Appendix G

FUGITIVE EMISSIONS MANAGEMENT PLAN

ENVA E-WASTE ENGLAND LIMITED

WEEE RECYCLING FACILITY

FORMER DARTFORD INTERNATIONAL FERRY TERMINAL,

CLIPPER BOULEVARD,

DARTFORD,

KENT,

DA2 6QB

DUST & EMISSION MANAGEMENT PLAN

(DEMP)

VERSION NUMBER: 2

DATE: 09/10/2025

Issue and Revision Record

Revision	Date	Originator	Checker	Company Approver	Description of Changes
1	31/07/2025	C Lee	S Clayton	C Stephenson	First Issue
2	11/09/2025	C Lee	K Phillipson	C Stephenson	Final Draft
3	29/09/2025	C Lee	S Clayton	C Stephenson	Final Draft amended following Enva review

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1. Introduction

Enva E-Waste England Limited (hereinafter 'Enva') is a WEEE recycling and reuse business, operating a portfolio of sites across the UK. A new Waste Electrical & Electronic Equipment (WEEE) recycling facility in Dartford, Kent, is to be developed and operated by Enva. The proposed facility will include the development of a new WEEE treatment process to deconstruct Waste Temperature Exchange Equipment (WTEE), consisting of fridges and freezers only, into their constituent parts for recycling, alongside the deconstruction of small mixed WEEE (SMW).

The site will be located in an area serviced by two local authorities: Kent Country Council and Dartford Borough Council. The site will not be in an Air Quality Management Area.

Operations carried out at the facility involve recycling activities – the recycling industry in general has an inherent risk of airborne particulates, due to the nature of the process involved. The risk of airborne particulate releases has been considered and abatement measures implemented throughout designs and procedures, where necessary and where feasible, outlined in further detail throughout this management plan.

Preparation of this document supports the environmental permit application to be submitted to the Environment Agency (EA) in relation to the new site.

This DEMP will form part of the management system at the site and will be communicated by the Site Manager to all staff when the site becomes operational. All staff will be made aware of this plan and their particular requirements within it as part of their induction.

1.1. Sensitive Receptors

The proposed WEEE recycling facility is located at the Former Dartford International Ferry Terminal, Clipper Boulevard, Dartford, Kent, DA2 6QB.

Within close proximity to the proposed site, there are various receptors that are considered further in the measures outlined in this management plan in the following sections.

Sensitive receptors that have been identified that could be impacted by dust and related emissions within a 1,000 m radius of the proposed facility include various schools and educational facilities, healthcare and care facilities, and residential areas. These locations are considered to be sensitive due to the presence of children, elderly individuals, or people with potential health vulnerabilities. When considering the amenity impact of dust and other related emissions within a 1,000 m radius of the proposed site area, clean industry and other manufacturing processes that could be affected are also accounted for. Such receptors are outlined in Table 1 provided below.

Further to this, Figure 1 provides a map which outlines the sensitive receptors in relation to the site location. The indicative site boundary is shown in red; the first concentric ring is approximately 1 km from the site centre and the second concentric ring shows approximately 1.09 km from the site centre. Sensitive receptors that are tabulated in Table 1, are pinpointed on this map (in Figure 1). It can be noted that those the majority of receptors that include educational and healthcare facilities are

not situated within 1 km of the site boundary and are therefore considered to be less susceptible to any effects that may arise from site operations.

Below in Figure 2 a local wind rose to the site has been included to demonstrate the wind direction in the area and enable understanding of how wind, combined with any potential dust emissions from the site, will impact nearby receptors. The nearest observed meteorological station to the site is London City Airport, which is situated approximately 15.6 km northeast. With a difference in elevation of 2.8 m, the meteorological conditions at London City Airport can be considered representative of the site. The wind rose, using data from 2024, is presented below, and shows a south-westerly prevailing wind direction.

Ecologically designated sites have also been identified. Within 1,000m of the facility there are the following ecological receptors:

- One Marine conservation zone – Swanscombe
- One Site of Special Scientific Interest (SSSI) – West Thurrock Lagoon & Marshes SSSI
- No Ramsar, Special Protection Areas (SPA), Special Areas of Conservation (SAC), National Nature Reserves (NNR), Local Nature Reserves (LNR), Areas of Outstanding Natural Beauty (AONB), or National Parks.

Figure 3 highlights the location of these ecological receptors in relation to the indicative site boundary. Again, it can be noted that the majority of these receptors are not within 1 km of the site boundary.

Within close proximity to the site, there are other facilities that can also be considered to produce dust or other emissions. These are collated in Table 2, below.

Figure 1 - Nearby Sensitive Receptors

Figure 2 - Wind rose from London City Airport (2024) showing the Average Wind Direction And Strength at Dartford WEEE Recycling Facility.

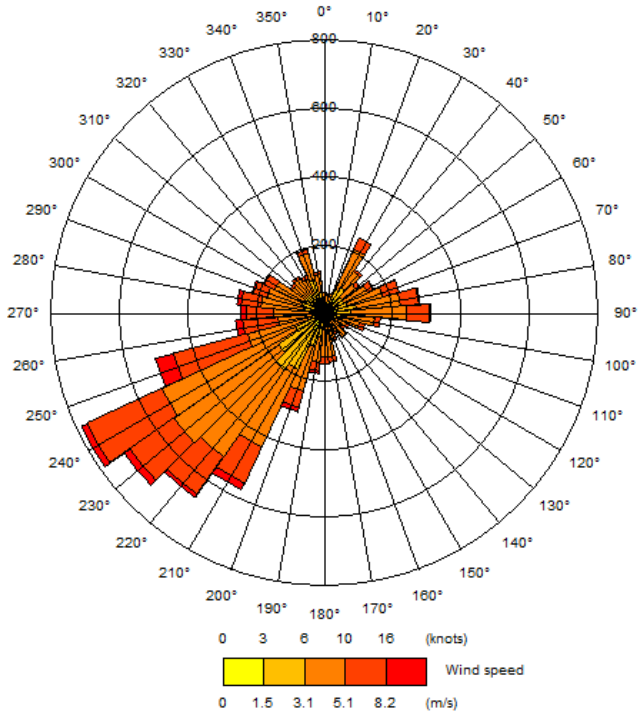

Figure 3 - Nearby Ecological Designations

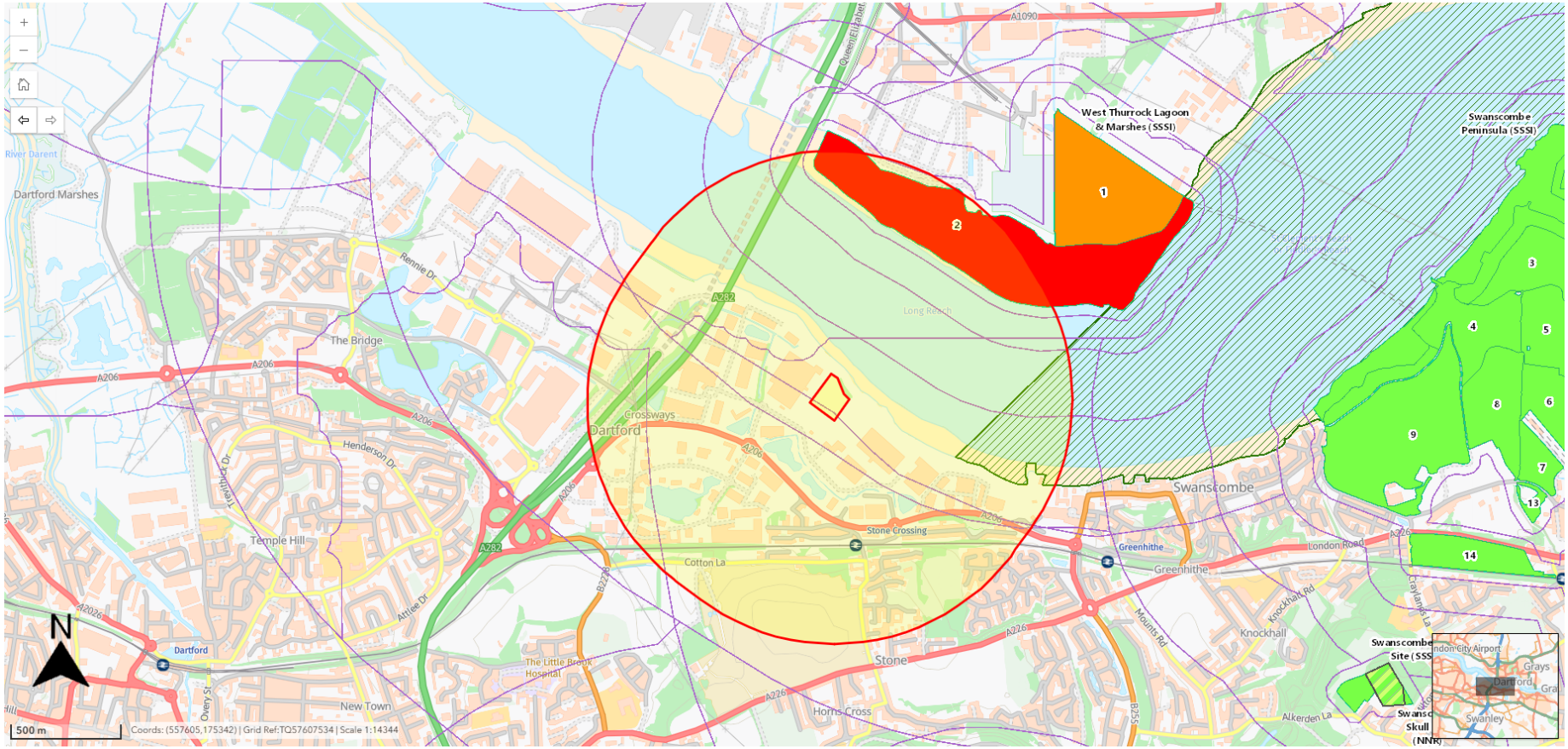

Table 1 - Distances to Selected, Representative Sensitive Locations

Boundary	Closest property	Approximate distance to Enva WEEE Recycling Facility, Dartford site boundary (m)
Northwest	ASDA Distribution Centre	0
South	Abel Fishing Reserve and Park	145
East	Crossways Commercial Park	145
Southeast	Mission Produce UK	163
West	Travelodge Dartford Crossing	260
West	Global Industrial	375
South	Residential area	380
Southwest	Laing O'Rourke	475
Southeast	Travelodge Dartford	515
Southeast	Industville	545
Southeast	Stone Crossing Train Station	575
Southeast	Residential estate	605
Northwest	Dartford Tunnel	695
Southeast	Worcester Park	763
Southwest	Tesla Centre Dartford	1005
Southeast	Greenhithe for Bluewater Train Station	1345
Southwest	Stone Lodge School	1525
Southwest	The Brent Primary School	1920
Southwest	Windmill Nursery	1930
South	Darent Valley Hospital	2375

Table 2 - Sources of Dust and / or other Emissions

Boundary	Closest property	Approximate distance to Enva WEEE Recycling Facility, Dartford site boundary (m)
Northwest	ASDA Distribution Centre	0
East	Crossways Commercial Park	145
Southeast	Mission Produce UK	163
West	Global Industrial	375
Southwest	Laing O'Rourke	475
Southeast	Industville	545
Southeast	Stone Crossing Train Station	575
Northwest	Dartford Tunnel	695
Southwest	Tesla Centre Dartford	1005
Southeast	Greenhithe for Bluewater Train Station	1345

2. Operations at Enva WEEE Recycling Facility, Dartford

2.1. Waste Deliveries to Enva WEEE Recycling Facility, Dartford

WEEE loads will be delivered to the site via road, in Heavy Goods Vehicle (HGV) trailers, covered with sheets. It is expected that these deliveries will be undertaken by vehicles which are Euro Spec 5 or 6, which refers to vehicles that have been manufactured since 2011.

Waste pre-acceptance agreements are to be obtained by Enva, prior to loads being delivered to site. Upon receipt of the load, acceptance procedures will be undertaken. Such protocols ensure that the site will be aware of the incoming load and that sufficient capacity is available but also will ensure that the received loads are in line with what was anticipated, as per the pre-acceptance information.

By carrying out pre-acceptance and acceptance checks, Enva will be able to maintain control of the waste deliveries and any associated dust and particulate emissions. The received wastes are whole WEEE prior to deconstruction and are not considered to be dusty materials upon receipt.

Reporting and data capture will be supported by backing documents, generated as part of the inbound and outbound processes, including Wast Transfer Notes, Hazardous Waste Consignment Notes, Unit Count Sheets and Weighbridge Slips. Hard copies of such documentation will be securely retained on site, for a period of at least 5 years, as well as logged and stored using Enva's Central ERP system, Tegos.

Table 3 details the European Waste Catalogue (EWC) codes to be accepted at the installation.

Table 3 - EWCs Accepted at the Facility and the Activities that they will be Involved In.

EWC	Description	Activity
16	**WASTES NOT OTHERWISE SPECIFIED IN THE LIST**	For activities that involve the treatment of waste temperature exchange equipment, involving stage 1 degassing and stage 2 destruction processes, as well as the storage of hazardous waste pending on-site treatment or off-site transfer.
16 02	**Wastes from electrical and electronic equipment.**	
16 02 11*	Discarded equipment containing chlorofluorocarbons, HCFC, HFC.	
16 02 13*	Discarded equipment containing hazardous components other than those mentioned in 16 02 09 to 16 02 12.	
20	**MUNICIPAL WASTES (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES) INCLUDING SEPARATELY COLLECTED FRACTIONS**	
20 01 23*	Discarded equipment containing chlorofluorocarbons	
20 01 35*	Discarded electrical and electronic equipment other than those mentioned in 20 01 21 and 20 01 3 containing hazardous components.	
9	**WASTES FROM THE PHOTOGRAPHIC INDUSTRY**	For activities that involve the mechanical treatment of SMW granulation of hazardous electrical and communications cable, and the storage of hazardous waste pending on-site treatment or off-site transfer.
09 01	**Wastes from the photographic industry**	
09 01 11*	Single-use cameras containing batteries included in 16 06 01, 16 06 02, or 16 06 03	
16	**WASTES NOT OTHERWISE SPECIFIED IN THE LIST**	
16 02	**Wastes from electrical and electronic equipment**	
16 02 09*	Transformers and capacitors containing PCBs.	
16 02 10*	Discarded equipment containing or contaminated by PCBs other than those mentioned in 16 02 09.	

EWC	Description	Activity
16 02 12*	Discarded equipment containing free asbestos	
16 02 13*	Discarded equipment containing hazardous components other than those mentioned in 16 02 09 to 16 02 12.	
16 02 15*	Hazardous components removed from discarded equipment.	
16 06	**Batteries and accumulators**	
16 06 01*	Lead batteries	
16 06 02*	Ni-Cd batteries	
16 06 03*	Mercury-containing batteries	
17	**CONSTRUCTION AND DEMOLITION WASTES (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITES)**	
17 06	**Insulation materials and asbestos-containing construction materials.**	
17 06 03*	Other insulation materials consisting of or containing hazardous substances.	
20	**MUNICIPAL WASTES (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES) INCLUDING SEPARATELY COLLECTED FRACTIONS**	
20 01	**Separately collected fractions (except 15 01)**	
20 01 21*	Fluorescent tubes and other mercury-containing waste.	
20 01 35*	Discarded electrical and electronic equipment other than those mentioned in 20 01 21 and 20 01 23 containing hazardous components.	

EWC	Description	Activity
20 01 36	Discarded electrical and electronic equipment other than those mentioned in 20 01 21, 20 01 23 and 20 01 35.	
9	**WASTES FROM THE PHOTOGRAPHIC INDUSTRY**	For activities involving waste operations (such as storage of waste pending further operations, recycling / reclamation of organic substances not used as solvents, recycling / reclamation of metals and metal compounds, and recycling / reclamation or other inorganic compounds).
09 01	**Wastes from the photographic industry**	
09 01 12	Single-use cameras containing batteries other than those mentioned in 09 01 11	
15	**WASTE PACKAGING: ABSORBENTS, WIPING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED**	
15 01	**Packaging (including separately collected municipal packaging waste)**	
15 01 01	Paper and cardboard packaging	
15 01 02 15 01 03	Plastic packaging Wooded packaging	
15 01 04	Metallic packaging	
15 01 05	Composite packaging	
15 01 06	Mixed packaging	
16	**WASTES NOT OTHERWISE SPECIFIED IN THE LIST**	
16 01	**End-of-life vehicles from different means of transport (including off-road machinery) and wastes from dismantling of end-of-life vehicles and vehicle maintenance (except 13, 14, 16 06 and 16 08)**	
16 01 19	Plastic	
16 02	**Wastes from electrical and electronic equipment**	

EWC	Description	Activity
16 02 14	Discarded equipment other than those mentioned in 16 02 09 to 16 02 13.	
16 02 16	Components removed from discarded equipment other than those mentioned in 16 02 15	
16 06	**Batteries and accumulators**	
16 06 04	Alkaline batteries (except 16 06 03)	
16 06 05	Other batteries and accumulators	
17	**CONSTRUCTION AND DEMOLITION WASTES (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITES)**	
17 04	**Metals (including their alloys)**	
17 04 01	Copper, bronze, brass	
17 04 02	Aluminium	
17 04 03	Lead	
17 04 04	Zinc	
17 04 05	Iron and steel	
17 04 05 17 04 07	Tin Mixed metals	
19	**WASTES FROM WASTE MANAGEMENT FACILITIES, OFF-SITE WASTE-WATER TREATMENT PLANTS AND THE PREPARATION OF WATER INTENDED FOR HUMAN CONSUMPTION AND WATER FOR INDUSTRIAL USE**	

EWC	Description	Activity
19 12	**Wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified**	
19 12 02	Ferrous metal	
19 12 03	Non-ferrous metal	
20	**MUNICIPAL WASTE (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES) INCLUDING SEPARATELY COLLECTED FRACTIONS**	
20 01	**Separately collected fractions (except 15 01)**	
20 01 23*	Discarded equipment containing chlorofluorocarbons.	
20 01 35*	Discarded electrical and electronic equipment other than those mentioned in 20 01 21 and 20 01 23 containing hazardous components.	
20 01 36	Discarded electrical and electronic equipment other than those mentioned in 20 01 21, 20 01 23 and 20 01 35.	
20 01 40	Metals	

2.2. Overview of Waste Processing, Dust, and Other Emission Controls

Recycling operations are the main activities that will be occurring on site. The Waste Hierarchy is to be applied within operations, as Enva will ensure that 90% of materials will be recycled via the plant, and the remaining 10% that cannot be recycled on site will be transferred to a suitable waste treatment facility, for further treatment or disposal. Recycling treatment will be prioritised where possible.

Two separate recycling streams will be operated: one WTEE recycling plant and one SMW recycling plant. Figure 4 and Figure 5 provide a process flows involved in WTEE recycling and SMW recycling, respectively. Design of the process equipment has accounted for the requirement to contain and prevent release of airborne particles that have the potential to be released as part of the deconstruction processes. All equipment involved in recycling processes will be enclosed within buildings, which will be the main mitigation of fugitive emissions to air that could arise as a result of certain stages of the recycling procedure (particularly shredding). From such processes, there will only be a total of three point source emissions to air, each supported by the relevant abatement systems suitable for the types of emissions that will be released from each.

Figure 6 below shows the layout of the site with the two main deconstruction lines and the buildings within which these activities are performed. The only activities that will be undertaken externally include the pre-treatment of WEEE to remove potentially contaminating components, and the storage of the deconstructed fractions arising from SMW deconstruction. Storage, both internally and externally, will be within designated bays, each constructed from concrete blocks. External storage areas encompass bays of dimensions 16 m x 8 m x 3.6 m and 8.4 m x 4.5 m x 3.6 m for pre-treated SMW and bays of dimensions 10 m x 9 m x 3.6 m and 15 m x 9 m x 3.6 m for storage of SMW with potentially contaminating components removed (e.g. batteries, gas canisters, cables, wood, etc.). Internal storage areas comprise bays for storage of WTEE awaiting treatment, as well as residual materials arising from WTEE recycling activities.

The site does not have a back-up diesel generator.

The mobile plant as discussed within Section 2.3 will be used for the deconstruction activities, waste storage and handling. Mobile plant is leased from an external organisation, who are also responsible for maintenance and servicing, which will be carried out regularly.

All yard areas will be constructed of durable and hardwearing, impermeable surface (hardstanding concrete) which would assist in the capture and cleaning of any spilled dusty materials.

Figure 4 - Process Flow Diagram of WTEE Recycling Process

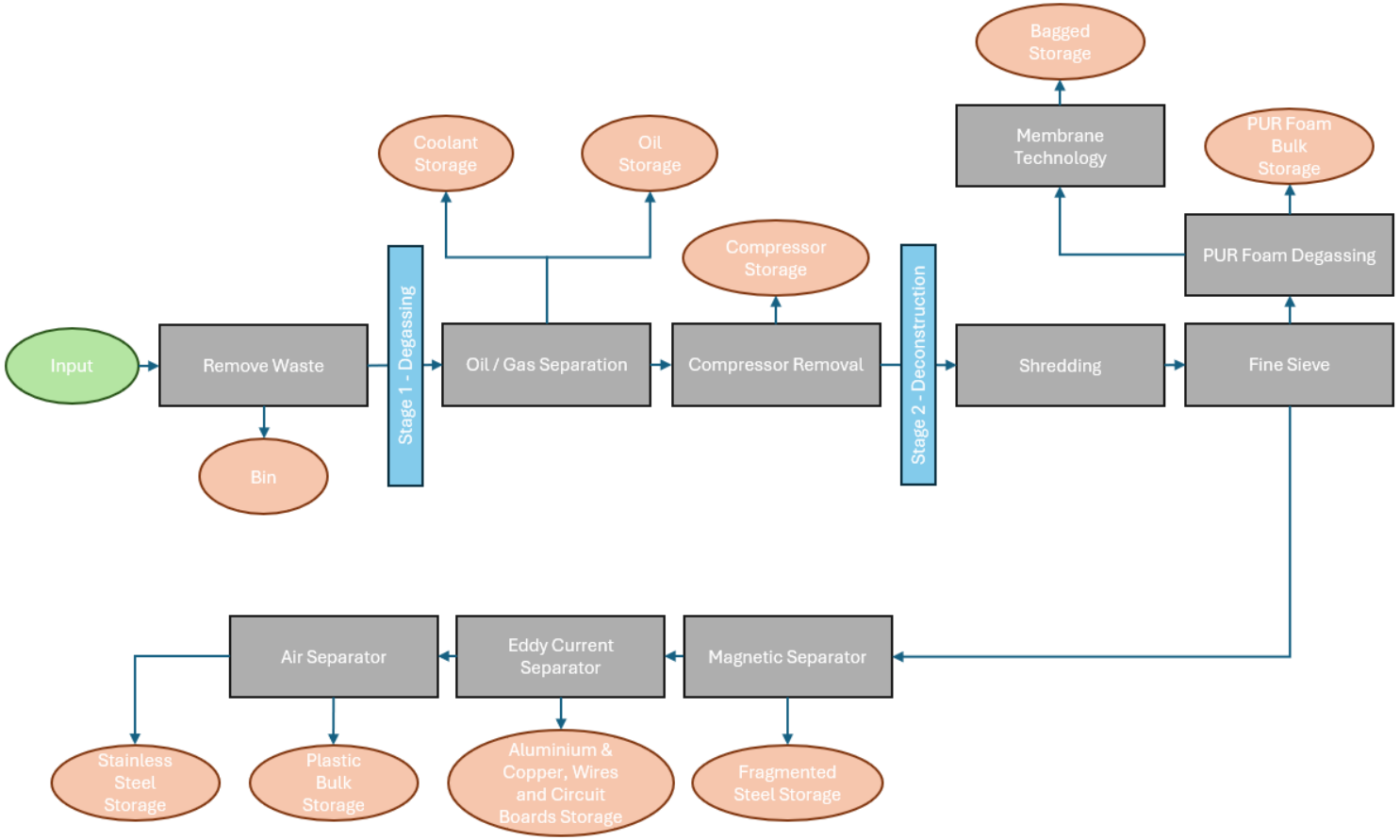

Figure 5 - Process Flow Diagram of SMW Recycling Process

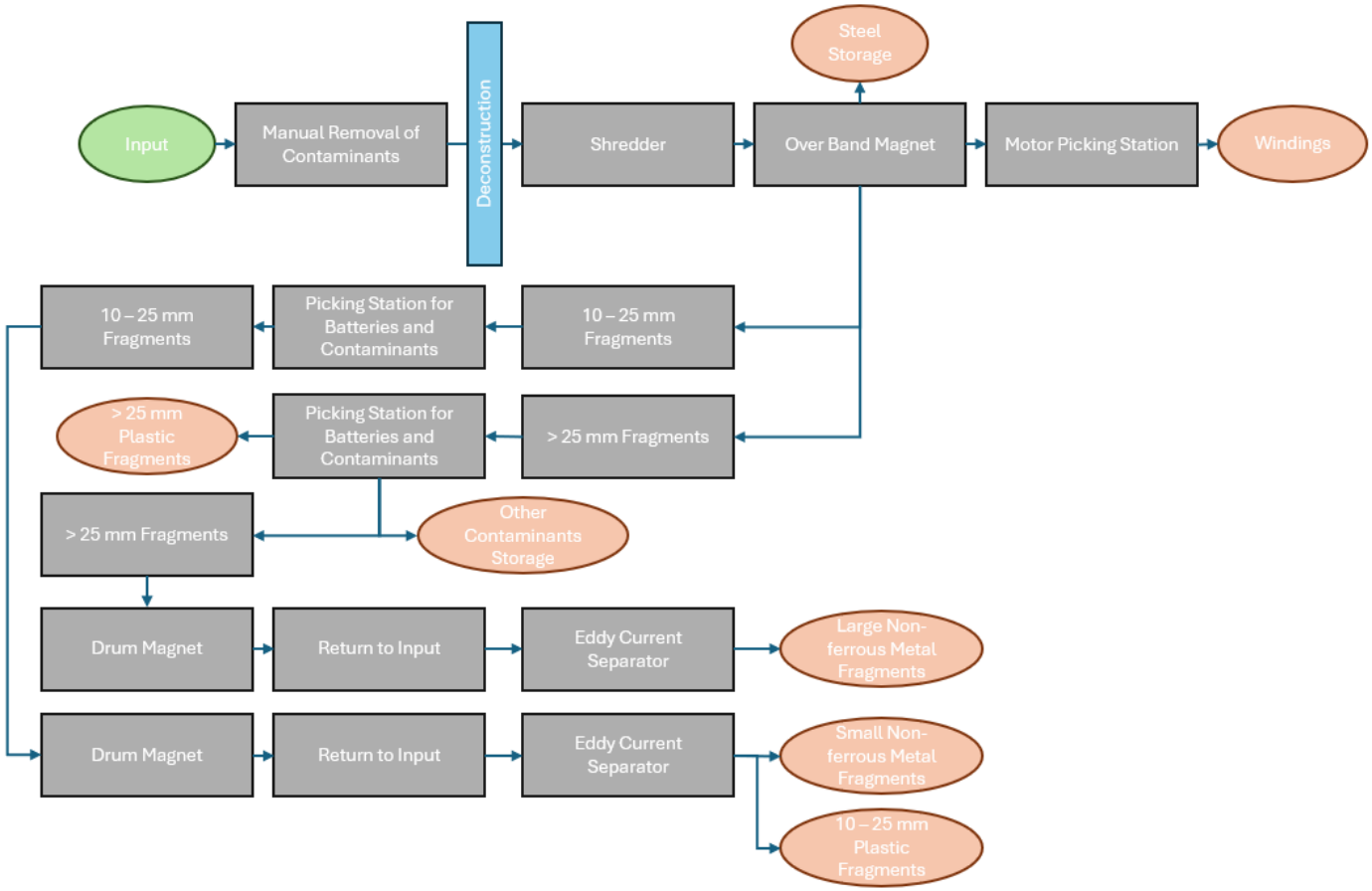

Table 4 - Typical waste types brought to Enva WEEE Recycling Facility, Dartford

Product Description	Tonnes/week	Destination within facility					Process
		Screening	Shredding	Fraction Separation	Storage	Storage	
		Area	Building	Building	Bay 1	Bay 2	
WTEE (fridges and freezers)	660	Storage bay	Unit 6	Unit 6	Unit 6 – Fraction storage area		
SMW including display screen equipment	1320	Pre-pick cabin	Unit 6	Unit 6	Storage bays external to Unit 6.		

Figure 6 - Site Layout Plan

F – Fridges to be recycled bay
F – Fridges to be recycled bay
MF – Metal frag (loose)
NF – Non-Ferrous frag (stillages)
RF – Rest ferrous (stillages)
OS – Overspill storage bays
SMW – Pretreated SMW
SMW – Pretreated SMW
T-SMW – sorted SMW
QA – Quarantine area

Recycling activities on site are undertaken with consideration to the potential release of fugitive emissions from the process. General design features and considerations for such emissions include the following:

- All WEEE received at the facility will be whole, which means that dust-emissions potential is negligible. Such items are to be handled appropriately by mobile plant, so as to prevent damage.
- Once received, WEEE is stored in a suitable area within the main building, where initial pre-treatment processes are undertaken to remove items that could potentially contaminate waste streams, such as shelving from WTEE and batteries from SMW.
- WEEE is then transferred through the building for recycling activities to be performed, separating into two streams: WTEE and SMW. WTEE will undergo a two-stage process, beginning with stage 1 degassing and compressor removal, followed by stage 2 deconstruction. There are two associated point source emissions for this process. SMW undergoes deconstruction, which has one point source emission associated with it. All of these recycling processes will be contained within the main building on site.
- Deconstruction units to be used involve low-speed-low-dust shredders, preventing the potential for dust generation.
- Point source emissions from the deconstruction processes are to be fitted with abatement measures that include units fitted with filters to prevent and minimise dust emissions.
- Fractions produced as a result of SMW deconstruction activities are immediately conveyed out of the building to prevent risks associated with the potential for undetected batteries to have entered the shredding process. These fractions will be stored in suitable, covered storage areas, external to the main building, as discussed above. Fractions from the WTEE destruction process are to be stored within the Unit 6 building.
- Fractions produced are to be of a size and composition that is not easily wind entrained. Fractions produced from recycling of WTEE and SMW will not be dust, apart from PUR foam remnants, which will be collected and bagged as part of the process. There will not be lose storage of PUR dust, as this will be collected and contained in 1.5 tonne bags.

Monitoring of dust content of emissions is to be undertaken on a regular basis (6 monthly basis), in accordance with monitoring standard EN 13284-1

2.3. Mobile Plant and Equipment.

At this stage of development, mobile plant details, including make and model, are yet to be confirmed. However, the site will operate mobile plant that is of the latest Euro specification, as the vehicles will be new. These may also include electric-powered vehicles. A leasing program will be implemented, with Enva leasing vehicles from an external organisation. A maintenance service agreement will be in place between Enva and the mobile plant lease company, which involves the lease company being responsible for servicing and any maintenance.

Ultra Low Sulphur Gasoil (ULSG) is to be used by the site for fuelling purposes (where plant are not electric powered) and will be bought from a supplier local to the site.

All plant, when not in use, is turned off and idling is discouraged through training practices.

3. Dust and Particulate (PM_{10}) Management

3.1. Responsibility for Implementation of the DEMP

The responsible person for implementation of the dust management plan is the Site Manager.

The deputy would be the respective Operations Managers or Shift Supervisors for each recycling process, in the absence of the Site Manager.

The dust management plan is reviewed annually to reflect any changes to site, management practices or in the event of any complaints. This will be undertaken by the HSE specialist when employed who would have the appropriate qualifications and experience to do so.

All staff upon induction will be provided with a copy of the dust management plan to review and assert that they have understood it.

This will be undertaken again on a four-year basis or when the dust management plan changes.

3.2. Sources and Control of Fugitive Dust/Particulate Emissions

All activities at site which could act as a potential source of dust are detailed within Table 5 below.

Table 5 - Source-Pathway-Receptor Routes

Source	Pathway	Receptor	Type of impact	Where relationship can be interrupted
Mud	Tracking dust on wheels and vehicles, then mud dropping off wheels/vehicles when dry	Receptors as detailed in Table 1Table 1 above.	Visual soiling and also consequential resuspension as airborne particulates	Long haul road ensures residual mud drops off before vehicle reaches site from the public highway. All areas on site are hardstanding and would not create a mud issue. In the unlikely event that internal roadways become soiled during dry periods, a road sweeper can be hired to prevent the resuspension of dust.
Trailer unloading and loading	Escape from trailer and subsequent atmospheric dispersion	Receptors as detailed in Table 1Table 1 above.	Visual airborne particulates	Bulk materials entering or leaving the site will be sheeted to avoid dust release Unloading will be undertaken inside a reception area, particularly for tipping vehicles. Unloading of trailers is not likely to occur internally, however this is not deemed to be

Source	Pathway	Receptor	Type of impact	Where relationship can be interrupted
				a necessary feature for the nature of the incoming waste (whole WEEE items).
Vehicle exhaust emissions	Atmospheric dispersion	Receptors as detailed in Table 1Table 1 above.	Airborne particulates	A speed limit of 5 mph will be enforced to minimise exhaust emissions. Control measures will be implemented to prevent over-revving of vehicles and idling of vehicles will also be regulated to prevent exhaust emissions. Supervisory teams will be regularly refreshed on measures to ensure that the site remains in accordance with these protocols. All vehicles will be appropriately maintained in accordance with road going legislation and manufacturer recommendations, as part of lease agreements.
On-site vehicle movements	Atmospheric dispersion	Receptors as detailed in Table 1Table 1 above.	Airborne particulates	A speed limit of 5 mph will be enforced to minimise exhaust emissions. Supervisory teams will be regularly refreshed on measures to ensure that the site remains in accordance with these protocols.
SMW recycling plant	Release from central dedusting system and subsequent	Receptors as detailed in Table 1Table 1 above.	Visual airborne particulates	Abatement measures will be installed in the form of the central dedusting system, which will combine all emissions relating to the

Source	Pathway	Receptor	Type of impact	Where relationship can be interrupted
	atmospheric dispersion			SMW recycling process prior to release, ensuring dust abatement is carried out. System is to be enclosed within a building.
WTEE recycling - blowing agent recovery system	Release from system and subsequent atmospheric dispersion	Receptors as detailed in Table 1Table 1 above.	Visual airborne particulates	System is to be enclosed within a building. Abatement measures will be installed at this emission point in the form of High Efficiency Particulate Air (HEPA) filtration. Blowing agent will be captured (up to 98%), liquidised and removed from site. It is otherwise to be completely contained within the system.
WTEE recycling – ATN Stage 1 exhaust pipe (degassing)	Release from system and subsequent atmospheric dispersion	Receptors as detailed in Table 1Table 1 above.	Visual airborne particulates	System is to be enclosed within a building. Abatement measures will be installed at this emission point in the form of bag filtration.
WTEE filter metal separation	Release from system and circulation into the hall	Receptors as detailed in Table 1Table 1 above.	Visual airborne particulates	This exhaust pipe is internal to the WTEE plant system, circulating into the hall and so emissions are not to be released from this pipe to the atmosphere. There will be no risk of fugitive emission nuisance arising as a result of this emission.
Residual material storage	Atmospheric dispersion form storage area.	Receptors as detailed in	Airborne particulates	The nature of the residual materials that are anticipated to arise from the waste being treated at the facility are not expected to generate dust. Weatherproof covering will be

Source	Pathway	Receptor	Type of impact	Where relationship can be interrupted
		Table 1Table 1 above.		provided in this storage area and design of these storage areas will consider local wind direction. Fractions produced as outputs of the recycling of WTEE or SMW are not anticipated to be of a size that would pose a risk of dust generation, as they are anticipated to be more of a chunk size, rather than fine particles.
Surfaces	Dispersion of settled particulates into the atmosphere	Receptors as detailed in Table 1Table 1 above.	Visual collection of dust, also consequential resuspension as airborne particulates	Creating an easy to clean impermeable surface, using materials such as concrete as opposed to unmade (rocky or muddy) ground within the site and on site haul roads. This should reduce the amount of dust and particulate generated at ground level by vehicles and site activities.

It is not anticipated that there will be any materials on site that will be easily wind entrained or that will cause a fugitive emission-related nuisance. However, the following table (Table 6) provides details on the mitigation, as well as remedial, measures that will be implemented at the Dartford facility to ensure the effective containment of any possible dust emissions.

Table 6 - Measures that will be used on Site to Control Dust/Particulates (PM10) and other Emissions

Abatement Measure	Description / Effect	Overall Consideration and Implementation	Trigger for Implementation
Preventative Measures			
Enclosure within a building	Creating a solid barrier between the sources of dust and particulates, including trailer unloading procedure and the actual recycling processes, and the receptors, is the most effective method of control. The entrances and exits of this building will be well managed.	As this is a new site, such considerations of enclosure have been embedded into the design from an early stage, meaning additional high costs and disruption will be avoided, unlike already operational sites. As a 'standard design feature' it has been incorporated to ensure that as much of the processes are enclosed as possible. Storage of fractions will be in designated areas, within bays, which will have consideration for wind direction within their design, as well as general weatherproof covering. Particularly for recycled SMW fractions, these will not be stored within the main building and will instead be immediately conveyed to the outside after shredding, due to the risk of fire from the potential for battery shredding. Building integrity will be maintained via regular maintenance, to ensure that effective mitigation is maintained in the form of the main building to house recycling activities.	This will be in place for the duration of operation at the site, as the design of the site will incorporate this mitigation.
Abatement systems	A suitable filtration system will be incorporated into the extraction system, so as to abate the emissions that will be released.	These measures will be very effective in reducing the dust emissions related to the processes that will be undertaken on site. Costs will be associated with the monitoring and maintenance of such systems, which will be carried out by a third-party organisation, in line with appropriate measures as part of preventive maintenance.	There will be three abatement systems installed in the building that houses the equipment for recycling processes. These systems will be in place for the duration of operation at the site.
Dust extraction systems	Abatement technologies will be applied to the extraction systems outlined above, to remove dust and particulates from the airstream. The technologies that will be implemented include: bag filters to be implemented in the systems relating to the emission points for the SMW recycling plant and the WTEE recycling - blowing agent recovery system and a hepa filter will be installed for the WTEE recycling - exhaust pipe	There will be no disruption to operations associated with the installation of such systems as such abatement techniques have been considered as part of the design of the facility and will be implemented during the site's development.	This will be in place for the duration of operation at the site, due to the design of the site incorporating this abatement technique. This abatement measure will be used on the three point source emissions as outlined above.

Abatement Measure	Description / Effect	Overall Consideration and Implementation	Trigger for Implementation
Site speed limit and control of vehicle engine revving.	Reducing vehicle movements and speed on site should reduce vehicle exhaust emissions. Enforcement of a speed limit is likely to reduce resuspension of particulates by vehicle wheels. A 5 mph speed limit will be enforced on site. There will also be control measures enforced to prevent drivers from over-revving their vehicles.	This will be easily implemented as part of good practice on site. These measures will be implemented in line with appropriate measures and clearly as part of the site's Management System.	This will be in place for the duration of operation at the site and will be implemented in all areas that vehicular access is permitted. Supervisory staff will be regularly refreshed on protocols to ensure that the measures are adhered to.
Good housekeeping	By implementing a consistent, regular housekeeping regime, supported by management, frequent inspection of the site will be conducted, enabling any issues to be remedied at an early stage. This will be essential in ensuring that dust and particulate build up is prevented. Housekeeping and dust removal will be undertaken on a daily basis at the site, particularly in process areas, including the WTEE line and the SMW line. Records of such activities will be logged and maintained, evidencing the checks and upkeep that occurs.	This regime will be easily implemented across the site and easily tracked, via the logging system. Via thorough housekeeping protocols, it is likely that staff will experience a sense of pride and satisfaction, which will in turn promote vigilance in daily activities.	This will be carried out for the duration of the operation at the site and is to be applied to all necessary areas of the facility. A daily housekeeping regime will be maintained for the duration of operation at the facility.
Sheeting of vehicles	The sheeting of trailers and vehicles during transportation will be essential in preventing the escape of debris, dust and particulates. This will be applicable to inbound and outbound trailers containing bulk materials.	This measure will be easily enforced, especially for outbound vehicles. Such protocols will be implemented as appropriate measures and clearly identified in the site's Environmental Management System.	Sheeting of trailers will be required throughout the duration of operation at the site by third party and Enva owned vehicles, to continuously prevent the release of debris and dust from loads.
Weather condition monitoring	Monitoring of weather conditions will be undertaken by site management twice per day, logging observations. This will enable an understanding of potential impacts on the likelihood dust release and will help to dictate if any additional measures should be applied as a precaution.	This measure will be enforced as a daily responsibility of the site management team, embedded into their general duties. Such monitoring will be very beneficial in understanding the precautionary measures that may be required to be implemented and ultimately reducing the likelihood of dust release as a result of the weather conditions.	This measure will be implemented for the duration of operation at the facility, as part of daily undertakings. The frequency of such monitoring increases the reliability of protocols taken as a result of monitoring outcomes, as changes in weather conditions will be recorded during the twice daily checks.
Remedial Measures			
Dust and particulate monitoring	Dust and particulate monitoring will be undertaken at each point source emission in accordance with the issued environmental permit, which will be undertaken by a third-party organisation. This third-party organisation will be required to notify Enva in instances when short term particulate concentrations are elevated, which will trigger the implementation of further protocols, including application of increased mitigation measures.	Tracking of such information will be a key indicator of the overall environmental performance of the site. A contract with the third party will ensure that the monitoring protocols continue to be supported.	Monitoring will be carried out throughout the duration of operation on site. Further action to be taken will be triggered in instances of elevated short-term concentrations or breaches of any emission limit values. This would result in increased monitoring.

Abatement Measure	Description / Effect	Overall Consideration and Implementation	Trigger for Implementation
Dust and particulate monitoring trigger alarm	The site is subject to a visual inspection daily as part of normal operation. This will include for visual observations of dust at the site boundary.	It is not considered that this should be an issue given the nature of wastes treated and the size of the fractions being stored as well as the bay arrangements avoiding wind access to the stored recovered fractions.	Monitoring will be carried out throughout the duration of operation on site. Further action to be taken will be triggered in instances of visual identification of airborne dust at the site boundary. This would result in investigation by Site Management and further remedial actions such as dampening down.
Site Hygiene	Site entrances, off-site roadways and on-site hard standing areas will be regularly swept and cleaned in instances where there is a significant build-up of dust.	Such protocols will be key in responding to any unexpected build-up of dust in areas of the site but also preventing any further gathering of dust.	These measures will be actioned where there is visual identification of build-up of dust or particulates on site. Limitations of this measure include that it is only actioned when a pile has been identified during site checks.

3.3. Other Considerations

Water usage/ availability:

Water dampening is not suitable for the nature of the waste that is to be treated at this facility (WEEE). Further to this, the fractions that are produced as a result of the recycling operations that will be undertaken are not likely to pose a particulate-related risk, as the fraction sizes are anticipated to be larger in size and more like chunks. Therefore, the use of dampening for dust suppression is not considered appropriate.

For both SMW and WTEE outputs, the deconstruction activities will produce similar sized fractions that will not be easily wind entrained. The implementation of the abatement systems on each of the point source emissions will remove the dust and therefore the need for dampening for dust suppression.

As Enva are not anticipating the use of a high volume of water, particularly not for dust suppression, considerations in the event of a drought are not necessary. Fugitive dust emissions will continue to be controlled by the enclosure of the deconstruction activities within buildings.

3.4. Enclosure of Waste Processing & Storage Areas

Across the facility, many of the processes that are to be undertaken will be enclosed within a building. As detailed in the site layout plan, the equipment that will be used for recycling of different WEEE is predominantly located within the main building, with three point source emissions to air (all fitted with the relevant dust abatement systems). Storage of WTEE and the outputs from their recycling treatment will be stored within the main building in designated bays.

SMW recycling poses slightly different risks, however dust management is still considered. A pre-treatment process will precede the mechanical treatment stage of the recycling of SMW to remove any contaminants, including batteries, which could cause further risks, such as fire or explosion if they enter the shredder feed. The shredding stages will be undertaken within the building and are therefore enclosed, as the most appropriate method for containing any fugitive emissions. However, as a precautionary safety measure, SMW metal fragments that arise from the recycling process will be immediately conveyed outside, to combat any risks that could arise from the potential of battery shredding and fire.

Again, for the same reason, there will be no storage of SMW fragments within the building. As detailed in earlier sections, the fragment sizes are large enough that a risk of particulate release from their storage is unlikely, however storage outside is the most appropriate approach, so as to reduce the risk of damage in the event of an issue arising within the waste feed. These fractions will be collected in trailers, which will be covered with suitable weatherproof covering, to prevent the weather causing fugitive emissions to arise. These trailers will be dispatched from the site, once full. Concrete structures forming each bay, housing SMW to be recycled, will provide protection from wind and other weather conditions, allowing efficient containment of the materials stored in each bay.

3.5. Visual Dust Monitoring

Dust will be monitored as a parameter at a frequency of every 6 months and in accordance with monitoring standard EN 13284-1 for the emission points from the deconstruction activities.

As it is not anticipated that dust is to be generated as part of the operations at the rest of the facility, and as a result of the abatement measures in place, specific visual dust monitoring is only planned as part of daily checks at the site boundary.

Daily housekeeping and maintenance checks will be undertaken at the facility, which will encompass checks for any generation of dust. Further to this, the activities that are deemed to be the most likely to result in dust generation will be fully enclosed in the building, and so visual dust emissions are not expected. This is also abated by the dust abatement systems fitted to each point source emission to air, as outlined earlier in this plan. Daily housekeeping and maintenance protocols will be able to identify if there are any dust-related issues to be addressed – the initial response would involve cleaning of the area identified, followed by investigatory action to determine the source and reason for the unexpected release. Remedial measures, where applicable, will be adopted for any dust related issues.

4. Particulate Matter Monitoring

The site is not within an AQMA for dust, and it is not considered necessary to adopt optical based particulate monitoring systems.

Particulate emissions are to be monitored at point sources by a third-party contractor, and this will be in line with the appropriate measures and in accordance with the issued permit.

4.1. Monitoring Location

Monitoring locations will be at each of the point source emissions to air. Particulate matter monitoring will be carried out directly at these points, under a third-party contractor.

No ambient boundary monitoring of dust emissions is proposed due to the enclosed nature of the process.

4.2. Operation of the PM Monitoring Equipment

In line with appropriate measures, a third-party organisation will be responsible for monitoring at point source emissions as detailed within the environmental permit when issued. To support this, they will also be responsible for data management in relation to the outcome of the monitoring procedures.

Enva will review the results and consider these in accordance with the planned preventative maintenance regime to ensure that the on-site abatement remains effective.

4.3. Quality Assurance/Quality Control and Record Keeping

The third-party organisation responsible for management and operation of the monitoring system will also be responsible holding relevant records such as MCERTS accreditation. This information and details of the monitoring equipment will be provided in the monitoring reports after each periodic sampling campaign.

All monitoring reports will be reviewed by the HSE specialist and maintained as part of the sites management system to demonstrate compliance.

4.4. Equipment and Data Management

A designated third-party organisation will be responsible for the monitoring equipment, as well as the associated maintenance. Adequately trained personnel will be required to operate monitoring equipment, perform monitoring tests and handle the data.

Third-party equipment and staff will be in accordance with MCERTS standard.

4.5. Reporting of Data

Emissions to air data will be reported to the EA every 6 months or as detailed within the environmental permit when issued. Data will be supplied by Enva to the Environment Agency.

4.6. Additional Detailed Monthly Reporting

Any breach of an emission limit value will result in an immediate investigation and corrective action taken.

Once the corrective action has been adopted appropriate monitoring will be undertaken to demonstrate that the action has been effective and the emission limit is within compliance.

5. Actions when Alarm is Triggered.

The non-conformance process involves identifying the source of the particular releases and an investigation into the reasons for their release. Recommendations for the control or removal of the source of particulates are made, based on discussions with site management or other responsible personnel. The site diary should be used to record the issues, as well as any other records that need to be kept in relation to actions taken.

6. Reporting and Complaints Response

A complaints log will be maintained for the facility in relation to the dust and particulates that have the potential to be released into the local environment. Any investigation will be undertaken in accordance with the form in Appendix A and remediation actions will also be logged and maintained.

6.1. Engagement with the Community

Local businesses or residents, as detailed within Table 1, will be notified in the event of an ongoing dust matter that is likely to affect their premises. However, this is considered highly unlikely.

6.2. Reporting of Complaints

The person who receives a phone or in person complaint should:

- Write down the facts of the complaint
- Take the complainant's name, address and telephone number
- Note down the relationship of the complainant to Enva E-waste Limited, e.g. client,
- supplier, member of the public
- Tell the complainant that we have a complaints procedure
- Tell the complainant what will happen next and how long it will take
- Where appropriate, ask the complainant to send a written account by post or by email so that the complaint is recorded in the complainant's own words

Complaints are logged upon receipt in a complaint's logbook. These will be reported to the Site Manager.

The dust complaint form in Appendix A will be used to investigate the complaint.

Complaints should be acknowledged by the person handling the complaint within five working days to the complainant. The acknowledgement should say who is dealing with the complaint and when the person complaining can expect a reply.

Ideally complainants should receive a definitive reply within a month. If this is not possible because for example, an investigation has not been fully completed, a progress report should be sent with an indication of when a full reply will be given. A formal written response will be provided to the complainant.

6.3. Management Responsibilities

Complaints are reviewed annually to identify any trends which may indicate a need to take further action.

All complaint resolutions are overseen by the Site Manager or nominated deputy as detailed in the organisational structure.

6.4. Summary

Dust management is not expected to be a concern for the facility, based on the nature of the waste being accepted, the recycling activities that are to be performed on site, the enclosure of the majority of the operations, and the abatement measures that are to be implemented for each of the point source emissions. Implementation of measures will be the responsibility of the Site Manager or nominated deputy, and this management plan will be reviewed regularly, in the event of changes at the facility and in the event of dust-related issues being identified.

APPENDICES

Appendix A - Dust Complaint Form

Customer Details	
Customer Name -	
Address – **Postcode -**	
Customer Contact Details -	
Tel -	
Email -	
Date -	
Complaint Ref Number -	
Complaint Details -	
Investigation Details	
Investigation carried out by -	
Position -	
Date & time investigation carried out -	
Weather conditions -	
Wind direction and speed -	
Investigation findings -	
Feedback given to Environment Agency and/or local authority -	
Date feedback given -	

Feedback given to public -	
Date feedback given -	
Review and Improve	
Improvements needed to prevent a reoccurrence -	
Proposed date for completion of the improvements -	
Actual date for completion -	
If different insert reason for delay -	
Does the dust management plan need to be updated -	
Date that the dust management plan was updated -	
Closure	
Site manager review date	
Site manager signature to confirm no further action required	