an off-site location and are therefore not included in the Installation Boundary:

- Analysis of wastes where required to support waste acceptance processes will be undertaken at an off-site laboratory.
- Maintenance of unfixed items of plant and machinery and storage of associated equipment will be undertaken at offsite engineering facilities.
- Business administration.

Surface water from the E-Scrap will discharge into the swale located along the southern boundary of the site. It is understood the swale receives flows from other sources offsite and also serves the lead refining plant and delineates the northern boundary of the lead refining installation.

It should be noted there is no connection between the waste activities outlined in this application and activities associated regulated by Permit EPR/BM4945IW.

Figure 1.1 Proposed Installation boundary



1.4 Matters agreed with the Environment Agency in Pre-application Discussions

Prior to this application being submitted, BRM has engaged with the Environment Agency to discuss a number of matters that have informed this application. These matters include the following:

- The Environment Agency agreed with the approach taken in this application to identifying and defining Best Available Techniques and Appropriate Measures. These requirements are referred to collectively as Appropriate Measures in this application.
- The Environment Agency has confirmed activities outlined above (laboratories, analysis of wastes, business administration and plant maintenance) are not required to be included within the installation boundary for this facility.
- The Environment Agency agreed in principle and based on the high-level information presented, the approaches to waste acceptance and layout proposed are consistent with current Environment Standards.
- The Environment Agency agreed to the risk-based approach for waste acceptance, sampling and storage outlined in Section 3.2 below.

- The Environment Agency agreed to a phased approach to submitting information to support the Permit Application (see further below). Based on timescales for determining the application outlined in these discussions, it was confirmed submission of this application would enable the Permit to be granted to enable acceptance of first waste in October 2023. Further detail is provided below (Timing of the Application).

Timing of the Application

The timing of this application was agreed in principle to enable the facility to be introduced into service in October 2023, therefore the original application was submitted in October 2022. At this time, design of the facility was progressing, engineering assessments were ongoing and at various stages of maturity. BRM therefore agreed with the Environment Agency in pre-application discussions that, given the typical timescale for this milestone to be achieved and the flexibility that the determination process affords, that the application will be submitted with the most reliable confirmed information at the time of submission, with additional information to be provided to address any known gaps or limitations will be provided during the determination process. Significant additional information has been developed to support the Permit application since this time. As BRM has not yet been notified the Permit application is determined as Duly made or that it has been issued for internal or external consultation by the Environment Agency, the updated information is consolidated in this updated draft of the Application Technical Report. An Explanatory Note signposting the changes has also been submitted to the Environment Agency alongside this updated report.

The design of the facility is not yet finalised. On this basis, a Forward Action Plan confirming key areas in which further detail and clarifications are required to enable the application to be determined has been developed. The Forward Actions are identified throughout this document and are consolidated in the Forward Action Plan presented at Appendix A. It is acknowledged that the Environment Agency may request further additional information during the determination process.

Operating Techniques

A suite of Operating Techniques will be developed to ensure effective control and management of activities associated with operations at the facility, extending beyond those regulated by the Environmental Permit. Extensive consideration has been given to developing and implementing operating techniques for all activities, although finalisation of the matters to be addressed and arrangements to be developed cannot be completed until confirmation of some outstanding design matters. These include the final layout of the facility and design and specification of infrastructure, plant and equipment. Details of the Operating Techniques to be developed are included at Appendix K.

Appropriate Measures

The Environment Agency uses the term ‘Appropriate Measures’ to cover the wide range of requirements which are applicable to permitted operations which include but not limited to:

- Best Available Techniques (BAT) for waste installations facilities.
- Necessary measures for waste operation facilities.
- Best Available Treatment, Recovery and Recycling Techniques (BATRRT) for the treatment of WEEE.

Appropriate Measures are the standards that operators should meet to comply with their environmental permit requirements. The Environment Agency has published Appropriate Measures for WEEE waste and as such this guidance has been used as the primary guidance document for informing site design and the development of operating techniques.

The majority of material planned for acceptance at the facility is WEEE waste or WEEE related components. For example, the facility intends to accept wire looms (electronic cabling) which has been removed from automotive wastes, this could be considered an automotive waste but as it is an electronic cable (a WEEE component) the WEEE waste Appropriate Measures are considered to apply. Additional assessment against the primary guidance and reference documents such as the BAT conclusions for Waste Treatment has also been carried out where appropriate.

Summary tables confirming the relevant Appropriate Measures/BAT requirements and a summary of compliance status is also provided at the end of each section.

Table 1.4 summarises the core guidance documents that have been taken into account in relation to the design of arrangements for specific waste streams. These references will also be used to inform operating techniques and management arrangements to be developed for the facility.

Table 1.4 Core References informing design considerations and operating techniques for specific waste streams

Waste stream types	Waste Type	Reference Source
WEEE waste comprising: Printed Circuit boards Small shredded mixed WEEE	Hazardous waste	Appropriate Measures for WEEE
Automotive waste – (Segregated WEEE components consisting of Cables/Wiring looms) Large Size/intact Wire cables from automotive waste Small Size/shredded Wire cables from automotive wastes Large Size/intact Wire cables from other industries Small Size/shredded Wire cables from other industries	Hazardous or non-hazardous according to source(1)	Appropriate Measures for WEEE
Wire cables from shredded WEEE	Hazardous or non-hazardous according to source	Appropriate Measures for WEEE
IBA	Hazardous non-WEEE waste	BAT Conclusions for Waste Treatment
Copper	Non-hazardous	Appropriate Measures for Inert and Non-hazardous Wastes BAT Conclusions for Waste Treatment

(1) For example Cables sourced from Construction and Demolition under EWC code 17 04 11

Table 1.5 lists all relevant guidance documents and reference sources that have informed the information requirements for this Permit application.

Table 1.5 Authoritative references relating to regulatory standards

Title	Publication details
Sectoral Guidance	
BAT Reference Document for Waste Treatment including BAT Conclusions for Wastes Treatment.	Pollution Prevention and Control Bureau 2018
Non-hazardous and inert waste: appropriate measures for permitted facilities https://www.gov.uk/guidance/non-hazardous-and-inert-waste-appropriate-measures-for-permitted-facilities	Environment Agency, 12th July 2021
Waste electrical and electronic equipment: appropriate measures for permitted facilities https://www.gov.uk/guidance/waste-electrical-and-electronic-equipment-weee-appropriate-measures-for-permitted-facilities	Environment Agency, 13th July 2022
Classify Different Types of Waste https://www.gov.uk/how-to-classify-different-types-of-waste/electronic-and-electrical-equipment	Environment agency, no publication date specified
Technical Guidance WM3: Waste Classification - Guidance on the classification and assessment of waste	Environment Agency, Natural Resources Wales and Scottish Environment Protection Agency, October 2021
Generic Guidance	
Risk assessments for specific activities: environmental permits https://www.gov.uk/government/collections/risk-assessments-for-specific-activities-environmental-permits	Environment Agency, 2nd February 2016
Air emissions risk assessment for your environmental permit https://www.gov.uk/guidance/air-emissions-risk-assessment-for-your-environmental-permit	Environment Agency, 5th July 2022
Energy efficiency standards for industrial plants to get environmental permits https://www.gov.uk/guidance/energy-efficiency-standards-for-industrial-plants-to-get-environmental-permits	Environment Agency, 15th July 2019
Fire prevention plans: environmental permits https://www.gov.uk/government/publications/fire-prevention-plans-environmental-permits	11th January 2021
Approach to assessing noise emissions and managing noise https://www.gov.uk/government/publications/noise-and-vibration-management-environmental-permits/noise-and-vibration-management-environmental-permits	No publication date specified. Consulted whilst preparing this application.
EPR H4: Odour Management	Environment Agency, March 2011
Approach to assessing noise emissions and managing emissions https://www.gov.uk/guidance/control-and-monitor-emissions-for-your-environmental-permit	17th May 2021

Title	Publication details
EPR H5: Site Condition Report	Environment Agency, May 2013
Containment Systems for the Prevention of Pollution. Secondary, Tertiary and other Measures for Industrial and Commercial Premise	CIRIA, 2014

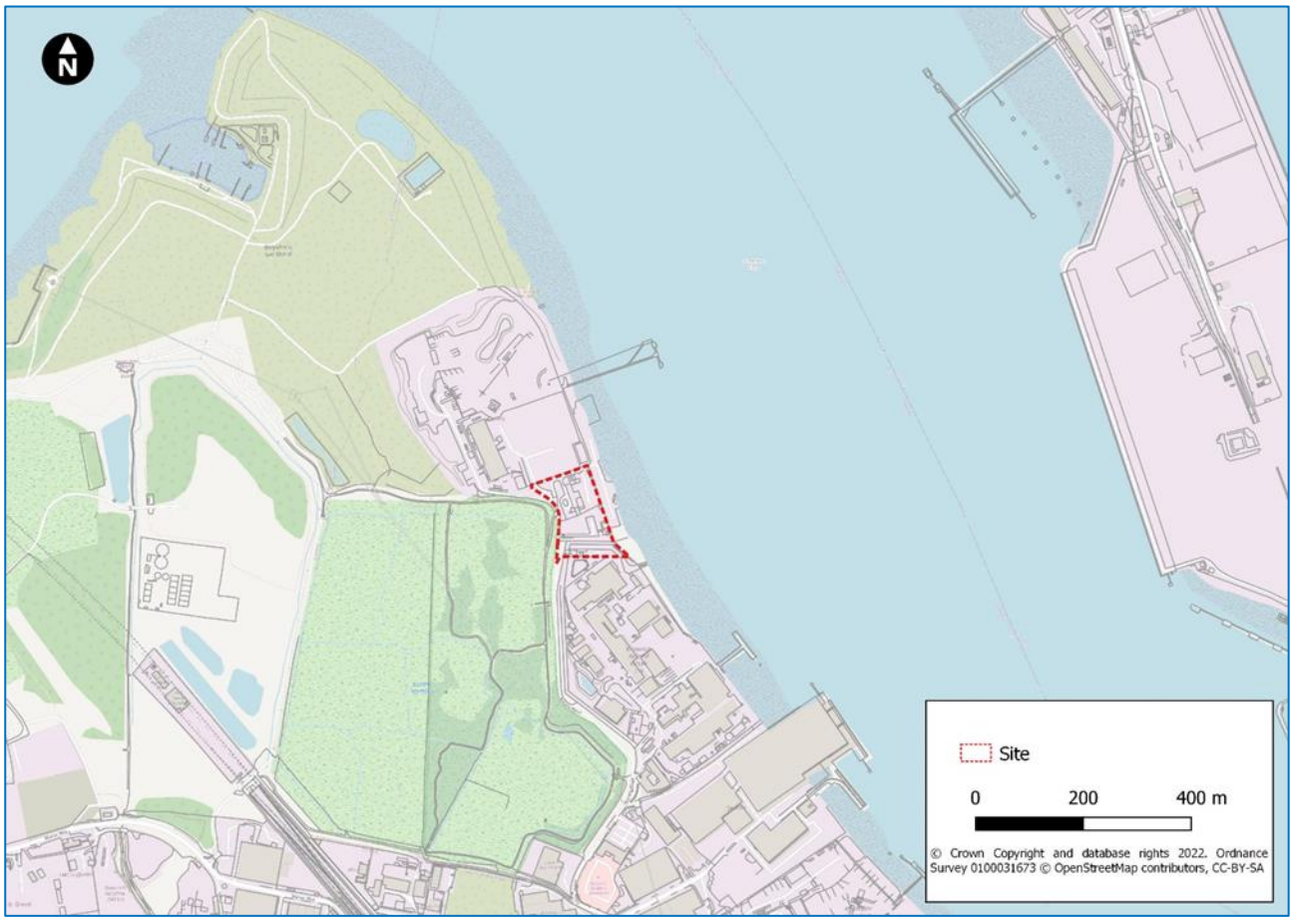
Forward Action Plan – Installation

There are no forward actions relating to the Installation, though a finalised site layout drawing will be provided in the event of any modifications, though these are not currently anticipated.

2. Site location and sensitivity

The E-Scrap facility is located at Manor Way, Northfleet, Gravesend, Kent, DA11 9BB at National Grid Reference 561209, 175806 (TQ612758). The site is owned and will be occupied exclusively by BRM and the footprint of the site is identified within the red boundary at Figure 2.1. The installation boundary is confirmed at Figure 2.1 above and is sited within the green boundary. The site comprises approximately 1.25 hectares, the installation is approximately 1.1 hectares. It is situated on the western edge of Gravesham Borough close to the administrative boundary of Dartford Borough.

Figure 2.1 Site Location



Nearest residential properties can be found south of the A226/ Galley Hill Road, some ~750m south of the proposed development site.

Access to and from the site is currently via an existing access point into the wider BRM site, located immediately south of the site off Manor Way (an adopted part of the highway, which is in BRM ownership), and then to the wider highway network via Lower Road and the A226.

The site is bounded to the east by the tidal River Thames and to the south by the wider operational BRM facility, which extends approximately 350m southwards - beyond that is the industrial Seacon Terminals Ltd freight facility. The river frontage is characterised by hard engineered flood defences and intertidal mud flats.

To the west (and on the opposite side of Manor Way a private highway that serves commercial and industrial facilities), is the freshwater Botany Marsh, which comprises a network of drainage ditches, ponds, former grazing marsh, rough grassland and scrub. The marsh is partly owned by BRM, and the company has a management plan in place to maintain the environmental value of the land owned by them.

Immediately north of the site are other commercial sites fronting the river, which include Northfleet Wharf and a Concrete Plant.

2.1 Ecology

There are no statutory protected environmental designations within the site. Baseline and ecology survey work has been undertaken. A Preliminary Ecological Appraisal (PEA), incorporating an Extended Phase 1 Habitat Survey, was carried out across the site in March 2022. The potential presence of otters, water voles, bats, reptiles, great crested newts and invasive plants was identified during the PEA. As such, further, more detailed survey work was carried out to evaluate the presence/ absence these species.

The site does not accommodate any statutory or non-statutory ecological designations, it is located within the risk zone for the Swanscombe Peninsula SSSI. The site supports a range of habitats, comprising buildings and hard standing, amenity and improved grassland, scattered trees, patches of dense and scattered scrub, and standing water in the form of a wet ditch along the western boundary. Whilst it was considered that the site could hold some value for protected bat, great crested newts, otter, water vole and reptile species, further detailed ecological studies have confirmed that except for some very limited bat activity within the site, the site is not host to any other protected species. In respect of bats (and other species), it is considered that with the incorporation of mitigation measures (details to be agreed with Kent County Council), the proposed development of the E-Scrap facility would have negligible ecological effects.
Details of statutory designated sites located within 10 km of the Installation are summarised at Table 2.1 and identified at Figure 2.2, together with an assessment of the effects associated with activities to be undertaken the facility

Ramsar and SPA sites have been identified within 10 km of the installation, though no Special Areas of Conservation areas are identified. The nearest SAC is greater than 13 km to the southeast.

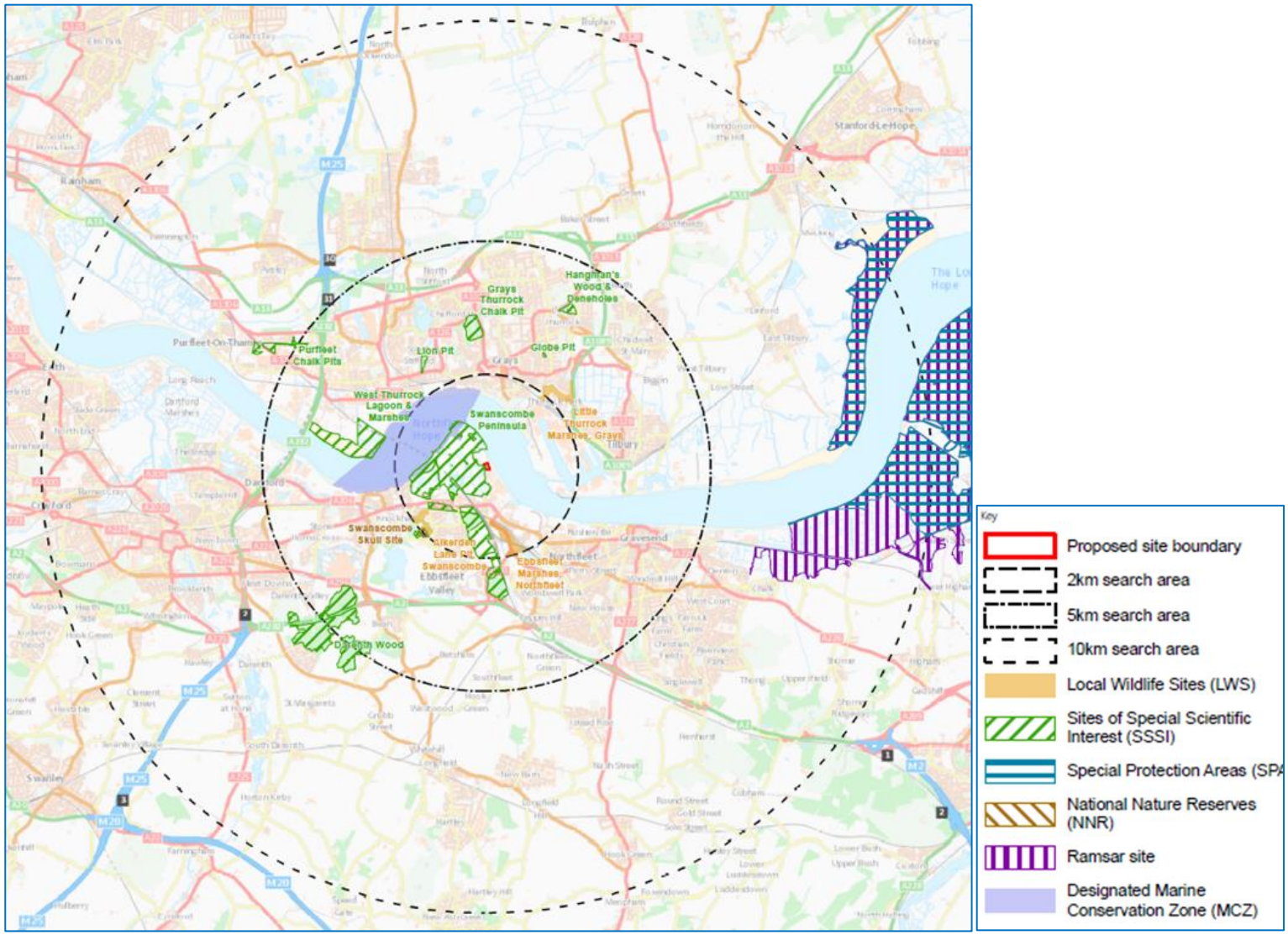
Table 2.1 Statutory Designated Sites within 10km of the installation

Site name	Designation	Location	Summary of interest features
Swanscombe Peninsula	SSSI	<0.1km west	A mosaic of wetland, grazing marsh and saltmarsh that provide suitable habitat for nationally important populations of plants, assemblages of invertebrates and assemblages of breeding birds all associated with these habitats.
Swanscombe	MCZ	1.1km northwest	The seabed and intertidal mudflats of the site are composed largely of shells, pebbles, sands and mud which support a nationally important population of tentacled lagoon worms.

Site name	Designation	Location	Summary of interest features
Swanscombe Skull Site	National Nature Reserve	1.9km southwest	The only site in the UK to yield unquestionable Lower Palaeolithic human remains. The site is also one of the richest Pleistocene vertebrate localities in the UK. Part of the Swanscombe skull site SSSI.
Swanscombe Skull Site	SSSI	1.9km southwest	The only site in the UK to yield unquestionable Lower Palaeolithic human remains. The site is also one of the richest Pleistocene vertebrate localities in the UK.
Lion Pit	SSSI	2.5km northwest	This site is designated for geological and archaeological features that include a complex sequence of Pleistocene Thames deposits overlying and banked against chalk, representing the northern edge of the river's floodplain. The deposits have yielded molluscs, ostracods and pollen, and a mid-Levallois working site has been reported on the chalk surface at the foot of the fossil cliff.
Globe Pit	SSSI	2.7km north-east	This site is designated for geological and archaeological features which display the interrelationship of archaeology with geology since in the correlation of the Lower Palaeolithic chronology with the Pleistocene Thames Terrace sequence.
Grays Thurrock Chalk Pit	SSSI	2.8km north	This site comprises areas of woodland, scrub and calcareous grassland habitats that are important for the assemblage of invertebrate fauna they support.
Hangman's Wood and Deneholes	SSSI	3.8km north-east	The remains of medieval chalk mines are present within the site which provide an underground hibernation site for bats.
Darenth Wood	SSSI	4.1km southwest	This site comprises areas of ancient semi-natural woodland and includes several rare woodland types. The invertebrate fauna assemblage includes many nationally rare and scarce species.
Purfleet Chalk Pits	SSSI	4.9km northwest	This site is designated for geological features that include mid-Pleistocene sand and gravel deposits overlying chalk which contain complex lithostratigraphical and bio-stratigraphical evidence of both the evolution of the Thames and Northern European interglacial sequences.
Thames Estuary and Marshes	Ramsar	6.3km south-east	A complex of brackish, floodplain grazing marsh ditches, saline lagoons and intertidal saltmarsh and mudflat. These habitats together support internationally important numbers of wintering waterfowl. The saltmarsh and grazing marsh are of international importance for their diverse assemblages of wetland plants and invertebrates.
Thames Estuary and Marshes	Special Protection Area	6.3km south-east	Part of the Thames Estuary and Marshes Ramsar site. Interest features are as above with particular focus on internationally important overwintering water bird assemblage.
West Thurrock Lagoon and Marshes	SSSI	3km north-west	The site is important for wintering waders and wildfowl which feed on the mudflats. Reed warblers, sedge warblers and bearded tits breed on reed beds in the lagoon, and teals and grey herons roost on the shallow waters and grassy islands. Stone Ness saltings is a large area of salt marsh dominated by sea club-rush

The screening assessment for noise emissions together with the impact assessment of emissions to air confirms operations at the site will not give rise to significant effects on the designated sites listed at Table 2.1. It is also considered that the control measures for fugitive emissions outlined in the Dust Management Plan (Appendix I) together with release of run off to water will not give rise to significant effects on the designated sites.

Figure 2.2 Statutory Designations with 10km radius of the installation

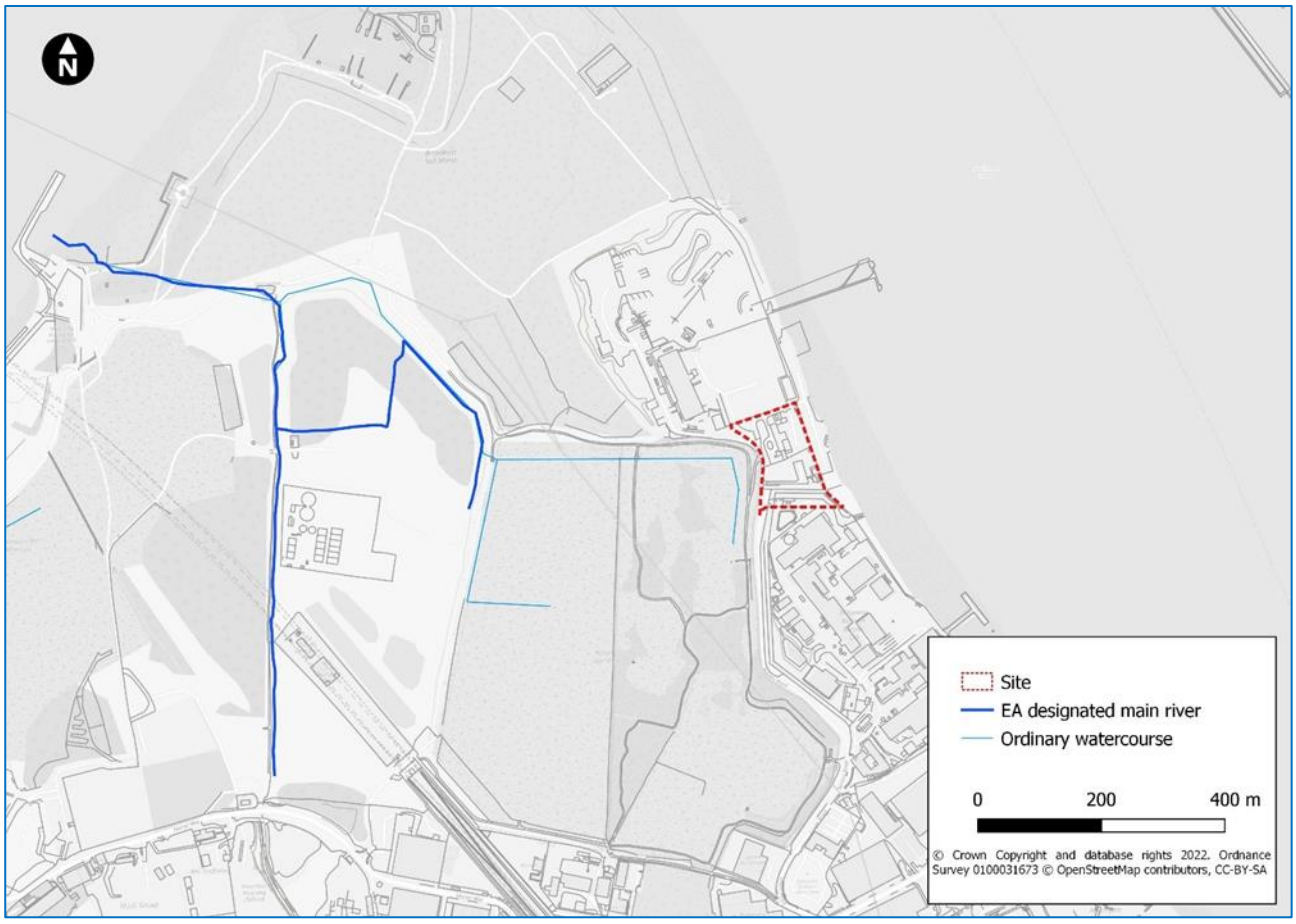


2.2 Hydrogeological setting

The site is bounded to the east by the tidal River Thames and to the south by the wider operational BRM facility, which extends approximately 450m southwards. Beyond that is the industrial Seacon Terminals Ltd freight facility. To the west (and on the opposite side of Manor Way), is the freshwater Botany Marsh, which comprises a network of drainage ditches, ponds, former grazing marsh, rough grassland and scrub.

The nearest designated main river to the development site is within Swanscombe Peninsula to the west (as shown in Figure 2.2), referred to hereafter as the Swanscombe Channel. The watercourse is understood to be fed from discharge from Eastern Quarry, dewatering of the High Speed 1 railway development and local runoff, and drains to the River Thames.

Figure 2.2 Hydrological setting



An existing drainage swale runs along the southern boundary of the site, draining from the south before turning east and towards an its outfall to the tidal River Thames.

The majority of the site is situated within Flood Zone 3, with the remainder being in Flood Zone 2. The site is mapped as being in an area benefitting from flood defences. The EA Flood Zones show 'undefended' risk (assume no flood defences in place), and therefore they do not account for the formal flood defences along the River Thames. Existing flood defences run along the eastern perimeter to the River Thames. These consist of a flood wall and a series of flood gates and outfalls.

2.3 Geology and Hydrogeology

The geology and hydrogeology of the site have been subject to intrusive investigations and are described in detail in the Site Condition Report and Drainage Strategy provided at Appendices B and E respectively.

2.4 Land Quality

The land quality of the installation is described in the Site Condition Report at Appendix E.

2.5 Air Quality

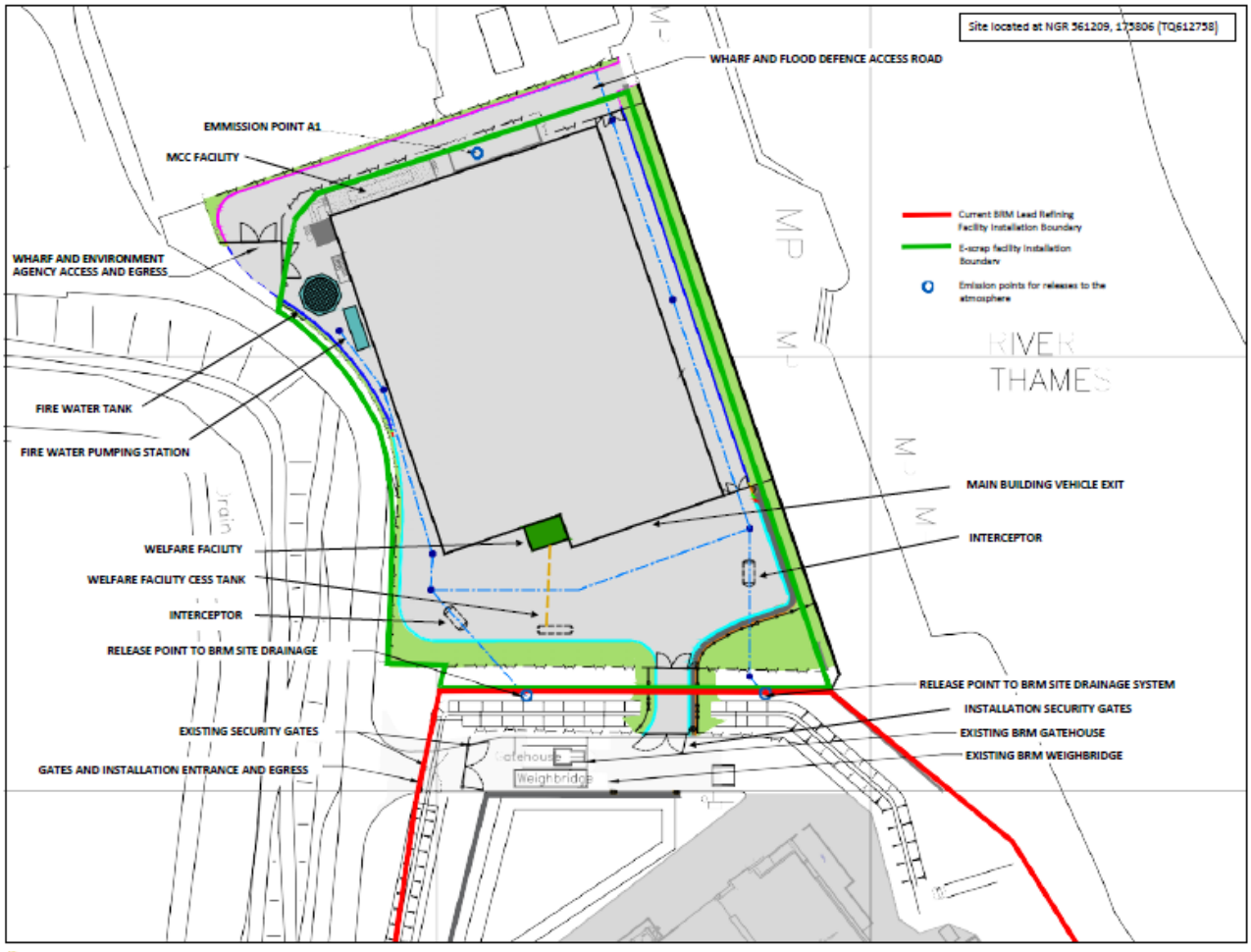
The site is located within Northfleet Industrial Area Air Quality Management Area (AQMA), declared by Gravesham Borough Council in 2005 following exceedances of the annual mean Air Quality Objectives (AQOs) for particulate matter <10 µm (PM_{10}). Whilst compliance of the annual mean PM_{10} AQO has been maintained for over 5 years in the AQMA, the Council does not wish to revoke this designation as there is a significant amount of development taking place, or due to take place, within it. These include industrial and mixed-use developments, therefore there is a significant possibility and risk that PM_{10} concentrations may increase in coming years. The Council will look to revoke the AQMA once much of this development has been completed, and a better understanding of whether compliance will continue to be maintained.

3. Site Infrastructure and Waste Management Activities

3.1 Site Infrastructure

The current proposed layout for the installation is shown at Figure 3.1.

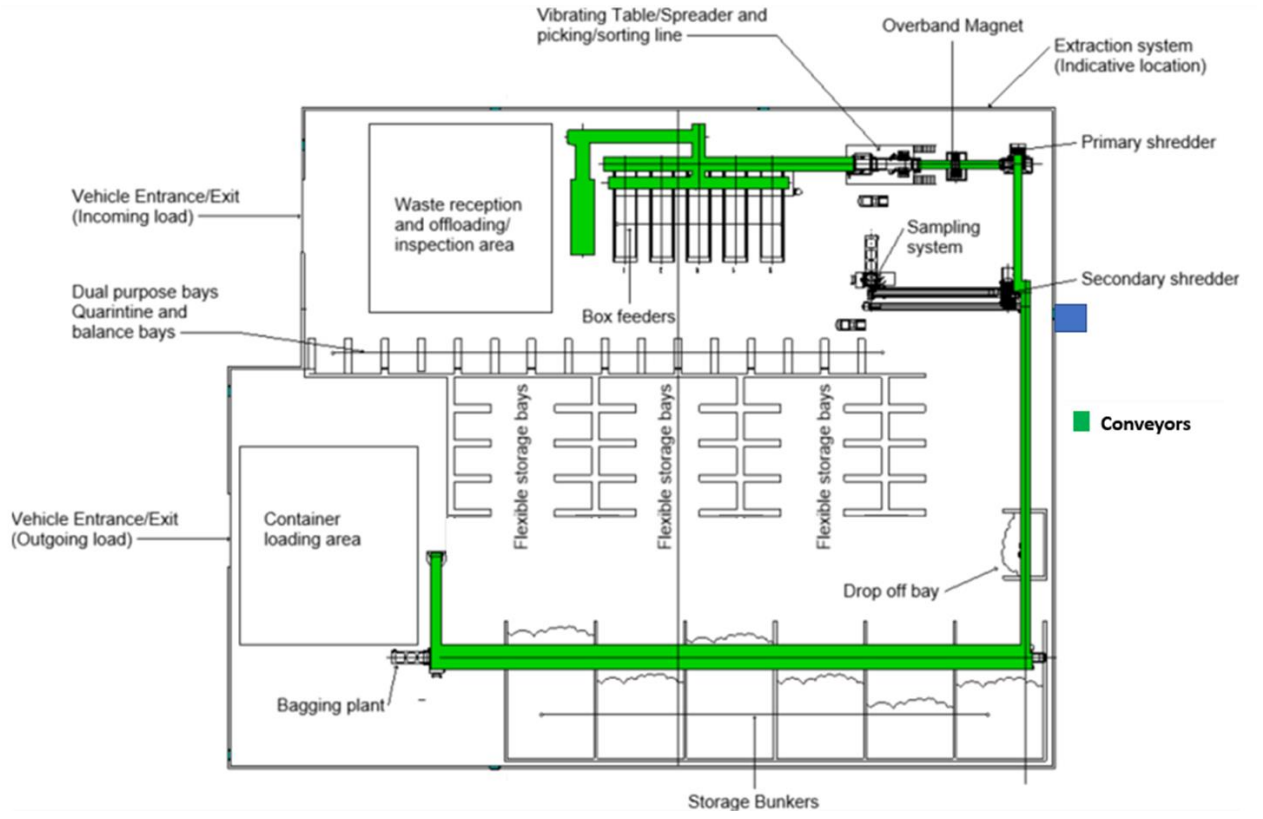
Figure 3.1 Proposed Site Layout



Main building

All activities associated with the acceptance, inspection, storage (including quarantined and rejected wastes), handling and physical treatment of wastes will be undertaken within a dedicated purpose designed and built building founded on sealed concrete hardstanding. The building will be managed under negative pressure to prevent air from the building being released via ventilation louvres. The proposed layout of the main building identifying infrastructure, plant and equipment described in this application is provided at Figure 3.2.

Figure 3.2 Layout of Main Building



The main building will be self-bunded, purpose designed and constructed to meet the requirements of the permitted activities. Access to the building will be raised to mitigate flood risks and retain firewater, to accommodate the estimated calculated volume of firefighting water. Sealed fire exits will also be installed.

Due to the location and function of the development, the main building and other ancillary buildings (the filter house, the welfare facility and the motor control centre) will be protected from environmental risks as appropriate to ensure potential contaminants associated with plant, equipment and contaminants including dust are controlled. Flood barriers and steps/ramps will provide additional flood mitigation to the main building.

Air from specific operational areas of the building outlined throughout this section will be extracted for abatement by:

- Primary Abatement - Bag Filter.
- Secondary Abatement - Polishing Filter.

Both technologies are consistent with Appropriate Measures for abatement of dust associated with mechanical treatment of waste.

Air will be extracted at pre-determined locations throughout the E-scrap treatment process as outlined at Figure 3.12. The extraction hoods through which dust will be extracted will be positioned in areas where the greatest volume of dust is likely to be generated and connected to the Bag Filter with sealed galvanised mild steel ducting. The Extraction Hoods will be manually adjusted during commissioning to optimise performance of the abatement plant. Dust laden air from the E-scrap process will be abstracted for treatment by the Bag Filter and Polishing Filter by a

high efficiency centrifugal fan integral to the dust abatement plant, located outside of the building. Details of these arrangements are outlined below (Filter House).

The Bag Filter will be installed with reverse jets that will periodically pulse to remove dust particles form the filter pores to prevent blinding. Dust dislodged during this process will be transferred from the external bag filter by an enclosed screw conveyor into a series of sealed drums within the main building. To prevent overfilling, an automated system will switch the flows to alternative drums to enable continuous abatement of emissions.

Fugitive emissions may arise, although pathways to the environment are limited given the design of the main building. Rapid closing roller doors will be installed to reduce the duration that doors are opened at the vehicle entrance and exit to the main building. Measures implemented to control dust emissions are described in the Dust Management Plan provided at Appendix I. The main building will be connected to mains electricity. It will not be connected to mains or private sewerage networks. Waste sorting, shredding, handling and ancillary activities undertaken in the main building will not generate wash water or process effluent.

The building will be connected to the water supply to meet the very limited requirement for water as the physical waste treatment process is dry, there being no process requirement for water. There will be a nominal water requirement for the following activities:

- Plant washdown. Dry cleaning techniques will be used for all other activities.
- Operating the misting system within the Waste Reception Area and waste storage areas to settle dust arising from unloading consignments. Details of these systems are provided at Section 3.4.
- Firefighting water supply
- Sanitary use within the welfare facilities

External arrangements

Auxiliary infrastructure and facilities associated with the regulated activities include the following:

- Weighbridge.
- A firewater tank and associated pump house.
- A filter house accommodating the bag filter and polishing filter.
- An electrical switchgear/ motor control centre (MCC) room.
- A welfare facility.
- Areas of hardstanding for footpaths and external areas.
- Site drainage arrangements.
- Flood defences.

Details of these arrangements are set out below. It should be noted that a new sheet piled flood wall at a height of 8.0m AOD and at a distance of 12m from the main building will be constructed along the full eastern length of the proposed development site on the seaward side of an existing flood wall, which will be removed upon completion of the new wall. The new sea wall would also include construction of a flood gate at its northern end to facilitate access to an existing safeguarded wharf area.

Weighbridge

Access to the site will be via the existing access point and gatehouse located on Manor Road.

The access point includes an existing weighbridge which will be used to determine the mass of incoming and outgoing consignments in arriving and departing vehicles exiting onto Manor Way. Consignments will also be tested for gamma radiation (from wastes such as smoke detectors) at the weighbridge. Any wastes testing positive will be rejected. The site entrance on Manor Way, the weighbridge and the gatehouse are currently regulated by the Environmental Permit granted to BRM for the adjacent lead refining plant.

BRM is currently assessing viability of exporting waste from the Seacon Terminal, in which case egress from the site will also be provided via the internal road network of the adjacent lead refining plant (operated by BRM).

Firewater tank and associated pump house

The current proposals comprise a water tank sized to accommodate at least the calculated volume of firefighting water. As there is no available public hydrant system with sufficient flow and pressure, a private hydrant network will be installed fed from a dedicated fire water range and pump package to be agreed with the Fire Brigade. Two x 100% firewater pumps will be installed in a containerised enclosure, rated for full sprinkler and manual firefighting demand. The pumps will be configured to operate using electricity and diesel as standby fuel. These will be installed with fire protection as outlined in the Site Wide Fire Strategy provided at Appendix C.

Filter House

The Bag Filter and the Polishing Filter will be located externally within an area of the site referred to as the Filter House. The location of the Filter House is identified at Figure 3.1. It will be located externally along the northern aspect of the main building. Details of the bag and polishing filter are described below. In summary, air from the activities outlined at Figure 3.12 will be released to atmosphere following treatment in the Bag Filter (primary abatement) and the Polishing Filter (secondary abatement) as outlined below. This will ensure low dust concentrations are released to atmosphere in compliance with both the BAT AELs and Emission Limits for dust and mercury based on the current design flow rate (35,420 m^3/hr) and the physical and chemical characteristics of the dust.

The operation of the Bag Filter and Polishing Filter will be controlled using a Programmable Logic Controller (PLC). The system will be sequenced to commence operation prior to the E-scrap being charged to the first conveyor and it will be shutdown once the E-Scrap being processed has been discharged into the storage areas.

Bag Filter

Dust laden air from the E-scrap treatment process will be abstracted by a high efficiency centrifugal fan that will transfer the dust to a reverse jet type bag filter system. The Bag Filter system will also be installed with a standby fan that will start automatically, should the primary centrifugal fan fail.

The Bag Filter steel housing, accommodates a series of antistatic polyester needle felt tubular filter bags that will receive the dust laden air. The polyester material will be impervious to dust with the characteristics associated with dust arising from metal shredding. The individual needle filters

provide an increased surface area for adsorption of dust and, as they receive separate airflows, providing mitigation in the event of individual failure.

The dust laden air will pass through the needle filter bags from the inside and clean air will exit the top of the filter. The manufacturer has confirmed the specification of the Bag Filter system will achieve an outlet air dust concentration below the BAT-AELs and appropriate measures.

To prevent blinding, the dust particles that collect on the inside of the needle filter bags will be removed on a regular basis. When a predetermined pressure is detected across the needle filter bags, an electronic sequence is initiated where clean compressed air will be injected into the individual needle filter bags in the reverse direction. This causes the dust to fall onto the discharge screw conveyor for transfer to the sealed drums located within the main building as outlined above. This is an automated process and will not require operator intervention.

Polishing Filter

Following treatment in the Bag Filter, the flow will be pulled through the Polishing Filter by a centrifugal fan. The Polishing Filter comprises a bank of pocket filters (non-woven synthetic organic fibres with a high dust holding capacity), that will provide additional cleaning of the air flow. This will ensure the air released from the polishing filter will be suitably cleaned to achieve a level of abatement equivalent to 2 mg/m^3. To ensure the polishing filter is operated in a manner that safeguards integrity , two detectors are installed. The first is a bag burst indicator / alarm system which will detect excessive dust carry over into the clean air discharge duct. The second is a pressure sensor which will detect pressure change across the filter and a dirty filter indicator will be displayed. Activation of these systems require the filters to be replaced. These filters are designed to arrest abrasive particles and performance is not compromised in damp atmospheres.

Maintenance activities on both the Bag Filter and Polishing Filter are carried out under a Standard Operating Procedure (SOP) in line with the manufacturer's recommendations. The units will also be operated and maintained in accordance with manufacturers recommendations.

Electrical switchgear/ motor control centre (MCC) room

An MCC facility will be installed adjacent to the main building. The MCC building will designed to mitigate flood risks. It will be partitioned to accommodate the following:

- High voltage Switchgear.
- Electronic data communications equipment and control panels.
- Information technology equipment.

The facility will be installed with electrical temperature control and fire detection and protection systems to manage fire risks identified in the Site Wide Fire Strategy provided at Appendix C.

Welfare facility

Basic welfare facilities will be provided at the site, as all staff will have access to more extensive facilities installed at the adjacent lead refining plant operated by BRM. The welfare facilities will comprise:

- Basic comfort facilities.

- Toilets and wash facilities.

The welfare facility will also be designed to mitigate flood risks and installed with fire detection and protection systems to manage fire risks as identified in the Site Wide Fire Strategy.

The proposed design incorporates a replacement cess tank that will be connected to the welfare facility. A conventional cess tank will be installed designed in accordance with relevant British Standards and sized in accordance with UK Water Design guidelines. The tank will be installed with level gauges and level alarms set to alarm in the event of losses and when the tank is 75% and 90% full.

Waste from the cess pit will be periodically removed from the site for offsite treatment/recovery by a third-party waste management contractor.

Areas of hardstanding for footpaths and external areas

All operational areas of the site will be founded on sealed hardstanding with the exception of pedestrian walkways which will be surfaced with asphalt. The site levels have been designed to direct surface water from hardstanding and roofs to the edges of pavements and designated low points for collection by surface water drainage systems.

Soft landscaping will be installed within non-operational areas that are not associated with activities with the potential for contamination of soil or groundwater associated with normal, abnormal or emergency conditions.

Due to the proposed opening hours, lighting of the site will be required. The site security and utility lighting design will be based on the appropriate use of lighting to provide safe working conditions in all areas of the site, whilst minimising light pollution and the visual impact on the local environment.

Lighting of external hardstanding / storage areas, walkways and roads will be provided by a combination of building mounted floodlights and column mounted floodlights. All lighting will be low lux and set on timers and sensors. The effects of lighting will also be minimised as far as possible including directing lighting at specific on-site activities in a way that avoids unnecessary glare, i.e., downward orientated, and inward facing. Lights will be switched off or on movement sensors when the site is not open.

Site drainage arrangements

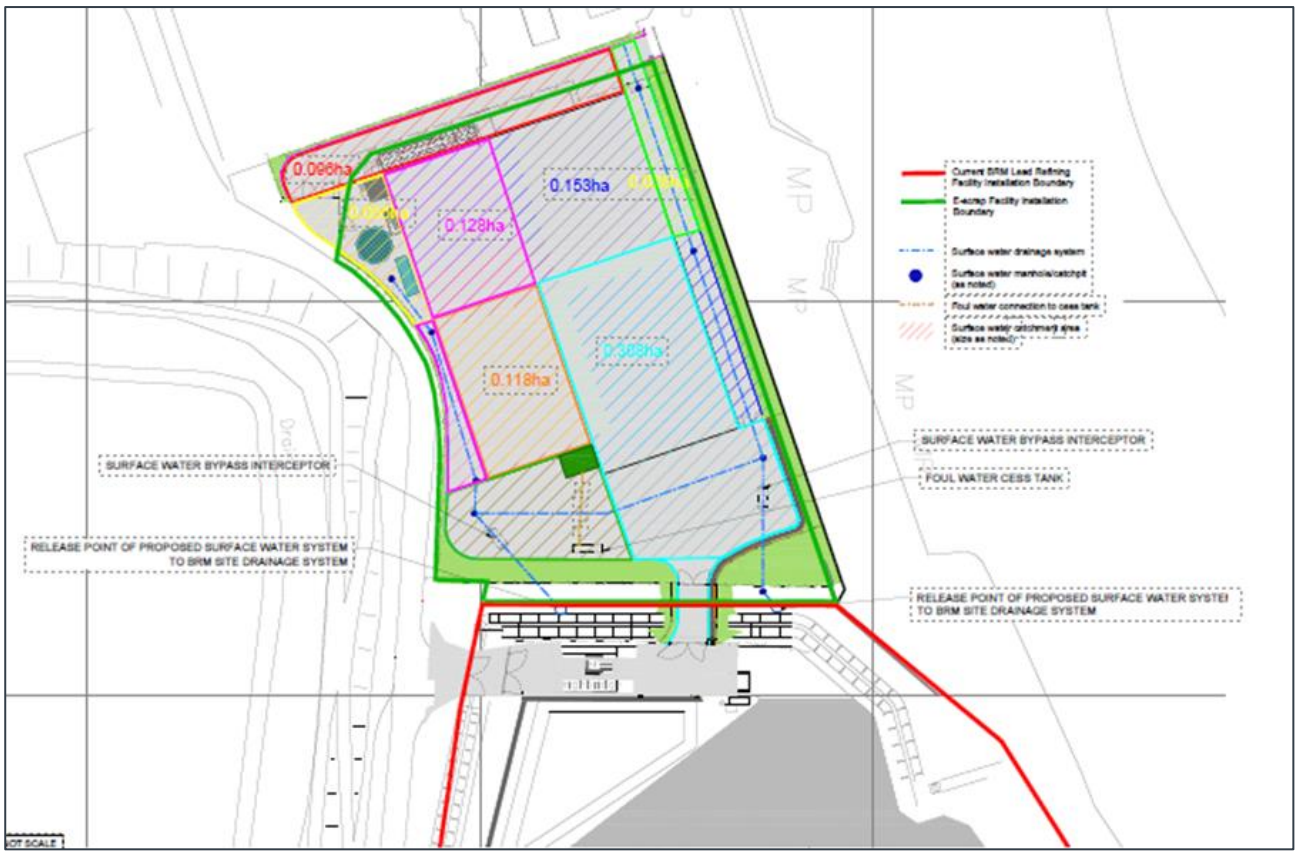
The site is currently drained via a combination of old and partially abandoned features, including soakaways and partially abandoned drainage networks. There is also a drainage ditch located in the southern part of the site, which runs in a west to east direction and links the Botany Marsh area to the west of the site with the river Thames. Beyond this ditch is an existing swale feature, which currently receives runoff from the adjacent BRM site and outfalls via gravity into the river Thames.

Existing and partially abandoned drainage infrastructure will be removed and replaced with a new piped drainage system, which will discharge to the existing drainage ditch to the south of the site (and onwards to the river Thames). The drainage design also includes provision of an oil separator unit.

In designing a surface water drainage system for the site, the underlying philosophy has been to provide water quality and water quantity benefits and to design for climate resilience. The drainage scheme is therefore designed to collect rainfall from roof, concrete and asphalt hardstanding for discharge to the River Thames. The Site will be approximately 93% impermeable post-construction.

The site will not be connected to public or privately operated foul drainage systems. The site drainage system is summarised at Figure 3.3. within the context of the site rather than installation boundary. The blue perforated lines represent the surface water sewer system with the interceptors identified as black rectangles along the south-east and southwest boundaries.

Figure 3.3 Installation Drainage Plan



A surface water drainage scheme has been designed to collect rainfall from roof, concrete and asphalt hardstanding, ultimately discharge to the River Thames.

In accordance with Kent County Council and Environment Agency standards, the system has been designed to collect all surface water runoff for storm events up to and including the 1 in 100 year (1% Annual Exceedance Probability) + 40% climate change events as below.

The expected lifespan of the proposed development is 25 years, however, conservatively the surface water systems have been designed to the upper end climate change allowances for a development with a lifetime beyond 2100.

The Drainage Strategy includes two separate piped systems on the east and west of the building each discharging to precast concrete headwalls to the northern embankment of the existing drainage swale. The system will rely on gravitational flow by shallow gradient from north to south as described in the drainage drawing provided in the Drainage Strategy provided at Appendix B. Prior to the development of the site, a detailed CCTV survey will be undertaken on the length of the existing outfall arrangement to ensure it is in fully operational order.

Bypass interceptors will be installed to treat up to 80litres/second which covers storm events up to 100% Annual Exceedance Probability (AEP). Interceptors will also treat first flush even when storms exceed 100%AEP. Alarm systems will be installed to warn when interceptors are approaching pollutant capacity. A shut off system for both surface water systems has also been specified to the catchpits immediately upstream of the outfalls. This will automatically prevent serious pollution events conveying to the swale and the River Thames outfall. An automatic shut off system on the surface water drain catch pits is specified to prevent contaminated flows entering the surface water systems and acts as a tertiary containment system.

Flows from the surface water drainage system for the E-Scrap will converge with flows from the lead refining plant in the swale that marks the northern boundary with the adjacent lead refining plant. The existing drainage system associated with the lead refining plant into which surface water from the E-Scrap facility will flow, is regulated by Permit No EPR/BM4945IW and is referred to as emission point W3 in this Permit.

In accordance with authoritative standards for sustainable drainage and pre-application advice received from Kent County Council, there is no requirement for attenuation to restrict discharge rates due to the downstream outfall. Therefore, no attenuation systems are proposed for the surface water drainage strategy upstream of the BRM-owned swale.

The drainage system is also designed to achieve the high pollution hazard level indices of the C753 CIRIA SuDS Manual 2015 (consistent with instructions received from Kent County Council), based on:

- Information derived from other sites operated by Glencore handling and storing similar waste streams and arrangements for containment
- Arrangements outlined above and below relating to control and abatement of emissions to air associated with waste storage and handling.
- Routing run off through bypass interceptors installed for each surface water network.
- Other basic though effective pollution prevention measures will be undertaken at the site to minimise the potential for contaminated flows to the surface water system, e.g. use of drain covers when buildings maintenance is undertaken.

Further details on design of the site drainage are provided in the Drainage Strategy at Appendix B.

Flood defences

A new sheet piled Flood Wall at a height of 8.0m above Ordnance Datum (AOD) will be constructed at a distance of 12m from the main building. The Flood Wall will be constructed the full eastern length of the installation on the seaward side of the existing flood wall. The existing flood wall will be removed upon completion of the new wall. The new Flood Wall will accommodate a flood gate at the northern end to facilitate access to an existing safeguarded wharf area.

Forward Action Plan – Site infrastructure

There are no forward actions relating to site infrastructure.

3.2 Waste activities - Background and context

The following section summarises proposed arrangements for accepting, handling, storing and physically treating wastes received at the installation.

Block flow diagrams are presented though out this section to outline:

- Administrative arrangements and operational activities associated with pre-acceptance, acceptance and export of wastes.
- Plant equipment and infrastructure associated with operational activities, including emissions control and abatement.
- Stakeholders with responsibility for undertaking key activities to comply with regulatory requirements, where appropriate.

Table 3.1 summarises the definitions to be inform interpretation of abbreviations and terminology included in the block flow diagrams.

Table 3.1 Abbreviations and Definitions

Abbreviations			
AMS	Atomising and misting system	FIBC	Flexible Intermediate Bulk Container
DCL	Dust collected in closed loop system	IBC	Intermediate Bulk Container
DE	Dust extraction for abatement	NCR	Non-conformance Report
FEL	Front end loader	TFS	Trans-frontier shipment
FLT	Forklift truck	WMS	Waste Material Specification
Terminology			
Booking	Confirmation that a specific waste load (or batch of loads) has been accepted for delivery to site		
Booking reference	A reference number to link data related to the incoming booking for example the Waste Material Specification (WMS)		
Bunker grade	Refers to the designation of a Storage Bunker to a High, Mid or Low burning loss grade of material		
Burning loss	Term used to describe the loss of material which is burnt off when the waste is smelted		
Terminology			
Carrier	Waste carrier		
Dual purpose bay	Storage bays which are intended to be used for different purposes such as storing waste under quarantine or a holding area for temporary storage of waste prior to physical treatment		
Holding Area	An area for the temporary storage of waste as it moves through the facility		

Operating Techniques and Technical Standards	These are the permit and the related technical standards and techniques that the facility will operate to.
Preliminary acceptance	Acceptance of the waste pending laboratory analysis results
Process route	The route the waste will take through the difference processes on site, i.e. shredding, blending, repacking or storage and transfer
Quarantine bay	Designated storage are for waste which is in quarantine pending further action
Waste Material Specification	BRM document that details the waste specification based on Pre-acceptance information
Waste Paperwork / Documentation	Refers to the Hazardous Waste Consignment Notes or Duty of Care Waste Transfer Notes

The block flow diagrams also confirm the current proposals for managing dust emissions. Text boxes identifying activities for which dust control and/or abatement measures will be implemented have colour coded borders as below:

- **Green** – extraction of air for abatement.
- **Red** – misting system.
- **Yellow** – misting system anticipated to be operated in atomiser mode.
- **Purple** – dust will be contained in a sealed/closed loop system.

Risk Based Approach to Acceptance

During pre-application discussions with the Environment Agency, it was agreed with the Environment Agency it was appropriate that a risk based approach to accepting waste should be implemented to enable a proportionate approach to be taken to analysing and quarantining wastes. The risk based approach takes into account the following:

- The source, nature, condition, and age of the waste.
- Any hazardous properties of the waste.
- Potential for persistent organic pollutants to be present in the waste. For the purposes of wastes acceptance, to reduce obligations for verification analysis of wastes, a conservative approach will be taken, and it will be assumed all E-Scrap will contain persistent organic pollutants, though this may not necessarily be the case.
- Potential risks to process safety, occupational safety and the environment (for example, the presence of lithium-ion batteries).
- Knowledge about the waste streams and previous holders of the waste.

A preliminary review followed by a more detailed assessment of the physical, chemical and hazardous characteristics of the materials against the above criteria has been carried out as detailed below. This confirmed the following:

- All wastes are precious metal rich waste streams for recovery via smelting at downstream sites.
- The wastes are suitable for acceptance at the facility for export for recovery within the Glencore group.
- The wastes imported to the installation will be sourced from waste management companies that have treated wastes producing the precious metal rich fractions.
- Some wastes are simple waste such as copper scrap.
- Other wastes are more complicated such as metal rich fractions from Incinerator Bottom Ash.
- Analysis of existing E-Scrap (WEEE and Cables) to be sent to the facility for sampling shows consistent presence of hazardous components to be regarded as persistent organic pollutants.

This initial assessment led to the development of 3 risk-based categories of waste materials to be accepted at the installation as detailed below:

- **Simple wastes**
  - These wastes are derived from manufactured articles and are large sized waste such as baled copper and whole wire looms.
  - They are easily visibly identifiable, and any contamination will be apparent upon visual inspection. They have a known and consistent chemistry.
- **E-Scrap**
  - These wastes are very similar to simple wastes but are smaller in size and will be treated on site via shredding and sampling for commercial precious metal assay
  - The wastes are easily visibly identifiable, and any contamination will be apparent upon visual inspection. They have a known and consistent chemistry.
  - Due to the smaller size of the materials they will require closer visual inspection to detect any contamination.
- **Complex wastes**
  - These wastes are not suitable for visual inspection due to the processes producing them will have variable chemistry, for example, the Incinerator Bottom Ash (IBA) Smelter Grade Concentrate (metal rich fractions from IBA)
  - These wastes will be subjected to more detailed acceptance checks which include sampling and laboratory analysis to confirm the suitability of the waste for acceptance.

3.3 Pre-Acceptance of E-Scrap

Summary of pre-acceptance activities

The purpose of the pre-acceptance stage is to confirm:

- The waste stream is permitted for acceptance at the installation.
- The physical and chemical characteristics of the waste stream(s) are suitably characterised, to ensure it is appropriately managed at the site.
- The installation has suitable capacity to store and treat the waste.

Separate arrangements will be implemented for 'existing' and 'new' wastes:

- **Existing wastes** are wastes that have previously been accepted at the installation from an existing supplier who is familiar with BRM's expectations relating to accurate characterisation of waste.
- **New wastes** are wastes that have not been previously accepted at the installation and/or are from new or unfamiliar suppliers.

Pre-accepting existing wastes

A proportionate approach will be taken to pre-acceptance of existing wastes, reflecting the level of confidence that BRM will have dealing with known suppliers of waste. On this basis, Glencore will provide a Waste Material Specification (using information provided by the waste supplier) which documents information relating the physical and chemical characteristics of the waste consignment, in order that BRM can undertake a technical assessment of the suitability of the waste for acceptance. This information is referred to as written pre-acceptance information in guidance published by the Environment Agency.

In the event pre-acceptance checks confirm in principle the waste is suitable for acceptance, the consignment will be booked in for delivery to the site. Otherwise, further information will be required from the waste supplier. In the event this confirms the waste is not suitable for acceptance, will be notified this cannot be accepted at the facility.

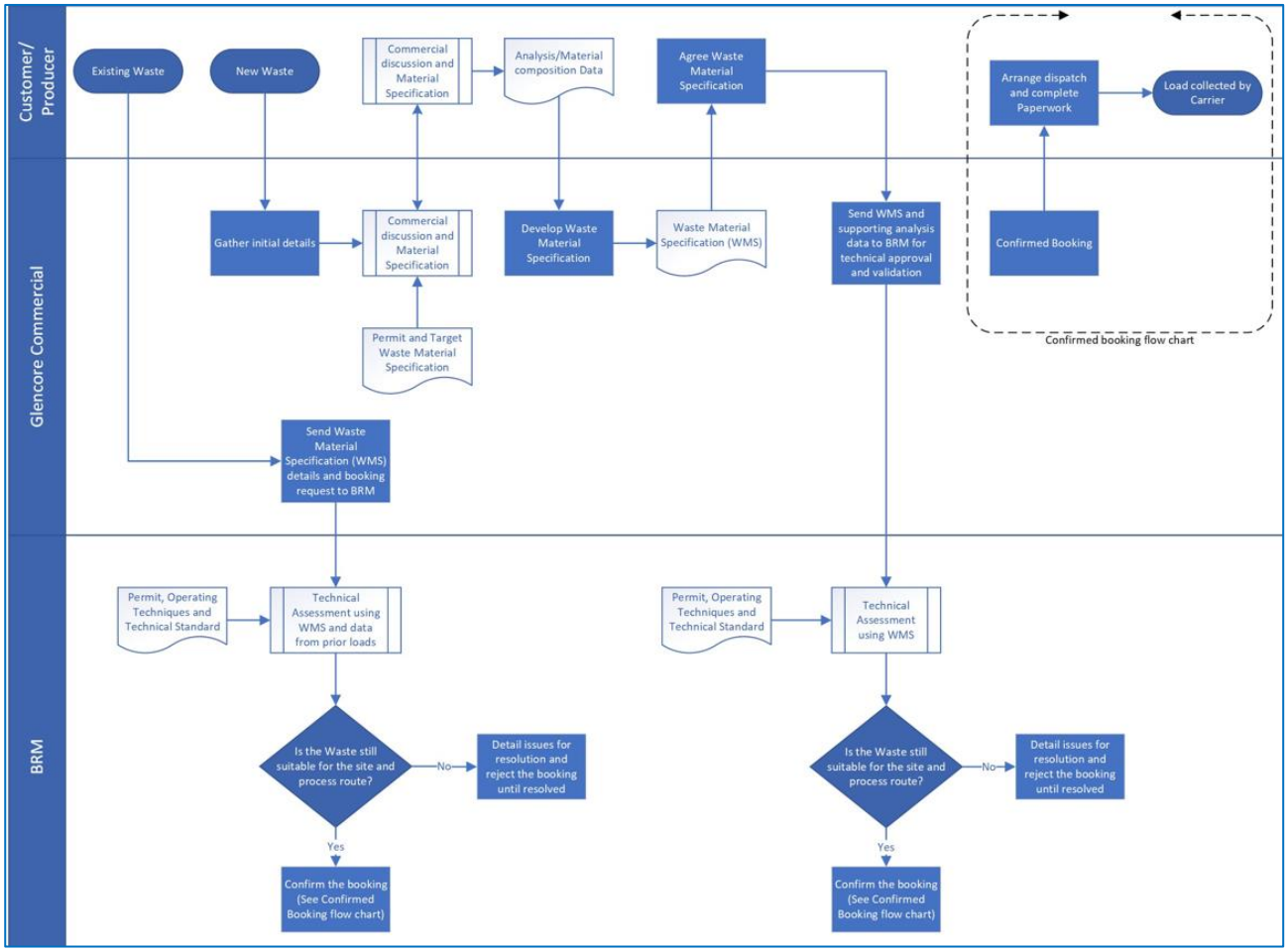
Pre-accepting *new* waste streams

In summary, the process outlined above will be followed subject to the following variances:

- The waste producer will be required to analyse the waste to inform the waste specification.
- In addition to providing the customised waste material specification, the analytical data will also be required to be provided to inform BRM's the decision to pre-accept the waste.

The information presented at Figure 3.4 provides a detailed outlined of the approach to be implemented for pre-acceptance of waste, consistent with the requirements of Environment Agency's guidance relating to characterisation and acceptance of waste.

Figure 3.4 Activities associated with pre-acceptance of wastes



These arrangements were discussed with the Environment Agency in the pre-application discussions, where it was agreed that in principle, these are consistent with the requirements of the following:

- WM3 Guidance on the classification and assessment of waste.
- BAT Conclusions for Waste Treatment.
- Appropriate Measures for WEEE and non-hazardous wastes.
- How to classify WEEE waste.

Pollution Prevention Measures and Emissions Control

Activities associated with sampling and analysis of wastes prior to acceptance will be administrative in nature. These activities associated will not give rise to emissions or other risks to the environment and are therefore not considered further.

Forward Action Plan – Pre-acceptance of wastes

There are no forward actions relating to pre-accepting wastes.

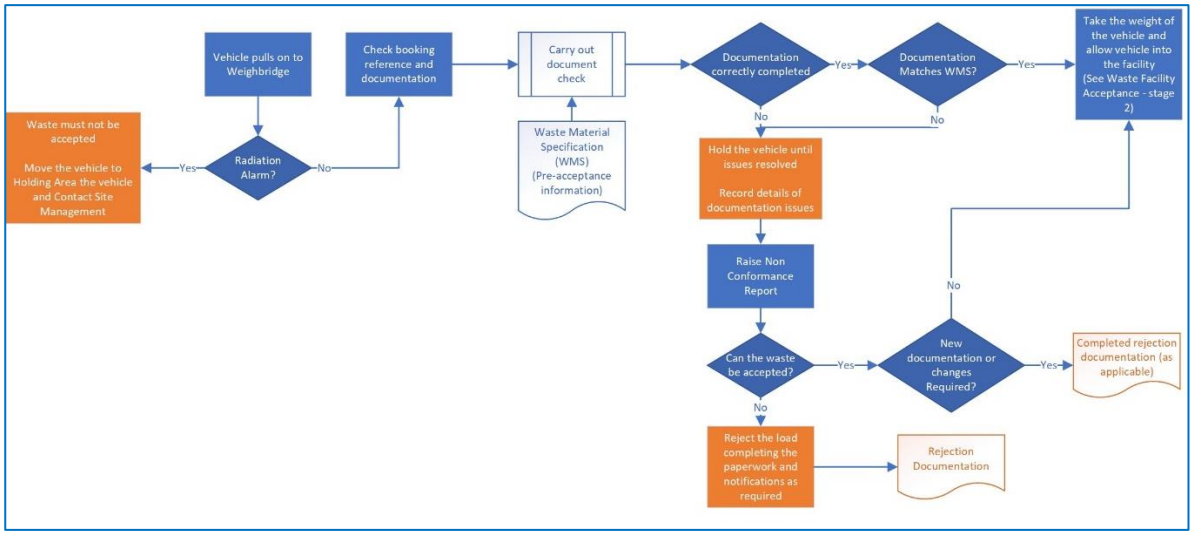
3.4 Acceptance of wastes

Figure 3.4 summarises the processes for accepting the three waste types up to the point it is formally accepted to the installation. There are two stages associated with this activity:

- Stage 1: Review documentation at the weighbridge to initially confirm waste is suitable for acceptance.
- Stage 2: Unloading and visual inspection of the waste to confirm it can be formally accepted at the installation.

Stage 1 – Initial confirmation that waste is suitable for acceptance

Figure 3.5 Activities associated with initial acceptance of wastes



As outlined at Figure 3.4, this initial waste acceptance stage will be achieved following:

- Waste supplier preparing and issuing documentation to BRM.
- Review of waste transfer documentation by BRM to confirm information provided at the pre-acceptance phase is consistent with the information provided during the pre-acceptance stage as detailed in the Waste Materials Specification
- Weighing the consignment at the weighbridge.
- Testing loads for radioactivity at the weighbridge (e.g. that the incoming material does not include smoke detectors).
- Confirmation there is sufficient capacity to store and treat wastes (where treatment is required).
- Confirmation that the waste load can be progress to Stage 2.

Should review of documentation identify inconsistencies or confirm the consignment is not suitable for acceptance, then non-conformance / waste rejection processes will be implemented to ensure:

- Resolution of any queries relating to acceptability of wastes for acceptance based on review of documentation prior to unloading and recording all relevant information to be documented in a Non-conformance Report.
- Formal rejection of the load (including completion of waste rejection documentation), to enable accurate completion of documentation or the waste to be redirected by the waste producer/carrier to a suitably licensed facility.

Following successful completion of these stages, the waste carrier will be authorised to progress to the main building to unload the consignment for secondary confirmation of acceptance.

Secondary confirmation of waste acceptance

Separate arrangements for secondary confirmation of simple wastes, E-Scrap and complex wastes have been developed, though in practice, these arrangements follow the same principles. In summary, this stage of waste acceptance will be achieved following:

- Offloading of bagged waste and unloading bulk wastes for transfer to the inspection area.
- For E-Scrap spreading of waste by a vehicle equipped with a shovel for visual inspection splitting open any bagged waste.
- Confirmation based on visual inspection of the waste with reference to documentation provided at the pre-acceptance stage, that the waste is suitable for acceptance.
- For complex wastes - Determining sampling and analytical requirements. The wastes will be stored in bags and quarantined following initial visual inspection pending receipt of analytical results.
- If visual inspection and / or further review of documentation or analytical data confirms the consignment is not suitable for acceptance, then non-conformance / waste rejection processes will be implemented.
- Following successful completion of these stages, the waste will be transferred to dedicated storage arrangements or the waste will be rejected.

Figure 3.6 Secondary acceptance of simple wastes

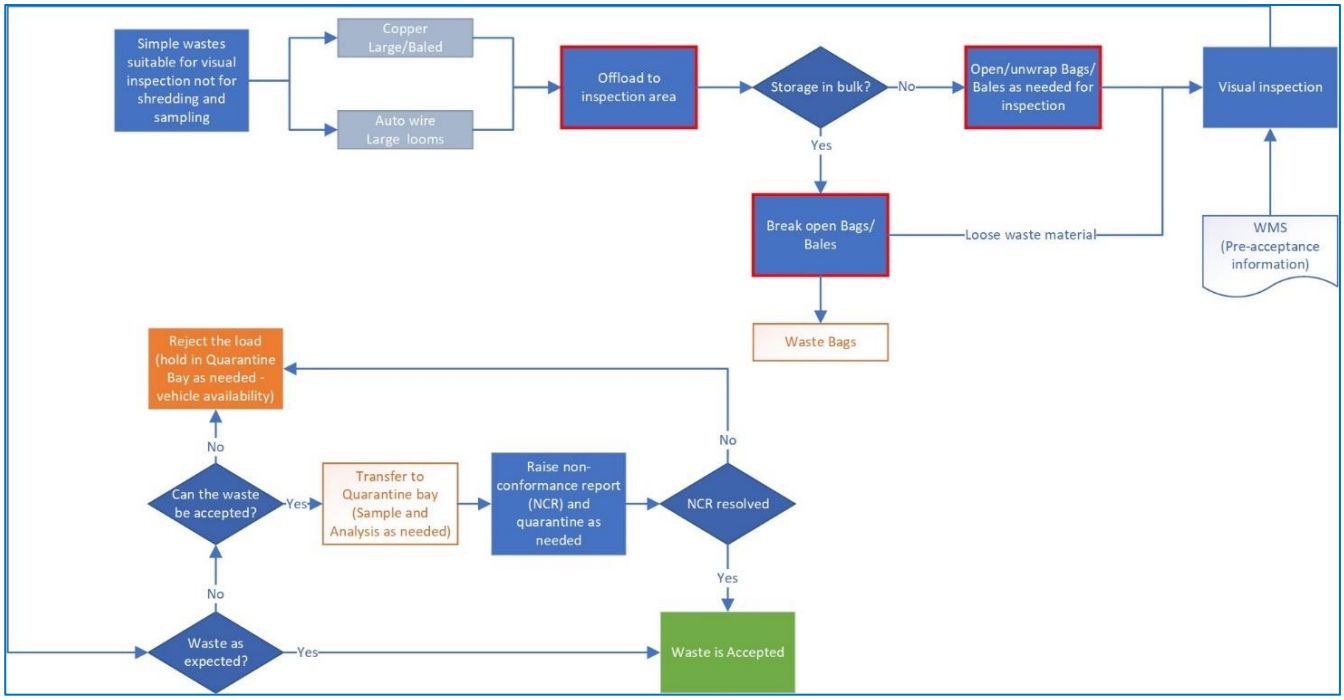


Figure 3.7 Secondary acceptance of E-Scrap

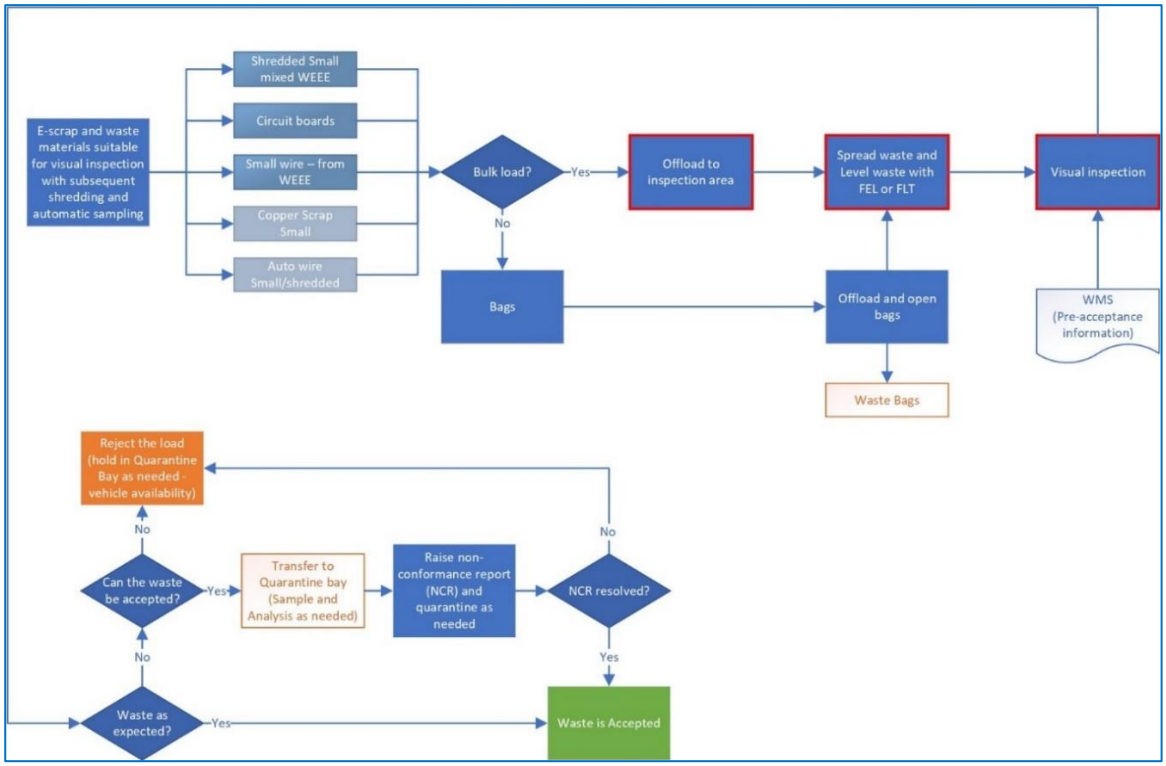
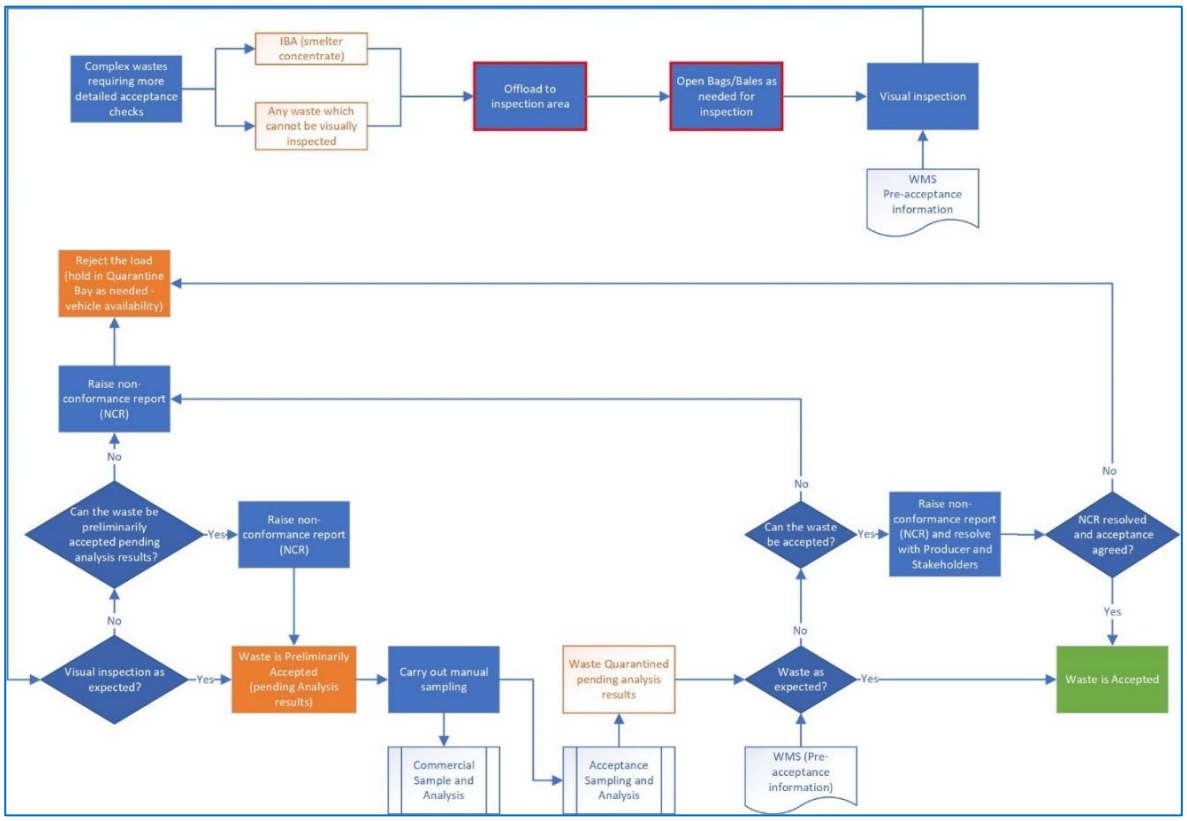


Figure 3.8 Secondary acceptance of complex wastes



Waste rejection

In the event waste received is not consistent with pre-acceptance information, the non-conformance process will be implemented. This will require waste to be temporarily stored in the Quarantine Bays whilst inquiries are made with the waste supplier and Glencore, to establish whether the waste can be accepted. Where it is confirmed that the waste is not consistent with the information provided and/or it cannot be accepted, the waste will be rejected.

Pollution Prevention Measures and Emissions Controls

In addition to the design considerations outlined at Section 2.1 for initial acceptance of wastes, the following measures will be implemented:

Stage 1 - Initial acceptance of wastes:

- Radiological testing of wastes will be undertaken to ensure compliance with the Permit.
- Compliance with the site traffic management plan will be required to minimise potential for vehicular collision and environmental incidents. It is currently envisaged this will require:
  - When presenting at the weighbridge, operators will be provided with a radio to enable vehicle movements, loading and unloading activities to be rigorously controlled.

  - Only one waste carrier will be allowed on site at any one time to make deliveries, to minimise potential for vehicle collision and confusion of waste documentation.
  - A maximum speed limit.
- The main building access and egress locations will be rapid closing roller shutter doors to minimise release of dust.
- Consignments identified as non-conforming prior to unloading will not be accepted.

Stage 2 - Secondary acceptance of wastes:

- The shutter door providing the only point of vehicle/pedestrian access to the building during normal operations) will remain close during loading/unloading operations.
- The vehicle unloading/ waste inspection areas will be kerbed to contain wastes deposited.
- The processes are designed to manage drop heights, to minimise disturbance and agitation of wastes and to minimise requirements doubling handling wastes.
- Misting systems will be operated to supress dust arising from offloading/loading, debagging/bagging, inspecting and storing wastes.

  The misting system will have capability to operate with atomiser mode to release a very fine mist proportionate to dust levels present within local areas to control dust emissions. Based on experience at other sites operated by Glencore, operating the misting system will generate run-off; the mist released will be absorbed by the waste and will increase the moisture content of the waste temporarily. In the event excessive demisting is required, accumulated moisture may generate damped material. It is not anticipated the dampened material will remain suitable for physical treatment at the installation and for downstream processing. Given the low level of water charge and the temporary and intermittent use of the misting system, this will not require collection in blind sumps or similar and will not generate run-off.
- Fire detection and control measures as outlined in the Site Wide Fire Strategy will be incorporated into the design to mitigate fire risks.

Appropriate Measures for acceptance of wastes

Appropriate Measures for acceptance of wastes relevant to the waste streams proposed are summarised at Table 3.2. Those relating to operating techniques and environmental management arrangements are identified separately at Appendix D. These will be implemented in conformance with the Appropriate Measures stated.

Appropriate Techniques – Acceptance of E-Scrap

Table 3.2 Appropriate Techniques - Acceptance of E-Scrap

Reference	Requirement and Applicability	Comment
BAT Conclusions for Wastes Treatment		
BAT Conclusion 26	Inspection of E-Scrap In order to improve the overall environmental performance, and to prevent emissions due to accidents and incidents, BAT is to use BAT 14g and all of the techniques given below: - implementation of a detailed inspection procedure for baled waste before shredding. - removal of dangerous items from the waste input stream and their safe disposal (e.g. gas cylinders, non-depolluted EoLVs, non-depolluted WEEE, items contaminated with PCBs or mercury, radioactive treatment of containers only when accompanied by a declaration of cleanliness	Waste will be inspected, and foreign materials will be removed to enable compliance with this requirement. Foreign materials in consignments of E-Scrap will be removed at three stages prior to physical treatment: - When E-Scrap is unloaded - When E-Scrap is transferred through the screen - When waste is sorted by hand before shredding. In addition, ferrous metals will be removed by an overband magnet when this is deployed.
Appropriate Measures – WEEE* and Inert and Non-hazardous Wastes**		
3.2.3**	When deciding whether to accept waste, you must also check that the relevant storage areas and treatment processes in your facility have the physical capacity needed to handle the waste. You must not accept waste if this capacity is not available, or if you would breach your permit by doing so.	Storage (including for quarantined and rejected wastes) and physical waste treatment capacity will be reviewed as part of the decision making process to accept wastes. Signage confirming available storage capacity will also be displayed.
3.2.3*	If, in the case of small one-off deliveries of WEEE (for example those from tradespeople) you have not received any pre-acceptance information, you must fully assess the load to make sure it is technically and legally suitable for your process	Not applicable – these types of deliveries will not be accepted at the installation.
3.1.2**	Some facilities receive waste on an ad hoc basis. In those instances pre-acceptance checks can still be carried out before the waste is accepted. For example, through the exchange of information at the weighbridge before acceptance on site.	This requirement is noted and will be incorporated in the operating techniques to be developed.
3.2.6*	You must clearly designate a materials reception area (or areas). Staff controlling the inspection, reception and validation of materials at the facility, must be trained in their respective roles.	A reception/unloading area is designated and staff undertaking these roles will be suitably trained.
3.2.7* 3.2.8**	You must weigh each load of waste on arrival to confirm the quantities against the accompanying paperwork, unless alternative reliable systems are available (for example, based upon volume). You must record the weight in the waste tracking system *so you can monitor available capacity*	All consignments will be weighed at the weighbridge when entering and exiting the facility.

Reference	Requirement and Applicability	Comment
	*at your facility. Records of incoming waste are not required for waste from householders deposited at Household Waste Recycling Facilities**.*	
3.2.8*	You must visually check wastes and verify them against pre acceptance information and transfer documentation before you accept them on site.	This requirement will be implemented, as outlined above.
3.2.9*	You must check and validate all transfer documentation and resolve discrepancies before you accept the waste. If you believe the incoming waste classification and description is incorrect or incomplete, then you must address this with the customer during waste acceptance. You must record any non-conformances. If you have assessed the waste as acceptable for on-site storage or treatment, you must document this.	This requirement will be implemented, as outlined above.
3.2.11* 3.2.9**	The person carrying out waste acceptance checks must be trained to effectively identify and manage any non-conformances in the loads received, so you comply with your Duty of Care for waste and your permit conditions	This requirement will be complied with. Technically competent staff will also be present for the required timescales to provide additional guidance, support and mentoring.
3.2.12*	If there is a known risk of radioactive contamination other than the presence of smoke detectors and certain specialist lamps such as xenon lamps, you must check the waste to determine that it does not include radioactive material unless your site is permitted to accept that type of radioactive waste.	Radioactive testing of wastes will be undertaken at the weighbridge for all consignments received at the installation.
3.2.11**	Offloading and reception areas must have an impermeable surface with self-contained drainage, to prevent any potentially polluting liquid from escaping off site. This requirement does not apply if your facility's permit allows only inert wastes and does not require impermeable surfacing with self-contained drainage.	Sealed hardstanding will be installed in all areas associated with operational activities.
Quarantine		
3.2.13*	You must establish quarantine areas for WEEE and materials that are prohibited, awaiting full inspection, or awaiting assessment or removal.	Designated quarantine bays will be installed.
3.3.1**	Your facility must have a dedicated waste quarantine area or areas which you use to temporarily store waste being rejected, or non-conforming waste whilst it is being assessed. Quarantine areas must have impermeable surface with self-contained drainage if there is a risk of contaminated runoff from the quarantined waste.	The quarantine bays outlined above will be installed with sealed hardstanding.
3.2.14*	Quarantine storage must be for a maximum of fourteen working days.	Timescales for storing quarantined wastes will be determined according to the time required for return of analytical data.
3.2.16* 3.3.3**	Quarantine storage must be separate from all other storage and clearly marked as a quarantine area.	Quarantine areas will be designated and will be identified to ensure only quarantined wastes are stored therein.

Reference	Requirement and Applicability	Comment
3.3.2**	Where there is a risk of fugitive emissions from quarantined waste you must store it in closed or covered containers or within a building.	All wastes will be stored within the main building.
3.3.4**	You should store the waste in quarantine in closed containers or cover it to prevent emissions if appropriate. For example, you should sheet quarantined contaminated soil or store it in a covered skip to prevent rainfall or wind from mobilising pollutants.	All wastes will be stored within the main building.

Forward Action Plan – Acceptance of Waste

Table 3.3 Forward Action Plan - Acceptance of waste

Ref	Information Requirement	Approach to resolution
FA 3.4.1	Outline arrangements to control fugitive emissions to the environment from the vehicle loading/unloading area.	**During the Determination Period:** Outline any further arrangements to segregate the waste reception area from other operational areas of the site to reduce fugitive dust emissions.
FA 3.4.2	Outline arrangements to control fugitive emissions to the environment from the vehicle loading/unloading area.	**During the Determination Period:** Outline arrangements to reduce fugitive emissions including the potential dust entrained on tyres on vehicles where this is confirmed as a viable pathway.

3.5 Storage and handling of waste

Individual arrangements will be implemented for handling and storing E-Scrap, simple and complex wastes, reflecting the physical characteristics of the waste and requirement for treatment. Wastes will also be dispatched in bags or transferred as loose product in sealed containers.

Wastes tracking

The three waste categories will be segregated though the same categories may be blended where appropriate, rather than stored in individual consignments separately. E-Scrap will be stored in designated bunkers according to the burning loss grade of the materials (low, medium and high). This criterion will be used as this will form the basis of the contractual quality criteria that customers will specify. Burning loss is a quality consideration relevant to the downstream processing of the metal factions of the waste.

A tracking system will be implemented to enable the initial storage locations of wastes to be determined, though it is acknowledged that for blended wastes, it will not necessarily be possible to track the exact location of individual consignments when blended.

Wastes storage

Imported wastes will be stored and handled in the main building only. The configuration and capacity of storage bunkers for the three categories of waste are not finalised, though the design philosophy supports a flexible approach to determining storing arrangements. It is currently anticipated that fire-rated interlocking concrete blocks (such as Legio® or Legato™) will be used for storing waste that will not be blended (individual storage bays). The bays will be installed with the fire detection and protection measures outlined in the Site Fire Prevention Strategy. Fixed concrete storage bays will be installed for storing E-Scrap. All bunkers will be clearly identified in terms of:

- Waste types that can be deposited in the bunkers.
- Total storage capacity and available storage capacity.
- Purpose of the storage bunkers, e.g. for quarantined or rejected waste.

Table 3.4 summarises current proposals for storing wastes.

Table 3.4 Wastes storage arrangements

Type of storage bay (incl Quarantine)	**No of bays**	**Construction materials**	**Maximum Storage per bay**	
			m^3	**Tonnes***
Simple wastes				
Storage bays	Flexible	Concrete Legio / Legato blocks.	24m^3	20.4
E-Scrap				
Box Feeders	5	Feeders of steel construction	TBC	TBC
Storage Bunkers	6	Cast concrete walls	450m^3	383
Balance / Quarantine Bays	Flexible	Concrete Legio / Legato blocks	Flexible	Flexible
Complex wastes				
Storage bays	Flexible	Concrete Legio blocks.	24m^3	20.4
*Based on 850kg/ m^3 waste density				

Wastes handling

Wastes handling will not be undertaken within external areas. Depending on the nature of the wastes, it will be transferred using:

- Electric vehicles – typically a front end loader or a forklift truck with suitable loading attachments.

- Mechanical conveyors.

Arrangements for mechanically conveying wastes between the various waste storage and physical treatment process (for E-Scrap) are currently being determined. It is anticipated a combination of open and closed conveyor systems will be used, depending on a range of environmental, safety and operational criteria including:

- Physical and chemical characteristics of the waste to be transferred
- How the waste will be handled, and levels of dust generated, particularly in relation to fire risks.
- Ease of access to machinery for cleaning, servicing, maintenance and repair.
- Suitability of misting systems to control dust in the specific area.

The design of the mechanical conveyors will be confirmed in due course.

Wastes bagging/loading and export

Wastes will be transferred from the facility in sealed intermodal containers in bagged and loose form depending on the volume of the specific wastes to be exported and Glencore requirements. It is currently anticipated that:

- Baled or waste that is already bagged will be transferred to the Container Loading area. It will then be loaded into the container by a forklift truck.
- Shredded E-Scrap or loose simple wastes to be bagged will be transferred from storage by forklift truck or front end loader to the bagging plant.
- Shredded E-Scrap to be transferred in loose bulk form will be transferred to the Container Loading Area by front end loaders or forklift trucks.
- Complex wastes will be transferred in bags to the Container Loading Area by front end loaders or forklift trucks.

Design of the bagging and container loading system isprogressing and will be confirmed in due course.

Samples storage

Contingency bulk reserve samples will be stored in a dedicated storage area.

Storage and handling of simple wastes

Figure 3.9 Storage and handling of simple waste

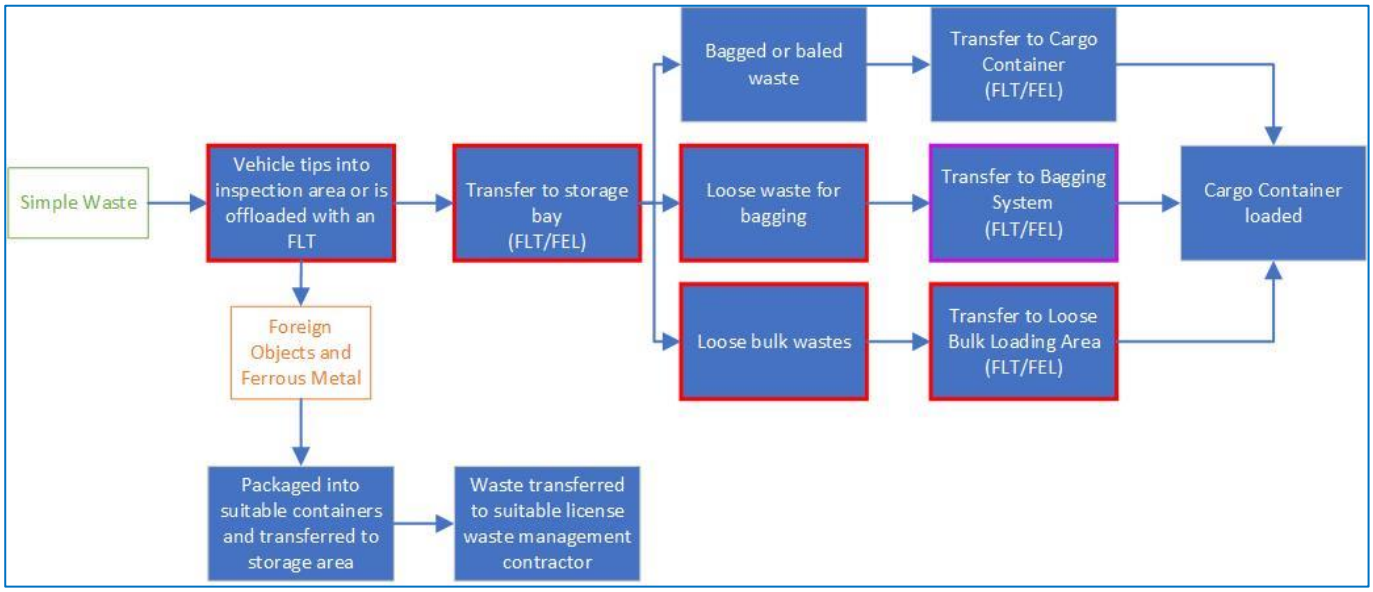


Figure 3.10 Storage and handling of E-Scrap

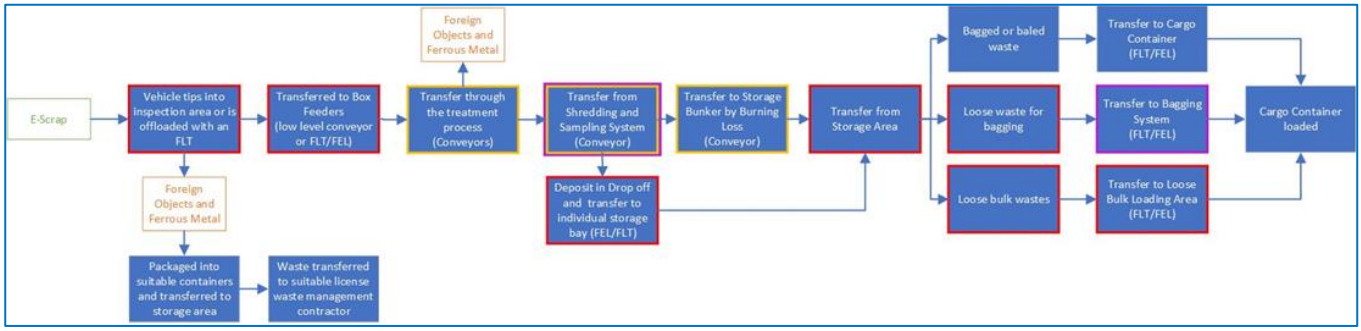
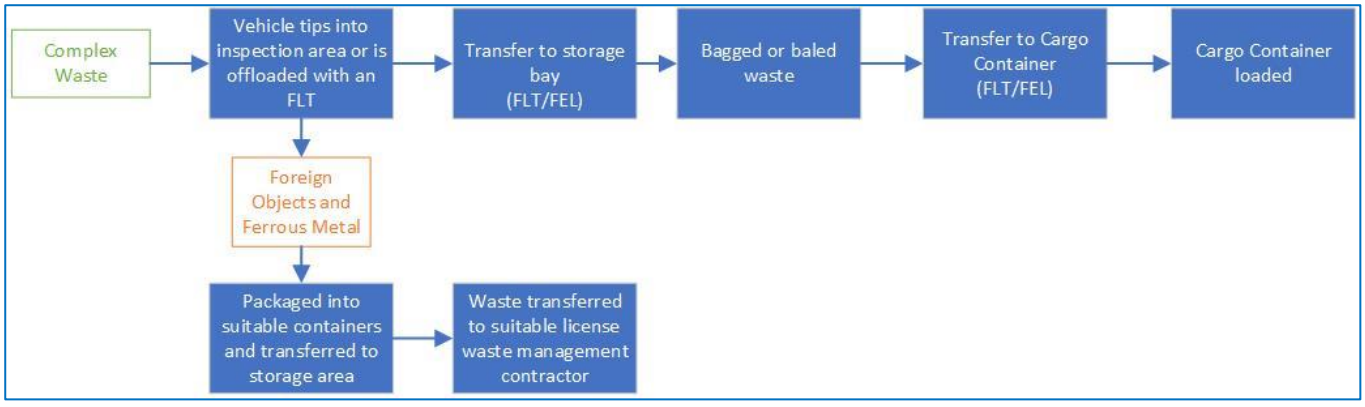


Figure 3.11 Storage and handling of complex wastes



Pollution prevention measures and emissions controls

The following measures will be implemented to minimise emissions to the environment.

- All storage bays will be walled, kerbed and installed with concrete or concrete block fire walls to minimise spread of fire. Fire detection and control measures as outlined in the Site Wide Fire Strategy will be implemented.
- All conveyors will be installed with emergency shut down arrangements.
- Double handling, disturbance and agitation of wastes will be minimised
- Use of lifting and dropping equipment to minimise dust emissions.
- All storage/ handling areas will be cleaned using dry techniques eg. suction/sweeping.
- A combination of covered and uncovered conveyors will be used to minimise dust emissions, taking into account the considerations outlined above.
- A misting system will be used to manage localised dust emissions in areas associated with:
  - Waste offloading, spreading and depositing in storage bays.
  - Opening bags and baled wastes.
  - Bagging and loading wastes into containers.
- A misting system will be available for localised control of dust arising in waste storage bays.
- Air from the bagging plant will be extracted for abatement.
- Minimise agitation/disturbance of stored wastes

Appropriate Measures – Storage of E-Scrap

Table 3.5 Appropriate Measures – Storage of E-Scrap

Reference	Requirement and Applicability	Comment
Storage of Wastes		
BAT Conclusions for Wastes Treatment		
BAT Conclusion 2E	In order to improve the overall environmental performance of the plant, BAT is to use all of the techniques given below. - Ensure waste segregation Waste is kept separated depending on its properties in order to enable easier and environmentally safer storage and treatment. Waste segregation relies on the physical separation of waste and on procedures that identify when and where wastes are stored.	The sorted wastes received though separate storage arrangements will be implemented for simple wastes, complex wastes and E-Scrap as described above.

Reference	Requirement and Applicability	Comment
BAT Conclusion 2f	In order to improve the overall environmental performance of the plant, BAT is to use all of the techniques given below. - Ensure waste compatibility prior to mixing or blending of waste Compatibility is ensured by a set of verification measures and tests in order to detect any unwanted and/or potentially dangerous chemical reactions between wastes (e.g. polymerisation, gas evolution, exothermal reaction, decomposition, crystallisation, precipitation) when mixing, blending or carrying out other treatment operations. The compatibility tests are risk-based considering, for example, the hazardous properties of the waste, the risks posed by the waste in terms of process safety, occupational safety and environmental impact, as well as the information provided by the previous waste holder(s).	All wastes accepted are compatible and only E-Scrap will be treated at the facility.
BAT Conclusion 4	In order to reduce the environmental risk associated with the storage of waste, BAT is to use all of the techniques given below: (a) Optimised storage location This includes techniques such as: —the storage is located as far as technically and economically possible from sensitive receptors, watercourses, etc. — the storage is located in such a way so as to eliminate or minimise the unnecessary handling of wastes within the plant (e.g. the same wastes are handled twice or more or the transport distances on site are unnecessarily long). (b) Adequate storage capacity Measures are taken to avoid accumulation of waste, such as: — the maximum waste storage capacity is clearly established and not exceeded taking into account the characteristics of the wastes (e.g. regarding the risk of fire) and the treatment capacity. — the quantity of waste stored is regularly monitored against the maximum allowed storage capacity. — the maximum residence time of waste is clearly established. (c) Safe storage operation This includes measures such as: — equipment used for loading, unloading and storing waste is clearly documented and labelled. — wastes known to be sensitive to heat, light, air, water, etc. are protected from such ambient conditions. — containers and drums are fit for purpose and stored securely. (d) Separate area for storage and handling of packaged hazardous waste When relevant, a dedicated area is used for storage and handling of packaged hazardous waste.	Wastes will be stored in bags or in loose form and are not putrescible or degradable and will be stored and handled in the bunded main building to prevent impacts to local sensitive receptors. The facility is sized, and purpose designed to accommodate, and operating techniques will be developed to ensure the available storage capacity is understood to ensure this will not be exceeded. The process is designed to minimise unnecessary handling and double handling, using techniques designed to minimise dropping heights and reduce disturbance of waste to minimise dust emissions.

Reference	Requirement and Applicability	Comment
Appropriate Measures – WEEE* and Inert and Non-hazardous Wastes*		
3.2.4*	All relevant storage areas (quarantine, reception and general) and treatment processes in your facility must have the physical capacity needed for the waste you receive. You must not receive wastes if this capacity is not available. The amount of waste you receive must also comply with storage limits in your permit.	This requirement will be complied with.
3.2.5*	The waste offloading, reception and quarantine areas must have impermeable surfaces with a sealed drainage system. This system must collect all surface water run-off and channel it to a blind sump unless you can lawfully discharge it.	This requirement is complied with. In addition, the building is self-bunded and will not be connected to drainage systems.
4.1.1*	You should design and operate your facility in a way that minimises the handling of waste. Waste handling must be carried out by competent staff using appropriate equipment.	This requirement will be complied with.
4.1.2*	Where possible, you should locate storage areas away from watercourses and sensitive perimeters (for example, those close to public rights of way, housing or schools).	This requirement will be complied with.
4.1.3*	You must store all waste within the security protected area of your facility to prevent unauthorised access and vandalism.	This requirement will be complied with.
4.1.4*	You must clearly establish the maximum storage capacity of the site and designated storage areas and you must not exceed these maximum capacities.	This requirement will be complied with.
4.1.5*	You must define capacity in pile sizes as well as tonnage. You must regularly monitor the quantity of waste stored on the site and within the designated areas to check against the allowed maximum capacity. You must also monitor the quantities and pile sizes against those set out in your fire prevention plan.	This requirement will be addressed for storage of bulk materials
4.1.6*	Where relevant, you must conform to Health and Safety Executive (HSE) guidance and standards.	This requirement will be complied with.
4.1.7*	You must not accumulate waste unnecessarily. You must treat wastes, or remove them from the site, as soon as possible. Generally, all wastes must be removed within a maximum of 6 months of receipt. If you have a shorter time period as a permit condition or one is specified in your fire prevention plan you must comply with that condition or the fire prevention plan.	The wastes stored will not be putrescible or degradable and will be removed within the 6 months period stated. It is recommended this period is stated in the Permit.
4.1.8*	You must store all waste in a way that allows easy inspection. You must maintain safe access between piles of wastes. There must always be pedestrian and vehicular access (for example, forklift) to the whole of the storage area.	This requirement has been incorporated into the design and layout of the main building.
4.1.9*	You must store and handle waste in a way that prevents pests and vermin. You must have specific measures and procedures in place to identify and manage any wastes that are causing pests or vermin at your site.	Not applicable given the wastes to be stored at the facility.

Reference	Requirement and Applicability	Comment
4.1.10*	Waste storage areas and stored equipment must be subject to frequent inspection to make sure that any leaks, spillages of liquids, dust or loose material are identified and managed appropriately, and fire breaks are maintained. You must keep written records of the inspections. You must rectify and log any spillages of waste.	An inspection programme will be implemented at the site. These requirements will be incorporated in Operating Techniques.
4.1.11*	You must not carry out activities that represent a clear fire risk within any storage area. Examples include: • grinding • welding or brazing of metalwork • smoking • parking of normal road vehicles except while unloading or loading • recharging forklift truck or power tool batteries	Fire risks have been identified in the Site Wide Fire Strategy and appropriate fire detection and control arrangements will be implemented to mitigate these. All hot work will require permits for control of these activities.
4.1.12*	You should assess areas of the site where explosive atmospheres could occur. Where appropriate these must be classified into hazardous zones in accordance with the Dangerous Substances and Explosive Atmospheres Regulations 2002 (DSEAR).	A DSEAR assessment is currently being undertaken and where appropriate, hazardous areas will be classified, and equipment will be specified accordingly.
4.1.13*	Outdoor waste storage areas must have an impermeable surface with a sealed drainage system. It must collect all surface water run-off and channel it to a blind sump unless it may be lawfully discharged.	Not applicable. Wastes will not be stored in external areas.
4.1.14*	Indoor waste storage areas must have an impermeable surface and you must provide spillage collection facilities.	This requirement will be complied with.
4.1.15*	You must use weatherproof covering to store any items that may be reused as whole appliances or may have components recovered from them for reuse. The type of covering will depend on the types and quantities of waste but must ensure the WEEE is protected from the weather. It could be as simple as a lid or cover over a container for small items but in other cases may require the construction of a roofed building.	Not applicable. All wastes will be stored in internal areas.
4.1.16*	You must also use weatherproof covering in areas used for storage of waste containing hazardous material or fluids where this is necessary to avoid contamination of surface water. This includes, but is not necessarily limited to, the storage of: • lamps and processed fractions • flat panel display equipment which may contain cold-cathode fluorescent lamp (CCFL) backlights and where these are processed by shredding, the shredded fractions • broken cathode ray tubes (CRTs) and CRT glass • shredded WEEE or plastic containing fractions that may be persistent organic pollutant (POPs) waste.	See above.

Reference	Requirement and Applicability	Comment
4.1.17*	Covering may still be required even if you have a consent to discharge surface water to sewer or if water is tankered away. For example, to avoid leached chemicals such as POPs from WEEE plastic entering the water environment.	Not applicable.
4.1.18*	Any spillage or leakage resulting from the storage of WEEE, or processed materials must be collected without delay using equipment and procedures appropriate to the type of spillage. The collected residues must be stored in a lidded, leakproof container. Any containers or surfaces affected by the spillage must be cleaned.	Wastes received will be dry though on the unlikely event of such an occurrence, these requirements will be complied with.
4.1.19*	You must train forklift drivers in the handling of waste, to minimise forklift truck damage to the integrity of containers or individual appliances.	Requirement will be complied with.
4.1.20*	Any liquids removed from WEEE must be collected and stored in lidded, leakproof containers. Containers must be kept closed when not being filled and must be stored within a bunded area to contain any leakage or spillage.	See response to 4.1.18*
4.1.21*	You must store the following separately and securely from other WEEE in leakproof containers to prevent leakage and spillage: • batteries, capacitors and other similar components which could leak • any components which may contain residual liquids • Containers must be closed or stored under cover to prevent the accumulation of rainwater.	This requirement will be complied with, and operating techniques will be implemented to ensure compliance.
4.1.21*	You must clearly label containers to identify their contents.	Requirement will be complied with
4.1.22*	Where lithium-ion batteries are stored (either separately or as mixed batteries) these must be recognised as a fire hazard and marked and stored accordingly.	Requirement will be complied with
4.2.16*	You must not mechanically compact or compress untreated and unsorted SMW during storage and transport. This is to minimise the dispersion of pollutants and the risk of fires caused by damage to batteries.	Requirement will be complied with
Preparing WEEE for Reuse – These requirements are not applicable*		

Forward Action Plan – Storage and handling of E-Scrap

Table 3.6 Forward Action Plan - Storage and handling of E-Scrap

Ref	Information Requirement	Approach to resolution
FA 3.5.1	Outline arrangements for control of fugitive emissions associated with waste bagging/loading.	**During the Determination Period:** Confirm arrangements for loading loose material into containers for export and justify how environmental considerations have been taken into account in the design.
FA 3.5.2	Describe the regulated activities.	**During the Determination Period:** Provide more detailed description of the waste transfer (including conveying systems) arrangements, the bagging plant and container loading and how environmental considerations have been taken into account in design of these arrangements.
FA 3.5.3	Confirm arrangements for storing and handling samples in the installation	**During the Determination Period:** Confirm how samples will be stored and handling, including retention timescales.
FA 3.5.4	Confirm arrangements for controlling and abating emissions to air.	**During the Determination Period:** Confirm arrangements for partitioning / segregating the waste reception/unloading area to control fugitive emissions during import and export of wastes and other access/egress points in the main building and the filter house.

3.6 Physical treatment of E-Scrap

Although all wastes will be subject to visual inspection to confirm suitability for physical treatment and to remove foreign objects, only E-Scrap will be shredded at the installation.

In summary, physical treatment of E-Scrap will involve the following activities:

- Pre-treatment prior to particle size reduction (shredding):
- Foreign materials will be removed during visual inspection.
- E-Scrap will then be screened pending for storage prior to physical treatment.
- Prior to physical treatment, E-Scrap will be transferred over a vibrating spreader to support picking for further removal of any foreign objects.
- Ferrous metals will be removed using an over-band magnet where required.

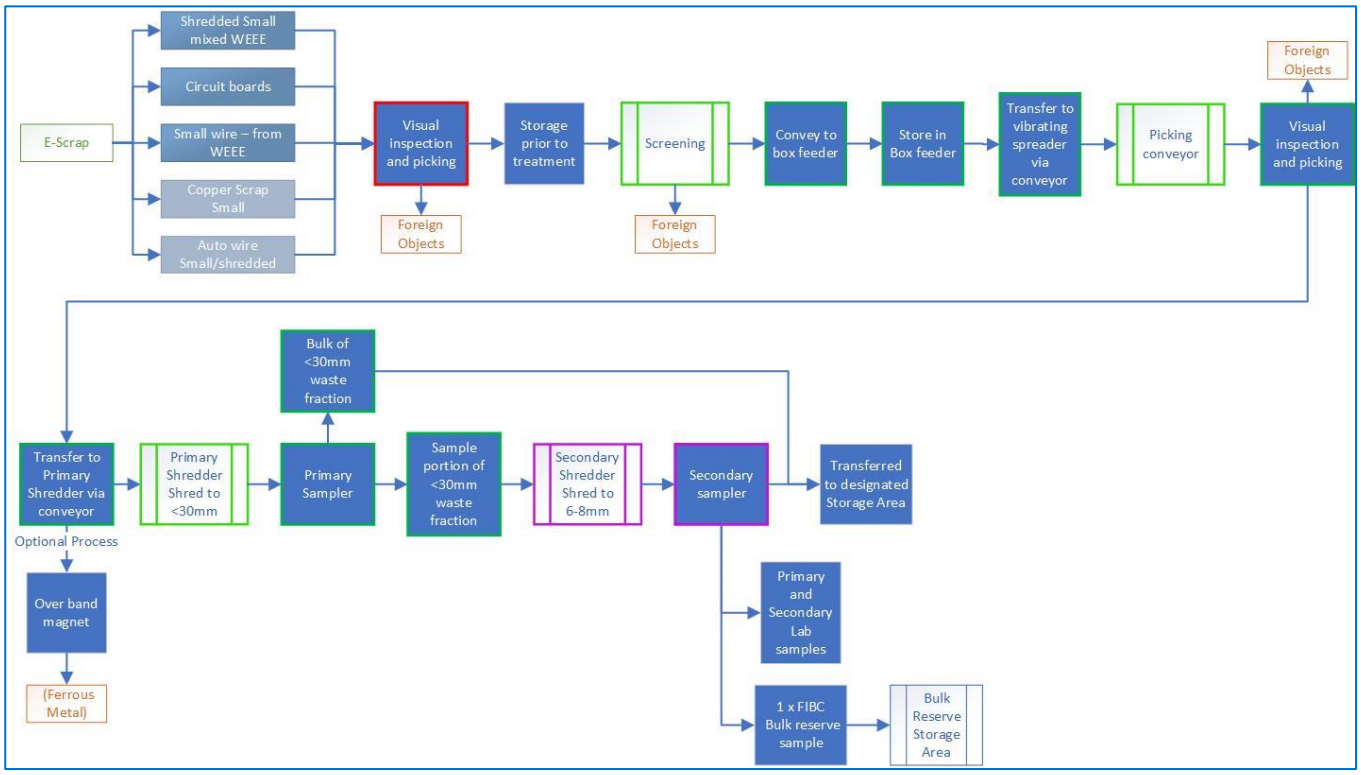
Particle size reduction:

- Primary shredding of the E-Scrap will take place in an enclosed low speed, high torque shredding unit sized to reduce the particle size of the E-Scrap to <30mm. An automatic sampler will be installed at the outlet of the primary shredder to extract representative samples.

- E-Scrap will be transferred to the second shredding unit. A similar shredding technology will be used for this purpose, though this will be sized to enable the particle size to be reduced further to 6-8mm.
- Three samples of E-Scrap will be taken from the outlet of the secondary shredder comprising:
  - Primary laboratory sample, which will be analysed for quality purposes to characterise the commercial value of the consignment.
  - Secondary laboratory sample will be retained for back/up verification purposes.
  - A third reserve sample will be retained for contingency purposes.
- E-Scrap will then be transferred to the allocated storage bunker where it may be blended with other consignments of E-Scrap, pending removal from the site.

Figure 3.12 summarises the processes associated with the physical treatment of E-Scrap.

Figure 3.12 Physical treatment of E-Scrap



For completeness, Figures 3.13 and 3.14 outline arrangements for visual inspection of simple and complex wastes.

Figure 3.13 Physical treatment of simple wastes

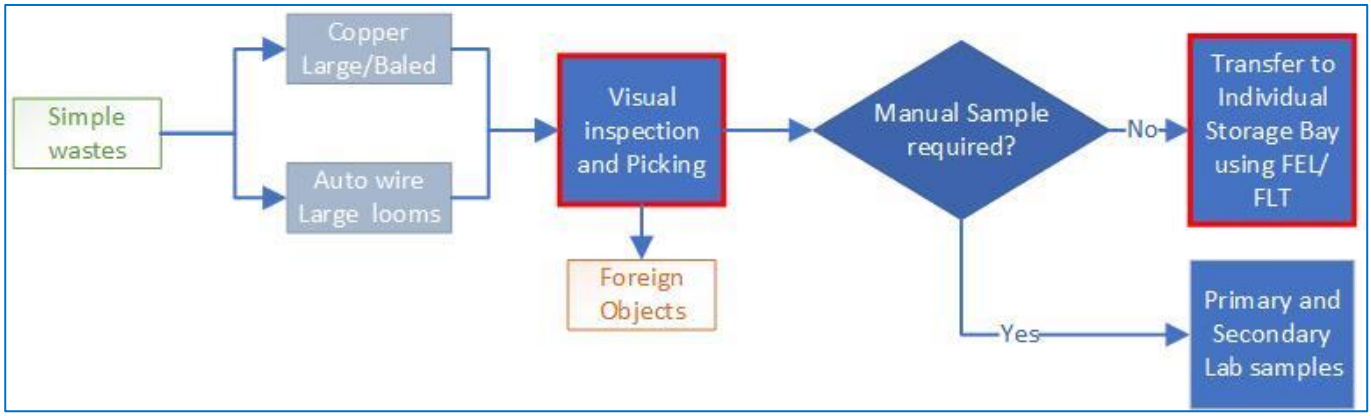
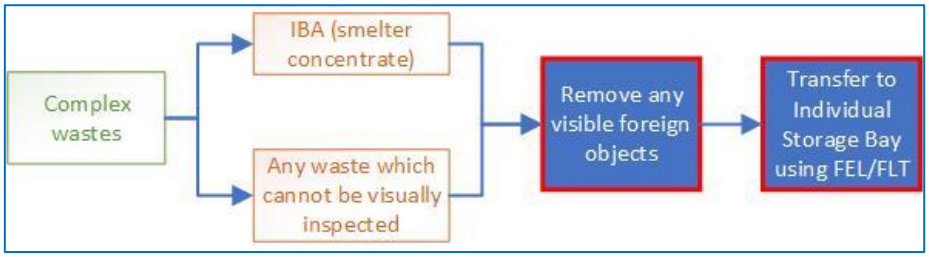


Figure 3.14 Physical treatment of complex wastes



Process and Emissions Control

The following arrangements will be implemented to control the process and associated emissions.

- Dust arising from the vibrating spreader, picking activities, the primary shredder and sampling arrangements and bagging will be extracted for abatement.
- Dust arising from the secondary shredder and sampling arrangements will be retained in a closed loop system. Displaced air from the system will pass through a filter before it is returned into the main building
- Fire detection and control arrangements as outlined in the Site Wide Fire Strategy will be implemented.

Table 3.7 Appropriate Measures – Treatment of E-Scrap

Reference	Requirement and Applicability	Comment
BAT Conclusions for Wastes Treatment		
BAT Conclusion 27	In order to prevent deflagrations and to reduce emissions when deflagrations occur, BAT is to use technique a. and one or both of the techniques b. and c. given below a) Deflagration management plan This includes: — a deflagration reduction programme designed to identify the source(s), and to implement measures to prevent	Not applicable. The potential for deflagrations is not considered likely given the characteristics and properties of the waste streams.

Reference	Requirement and Applicability	Comment
	deflagration occurrences, e.g. inspection of waste input as described in BAT 26a, removal of dangerous items as described in BAT 26b. —a review of historical deflagration incidents and remedies and the dissemination of deflagration knowledge. — a protocol for response to deflagration incidents. b) Pressure relief dampers Pressure relief dampers are installed to relieve pressure waves coming from deflagrations that would otherwise cause major damage and subsequent emissions c) Pre-shredding Use of a low-speed shredder installed upstream of the main shredder	
BAT Conclusion 2d	In order to improve the overall environmental performance of the plant, BAT is to use all of the techniques given below. - Set up and implement an output quality management system This technique involves setting up and implementing an output quality management system, so as to ensure that the output of the waste treatment is in line with the expectations, using for example existing EN standards. This management system also allows the performance of the waste treatment to be monitored and optimised, and for this purpose may include a material flow analysis of relevant components throughout the waste treatment. The use of a material flow analysis is risk-based considering, for example, the hazardous properties of the waste, the risks posed by the waste in terms of process safety, occupational safety and environmental impact, as well as the information provided by the previous waste holder(s).	Not applicable. The purpose of the physical treatment process is to reduce the particle size of a very limited range of waste streams using relatively simple shredding technologies.
Appropriate Measures - WEEE		
4.2.16	You must not mechanically compact or compress untreated and unsorted SMW during storage and transport. This is to minimise the dispersion of pollutants and the risk of fires caused by damage to batteries.	Not applicable. SMW will not be compressed or compacted prior to physical treatment,
General Waste Treatment		
5.2.1*	Where WEEE cannot be prepared for reuse, it must be treated to maximise the recycling and recovery of materials whether that is at the same facility or by further downstream processing	With the exception of foreign materials, and samples extracted from the physical treatment process, all WEEE contained in E-Scrap will be treated on site. Non-conforming WEEE will be returned to the waste supplier.
5.2.2*	You must fully understand, monitor and optimise your waste treatment process to make sure you treat waste effectively and efficiently. You must not treat waste to deliberately dilute it or mix any hazardous outputs with any non-hazardous outputs.	The site will operate rigorous process controls to ensure the waste it shredded in an optimal manner. As the physical treatment is particle size reduction with will not alter the characteristics of the waste. Blending/mixing of wastes will occur in the storage bunkers where they are stored according to burning loss.

Reference	Requirement and Applicability	Comment
		This will not alter the classification of the waste or impact their onward recovery. Hazardous and non-hazardous wastes will not be mixed.
5.2.3*	The treated output material must meet your expectations and you must fully classify and characterise them to ensure they are suitable for their intended disposal or recovery route.	The waste outputs will be treated to the requisite standard using a simple waste treatment technology (shredders) for recovery by the client site. These will be classified and characterised in accordance with national and international legal requirements.
5.2.4*	You must identify and characterise emissions from the process and take appropriate measures to control them at source.	The characteristics of the waste have been assessed and evaluation of the components of dust emissions have been subject to detailed assessment. Emissions from the dust extraction system will be abated to achieve the BAT-AEL for dust.
5.2.5*	You must have up-to-date written details of your treatment activities, and the abatement and control equipment you are using. This should include information about the characteristics of the waste you will treat, and the waste treatment processes, including: • simplified process flowsheets that show the origin of any emissions • details of emission control and abatement techniques for emissions to air and water, including details of their performance • diagrams of the main plant items where they have environmental relevance – for example, storage, tanks, treatment and abatement plant design • details of manual dismantling processes, for example removal of cables and plugs, removal of batteries, capacitors and printer cartridges, draining of oil from radiators • details of physical treatment processes, for example shredding, separation, compaction, filtration, heating, cooling or washing • details of any chemical treatment processes • details of any biological treatment processes • details of any effluent treatment, including a description of any flocculants or coagulants used • an equipment inventory, detailing plant type and design parameters – for example, time, temperature, pressure • waste types to be subjected to the process • the control system philosophy and how the control system incorporates environmental monitoring information • process flow diagrams (schematics)	This requirement will be complied with for activities undertaken at the installation.

Reference	Requirement and Applicability	Comment
	• venting and emergency relief provisions • a summary of operating and maintenance procedures • process instrumentation diagrams	
5.2.6*	You must have up to date written details of the measures you will take during abnormal operating conditions to make sure you continue to comply with permit conditions. Abnormal operating conditions may include: • unexpected releases • start up • momentary stoppages • shut down	This information will be detailed in the Operating Techniques and other management arrangements to be developed.
5.2.7*	You should use material flow analysis for relevant contaminants in the waste to help identify their flow and fate. You should use the analysis to determine the appropriate treatment for the waste either directly at the site or at any subsequent treatment site.	This point is noted.
5.2.10 *	The use of material flow analysis is risk-based considering: • the hazardous properties of the waste • the restricted chemicals in the waste • the risks posed by the waste in terms of process safety • occupational safety and environmental impact knowledge of the previous waste holders	This point is noted.
5.2.8*	Material flow analysis considers the contaminant quantity in the: • waste input • different waste treatment outputs • waste treatment emissions	This point is noted.
5.2.9*	You should use the analysis and your knowledge of the fate of the contaminants to make sure you correctly treat and either destroy or remove them.	The waste shredding process will not change the chemical characteristics of the wastes.
5.2.11*	A treatment process may destroy certain substances in the waste. It could also put substances into the air, water or the ground, or produce residues which are sent for disposal. You should minimise the weight of these outputs. The treatment process may produce residues for recovery or reuse, and you should maximise the weight of these outputs.	The treatment process will not change the physical or chemical characteristics of the waste though it is acknowledged dust will be generated. The treatment process is designed to enable recovery of dust from dust abatement equipment etc.

Reference	Requirement and Applicability	Comment
5.2.12*	You must not proceed with the treatment if your risk assessment or material flow analysis indicates that losses from a process will cause: • the breach of an environmental quality standard • the breach of a benchmark • a significant environmental impact	This point is noted and will be incorporated into operating techniques to be developed.
5.2.13*	To track and control the process of change, you must have a written procedure for proposing, considering and approving changes to technical developments, or to procedural or quality changes.	This requirement will be complied with.
5.2.14*	You must minimise the release of diffuse emissions to air from activities which may give rise to them (for example, shredding or granulating) by: • carrying out the activity using enclosed equipment or in an enclosed building • maintaining the enclosed equipment or buildings under an appropriate pressure • collecting and directing the emissions to an appropriate abatement system	The shredders will be enclosed and installed in an enclosed building and air associated with the shredders will be extracted for abatement. Dust control will be adopted for other activities.
5.2.15*	Unless you are preparing it for reuse, you must remove all fluids from WEEE along with those substances, mixtures and components listed in Annex VII of the WEEE Directive.	Dry wastes only will be accepted at the installation.
5.2.16*	Removal may be a staged process and may be undertaken at different facilities. You must be able to demonstrate either: • you have removed the substances, mixtures and components listed in Annex VII of the WEEE Directive from WEEE as required by the conditions of your permit • those substances, mixtures and components will be removed at a suitably authorised downstream treatment facility	The purpose of the physical treatment process is to provide representative samples of wastes for analysis. The residual material will be transferred to Glencore sites for smelting. Confirmation will be required that the sites are suitably licensed to accept and treat the wastes.
5.2.17*	You must make sure that any substances, mixtures and components removed as part of your treatment process are subsequently recovered or disposed of at an appropriately permitted facility.	All wastes will be transferred to suitably licensed waste carriers and Glencore smelting facilities in accordance with legal and regulatory requirements.
5.2.18*	If you transfer partially treated WEEE to another site you must properly describe it, so the recipient knows which treatments are complete and which still need to be done.	See above. This requirement will be complied with.
5.2.19*	You should no longer routinely find certain hazardous items and substances that were once used in electrical appliances but are now banned. However, they may still be present on occasions. For example, any capacitors found in equipment manufactured before 1987 should be assumed to contain polychlorinated biphenyls (PCBs) unless there is clear evidence to the contrary. Asbestos may be found in old coffee pots and heating elements. You must be alert to these possibilities and ensure you have documented procedures in place to identify and remove	This point is noted.

Reference	Requirement and Applicability	Comment
	them for appropriate disposal before any mechanical or shredding operation takes place. Capacitors containing PCB are POPs waste and must be treated in a way that results in the destruction of the PCB content.	
5.2.20*	You must monitor and record the outputs of your treatment activity, including their weight. The monitoring must be used to provide evidence that the treatment and removal of these components and substances has been carried out to a satisfactory standard.	Treatment will be limited to particle size reduction by shredding only.
5.2.21*	When removing components, you must safely remove the whole item were breaking it up might: • pollute the recyclate or waste stream • result in unacceptable emissions	Not applicable. Activities undertaken at the site will be limited to sorting of waste and particle size reduction of E-Scrap. Breaking activities will not be undertaken.
5.2.22*	Components that you must always remove whole, that is intact and identifiable, (unless this guidance states specific circumstances where you do not need to) include: • capacitors containing PCBs • mercury containing components • toner cartridges • components with asbestos • components with refractory ceramic fibres • components with radioactive substances • gas discharge lamps including CCFL backlights • cathode ray tubes • electrolyte capacitors containing substances of concern that have a height or diameter greater than 25mm, or have a proportionately similar volume • batteries and powerpacks	This point is noted.
5.2.23*	Instead of removing them as whole components, you may recover the following as fragments or materials using mechanical treatment: • chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs) or hydrofluorocarbons (HFCs), hydrocarbons (HCs) • external electric cables • printed circuit boards • liquid crystal displays • the activated coating in cathode ray tubes (CRTs) • plastic with brominated flame retardants (BFRs)	This point is noted.

Reference	Requirement and Applicability	Comment
5.2.24*	You may either: • sort batteries on site • send batteries as a mixture of chemistry types to a specialist battery treatment operator for sorting	This requirement will be complied with.
5.2.25*	You must pack and store lithium and lithium-ion batteries removed from WEEE during treatment in a way to minimise the likelihood of electrical shorting, physical impact and overheating.	This requirement will be complied with
5.2.26*	All outdoor WEEE treatment areas must have an impermeable surface with a sealed drainage system. It must collect all surface water run-off and channel it to a blind sump unless it may be lawfully discharged.	All physical treatment will be undertaken in a secure building.
5.2.27*	Indoor WEEE treatment areas must have an impermeable surface and you must provide spillage collection facilities appropriate to the materials being handled.	This requirement will be complied with.
5.2.28*	WEEE treatment should take place under weatherproof covering such as a roofed building. Where this is not practicable, for example, due to the large size of the plant, appropriate measures must be taken to minimise the exposure of waste to rain and wind. This may include the covering of: • hoppers • conveyors • skips of treated materials • storage bays containing treated materials	This requirement will be complied with.
Treatment of WEEE containing BFRs and POPs		
5.3.1*	You must identify, separate and remove any plastic containing BFRs for further treatment	Due to the type of material further treatment to remove the residual BFRs will not be possible. The BFRs will be treated at the downstream recovery site where they are destroyed in the thermal smelting process.
5.3.3*	You must make sure that any items of WEEE and any component or material fractions derived from the treatment of WEEE that is POPs waste (as defined by Regulation (EU) 2019/1021 of the European Parliament and of the Council of 20 June 2019 on persistent organic pollutants) are treated as required by that regulation. This means the treatment must make sure the POP content is destroyed or irreversibly transformed. The only known cost effective way of doing this is by incineration or similar thermal treatment. You must not recycle this plastic. Check the guidance on the classification of WEEE and the presence of POPs.	E-Scrap comprising wires and cables contained in plastic sheaths will be shredded to reduce particle size. The plastic component that may contain persistent organic pollutants will not be removed or treated at this installation. These will be treated at the downstream recovery site where they are destroyed in the thermal smelting process.
5.3.4*	POPs may be present in any WEEE category. In large domestic appliance (LDA) white goods (tumble driers, washing machines, dishwashers and cookers only) and temperature exchange equipment,	This point is noted

Reference	Requirement and Applicability	Comment
	POPs have been shown to be present but in insufficient quantities to make the appliances themselves POPs waste.	
5.3.5*	All other categories of WEEE should be regarded as POPs waste, unless you have clear evidence of the chemical composition of the cables, printed circuit boards and plastic components in the individual devices present that demonstrates it is not.	The risk based approach to acceptance assumes all E-Scrap will contain persistent organic pollutants.
5.3.6*	Plastic removed from WEEE that is POPs waste must be managed as POPs waste.	Plastic will not be removed from WEEE at the site.
5.3.7*	Components that have been found to contain POPs above the POPs waste threshold include printed circuit boards and electrical cable. If you remove these and/or any other components that may be POPs waste as a separate stream from any type of WEEE you must treat them and any plastic fractions resulting from their treatment, as POPs waste unless you have clear evidence that proves they are not.	The risk based approach to acceptance assumes all E-Scrap will contain persistent organic pollutants and these will be managed on site accordingly.
5.3.8*	Components that have been found to contain POPs above the POPs waste threshold include printed circuit boards and electrical cable. If you remove these and/or any other components that may be POPs waste as a separate stream from any type of WEEE you must treat them and any plastic fractions resulting from their treatment, as POPs waste unless you have clear evidence that proves they are not.	The risk based approach to acceptance assumes all E-Scrap will contain persistent organic pollutants and these will be managed on site accordingly.
5.3.8*	The treatment of WEEE that is not POPs waste, but which may contain POPs in some components, may result in fractions where the POPs threshold is exceeded. You must assess plastic containing fractions at each stage in the treatment process to establish whether the threshold is exceeded and, where it is, manage those fractions as POPs waste.	The risk based approach to acceptance assumes all E-Scrap will contain persistent organic pollutants and these will be managed on site accordingly.
5.3.9*	You may treat any plastic that is POPs waste to separate the POPs containing fraction from the non-POPs containing plastic. For example, density separation can be used to separate plastic containing all BFRs from that which does not. The non-BFR plastic may then be recycled. You must demonstrate that your process reliably achieves a satisfactory separation.	The risk based approach to acceptance assumes all E-Scrap will contain persistent organic pollutants. Plastics will not be separated and recovered with all POPs being destroyed in the downstream thermal smelting process
5.3.10*	Other hazardous chemicals may be used as flame retardants. For example, antimony trioxide has been widely used as a synergist with a range of BFRs, not just those that are POPs. It has also been widely used in polyvinyl chloride (PVC) cable even where BFRs are absent. It is present in some plastics at concentrations exceeding the hazardous waste threshold. You must consider antimony trioxide when you are classifying any WEEE or plastic containing fraction from the treatment of WEEE.	This point is noted.
5.4.1*	At least once a year, for every WEEE stream you treat, you must carry out a mass balance exercise to determine and record the mass of each individual output fraction derived from a given mass of input material. The batch size must be large enough to make sure you can assess a representative sample of typical input materials.	It is anticipated this requirement will be included as a condition in the Environmental Permit.

Reference	Requirement and Applicability	Comment
5.4.2*	You should compare each set of results with previous results to monitor the performance of your site and to ensure it is performing optimally.	Performance criteria will be determined and incorporated into Environmental Management arrangements.
5.4.3*	Where process monitoring requires chemical analysis to be carried out on waste fractions and residues produced by your treatment process, this must be carried out by an independent accredited laboratory, using recognised accredited methods where they are available.	The waste will not be treated to produce waste fractions other than the removal of any minor amounts of foreign objects and ferrous metal.
5.4.4*	You must have, and be able to provide, a full description of the material testing and analysis procedures and methods used, which provide details of the calibration methods and reference standards used.	This requirement will be complied with.
5.4.5*	You must choose the sample containers and packaging used for storing and transporting according to the nature and requirements of the materials they will contain. For example, chemical properties, pressure and gas tightness.	This requirement will be complied with.
5.4.6*	You must clearly label sample containers with at least the name of the treatment facility, a description of the waste material or residue contained, the waste stream it was produced from and the date of sampling.	This requirement will be complied with.
5.4.7*	You must make sure that any required sample is representative of the waste and has been taken by someone technically competent to do so. A representative sample is one that takes account of the full variation and any partitioning of the material.	All samples will be taken by competent and trained persons with experienced Metallurgists and Chemists within the BRM business able to provide assistance as needed to ensure the waste is representatively sampled
5.4.8*	Samples must be stored in a dark, cool place and dispatched to the laboratory for analysis as soon as possible, preferably within 24 hours of being taken.	The wastes are not degradable. Samples will be stored and dispatched to laboratories using techniques that reflect the characteristics of the waste.
5.4.9*	You must carry out sampling under normal operating conditions unless otherwise stated.	This point is noted.
5.4.10*	If process monitoring shows that the performance of your treatment plant does not meet any of the standards stated in this guidance, you must send a report to the Environment Agency, summarising: • the actions you will take to improve performance in order to achieve the standards given, including any additional sampling and testing • the dates you will complete these actions by, including the dates for any additional sampling and testing	This requirement is noted
5.4.11*	• Wherever possible you should sample waste fractions and residues in line with relevant guidance, for example: • WM3 Waste classification – Guidance on the classification and assessment of waste – Appendix D	Waste sampling will be undertaken in accordance with authoritative guidance and methodologies and incorporated into the operating techniques to be agreed with the Environment Agency

Reference	Requirement and Applicability	Comment
	• EN 14899 Characterization of waste – Sampling of waste materials – Framework for the preparation and application of a Sampling Plan • CEN/TR 15310 1 Characterization of waste – Waste Collection – Part 1: Guide on the selection and application of criteria for sampling under various conditions • CEN/TR 15310 2 Characterization of waste – Waste Collection – Part 2: Guide on sampling techniques • CEN/TR 15310 3 Characterization of waste – Waste Collection – Part 3: Guide on procedures for sub sampling in the field • CEN/TR 15310 4 Characterization of waste – Waste Collection – Part 4: Guide to the packaging procedures for storage, conservation, transportation and delivery of samples • CEN/TR 15310 5 Characterization of waste – Sampling of waste – Part 5: Guide on the process of developing a sampling plan. Other guidance on waste sampling and analysis can be found in A10 Weeelabex de-pollution monitoring specification	either prior to or following acceptance of first waste
Treatment of Gas Discharge Lamps – Not applicable		
Treatment of Cathode Ray Tube Equipment – Not applicable		
Treatment of Flat panel Displays - Not applicable as these will not be received as units at the installation and components will not be removed		
Treatment of Gas Discharge Lamps – Not applicable as these will not be received at the installation		
Treatment of Small mixed WEEE		
5.8.1*	Small mixed waste electrical and electronic equipment (SMW) can consist of many different categories of WEEE, including those requiring specific forms of treatment such as CRT equipment, gas discharge lamps and temperature exchange equipment containing refrigerants. You must identify items such as these and remove them for appropriate treatment.	E-Scrap will have been subject to pre-sorting and following acceptance, E-Scrap will be subject to two stages of visual inspection and screening to remove non-conforming wastes.
5.8.2*	If you treat separately any particular categories of small WEEE, the guidance in this section still applies subject to any category specific guidance that may exist, for example for display equipment.	Not applicable. Particular categories of small WEEE will not be treated.
5.8.3*	Some appliances found in SMW are known to contain high concentrations of POPs in plastic components such as casings, cables and printed circuit boards. You must manage SMW and all plastic containing fractions from treating SMW as POPs waste unless you can prove they are not.	The waste acceptance process will assume that all E-Scrap contains persistent organic pollutants.
5.8.4*	You must remove the following items from SMW before mechanical treatment: • any WEEE or component containing a fluid, such as oil filled radiators	This requirement is noted. See comment above in relation to inspection and sorting wastes to comply with these requirements.

Reference	Requirement and Applicability	Comment
	• any components containing mercury such as fluorescent lamps and mercury switches • any WEEE containing any CRT display or a FPD of greater than 100 square centimetres in area • any WEEE containing asbestos or refractory ceramic fibres identified in Annex VII of the WEEE Directive • any WEEE or component containing radioactive substances, such as ionization smoke detectors • any WEEE containing CFCs, HCFCs, HFCs or hydrocarbon gases, such as small refrigeration equipment, portable air conditioners and dehumidifiers • all external batteries (including powerpacks) and internal batteries designed to be accessible by the user • any non-WEEE items that may contain fluids or hazardous substances, such as petrol lawnmowers or gas cylinders	
5.8.5*	You must remove the following items from SMW before mechanical treatment unless your specific process makes sure they remain whole and intact, and you have effective procedures to remove them following that treatment: • capacitors identified in Annex VII of the WEEE Directive • ink and toner cartridges	This point is noted.
5.8.6*	You must also remove the following from SMW, but you can do this as material streams after mechanical treatment: • external electrical cables • printed circuit boards from mobile phones and from other devices if greater than 10 square centimetres in area • batteries other than those identified in measure 4, provided they remain intact and identifiable • plastics containing BFRs	E-Scrap for acceptance will comprise these wastes streams.
5.8.7*	If you mechanically treat SMW, you must provide and use an effective dust extraction and abatement system to minimise dust release.	Dust will be extracted and abated by a bag filter and a polishing filter, consistent with Appropriate Measures. These technologies are consistent with appropriate measures for the wastes to be imported and the E-Scrap to be treated.
5.8.8*	Where you use a mechanical process to shred SMW you must sample the physically finest non-metallic fraction at least once every 6 months and test for: • mercury with a limit value of 1mg/kg • cadmium with a limit value of 100mg/kg	This point is noted. It is anticipated a condition requiring compliance with this requirement will be included in the Environmental Permit.

Reference	Requirement and Applicability	Comment
Treatment of IT, Telecommunications and Business Equipment		
5.9.1*	This can consist of many different categories of WEEE including those requiring specific forms of treatment such as flat panel display equipment. You must identify items like these and remove them for appropriate treatment.	This point is noted.
5.9.2*	Some appliances found in IT, telecommunications and business equipment are known to contain high concentrations of POPs. You must manage this waste stream and all plastic containing fractions arising from the treatment of it as POPs waste, unless you can prove they are not.	The waste acceptance process will assume E-scrap comprising IT, telecommunications and business equipment will contain persistent organic pollutants and the waste streams will be managed accordingly.
5.9.3*	If you mechanically treat IT, telecommunications and business equipment, you must meet the standards for small mixed WEEE (see section 5.8).	See above.
5.9.4*	Where you use a mechanical process to shred IT, telecommunications and business equipment, you must sample the physically finest non-metallic fraction at least once every 6 months and test for: • mercury, with a limit value of 1mg/kg • cadmium with a limit value of 100mg/kg	This point is noted. It is anticipated a condition requiring compliance with this requirement will be included in the Environmental Permit.
Large Domestic Appliances – Not applicable as these appliances will not be received as single units and dismantling will not take place at the installation.		
Photovoltaic Panels - Not applicable as these appliances will not be received as single units and dismantling will not take place at the installation.		
Post-shredding Treatments – not applicable. There will be no post -shredding treatment of E-Scrap as the purpose of the facility is to provide representative samples of the waste consignments to be transferred to the client sites.		
Record Keeping for all Treatment Residues		
5.13.1*	You must record in the waste tracking system: • that the WEEE has been treated or consigned to another WEEE treatment facility • what WEEE has been prepared for reuse or has been consigned to a preparing for reuse operator • what the treatment residues, treated components and fractions are	This requirement will be incorporated into the operating techniques and management arrangements for the facility.

Forward Action Plan – Treatment of E-Scrap

There are no forward actions relating to physical treatment of E-Scrap.

4. Environmental Management

4.1 Applicant Organisation

BRM is a subsidiary of the Glencore Group of companies. BRM will be the legal owner and operator of the E-Scrap Facility with technical and operational control over all aspects of the facility.

Glencore will manage the commercial aspects related to the sourcing of materials and the final recovery within the Glencore Group Smelter Facilities.

4.2 Technical Competence

BRM will implement a Competence Management Scheme developed by the Environmental Services Association and Energy & Utility Skills. Evidence of the approved contract with LQRA is submitted with the application forms.

4.3 Description of Environmental Management Arrangements

Management arrangements for the proposed activities will be incorporated into the Environmental Management System currently implemented by BRM. Activities undertaken at the adjacent lead refining site are currently managed by this system.

It is acknowledged that the environmental management arrangements will require modification to ensure effective management of compliance activities and characterisation and control of environmental aspects and impacts.

The Environmental Management System for the E-Scrap facility will be created in accordance with the ISO14001 standard and incorporated in the existing company ISO14001 certification via an extension of scope.

A gap assessment has been undertaken of the ISO 14001 standard and arrangements to be implemented to accommodate the regulated activities. Many parts of the existing EMS will be applicable to the new E-Scrap facility such as the structure, standards and policies with gaps identified related to E-Scrap specific legal and operational aspects.

The development of the E-Scrap facility specific management system elements will follow the standard ISO14001 methodology with a formal review and update of the environmental aspects and legal registers. Where identified in the review specific operating procedures and work instructions will be created to ensure compliance with the legal and operational requirements of the E-Scrap facility.

BRM also operates an Energy management System certified to the ISO 50001: 2018 standard. The certificates for these systems are provided at Appendix G.

Appropriate Measures

Refer also to Appendix D. Table 4.1 Appropriate Measures – Environmental Management

Table 4.1 Appropriate Measures – Environmental Management

Reference	Requirement and Applicability	Comment
Appropriate Measures – WEEE* and Non-hazardous Wastes**		
2.1.1**	You review the development of cleaner technologies and their applicability to site operations. We would expect cleaner technologies to be considered: • as a result of substantiated pollution incidents • when reviewing management systems • when planning investment decisions, for example new items of plant. Your limits must also reflect the constraints of the available space and waste handling processes. You must include factors like seasonal changes in supplies of inputs, and markets for outputs. More information on understanding capacity is available in our RGN 2 guidance. You must have a document control procedure that clearly describes how and when you will periodically review documentation and maintain version control You must have a written procedure for proposing, considering and approving changes to procedures or infrastructure related to storing or treating waste or pollution control. This is so you can track and control the process of change.	This requirement will be complied with for the relevant scenarios stated. These requirements will be complied with.
Staff Competence		
2.2.1*	Your facility must be operated at all times by an adequate number of staff with appropriate training, qualifications and competence.	This requirement will be complied with.
2.2.1**	Your facility must be operated at all times by an adequate number of staff with appropriate training, qualifications and competence. You must keep records of training, qualifications and relevant experience.	A resourcing assessment has been undertaken to ensure This requirement will be complied with.
2.2.2* and 2.2.3**	The design, installation and maintenance of infrastructure, plant and equipment must be carried out by competent people, *including Construction Quality Assurance where appropriate***.	A competent engineering consultancy has been appointed to design the facility. All plant and equipment has been specified and will be provided by competent contractors. Experience designing and specifying arrangements for waste facilities has been given a high priority in the procurement process.
2.2.2**	If you operate a 24-hour process, you must have: • remote or telemetric systems to make sure an alarm would be raised in the event of an incident during unmanned hours • appropriate personnel on call to deal with these incidents You must explain these procedures in your management system.	In the event 24 hour operations are undertaken, the site will be manned.

Reference	Requirement and Applicability	Comment
2.2.3* 2.2.4**	You must have appropriately qualified managers for your waste activity who are either: • qualified under a technical competence scheme • operating under a Competence Management System approved under a technical competence scheme *and who attend the facility as set out in the Attendance Guidance* **	Technical competence requirements will be complied with.
2.2.4*	Non-supervisory staff must be reliable and technically skilled in the activities they are responsible for and in emergency response procedures. Their skills may be based on experience and relevant training.	A skills matrix will be developed for all personnel delivering roles and responsibilities associated with the Permit.
2.2.5**	Staff carrying out waste acceptance checks, including sampling and analysis of waste, must be appropriately trained and competent to: • classify and characterise waste properly • identify whether it is suitable for your facility • manage any loads that do not conform to waste acceptance criteria determine end of waste products	This requirement will be complied with.
2.5.1*	You must have and implement a contingency plan and management procedures to make certain you comply with all your permit conditions and operating procedures during maintenance or shutdown at your site.	A Contingency Plan will be developed for the installation.
2.5.2*	Your contingency plan must also contain provisions and procedures to make sure that you: • do not exceed storage limits in your permit and you continue to apply appropriate measures for storing and handling waste • stop accepting waste unless you have a clearly defined method of recovery or disposal and enough permitted storage capacity • as far as possible, know in advance about any planned shutdowns at waste management facilities where you send waste Your contingency plan must include plans and procedures for circumstances where you cannot send your wastes to other sites due to their planned or unplanned shutdown.	These requirements will be complied with.
2.5.3*	If you produce an end-of-waste material at your facility, your contingency planning must consider issues with storage capacity for end-of-waste products.	Not applicable. The facility will not be producing end of waste materials.
2.5.4*	You must make your customers aware of your contingency plan, and of the circumstances in which you would stop accepting waste from them.	This requirement will be complied with.
2.5.5*	You must consider whether the sites or companies you rely on in your contingency plan: • can take the waste at short notice	

Reference	Requirement and Applicability	Comment
	are authorised to do so in the quantities and types likely to be needed – in addition to carrying out their existing activities	
2.5.6*	Where circumstances mean you could exceed your permitted storage limits or compromise your storage procedures, you must look for alternative disposal or recovery options. You must not discount alternative disposal or recovery options based on extra cost or geographical distance.	This requirement will be complied with.
2.5.7*	You must not include unauthorised capacity in your contingency plan. If your contingency plan includes using temporary storage for additional waste on your site, then you must make sure your site is authorised for this storage and you have the appropriate infrastructure in place.	This point is noted.
2.5.8*	Your management procedures and contingency plan must: • identify known or predictable malfunctions associated with your technology and the procedures, spare parts, tools and expertise needed to deal with them • include a record of spare parts held, especially critical spares – or state where you can get them from and how long it would take • have a defined procedure to identify, review and prioritise items of plant which need a preventative regime • include all equipment or plant whose failure could directly or indirectly lead to an impact on the environment or human health • identify 'non-productive' or redundant items such as tanks, pipework, retaining walls, bunds, reusable waste containers (for example wheeled carts), ducts, filters and security systems make sure you have the spare parts, tools, and competent staff needed before you start maintenance	This requirement will be complied with.
2.5.9*	Your management system must include procedures for auditing your performance against all these contingency measures and for reporting the audit results to the site manager.	This requirement will be complied with.
2.6.1*	You must consider the decommissioning of the plant at the design stage and make suitable plans to minimise risks during later decommissioning.	This requirement has been complied with and is addressed in the design.
2.6.2*	For existing plant, identify potential decommissioning risks and take steps to address these. Make changes and design improvements as and when plant is upgraded, or when construction and development works are carried out at your site. Examples of design improvements could include avoiding using underground tanks and pipework. If it is not economically possible to replace them, you must protect them by secondary containment or a suitable monitoring programme.	Not applicable. The facility is purpose designed.
2.6.3*	You must have and maintain a decommissioning plan to demonstrate that: • plant will be decommissioned without causing pollution the site will be returned to a satisfactory condition	This requirement will be complied with.

Reference	Requirement and Applicability	Comment
2.6.4*	Your decommissioning plan should include details on: • whether you will remove or flush out pipelines and vessels (where appropriate) and how you will empty them of any potentially harmful contents • site plans showing the location of all underground pipes and vessels • how asbestos or other potentially harmful materials will be removed, unless we have agreed it is reasonable to leave such liabilities to future owners • methods for dismantling buildings and other structures, and for protecting surface water and groundwater during construction or demolition at your site • any soil testing needed to check for any pollution caused by the site activities, and information on any remediation needed to return the site to a satisfactory state when you cease activities, as defined by the initial site condition report • the measures proposed, once activities have definitively stopped, to avoid any pollution risk and to return the site of operation to a satisfactory state (including, where appropriate, measures relating to the design and construction of the plant) the clearing of deposited residues, waste and any contamination resulting from the waste treatment activities	This requirement will be complied with.
2.6.5*	You should make sure that equipment taken out of use is decontaminated and removed from the site.	This point is noted.

Forward Action Plan – Environmental Management

There are no Forward Actions relating to environmental management.

5. Raw Materials

The installation has a very limited requirement for raw materials as:

- Analysis of E-Scrap, engineering and maintenance activities will be undertaken at off-site locations.
- Dry techniques for cleaning waste storage areas and equipment will be implemented.
- On site vehicles will be electric.

The raw materials requirement for the installation has been characterised and is summarised at Table 5.1.

Table 5.1 Raw Materials Inventory Including Water

Name	Chemical Composition /Characteristics	Annual Requirement	Fate % to product, to water, to air or as waste	Environmental Hazard/Risk phrases	Primary, Secondary and Tertiary Containment
Diesel	Hydrocarbon	Not applicable, Diesel will be used as back up fuel for fire pumps	100% to air	Toxic to aquatic life	Self-bunded tank stored on sealed hardstanding
Water: Misting system	Potable water	730,000L assuming these are operated at full capacity for 50% of operational hours.	95% to air 5% to product	No environmental ecotoxicological effects.	Small volume water tanks stored in main building,
Sanitary facilities	Potable water	47,160 litres	100% to waste	Biodegradable	Conventional cess tank located externally below ground
Lubricants - in-situ servicing and maintenance activities	Range of oils and greases	Less than 1 tonne per annum	10% to air 90% to waste	Not readily biodegradable, low solubility, non-volatile	Stored in designated area beyond the installation boundary,

Efficient Use of Resources (Waste Minimisation)

The efficient use of resources and approaches to minimising waste generation is integral to the environmental management arrangements implemented by BRM, though given the very low and narrow range of raw materials, opportunities for reduction are limited. Opportunities to minimise water consumption have been considered by the project and water will be minimised using the following techniques:

- Using misting system in atomiser mode in areas associated with reduced dust emissions.
- Use of misting equipment only when dust generating activities are being undertaken.

Further opportunities to reduce water consumption will be considered as the design of the facility progresses. Unavoidable wastes will, however, arise on site and their management and disposal or recovery will be managed in accordance with the waste hierarchy and consistent with the obligations associated with conditions included in the Permit.

Appropriate Measures

Table 5.2 Appropriate Measures – Wastes Minimisation, Recovery and Disposal.

Reference	Requirement and Applicability	Comment
BAT Conclusions for Wastes Treatment		
BAT Conclusion 19	In order to optimise water consumption, to reduce the volume of wastewater generated and to prevent or, where that is not practicable, to reduce emissions to soil and water, BAT is to use an appropriate combination of the techniques given below.	
	(a)Water management Water consumption is optimised by using measures which may include: — water-saving plans (e.g. establishment of water efficiency objectives, flow diagrams and water mass balances). — optimising the use of washing water (e.g. dry cleaning instead of hosing down, using trigger control on all washing equipment). — reducing the use of water for vacuum generation (e.g. use of liquid ring pumps with high boiling point liquids).	The water requirement for the installation is limited for the reasons set out above. Options to reuse and recycle water into the process are limited, though are currently being evaluated by the project and will continue to be evaluated by the operator when the facility is introduced into service.
	(b)Water recirculation Water streams are recirculated within the plant, if necessary, after treatment. The degree of recirculation is limited by the water balance of the plant, the content of impurities (e.g. odorous compounds) and/or the characteristics of the water streams (e.g. nutrient content).	Not applicable
	(c) Impermeable surface Depending on the risks posed by the waste in terms of soil and/or water contamination, the surface of the whole waste treatment area (e.g. waste reception, handling, storage, treatment and dispatch areas) is made impermeable to the liquids concerned.	Imported and treated E-Scrap will be stored within the building which will be founded on sealed concrete hardstanding,

Reference	Requirement and Applicability	Comment
	(d) Techniques to reduce the likelihood and impact of overflows and failures from tanks and vessels Depending on the risks posed by the liquids contained in tanks and vessels in terms of soil and/or water contamination, this includes techniques such as: — overflow detectors. —overflow pipes that are directed to a contained drainage system (i.e. the relevant secondary containment or another vessel). — tanks for liquids that are located in a suitable secondary containment; the volume is normally sized to accommodate the loss of containment of the largest tank within the secondary containment. — isolation of tanks, vessels and secondary containment (e.g. closing of valves).	Not applicable
	(e) Roofing of waste storage and treatment areas Depending on the risks posed by the waste in terms of soil and/or water contamination, waste is stored and treated in covered areas to prevent contact with rainwater and thus minimise the volume of contaminated run- off water.	
	(f) Segregation of water streams Each water stream (e.g. surface run-off water, process water) is collected and treated separately, based on the pollutant content and on the combination of treatment techniques. In particular, uncontaminated wastewater streams are segregated from wastewater streams that require treatment.	Opportunities for recovering run off and roof water for use in misting units will be considered, though given the fine nature of the nozzles, it is acknowledged this may not be practicable.
	(g) Adequate drainage infrastructure The waste treatment area is connected to drainage infrastructure. Rainwater falling on the treatment and storage areas is collected in the drainage infrastructure along with washing water, occasional spillages, etc. and, depending on the pollutant content, recirculated or sent for further treatment.	This requirement will be complied with.
	(h) Design and maintenance provisions to allow detection and repair of leaks Regular monitoring for potential leakages is risk-based, and, when necessary, equipment is repaired. The use of underground components is minimised. When underground components are used and depending on the risks posed by the waste contained in those components in terms of soil and/or water contamination, secondary containment of underground components is put in place.	With the exception of sanitary wastewater, all storm water run-off will be transferred to surface water drainage systems. The potential for contamination of storm water run-off has been taken into account in the design and operating techniques to be implemented at the installation and design and specification of the drainage system. An oil-water separator will be installed to remove hydrocarbons associated with vehicle movements at the site and to retain settleable dusts and silts washed into the drainage system. Water and sediment collected in the oil water separator will be periodically removed from the installation by a suitably licensed contractor.
	(i) Appropriate buffer storage capacity Appropriate buffer storage capacity is provided for wastewater generated during other than normal operating conditions using a risk-based approach (e.g. taking into account the nature of the pollutants, the effects of downstream wastewater treatment, and the	

Reference	Requirement and Applicability	Comment
	receiving environment). The discharge of wastewater from this buffer storage is only possible after appropriate measures are taken (e.g. monitor, treat, reuse).	The water supply systems and drainage system will be subject to periodic inspection and maintenance. The water requirement for the plant is nominal and the process will not give rise to process / trade effluent that will be directly released to the environment. Water released from the misting system will not generate leachate; the mist will nominally increase the moisture content of the E-Scrap.
BAT Conclusion 11	BAT is to monitor the annual consumption of water, energy and raw materials as well as the annual generation of residues and wastewater, with a frequency of at least once per year. Monitoring includes direct measurements, calculation or recording, e.g. using suitable meters or invoices. The monitoring is broken down at the most appropriate level (e.g. at process or plant/installation level) and considers any significant changes in the plant/installation.	It is anticipated conditions will be included in the Environmental Permit requirement monitoring of these aspects.
Appropriate Measures – WEEE* and Non-hazardous Wastes**		
8.2.1*	For your facility, you must monitor and review the annual quantity of: • water, energy and raw materials used • residues and wastewater produced	It is anticipated conditions will be included in the Environmental Permit requiring monitoring and reporting of these criteria.
8.2.1*	You must maintain a list of the raw materials used at your facility and their properties. This includes auxiliary materials and other substances that could have an environmental impact.	This requirement will be complied with,
8.2.2*	You must regularly review the availability of alternative raw materials and use any suitable ones that are less hazardous or polluting. This should include, where possible, substituting raw materials with waste or waste-derived products.	This requirement will be complied with though it is acknowledged opportunities will be limited given the very limited raw materials requirement and the requirement for lubricants etc will be determined by manufacturers' specifications for plant and equipment
8.2.3*	You must justify the continued use of any substance for which there is a less hazardous alternative.	This requirement has been taken into account in the selection of dust abatement techniques. It is considered there are no further opportunities to substitute for less hazardous alternatives.
8.2.4*	You must have quality assurance procedures in place to control the content of raw materials.	His requirement is not considered applicable given the nature of the raw materials required.

Reference	Requirement and Applicability	Comment
8.3.1*	You must take measures to make sure you optimise water consumption to: • reduce the volume of wastewater generated • prevent or, where that is not practicable, reduce emissions to soil and water	This requirement will be complied with.
8.3.2*	Measures you must take include: • implementing a water saving plan (involving establishing water efficiency objectives, flow diagrams and water mass balances) • optimising the use of washing water (for example, dry cleaning instead of hosing down, using trigger control on all washing equipment) • recirculating and reusing water streams within the plant or facility, if necessary, after treatment • the use of water for vacuum generation (for example, using liquid ring pumps with high boiling point liquids), where relevant	These requirements will be required with where practicable,
8.3.3*	You must carry out a regular review of water use (a water efficiency audit) at least every 4 years.	It is anticipated this requirement will be included as a condition in the Permit though it is acknowledged further opportunities to reduce water use are limited.
8.3.4*	You must also: • produce flow diagrams and water mass balances for your activities • establish water efficiency objectives and identify constraints on reducing water use beyond a certain level (usually this will be site specific) • identify the opportunities for maximising reuse and minimising use of water • have a timetabled improvement plan for implementing additional water reduction measures	Given the water requirement of the installation and the water uses, it is not considered these measures are proportionate.
8.3.5*	To reduce water use and associated emissions to water, you should apply these general principles in sequence: • use water efficient techniques at source where possible • reuse water within the process, by treating it first if necessary – if not practicable, use it in another part of the process or facility that has a lower water quality requirement	This requirement will be taken into account in the design and operating techniques for the facility.
8.3.6*	If you cannot use uncontaminated roof and surface water in the process, you should keep it separate from other discharge streams – at least until after you have treated the contaminated streams in an effluent treatment system and have carried out final monitoring.	All roof and surface water will be discharged to surface water drainage system. Sanitary wastewater will be contained in a cess tank and will not be transferred to a drainage system. Process effluent will not be generated at the facility.

Reference	Requirement and Applicability	Comment
8.3.7*	You should establish the water quality requirements associated with each activity and identify whether you can substitute water from recycled sources. Where you can, include it in your improvement plan.	This requirement has been considered.
8.3.8*	Where there is scope for reuse (possibly after some form of treatment) you should keep less contaminated water streams, such as cooling waters, separate from more contaminated streams.	This requirement will be complied with.
8.3.9*	You must minimise the volume of water you use for cleaning and washing down by: • vacuuming, scraping or mopping in preference to hosing down • reusing wash-water (or recycled water) where practicable • using trigger controls on all hoses, hand lances and washing equipment	This requirement is complied with as described above,
8.3.10*	You must directly measure freshwater consumption and record it regularly at every significant usage point, ideally on a daily basis.	Given the very limited water requirement, it is not considered appropriate to comply with this requirement.

Forward Action Plan – Raw materials, wastes minimisation, recovery and disposal

There are no forward actions relating to raw materials, waste minimisation, recovery and disposal.

6. Waste Handling and Storage

Activities associated with the E-Scrap facility will give rise to a limited range of waste streams, for the reasons stated in Section 5. It is currently anticipated these will be stored in the main building.

It should be noted that it is agreed with the Environment Agency that the laboratory for analysis of samples will not be regulated by the Environment Agency.

Table 6.1 Wastes Inventory

Waste Description	Waste Code Classification	Volume Generated	Disposal/recovery	Primary, Secondary and Tertiary Storage
Laboratory samples	As the materials samples	To be confirmed	Recovered where appropriate	Suitably designed covered containers Sealed hardstanding
Waste packaging, including bulk bags for importing E-Scrap	Absolute Hazardous 15 01 10* or 15 01 01 15 01 02 15 01 03 depending upon the material and contamination	To be confirmed	Recovered where practicable	Suitably designed covered containers. Sealed hardstanding
Foreign materials and ferrous metal removed from E-Scrap	Mixed codes depending upon the foreign object	To be confirmed	Wastes will be returned to waste suppliers in accordance with contractual obligations. It is assumed these will be managed in accordance with the waste hierarchy and relevant Permit conditions	Covered containers Sealed hardstanding
Dust sweepings. (assuming a significant component of this waste stream will comprise E-Scrap).	Absolute Hazardous 19 02 04*	To be confirmed	Exported along with treated E-Scrap	Covered containers Sealed hardstanding within a designated storage bay.
Dust collected in the Bag Filter	Absolute Hazardous 19 02 04*	To be confirmed	Exported along with treated E-Scrap	Covered containers Sealed hardstanding within a designated storage area
Servicing and maintenance wastes – lubricants & hydrocarbons	Various codes may apply depending upon the material used	Less than 0.25 tonnes	Recovery	Covered drums or similar containers Sealed hardstanding

Waste Description	Waste Code Classification	Volume Generated	Disposal/recovery	Primary, Secondary and Tertiary Storage
Adsorbents associated with maintenance activities including dust filters	Absolute Hazardous 15 02 02 and 15 02 03	Less than 0.25 tonnes	Recovery	Covered drums or similar containers Sealed hardstanding

All waste streams will be managed in accordance with legal and regulatory requirements and practices accepted as Appropriate Measures.

Appropriate Measures

Table 6.2 Appropriate Measures – Waste Handling and Storage

Reference	Requirement and Applicability	Comment
BAT Conclusions for Wastes Treatment		
BAT Conclusion 24	In order to reduce the quantity of waste sent for disposal, BAT is to maximise the reuse of packaging, as part of the residues management plan (see BAT 1). ***Description*** Packaging (drums, containers, IBCs, pallets, etc.) is reused for containing waste, when it is in good condition and sufficiently clean, depending on a compatibility check between the substances contained (in consecutive uses). If necessary, packaging is sent for appropriate treatment prior to reuse (e.g. reconditioning, cleaning). ***Applicability*** Some applicability restrictions derive from the risk of contamination of the waste posed by the reused packaging.	Waste drums and containers that may previously have stored grease and lubricants may be used for storage of foreign materials where practicable. Opportunities to reuse packaging will be evaluated by the project, though it is acknowledged that opportunities may be limited. It is currently considered at this stage, that it will not be possible to reuse bulk bags for the following reasons: ● It is important that bulk bags used for export E-Scrap are of sound integrity and the sheer strength is retained in the event these are to be used to contain wastes exported from the installation. ● The design of arrangements and Operating Techniques for bag splitting during unloading are developed to minimise dust emissions. A process for releasing products from bulk bags without splitting will increase dust emissions.
BAT Conclusion 11	BAT is to monitor the annual consumption of water, energy and raw materials as well as the annual generation of residues and wastewater, with a frequency of at least once per year. Monitoring includes direct measurements, calculation or recording, e.g. using suitable meters or invoices. The monitoring is broken down at the	It is anticipated that a condition requiring monitoring of these aspects will be included in the Environmental Permit. The management arrangements/operating techniques for the installation will be developed to comply with these requirements.

	most appropriate level (e.g. at process or plant/installation level) and considers any significant changes in the plant/installation.	
Appropriate Measures – WEEE* and Inert and Non-hazardous Wastes**		
8.4.1*	You must have and implement a residues management plan that minimises the generation of residues arising from waste treatment optimises the reuse, regeneration, recycling or energy recovery of residues, including packaging makes sure you properly dispose of residues where recovery is technically or economically impractical	Given the nature of the wastes generated it is not considered appropriate that this requirement is required to be complied with
8.4.2*	Where you must dispose of waste, you must carry out a detailed assessment identifying the best environmental options for waste disposal.	See above.
8.4.3*	You must review options for recovering and disposing of waste produced at the facility on a regular basis. You must do this as part of the management system to make sure you are: • still using the best environmental options • promoting the recovery of waste where technically and economically viable	See above,

Forward Action Plan – Waste Handling and Storage

There are no forward actions relating to waste handling and storage.

7. Energy Efficiency and Climate Change

7.1 Energy Requirement and Energy Efficiency

Energy Management - Management Systems

Requirements for energy management will be incorporated into the Environmental Management System.

Energy Consumption / Input

It is anticipated the installation will have an annual energy requirement of approximately 1,752,000 kw.

The facility has a requirement for electricity for:

- Operation of plant, equipment and IT security.
- Charging site vehicles.
- Lighting the main building, associated facilities and external areas.
- Operating fire pumps.

Diesel will be used for operation of the fire pumps.

The electricity requirement will be met by mains supply and electricity generated on site by photovoltaic cells. Electricity will not be exported from the site.

The following measures have been incorporated to ensure the efficient use of energy for retained assets:

- Energy efficiency lighting.
- Energy efficient machinery.
- Use of rechargeable vehicles.
- Use of low lux external lighting.
- Sensors and timers for internal and external lighting.

7.2 Climate Change

The Environmental Management System will incorporate measures to evaluate and manage climate change in accordance with Appropriate Measures.

Appropriate Measures - Energy Efficiency

Table 7.1 Appropriate Measures – Energy Efficiency

Reference	Requirement and Applicability	Comment
BAT Conclusions for Wastes Treatment		
BAT Conclusion 23	In order to use energy efficiently, BAT is to use both of the techniques given below. **Energy efficiency plan** An energy efficiency plan entails defining and calculating the specific energy consumption of the activity (or activities), setting key performance indicators on an annual basis (for example, specific energy consumption expressed in kWh/tonne of waste processed) and planning periodic improvement targets and related actions. The plan is adapted to the specificities of the waste treatment in terms of process(es) carried out, waste stream(s) treated, etc. **Energy balance record** An energy balance record provides a breakdown of the energy consumption and generation (including exportation) by the type of source (i.e. electricity, gas, conventional liquid fuels, conventional solid fuels, and waste). This includes: (i) information on energy consumption in terms of delivered energy; (ii) information on energy exported from the installation; (iii) energy flow information (e.g., Sankey diagrams or energy balances) showing how the energy is used throughout the process. The energy balance record is adapted to the specificities of the waste treatment in terms of process(es) carried out, waste stream(s) treated, etc.	A benchmark(s) for specific energy consumption will be developed. Electricity will be used to meet the energy requirement for the installation. The regulated processes are relatively simple, and energy will not be exported from the installation.
BAT Reference Document for Waste Treatment. BAT Conclusion 28	In order to use energy efficiently, BAT is to keep the shredder feed stable.	The plant is designed to be fed consistently when in operation.
Appropriate Measures – WEEE and Inert and Non-hazardous Wastes		
8.1.1*	You must create and implement an energy efficiency plan at your facility. This must:	This requirement will be complied with.

Reference	Requirement and Applicability	Comment
	• define and calculate the specific energy consumption of the activities you carry out and waste streams you treat • set annual key performance indicators – for example, specific energy consumption (expressed in kWh/tonne of waste processed) • plan periodic improvement targets and related actions	
8.1.2*	You must regularly review and update your energy efficiency plan as part of your facility's management system.	It is anticipated this requirement will be included as a condition in the Environmental Permit.
8.1.3*	You must have and maintain an energy balance record for your facility. This must provide a breakdown of your energy consumption and generation (including any energy or heat exported) by the type of source (electricity, gas, conventional liquid fuels, conventional solid fuels, and waste). You should provide Sankey diagrams or energy balances to show how energy is used in your waste treatment processes.	This requirement will be complied with.
8.1.4*	You must regularly review and update your energy balance record as part of your facility's management system, alongside the energy efficiency plan.	It is anticipated this requirement will be incorporated into the Environmental Management System.
8.1.5*	You must have operating, maintenance and housekeeping measures in place in relevant areas, for example, for: • air conditioning, process refrigeration and temperature exchange systems (leaks, seals, temperature control, evaporator or condenser maintenance) • the operation of motors and drives • compressed gas systems (leaks, procedures for use) • steam distribution systems (leaks, traps, insulation) • space heating and hot water systems • lubrication to avoid high friction losses • boiler operation and maintenance, for example, optimising excess air other maintenance relevant to the activities within the facility	The facility will not accommodate air conditioning, process refrigeration, cooling systems, compressed gas systems, boiler, steam distribution systems, space heating and hot-water systems. Therefore, BAT requirements related to these systems are not considered further. The process has been designed for efficient use of energy and a range of energy efficiency measures are incorporated as outlined above. The relevant requirements of Appendix 2 of the Guidance for Energy Efficiency will be implemented and plant, equipment, machinery and the building (including infrastructure) will be managed in accordance with the inspection, servicing and maintenance regime.
8.1.6*	You must have measures in place to avoid gross energy inefficiencies. These should include, for example: • insulation • containment methods (such as seals and self-closing doors) avoiding unnecessary discharge of heated water or air (for example, by fitting simple control systems such as timers and sensors)	The building is purpose designed and is designed to incorporate energy efficiency measures, for example, the main building will be installed with rapid closing shutter doors.

Reference	Requirement and Applicability	Comment
8.1.7*	You should implement additional energy efficiency measures at the facility as appropriate, following our guidance on energy efficiency standards for industrial plants.	This guidance has been considered in the design of the facility.
Others		
Energy efficiency web guidance	Design your installation to be energy efficient using the techniques listed in section 3 of the Reference Document on Best Available Techniques for Energy Efficiency	The main BAT requirement from section 3 of the Reference Document on Best Available Techniques for Energy Efficiency for this stage relates to the use of variable speed drives. The chosen technology at the post feasibility stage (detailed design / procurement) will consider the use of variable speed drives or potentially speed drives where appropriate.

Forward Action Plan – Energy Efficiency

There are no forward actions relating to energy efficiency.

8. Accidents and nuisance risk assessment

A preliminary desk based screening assessment of accident scenarios and environmental risks associated with the project has been undertaken and is presented at Table 8.3. The assessment is based on information available at the time of submission and will be updated with more detailed environmental risk assessments for emissions to air and water as the design progresses. Further scenarios may be identified as the design develops and the risk assessment will be updated accordingly.

For the purpose of the environmental risk assessment presented, the risk ranking severity and likelihood categories to be applied are those of the Glencore Corporate Risk Matrix.

Table 8.1 Risk ranking matrix

Glencore Corporate Risk Matrix		Likelihood				
		E – Rare	D – Unlikely	C – Possible	B – Likely	A – Almost Certain
Consequence	5 – Catastrophic	15 (M)	19 (H)	22 (H)	24 (H)	25 (H)
	4 – Major	10 (M)	14 (M)	18 (H)	21 (H)	23 (H)
	3 – Moderate	6 (L)	9 (M)	13 (M)	17 (H)	20 (H)
	2 – Minor	3 (L)	5 (L)	8 (M)	12 (M)	16 (M)
	1 – Negligible	1 (L)	2 (L)	4 (L)	7 (M)	11 (M)

Table 8.2 defines the likelihood and severity criteria used to inform this assessment.

Table 8.2 Risk ranking criteria

Likelihood	
A – Almost Certain	May occur several times per year OR Expected to occur OR Has occurred several times within Glencore
B – Likely	May occur about once per year OR More likely to occur than not occur OR Has occurred at least once within Glencore
C – Possible	Could occur more than once during a lifetime OR Is likely to occur as not to occur OR Has occurred at least once in the mining / commodities trading industries
D – Unlikely	Could occur about once during a lifetime ORIs more likely NOT to occur than to occur OR Has occurred at least once in broader worldwide industry

E- Rare	Unlikely to occur during a lifetime OR Very unlikely to occur OR No known occurrences in broader worldwide industry
Severity	
5 – Catastrophic	Multiple fatalities (5 or more fatalities in a single incident) Multiple cases (5 or more) of Permanent Damage Injuries or Diseases that result in permanent disabilities in a single incident
4 – Major	Long-term (2 to 10 years) impact Requires significant remediation Single incident resulting in: Less than 5 Fatalities Permanent Damage Injury or Disease that results in a permanent disability- less than 5 cases in a single incident
3 – Moderate	Medium-term (<2 years) impact (typically within a year) Requires moderate remediation Lost Time Injury Lost Time Disease Permanent Disabling Injury Permanent Disabling Disease Single incident that results in multiple medical treatments
2 – Minor	Near source Short-term impact (typically <week) Requires minor remediation Medical Treatment Injury Medical Treatment Disease Restricted Work Injury Restricted Work Disease
1 – Negligible	Near source and confined No lasting environmental damage or effect (typically <day) Requires minor or no remediation First Aid Injury (FAI) or illness (not considered disease or disorder)

8.1 Accidents and nuisance risk assessment

Table 8.3 presents the initial accidents and nuisance risk assessment. This will be revised and updated as the design progresses during the determination period.

Table 8.3 Accident and Environmental Risk Assessment

No	Source	Pathway	Receptor	Harm	Likelihood	Consequence	Magnitude of risk	Justification of magnitude	Risk management and mitigation
Emissions to air									
1	Dust emissions	Air	Site users and occupants /users of proximate premises	Nuisance arising from dust emissions – Normal operations	E – Rare	1 – Negligible	1 – Low	Failure rate based on regulation of other sites Design and specification of dust abatement technologies will comply with appropriate measures. Proximate human receptors are sited at workplace locations.	Dust abatement technologies will comply with appropriate measures for abating dust for metal shredders and treating WEEE comprising E-Scrap to provide appropriate abatement of heavy metals and persistent organic pollutants. The dust filters will be enclosed in a metal housing. Reverse jets will release dust into containers located within the main building via a sealed transfer system. In the event of detection of failure of the abatement plant, the extraction system and physical treatment process the system will trigger an alert to enable a controlled shutdown of the system. Review of industrial failure events identify that bag failure events are often associated with insufficient maintenance. All components of the dust extraction and abatement plant will be subject to regular inspection, servicing and maintenance in accordance with manufacturers' recommendations. Dust Management Plan and an Emergency Plan will be implemented for the facility Dust suppression (misting) will provide localised dampening of dust to reduce fugitive emissions by promoting dropout and contain emissions in building.
				Nuisance arising from dust emissions – Worst reasonable case, rupture of the bag filter	E – Rare	2 – Minor	3 – Low		

No	Source	Pathway	Receptor	Harm	Likelihood	Consequence	Magnitude of risk	Justification of magnitude	Risk management and mitigation
2	Dust emissions	Air	Ecological receptors. Closest proximate receptor considered – Swanscombe Peninsula SSSI and Botany Marshes SSSI	Smothering of vegetation / ingestion by supported populations of invertebrates and birds during normal operations	E – Rare	2 – Minor	3 - Low	Dust abatement technology will be specified to achieve the BAT AEL for dust and compliant with appropriate measures for shredding metals and treating WEEE.	See response at row 1
	Dust emissions			As above – Worst reasonable case, rupture of the bag filter	E – Rare	3 - Moderate	6 - Low		
3	Smoke /unabated dust emissions during fire worst case – assumes loss of integrity of the main building	Air	Human and ecological receptors - Swanscombe Peninsula SSSI and Botany Marshes SSSI	Localised deterioration of air quality Inhalation /ingestion of hazardous substances	D – Unlikely	3 - Moderate	9 – Medium	Sensitivity of receptors. Release of smoke and unabated release of combusted and non-combusted waste in air emissions. Swanscombe Peninsula SSSI is located upwind of prevailing wind direction	Fire detection and control strategy will provide early detection of fire and deployment of firefighting measures, minimising fire damage. Emergency Plan will be deployed in the event of fire. Potential for fire associated with malevolent activity will be deterred due to high level of site security including: - High perimeter boundary fence - CCTV coverage of areas that may be exposed to trespass - Boundary fences between the lead refining plant and the E-Scrap facility - 24 hours security providing protection to the facility and the adjacent facility operated by BRM.
Emissions to water									

No	Source	Pathway	Receptor	Harm	Likelihood	Consequence	Magnitude of risk	Justification of magnitude	Risk management and mitigation
4	Dust emissions	Surface water drainage system	River Thames Marine and water ecology	Deterioration of water quality Harm to marine/water organisms	E – Rare	2 – Minor	3 – Low	Small volume of dust will be transferred to external environment. Design and specification of dust abatement technologies will comply with Appropriate Measures.	The dust filters will be installed in a dedicated area. Releases will be via a vent sited and designed to provide effective dispersion of dust. Dust abatement will comply with Appropriate Measures for abating dust for metal shredders and treating WEEE comprising heavy metals and E-Scrap. Fast-action roller shutter doors will be installed to minimise fugitive releases from building for vehicle loading/unloading There will not be any direct releases of process effluent to site drainage systems. Interceptors designed for sediment capture will be installed to entrain silts containing deposited dusts associated with surface water run-off, A Drainage Management Plan will be implemented at the facility. Localised pollution prevention measures will be available to prevent migration of contaminants during activities that may give rise risk to increased risks to surface water (eg drain covers). An isolation valve will be provided in the surface water drainage to isolate discharges to the ditch in event of a spill or fire.
5	Release of contaminated effluent – worst case assumed to be firefighting water	Surface water drainage system	River Thames Harm to marine/water organisms	Deterioration of water quality Release of hazardous substances to water	E - Rare	2 - Minor	3 – Low	Fire detection, fire protection and retention of firefighting water is afforded a high priority in design of structures, infrastructure and processing plant.	All site buildings will be self-bunded and sized to accommodate anticipated spent fire extinguishant. Drainage system (including interceptors) provide additional capacity and will be installed with valves to isolate surface water drainage system to contain contaminated flows. Isolation valve will close automatically on activation of the fire system. High levels of fire detection and protection is incorporated into design of building structures, infrastructure and processing plant. Emergency Plan will incorporate arrangements for managing fires and fire drills will be undertaken.

No	Source	Pathway	Receptor	Harm	Likelihood	Consequence	Magnitude of risk	Justification of magnitude	Risk management and mitigation
6	Flooding	Water	River Thames Harm to marine/water organisms	Deterioration of water quality Release of hazardous substances to water	E - Rare	2 – Minor	3 – Low		Most of site is benefits from flood defence protection and these will be enhanced to mitigate flood risk. Site is designed to mitigate this risk. A conservative design level has therefore been assumed and the main building and other ancillary facilities will be raised/ bunded.
Releases to ground and groundwater									
7	Release of effluent - reasonable worst case: fire water during dry weather event to minimise dilution effects	Soil	Soil Groundwater	Localised deterioration of soil quality / groundwater	E - Rare	2 – Minor	3 – Low	Soft landscaping Bunded main building with secondary containment on kerbed hard standing.	Fire detection and control strategy will provide early detection of fire and deployment of firefighting measures, minimising fire damage and extinguishant generated. Contaminated flows will be retained within buildings, or within sealed curbed hardstanding. It is anticipated it is unlikely this will be released to / retained in soft landscaping. Potential for overspilling into these areas is remote
Noise									
8	Vehicle movements Extraction fans Operating roller doors	Air	Human receptors Swanscombe Peninsula SSSI and Botany Marshes SSSI	Nuisance Disturbance of ecological receptors	D – Unlikely	2 – Minor	5 – Low	Proximity of Swanscombe Peninsula SSSI Sensitivity of breeding birds to noise	Noise emissions have been screened out for further assessment. Limited number of traffic movements undertaken during daytime hours Operational activities will be undertaken in buildings. Noise Management Plan will be implemented. Equipment will be specified to generate low noise emissions

No	Source	Pathway	Receptor	Harm	Likelihood	Consequence	Magnitude of risk	Justification of magnitude	Risk management and mitigation
			Wildlife						
Amenity									
9	Litter	Air	Human receptors Swanscombe Peninsula SSSI and Botany Marshes SSSI Wildlife	Nuisance Loss of amenity Physical harm to wildlife	E-Rare	1 – Negligible	1 – Low	Site is located in an industrial area with proximate sensitive ecology	The site will generate a very limited range of wastes. Wastes will be stored in appropriate receptacles within buildings. Minor amounts of waste will be generated at the welfare facility. These will be stored in bins and removed daily. Site operatives will receive environmental awareness training Wastes will be transferred to a suitably licensed waste contractor.
10	Mud on roads	Vehicles entering/ exiting site	Human receptors	Nuisance Loss of amenity Physical harm to wildlife	C – Possible	1-Negligible	4 – Low	Impact of wet and dried mud on road	Limited number of vehicle movements (10/day) HGVs typically installed with mud shields and matting on wheels Dust Management Plan and a Traffic Management Plan will be implemented. Site Inspections will be undertaken to determine any requirement for cleaning.
11	Odour	Air	Human receptors Swanscombe Peninsula SSSI and Botany Marshes SSSI	Nuisance Loss of amenity	1 -Negligible	E -Rare	1 - Low	Nature of wastes present at the site	See row 9. Odorous, degradable & putrescible wastes will not be accepted at the facility

No	Source	Pathway	Receptor	Harm	Likelihood	Consequence	Magnitude of risk	Justification of magnitude	Risk management and mitigation
12	Animals, pests and insects	Air	Human receptors Wildlife Swanscombe Peninsula SSSI and Botany Marshes SSSI	Nuisance Loss of amenity	1 -Negligible	E -Rare	1 - Low	Nature of wastes present at the site	See rows 9 and 11.

Appropriate Measures

Table 8.4 Appropriate Measures – Accidents and Environmental Risk Assessment

Reference	Requirement and Applicability	Comment
BAT Conclusions for Wastes Treatment		
BAT Conclusion 21	BAT 21. In order to prevent or limit the environmental consequences of accidents and incidents, BAT is to use all of the techniques given below, as part of the accident management Protection measures: • These include measures such as: • protection of the plant against malevolent acts • fire and explosion protection system, containing equipment for prevention, detection, and extinction • accessibility and operability of relevant control equipment in emergency situations. Management of incidental/accidental emissions • Procedures are established and technical provisions are in place to manage (in terms of possible containment) emissions from accidents and incidents such as emissions from spillages, firefighting water, or safety valves. • Incident/accident registration and assessment system	These requirements will be complied with.
Appropriate Measures – WEEE* and Inert and Non-hazardous Wastes**		
2.3.1* 2.3.1**	As part of your management system you must have a plan for dealing with any incidents or accidents that could result in pollution	This requirement will be implemented
2.3.2*	The accident management plan must identify and assess the risks the facility poses to human health and the environment.	This requirement will be complied with for all relevant scenarios
2.3.3*	Areas to consider may include: • waste types and the risks they pose • robust waste acceptance procedures to avoid receiving unwanted items, such as gas cylinders • failure of abatement systems • failure of plant and equipment (for example over-pressure of vessels and pipework, blocked drains) • failure of containment (for example, bund failure, or drainage sumps overfilling) • damaged lithium-ion batteries • failure to contain firefighting water • making the wrong connections in drains or other systems • checking the composition of an effluent before emission • vandalism and arson • extreme weather conditions, for example flooding or very high winds • loss of power	

Reference	Requirement and Applicability	Comment
	• transferring substances, for example filling (including overfilling) or emptying of vessels and containers** • preventing incompatible substances coming into contact with each other** • failure of containment, for example bund failure or drainage sumps overfilling** • failure of abatement systems** • hazardous atmospheres in confined spaces** • failure of main services, for example power, steam or cooling water** • operator error** • accessibility of control equipment in emergency situations**	
2.3.4*	You must assess the risk of accidents and their possible consequences. Risk is the combination of the likelihood that a hazard will occur and the severity of the impact resulting from that hazard. Having identified the hazards, you can assess the risks by addressing 6 questions: • how likely is it that the accident will happen? • what may be emitted and how much? • where will the emission go – what are the pathways and receptors? • what are the consequences? • what is the overall significance of the risk? • what can you do to prevent or reduce the risk?	The preliminary assessment provided at Table 8.3 addresses these requirements. The table will be updated as the design progresses.
2.3.5*	In particular, you must identify any fire risks that may be caused, for example by: • arson or vandalism • self-combustion, for example the finer fractions of shredder residue • plant or equipment failure and electrical faults • naked lights and discarded smoking materials • hot works (for example welding or cutting), industrial heaters and hot exhausts • neighboring site activities • sparks from loading buckets • hot loads deposited at the site • damage to, or shorting of, batteries You must have a fire prevention plan that identifies the risks at your site and meets the requirements of our fire prevention plan guidance.	This requirement has been taken into account in the Fire Prevention Plan
2.3.6*	The depth and type of accident risk assessment you carry out will depend on the characteristics of the plant and its location. The main factors to consider are the: • scale and nature of the accident hazard presented by the plant and its activities • risks to areas of population and the environment (the receptors) • nature of the plant and complexity of the activities and how difficult it is to decide and justify adequate risk control techniques	The point is noted.
2.3.7**	You must train your employees so they can perform their duties effectively and safely and know how to respond to an emergency.	This requirement will be complied with.
2.3.7*	Through your accident management plan, you must also identify the roles and responsibilities of the staff involved in managing accidents. You must provide them with clear guidance on how to manage each accident scenario, for example, whether to use containment or dispersion to extinguish fires, or let them burn.	This requirement will be complied with.

Reference	Requirement and Applicability	Comment
2.3.8* 2.3.6**	You must appoint one facility employee as an emergency co-ordinator who will take lead responsibility for implementing the plan. You must train your employees so they can perform their duties effectively and safely and know how to respond to an emergency.	This requirement will be complied with.
2.3.9*	You must also: • establish how you will communicate with relevant authorities, emergency services and neighbours (as appropriate) both before, during and after an accident • have appropriate emergency procedures, including for safe plant shutdown and site evacuation • have post-accident procedures that include assessing the harm that may have been caused by an accident and the remediation actions you will take • test the plan by carrying out emergency drills and exercises • *consider the impact of accidents on the function and integrity of plant and equipment* • *have contingency plans to relocate or remove waste from the facility, and suspend incoming waste**	This requirement will be implemented in the Accident Management Plan.
2.3.9**	After a flooding event you must inspect and assess the integrity of affected plant and equipment, in particular infrastructure that may have been in contact with floodwater or groundwater. Tank inspections should include non-destructive testing methods to verify their integrity.	This requirement will be complied with and incorporated into relevant plans.
2.3.10**	You must take the following measures, where appropriate, to prevent events that may lead to an accident. You must have appropriate procedures set out in your accident management plan.	This requirement will be complied with and incorporated into relevant plans.
2.3.11**	You must make sure that you contain the following (where appropriate) and route to the effluent system (where necessary and lawful): • process waters • site drainage waters • emergency firefighting water • chemically contaminated waters • spillages	This requirement will be complied with and incorporated into relevant plans.
2.3.12**	You must have planned for how you will manage the impacts of tidal surges and storm water flows. You must consider abnormal operating scenarios and incidents, for example, by providing buffer storage capacity. You should take into account the: • nature of the pollutants • potential pathways • effects of downstream wastewater treatment • sensitivity of the receiving environment	This requirement is considered in the Site Drainage Plan and reflects information from the Flood Risk Assessment.
2.3.13**	If buffer storage capacity is required, you can only discharge from it after you have assessed the water for contamination, in order to identify an appropriate disposal route.	See above.
2.3.14**	You must implement spill contingency procedures to minimise the risk of an accidental spill entering watercourses or sewers or contaminating land.	This requirement will be complied with as above.

Reference	Requirement and Applicability	Comment
2.3.15**	You must take account of additional firefighting water flows or firefighting foams, as set out in our fire prevention guidance. You may need infrastructure like emergency storage lagoons to prevent contaminated firefighting water from reaching a receiving water body.	The site has been designed to retain firefighting water within the building and secondary containment on the hard standing.
2.3.16**	You must consider and, if appropriate, plan for the possibility that you may need to contain or abate accidental emissions from: • overflows • tank failures • tank wall penetrations • site plant or machinery leaks	This requirement will be complied with and incorporated into relevant plans.
Security measures		
Unnumbered ** 2.4.9*	You must have security measures (including staff) to prevent unauthorised access to your facility, so preventing: • entry by vandals and intruders • damage to equipment • theft • illicit dumping and fly-tipping • arson	A high standard of security will be implemented as outlined at Table 8.3.
2.4.10* 2.3.17**	Depending on your risk assessment, facilities must use an appropriate combination of: • security guards • total enclosure (usually with fences) • controlled entry points • lighting • warning signs • 24 hour surveillance, such as CCTV	This requirement will be complied with and incorporated into relevant plans.
Fire Prevention		
2.4.12* 2.3.18**	If your permit allows you to store or treat combustible waste, you must have a fire prevention plan that meets the requirements of our guidance.	The Fire Prevention is provided at Appendix L
Other accident prevention measures		
2.3.19**	You must maintain plant control in an emergency using one or a combination of: • alarms • trips and interlocks • automatic control systems • tank level readings such as ultrasonic gauges, high level warnings, process interlocks and process parameters	The process incorporates a high standard of process control, and the facility is designed to ensure safe shut-down in the event of an emergency.

Reference	Requirement and Applicability	Comment
2.3.20**	You must: • make sure that all the measurement and control devices you would need in an emergency are easy to access and operate in an emergency situation • maintain plant in a good state through a preventive maintenance programme and a control and testing programme • use techniques such as suitable barriers to prevent moving vehicles damaging equipment • implement procedures to avoid incidents due to poor communication between operating staff – during shift changes and following maintenance or other engineering work	This point is noted
Record keeping and procedures		
2.3.21**	You must: • keep an up to date record of all accidents, incidents, near misses, changes to procedures, abnormal events, and the findings of maintenance inspections • carry out investigations into accidents, incidents, near misses and abnormal events and record the steps taken to prevent their reoccurrence • maintain an inventory of substances which are present (or likely to be) and which could have environmental consequences if they escape	These requirements will be taken into account in developing operating techniques and other management controls
2.3.22**	You must notify the Environment Agency without delay if you detect any of the following events and they are causing, or may cause, significant pollution: • a malfunction • a breakdown or failure • an accident • emission of a substance not controlled by an emissions limit • breach of an emissions limit	These requirements will be taken into account in developing operating techniques and other management controls
Accident Prevention Measures		
2.4.1**	You must take the following measures, where appropriate, to prevent events that may lead to an accident.	This requirement will be implemented where appropriate.
2.4.2*	You must keep incompatible wastes apart.	Not applicable.
2.4.3*	You must make sure you contain the following for off-site disposal or route to the sealed drainage system as appropriate: • process waters • site drainage waters • emergency firefighting water • oil or chemical contaminated waters • spillages of oils and chemicals	This requirement will be implemented where appropriate.
2.4.4*	You must be able to contain surges and storm water flows. You must provide enough buffer storage capacity to make sure you can achieve this. You can define this capacity using a risk-based approach, for example, by considering the:	This requirement will be implemented where appropriate.

Reference	Requirement and Applicability	Comment
	• nature of the pollutants • effects of downstream waste-water treatment • sensitivity of the receiving environment	
2.4.5*	You can only discharge wastewater from this buffer storage after you have taken appropriate measures, for example, to control, treat or reuse the water. Discharges to ground, surface water or sewer must be lawful and must comply with any consents or permissions that are required.	Not applicable. Wastewater will not be released at the installation.
2.4.6*	You must have spill contingency procedures to minimise the risk of an accidental emission of raw materials, products and waste materials, and to prevent their entry into water.	This requirement will be implemented where appropriate.
2.4.7*	Your emergency firefighting water collection system must take account of additional firefighting water flows or firefighting foams. You may need emergency storage lagoons to prevent contaminated firefighting water reaching a receiving water body. This should be considered as part of your fire prevention plan.	This requirement will be complied with and is addressed in the Drainage Strategy.
2.4.8*	You must consider and, if appropriate, plan for the possibility that you need to contain or abate accidental emissions from: • overflows • vents • safety relief valves • bursting discs If this is not advisable on safety grounds, you must focus on reducing the probability of the emission.	This requirement will be implemented where appropriate.
2.4.11*	There are 3 fire prevention objectives. You must: • minimise the likelihood of a fire happening • aim for a fire to be extinguished within 4 hours • minimise the spread of fire within the site and to neighbouring sites	This point is noted
2.4.12*	You must have a fire prevention plan that meets the requirements of our fire prevention plan guidance.	The Fire Prevention Plan is provided at Appendix L
2.4.13*	You must maintain plant control in an emergency using one or a combination of: • alarms • process trips and interlocks • automatic systems • manual interventions	The design addresses this requirement
2.4.14*	You must: • make sure all the measurement and control devices you would need in an emergency are easy to access and operate in an emergency situation • maintain the plant so it is in a good state through a preventive maintenance programme and a control and testing programme	This requirement will be complied with.

Reference	Requirement and Applicability	Comment
	• use techniques such as suitable barriers to prevent moving vehicles damaging equipment • have procedures in place to avoid incidents due to poor communication between operating staff during shift changes and following maintenance or other engineering work • where relevant, use equipment and protective systems designed for use in potentially explosive atmospheres	
2.4.15*	You must: • keep an up-to-date record of all accidents, incidents, near misses, changes to procedures, abnormal events, and the findings of maintenance inspections • carry out investigations into accidents, incidents, near misses and abnormal events and record the steps taken to prevent their reoccurrence • maintain an inventory of substances, which are present (or likely to be) and which could have environmental consequences if they escape – many apparently innocuous substances can damage the environment if they escape • have procedures for checking raw materials and wastes to make sure they are compatible with other substances they may accidentally come into contact with • make sure that any documents that may be needed in the event of an incident are accessible	This requirement will be complied with.
Contingency Plan and Procedures		
2.5.1* 2.4.1**	You must have and implement a contingency plan and management procedures to make certain you comply with all your permit conditions and operating procedures during maintenance or shutdown at your site, *including disruption at other facilities that would affect supplies to your facility or the removal of waste from it* *do not exceed limits in your permit and continue to apply appropriate measures for storing and handling waste* *stop accepting waste unless you have a clearly defined method of recovery or disposal and enough permitted capacity***	This requirement will be complied with.
2.4.2**	You must have contingency procedures to make sure that, as far as possible, you know in advance about any planned shutdowns at waste management facilities to which you send waste.	This requirement will be complied with.
2.5.1* 2.4.3**	You must make your contracted or regular customers are aware of your contingency plan and of the circumstances in which you would stop accepting waste from them.	This requirement will be complied with.
2.5.5* 2.4.4**	You must consider whether the sites or companies you rely on in your contingency plan: • can take waste at short notice • are authorised to do so in the quantities and types likely to be needed, in addition to carrying out their existing activities	This requirement will be complied with.
2.5.6*	Where circumstances mean you could exceed your permitted storage limits or compromise your storage procedures, you must look for alternative disposal or recovery options. You	This requirement will be complied with.

Reference	Requirement and Applicability	Comment
	must not discount alternative disposal or recovery options based on extra cost or geographical distance.	
2.5.7* 2.4.6**	You must not include unauthorised capacity in your contingency plan. If your contingency plan includes using temporary storage for additional waste on your site, then you must make sure your site is authorised for this storage and you have the appropriate infrastructure in place.	This requirement will be complied with.
2.5.8* 2.4.7**	Your management procedures and contingency plan must: • identify known or predictable malfunctions associated with your technology and the procedures, spare parts, tools and expertise needed to deal with them • include a record of spare parts held, especially critical spares – or state where you can get them from and how long it would take • have a defined procedure to identify, review and prioritise items of plant which need a preventative regime • include all equipment or plant whose failure could directly or indirectly lead to an impact on the environment or human health • *identify 'non-productive' or redundant items such as tanks, pipework, retaining walls, bunds, reusable waste containers (for example wheeled carts), ducts, filters and security systems** • *make sure you have the spare parts, tools, and competent staff needed before you start maintenance**	This requirement will be complied with.
2.5.9* 2.4.9**	Your management system must include procedures for auditing your performance against all these contingency measures and for reporting the audit results to the site manager.	This requirement will be complied with.
Decommissioning		
2.6.1* 2.5.1**	You must consider the decommissioning of the plant at the design stage and make suitable plans to minimise risks during later decommissioning.	Decommissioning has been considered when designing the facility.
2.6.2* 2.5.2**	For existing plant, identify potential decommissioning risks and take steps to address these. Make changes and design improvements as and when plant is upgraded, or when construction and development works are carried out at your site. Examples of design improvements could include avoiding using underground tanks and pipework. If it is not economically possible to replace them, you must protect them by secondary containment or a suitable monitoring programme.	This requirement will be complied with.
2.6.3* 2.5.3**	You must have and maintain a decommissioning plan to demonstrate that: • plant will be decommissioned without causing pollution • the site will be returned to a satisfactory condition	A Decommissioning Plan will be developed for the facility.
2.6.4*	Your decommissioning plan should include details on: • whether you will remove or flush out pipelines and vessels (where appropriate) and how you will empty them of any potentially harmful contents • site plans showing the location of all underground pipes and vessels	This point is noted.

Reference	Requirement and Applicability	Comment
	• how asbestos or other potentially harmful materials will be removed, unless we have agreed it is reasonable to leave such liabilities to future owners • methods for dismantling buildings and other structures, and for protecting surface water and groundwater during construction or demolition at your site • any soil testing needed to check for any pollution caused by the site activities, and information on any remediation needed to return the site to a satisfactory state when you cease activities, as defined by the initial site condition report • the measures proposed, once activities have definitively stopped, to avoid any pollution risk and to return the site of operation to a satisfactory state (including, where appropriate, measures relating to the design and construction of the plant) • the clearing of deposited residues, waste and any contamination resulting from the waste treatment activities	
2.5.4**	You should identify non-productive or redundant items such as tanks, pipework, retaining walls, bunds, reusable waste containers, ducts, filters and security systems and implement a programme of decommissioning and removal.	This point is noted.
2.6.5*	You should make sure that equipment taken out of use is decontaminated and removed from the site.	This point is noted.
2.5.5*	You should follow our guidance on how land and groundwater should be protected at permitted facilities. You should plan for producing a site condition report, if needed to surrender your permit.	This point is noted.
Spill Response Plan		
6.5.13* 6.5.12**	You must produce and implement a spillage response plan and train staff to follow it and test it.	This requirement will be complied with.
6.5.14*	Your procedures and associated training must make sure you deal with spillages immediately. *You should follow the manufacturer's health and safety advice for any products or substances involved***.	This requirement will be complied with.
6.5.15* 6.5.14**	You must keep spill kits at locations close to areas where a spillage could occur and make sure relevant staff know how to use them. Make sure kits are replenished after use.	This requirement will be implemented where appropriate.
6.5.16*	You must take measures to stop spillages from entering drains, channels, gullies, watercourses and unmade ground. You must make available proprietary sorbent materials, sand or drain mats for use when required.	This point is noted.
6.5.17* 6.5.16**	You must make sure your spillage response plan includes information about how to recover, handle and correctly dispose of waste produced from a spillage.	This requirement will be complied with.
6.5.17**	You must have a documented inspection and maintenance programme for impermeable surfaces and containment facilities and keep records to demonstrate its implementation.	This requirement will be complied with.

Reference	Requirement and Applicability	Comment
2.3.1*	As part of your management system you must have a plan for dealing with any incidents or accidents that could result in pollution.	This requirement will be complied with.
2.3.2*	The accident management plan must identify and assess the risks the facility poses to human health and the environment.	
2.3.3*	Areas to consider may include: • waste types and the risks they pose • robust waste acceptance procedures to avoid receiving unwanted items, such as gas cylinders • failure of abatement systems • failure of plant and equipment (for example over-pressure of vessels and pipework, blocked drains) • failure of containment (for example, bund failure, or drainage sumps overfilling) • damaged lithium-ion batteries • failure to contain firefighting water • making the wrong connections in drains or other systems • checking the composition of an effluent before emission • vandalism and arson • extreme weather conditions, for example flooding or very high winds • loss of power	These requirements will be addressed in the Accident Management to be developed.
2.3.4*	You must assess the risk of accidents and their possible consequences. Risk is the combination of the likelihood that a hazard will occur and the severity of the impact resulting from that hazard. Having identified the hazards, you can assess the risks by addressing 6 questions: • how likely is it that the accident will happen? • what may be emitted and how much? • where will the emission go – what are the pathways and receptors? • what are the consequences? • what is the overall significance of the risk? • what can you do to prevent or reduce the risk?	This approach is adopted in the assessment presented above.
2.3.5*	In particular, you must identify any fire risks that may be caused, for example by: • arson or vandalism • self-combustion, for example the finer fractions of shredder residue • plant or equipment failure and electrical faults • naked lights and discarded smoking materials • hot works (for example welding or cutting), industrial heaters and hot exhausts • neighboring site activities • sparks from loading buckets • hot loads deposited at the site • damage to, or shorting of, batteries You must have a fire prevention plan that identifies the risks at your site and meets the requirements of our fire prevention plan guidance.	The Fire Prevention Plan is provided at Appendix L.
2.3.6*	The depth and type of accident risk assessment you carry out will depend on the characteristics of the plant and its location. The main factors to consider are the:	This point is noted.

Reference	Requirement and Applicability	Comment
	• scale and nature of the accident hazard presented by the plant and its activities • risks to areas of population and the environment (the receptors) • nature of the plant and complexity of the activities and how difficult it is to decide and justify adequate risk control techniques	
2.3.7*	Through your accident management plan, you must also identify the roles and responsibilities of the staff involved in managing accidents. You must provide them with clear guidance on how to manage each accident scenario, for example, whether to use containment or dispersion to extinguish fires, or let them burn.	This point is noted.
2.3.8*	You must appoint one facility employee as an emergency co-ordinator who will take lead responsibility for implementing the plan. You must train your employees so they can perform their duties effectively and safely and know how to respond to an emergency.	This point is noted.
2.3.9*	You must also: • establish how you will communicate with relevant authorities, emergency services and neighbours (as appropriate) both before, during and after an accident have appropriate emergency procedures, including for safe plant shutdown and site evacuation • have post-accident procedures that include assessing the harm that may have been caused by an accident and the remediation actions you will take • test the plan by carrying out emergency drills and exercises	This point is noted.
2.4.1* 2.4.2* 2.4.3*	You must take the following measures, where appropriate, to prevent events that may lead to an accident: You must keep incompatible wastes apart. You must make sure you contain the following for off-site disposal or route to the sealed drainage system as appropriate: • process waters • site drainage waters • emergency firefighting water • oil or chemical contaminated waters • spillages of oils and chemicals	 The points below are noted.
2.4.4*	You must be able to contain surges and storm water flows. You must provide enough buffer storage capacity to make sure you can achieve this. You can define this capacity using a risk-based approach, for example, by considering the: • nature of the pollutants • effects of downstream waste-water treatment • sensitivity of the receiving environment	This requirement has addressed in the design of drainage arrangements as outlined in the Site Drainage Strategy (see Appendix B).
2.4.5*	You can only discharge wastewater from this buffer storage after you have taken appropriate measures, for example, to control, treat or reuse the water. Discharges to ground, surface water or sewer must be lawful and must comply with any consents or permissions that are required.	This point is noted/

Reference	Requirement and Applicability	Comment
2.4.6*	You must have spill contingency procedures to minimise the risk of an accidental emission of raw materials, products and waste materials, and to prevent their entry into water.	This point is noted.
2.4.7*	Your emergency firefighting water collection system must take account of additional firefighting water flows or firefighting foams. You may need emergency storage lagoons to prevent contaminated firefighting water reaching a receiving water body. This should be considered as part of your fire prevention plan.	This requirement is addressed in the Site Drainage Strategy (see Appendix B)
2.4.8*	You must consider and, if appropriate, plan for the possibility that you need to contain or abate accidental emissions from: • overflows • vents • safety relief valves • bursting discs • If this is not advisable on safety grounds, you must focus on reducing the probability of the emission.	Relevant requirements will be addressed in the design of the installation.
2.4.9*	You must have security measures in place (including staff) to prevent: • entry by vandals and intruders • damage to plant and equipment • theft • fly-tipping • arson	Appropriate site security measures will be implemented as outlined in Table 8.3.
2.4.10*	Facilities must use an appropriate combination of the following measures: • security guards • total enclosure (usually with fences) • controlled entry points • adequate lighting • warning signs • 24-hour surveillance, such as closed-circuit television (CCTV)	These arrangements will be implemented at the installation.
2.4.11*	There are 3 fire prevention objectives. You must: • minimise the likelihood of a fire happening • aim for a fire to be extinguished within 4 hours • minimise the spread of fire within the site and to neighbouring sites	These requirements are incorporated in the Site Wide Fire Strategy (see Appendix C)
2.4.12*	12. You must have a fire prevention plan that meets the requirements of our fire prevention plan guidance.	The Fire Prevention Plan is provided at Appendix L.
2.4.13*	You must maintain plant control in an emergency using one or a combination of: • alarms • process trips and interlocks • automatic systems • manual interventions	A combination of these techniques have been incorporated into the design of the installation.

Reference	Requirement and Applicability	Comment
2.4.14*	You must: • make sure all the measurement and control devices you would need in an emergency are easy to access and operate in an emergency situation • maintain the plant so it is in a good state through a preventive maintenance programme and a control and testing programme • use techniques such as suitable barriers to prevent moving vehicles damaging equipment • have procedures in place to avoid incidents due to poor communication between operating staff during shift changes and following maintenance or other engineering work • where relevant, use equipment and protective systems designed for use in potentially explosive atmospheres	These requirements will be implemented, where appropriate.
2.4.15*	You must: • keep an up-to-date record of all accidents, incidents, near misses, changes to procedures, abnormal events, and the findings of maintenance inspections • carry out investigations into accidents, incidents, near misses and abnormal events and record the steps taken to prevent their reoccurrence • maintain an inventory of substances, which are present (or likely to be) and which could have environmental consequences if they escape – many apparently innocuous substances can damage the environment if they escape • have procedures for checking raw materials and wastes to make sure they are compatible with other substances they may accidentally come into contact with • make sure that any documents that may be needed in the event of an incident are accessible	These requirements will be implemented as appropriate.
2.5.1*	You must have and implement a contingency plan and management procedures to make certain you comply with all your permit conditions and operating procedures during maintenance or shutdown at your site.	These requirements will be addressed.
2.5.2*	Your contingency plan must also contain provisions and procedures to make sure that you: • do not exceed storage limits in your permit and you continue to apply appropriate measures for storing and handling waste • stop accepting waste unless you have a clearly defined method of recovery or disposal and enough permitted storage capacity • as far as possible, know in advance about any planned shutdowns at waste management facilities where you send waste • Your contingency plan must include plans and procedures for circumstances where you cannot send your wastes to other sites due to their planned or unplanned shutdown.	These requirements will be implemented.
2.5.3*	If you produce an end-of-waste material at your facility, your contingency planning must consider issues with storage capacity for end-of-waste products.	Not applicable.
2.5.4*	You must make your customers aware of your contingency plan, and of the circumstances in which you would stop accepting waste from them.	This point is noted.
2.5.5*	You must consider whether the sites or companies you rely on in your contingency plan: • can take the waste at short notice	This point is noted.

Reference	Requirement and Applicability	Comment
	• are authorised to do so in the quantities and types likely to be needed – in addition to carrying out their existing activities	
2.5.6*	Where circumstances mean you could exceed your permitted storage limits or compromise your storage procedures, you must look for alternative disposal or recovery options. You must not discount alternative disposal or recovery options based on extra cost or geographical distance.	This point is noted.
2.5.7*	You must not include unauthorised capacity in your contingency plan. If your contingency plan includes using temporary storage for additional waste on your site, then you must make sure your site is authorised for this storage and you have the appropriate infrastructure in place.	This requirement will be complied with.
2.5.8*	Your management procedures and contingency plan must: • identify known or predictable malfunctions associated with your technology and the procedures, spare parts, tools and expertise needed to deal with them • include a record of spare parts held, especially critical spares – or state where you can get them from and how long it would take • have a defined procedure to identify, review and prioritise items of plant which need a preventative regime • include all equipment or plant whose failure could directly or indirectly lead to an impact on the environment or human health • identify 'non-productive' or redundant items such as tanks, pipework, retaining walls, bunds, reusable waste containers (for example wheeled carts), ducts, filters and security systems • make sure you have the spare parts, tools, and competent staff needed before you start maintenance	This requirement is noted.
2.5.9*	Your management system must include procedures for auditing your performance against all these contingency measures and for reporting the audit results to the site manager.	This point is noted.

Forward Action Plan – Accidents and nuisance risk assessment

There are no forward actions relating to accidents and environmental risk assessment.

8.2 Fire Prevention

A Fire Strategy was developed in the early stages of the project. This has been progressed alongside development of the design and relevant details are included in the Fire Prevention Plan included at Appendix C and Appendix L respectively The Fire Prevention Plan has been developed in accordance with the requirements of guidance published on the .gov.uk website.

Table 8. 5 Appropriate Measures – Fire Prevention Plan

Reference	Requirement and Applicability	Comment
Fire Prevention Plans		
Fire Prevention Plans: Section 12	You must have a quarantine area which is large enough to both: • hold at least 50% of the volume of the largest pile, row or block of ELVs or containers on your site • have a separation distance of at least 6m around the quarantined waste	This requirement is noted.
Fire Prevention Plans: Section 13	Your detection system must be proportionate to the nature and scale of waste management activities you carry out and the associated risks. Your system may therefore be an automated or manual system. Appropriate automated systems may include: • smoke and heat detectors including temperature probes • CCTV visual flame detection systems • spark, infrared and ultraviolet detection • The design, installation and maintenance must be covered by an appropriate third-party certification scheme such as UKAS, or meet an appropriate recognised standard such as a British Standard.	An outline design specification for the fire detection systems has been agreed with the site insurers and engineering team, a mixture of automatic detection and manual activation points have been included within the design. The fire system is designed in accordance with BS EN 5839, BS 9999 and BS EN 54, as well as relevant NFPA standards. The ENVID noted that thermal fire detection cameras will likely be included for hot spot detection.
Fire Prevention Plans: Section 14	If you store waste in a building, you must install a fire suppression system. This system should be proportionate to the nature and scale of waste management activities you carry out and the associated risks.	Consideration has not yet been given to design or specification of arrangements for fire suppression. An outline design specification for the fire detection systems has been agreed with the site insurers and engineering team, a mixture of automatic detection and manual activation points have been included within the design. The fire system is designed in accordance with BS EN 5839, BS 9999 and BS EN 54, as well as relevant NFPA standards.

Forward Action Plan – Fire Prevention Plan

There are no requirements relating to fire prevention.

9. Emissions to Air, Water and Land

The E-Scrap facility has a relatively insignificant emissions inventory, given the relatively simple nature of the activities undertaken and the design philosophy to contain activities that give rise to emissions to air within enclosed buildings.

The activities associated with the proposed operations are associated with the following:

- Point source emissions to air.
- Point source emissions to surface water and sewer.
- Fugitive emissions to air.

9.1 Emissions to Air

The Emissions Inventory for releases to air for pollutants or which emission limits are specified in the Appropriate Measures for WEEE is provided at Appendix M.

Point Source Emissions to Air

Combustion plant eg boiler plant will not be installed at the installation and there will not be bulk storage of volatile raw materials or wastes, therefore emissions to air will be limited to release of abated air extracted from operational areas in the main building. Air extraction points will be installed in the main building, the locations of which are to be confirmed, though these will be designed to retain fugitive dust emissions within the building which will operate under negative pressure. There will also be emissions to air arising from venting diesel from the contained fire pumps, though these will be negligible.

Control of point source emissions to air

The current design envisages air extracted from the following areas/activities will be extracted for abatement and released via a single point source emission to air from Emission Point A1:

- Screening E-Scrap pending treatment.
- Conveying E-Scrap for storage and sorting.
- Conveying E-Scrap through the shredding process.
- Physical treatment and sampling of E-Scrap.

This position may be revised as design of the plant including the bagging/waste loading arrangements progress.

- These technologies consistent with Appropriate Measures consistent with the positions outlined in the following authoritative references that define appropriate measures for abating dust and polluting components associated with shredding metal and treating WEEE:
- BAT Conclusions for Waste Treatment

- Appropriate Measures for Waste electrical and electronic equipment (WEEE)
- Appropriate measures for Non-hazardous and inert waste: appropriate measures for permitted facilities.

An air impact assessment has been undertaken to assess the impact of emissions from emission point A1. On the basis that the proposed technologies are compliant with these requirements and confirmation that the technologies will achieve the BAT AELs for dust and mercury, it is assumed these arrangements will provide effective of dust and the hazardous constituents including heavy metals and persistent organic pollutants in the E-Scrap. This position will also be confirmed in air the impact assessment to be completed following confirmation of design information.

The design of the main building is ongoing, and it is not anticipated there will be any additional point source emissions to air, though this position will be confirmed in due course

Appropriate Measures

Table 9.1 Appropriate Measures – Point Source Emissions to Air

Reference	Requirement and Applicability	Comment
BAT Conclusions for Wastes Treatment		
BAT Conclusion 3	Emissions Inventory In order to facilitate the reduction of emissions to water and air, BAT is to establish and to maintain an inventory of wastewater and waste gas streams, as part of the environmental management system (see BAT 1), that incorporates all of the following features: (i) information about the characteristics of the waste to be treated and the waste treatment processes, including (a) simplified process flow sheets that show the origin of the emissions (b) descriptions of process-integrated techniques and wastewater/waste gas treatment at source including their performances. (ii) information about the characteristics of the wastewater streams, such as: (a) average values and variability of flow, pH, temperature, and conductivity (b) average concentration and load values of relevant substances and their variability (e.g. COD/TOC, nitrogen species, phosphorus, metals, priority substances/micropollutants); (c) data on bioeliminability (e.g. BOD, BOD to COD ratio, Zahn-Wellens test, biological inhibition potential (e.g. inhibition of activated sludge)) (see BAT 52) (iii) information about the characteristics of the waste gas streams, such as: (a) average values and variability of flow and temperature (b) average concentration and load values of relevant substances and their variability (e.g. organic compounds, POPs such as PCBs) (c) flammability, lower and higher explosive limits, reactivity (d) presence of other substances that may affect the waste gas treatment system or plant safety (e.g. oxygen, nitrogen, water vapour, dust)	An Emissions Inventory is being developed that incorporates emissions to air and to water. This will be updated to reflect updated information as the design develops and will be further refined as emissions monitoring data is collected.

Reference	Requirement and Applicability	Comment
BAT Conclusion 14d	Emissions to Air – Design Considerations In order to prevent or, where that is not practicable, to reduce diffuse emissions to air, in particular of dust, organic compounds and odour, BAT is to use an appropriate combination of the techniques including: • Storing, treating and handling waste and material that may generate diffuse emissions in enclosed buildings and/or enclosed equipment (e.g. conveyor belts) • Maintaining the enclosed equipment or buildings under an adequate pressure • Collecting and directing the emissions to an appropriate abatement system (see Section 6.1) via an air extraction system and/or air suction systems close to the emission sources.	As detailed in Section 3, these requirements will be complied with. All operational activities will be undertaken in an enclosed building with emissions to air from activities associated with sorting and shredding E-Scrap extracted for abatement in a bag filter with a secondary polishing filter.
BAT. Conclusion 25	Emissions to Air – Design Considerations In order to reduce emissions to air of dust, and of particulate-bound metals, PCDD/F and dioxin-like PCBs, BAT is to apply BAT 14d (See row 16) and to use one or a combination of the techniques given below: • Cyclone • Fabric filter • Wet scrubbing • Water injection into the shredder BAT Associated Emission Levels (AELs) Dust 2-5 mg/Nm^3 When a fabric filter is not applicable, the upper end of the range is 10 mg/Nm^3.	A combination of technologies will be used to abate emissions to air, including a bag filter and polishing filter, consistent with the techniques outlined at BAT 25. It may not be possible to inject air into the shredder as water content is required to be controlled, particularly during cold water events, as this can have a deleterious effect on the recovery of the metals at the downstream smelters.
Appropriate Measures – WEEE* and Inert and Non-hazardous Wastes**		
6.1.1*	You must contain the waste treatment process to make sure that you collect, extract and direct all process emissions to an appropriate abatement system for treatment before release.	This requirement will be complied with.
6.1.2*	You must identify the main chemical constituents of the site's point source emissions as part of the site's inventory of emissions to air. You must include the speciation of volatile organic compounds (VOCs) if you have identified them in the emissions inventory and it is practicable to do so.	This requirement will be complied with for all relevant pollutants.
6.1.3*	You must assess the fate and impact of the substances emitted to air, following the Environment Agency's air emissions risk assessment methodology.	An Environmental Risk Assessment of emissions to air will be undertaken in accordance with the Environment Agency's methodology following updated confirmation of the constituents of the dust anticipated to be generated at the installation, the efflux velocity and vent / stack height.
6.1.4*	To reduce point source emissions to air (for example, dust, volatile organic compounds and odour) from the treatment of waste, you must use an appropriate combination of abatement techniques, including one or more of the following systems:	As outlined above, extracted air will be abated by a fabric filter and polishing filter consistent with the technologies outlined opposite.

Reference	Requirement and Applicability	Comment
	• adsorption • fabric filter • wet scrubbing • HEPA filter • condensation and cryogenic condensation • cyclone • electrostatic precipitator (ESP) • thermal oxidation	
6.1.5*	You must assess and design vent and stack locations and heights to make sure dispersion capability is adequate.	The location of the stack / vent height and location will be evaluated, taking into account dispersal of emissions.
6.1.7*	Your procedures must make sure you correctly install, operate, monitor and maintain abatement equipment. For example, this includes monitoring and maintaining: appropriate flow and chemical concentration of scrubber liquor the handling and disposal or regeneration of spent scrubber or filter medium	These requirements will be addressed.

Forward Action Plan – Point Source Emissions to Air

Table 9.2 Forward Action Plan - Point Source Emissions to Air

Ref	Information Requirement	Approach to resolution
FA 9.1.1	Confirm all point source emissions to air	**During the determination process:** Confirm all point source emissions to air and confirm these on a plan. Confirm all areas and activities that comprise emissions sources that will be extracted for abatement.

Monitoring - Point Source Emissions to Air

Table 9.3 confirms proposed monitoring arrangements for point source emissions to air in accordance with the frequencies specified in the BAT Conclusions / appropriate measures. The monitoring programme will support further characterisation of dust emissions. BRM requests that a condition is included in the Environmental Permit to enable periodic review of the monitoring programme to ensure it is aligned to the abated dust emissions.

Table 9.3 Emissions monitoring – Point source emissions to air

Substance	Monitoring technique	Frequency	Comment
Intermittent releases from emission point A1 (Filter House vent)			
Mercury	Various EN standards (i.e. EN ISO 17852, EN ISO 12846)	Every 3 months	To demonstrate compliance with anticipated emission limit of 7µg/m³.
Brominated flame retardants	No EN standard available	Every 12 months	Referenced in Appropriate Measures for WEEE
Chlorofluorcarbons	No EN standard available		Referenced in BAT Conclusion 29
Dioxin-like PCBs	EN 1948-1, -2, and -4	Every 12 months	Referenced in Appropriate Measures for WEEE
Dust	EN 13284-1	Every 6 months	To demonstrate compliance with anticipated ELV of 5mg/m³
Ammonia (NH3)	No EN standard available		Referenced in BAT Conclusion 41
Polychlorinated dibenzodioxins Polychlorinated dibenzofurans	EN 1948-1, -2 and -3	Every 12 months	Referenced in Appropriate Measures for WEEE
Total VOCs	EN 12619	Every 6 months	Referenced in BAT Conclusions

Appropriate Measures - Monitoring Point Source Emissions to Air

Table 9.4 Appropriate Measures – Monitoring Point Source Emissions to Air

Reference	Requirement and Applicability	Comment
BAT Conclusions for Wastes Treatment		
BAT Conclusion 8	BAT is to monitor channelled emissions to air with at least the frequency given below, and in accordance with EN standards. If EN standards are not available, BAT is to use ISO, national or other international standards that ensure the provision of data of an equivalent scientific quality. Brominated flame retardants- No EN standard, once per year Dioxin-like PCBs- EN 1948-1, -2, and -4, once every 3 months Dust- EN 13284-1, once every 6 months Metals and metalloids except mercury (e.g. As, Cd, Co, Cr, Cu, Mn, Ni, Pb, Sb, Se, Tl, V)- EN 14385, once per year PCDD/F- EN 1948-1, -2 and -3, once every year TVOC- EN 12619, once every 6 months	Emissions will be monitored in accordance with the techniques and at the frequencies stated in the references confirmed above and this BAT requirement.
BAT Reference Document for Waste	BAT is to periodically monitor odour emissions. ***Description***	As the wastes imported and the treatment processes are not associated with odour emissions, it is not considered

Reference	Requirement and Applicability	Comment
Treatment. BAT Conclusion 10	Odour emissions can be monitored using: —EN standards (e.g. dynamic olfactometry according to EN 13725 in order to determine the odour concentration or EN 16841-1 or -2 in order to determine the odour exposure); — when applying alternative methods for which no EN standards are available (e.g. estimation of odour impact), ISO, national or other international standards that ensure the provision of data of an equivalent scientific quality. The monitoring frequency is determined in the odour management plan (see BAT 12). ***Applicability*** The applicability is restricted to cases where an odour nuisance at sensitive receptors is expected and/or has been substantiated.	appropriate that odour emissions are monitored.
Appropriate Measures – WEEE* and Inert and Non-Hazardous Wastes**		
6.1.1*	You must contain the waste treatment process to make sure that you collect, extract and direct all process emissions to an appropriate abatement system for treatment before release.	Emissions from the physical waste treatment processes (excluding sorting) will be extracted for abatement.
6.1.6*	Where monitoring is required, including for odour, you must install a suitable monitoring point. Monitoring points will be required to meet MCERTS standards.	This requirement will be complied with.
7.1.1*	Your facility's emissions inventory must include information about the relevant characteristics of point source emissions to air, such as the: • average values and variability of flow and temperature • average concentration and load values of relevant substances and their variability • flammability, lower and higher explosive limits and reactivity presence of other substances that may affect the waste gas treatment system or plant safety – for example, oxygen, nitrogen, water vapour, dust	This requirement will be complied with
7.1.2*	Monitoring locations must meet MCERTS standards. Monitoring must be carried out using MCERTS qualified accredited methods and MCERTS certified staff. Further guidance can be found in our guidance M1 sampling requirements for stack emissions monitoring.	This requirement will be complied with
7.1.3*	You must carry out emissions monitoring when the plant is operating at or near to full treatment capacity. Information regarding the plant treatment processing rate and air flow rate at the time of monitoring must be recorded and submitted with the monitoring results.	This requirement will be complied with
7.1.4*	You must monitor point source emissions to air from your treatment plant for the following substances using the monitoring standards stated. You must monitor at the frequencies stated and meet the specified emission limits unless your permit states alternative requirements.	These requirements will be complied with

Reference	Requirement and Applicability	Comment
7.1 Dust*	• Monitoring standard – EN 13284-1 • Frequency – every 6 months. • Emission limit – 5mg/m³ (where it is inappropriate to fit a fabric filter due to the potential effects of deflagration on the filter, the limit is 10mg/m³).	
7.1 TVOC*	• Monitoring standard – EN 12619. • Frequency – every 6 months. • In addition, the following monitoring is required from all mechanical treatment of WEEE when the substance concerned is identified as relevant based on your facility's emissions inventory	
7.1, Dioxin-like PCBs*	• Monitoring standard – EN 1948-1, -2 and -4 • Frequency – every 12 months.	
7.1 PCDD/F*	• Monitoring standard – EN 1948-1, -2 and -3. • Frequency – every 12 months.	
7.1 BFRs*	• Frequency – every 12 months.	
7.1 Metals & metalloids excl mercury*	• Monitoring standard – EN 14385. • Frequency – every 12 months.	
7.1 WEEE containing mercury*	• Monitoring standard – EN 13211. • Frequency – every 3 months. • Emission limit – 7µg/m³. • Periodic monitoring results should normally consist of the average value of 3 consecutive measurements of at least 30 minutes each. For some parameters, due to analytical limitations, a longer sampling period may be required. • Monitoring frequencies may be reduced if the emission levels are proven to be sufficiently stable over time.	

Forward Action Plan – Monitoring Point Source Emissions to Air

There are no forward actions relating to monitoring point source emissions to air.

9.2 Point Source emissions to surface water and sewer

Surface water run-off will be intermittently released to the swale that forms part of the drainage system that also serves the adjacent BRM facility. This ultimately discharges to the River Thames as outlined in the Drainage Strategy. The surface water drainage system will capture rainfall all from roof, concrete hardstands and asphalt pavements and direct flows to low points. All systems will be gravitational. Two interceptors will be installed to treat waste from catchments flowing along the east and west of the main building and these will be sized to separately treat flows of up to 80

litres/second. Alarm systems for both interceptors will be installed to warn when interceptors are approaching liquid capacity. A shut off system for both surface water systems has also been specified to the interceptors and will automatically prevent contamination events conveying to the swale and to the River Thames outfall.

The site will generate two separate flows comprising uncontaminated run-off that will ultimately discharge to the River Thames via a single emission point that is regulated by the Permit for the lead refining plant (emission point W3). The location at which these flows flow into the outfall (regulated as emissions point W3 in the Permit for the lead refining plant).

Monitoring - Point Source Emissions to Water and Sewer

Given the design of the main building and associated facilities, the sizing and design of the interceptors, the arrangements for control of point source and fugitive emissions to air (to manage dust deposition) and arrangements for retaining contaminated flows on site, it is considered direct discharges relating to the BRM site drainage system to the River Thames will be uncontaminated. In this basis, it is not proposed that monitoring of surface water will be required to be undertaken. On this basis, the BAT conclusions for monitoring point source emissions to water are not considered further.

9.3 Emissions to groundwater

There will be no direct or indirect emissions to groundwater of List I or List II substances as set out in the Groundwater Regulations 1998 associated with the modified operating arrangements.

Forward Action Plan – Point Source Emissions to Groundwater

There are no forward actions associated with point source emissions to groundwater.

Groundwater monitoring

There are no proposals to monitor groundwater.

9.4 Point source emissions to land

There will be no releases to land.

The operational areas of the Installation will be founded on concrete hardstanding with the exception of walkways which will be founded on asphalt. A surface water drainage scheme has been designed to collect rainfall from roof, concrete and asphalt hardstanding, ultimately discharge to the River Thames.

Forward Action Plan – Point Source Emissions to Land

There are no forward actions relating to point source emissions to land.

9.5 Fugitive Emissions to Air

Fugitive emissions may arise from a number of activities associated with:

- Unloading and unpackaging imported wastes.

- Sorting and inspecting wastes.
- Treating E-Scrap.
- Storing and handling wastes.
- Bagging/packaging wastes and loading into containers for export.
- Buildings maintenance.
- Housekeeping of external areas.

Activities associated with importing, inspection, treating and handling wastes will be undertaken within the main building. A range of control measures will be implemented to minimise potential for release of fugitive emissions to the environment as outlined in the Dust Management Plan (Appendix I). These include:

- Practices for handling wastes to minimise drop heights and double handling of wastes.
- Use of misting systems incorporating capability to operate in atomiser mode to provide local control of intermittent elevated dust emissions associated with waste storage and handling.
- Design of the main building ventilation system and access/egress arrangements (including rapid closing roller doors for receiving/exporting consignments).
- High standards of housekeeping.
- Operating abatement equipment compliant with appropriate measures to treat heavy metals and persistent organic pollutants.

Appropriate Measures – Fugitive Emissions to Air

Table 9.5 Appropriate Measures – Fugitive Emissions to Air

Reference	Requirement and Applicability	Comment
BAT Conclusions for wastes treatment		
BAT Conclusion 14	Emissions to Air – Design Considerations In order to prevent or, where that is not practicable, to reduce diffuse emissions to air, in particular of dust, organic compounds and odour, BAT is to use an appropriate combination of the techniques given below. a. Minimising the number of potential diffuse emission sources b. Selection and use of high integrity equipment c. Corrosion prevention d. Containment, collection and treatment of diffuse emissions e. Dampening f. Maintenance g. Cleaning of waste treatment and storage areas	These requirements have been taken into account in the design of arrangements and development of operating techniques for all waste storage, handling and physical treatment activities.

Reference	Requirement and Applicability	Comment
BAT Conclusions for wastes treatment		
	h. Leak detection and repair (LDAR) programme	
BAT Conclusion 14g	In order to prevent or, where that is not practicable, to reduce diffuse emissions to air, in particular of dust, organic compounds and odour, BAT is to use an appropriate combination of the techniques for cleaning of waste treatment and storage areas, including regularly cleaning the whole waste treatment area (halls, traffic areas, storage areas, etc.), conveyor belts, equipment and containers.	High standards of housekeeping will be incorporated in the operating techniques to be developed when the design is finalised. This requirement is noted and will be taken into account.
Appropriate Measures – WEEE* and Inert and Non-hazardous Wastes		
6.2.1*	You must use appropriate measures to prevent emissions of dust, mud, litter and odour. See our guidance on suggested appropriate measures to control dust, mud and litter, and to control odour.	This point is noted and will be taken into account in design of Management Plans and operating techniques.
7.1.2**	You must monitor fugitive emissions of dust and particulates if they are likely to cause pollution at sensitive receptors, or if this has been substantiated. There is guidance on developing monitoring strategies for assessing levels of pollutants in the ambient atmosphere and monitoring particulate matter in ambient air around waste facilities.	It is not anticipated that fugitive emissions generated at the installation have the potential for pollution given the design and operating arrangements outlined above.
6.2.2*	You must design, operate and maintain storage and treatment plant in a way that prevents fugitive emissions to air, including dust, organic compounds and odour. Where that is not possible, you must minimise these emissions. Storage and treatment plant includes associated equipment and infrastructure such as: • shredders • sorting equipment • conveyors • skips or containers • building fabric, including doors and windows • pipework and ducting	This requirement has been taken into account in the design and operation of the facility. It will also be addressed in the operating techniques to be developed for the installation.
6.2.3*	You must make sure fugitive emissions are collected and directed to appropriate abatement and your treatment plant must use high integrity components (for example, seals or gaskets).	This requirement is addressed in the design and specification of the extraction and abatement system.
6.2.4*	You must use your waste pre-acceptance, waste acceptance and site inspection checks and procedures to identify and manage wastes that could cause, or are causing, fugitive emissions to air. When you identify any of these wastes you must: • take appropriate, risk assessed measures to prevent and control emissions • prioritise their treatment or transfer	This requirement will be taken into account in the operating techniques to be developed for the installation.

Reference	Requirement and Applicability	Comment
BAT Conclusions for wastes treatment		
6.2.5*	• Where necessary, to prevent fugitive emissions to air from the storage and handling of odorous or dusty wastes, you should use a combination of the following measures: • store and handle such wastes within a building or enclosed equipment • keep buildings and equipment under adequate negative pressure with an appropriate abated air circulation or extraction system • where possible, locate air extraction points close to potential emissions sources • use fully enclosed material transfer and storage systems and equipment, for example, conveyors, hoppers, containers, tanks and skips • keep building doors and windows shut to provide containment, other than when access is required for loading or unloading • minimising drop height • use misting systems and wind barriers	These requirements are addressed
6.2.6*	Where a dust management plan is required, you must develop and implement it following our guidance on emissions management plans for dust.	A Dust Management Plan is provided at Appendix I.
7.1.3**	You must describe your monitoring programme in your dust management plan. Visual monitoring is not effective for assessing the risk of emissions of fine particulates, for example PM10. You should use dust and particulate monitors with trigger alarms instead. You should set alarm trigger levels to alert site staff when short-term particulate concentrations are elevated, so that you can review site practices or increase your mitigation measures. When combined with weather data, dust and particulate monitors can also provide evidence to demonstrate that your facility is not the cause of complaints. You should use a particulate limit of 75 µg/m3 to100 µg/m3 (over a 5 minute average) for PM10 as an initial trigger for action and reduce this after the system has been in place for some time.	This requirement will be complied with
6.2.7*	You must set up a leak detection and repair programme. You must use it to promptly identify and mitigate any fugitive emissions from treatment plant and associated infrastructure (such as pipework, conveyors, tanks).	This requirement will be complied with, where relevant
6.2.8*	You must regularly inspect and clean all waste storage and treatment areas, equipment (including conveyor belts) and containers. You must contain any residues collected during cleaning.	This requirement will be complied with
6.2.9*	Your maintenance and cleaning schedules must make sure that your plant is regularly cleaned to avoid large-scale decontamination activities.	This requirement will be complied with
6.2.10*	You must take measures to prevent the corrosion of plant and equipment (for example, conveyors or pipes). This includes: • selecting and using appropriate construction materials • lining or coating equipment with corrosion inhibitors	This requirement has been taken into account in the design and specification of plant and equipment.

Reference	Requirement and Applicability	Comment
BAT Conclusions for wastes treatment		
	• regularly inspecting and maintaining plant	
6.2.11*	You must have an appropriate regular maintenance programme covering all buildings, plant and equipment. This must also include protective equipment such as air ventilation and extraction systems, curtains and fast-action doors used to prevent and contain fugitive releases.	This requirement will be complied with.

Forward Action Plan – Fugitive Emissions to Air

There are no forward actions relating to fugitive emissions to air.

9.6 Fugitive Emissions to soil, surface water, sewer and groundwater

There will be no fugitive emissions to soil, surface water, sewer or groundwater, as described at Section 9.2. On this basis, arrangements for monitoring releases to these environmental media and the associated appropriate measures for emissions to soil, surface water and groundwater are not considered further.

9.7 Odour

Neither the E-Scrap proposed for acceptance, the wastes generated by the regulated activities and the raw materials used are odorous. On this basis, there are no proposals to monitor odour at the installation and appropriate measures for odour are not considered further.

9.8 Noise and vibration

Noise emissions from operational activities in the main building will be effectively attenuated by the design of the main building. There is the potential for noise emissions associated with traffic movements on the site road to be detectable at the installation boundary, though it is considered unlikely these will cause nuisance or disturbance of ecological receptors. These will be managed with implementation of the Traffic Management Plan and the Noise Management Plan if required. The Noise Screening Assessment provided at Appendix J confirms no further assessment of noise emissions is required.

Appropriate Measures – Noise

Table 9.6 Appropriate Measures – Noise

Reference	Requirement and Applicability	Comment
BAT Conclusions for Noise		

Reference	Requirement and Applicability	Comment
BAT Conclusion 17	In order to prevent or, where that is not practicable, to reduce noise and vibration emissions, BAT is to set up, implement and regularly review a noise and vibration management plan, as part of the environmental management system (see BAT 1), that includes all of the following elements: I. a protocol containing appropriate actions and timelines; II. a protocol for conducting noise and vibration monitoring; III. a protocol for response to identified noise and vibration events, e.g. complaints; IV. a noise and vibration reduction programme designed to identify the source(s), to measure/estimate noise and vibration exposure, to characterise the contributions of the sources and to implement prevention and/or reduction measures.	A Noise Management Plan will be developed for the installation in the event it is considered emissions are required to be managed. In this event, the requirements outlined below will be taken into account.
BAT Conclusion 18	Noise Control and Abatement In order to prevent or, where that is not practicable, to reduce noise and vibration emissions, BAT is to use one or a combination of the techniques given below. a. Appropriate location of equipment and buildings b. Operational measures This includes techniques such as: (i)inspection and maintenance of equipment; (ii)closing of doors and windows of enclosed areas, if possible; (iii) equipment operation by experienced staff; (iv) avoidance of noisy activities at night, if possible; (v) provisions for noise control during maintenance, traffic, handling and treatment activities. c. Low-noise equipment This may include direct drive motors, compressors, pumps and flares. d. Noise and vibration control equipment This includes techniques such as: (i) noise reducers; (ii) acoustic and vibrational insulation of equipment; (iii) enclosure of noisy equipment; (iv) soundproofing of buildings e. Noise attenuation Noise propagation can be reduced by inserting obstacles between emitters and receivers (e.g. protection walls, embankments and buildings).	These requirements have been taken into account as follows: • Plant and machinery will be operated and maintained in accordance with manufacturers' recommendations. • All aspects of the installation will be subject to frequent inspections. • Rapid closing doors will be installed to reduce the duration of exposure to noise from within the main building. • Capability and training requirements will be determined for staff employed at the facility in advance of the site being introduced into operations. • A Noise Management Plan will be implemented where appropriate.
Appropriate Measures – WEEE* and Inert and Non-hazardous Wastes		
6.3.1*	You should design the layout of the facility to locate potential sources of noise (including building exits and entrances) away from sensitive receptors and boundaries. You should locate buildings, walls, and embankments so they act as noise screens.	The layout of the facility takes into account this requirement, where practicable.
6.1.2*	You must use appropriate measures to control noise, for example, including: • adequately maintaining plant or equipment parts that may become noisier as they deteriorate – such as bearings, air handling plant, building fabric, and specific noise attenuation kit associated with plant or machinery	Relevant requirements will be complied with as outlined above.

Reference	Requirement and Applicability	Comment
	• closing doors and windows of enclosed areas and buildings • avoiding noisy activities at night or early in the morning • minimising drop heights and the movement of waste and containers • using broadband (white noise) reversing alarms and enforcing the on-site speed limit • using low-noise equipment, for example, drive motors, fans, compressors and pumps • adequately training and supervising staff • where possible, providing additional noise and vibration control equipment for specific noise sources – such as noise reducers or attenuators, insulation, or sound-proof enclosures	

Noise monitoring

It is not proposed to undertake monitoring of noise emissions within and beyond the installation boundary. This position may be reviewed in due course, depending on the outcome of engagement with Kent County Council and the findings of the noise assessment.

Forward Action Plan – Noise emissions and monitoring

There are no forward actions relating to noise emissions and monitoring.

10. Environmental Assessment

The setting and sensitivity of the site is outlined at Section 2. The following sections outline arrangements for assessment of environmental effects associated with the facility. Emissions to ground and groundwater are assessed separately in the Site Condition Report. This is provided at Appendix E.

10.1 Emissions to air

An initial Environmental Impact Assessment has to be undertaken to assess the impact of dust, and mercury and to confirm the stack height. This is provided at Appendix H. The assessment concludes:

- All process contributions are below the legal limits and guidelines at all sensitive receptors; and,
- Based on information provided by the contractor designing the dust abatement system, emissions will comply with the emission limits specified in the Appropriate Measures for WEE for Dust and Mercury and therefore impacts can be screened out as insignificant.

Extensive work has been undertaken to confirm the waste specifications, to characterise dust emissions and to finalise the specification and design of the dust abatement system. This information is currently being incorporated into a more detailed air quality impact assessment. A report confirming the outcome of this assessment will be submitted to support this application when completed.

Forward Action Plan – Air Environmental Assessment

There are no forward actions relating to air environmental assessment.

10.2 Emissions to water

The facility is designed and will be operated to provide effective containment of wastes and dust. Arrangements will also be developed to control dust within the main building and provide effective abatement of point source release to air. In addition the drainage system will be installed with interceptors and arrangements to retain contaminated flows on site in the event of accidents.

On this basis, it is considered emissions to water will be uncontaminated there is no requirement for an Environmental Risk Assessment for emissions to water.

10.3 Noise

A Screening Assessment of Noise Emissions has been undertaken consistent with the methodology outlined on the gov.uk for management of noise and vibration for Environmental Permits. The assessment confirms that given the location of the site, attenuation of noise afforded by the design of the building and the limited number of vehicle movements, it is not anticipated

noise emissions will give rise to pollution, nuisance or annoyance to human receptors beyond the installation boundary or disturbance of ecological receptors.

Forward Action Plan – Noise Environmental Assessment

There are no forward actions relating to noise.

10.4 The Conservation of Habitats and Species Regulations 2010, (as amended)

The Environmental Permitting Regulations require that the Habitats Regulations are taken into consideration and if the installation activity will have a significant effect on any of the sites protected under these regulations, the Habitats Regulations require that competent authorities are satisfied that an appropriate assessment of such habitats has been conducted.

Protection of European sites is provided via Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora (the 'Habitats Directive') and Council Directive 2009/147/EC on the conservation of wild birds. These directives are transposed in England on land and within 12 nautical miles by the Conservation of Habitats and Species Regulations 2010 (as amended) and in offshore waters (beyond 12 nautical miles) by the Offshore Marine Conservation (Natural Habitats, &c) Regulations 2007 (as amended) (together known as the Habitat Regulations). The Habitat Regulations define the process for the assessment of the implications of plans and projects on European sites - under Regulation 61(1) of the Conservation of Habitats and Species Regulations 2010 (the 'Habitats Regulations').

The Habitats Regulations implement the EU Bird and Habitat Directives, both of which aim to protect a network of sites in the UK that have rare or important habitats and species. The sites designated under the Birds Directive are known as Special Protection Areas (SPAs) and aim to conserve the habitats that support regularly occurring migratory or certain rare or vulnerable birds, to ensure their survival and reproduction in their area of distribution. Prior to classification by the UK Government, the sites are known as potential SPAs (pSPAs). The Habitats Directive establishes the process for the designation of Special Areas of Conservation (SACs); these are sites that support habitats and/or species which are rare or threatened on a European scale. Before the SAC designation is ratified by the European Commission the sites are referred to as candidate SACs (cSACs). SPAs and SACs are collectively known as 'European sites' or 'Habitats sites' and form part of a European network known as Natura 2000.

The facility effectively borders the Swanscombe Peninsula SSSI, located less than 0.1km west of the site. In discussions relating to the Planning Application, Kent County Council has confirmed a Habitats Regulations Assessment is not required for the facility. This reflects findings of the assessment undertaken by WSP that indicates there will not be any significant effects on the conservation designations within 2km of the installation.

In more recent discussions, the planning authority has expressed reservations that vehicle movements along Manor Way have the potential to adversely affect invertebrate and bird species associated with the SSSI. This matter is currently being considered by Kent County Council.

Forward Action Plan – Habitats Regulations Environmental Assessment

Table 10.2 Forward Action Plan - Habitats Regulations Environmental Assessment

Ref	Information Requirement	Approach to resolution
FA 10.4.1	Update the Environment Agency on any engagement relating to noise emissions assessment as a result of engagement with Kent County Council.	During the Determination Period: Update the Environment Agency on any engagement relating to noise emissions assessment as a result of engagement with Kent County Council. Provide a copy of any noise assessment prepared to support engagement on this matter.

10.5 Flood risk and flood defences

A comprehensive Flood Risk Assessment has been undertaken and this, together with the requirements for modifications to current flood defences has been subject to extensive engagement with the Environment Agency. The Flood Risk Assessment confirms:

- The risk of flooding from fluvial, surface water, groundwater, sewer and artificial sources is considered to be low.
- The key risk to the installation is from tidal flood risk associated with the tidal River Thames. The entire Site is situated within Flood Zone 2, and the majority of the Site within Flood Zone 3.
- The majority of the installation is within an Environment Agency area benefitting from flood defences, owing to the flood wall that runs along the eastern perimeter of the Site which have associated crest elevations of between 6.32m to 6.95m AOD. The existing site elevations vary between 4.5m AOD and 6.5m AOD.
- The site is currently protected by formal flood defences offering a present day Standard of Protection exceeding the 0.1% Annual Exceedance Probability (AEP) event. Flood defence upgrades as described at Section 3.1 (Flood Defences) are proposed as part of the development to continue to provide the required Standard or Protection.
- There is a residual risk of flooding to the site associated with a breach of Environment Agency flood defences. The probability of any breach event is considered to be very low, though the potential consequence is high. The Thames Estuary breach assessment (2018) modelling results have been provided by the Environment Agency and used to determine a design level of 6.65m AOD, taking the max water level within the main building footprint from the 0.5% AEP (2115) results and incorporating a 600mm freeboard.
- The proposed surface water drainage scheme is shown to be resilient to conservative tide-locked scenarios, considering a 1% AEP event plus 40% climate change and a MHWS, and a 100% AEP event and 0.5% AEP (2090 Upper End) tide level. There is sufficient attenuation storage provided within the existing drainage swale, and,

- The drainage scheme results in no flooding in the 1% AEP plus 40% climate change design event. In addition, the scheme has been designed to ensure no surcharging occurs in the 100% AEP event or 3.33% AEP plus 35% climate change events.

Forward Action Plan – Flood Risk Assessment

There are no forward actions in relation to the Flood Risk Assessment

Appropriate Measures – Flood Assessment

Table 10.3 Appropriate Measures – Flood Assessment

Reference	Requirement and Applicability	Comment
BAT Conclusions for Wastes Treatment		
BAT Conclusion 21	In order to prevent or limit the environmental consequences of accidents and incidents, BAT is to use all of the techniques given below, as part of the accident management plan: Protection measures These include measures such as: — protection of the plant against malevolent acts. — fire and explosion protection system, containing equipment for prevention, detection, and extinction. — accessibility and operability of relevant control equipment in emergency situations a) Protection measures These include measures such as: — protection of the plant against malevolent acts; —fire and explosion protection system, containing equipment for prevention, detection, and extinction; —accessibility and operability of relevant control equipment in emergency situations. b) Management of incidental/accidental emissions Procedures are established and technical provisions are in place to manage (in terms of possible containment) emissions from accidents and incidents such as emissions from spillages, firefighting water, or safety valves. c) Incident/accident registration and assessment system This includes techniques such as: — a log/diary to record all accidents, incidents, changes to procedures and the findings of inspections; — procedures to identify, respond to and learn from such incidents and accidents.	The new facility will be located on the site currently owned by BRM. The existing site has high standards of security including security fencing, CCTV and manned security office. This level of security will be provided to the E-Scrap facility. Fire detection and suppression are considered in the Site Wide Fire Strategy provided at Appendix C. The process is a batch process which will be installed with appropriate emergency stops to isolate processing plant in the event of trespass or abnormal operating/emergency conditions, to mitigate effects on the environment. There are currently no assessments to inform understanding of risks associated with explosive atmospheres and deflagrations.

Appendix A -
Forward Action Plan

Ref	Information Requirement	Approach to resolution
Acceptance of wastes		
FA 3.4.2	Outline arrangements to control fugitive emissions to the environment from the vehicle loading/unloading area.	**During the Determination Period:** Outline arrangements to reduce fugitive emissions including the potential dust entrained on tyres on vehicles where this is confirmed as a viable pathway.
Storage and handling of E-Scrap		
FA 3.5.1	Outline arrangements for control of fugitive emissions associated with waste bagging/loading.	**During the Determination Period:** Confirm arrangements for loading loose material into containers for export and justify how environmental considerations have been taken into account in the design.
FA 3.5.2	Describe the regulated activities.	**During the Determination Period:** Provide more detailed description of the waste transfer (including conveying systems) arrangements, the bagging plant and container loading and how environmental considerations have been taken into account in design of these arrangements.
FA 3.5.3	Confirm arrangements for storing and handling samples in the installation	**During the Determination Period:** Confirm how samples will be stored and handling, including retention timescales.
FA 3.5.4	Confirm arrangements for controlling and abating emissions to air.	**During the Determination Period:** Confirm arrangements for partitioning / segregating the waste reception/unloading area to control fugitive emissions during import and export of wastes and other access/egress points in the main building and the filter house.
Point Source Emissions to Air		
FA 9.1.1	Confirm all point source emissions to air	**During the determination process:** Confirm all point source emissions to air and confirm these on a plan. Confirm all areas and activities that comprise emissions sources that will be extracted for abatement.
Habitat Regulations Assessment		
FA 10.4.1	Update the Environment Agency on any engagement relating to noise emissions assessment as a result of engagement with Kent County Council.	**During the Determination Period:** Update the Environment Agency on any engagement relating to noise emissions assessment as a result of engagement with Kent County Council. Provide a copy of any noise assessment prepared to support engagement on this matter.

Appendix B –Site Drainage Strategy

Appendix C - Site Wide Fire Strategy

Appendix D - Appropriate Measures specifically relating to Procedures

Reference	Requirement and Applicability
Pre-acceptance of Waste	
BAT Conclusions	
BAT Conclusion 2a	In order to improve the overall environmental performance of the plant, BAT is to use all of the techniques given below. - Set up and implement waste characterisation and pre-acceptance procedures These procedures aim to ensure the technical (and legal) suitability of waste treatment operations for a particular waste prior to the arrival of the waste at the plant. They include procedures to collect information about the waste input and may include waste sampling and characterisation to achieve sufficient knowledge of the waste composition. Waste pre-acceptance procedures are risk-based considering, for example, the hazardous properties of the waste, the risks posed by the waste in terms of process safety, occupational safety and environmental impact,
Acceptance of Waste	
BAT Conclusion 2b	Acceptance procedures aim to confirm the characteristics of the waste, as identified in the pre-acceptance stage. These procedures define the elements to be verified upon the arrival of the waste at the plant as well as the waste acceptance and rejection criteria. They may include waste sampling, inspection and analysis. Waste acceptance procedures are risk-based considering, for example, the hazardous properties of the waste, the risks posed by the waste in terms of process safety, occupational safety and environmental impact, as well as the information provided by the previous waste holder(s).
Appropriate Measures – WEEE* and Inert and Non-hazardous Wastes**	
3.2.1* 3.1.1**	You must implement waste acceptance procedures to check that the characteristics of the waste received matches the information you obtained during waste pre-acceptance. This is to confirm that the waste is as expected, and you can accept it. If it is not, you must confirm that you can accept it as a non-conforming waste, or you must reject it. If you are rejecting hazardous waste, you must follow the guidance on the procedure for rejecting hazardous waste. Procedures should be documented and auditable
3.2.2*	Your procedures must follow a risk-based approach, considering: • the source, nature, condition and age of the waste • *any hazardous properties of the waste*** • *any POPs content in the waste** • potential risks to process safety, occupational safety and the environment** *(for example, the presence of lithium-ion batteries)** knowledge about the previous waste holders
3.1.3**	When you receive a customer query, and before the waste arrives at your facility, you must get enough information from the waste producer to satisfy yourself that the waste has been properly assessed and classified as set out in WM3.

Reference	Requirement and Applicability
3.2.10* 3.2.6**	You must have clear criteria that you use to reject non-conforming wastes. You must also have a written procedure for recording, reporting and tracking non-conforming wastes, including notifying the relevant customer or waste producer to prevent reoccurrence. These must include: • *using quarantine storage*** • *notifying the relevant customer or waste producer***
3.2.7**	Where you reject waste which has been classified as hazardous, you must follow the procedure set out in our rejected loads guidance.
3.2.10**	Your procedures must make sure that your staff watch waste being unloaded, so you can quarantine the waste if necessary before it is mixed with other material.
3.2.15*	You must have written procedures in place for dealing with wastes held in quarantine, and a maximum storage volume. For some limited and specific cases (for example, the detection of radioactivity), you can extend quarantine storage time if the Environment Agency agrees.
3.3.5**	You must have written procedures for dealing with wastes held in quarantine, including a maximum storage volume. The maximum storage time must take account of the potential for odour generation, pest infestation and storage conditions. If the waste is infested or odorous you must remove it within 24 hours or sooner.
Environmental Management	
BAT Conclusions	
BAT Conclusion 1	In order to improve the overall environmental performance, BAT is to implement and adhere to an environmental management system (EMS) that incorporates all of the following features: I. commitment of the management, including senior management; II. definition, by the management, of an environmental policy that includes the continuous improvement of the environmental performance of the installation; III. planning and establishing the necessary procedures, objectives and targets, in conjunction with financial planning and investment; IV. implementation of procedures paying particular attention to: (a) structure and responsibility, (b) recruitment, training, awareness and competence, (c) communication, (d) employee involvement, (e) documentation, (f) effective process control, (g) maintenance programmes, (h) emergency preparedness and response, (i) safeguarding compliance with environmental legislation; V. checking performance and taking corrective action, paying particular attention to: (a) monitoring and measurement (see also the JRC Reference Report on Monitoring of emissions to air and water from IED installations – ROM), (b) corrective and preventive action, (c) maintenance of records, (d) independent (where practicable) internal or external auditing in order to determine whether or not the EMS conforms to planned arrangements and has been properly implemented and maintained;

Reference	Requirement and Applicability
	VI. review, by senior management, of the EMS and its continuing suitability, adequacy and effectiveness; VII. following the development of cleaner technologies; VIII. Consideration for the environmental impacts from the eventual decommissioning of the plant at the stage of designing a new plant, and throughout its operating life; IX. application of sectoral benchmarking on a regular basis; X. waste stream management (see BAT 2); XI. an inventory of wastewater and waste gas streams (see BAT 3); XII. residues management plan (see description in Section 6.5) XIII. accident management plan (see description in Section 6.5); XIV. odour management plan (see BAT 12); noise and vibration management plan (see BAT 17).
Appropriate Measures – WEEE* and Inert and Non-hazardous Waste**	
2.1.1* **2.1.1****	You must have and follow an up-to-date written management system. It must incorporate the following features. You have: • management commitment, including from senior managers • an environmental policy that is approved by senior managers and includes the continuous improvement of the facility's environmental performance You plan and establish the resources, procedures, objectives and targets needed for environmental performance alongside your financial planning and investment. You implement your environmental performance procedures, paying particular attention to: • staff structure and relevant responsibilities • staff recruitment, training, awareness and competence • communication (for example, of performance measures and targets) • employee involvement • documentation and records • effective process control • maintenance programmes • the management of change (including legislative changes and waste classification changes) • emergency preparedness and response • making sure you comply with environmental legislation You check environmental performance and take corrective action paying particular attention to: • monitoring and measurement • learning from incidents, near misses and mistakes, including those of other organisations • records maintenance • independent (where practicable) internal or external auditing of the management system and operations to confirm it has been properly implemented and maintained Senior managers review the management system at least annually to check it is still suitable, adequate and effective.

Reference	Requirement and Applicability
	You review the development of cleaner and more efficient technologies and their applicability to site operations. When designing new plant, you make sure that you assess the environmental impacts from the plant's operating life and eventual decommissioning. You consider the risks a changing climate poses to your operations. You have appropriate plans in place to assess and manage future risks. You compare your site's performance against relevant sector guidance and standards on a regular basis, known as sectoral benchmarking. • You have and maintain the following documentation: • inventory of emissions to air and water • residues management plan • accident management plan • site infrastructure plan • site condition report • fire prevention plan If required, you have and maintain the following documentation: • odour management plan • noise and vibration management plan • dust management plan • pest management plan • climate change risk assessment. When doing this, you must take into account the characteristics of your facility and the waste types and the pollution risks, for example fire and odour. Your limits must also reflect the constraints of the available space and waste handling processes. You must include factors like seasonal changes in supplies of inputs, and markets for outputs. More information on understanding capacity is available in our RGN 2 guidance. Your management system must include a schedule of inspection and maintenance for all pollution control infrastructure, including for example the: • impermeable surfacing and drainage system • ducts of abatement systems Your management system must clearly set out the actual physical capacity of your facility to store and handle waste, which may be less than the quantity limits allowed by your permit. You must specify limits for the maximum: • waste storage capacity at any one time • daily and annual throughputs residence time for waste

Appendix E - Site Condition Report

Appendix F – Flood Risk Assessment

Appendix G - Management System Certificates

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Certificate of Registration

ENVIRONMENTAL MANAGEMENT SYSTEM - ISO 14001:2015

This is to certify that:

Britannia Refined Metals Ltd
Botany Road
Northfleet
DA11 9BG
United Kingdom

Holds Certificate Number: EMS 52575

and operates an Environmental Management System which complies with the requirements of ISO 14001:2015 for the following scope:

The refining and recovery of lead bullion, silver and the treatment of by-products from these processes.

For and on behalf of BSI:

Matt Page, Managing Director Assurance - UK & Ireland

Original Registration Date: 1999-10-22
Latest Revision Date: 2022-04-12

Effective Date: 2022-04-24
Expiry Date: 2025-04-23

Page: 1 of 1

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Certificate of Registration

ENERGY MANAGEMENT SYSTEM - ISO 50001:2018

This is to certify that:

Britannia Refined Metals Ltd
Botany Road
Northfleet
DA11 9BG
United Kingdom

Holds Certificate Number: ENMS 629810

and operates an Energy Management System which complies with the requirements of ISO 50001:2018 for the following scope:

The energy management system related to the refining and recovery of lead and silver from bullion and the treatment of by-products from these processes. Utilising purchased oil, gas, electricity and a small quantity of LPG, and compressed air generated on site.

For and on behalf of BSI:

Matt Page, Managing Director Assurance - UK & Ireland

Original Registration Date: 2015-11-27
Latest Revision Date: 2021-11-19

Effective Date: 2021-11-27
Expiry Date: 2024-11-26

Page: 1 of 1

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Appendix H - Air Impact Assessment

Appendix I - Dust Management Plan

Appendix J - Noise Screening Assessment

Appendix K - Operating Techniques Summary

Appendix L - Fire Prevention Plan

Appendix M - Emissions Inventory (Air)

Parameter	Stack Characteristics	Units
Stack Height	3.0	m
Stack Diameter	1.0	m
Temperature	Ambient	°C
Velocity	12.5	m/s
Volume Flow Rate	9.8	Am^3/s
Emission concentrations (273K, dry)		
Dust (PM_{10} and $PM_{2.5}$)	5 (WEE ELV)	mg/Nm^3
Mercury	7 (WEE ELV)	$\mu g/Nm^3$
Emission rates		
PM_{10}	0.0492	g/s
$PM_{2.5}$	0.0492	g/s
Mercury	$6.9x10^{-5}$	g/s
Monitoring Frequency		
Dust	Every 6 months	
Mercury	Every 3 months	

Extensive work has been undertaken to confirm the waste specifications to characterise dust emissions and to finalise the specification and design of the dust abatement system. This information will underpin the Emissions Inventory that informs more the detailed air quality impact assessment for specific components of the dust, that is currently being undertaken. The revised Emissions Inventory will be submitted to the Environment Agency to support this application when completed.