

GAP WASTE MANAGEMENT

Fire Prevention Plan



REPORT SCHEDULE

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CONTENTS

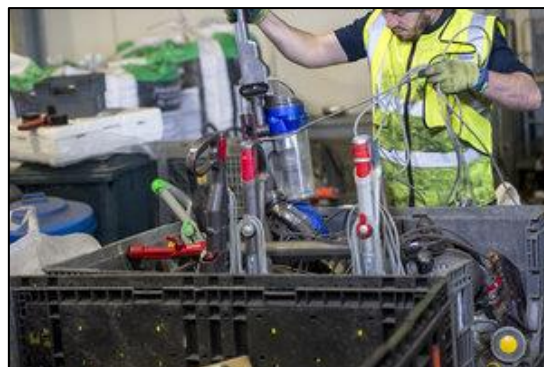
1. Fire prevention objectives.....	1
2. Materials stored on site covered by the EA's guidance	3
3. Materials stored on site that are not covered by the EA's guidance	3
4. Types of combustible wastes	5
5. Using the fire plan	6
6. Fire prevention plan content.....	7
7. Managing the common cause of fire	24
8. Preventing self combustion	27
9. Managing waste piles.....	31
10. Where maximum pile sizes don't apply.....	32
11. Preventing fire spreading	32
12. Quarantine area	35
13. Detecting fires	36
14. Suppressing fires	37
15. Fire fighting techniques	37
16. Water supplies.....	38
17. Managing fire water.....	39
18. During and after an event.....	39

APPENDICES

- 1 Emergency Information**
- 2 PUR Foam Data Sheet and desktop research**

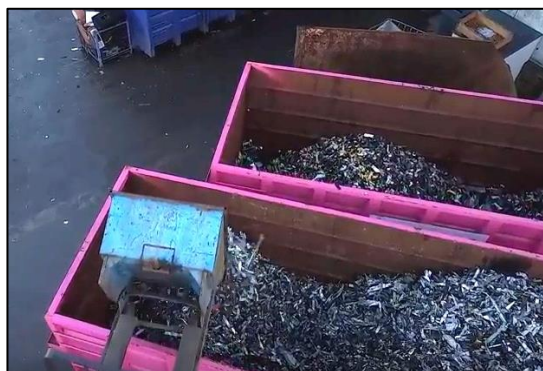
1. FIRE PREVENTION OBJECTIVES

- 1.1.1. Sites that store combustible wastes are at risk from fires. These events can impact human health and pose an environmental risk to receptors off site, both from the smoke plume from the fire and from the firewater runoff created by any firefighting activities. Sites storing combustible materials such as WEEE, plastics and scrap metal are required to have in place a fire prevention plan that follows the standards prescribed in the Environment Agency's (EA) guidance documents.
- 1.1.2. The fire prevention measures have been designed to meet three important objectives as outlined within the EA's Fire Prevention Plan:
- Minimise the likelihood of a fire happening;
 - Aim for a fire to be extinguished within 4 hours; and
 - Minimise the spread of fire within the site and to neighbouring sites.
- 1.1.3. GAP Waste Management, known as the 'Operator', specialises in Waste Electric and Electronic Equipment (WEEE). The Operator imports WEEE from specific customers and after inspection the WEEE is separated into Display Screen Equipment, Small Domestic, Large Domestic appliances and cooling equipment. The items are either PAT tested (depending upon suitability), assessed by a precious metals recovery operative, stored prior to reprocessing elsewhere, or sent to the materials recovery areas for further processing. The facility is not open to members of the public or ad hoc customers.
- 1.1.4. The incoming waste and processed waste stockpiles are stored on site for the minimal time. The majority of incoming small items of WEEE are stored in the following containers:
- 1m³ IBC storage container;
 - 1m³ or 2m³ heavy duty woven plastic storage bag;
 - 800 litre collapsible pallet cages and stillages; or
 - 1100 litre wheelie containers.
 - 40 yrd RoRo skips
- 1.1.5. The use of small and portable containers allows the operator to move the waste during a fire event. The mobility of the wheelie bin containers and waste is shown in Photograph (1) below. All small containers can be moved with a forklift truck.



Photographs (1) and (2): Waste stored and processed within the site building are stored within small containers (under 2m³) that can be easily moved either by hand or by forklift truck. WEEE that is destined for resale is stored on racking or within small containers.

- 1.1.6. The Large Domestic Appliances and Small Domestic Appliances that cannot be refurbished are stockpiled outside of the building on a bunded impermeable surface, prior to processing within the shredder. The stockpile is 10m x 7m x 2m (Photograph (3)). This stockpile is cleared on a weekly basis.
- 1.1.7. Recyclable materials exiting the shredder are stored in specific containers and specific areas of site. Shredded plastic from the is either stored in 2m³ storage bags or loose in a bund 7m x 8.5m x 2.5 and range in fraction size between 25mm² to 4000mm²
- 1.1.8. Ferrous metal extruded from the shredder is placed directly within roll-on roll-off trailers. The ferrous trailers are removed from site at least every 2 days (Photograph 4)).



Photographs (3) and (4): The WEEE wastes are stored within an outside stockpile prior to processing within the shredder. The storage bay is emptied on a weekly basis. The processed ferrous metals and plastics are stored within skips and are removed from site in an organised manner.

- 1.1.9. Non-recyclable materials (items that cannot be recovered by further treatment – and is sent to waste transfer station for disposal eg rubber seals, Hoover bags, general waste) are placed within a roll-on roll-off container; this trailer is removed from site when full, which is at least twice per week.
- 1.1.10. The Operator owns GAP Haulage. Gap Haulage is based at the site; the fleet of articulated trailers, hook loaders, roll-on roll-off containers and smaller collections vehicles ensures that processed wastes are removed from site as required. The Operator does not have to involve other companies to haul their wastes which allows them to operate in an efficient manner.
- 1.1.11. In October 2017, the operator applied for a permit variation, to accept and process fridges within the cooling equipment treatment plant. This equipment was installed in 2018 with acceptance and handover in June 2019, this document outlines the proposed storage and treatment locations.
- 1.1.12. In 2021, the Operator is planning to install a new plastic separation system to separate plastics, this will increase the amount of plastics stored and processed on site.
- 1.1.13. This Fire Prevention Plan is a live document and will be reviewed and updated where applicable on at least a biannual basis, or immediately after an incident or a change to operations.

2. MATERIALS STORED ON SITE THAT ARE COVERED BY THE EA'S GUIDANCE

2.1.1. The Operator stores non-combustible and combustible wastes on site; the combustible wastes include WEEE, plastics, metals and non-hazardous waste as detailed within this document. The location and volumes of wastes are presented within *Plans (1) Internal Schematic Stockpile Plan, Plan (2) External Schematic Stockpile Plan and Plan (3) Cooling Equipment Schematic Stockpile Plan*.

3. MATERIALS STORED ON SITE THAT ARE NOT COVERED BY THE EA'S GUIDANCE

3.1.1. The Environment Agency guidance document does not apply to materials or waste that are; flammable, combustible liquids or gasses, hazardous, or dangerous substances under the Control of Major Accident Hazardous Regulations. The guidance states that these materials should be considered within the fire prevention plan because they have the potential to increase the impact of the fire on site. The hazardous waste stockpiles and quarantine areas are detailed on *Plans (1) Internal Schematic Stockpile Plan, Plan (2) External Schematic Stockpile Plan and Plan (3) Cooling Equipment Schematic Stockpile Plan*.

3.1.2. The site stores a range of hazardous materials on site as a result of normal operations:

- Diesel is stored in a 1300 litre Titan Diesel Store DS1300 tank. The pump and nozzle are retained within the bund to reduce spillage. The tank is fitted with a locking hinge door and will be kept locked shut when not in use;
- Hydraulic fluids associated with plant maintenance. The fluids are stored within appropriate containers on a spill tray (no more than 500 litres);
- Oil from radiators, up to 220 litres stored in banded drums in workshop area;
- Ad blue, up to 10,000 litres stored within a banded tank away from the waste storage and processing area;
- Gas cylinders, up to 10 cylinders stored in a purpose built cage at least 15m away from combustible material;
- Dry Cell Batteries, stored within lead-acid resistant battery containers, the individual container has a capacity of 900kg;
- Lead acid batteries stored upright within lead-acid resistant battery bins, the batteries have their terminals taped with insulation tape, the individual container has a capacity of 900kg; and
- Toner cartridges are stored within fit for purpose containers and are stored within the depolluting area.
- Ammonia washings are recovered and stored in IBC's within the banded building as shown in plan 3

3.1.3. As outlined within Section 1.1.11, the Operator manages a cooling equipment treatment plant, the hazardous materials associated with the treatment plant include:

- The cooling equipment treatment plant utilises Nitrogen. The nitrogen is generated on site using a nitrogen generator. The nitrogen is pumped into the sealed shredding compartment of the treatment plant to stabilise the air to prevent explosions;
- Gases removed from the cooling equipment treatment plant are stored in fit for purpose, monitored containers; and swapped every 4 weeks or as required.
- The cooling equipment treatment plant requires the use of diesel, the diesel tank is with its own enclosure within the building, it contains a maximum of 3000 litres of diesel.

- PUR foam pellets are stored in 1.5m³ which when filled stand at approximately 1.2m – 1.4m bags within specified areas of site. The PUR foam requires a direct flame or high temperature to combust but every care should be taken. The volume of stored PUR is controlled to reduce the risk of fires on site.
- 3.1.4. The cooling plant is a bespoke system supplied by URT GBMH in Germany.
- 3.1.5. Incoming wastes that may contain hazardous wastes such as fridges, freezers and other large items of WEEE are thoroughly inspected on arrival.
- 3.1.6. The incoming waste is thoroughly inspected on arrival as outlined within the Operators document *EWP-WEE 002*. The *EWP-WEE* and *EWPF* documents form part of the wider Environmental Management System. If the incoming wastes is not as described on the waste transfer note / consignment note and the site is not licenced to accept the wastes, the wastes will be quarantined prior to removal as outlined within document *EWP-WEE 003*. If the waste cannot be immediately returned to the customer, the waste will be placed within a quarantine area that is suitable to type. The waste will be recorded on form *EWPF 002.04.01* to ensure that the Operator can fully trace the waste and ensure that it is removed from site within a suitable time frame.



Photographs of the Cooling Unit Treatment Plant
 Photograph (5): The sealed shredder unit. Photograph (6): Liquefied CFC / Pentane output.

4. TYPES OF COMBUSTIBLE WASTE

- 4.1.1. The types of combustible wastes stored on site include:
- WEEE stored on site awaiting assessment - including Display Screen Equipment, Small Domestic and Large Domestic appliances;
 - Fridges containing CFC's;
 - Small items of WEEE stored in small individual containers within the site building;
 - Palletted SKY boxes and computers within the site building;
 - Separated plastics stored in small individual containers within the site building;
 - Separated wood stored in small individual containers within the outdoor bunded impermeable area;
 - Separated batteries stored in fit for purpose battery containers stored on the outdoor bunded impermeable area;
 - Assessed and unprocessed WEEE stockpiled in the outdoor processing area;
 - Plastics produced by the shredder, placed directly into articulated trailers or processed in the plastic floatation treatment plant, the processed plastic is stored in 2m³ bags;
 - Mixed residue produced by the shredder, placed directly into roll-on roll-off skips;
 - Separated cable stored prior to granulation stored within small individual containers;
 - Plastic produced by granulator stored within small individual containers; and
 - Baled card that has been generated from the incoming waste.

4.1.2. Types of combustible wastes stored on site include:

- Fridges containing CFC's to be processed within the cooling equipment treatment plant;
- Recovered wastes generated by the cooling equipment treatment plant that include ferrous metal, non-ferrous metal, plastic and PUR foam;
- Minor amounts of food waste may be contained within the incoming fridges, this waste will be transferred directly to the disposal skip and will be removed from site on a frequent basis to prevent the build up of potential odours;
- When the updated polymers treatment plant is installed in 2021 the plastics awaiting treatment within the plastic separation floatation tank and post-treatment segregated plastics.

4.1.3. All incoming waste will be inspected on arrival by specifically trained staff, as outlined within Section 3.1.5.



Photograph (8): The WEEE is inspected and tested by trained staff. WEEE that is suitable for resale (known as EEE) is stored within the site building in an organised manner to prevent damage.

5. USING THE FIRE PREVENTION PLAN

- 5.1.1. This fire prevention plan forms part of the Operator’s wider Environmental Management System.
- 5.1.2. This Fire Prevention Plan is a stand-alone document – it contains all relevant information, site plans and information to be used in a time of emergency. These documents are stored as a hard copy within red files marked ‘**FIRE PREVENTION PLAN AND EMERGENCY ACTIONS**’. These red files can be handed to the emergency services during an emergency.
- 5.1.3. Site staff will be able to access the site file at all times, including during an incident. The Operators continue to increase their employee’s fire safety training and awareness to ensure that an employee can react immediately to an incident and can respond in a safe and positive manner to prevent escalation. Supplementary fire safety training is carried out by an external agency on an annual basis.
- 5.1.4. All staff and contractors working on site will be instructed during their site induction on the content of the fire prevention plan and what to do prevent a fire occurring, and what to do during a fire if one breaks out.
- 5.1.5. All staff will receive training on the fire prevention plan. The Company will undertake regular exercises to test how well the plan works and they will make sure that the staff understands what to do.
- 5.1.6. Table (1) below outlines the schedules that will be carried out on site:

All new site staff and contractors (and existing site staff and contractors when the plan is introduced on site)	To be trained on the fire prevention plan and emergency actions during the site induction
Existing site staff and contractors	To be trained on the fire prevention plan and emergency actions and refreshed every 2 years
Site Manager to carry out a fire drill and test the fire prevention plan and emergency actions	Every 3 months (or the nearest practicable date to the 1 st of the month)
Site Manager	A review will carried out biannually, or earlier in a response to an incident or change in operational procedures

6. FIRE PREVENTION PLAN CONTENT

6.1. Fire Prevention Plan Content

6.1.1 The fire prevention plan ensures that Operator will do all that is reasonable to prevent fires on site, but all risk cannot be eliminated. The Fire Prevention Plan is part of the written management system and includes an assessment of the site's fire risk and the measures in place to prevent, detect, suppress, mitigate and contain fires. The Fire Plan will be intrinsically linked to the wider site management system and will provide the most robust fire protection from all reasonably foreseeable fire risks.

6.2. Activities at the site

6.2.1. The Operator will undertake activities on site, as outlined within the Environmental Permit and the Environmental Management System.

6.2.2. Depollution and segregation of the material received on site, is carried out at multiple stages of the treatment and recovery process using the Best Available Treatment Recovery and Recycling Techniques (BATTTRT) in line with Annex VII.

6.2.3. As an overview the activities on site can be broken down into the following stages, the location where these stages are carried out are presented within *Plan (4) GAP Operational Areas*:

6.2.4. **Processing of WEEE excluding cooling equipment:**

- Stage 1: Area - Un-Loading Area. Vehicle arrives on site and its weight is taken and recorded on the weighbridge ticket. The vehicle is then sent to the waste yard WEEE area where the WEEE items are unloaded to be assessed for reuse. When the vehicle has been unloaded it is sent to the weighbridge for its final weighing to allow the weighbridge ticket to be issued.
- Stage 2: Area – Internal De-Pollution Area. Items that are not suitable for reuse are put in the treatment reception area and are depolluted. Those items that are deemed suitable for reuse are moved to the Re-use Assessment area (as identified in Plan 1) where initial PAT testing is performed before b and refurbishment is carried out before being sold. Any items that fail PAT Testing and not suitable for spares are sent back to stage 2 for depollution.
- Stage 3: Area – External Processing Area. All material in the processing area is picked up by a grab or telehandler and placed on an infeed table where a member of staff carries out the final check for any combustible material, other contaminants or materials that can cause issues during the shredding process. The materials then travel into the first slow speed, high torque twin shaft shredder.
- Stage 4: Area – External Processing Area. The shredded material travels along a short enclosed conveyor to the first picking cabin where motors and large steel blocks are hand sorted and collected into bins underneath the picking cabin.
- Stage 5: Area – External Processing Area. The remaining material continues along an enclosed conveyor into the second slow speed shaft shredder where it is reduced to the size of a pack of cards.

- Stage 6: Area – External Processing Area. The material continues its conveyor journey to an overband magnet which removes the ferrous metals into a hopper before carrying on its journey along an enclosed conveyor and a second roller magnet, which removes any missed small ferrous items.
- Stage 7: Area – External Processing Area. The material is sorted by an Eddy Current Separator, that gently shakes the material to spread it out over a conveyor so that it can remove the non-ferrous metals like aluminium, brass and copper which drop via chutes into a collection bag.
- Stage 8: Area – External Processing Area. The remaining material continues on the conveyor journey into the final picking cabin where it undergoes a last pick / inspection to remove any remaining stainless steel, small fragments of circuit boards and small pieces of cable before being collected in a container. The material at this point mainly consists of shredded plastic.
- Stage 9: Area – Cable Granulation Area. Cables are granulated and separated into non-ferrous metals and plastic within the site building.
- Stage 10: All out bound materials / outputs and residues are sent via the weighbridge and travel with a weighbridge ticket and is issued with the appropriate transfer notes for that load.

6.2.5. Processing of cooling equipment:

1. The incoming load will be weighed on the weighbridge and paperwork checked as part of the in line S5.06 pre-acceptance checks and procedures.
2. The cooling equipment will be unloaded from the vehicle and placed within the Waste Acceptance Area for Cooling Equipment.
3. The cooling equipment will be opened and an operative will remove loose items such as glass shelves, cables, wood, cable and general waste. The cable will be granulated as outlined within Section 6.2.4.
4. A fridge/freezer contains ozone depleting substances, such as CFC's which must be removed at the beginning of the recycling process. These are extracted via the fridge compressor, where the oil and coolant are separated. The oil is reusable as a product but the coolant is disposed of separately. The compressors, now drained, are removed .
5. The compressors are then fed into the Pot Recovery machine where they are cut open and the internal motor and any residual oil is recovered and separated for treatment and recovery
6. Removal of hazardous and high value items from the fridges. This includes the compressor, copper dryer, mercury switches (if applicable) and PCB containing capacitors (if applicable).
7. Controlled entry (automatic) to steps 7 to 9.
8. Pre-chamber with individual weighing of each fridge.
9. Lift to raise each fridge to the top of the shredding station.
10. An industrial shredder takes the fridge from a whole unit down to small manageable pieces. The metal and plastic separate from the insulation foam ensuring the materials can then be segregated effectively. There are two lock chambers in stages 7 to 9. Gasses are removed in the second and third chambers. Glass wool insulation in these areas reduces noise.

11. Air classification conveyor with overband magnet. Air is blown through holes in the conveyor upwards. A suction system above the conveyor captures and removed the Polyurethane foam (PUR). The overband magnet removes ferrous metal.
12. PUR is stored in a buffer silo above the pelletiser. The PUR is fed into the pelletiser with the heat caused by the friction degassing the PUR (matrix degassing). The pellets are cooled prior to them being bulk loaded into bags. The remaining PUR foam is sent to a specialist recycling company that take the foam, turn it into a fine powder and reuse this to create new foam.
13. A second shredder reduces the remaining fraction to a smaller size before being fed through zig zag air separator to remove any light fraction.
14. An eddy current separator removes the non-ferrous metals. As the compressors and dryer are removed prior to shredding this is primary aluminium.
15. What remains is plastic which is conveyed to a bagging station with built in scales and loading protection.
16. CFC and pentane removed in the process pass through an active carbon treatment process. The CFC / pentane is absorbed into the active carbon and then de-absorbed using hot steam. This is cooled to 4-6 degrees. CFC / pentane, water and oil removed during the process is stored in tanks.
17. The separated recyclates fractions including ferrous metal, non-ferrous metal and PUR foam will be stored in appropriate areas of site.
18. The separated plastic will be treated within the plastic separation floatation tank.

6.2.6. Processing of plastics in the plastic floatation tank:

1. The plastic processing plant is being replaced and a further review will be carried out when the new equipment arrives. The process described below is indicative of the new processing requirement.
2. Mixed plastics will be placed within the feed hopper;
3. The plastics will be conveyed into a small granulator and will be granulated down to 30mm to optimise the treatment process;
4. The granulated material will be conveyed into the first density separation tank where the heaviest items (plastics containing metals) will sink to the bottom of the tank and will be removed from the tank via an auger to a reception container;
5. The lighter fraction which will include Acrylonitrile butadiene styrene (ABS), Polystyrene (PS), Polypropylene (PP), Polyethylene (PE) and Brominated Flame Retardant (BFR) plastics will float within this first tank. The floated stream would be de-watered and then transferred into the second density tank.
6. The water within the second tank is set at a different density. The BRF plastics will sink to the bottom of the tank and will be removed from the tank via an auger to a reception container;
7. The floating residual light fraction will be dewatered and transferred into the final density tank. The heaviest items (ABS, PS) will sink to the bottom of the tank and will be removed from the tank via an auger to a reception container, the lightest fraction (PP, PE) will be floated off;
8. Each separately collected plastic stream will be dried and will be packed into 2m³ bags ready for transfer from site; and
9. Grit will be removed from the system and transferred to a container for removal from site to an authorised facility.

- 6.2.7. The building has an impermeable surface; the building has its own internal 50cm bunded walls, sand bags will be deployed at the Southern entrance/exit during an emergency event to ensure that fluids are contained within the building. There are no drains within the building (other than the foul sewer servicing the toilet and kitchen facilities) This provides an additional 216m³ to 495m³ of additional emergency capacity.
- 6.2.8. The outside storage / processing yard has a bunded impermeable surface. . Serviced by a class one full retention interceptor and 100 year event water storage going to the fowl drainage system. There is also an emergency shut off valve The nearest surface water drains are outside the site on Nest Road. These surface drains will be covered with a clay mats during a fire event.

6.3. Site Plans

6.3.1. Introduction

The Environment Agency's guidance states that the Site Plan must show the following information. Due to the complexity of the information required, a single site plan is not appropriate and the Operator has produced a number of documents to fulfil this criterion.

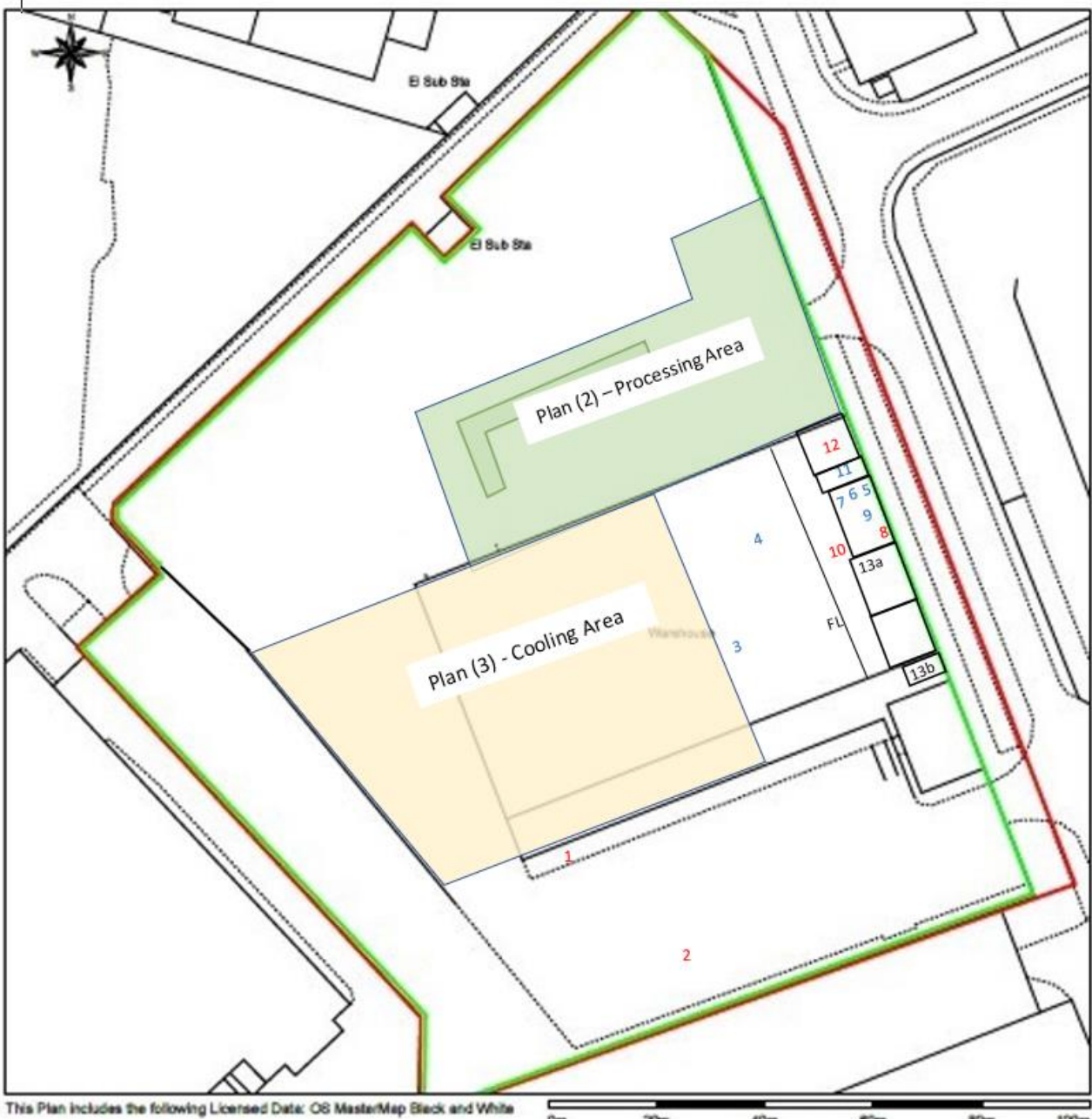
6.3.2. The following information can be found on the associated documents:

- I. Layout of buildings:
 - Plan (1) Internal Schematic Waste Stockpile Plan
 - Plan (5) Site Plan showing bunded area, unmade ground, emergency vehicle access points, fire extinguishers / hoses / hydrant, surface water drains, overnight plant and PPE storage area
 - Plan (6) Fire Zone Plan
- II. Any areas where hazardous materials are stored on site (location of gas cylinders, process areas, chemicals, piles of combustible materials, oil and fuel tanks):
 - Plan (1) Internal Schematic Waste Stockpile Plan
 - Plan (2) External Schematic Waste Stockpile Plan
 - Plan (3) Internal Schematic Stockpile Plan for Cooling Equipment
- III. Operational areas of the site
 - Plan (4) GAP Operational Areas
- IV. Main access routes for fire engines and any alternative access, access points around the site perimeter to assist fire fighting, hydrants, water supplies any watercourse, borehole or well located within or near the site (there are no watercourse or boreholes location on / near site):
 - Plan (5) Site Plan showing bunded area, unmade ground, emergency vehicle access points, fire extinguishers / hoses / hydrant, surface water drains, overnight plant and PPE storage area
- V. Areas of natural or unmade ground:
 - Plan (5) Site Plan showing bunded area, area of unmade ground, emergency vehicle access points, fire extinguishers / hoses / hydrant, surface water drains and and PPE storage area
- VI. The location of plant, quarantine areas, PPE and pollution control equipment and materials:
 - Plan (5) Site Plan showing bunded area, area of unmade ground, emergency vehicle access points, fire extinguishers / hoses / hydrant, surface water drains and overnight plant storage and PPE storage area
- VII. Drainage runs, pollution control features such as drain closure valves and fire water containment systems:
 - Plan (5) Site Plan showing bunded area, area of unmade ground, emergency vehicle access points, fire extinguishers / hoses / hydrant, surface water drains and overnight plant storage and PPE storage area
- VIII. Storage areas with pile dimensions and fire walls (the are no fire walls on site):

- Plan (1) Internal Schematic Waste Stockpile Plan
- Plan (2) External Schematic Waste Stockpile Plan

- IX. Location of key receptors such as critical infrastructure, schools, hospitals, residential areas, workplaces, protected habitats and rivers, etc. within 1km of the site:
 - Plan (7): Location of site and sensitive locations
 - Plan (8): Aerial view of surrounding area

- X. Compass rose showing north and the prevailing wind direction:
 - Plans (4), (6) and (7)

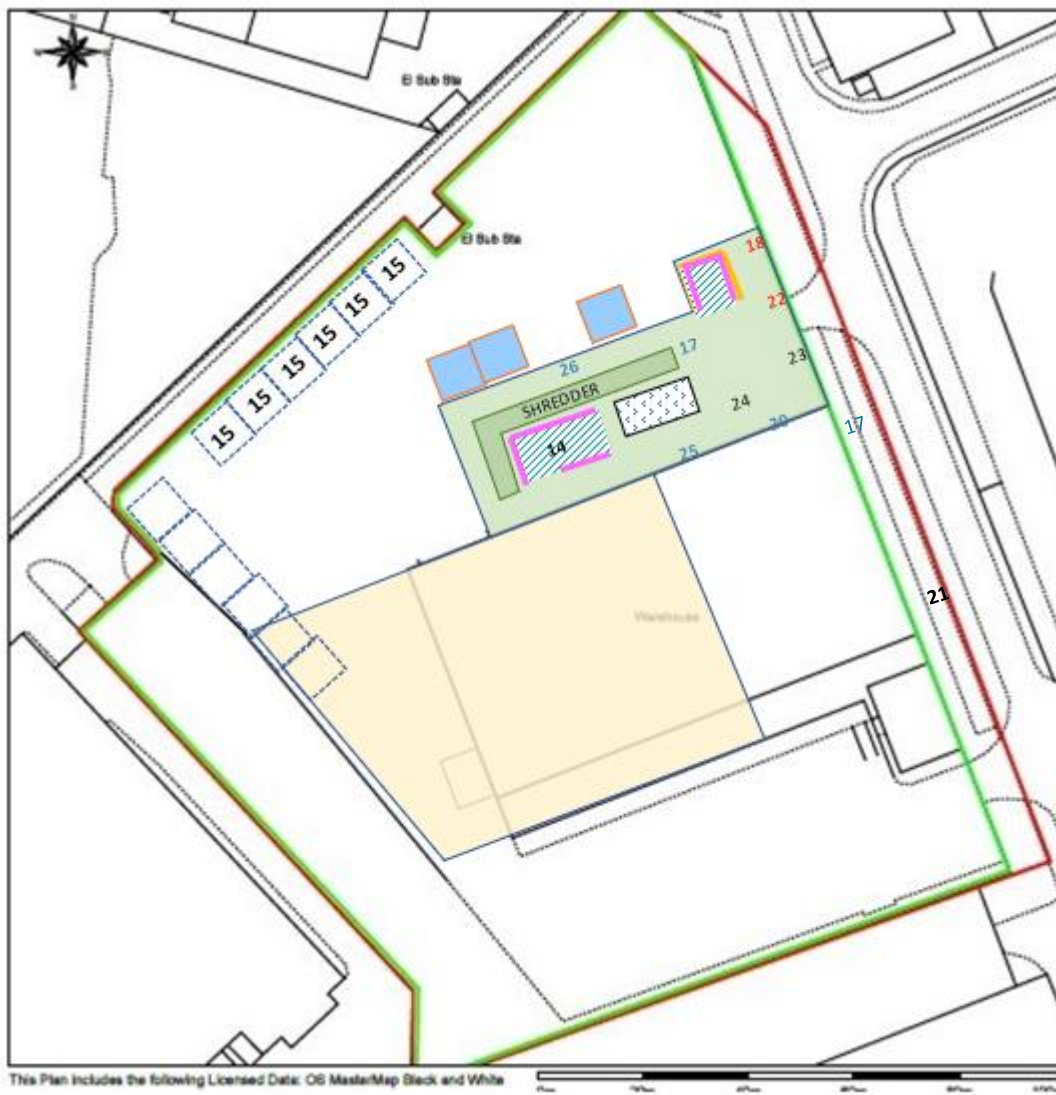


Plan (1) Internal Schematic Waste Stockpile Plan for WEEE excluding cooling equipment.

Please note that the individual containers have been marked in blue, this is to distinguish them from the waste stored in bays or separate rooms on shelving (labelled in black on the other site plans). This is for a practical reason – each container is approximately 1m³ or 2m³, on this scale, each container would show up as no more than a large dot, it is not practical to put each container on in scale. This rational was accepted when the fire plan was submitted with the previous variation application.

All waste storage areas will have a 6m fire break at the end of the working day. Red denotes hazardous materials.





1	Hazardous material	Up to 10,000 litres of Ad blue double bunded tank
2	Flat panel and CRT display	1 standard articulated trailer capacity of 48m ³
3		
4	Treated plastic	Up to 20 x 2m ³ storage containers = 40m ³
5	SKY boxes	Up to 2 pallets x 1m ³ = 2m ³
6	Cables, small WEEE	Up to 2 x 1m ³ storage containers = 2m ³
7	Computers	Up to 1 pallet = 2m ³
8	Battery bin	900 litres (approximately 1m ³). This container is stored in Area 18 overnight (see Plan 2).
9	Depolluted material	Up to 1 x tipping skip 1.5m ³ storage containers = 1.5m ³
10	Toner cartridges	900 litres (approximately 1m ³)
11	Granulated copper	Up to 2 x 1m ³ storage containers = 2m ³
12	Hazardous fluids	Up to 500 litres in fit for purpose containers on spill pallets In workshop
13a/b	Reuse Assessment /PAT Testing	Stored in two secure rooms, total tonnage 10 tonnes with 6m fire break to other combustible material. The equipment tested prior to resale
14	Loose Degassed Compressors	upto 6m x 9m x 2m
15	Loose Ferrous Shred	upto 6m x 9m x 2m
16	Loose Aluminium Shred	Upto 6m x 9m x 2m
FL	Fork lift park	

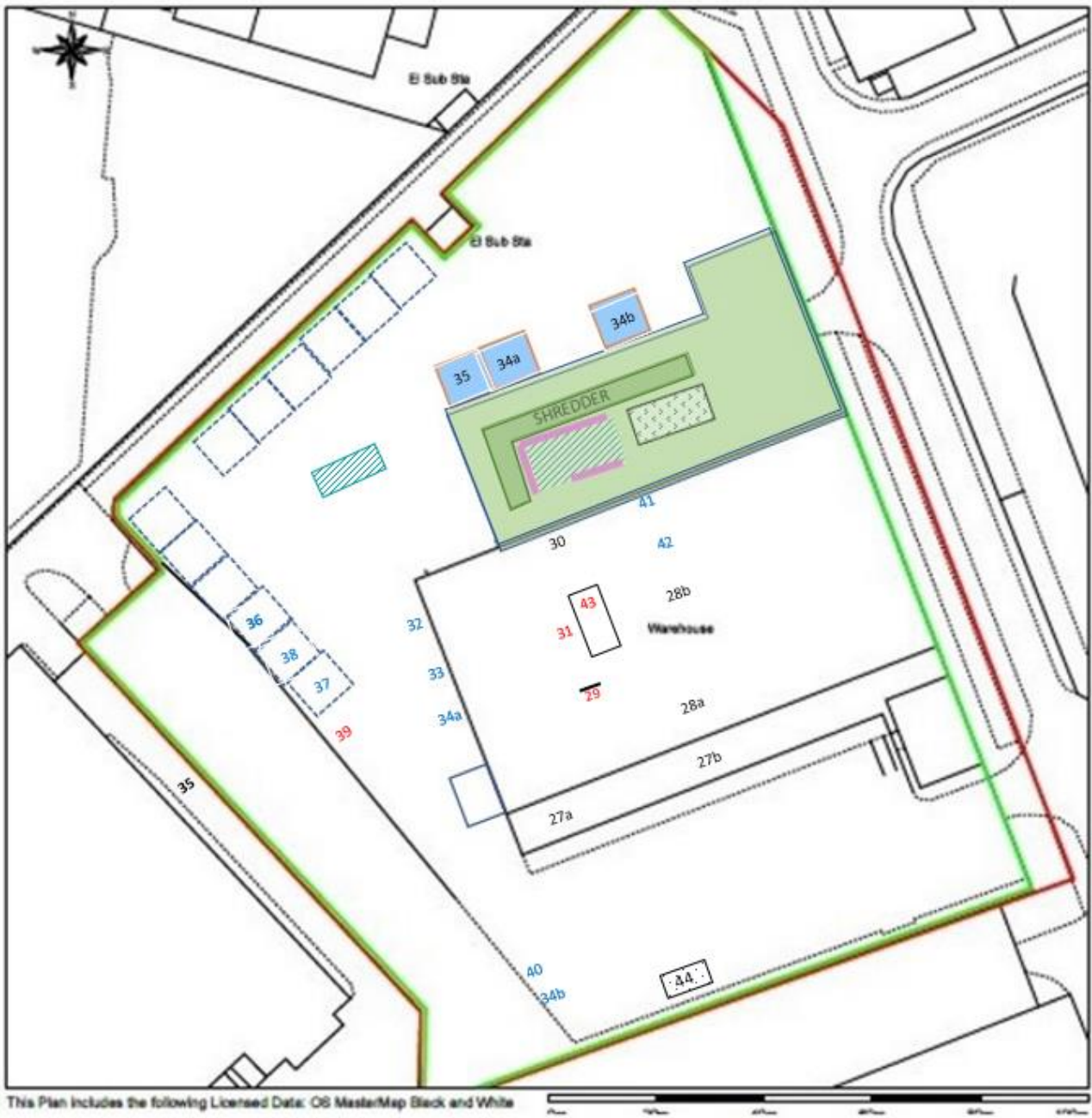


Plan (2) Schematic External Waste Stockpile Plan.

Plan (2) Schematic External Waste Stockpile Plan. Red denotes hazardous materials.


— Pink line denotes concrete bay walls composed of ‘Lego’ gravity blocks providing more than 120 minutes of protection against fire. As with Plan (1), it is not practicable to place containers on the map to scale, as the container would be no larger than a dot, the containers have been labelled in blue, to designate them as containers rather than materials in bays.

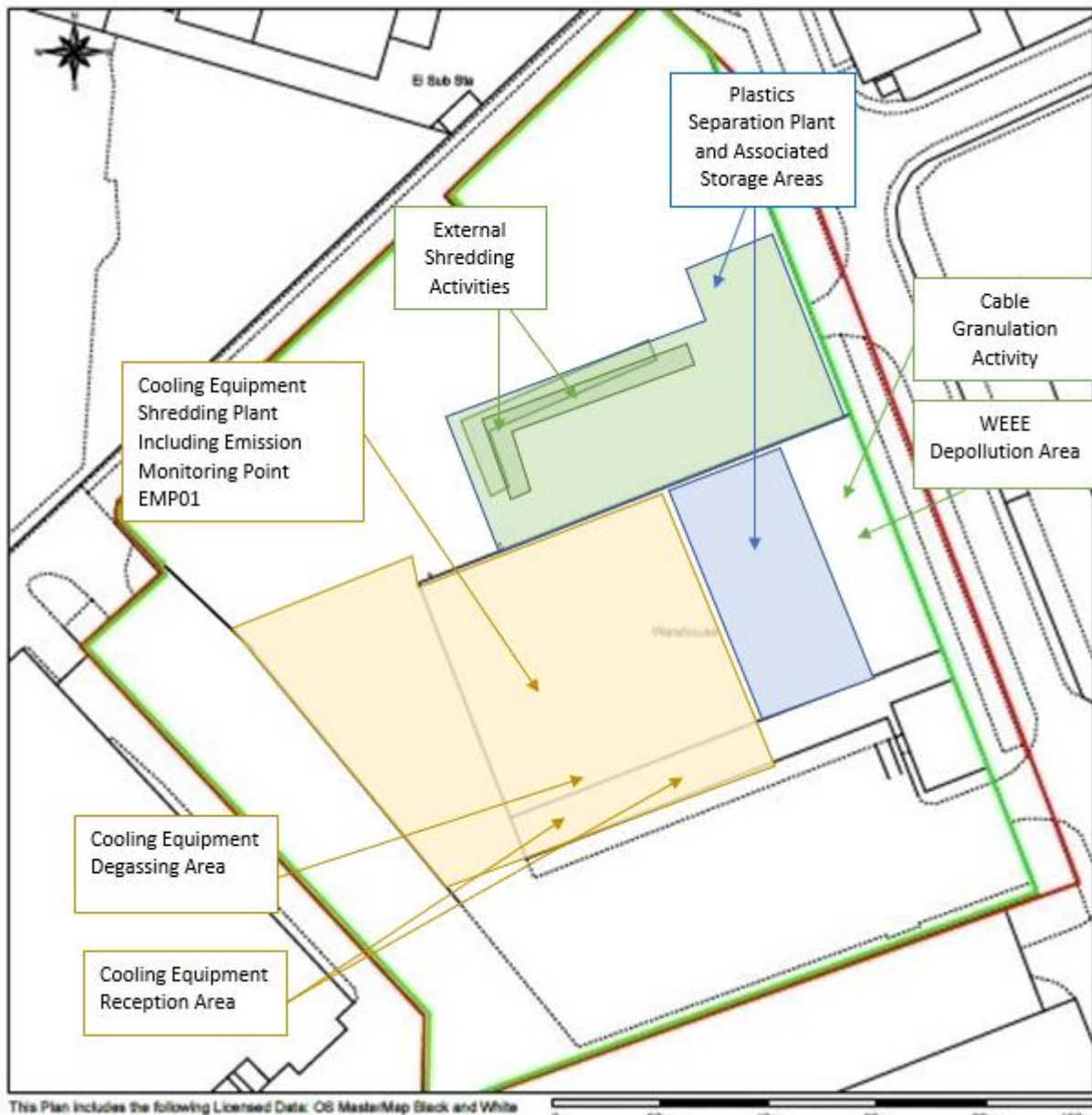
14	WEEE processing stockpile containing POPS 	12m x 7m x 2m = 168m ³ with 6m fire break from the building, a number of Lego blocks form a wall 3m high), footprint is marked on plan.
15	Separated metals	10m x 8m x 3m Constructed with Lego Bund Walls and steel roof – Material to a height of 2m = 160 m ³
15	Separated wood	10m x 8m x 3m Constructed with Lego Bund Walls and steel roof – Material to a height of 2m = 160 m ³
17	Shredded plastic (end of conveyor belt)	2 x 1m ³ tipping skips = 2m ³
15	Battery bin storage area	10 x 900 litres (approximately 10m ³) inside 10m x 8m x 3m Constructed with Lego Bund Walls with steel roof – Material to a height of 2m
19	Shredded ferrous metal	10m x 8m x 3m Constructed with Lego Bund Walls – Material to a height of 2m = 160 m ³
20	Shredded mixed waste	40yd roll-on roll-off container
21	Shredded plastics awaiting treatment-containing POPS 	7m x 8.5m x 2m = 119m ³ . Lego bund walls to a height of 2.4m footprint outlined on plan and a 6m firebreak
22	Red Diesel tank	Up to 1300 litres in double skinned tank with 6m fire break
23	Quarantine Area	5m x 7m x 2m = 70m ³ with 6m fire break
	Additional Fire Quarantine Area	In conjunction with location 23
24	360 Grab Overnight Parking	x 2
15	Shredded Motors	10m x 8m x 3m Constructed with Lego Bund Walls and steel roof – Material to a height of 2m = 160 m ³
15	Mixed Metal Shred	1m ³ storage bags inside 10m x 8m x 3m Constructed with Lego Bund Walls – Material to a height of 2m
	 Fire Quarantine area	This area is flexible and makes up an area of : 10m x 5m x 2 = 100m ³
	 New Bunds with Roof	10m x 8m x 3m Constructed with Lego Bund Walls – Material to a height of 2m



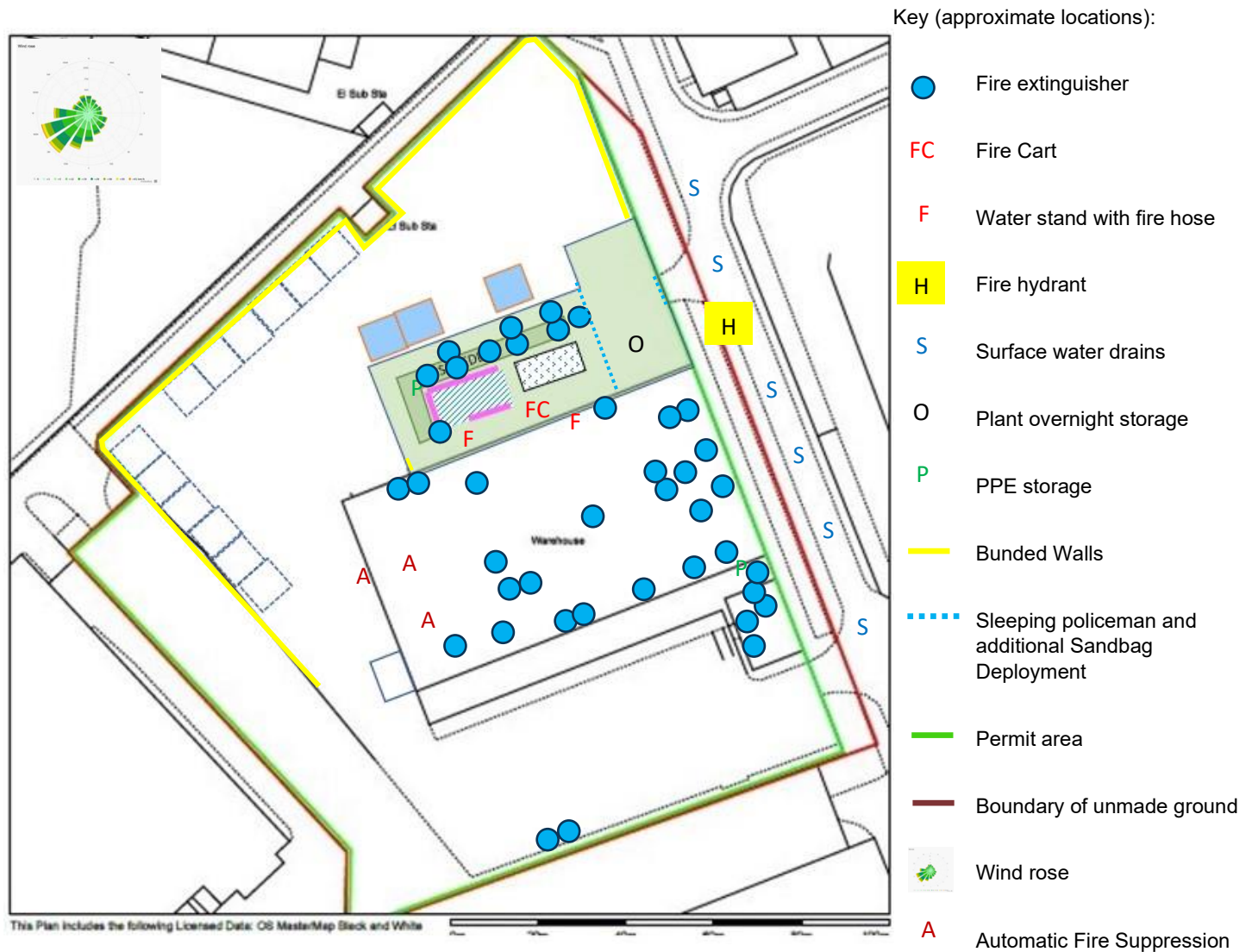
Plan (3) Schematic Cooling Unit Treatment Plant Area.

KEY to Plan (3) Schematic Cooling Unit Treatment Plant Area. All waste is hazardous wastes denoted in red, a number of storage locations are shown in blue. As with Plan (1), it is not practicable to place containers on the map to scale, as the container would be no larger than a dot, the containers have been labelled in blue, to designate them as containers rather than materials in bays. All material will be on a concrete bunded pad with the bund being created from concrete lego blocks.

	Concrete Block retaining Wall	
27a/b	Cooling Unit Reception Area	Block of 30m x 1.5m x 2m = 90m ³ this is constantly rotating stock and temporary storage during processing. A 6m fire break from other waste material will be maintained
28a/b	Cooling Unit Initial Treatment Area	Block of 10m x 2m x 2m = 40m ³ this is constantly rotating stock and temporary storage during processing.
29	Atex Room Containing Tanked Gas and Oil	2 tanks of 450kg of liquefied CFC / pentane gasses this area is strictly controlled and monitored with alarm systems.
30	Building Containing Generator Diesel in Bunded tank	6000 litres max. within a dedicated room with concrete walls and ceiling
31	Nitrogen Tanks	2 x Compressed nitrogen storage tanks totalling 5500 litres (4000l + 1500l)
32	Plastic Bagging Station	4 x 2m ³ Storage Bags = 8m ³
33	PUR Pellet Bagging Station	2 x 2m ³ Storage Bags = 4m ³ in enclosed area with automatic fire detection and suppression
34a	Shredded ferrous metal	2 x 40yd roll-on roll-off container with concrete lego blocks to a height of 2.4m
34b	Shredded ferrous metal	7m x 4.5m x 2.0m = 63m ³ with concrete lego blocks to a height of 2.4m
35	Plastic Storage Bay	6m x 18m x 1.4m = 151.2m ³ with concrete lego blocks to a height of 2.4m,
36	PUR Pellet Storage Bay	6m x 16m x 1.4m = 134.4m ³ with concrete lego blocks to a height of 2.4m, footprint shown on plan as a hashed area with a maximum total of 96 1.5m ³ bags with a filled bag height ranging from 1.2m -1.4m
37	Glass and Landfill	1 x 40yd roll-on roll-off container for Glass and 1 x 40yd for Landfill
38	Aluminium/Copper	5m x 6m x 2.0m = 60m ³ in bags within Concrete bay lego blocks to a height of 2.4m
39	Gas Storage Area	2 x Tanks of 450kg of liquified CFC / Pentane gasses
40	Drained Cooling Compressors	1 x 40yrd roll-on-off container
41	Compressor Oil	6 x 1m ³ Litres = 6 m ³ Containers of mineral Oil
42	Plugs/Cable/Capacitors	20 x 1m ³ = 20m ³ Storage containers
43	Ammonia	4 x 1m ³ litres IBC Containers
44	VOC Storage Tank	1 x Tank of 15,000kg of liquified VOC gasses shown on plan as  with concrete bay to rear and side



Plan (4): Site Plan showing increased permit area after the variation, external processing area, internal de-pollution area, un-loading area, cable granulation area and the site boundary

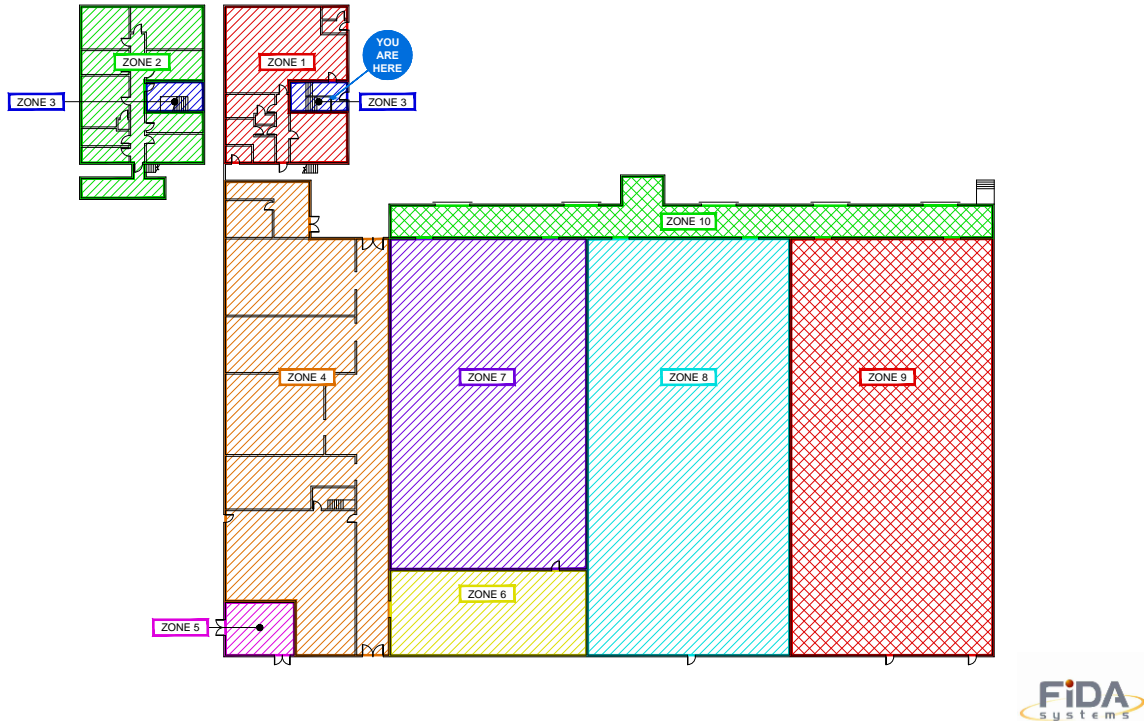


Plan (5): Site Plan showing bunded area, area of unmade ground, emergency vehicle access points, water hydrant for fire services, location of PPE, location of fire extinguishers, location of fire hose / stand pipes, location of surface water drains on Nest Road, direction of prevailing wind (SW to NE).

There are no drains within the internal bunded areas.

FIRE ZONE PLAN

Gap Waste Management



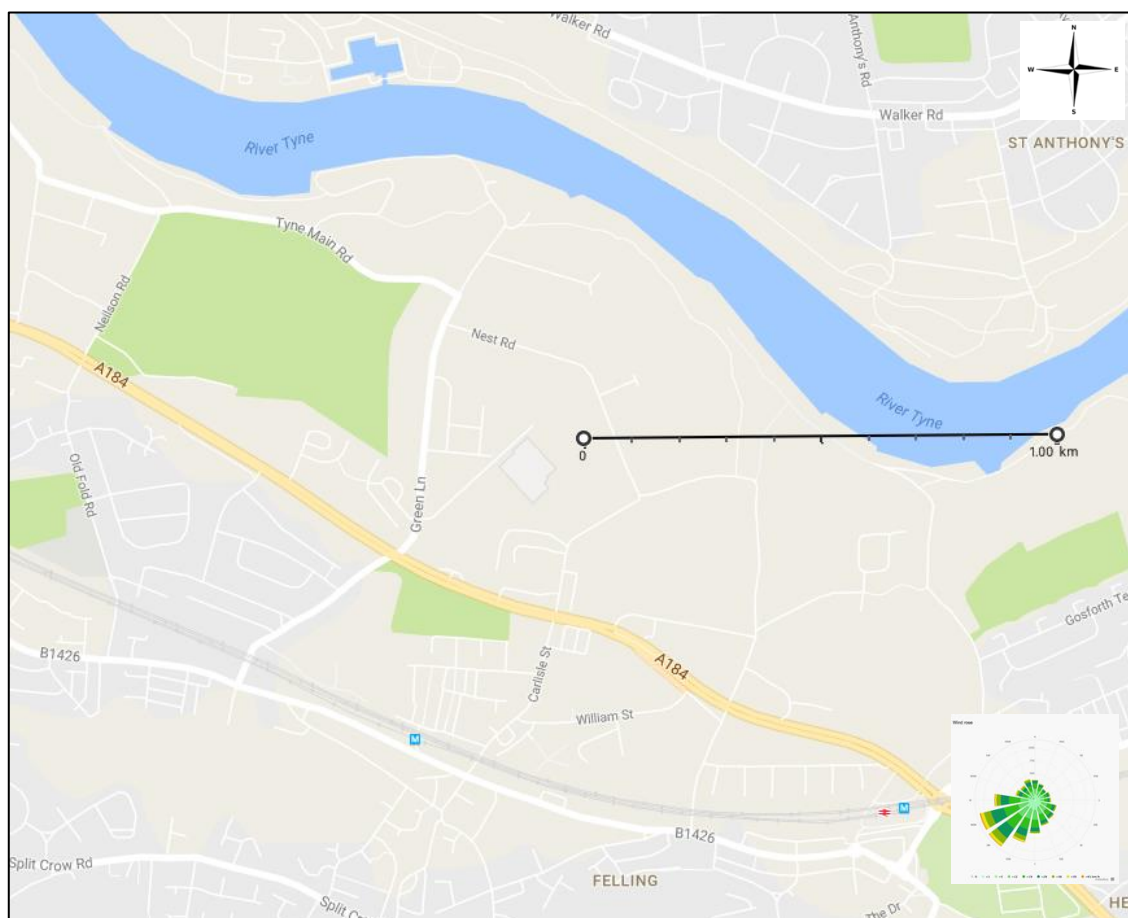
Plan (6): Fire Zone Plan. The fire detection system is installed in all areas of the building that are at risk of fire. The Analogue Addressable Fire Alarm Control System can detect fires and alerts all relevant parties to enable a swift and targeted response. The alarm is sent to Redcare, the duty manager and then a cascading system of 5 numbers.

The processing areas are covered by the specific zones:

- Zone 1 Offices
- Zone 2 Offices
- Zone 3 Reception
- Zone 4 Cable granulation and inspection and refurbishment of WEEE
- Zone 5 Maintenance Area (garage)
- Zone 6 WEEE and plastic treatment area
- Zone 7 WEEE and plastic treatment area
- Zone 8 WEEE, plastic treatment area and cooling equipment treatment plant
- Zone 9 Cooling equipment treatment plant

6.4. Sensitive receptors – Location

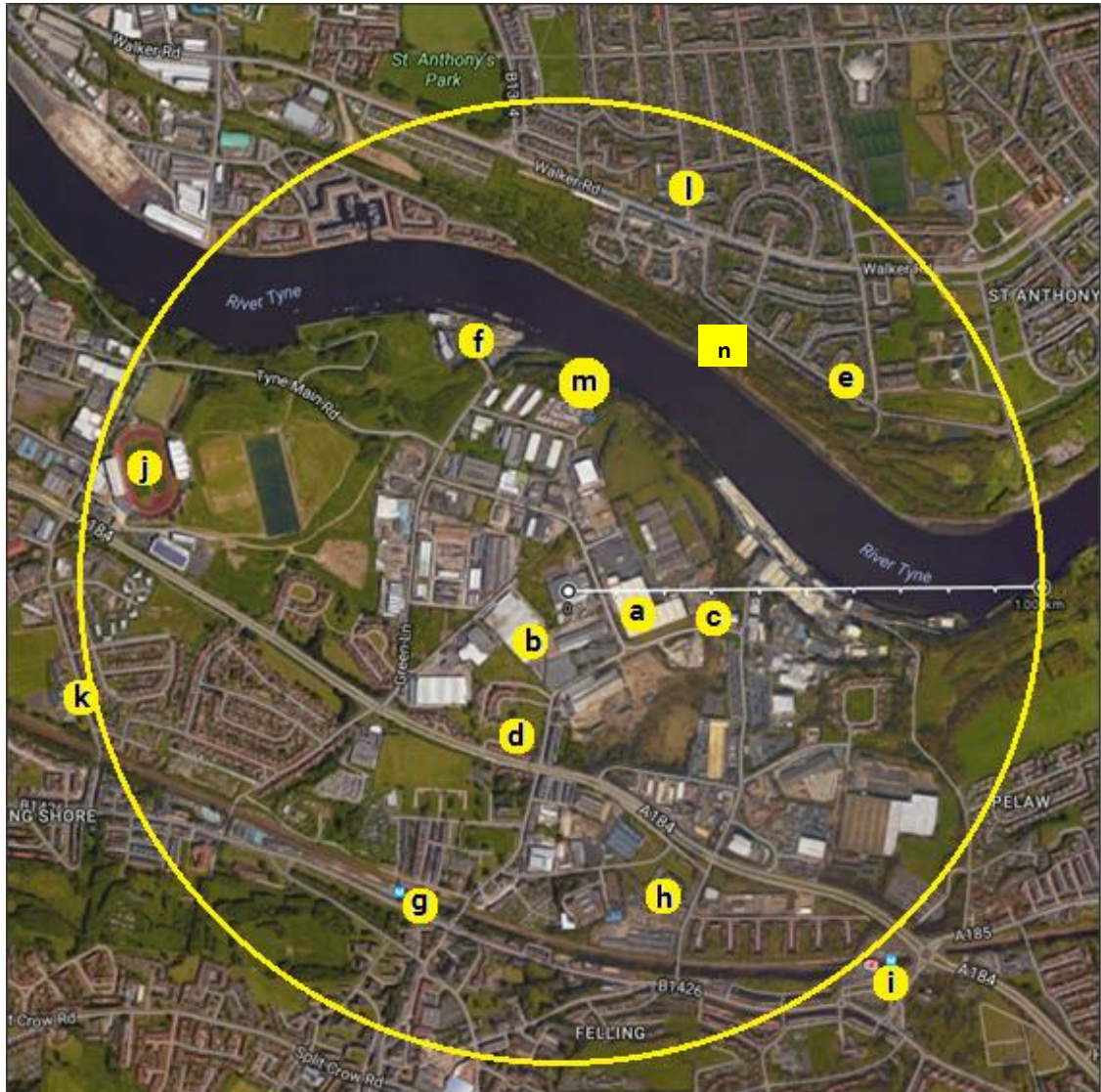
- 6.4.1. The site is located on the established Felling Industrial Estate with principal road access to the estate via the A1842 Felling Bypass. Felling Industrial Estate is approximately 2 miles to the east of Gateshead town centre. The River Tyne lies 400m north east of the site.
- 6.4.2. The residential areas of Fellingshore and Felling lie approximately 500m to the south and west of the site. St Anthony's lies approximately 500m to the north east of the site.
- 6.4.3. A 1km scale bar is drawn on the map below. A wind rose of the prevailing wind direction is below – it is noted that it only indicates the most likely direction of impact.



Plan (7): Location of site and sensitive locations. A 1km scale bar is drawn on the site plan.

6.5. Sensitive receptors – Location

- 6.5.1. Smoke contains a multitude of combustion products including irritants and asphyxiants which are toxic. These toxic pollutants can impact anyone within 1km of the site and in certain circumstances smoke will have an impact on public health at greater distances than 1km.



Plan (8): Aerial view of surrounding areas. Surrounding industrial, residential and green areas can be identified. The location of the site is marked by 0 on the 1km scale bar and is in the centre of the yellow 1km radius circle. The location of the sensitive receptors referenced in point 6.5.5 are labelled in yellow.

- 6.5.2. The site is next to other businesses on Felling Industrial Estate. These business units are deemed to be the most sensitive receptors due to the close proximity.
- 6.5.3. The site is not within a flood risk zone. The River Tyne lies approximately 400m north of the site. The site is not within a groundwater source protection zone.
- 6.5.4.

6.5.5. The receptors include, labelled on Plan (8):

Industrial:

- | | |
|---|------------|
| a. Immediate neighbours, Felling Industrial Estate | within 50m |
| b. Washington Metal Works | within 50m |
| c. Enva (Waste company with gulley tanker business) | within 50m |

Residential Areas:

- | | |
|---|-------|
| d. Felling and Felling Shore residential area | 0.3km |
| e. St Anthony's residential area | 0.5km |
| f. River Edge Hotel | 0.5km |

Municipal:

- | | |
|--------------------------------|--------|
| g. Felling Metro | 0.75km |
| h. Gateshead PDSA Pet Hospital | 0.7km |
| i. Hepworth Train Station | 1km |
| j. Gateshead FC | 1km |

School:

- | | |
|-----------------------------------|-------|
| k. Bede Primary School | 1km |
| l. St Vincent's RC Primary School | 0.8km |

Local Wildlife Site:

- | | |
|---|-------|
| m. Felling Shore | 0.5km |
| n. Walker Riverside local wildlife site | 0.5km |

Rivers, canals and groundwater:

- | | |
|------------|-------|
| River Tyne | 0.4km |
|------------|-------|

6.5.6. **Emergency services (distance via roads):**

- | | |
|--|-------------------------------|
| • Tyne and Wear Fire and Rescue, Baltic Road | 0.4 miles, travel time 2 min |
| • Gateshead Community Fire Station | 2.7 miles, travel time 8 min |
| • Tyne and Wear Fire and Rescue, Union Road | 4.4 miles, travel time 13 min |
| • Northumbria Police Station, Gateshead | 2 miles, travel time 7 min |
| • Royal Victoria Infirmary | 1.2 miles, travel time 5 min |

6.5.7. **Affects**

- Smoke will have a significant affect on human health, as detailed within research studies.
- The fire and smoke would affect the immediate industrial neighbours, residential areas, local amenities and the wider industrial and residential areas.
- The firewater will be retained within the bunded area – the drains outside the site will be covered with clay mats to reduce the effects of the fire on the local receptors.

7. MANAGING COMMON CAUSES OF FIRE

7.1. Arson or vandalism

- 7.1.1. GAP Waste Management & Transport is located within Felling Industrial Estate. A 2.4m high metal palisade fencing surrounds the site and the two secure gates are locked shut at the end of the working day. During the working day, access to the rear of the site where the processing is undertaken is locked shut and is only opened for incoming and outgoing vehicles.
- 7.1.2. Combustible or hazardous waste is not stored along the fence line. The storage and processing area is at the rear of the site – the public pavement is over 5m away from this fence line. These factors reduce the risk of accidental fires being started by members of the public who may discard lit cigarettes etc.
- 7.1.3. The gates, building, storage and processing areas are covered by CCTV coverage that can be accessed remotely.
- 7.1.4. The site is staffed 24 hours a day, the site staff carry out checks for intruders. All site visitors are escorted around site.
- 7.1.5. The Operators document *EWP-WEEE 016* outlines the site security measures that are undertaken on site to ensure adequate security at the facility. The document covers vehicles, internal store, main building, site gates, perimeter fences, riverside, fuel tank and materials.
- 7.1.6. The entire building is covered by a Redcare fire detection system.

7.2. Plant and equipment

- 7.2.1. All plant is subject to regular preventative maintenance and inspection plans. Any faults or problems noted during the daily checks are reported either direct to the manager or in his absence the Authorised Person so that the problem or fault can be rectified. The procedures are outlined within the Operators document *EWP-WEEE 014*.
- 7.2.2. Mobile plant that is not being used is kept away from combustible materials. The mobile plant is located away from stockpiles overnight to reduce the risk of fire.

7.3. Electrical faults including damaged or exposed electrical cable

- 7.3.1 All electricals have been checked and certified that they are in a good condition. All external cable is armored and inspected regularly for damage / condition as shown on the daily check inspection sheets.
- 7.3.2 The routine checks of the plant and equipment is outlined within the onsite documents. Additional documents have been implemented to cover the additional cooling unit and separation equipment:
 - Question 21e_Schedule 5_ EWF-GI-005 Daily Checks
 - Question 21e_EF-SGP-001_Plastic Processing Plant Maintenance
 - Question 21e_EWP-SGP-001_Plastic Processing Plant Daily Checks
 - Question 21e_EWP-WEE 034 - Shredding Line Plant Maintenance
 - Question 21e_EWP-WEE-035_Shredding Line Daily Checks
- 7.3.3 The operator has daily inspections of cables and any damaged or exposed cables will be isolated until repaired by a qualified electrician.
- 7.3.4 Maintenance will be carried out by contractors who have the required qualifications and expertise.

7.3.5 In line with company policy, all electrics are tested by a qualified electrician in line with insurance requirements. The dates of the routine checks are set within the company's calendar to ensure that the onsite electrics are checked and maintained in line with company policy.

7.3.6 A copy of the Electrical Installation Certificate is kept within the site office. The site was inspected and tested on the 25/02/2015. In addition, all site electrics will be re-certified as part of the new installation.

7.4. Discarded smoking materials

7.4.1. Smoking on site is strictly prohibited, all smoking activities take place in a designated area which is more than 10m away from the nearest building and at least 100m away from any combustible material storage. Receptacles are provided for waste.

7.5. Hot works

7.5.1. It is important to keep sources of ignition (naked flames, welding and cutting equipment etc.) away from material that is combustible. Any activity that presents a risk of initiating combustion must only take place in a designated area.

7.5.2. Welding or cutting (hot works) will not be carried out until a hot work permit to work has been issued. This permit will only be issued once the risk assessments have been carried out and a method statement reviewed. The hot works will only be carried out with a second person carrying out Fire Watch duties and responsibilities, which will include an inspection with the thermal image camera of the area 1 and 2 hours after the hot works have been completed.

7.6. Industrial heaters

7.6.1. There are no industrial heaters on site.

7.7. Hot exhausts

7.7.1. A fire watch will be carried out at regular intervals during the working day to detect signs of a fire caused by settling on exhaust parts. The hot exhaust fire checks will be carried as part of the wider hot waste checks (See Section 8.3.4).

7.8. Ignition sources

7.8.1. The only possible ignition sources on site are from vehicles. These vehicles are parked overnight at least 6m away from any stockpiles with the ignition off and keys removed. The only time any vehicles are close to any stockpile is when they are delivering goods, during this time drivers must have the ignition off and site staff are present to supervise the delivery. Bulk loads are also measured using a tic camera.

7.9. Batteries in ELVs

7.9.1. Although the site does not store ELVs, the Operator will ensure that batteries will be disconnected in plant that is not being used for the foreseeable future - to eliminate the risk of the vehicle short circuiting and causing a fire. Any damaged batteries will be stored in a separate container and monitored.

7.9.2. Lead acid batteries are stored in acid-resistant containers provided by G & P Batteries Ltd. The containers are inspected on a daily basis and any spillages and debris shall be cleared up on a daily basis.

7.9.3. The quantities of batteries shall be monitored and when the safe fill level of the container is approached, the waste batteries shall be removed from site an authorised facility.

7.10. Leaks and spillages of oils

7.10.1. All mobile equipment and plant is inspected on a daily basis for leaks. Any fuel or liquid spillages will be cleaned up immediately utilising the readily available spill kits, as outlined within the document *EWP-WEEE 019 Controlling Spillages*. The company has a mechanical fitter on site who carries out all routine and emergency repairs and inspections.

7.11. Build-up of loose combustible waste, dust and fluff

7.11.1. The site will be inspected during and at the end of every shift for the build-up of loose combustible waste, dust and fluff. If a build up of dust / fluff is detected it is cleared as soon as safely practicable to do so. This is cleared at the end of every day.

7.12. Reactions between wastes

7.12.1. All waste will be inspected on arrival and during the working day. Any wastes that are found to be incompatible will be removed from site with immediate effect. Each waste type is stored in a separate area of site with a clear area around the waste. Flammable and oxidizing liquids will not be stored together.

7.12.2. Batteries are removed prior to any processing in the depolluting area. These are stored within specialist weather proof battery storage stillages and kept a minimum distance of 6m away from any combustible waste. When tipping bulk loads the material is spread out and inspected by waste operatives and is examined for batteries and items containing Lithium Batteries. Batteries are removed and placed within the specialist battery storage stillages items. These containers are moved to an external area outside hours of operation as show on plan 2.

7.13. Deposited hot loads

7.13.1. All incoming wastes are thoroughly inspected on arrival - hot material, or suspected hot material will not be accepted on site. Thermal CCTV is used to detect any hot spots within the incoming load whilst tipping. Any hot spots are alerted to the directors and supervisors via their mobile phones indicating location on the CCTV. A handheld TIC camera is then used to remove any hot material into the quarantine area as detailed in 17.13.2

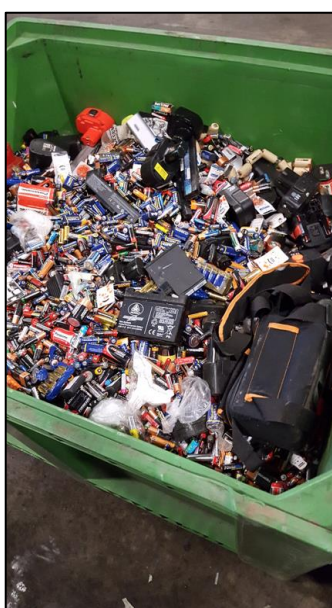
7.13.2. In the unlikely event that hot material is discovered by the Thermal CCTV after arrival or whilst tipping, , A handheld TIC camera is then used to clearly identify the material, which will then be placed within an appropriate quarantine area for further inspection as detailed on plan 2. The material will be dealt with in an appropriate manner, dependent on the heat this action could include but not limited to continued regular close monitoring of temperature, dowsing of the quarantined material.

7.14. Fire prevention

7.14.1. No waste is to be burned on site, as outlined within document *EWP-WEE18 Controlling fires*.

Photograph (8): Hazardous materials are separated into fit for purpose containers. This reduces the fire risk. The containers are monitored by a heat gun three times a day.

Photograph (9): Small WEEE is segregated into small containers, a fire within the building can be easily controlled with the types of containers and volumes of wastes stored within this area.



8. PREVENTING SELF COMBUSTION

8.1. Introduction

- 8.1.1. The most effective way to reduce the impact from fire on site is to prevent them from occurring in the first place. Managing storage times, pile volumes and height, and the temperature of the wastes can prevent the self-combustion of wastes.
- 8.1.2. Waste is received on site by booking arrangement only, to control the volume of waste held on site. WEEE is received daily on site after collections from local authority waste sites and from specified customers. The incoming WEEE (excluding cooling equipment) is moved into the depolluting areas where it is sorted within 24 hours and WEEE for processing is removed to the external waste stockpile. The incoming WEEE cooling equipment is moved into the Cooling Unit Treatment Area where it is treated within 36 hours – the separated fractions are stored in appropriate containers and storage areas, which includes the external waste stockpile areas.
- 8.1.3. The WEEE (excluding cooling equipment) is not pre-processed before it arrives on site. The incoming waste is stored within a building and is not in direct sunlight. The waste is depolluted within 24 hours of arrival on site – the depollution activities include the removal of ink / toners, hover bags, cardboard, wood, cables and batteries. The WEEE will not degrade during the time stored on site.
- 8.1.4. All removed hazardous materials are stored in an appropriate area of site. Hazardous materials, including batteries, are monitored by a heat gun throughout the working day. Hazardous gases are stored in specific containers, in specific storage areas that are monitored for emissions.
- 8.1.5. Plastic that is to be treated within the Plastic Floatation Tank will be stored outside within a specified bay. Smaller amounts of plastic will be stored within 2m³ bags prior to transfer from site. The 2m³ bags will be stored within the site building.
- 8.1.6. No waste is stored on site beyond 3 months.
- 8.1.7. The size and location of the stockpiles are presented within *Plan (1), Plan (2) and Plan (3)*. Within the Internal Depollution Area, a 6m fire break between all stockpile areas will be maintained at the end of the working day.

8.2. Manage storage time

- 8.2.1. The storage of incoming WEEE is closely managed. The WEEE is assessed and depolluted (if required) within 24 hours. The incoming waste piles are kept to a minimum by constant processing, therefore no waste received should be in a stockpile for more than 72 hours. The stockpile is rotated constantly as when the new waste comes in it is added to the rear of the pile and the older waste is moved up for processing.
- 8.2.2. Some materials may self-combust, this means that as they degrade through oxidation they can generate heat, this heat can build to a point where the stack of material can catch fire on its own. These materials include metals, plastics, residual residue and wood.
- 8.2.3. Shredded ferrous metal and mixed wastes are stored within waiting roll-on roll-off skips or 40 yard articulated containers. The containers are removed from site at least every 72 hours and often on a daily basis. The storage times of processed materials are carefully managed.
- 8.2.4. Shredded plastic (derived from onsite small domestic applicant (SDA) processing) is placed directly into the hopper of the plastic separation plant via tipping skips (the bay may be utilised as contingency if required or for third party tipping). The volume produced by the SDA shredding plant is approximately 1 tonne per hour. The plastic separation/processing plant can process plastic at a rate of 4 tonnes per hour. Therefore, even if the operator imports plastic from external sources, each load will not exceed 20 tonnes. The Operator is confident that the plastic in the bay will not be stored for over 1 week. The bay will be emptied and stocked in a manner to ensure that the plastic at the rear of the bay is not left to degrade and self-heat, this is to reduce the risk of fire. The plastic will be placed in the right hand side of the bay, and the left hand side will be removed and used to feed the

plant, when the left hand side of the bay is empty, the tipping will commence in the left hand side of the bay, while the right hand side of the bay will be removed and used to feed the plant. This rotation system will ensure that all plastic is removed from the bay and not just the plastic at the front of the bay.

- 8.2.5. All recovered material is stored in separated containers while awaiting collection. Outgoing waste is transported to our end markets as soon as there is a full load, therefore no outgoing waste should be on site for longer than 1 month with the exception of Toner Cartridges where it takes 2 months to generate enough for a collection. Full small containers are labelled with a fill date, to ensure that they are moved out on a 'first in, first out' basis.
- 8.2.6. Lead acid batteries and other batteries and accumulators are stored in containers that are provided by G & P Batteries. The full battery containers are swapped out on demand.
- 8.2.7. The current storage times of combustible wastes are detailed within Section 8.2.5. No waste is stored on site beyond 3 months.
- 8.2.8. There is very little seasonal variation associated with the waste streams; there is more garden related WEEE in summer and more Christmas related WEEE in winter, but not at a level to affect the operations.
- 8.2.9. The storage times of material on site is based on current operations. The stockpile locations are presented within *Plans (1) 1-13 , (2) 14-26 and (3)27-44.*

Waste type		Max volume	Max current storage time
2	Flat Panel and CRT Display	48m ³	1 week
3	Bailed Cardboard	6m ³	1 Month
4	Treated Plastic	40m ³	72 hours on site
5	SKY boxes	3m ³	1 month
6	Cables, small WEEE	5m ³	72 hours on site
7	Computers	2m ³	1 month
9	Depolluted Material	1.5m ³	72 Hours
10	Toner cartridges	1m ³	2 months
11	Granulated copper and plastic	2m ³	2 Weeks
14	WEEE processing stockpile	168m ³	72 hours on site
15	Separated metals	3m ³	72 hours on site
16	Separated wood	3m ³ m	72 hours on site
17	Shredded plastic	2m ³	moved to plastic bay on daily basis
18	Battery bin storage area	10m ³	2 months
19	Shredded ferrous metal	40yd	72 hours on site
20	Shredded mixed waste	40yd	72 hours on site
21	Shredded plastics	148m ³	1 week
25	Shredded Motors	14m ³	1 week
26	Mixed Metal Shred	14m ³	1 week
27a/b	Incoming cooling units	180m ³	48 hours prior to depollution / treatment
28a/a	Incoming cooling units	40 m ³	24 hours
29	Gasses	900kg	Up to 2 weeks
32	Plastic bagging station	4 x 2m ³	daily
33	PUR bagging station	2 x 2m ³	daily
34a	Shredded ferrous metal	2 x 40yd	72 hours
34b	Shredded ferrous metal	63m ³	72 hours
35	Plastic storage bay	151.2m ³	1 week
36	PUR pellets bags in bunded area	134.4m ³	max 1 week
37	Glass and Landfill	2 x 40yrd	1 month
38	Aluminium & Copper	60 m ³	1 month
39	Gas Storage Area	12 x 450 kg	1 month
40	Drained Cooling Compressors	50 m ³	2 Weeks

41	Compressor Oil	6 m ³	1 month
42	Plugs Cable & Capacitors	20 m ³	1 month
43	Ammonia	4 m ³	1 month

8.3. Monitoring and control of temperatures

- 8.3.1. The shredding of non-hazardous waste will generate heat. The treated material is handled in a manner that allows the waste to cool before it is formed into the stockpile. Site staff will be trained in how to detect and manage stockpile.
- 8.3.2. The main WEEE stockpile is emptied on a weekly basis, this reduces the heat build up in the stockpile. The stockpile will be rotated if required (if hot spots are detected during the daily inspection).
- 8.3.3. It is important that combustible materials stored on site are subject to regular checks to ensure they are stable and are not developing dangerous hot spots that could become fires. The main WEEE stockpile is monitored by thermal imaging CCTV cameras (TCs). The TCs show the temperature variations of the pile rather than single locations. A hot spot could be missed with a temperature probe alone.
- 8.3.4. The TCs are constantly monitoring and recording the temperature and hotspots of both incoming waste and main WEEE stockpile. Any detected hotspot reaching 50^o C triggers an alert with monitoring taking place 24/7, on being notified of an alert Staff Monitor the hotspot more closely until the temperature detected in the TCs falls to ensure that the waste is under 70^oC (50^oC at night). A record of the daily checks will be recorded on the daily site diary. The checks will be administered to each stack or pile of combustible waste. Additionally, incoming loads of WEEE will be temperature checked as part of the acceptance procedures. Night time checks will also be carried out (See 8.3.6).
- 8.3.5. Any stack, pile or load that shows a hot spot over 50^oC and continues to climb over 70^oc will be pulled apart to check for safety and to dissipate any latent heat. The material will then be removed for disposal as soon as reasonably possible and will be frequently monitored until it is removed from site.
- 8.3.6. In addition, the waste and PUR stockpiles will be patrolled by a security guard at night who will undertake additional checks with the TIC during the night. The tests will be recorded, and the security guard will act if the PUR foam reaches temperatures of 50^oC, which will involve contacting key GAP staff with immediate effect. GAP will then take a decision on the stockpile and will either; contact the emergency services, spread the PUR bags to increase airflow to reduce the temperature, remove the PUR foam from the bag in the quarantine area, leave the PUR foam to cool, or spray with foam with a fire extinguisher if required.
- 8.3.7. Portable fire extinguishers and fire hoses are readily available in the material storage area and staff will be trained in their use. This equipment is tested and services on a scheduled basis.
- 8.3.8. WEEE and some separated recyclates and hazardous materials are stored within the building; the wastes are kept sheltered from direct sunlight. Measures will be taken to ensure that stockpiles of combustible materials do not build up within the building and that they are checked on a daily basis. Stock will be rotated to prevent older waste remaining on site. Waste will not be stored beyond the containers capacities.
- 8.3.9. Only compatible fluids are stored together to reduce the risk of a chemical reaction. All batteries are stored within in a fit for purpose lidded containers in the outside storage area.

8.4. Waste bale storage

- 8.4.1. A maximum of 3 cardboard bales are stored on site, each bale is approximated 1m³. The bales are removed from site monthly. They are kept within a site building as detailed on *Plan (1)*.
- 8.4.2. The bales are checked daily for heat as outlined within Section 8.3, actions will be taken if heat is detected within the bales.

8.5. Monitoring and control of the process within the Cooling Equipment Treatment Plant

8.5.1. Monitoring and control of the process within the Cooling Equipment Treatment Plant. The plant contains safety mechanisms as shown below:

Checking of emissions to ensure CFCs are not released	Monitor on the gas emissions pipe after treatment and prior to release into the atmosphere. These check for both R11 and R12 CFCs.
Gas leak detection system – number and location	There is a gas leak detection unit located in the storage room for the liquefied CFC / Pentane removed in steps 4 to 11. If CFCs are detected then the door locks to avoid release into the atmosphere.
Fire extinguisher systems	There are four fire extinguisher systems on the plant at the following points: Loading hopper, above the chain pusher, pelletiser, and end of the cooling tube after the pelletiser.
Mechanisms employed for minimising risk of explosions in pentane fridges	<p>In the shredding section – there is a safety mechanism to control pentane levels in steps 8 to 10. If pentane levels are more than 10% then nitrogen is added to the process to reduce it back below 10%. If the nitrogen levels are above 30% and below 40% feeding to these steps is stopped but raw gas evacuation continues. Additional nitrogen is added, as required. If nitrogen levels exceed 40% there is an emergency shut down and the shredder stops. Gas evacuation continues and nitrogen is added, as required.</p> <p>In the pelletiser – nitrogen is continuously added and oxygen levels are monitored. If levels increase above 3% then additional nitrogen is added to reduce the level back below 3%. If the oxygen levels increase above 6.5% the feed of PUR is stopped and further nitrogen is added. Above 8% the plant is stopped and restarts automatically once levels have been reduced below 6.5%. Temperature and airflow are also measured.</p>
Auto shutdown mechanism if pentane levels are too high	Yes, if pentane levels in steps 8 to 9 exceed 40% or if oxygen levels in the pelletiser exceed 8%, see above.
Design features to minimise impact of any explosion	No specific design features related to minimising the physical impact of an explosion. The manufacturer believe the risk of an explosion are low due to low levels or PUR dust build up in the shredder. Fire extinguisher systems are also fitted.

9. MANAGE WASTE PILES

9.1. Introduction

9.1.1. Waste piles must be managed carefully to help to prevent the risk of self-combustion and limit the scale of a fire if one breaks out. The Operator limits the volume of incoming waste on site. All associated wastes are stored in neat stockpiles and are closely managed.

9.1.2. The size and location of the stockpiles are presented within *Plans (1), (2) and (3)*. Within the Internal Depollution Area, a 6m fire break between all stockpile areas will be maintained at the end of the working day.

9.2. Maximum pile size

9.2.1. All stacks, piles and stores of wastes, will be stored in a manner that allows emergency vehicular access to the whole site at all times.

9.2.2. As can be seen within the stockpile plans, the processed waste stockpiles meet the standards for maximum height, width, length, volume in accordance with the relevant guidance.

Waste type	Loose and more than 150mm	30 to 150mm or baled	Less than 30mm
Tyres and rubber	450 cubic metres	300 cubic metres	300 cubic metres
Plastics	750 cubic metres	450 cubic metres	300 cubic metres
Wood	750 cubic metres	450 cubic metres	350 cubic metres
Paper and cardboard	750 cubic metres	750 cubic metres	450 cubic metres
WEEE containing plastic	450 cubic metres	450 cubic metres	450 cubic metres
Metals other than WEEE	750 cubic metres	450 cubic metres	450 cubic metres

9.2.3. All stockpiles are less than 20m in any direction and are below 4 metres in height. The stockpiles do not exceed the maximum cubic metre volume outlined above.

9.2.4. The surface of the site is composed of concrete or tarmac – there is no uneven ground beneath the waste.

9.2.5. The site management and supervisory staff will carry out daily checks to assess the size of the stockpile and the separation distances, to ensure that the dimensions outlined within the Fire Prevention Plan are adhered to. When the stockpile reaches 75% capacity measures will be implemented to slow the input of material into site and increase outputs until stocks can be reduced. These measures include the reduction/cancelation of available delivery slots and reduction of material collected locally.

9.2.6. The Operator will not accept incoming wastes beyond the capacity of the pile size; this will ensure that the volume of waste accepted on site can be managed in a controlled and safe manner.

9.2.7. The location of the stockpiles enable a fire to be extinguished easily.

10. WHERE MAXIMUM PILE SIZES DON'T APPLY

10.1. ELV's

10.1.1. The Operator does not accept ELV's.

10.2. Wastes stored in containers

10.2.1. Various wastes are stored within shipping containers, roll-on roll-off skips and smaller containers. The skips can be moved by numerous items of plant on site, forklifts, 360 grabs and telehandlers during an emergency. The skips are accessible and fire within the container could be put out.

10.2.2. During a fire event, if the container is on fire, the container will be moved to a clear area of site (if practicable), suitable to the size of the container and the nature of the fire.

10.3. Compost production

10.3.1. The Operator does not undertake composting activities on site.

11. PREVENT FIRE SPREADING

11.1. Separation distances

11.1.1. There are four types of stockpile on site;

1. The main stockpile is Stockpile 14 which is composed of 175m³ of WEEE waste awaiting processing (Photograph (3)). The stockpile is defined by a concrete block wall and is 6m from other waste stockpiles;
2. Processed material is stored within roll-on roll-off skips or articulated ejector trailers (Photograph (5)) or a concrete bay (plastics awaiting processing within the separation tank) the bay walls are 20% higher than the maximum pile size;
3. Segregated materials stored in small containers under 1100 litres (Photograph (9)); and
4. Fridges and fridge freezers containing CFC are stored in the dedicated storage areas. No material is stored in these areas for more than 6 hours

11.1.2. The materials that are stored in roll-on roll-off skips and articulated ejector trailers are stored in designated areas of site.

11.1.3. The fridges and freezers awaiting depollution within the cooling equipment treatment plant are stored in a manner to ensure that they are not damaged. They will be stored upright and stored in a stockpile of less than 450m³, the stockpile will not exceed 20m in any direction.

11.1.4. Within the site building, the small containers are positioned close to the depollution activities. All stockpiles are stored within a secure building with an impermeable surface that can be bunded during a fire event. Each combustible stockpile pile within this fire plan is extremely small and the fire risk is low. If the individual combustible waste stockpiles are combined together (stockpiles 3 to 12), the maximum volume of material is 53.5m³, which is 17.8% of the EA's threshold for a single stockpile. With reference to plan 1, the largest individual stockpile is no larger than 40m³ with a 6m fire break. For operational efficiency, some of the stockpiles are grouped as follows (all groupings have a 6m fire break):

Group 1: Combined Total 6m³

3	Baled cardboard	Up to 6 x 1m ³ bales = 6m ³
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Group 2: Combined Total 7.5 m³

5	SKY boxes and computers	Up to 2 pallets x 1m ³ = 2m ³
6	Cables, small WEEE	Up to 2 x 1m ³ storage containers = 2m ³
7	Computers	Upto 1 pallet x 2m ³ = 2m ³
9	Depolluted material -	Up to 1.5m ³

Group 3: Combined Total 1 m³

10a	Toner cartridges	900 litres (approximately 1m ³)
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The following stockpiles are all individual stockpiles with a 6m fire break:

4	Treated Plastic -	Up to 40m ³
11	Granulated Copper-	Up to 2m ³

11.1.5. A 6m fire break between all stockpile areas will be maintained at the end of the working day.

- 11.1.6. As shown on the Plan (1) although some of the 1m³ containers are located less than 6m from the walls of the building, in the event of a fire incident being detected these could be easily accessed, isolated using a forklift truck and extinguished by staff using the on-site firefighting equipment, or by the Fire Service. This will help to minimise the risk of a fire from spreading.
- 11.1.7. This site is not a typical waste site where the fire brigade cannot readily access the base of a large free standing stockpile of waste against a bay wall or the wall of the building. The volume and nature of the 1m³ or 2m³ containers that are stored within 6m of the site wall must be considered within this individual fire plan – the fire brigade or the Operator will have full access to individual waste containers.

11.2. Fire walls and bays

- 11.2.1. The main outdoor stockpile for incoming WEEE is contained by a bay composed of gravity blocks. It does not require to be surrounded by a fire wall. The other bays are composed of gravity block walls that are fire resistant.
- 11.2.2. The roll-on roll-off skips or articulated ejector trailers do not require a fire wall or bay walls. These wastes can be quickly moved by the 360 grab or the Operators fleet of vehicles that are available on site.
- 11.2.3. The individual small containers do not require to be located within a bay wall or fire wall. These containers can be moved a the fork lift truck or the 360 grab.
- 11.2.4. All waste is frequently rotated on site, ensuring a first in, first out policy, the stock is monitored and recorded. All waste piles are monitored throughout the day for heat.
- 11.2.5. The areas around the plant and stockpiles are maintained, inspected and reported on a daily basis to ensure that there is a clear break between the plant and the waste – this area is known as the 'sterile zone'. The plant is cleaned down as appropriate at the end of the working day and all waste within the plant, underneath and around the plant is removed. These actions significantly reduce the risk of fire.
- 11.2.6. Hot wastes or suspect wastes will be transferred to the quarantine area if appropriate. If this is not appropriate, an area around the hot or suspect wastes will be cleared to provide an specialised Quarantine Area. The area will be bunded by sandbags if appropriate. The sandbags are filled with sand and will not be placed in close proximity to the waste – the integrity of the sandbags will not be compromised as a result of retaining firewater.

12. QUARANTINE AREA

- 12.1.1. A quarantine area will be used to place burning wastes (if appropriate) to extinguish them. It may also be used to hold unburnt wastes if the burning waste is in another area of site and cannot be relocated to the quarantine area.
- 12.1.2. There are two designated quarantine areas on site as shown in *Plan (2)*.
- 12.1.3. The fire guidance states that the quarantine areas must be capable of holding 50% of the volume of the largest pile in that area of site and will have a separation distance of 6m. The quarantine area in the outside processing area has dimensions of 10m x 5m x 2m thus a volume of 100m³, this is 57% of the largest stockpile which has dimensions of 10m x 7m x 2.5m thus a volume of 175m³.
- 12.1.4. The cooling equipment maximum stockpile size is 450m³, as outlined by the EA's fire plan guidance. It is likely that the stockpiles on site will be far lower in volume. The external quarantine area will be redesigned to incorporate half the volume of the cooling equipment stockpile. The outdoor processing area has the capacity to provide a quarantine area of 100m³, which will be half of the largest WEEE stockpile permitted on site. It should be noted that with the current site infrastructure, the maximum stockpile is set at 260m³ (Section 17.1.3).

- 12.1.5. Hot wastes or suspect wastes will be transferred to the quarantine area if appropriate. If this is not appropriate, an area around the hot or suspect wastes will be cleared to provide a specialised Quarantine Area. The area will be bunded by sandbags if appropriate.
- 12.1.6. The Operator has sufficient plant to quickly and effectively remove waste from bays and isolate it during an incident.
- 12.1.7. In the event of a fire, the following procedure will be put in place:
- The quarantine areas will be inspected by an Authorised Person or his Appointed Deputy daily to ensure that the designated areas for that day are clear;
 - During a fire event, the Authorised Person or his Appointed Deputy will inspect the quarantine area and organise any temporarily quarantined waste to be removed from the area;
 - Sandbags will be placed around the quarantine area if required; and
 - Burning materials or hot wastes will be transferred via mobile plant to the quarantine area and the materials dealt with as required.

13. DETECTING FIRES

- 13.1.1. The Operator has installed a fire detection and alarm system by FIDA Systems Ltd, this system is covered by a Certificate of Commissioning and is demonstrated to comply with the BS5839-1:2013. The design, installation and maintenance is covered by an appropriate UKAS-accredited third party certification scheme.
- 13.1.2. This installed system is designed to detect a fire in its early stages to enable the Operator to reduce its impact.
- 13.1.3. The system includes an Analogue Addressable fire alarm control system and optical and heat detector systems. The system includes fire alarms, manual call points, main fire alarm control panel with zoning capability.
- 13.1.4. The installed Dualcomm system works on a zone basis (See Plan (5) Fire Zone Plan). Each area of the building is fitted with an optical detector that is fitted 1m below the ceiling. An optical detector contains a pulsed Infra-red LED which pulses a beam of lights into the sensor chamber every 10 seconds to check for smoke particles. When a fire breaks out smoke enters the optical chamber causing the Infra-red light to be scattered onto the photodiode light receptor. Once the light is scattered a signal is sent to the integrated circuit which causes the alarm to sound.
- 13.1.5. The heat detector alarm responds to convected thermal energy of a fire. Heat triggers the alarm and a signal is sent to the integrated circuit which causes the alarm to sound.
- 13.1.6. The alarm is audible to the persons working within the building. The system relays a signal to the control center (off site) and to the designated site managers.
- 13.1.7. The site also has thermal CCTV covering the main waste piles which sends an alert to the all of the directors, Security Guard and duty supervisor of any abnormal heat signatures.
- 13.1.8. The fire can be immediately investigated by persons on site as it is manned 24 hours a day, 7 days a week, 365 days a year and by remote persons using CCTV cameras. The Duty on call Director will coordinate any response with the onsite staff. This system is a robust system and is not affected by holidays or out-of-hours periods.
- 13.1.9. A decision will be made on the required action to be taken. If it is a false alarm an investigation will be carried out to why the alarms were activated. If it is a small fire that can be extinguished by staff with on-site equipment it will be quickly accessed, isolated and extinguished and an investigation carried out into the cause of the fire. If it is a larger event the necessary services will be contacted as detailed in appendix 1. All site staff are trained in the use of Fire Prevention and Extinguishing Fires at Work

- 13.1.10. Individual stockpiles inside the building and outside the building are tested throughout the day using the hand-held heat detection camera. The bearings on the shredder are also tested throughout the day. All waste piles, plant and equipment are temperature checked at the end of the working day.
- 13.1.11. The cooling equipment treatment plant has a standalone fire prevention and detection system, this is detailed in Section 8.5.1.

14. SUPPRESSING FIRES

- 14.1.1. The largest stockpiles of materials at the current time are stored outside of the building in separated areas of site. Cooling equipment will be stored in specified areas within the building. The cooling equipment will not be stored in a haphazard manner, the fridge units are on average 1m³ and will be stored in an ordered manner, they will not be stacked and will be able to be moved by hand or a forklift truck. Only the waste within the building would be extinguished by a fire suppression system.
- 14.1.2. The site building does not have an installed fire suppression system. The majority of the waste is stored in 1m³ or 2m³ storage containers that can be quickly accessed, isolated and extinguished by staff using fire hoses and fire extinguishers, or by the Fire Service. The cooling equipment has its own dedicated fire prevention system (Section 8.5.1).
- 14.1.3. The locations of fire extinguishers and 30m fire hoses and fire cart is presented in Plan (6). This is a comprehensive system of fire extinguishers and hoses that covers the main fire risks within the building. The type and volume of fire extinguisher has been advised by the fire safety consultant. The fire extinguishers are checked, serviced and maintained on a routine basis by a fire specialist company.
- 14.1.4. The site is manned 24 hours a day. The building has a bespoke fire detection system that informs the Operator which zone the fire is in, this enables a swift and precise response to the incident.
- 14.1.5. There is a fire hydrant on Nest Road directly outside the gate that will be used if required during a fire event (Section 16).
- 14.1.6. There are three fire stations within 4.4 miles of the site. The nearest fire station is 0.4 miles away (travel time of under 2 minutes). This will enable a swift response to a fire incident.

15. FIRE FIGHTING TECHNIQUES

- 15.1.1. All site staff will be trained to understand the principle that no one should put themselves at risk to fight a fire.
- 15.1.2. Upon the detection of a fire, if it is safe to do so, site staff should attempt to extinguish the fire with the portable extinguisher or fire hose provided. If this is not possible or unsuccessful the fire service should be called immediately. This should be followed up with a call to the environment agency's incident reporting service on 0800 80 70 60.
- 15.1.3. The site provides the following resources:
- Mobile plan to move waste around the site;
 - Trained and competent site staff;
 - Available water supply (fire extinguishers and fire hose), fire cart; and
 - Finances.
- 15.1.4. During a fire event the following techniques will be used to fight a fire:
- Applying water via the fire cart /extinguishers / hose pipe to unburnt material and other hazards;
 - Separating unburnt material from the fire using the forklift truck or 360 grab if safe to do so; and

- Separating burning material from the fire to quench it with fire hoses or fire extinguishers.

16. WATER SUPPLIES

- 16.1.1. The EA guidance states that a supply of at least 2,000 litres a minute for a minimum of 3 hours for a 300m³ pile of combustible material. The EA guidance states that the worst case scenario would be the largest waste pile catching fire. The maximum stockpile on site has dimensions of 10m x 7m x 2.5 m which gives the resultant volume of 175m³, therefore, the water required to extinguish a fire would be 1,400 litres for a minimum of 3 hours - see Section 17.1.3 for further information.
- 16.1.2. The fire extinguishers are checked, serviced and maintained on a routine basis by a fire specialist company. The fire hoses are fed by mains water and have a 30m hose. The fire cart is tested monthly and consists of two IBC's filled with water containing a fire inhibitor and powered by its own pump and hoses to give a high powered stream of water.
- 16.1.3. There is a fire hydrant on Nest Road directly outside the gate that will be used if required during a fire event (Plan (4)).
- 16.1.4. The site is well serviced by mains water that is available for firefighting activities. The fire hydrant on Nest Road has a 150mm diameter pipe (as indicated on the fire hydrant sign). This hydrant forms part of the hydrant supply to the Felling Industrial Estate to ensure that the required water supply is made available to the Industrial Estate if required. The Tyne and Wear Fire and Rescue Service have confirmed over the telephone in 2017 that they conduct routine checks of the water supply system, including water pressures. They are not able to provide more information as fire hydrants are now covered by the National Security Umbrella because of recent terrorist activities.
- 16.1.5. The document 'Shropshire Fire and Rescue Service – Fire Safety Guidance for Commercial and Domestic Planning Applications', outlines the recommended water pressure for Industrial Estates based on national guidance:
- Industrial estate - It is recommended that the water supply infrastructure should provide as follows with the mains network on site normally being at least 150mm nominal diameter:
 - Up to one hectare minimum of 20 l/sec (1200 l/min)
 - One to two hectares minimum of 35 l/sec (2100 l/min)
 - Two to three hectares minimum of 75 l/sec (4500 l/min)
- 16.1.6. As the hydrant outside the site has the 150mm nominal diameter, there is no reason to suggest that the required pressure would not be present and that the hydrant could not deliver the minimum of 2000 litres of water per minute to deal with a worst-case scenario fire at the site. The site is one of the medium sized business units on the Industrial Estate and the fire hydrants have been installed to deal with a range of scenarios on the Industrial Estate – which would include fires within the larger business units. Tyne & Wear Fire and Rescue have verbally confirmed that the hydrant is more than capable of providing 2000 litres of water per minute at 1.8bar.
- 16.1.7. There are three fire stations within 4.4 miles of the site. The nearest fire station is 0.4 miles away (travel time of under 2 minutes). This will enable a swift response to a fire incident.

17. MANAGING FIRE WATER

- 17.1.1. All operations are undertaken within the site building or on an external processing area with a bunded impermeable surface. There are no drains within these areas (penstock valves etc. are not required). During a fire event sandbags will be placed along the main entrance to form a temporary bund to reduce the risk of fire water leaving the site. All surface water drains outside the site on Nest Road will be covered with clay mats to reduce the risks of fire water entering the local surface water system.

17.1.2. The northern edge of the processing area is bunded using concrete blocks sealed with cement, this will minimise the risk of fire water accessing the unmade ground surrounding the processing area. The total area of this space is outside area (dimensions) 25m x 50m = 1250m² of bunded area. With raised platform near the building being the lowest fixed point and when needed, sand bags deployed in the Eastern edge of this pad to a height of 25cm the overall volume of water this bund could hold is calculated as follows:

Surface area	x	Height of lowest point	=	Volume
1250m ²	x	0.25m	=	312.5m ³ .

17.1.3. The EA guidance states that a supply of at least 2,000 litres a minute for a minimum of 3 hours for a 300m³ pile of combustible material this equates to 360m³ of waster. If the site can hold a volume of 312.5m³ (see 17.1.2.) of water, then the maximum pile size is 260m³. The maximum pile size on site is 168m³ and it therefore can be surmised that the site can hold the required volume of water.

17.1.4. Northumberland Water states that the fire hydrants adjacent to the site have a sufficient supply of water.

17.1.5. In the event of a fire a spill kit boom will be placed in front of the southern doors of the depollution building and the bunded pad checked for any potential breaches so that any additional booms or sand bags may be deployed if required to ensure that all retained water stays within the bunded area.

17.1.6. Contained water will be removed by an appropriate gully tanker company. The fire water will be tested for POPs and contaminants and will be taken to an authorised facility with the requisite paperwork.

18. DURING AND AFTER AN EVENT

18.1.1. The Operator would cease operations until the Fire Service advised that the site could be reopened. The Operator will arrange for contracted wastes to be taken to an environmental permitted site.

18.1.2. The Operator will inform those who may be affected by fire, such as nearby residents and businesses, via word of mouth. During fire event training sessions, specific site staff will be given specific areas to visit during a fire event – the site staff will be asked to inform those affected that there is a fire event on site, and will give useful information such as to close windows and doors if possible and to avoid the area until the fire is under control. The site staff will also pass on any specific instructions from the fire brigade.

18.1.3. The Operator will ensure that if the waste has become hazardous in nature as a result of the fire, the waste will be tested and fully assessed prior to removal from site, and that consignment notes will be issued and that the receiving permitted site is fully aware of the potential hazards associated with the wastes.

18.1.4. The Operator will ensure that all fire-damaged wastes, hazardous and non-hazardous, will be removed from site to an authorised facility with the requisite paperwork. The EWC codes for the resultant fire damaged wastes are likely to be 19 12 11 or 19 12 12.

APPENDIX 1

This plan will be activated without delay when
<ul style="list-style-type: none"> • a fire is confirmed on site • an uncontrolled event occurs which could reasonably be expected to lead to a fire on site • a major accident is an occurrence (including a major emission, or explosion) resulting from uncontrolled developments while the operations, and leading to serious danger to human health or the environment, immediate or delayed, inside or outside the establishment
The following people will be responsible for activating the plan
<p>Site Manager / Authorised Person</p>
How the plan will be activated
<p>A member of GAP Waste Management's staff will make a 999 telephone call to each of the relevant emergency services. Noting that the order in which each service is called will be dependent on the nature of the incident.</p>
<ul style="list-style-type: none"> • EMERGENCY SERVICES 999 • ENVIRONMENT AGENCY 0800 80 70 60 • NORTHUMBRIAN WATER 0345 717 1100
<p>When making each '999' call staff should provide the following information:</p> <ul style="list-style-type: none"> • GAP Waste Management, Nest Road, Gateshead, NE10 0ES • The National Grid Reference for the site: NZ 27926 62774 <ul style="list-style-type: none"> • Details of the Incident • If any staff are known to be reported missing • Where the arriving first responders will be met (in a safe location, away from any smoke plume with all relevant information on the details of the incident and a copy of this plan)

APPENDIX 2

PUR FOAM RESEARCH

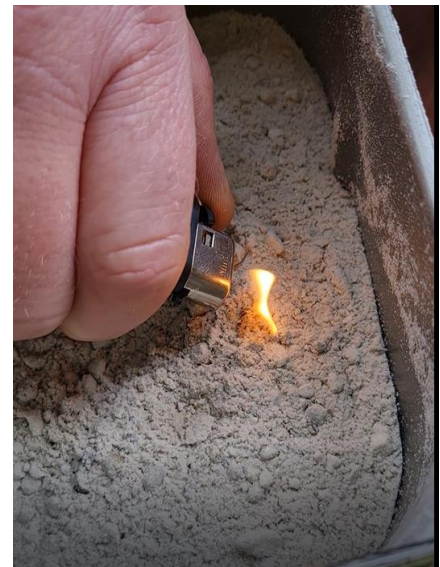
- The PUR Foam in its degassing phase undergoes thermal treatment and is heated to over 100°C to liberate the gasses from the foam cell structure.
- We have carried out some desk top research and watched numerous online fire tests before finding the Mobius PU Foam Powder data sheet which is of a similar nature, confirming a flash point of 315°C. and auto ignition at 370° C to 430°C of their finer PUR Foam dust.
- In order to ratify the desktop research, we carried out two controlled tests on a small metal container with our PUR foam inside. As shown in the below photos



Blow Torch – Direct heat



Blow Torch Residue



Direct Flame

Residue taken from side where direct heat was applied.

- As evidenced in our tests and research the PUR foam under intense direct in excess of 300°C heat smoulders and smokes.

MATERIAL SAFETY DATA SHEET

MICRO POLYURETHANE powder

This product is not regulated under the OSHA Hazard Communication Standard (29 CFR 1910.1200) because, when used as recommended or under ordinary conditions, it should not present a health and safety hazard. However, use or processing of the product not in accordance with the product's recommendations or not under ordinary conditions may affect the performance of the product and may present potential health and safety hazards.

SECTION 1:

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Mobius Technologies, Inc.
125 Estrella Court, Lincoln, CA 95648

MEDICAL EMERGENCY PHONE Number: 916-543-6484 or 530 798 0388

Product Name: **MPU powder - MICRONIZED POLYURETHANE powder**

MPU Grades: **MPU 300-2/XXX, MPU 300-2/XXX-DX**

Other Names: MOBIUS POWDERED URETHANE, PU FOAM POWDER, POLYURETHANE POWDER, POLYURETHANE FLEXIBLE-FOAM POWDER

2. COMPOSITION/INFORMATION ON INGREDIENTS

Polyurethane foam powder, < 250 µm particles, CAS# 9009-54-5	100%
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3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Yellow, green, white, or gray powder. No significant immediate hazards for emergency response are known.

Accidental burning (smolder) of the product will emit toxic and combustible gases.

As for purposeful burning (incineration), urethane foam wastes are appreciated as a valuable fuel in industrial incinerators as they have excellent calorific value, and can be incinerated safely.

POTENTIAL HEALTH EFFECTS

EYE: Dust may cause slight, temporary eye irritation.

SKIN: May cause mild skin irritation. No significant absorption through the skin.

INGESTION: Oral toxicity is considered to be very low. Small amounts swallowed incidental to normal handling are not likely to cause injury.

INHALATION: Nonvolatile. Precautions should be taken to avoid breathing dust. Dust may cause respiratory irritation in sensitive individuals.

SYSTEMIC (OTHER TARGET ORGAN) EFFECTS: No specific data available, however, repeated exposures are not anticipated to cause significant adverse effects.

MATERIAL SAFETY DATA SHEET

MICRO POLYURETHANE powder

4. FIRST-AID MEASURES

Eye Contact

Flush eyes with plenty of water.

Skin Contact

Wash off in flowing water or shower.

Ingestion

If swallowed, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.

5. FIRE-FIGHTING MEASURES

Extinguishing Media

Water, water fog, carbon dioxide, dry chemical, and foam.

Fire-Fighting Instructions

Keep people away. Isolate fire area and deny unnecessary entry. Burning powder can create combustible gases and the possibility of flashbacks.

Protective Equipment for Fire-Fighters

Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire-fighting clothing (includes fire-fighting helmet, coat, pants, boots, and gloves).

Flammable Properties

FLASH POINT: 315° C

AUTOIGNITION TEMPERATURE: 370° C to 430° C according to ASTM D 1929

Flammability Limits

LFL: not determined.

UFL: not determined.

Hazardous Combustion Products

Polymers will decompose in fire above 370°C. Smoke emission will start at 220°C. The smoke may contain polymer fragments of varying compositions in addition to unidentified toxic and/or irritating compounds. Hazardous combustion products may include and are not limited to: carbon dioxide, carbon monoxide, and nitrogen oxides.

Other Flammability Information

Dispersions of finely divided combustible material in air can create dust explosion hazards.

MATERIAL SAFETY DATA SHEET

MICRO POLYURETHANE powder

6. ACCIDENTAL RELEASE MEASURES

Protect People

May be a slipping hazard. Clean up promptly and keep people from walking through areas with spilled powder.

Protect the Environment

Contain the material and reduce airborne dust with water.

Clean Up

Thoroughly broom floor areas to minimize dust, or/and clean up them with water if possible

7. HANDLING AND STORAGE

Handling

The material is light, and care should be taken to avoid creating airborne dust.

Storage

Keep containers tightly closed when not in use. Large quantities should be stored in well-sprinklered areas away from heat or open flame. Notify local fire companies of presence of large quantities of this material.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls

Good general ventilation should be sufficient for most conditions. Local exhaust ventilation may be necessary for some operations.

Personal Protective Equipment

Eye/Face Protection

Use safety glasses.

Skin Protection

No precautions other than clean body-covering clothing should be needed.

Respiratory Protection

For most conditions, a NIOSH-approved dust mask should be sufficient; However, if discomfort is experienced, use an approved air-purifying dust/mist respirator.

Exposure Guidelines

None established.

MATERIAL SAFETY DATA SHEET

MICRO POLYURETHANE powder

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: powder
Color	: yellow, green/white, or gray
Odor	: slight
Vapor Pressure	: very low
Evaporation Rate	: none (butyl acetate=1)
Vapor Density	: not applicable
Melting Point	: Decomposes above 170°C
Solubility in Water	: not soluble.
Specific Gravity	: about 1.2
Particle Size	: 95% less than 200 microns, with a significant fraction less than 100 microns

10. STABILITY AND REACTIVITY

Chemical Stability

Stable under recommended storage conditions.

Conditions to Avoid

Product can decompose at elevated temperatures.

Incompatibility with Other Materials

Avoid contact with oxidizing materials. Avoid contact with acids. Avoid contact with flammable liquids as high surface area may increase their flammability.

Hazardous emissions when burning (smolder) at temperature below 400°C

May include and are not limited to: carbon dioxide, carbon monoxide, nitrogen oxides, isocyanates, aldehydes, ketones, organic acids, amines, and polymer fragments.

Hazardous emissions when burning (incineration) at temperature above 400°C

Decomposition products such as carbon monoxide, carbon dioxide, gaseous hydrocarbons and nitrogen containing products can be generated in various concentrations depending on the combustion conditions

Hazardous Polymerization

Will not occur.

11. TOXICOLOGICAL INFORMATION

Skin Contact

Not determined. Skin absorption is very unlikely.

Ingestion

Not determined. Oral toxicity is anticipated to be very low due to physical properties.

12. ECOLOGICAL INFORMATION

Movement and Partitioning

No bioconcentration is expected because of high molecular weight and crosslinking.

MATERIAL SAFETY DATA SHEET

MICRO POLYURETHANE powder

13. DISPOSAL CONSIDERATIONS

DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. All disposal methods must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. MOBIUS TECHNOLOGIES, INC. HAS NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN MSDS SECTION 2 (Composition/Information on Ingredients).

FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: recycler, reclaimer, incinerator or other thermal destruction device.

14. TRANSPORT INFORMATION

DEPARTMENT OF TRANSPORTATION (D.O.T.): This product is regulated by D.O.T. under classification 65 when shipped domestically by land.

For international transportations, PU foam powder is not classified for conveyance or supply under the Carriage of Dangerous Goods (classification, packaging and labeling) and Use of Transportable Pressure receptacles regulations 1996.

15. REGULATORY INFORMATION

EC classification: According to EC regulations this product is not classified or labeled.

Chemical Inventory: The ingredients of this product are on the EINECS inventory.

This product is not regulated under, and a MSDS is not required for this product by the OSHA Hazard Communication Standard (29 CFR 1910.1200) because, when used as recommended or under ordinary conditions, it should not present a health and safety hazard

16. OTHER INFORMATION

Disposal considerations: Under EU environmental Regulations and Directives; there are no special requirements for the disposal of PU foam powder.

Post consumer Waste: PU foam powder can be recycled in the production of virgin flexible PU foam.

The information herein is given in good faith, but no warranty, express or implied, is made. Consult Mobius Technologies, Inc. for further information.